HB

367

ALASKA STATE LEGISLATURE

Chair:
Special Committee on Economic Development, Trade, & Tourism

Vice Chair
Committee on Labor and Commerce

Vice Chair:
Committee on Transportation

Member:
Committee on Community and Regional Affairs
Special Committee on Oil and Gas

Session:
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REPRESENTATIVE MARK NEUMAN

Representative_Mark_Neuman@legis.state.ak.us

MEMORANDUM

TO: Representative Carl Gatto and Representative Craig Johnson

FROM: Representative Mark Neuman

DATE: February 21, 2008

SUBJECT: Hearing Request for HB 367

Attached is a committee package for House Bill 367, "An Act relating to the sale of raw milk and raw milk products." The package includes the current version of the bill and backup materials.

I would appreciate the scheduling of this legislation before the House Recourse Committee. Please feel free to contact me, or my aide Rex Shattuck, with any questions.

Attached you will find a background packet for HB 367.

HOUSE COMMITTEE REPORT

(9)
Date Referred to Committee: February 13, 2008 **FURTHER REFERRALS: Finance**

Date of Committee Action: 3/14/08

The RESOURCES Committee considered: **HB 367**

HOUSE BILL NO. 367 **SALE OF RAW MILK PRODUCTS**

"An Act relating to the sale of raw milk and raw milk products."

Recommends it be replaced with [ ] **HCS** *or* [X] **CS** *for* HB 367 (RES)
For Senate Bills with new title: [ ] *Technical Title* [ ] *New Title: HCR*_____ [ ] Same Title [X] New Title

[ ] attach amendments
[ ] add new referral to _____ Committee
[ ] Letter of Intent _____ Committee

List of Abbrev for Depts.:
ADM
CED
COR
CRT
EED
DEC
DFG
GOV
HSS
LWF
LAW
LEG
MVA
DNR
DPS
REV
DOT
UA

NEW **FISCAL NOTES**
*Assigned by Chief Clerk's Office

List by Dept(s):	*FN#	Fiscal	Indet.	Zero
DEC		X		
HSS			X	

PREVIOUS **FISCAL NOTES**

List by Dept(s):	FN#	Fiscal	Indet.	Zero

Signing with recommendations	Printed Last Name	DP	DNP	NR	AM
Bye Edgmon	EDGMON			X	
Anna L Fairclough	FAIRCLOUGH			X	
Peggy Wilson	WILSON			X	
Bob Ross	ROSS			X	
Chair: Gatto	Gatto			X	
Chair: Craig Johnson	Johnson			Y	

Debra Higgins

From: Rick VanderKolk
Sent: Friday, March 14, 2008 8:52 AM
To: Debra Higgins
Subject: FW: New fiscal notes...

Debbie, FYI.

From: Rowland, Mindy B (GOV) [mailto:mindy.rowland@alaska.gov]
Sent: Thursday, March 13, 2008 5:40 PM
To: Rick VanderKolk
Subject: RE: New fiscal notes...

Hi Rick,

The draft CS will not change either the DEC or the DHSS fiscal notes.

Let me know if you have any questions.

Thank you

Mindy

Mindy Rowland
Deputy Legislative Director
Office of Governor Sarah Palin
465-4021

From: Rick VanderKolk [mailto:Rick_VanderKolk@legis.state.ak.us]
Sent: Thursday, March 13, 2008 2:10 PM
To: Rowland, Mindy B (GOV)
Subject: New fiscal notes...

Mindy,
A new draft of HB 367 is attached that incorporates amendments adopted by the committee last Monday.
Could we get a preliminary fiscal note reflecting changes to Page 2, line 29, which deletes
"or to a restaurant, grocery store, or similar establishment"?

Thank you,
Rick

Rick VanderKolk
Staff, Rep. Carl Gatto

Alaska State Legislature
Capitol Building, Rm. 108
Juneau, AK 99801

Ph: 907.465.3743/5025
Fax: 907.465.2381
Email: RickJvk@gmail.com

FISCAL NOTE

STATE OF ALASKA
2008 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: **HB 367**
() Publish Date:

Identifier (file name): **HB367-DEC-LS-2-25-08**
Title: Sale of Raw Milk and Raw Milk Products
Sponsor: Representative Neuman
Requester: (H) Resources

Dept. Affected: Environmental Conservation
RDU: Environmental Health
Component: Laboratory Services
Component Number: 2065

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information					
OPERATING EXPENDITURES	**FY 2009**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**
Personal Services	202.3	0.0	202.3	202.3	202.3	202.3	202.3
Travel	11.0	0.0	11.0	11.0	11.0	11.0	11.0
Contractual	32.3	0.0	27.3	27.3	27.3	27.3	27.3
Supplies	24.7	0.0	4.0	4.0	4.0	4.0	4.0
Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Land & Structures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grants & Claims	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OPERATING	**270.3**	**0.0**	**244.6**	**244.6**	**244.6**	**244.6**	**244.6**
CAPITAL EXPENDITURES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CHANGE IN REVENUES ( )	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1003 GF Match	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1004 GF	270.3	0.0	244.6	244.6	244.6	244.6	244.6
1005 GF/Program Receipts	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1037 GF/Mental Health	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Litter Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	**270.3**	**0.0**	**244.6**	**244.6**	**244.6**	**244.6**	**244.6**

Estimate of any current year (FY2008) cost: 0.0

POSITIONS

Full-time	3.0	0.0	3.0	3.0	3.0	3.0	3.0
Part-time	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Temporary	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANALYSIS: *(Attach a separate page if necessary)*

This legislation allows, with the proper labeling, the sale of raw milk and products made from raw milk. Currently under state and federal regulations milk must be pasteurized before it can be sold or used in milk products. DEC under AS 17.20.005 would regulate raw milk similarly to what is currently being done for other milk products.

With no final "kill step" (such as pasteurization) to eliminate pathogens, raw milk presents a greater risk than pasteurized product. For the DEC to certify raw milk dairies, the raw milk dairies should have at least the same testing requirements and standards as the dairies that produce milk for pasteurization.

(Continued on page 2)

Prepared by: Kristin Ryan, Director — Phone 907-269-7644
Division: Environmental Health — Date/Time 2/25/08 1:50 PM
Approved by: Dan Easton — Date 2/25/2008
Department of Environmental Conservation

FISCAL NOTE

STATE OF ALASKA **BILL NO.** HB 367
2008 LEGISLATIVE SESSION

ANALYSIS CONTINUATION

(Continued from page 1)

Such dairies must have their raw milk tested before it is pasteurized. The raw milk final product should also be tested in similar fashion to "ready to eat" foods such as cheese.

For monitoring purposes, DEC would require ten tests to be performed each month per dairy or distributor at the DEC Laboratory. These tests include general bacterial counts, specific microbiology tests for pathogens, and antibiotic screening. To fully protect the consuming public, the dairies themselves would also need to conduct more frequent testing at their facility prior to sale and distribution. The dairy laboratories would need to be approved and monitored by DEC under the existing laboratory certification process currently in place for creameries. And finally, the sale and distribution of raw milk products will increase the demand on DEC retail food and restaurant inspections to verify proper labeling and that the products are from an approved source.

This fiscal note assumes certification, inspection, testing, and monitoring of seven dairies, all on the road system in the Mat-Su Valley and will add three new positions to perform these tasks. One Microbiologist would be hired to perform the laboratory certification activity, which would include ongoing training of dairy laboratory staff. This position would also conduct the associated testing performed at the DEC laboratory. Two Environmental Health Officers would be hired to perform dairy inspections, collect and process dairy samples, and to conduct the retail food and restaurant inspections and surveillance.

First year costs include expenditures to promulgate new regulations and equipment costs for the new positions that are not reflected in subsequent years. Thereafter, costs include position support costs, laboratory testing supplies, training supplies, and general office supplies; travel for inspection, surveillance, and monitoring of dairies, dairy laboratory operations, and retail food establishments.

FISCAL NOTE

STATE OF ALASKA
2008 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: HB 367
() Publish Date:

ID(File name) HB367-DHSS-EPI-02-27-08
Dept. Affected: Health & Social Services
Title SALE OF RAW MILK PRODUCTS
RDU Public Health
Component Epidemiology

Sponsor NEUMAN
Requester HOUSE (RES)
Component No. 296

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information					
OPERATING EXPENDITURES	**FY 2009**	**FY 2009**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**
Personal Services	•		•	•	•	•	•
Travel							
Contractual							
Supplies							
Equipment							
Land & Structures							
Grants & Claims							
Miscellaneous							
TOTAL OPERATING	•	**0.0**	•	•	•	•	•
CAPITAL EXPENDITURES							
CHANGE IN REVENUES (0)							

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	•		•	•	•	•	•
1003 GF Match							
1004 GF							
1037 GF/Mental Health							
Other(Specify Type-do not abbreviate)							
Other(Specify Type-do not abbreviate)							
TOTAL	•	**0.0**	**0.0**	•	•	•	•

Estimate of any current year (FY2008) cost:

POSITIONS

Full-time							
Part-time							
Temporary							

ANALYSIS: *(Attach a separate page if necessary)*

This legislation allows, with the proper labeling, the sale of raw milk and products made from raw milk. Without pasteurization to eliminate pathogens, raw milk presents a greater risk than a pasteurized product. While no specific estimates are possible, it is highly likely that bacterial outbreaks will occur, prompting investigation and follow-up from the Section of Epidemiology.

This fiscal note is indeterminate. However, a typical investigation into a bacterial foodborne outbreak, involving 10 affected people, would involve significant staff time and resources. An example spreadsheet is attached.

Prepared by: Jay C. Butler, MD
Phone 269-8045
Division Chief Medical Officer
Date/Time 02/27/2008
Approved by: Karleen Jackson, Commissioner
Date 02/27/2008
Agency Department of Health and Social Services

FISCAL NOTE

STATE OF ALASKA
2008 LEGISLATIVE SESSION

BILL NO: HB 367

ANALYSIS CONTINUATION

Item	Time	Cost
Epidemiologist to coordinate outbreak • Full time for a week • 3 hours/day in the following week	52.5 hours	Section of Epi Note: Estimated hourly cost (salary/benefits only) is $85.00/hr for an Epidemiologist.
Epidemiologist to assist with outbreak • Full time for a week • 3 hours/day in the following week	52.5 hours	Section of Epi
PH Nurse to assist with investigation • Full time for a week • 2 hours/day in the following week	47.5 hours	Section of Nursing Note: Estimated hourly cost (salary/benefits only) is $58.00/hr for a PH Nurse II.
Medical epidemiologist supervisor to consult • 2 hours/day for a week • 2 hours/week for the following week	12 hours	Section of Epi
State epidemiologist to provide oversight and review of reports • 1 hour/day for a week • 1 hour/week in the following week	6 hours	Section of Epi
Travel to the field for 5 days • Per diem 3 persons x 5 days • Lodging 3 persons x 5 nights • Airfare 2 persons RT		Epi and Nursing
DEC food safety staff person to assist with investigation • 2 full days	16 hours	DEC
ASPHL to perform lab testing • Confirm isolate • Serotyping • PFGE	Up to 18 hours for each isolate	Section of Labs
PIO time to respond to issues • 2 hours/day for a week	10 hours	Commissioner's Office

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REPRESENTATIVE MARK NEUMAN
Representative_Mark_Neuman@legis.state.ak.us

Sponsor Statement for House Bill 367

"Sale of Raw Milk and Raw Milk Products in Alaska"

As you may be aware, the dairy farmers in Alaska no longer have a market for their milk. All of our milk now comes from Washington, Oregon or California in refrigerated trailers on a barge, shortly before the end of its shelf life.

Raw milk is available to consumers though cow-share and herd-share programs in Alaska, but these are cumbersome to administer and of limited value to our farmers. The proposed bill would expand the market for Alaska dairy farmers, help them stay in business, strengthen the rural economy and provide a safe and nutritious product for Alaska citizens.

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REPRESENTATIVE MARK NEUMAN
Representative_Mark_Neuman@legis.state.ak.us

"HB 367"

Summary on the Sale of Raw Milk and Raw Milk Products

According to the FDA and other government officials, raw milk is a public health hazard that puts consumers at risk. You have received documents citing dire health risks from the consumption of raw milk and the FDA has a long powerpoint presentation on its website which argues that raw milk should not be consumed. The enclosed document is a point by point rebuttal of the FDA powerpoint. To summarize:

1. The FDA presents 15 studies purporting to show that raw milk has caused illness and that pasteurization could have protected the public from the illness. Ca :ful analysis reveals that every one of these reports is seriously flawed. In 14 of the studies, there was either no valid positive milk sample or no valid statistical association; in 7 of the studies the findings were misrepresented by the FDA; in 5 of the studies alternative explanations were discovered but not pursued; in 2 of the studies, there was no evidence that anyone consumed raw milk products; and in one study the outbreak did not even exist.

2. All of the outbreaks of listeria attributed to raw milk involved soft cheeses. It is actually impossible to determine whether a cheese is raw using current tests so these cheeses were not necessarily raw as FDA claims. Cases of listeria in raw milk are virtually nil.

3. Not one of the studies presented showed that pasteurization would have prevented the outbreak. The FDA does not present evidence showing that dangerous organisms can survive pasteurization nor that there have been many outbreaks of illness from pasteurized milk.

4. The vast majority of reports on illness caused by raw milk are seriously flawed. But even using these flawed FDA counts of illness, raw milk accounts for only 0.4% of cases of foodborne illness between 1998 and 2005. This is an extremely low number considering that about 5% of all servings of milk consumed are raw milk.

5. Adjusting for bias, pasteurized milk is from 1.1 to 15.3 times more dangerous as raw milk on a per serving basis

6. According to FDA documents (based on exaggerated data on illness from raw milk), deli meats and uncooked hotdogs are 10 times more likely to cause foodborne illness than raw milk. Yet deli meats and hotdogs are freely sold in the state of Alaska.

7. FDA insists that there are no health benefits from raw milk compared to pasteurized, yet the very studies they cite clearly show that raw milk is superior. Enzymatic components in raw milk ensure assimilation of nutrients, kill pathogens and strengthen the immune system. These components are largely inactivated by pasteurization.

8. Pasteurized milk is now one of the eight top allergens; a survey carried out in Michigan indicates that 90% of individuals diagnosed as lactose-intolerant or allergic to milk can drink raw milk without problem.

9. The recent PARSIFAL study in Europe found that the most important factor in protecting children against asthma and allergies was raw milk consumption; the younger the children were when introduced to raw milk, the more protection it conferred. Asthma kills more than 5,000 people in the US yearly; raw milk has killed no one.

10. According to FDA data, out of a total of 437 million servings of raw milk in the US per year, 137 people got some sort of illness. On a per serving basis, that is 3.18 x 10-7. Put another way, you would have to drink 3.18 million glasses of raw milk before you might expect to get an illness of any kind due to that milk. By contrast, 16.5 percent of all broiler chickens tested by the FDA in 2006 contained salmonella bacteria. The rate of human salmonellosis in the US was 14.7 cases per 100,000 people in 2004. This is 4200 cases per year. Yet the citizens of Alaska are free to purchase poultry, but not raw milk.

HB 367 – Sale of Raw Milk Products

HB 367 allows the sale of raw milk. The Alaska Departments of Environmental Conservation (DEC), Natural Resources (DNR), and Health and Social Services (DHSS) do not support HB 367 and believe mandatory pasteurization for all commercially sold milk and milk products is necessary to protect human health.

Consumption of raw milk poses serious health risks

- Human pathogens commonly found in raw milk include *Campylobacter jejuni*, *E. coli*, *Listeria monocytogenes*, *Salmonella* species, and *Yersinia* species. Introduction of these pathogens into raw milk cannot be eliminated by standard disinfection and sanitation procedures or good animal handling practices alone.
- Numerous federal agencies, including the American Medical Association, the American Public Health Association, the Federal Food and Drug Administration (FDA), and the U.S. Centers for Disease Control and Prevention (CDC) support prohibiting the sale or distribution of raw milk because of the danger it poses to human health.
- CDC has traced more than 1000 illnesses, 104 hospitalizations, and 2 deaths to consumption of raw milk or cheese produced from raw milk from 1998–2005. A list of some of the most recent outbreaks is attached.
- Frequent consumers of milk - children, the elderly, and people with weakened immune systems are at the greatest risk for illness and death from bacteria found in raw milk.

Existing State regulations (18 AAC 32) prohibit the sale of raw milk

- The State of Alaska dairy and public health experts agree that raw milk should not be sold commercially. This prohibition was codified over 10 years ago.

Pasteurization has not been shown to substantially alter the nutritional value

- The pasteurization process uses heat to destroy harmful bacteria without significantly changing milk's nutritional value. In addition to killing disease-causing bacteria, pasteurization destroys bacteria that cause spoilage, extending the shelf life of milk.
- Pasteurization does not result in an appreciable loss of protein
- Pasteurization does not result in an appreciable loss of fat-soluble vitamins (A, D, E andK)
- Pasteurization results in a loss of B-complex vitamins on the order of 0-10%
- Pasteurization results in a loss of vitamin C on the order of 0-10%
- According to FDA, raw milk does not contain compounds that will kill harmful bacteria, making the product safe.
- Pasteurized milk does not cause lactose intolerance or allergic reactions any more than raw milk.

Outbreaks happen in states with regulatory programs that allow sale of raw milk

- Between 1973 and 1992, raw milk was associated with 46 outbreaks; 87% of these outbreaks occurred in states where commercial distribution of raw milk was legal.
- In 2001, Wisconsin banned cow-leasing programs after 75 people became infected with *Campylobacter jejuni* bacteria from drinking unpasteurized milk obtained through such a program.

Selected recent outbreaks of human illness associated with raw milk consumption

- **July 2007**—Public health officials in Pennsylvania stopped Stump Acres Dairy raw milk sales due to an outbreak of *Salmonella* infection. The first outbreak occurred earlier in 2007; however, raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of *Salmonella* infection was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer the raw milk product could not be kept safe for public consumption.
- **December 2005**—Public health officials in Clark County, Washington were notified of four county residents with laboratory confirmed *Escherichia coli* O157:H7 infection. All four residents reported having consumed raw milk obtained from a Cowlitz county farm.
- **July 2004**—The Indiana Public Health Department advised consumers to check their refrigerators and freezers for raw milk cheese that may be contaminated with *Salmonella*. Routine product sampling found *Salmonella* in "Natural Raw Milk Cheese" made by Meadow Valley Farm after the cheese was distributed to farmers' markets and specialty food stores in parts of Indiana and Wisconsin.
- **2002–2003**—Two children were hospitalized in Ohio for infection with *Salmonella* Typhimurium. These children and 60 other people in Illinois, Indiana, Ohio, and Tennessee developed bloody diarrhea, cramps, fever, chills, and vomiting from *S.* Typhimurium that was tracked to consuming raw milk.
- **2000–2001**—In North Carolina, 12 adults were infected with *Listeria monocytogenes* linked to homemade, Mexican-style fresh soft cheese produced from contaminated raw milk sold by a local dairy farm. Ten of the 12 victims were pregnant women, and infection with the bacterium resulted in five stillbirths, three premature deliveries, and two infected newborns.

Current Regulation of Raw Milk – Alaska

Code of Federal Regulations - 21 CFR 1240.61 "No person shall cause to be delivered into interstate commerce or shall sell, otherwise distribute, or hold for sale or other distribution after shipment in interstate commerce any milk or milk product in final package form for direct human consumption unless the product has been pasteurized or is made from dairy ingredients (milk or milk products) that have all been pasteurized....."

"The final rule does not apply to the interstate transportation of raw (unpasteurized) milk to dairy processing plants for pasteurization or to raw milk products in intrastate commerce". 52 Fed. Reg. 29509 (1987) at 29509

[DEC interpretation – raw milk cannot be sold across State lines but States have the choice of adopting legislation allowing it to be sold intrastate

State Statute: 17.20.005 "...The commissioner may issue orders, regulations, permits, quarantines, and embargoes relating to (4) .... Grading of milk and milk products and standards of sanitation for dairies offering to the public or selling milk or milk products to at least the minimum of current recommendations of the United States Public Health Service pasteurized milk ordinance as it may be periodically be revised."

[DEC interpretation – At a minimum, DEC is to comply with the U.S. Pasteurized milk ordinance (PMO) and apply it to all milk products sold or offered in the State. Raw milk would not meet the PMO standards and thus this subsection effectively prohibits the sale of raw milk in Alaska.]

State Regulations 18 AAC 32:
The State of Alaska has adopted the federal regulations outright so the exact same rules apply as directed by the Statute. You can access the current pasteurized milk ordinance at http://www.cfsan.fda.gov/~ear/pmo03toc.html

18 AAC 32.060
...A milk producer may not allow raw milk or a raw milk product, including cream from raw milk, to be removed from the dairy farm unless

(1) the product is being transported directly to a milk processing plant with a permit issued under 18 AAC 32.030 or by another state; or
(2) the product has been decharacterized with an approved denaturant and labeled "FOR ANIMAL FOOD NOT FOR HUMAN CONSUMPTION" in letters at least three inches high on each container; for the purposes of this paragraph, "approved denaturant" means
    a. finely powdered charcoal;
    b. FD & C Blue No. 1, FD & C Blue No. 2, Ultramarine Blue; or
    c. FD & C Green No.3, FD & C Red No. 3, or FD & C Red No. 40

[DEC prohibits the removal of raw milk from a dairy farm unless the raw milk is being transported for processing or the milk is intended for animal food and has been denatured through the addition of food coloring.]

DHSS Raw Milk Talking Points

DHSS Position

- The Alaska Department of Health and Social Services takes the firm position that the health risks associated with legalizing the sale of raw milk substantially outweigh the benefits because
  - unpasteurized milk is far more likely to contain human pathogens than pasteurized milk and thereby increases the risk of serious, sometimes fatal, infectious illness among milk consumers, and
  - those who are at increased risk for serious health outcomes include the developing fetus, young children, and the elderly who may be incapable of making an informed decision, and
  - the potential health benefits of raw milk consumption are largely unsubstantiated by empirical scientific evidence.

Statistics

- Many human pathogens are commonly found in raw milk, including *E. coli O157:H7* and *Salmonella*
  - *Also Listeria monocytogenes, Campylobacter jejuni, Mycobacterium* and *Yersinia* species
- These pathogens may be shed directly from the animal (cow, goat, etc) or contaminate the product during the collection and handling process.
- Multiple studies have illustrated a dramatic increase in the incidence of multi-drug resistant bacteria present on farms (livestock operation, dairy farms, vegetable and fruit farms), which results in increased health risks among infected persons.
- In 1995, raw milk accounted for approximately 1% of all milk sales in states that permit the sale of raw milk (Headrick)
- Raw milk contamination
  - A study performed by the USDA Agricultural Research Service and published in the Journal of Dairy Science in 2004 collected raw milk samples from 861 farms in 21 states. They found *Salmonella in* 2.6% and *Listeria monocytogenes* in 6.5% of samples.
  - Another study was conducted in 2002 at Penn State. In this study samples were collected from 248 dairy herds from 16 counties in Pennsylvania. *Campylobacter jejuni*, Shiga toxin-producing *Escherichia coli*, *Listeria monocytogenes*, *Salmonella*, and *Yersina enterocolitica*, were present in anywhere from 2 to 6 % of the samples.
  - A third study sampled milk from 131 dairies in Minnesota and South Dakota. *Campylobacter jejuni*, Shiga toxin-producing *Escherichia coli Listeria monocytogenes*, *Salmonella*, and *Yersina enterocolitica*, were present in anywhere from 4 to 9 % of the samples.
  - A fourth study was reported in 2005 in the Journal Emerging Infectious Diseases. Raw milk samples were collected over 3 years from 316 farms in the USA, from the Northeast, Midwest and West. The raw milk was tested for the presence of Coxiella burnetii, which causes Q-Fever in people. (The symptoms of Q Fever range from malaise, muscle soreness, fever, hepatitis, endocarditis.) Domestic livestock (cows, sheep, and goats) are the primary reservoirs for Coxiella burnetii. In this study over 94 % of the samples tested positive for Coxiella. This disease is endemic not only in the US but other studies have shown it to be a world wide problem.
- Between 1973 and 1992, raw milk was associated with 46 outbreaks; 87% of these outbreaks occurred in states where commercial distribution of raw milk was legal (American Journal of Public Health 1998;88:1219-1221).
  - 6 outbreaks were reported during 476 state-years for sates in which the intrastate sale of raw milk was not legal (1.26 outbreaks per 100 state-years), compared with 40 outbreaks during 544 state years for states in which the intrastate sale of raw milk was legal (7.35 outbreaks per 100 state-years).
  - The number of reported outbreaks per 10 million person-years in states that permitted the intrastate sale of raw milk was 0.14, compared with 0.03 outbreaks per 10 million person-years in states where the intrastate sale of raw milk was illegal.
- Between 1998 and 2005, CDC traced more than 1000 illnesses, 104 hospitalizations, and 2 deaths to consumption of raw milk or cheese produced from raw milk.
- In 2001, Wisconsin banned cow-leasing programs after 75 people became infected with *Campylobacter jejuni* bacteria from drinking unpasteurized milk obtained through such a program

- CDC's FoodNet Survey was performed in 9 US states in 2002. It showed that of >8,000 people surveyed, 81.6% reported consuming any milk in the past 7 days, and 3.5% reported consuming raw milk
- New data from CDC show that between 1998-2006, 92% (46 of 50) of outbreaks linked to liquid milk consumption for which the pasteurization status of the milk was known were due to the consumption of unpasteurized milk (unpublished data)

Pasteurization

- High Temperature/Short Time (HTST) pasteurization heats the milk to at least 161° for at least 15 seconds
- The milk is immediately cooled to below 40° and packaged into plastic jugs or plastic-coated carton
- Pasteurization must be sufficient to destroy all human pathogens that may be carried in the milk from the cow
- Pasteurization temperatures are sufficient to destroy all yeasts, mold, and many of the spoilage bacteria
- Microbiological standards for milk as recommended by the U.S. Public Health Service:
    - Grade A raw milk for pasteurization should not to exceed 300,000 bacteria per ml
    - Grade A pasteurized milk should not exceed 20,000 bacteria per ml

Need to Focus on Comparing Raw vs. Pasteurized Milk

- Most foods run the risk of being contaminated with human pathogens; the risk varies depending on the origin of the food product, how it is raised, and how it is handled by the producer, distributer, and consumer
- One of the primary duties of government involves protecting the public's health by making the food supply safer
- Each food group is assessed independently
- This bill is <u>not</u> about the legality of selling raw beef, chicken, oysters, or honey—it is about the legality of selling raw milk
- Therefore, we need to focus on comparing the risks and benefits associated with a new law that would legalize the sale of raw milk in Alaska, and use regulations to protect the public's health
- The risk of serious and potentially lethal infectious illness associated with raw milk products are substantially greater than the risks associated with pasteurized milk products
- Pasteurized milk can become contaminated after pasteurization during handling or packaging (just as any processed food) and result in outbreaks; however, raw milk sold to the consumer starts out with higher bacterial loads and is far more likely to be contaminated with human pathogens than pasteurized milk
- The developing fetus, young children, the elderly, and immune-compromised persons are at highest risk for severe health outcomes resulting from infections commonly associated with contaminated milk consumption

Duty to Protect

- Duty to protect the food supply
- Duty to protect those who do not have the capacity or sufficient information needed to make a well informed decision
    - The developing fetus, young children, the elderly
    - This bill would allow the sale of raw milk to restaurants, but provides no mandate to inform restaurant customers that they might be served raw milk or to ensure products are not distributed incorrectly

Potential Raw Milk Costs

- DEC costs for testing, monitoring, and inspections
- DHSS costs for outbreak investigations
- Costs to state government associated with outbreak investigations are substantial (time, money, resources)
- Direct and indirect costs involved resulting from the persons who become ill (and their family members)
    - A study of E. coli O157:H7 infections in the US showed that the average cost per case ranged from <$100 for an individual who does not obtain medical care to *$6.2 million* for a patient who died from hemolytic uremic syndrome (JFP 2005)
- Loss of public trust in product and in government officials
- Cost to industry if an outbreak occurs

Benefits of Raw Milk Consumption

- Possible financial benefit to struggling small dairy farmers and consumers
- Taste
- Minimal scientific evidence of possible health benefits
    - Possible beneficial impact on allergy, asthma, and digestive health
    - Negligible evidence of nutritional benefits--pasteurization may inactivate a small percentage of B vitamins, particularly thiamine, and up to 20 % of the vitamin C in milk but milk is not a major source of either one of these nutrients

The Pleural of Anecdote is not Data

- Need to use available scientific data to drive health policy decisions
- Just because someone grew up on a farm and does not remember getting sick from drinking raw milk, does not equate to proof that passing a law to legalize the sale of raw milk is okay. That's like saying that because someone has driven their entire life without ever wearing a seatbelt and has not been injured in a car accident that seatbelt laws are unfounded.

Summary

The Alaska Department of Health and Social Services strongly opposes this bill on grounds that allowing the sale of raw milk poses a substantial risk to the health of Alaskans.

Testimony of

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before the

Resources Committee

Alaska House of Representatives

February 29, 2008

Mr. Chairman and Members of the Committee, thank you for the opportunity to submit written testimony in which we will discuss the public health and food safety concerns of consuming raw milk and the importance of pasteurization. There is and has been a lot of misinformation published or otherwise communicated by various parties to the general public at large about raw milk and pasteurized milk. We very much welcome this opportunity to discuss the reality about the dangers of raw milk consumption and the safety and healthfulness of pasteurized milk consumption with this Committee.

Much of what I will present here today has been stated previously in our testimony provided to several other states.

RAW MILK IS INHERENTLY DANGEROUS

Raw milk is inherently dangerous and may contain a whole host of pathogens including Enterotoxigenic *Staphylococcus aureus*, *Campylobacter jejuni* (*C. jejuni*), *Salmonella* species, *Escherichia coli* (*E. coli* 0157H:7, Enterohemorrhagic *E .coli* - EHEC, Enterotoxigenic *E. coli* - ETEC), *Listeria monocytogenes*, *Mycobacterium tuberculosis*, *Mycobacterium bovis* (*M. bovis*), *Brucella species* (*B. abortus* being mainly associated with cattle and *B. melitensis* being mainly associated with goats), *Coxiella burnetii* and *Yersinia enterocolitica* to name but a few. Incidence rates for the presence of these pathogens in raw milk reported in the literature are

variable. As one might expect, there are variations in incidence rates between countries and even within regions of countries. There are also variations in incidence rates reported for the three main commercial milks (bovine [cow], ovine [sheep] and caprine [goat]). Van Kessel et al. (1) reported in 2004 on the prevalence of *Salmonellae* and *Listeria monocytogenes* in bulk tanks on U.S. dairies. They reported a 2.6% incidence rate for *Salmonellae* and a 6.5% incidence rate for *Listeria monocytogenes*. They commented that "although the prevalence of these organisms was low, inappropriate handling of raw milk could result in bacterial growth and substantially increase the potential risk to consumers of raw milk and raw milk products." These incidence rates were reported even with very low standard plate counts (total bacterial counts) at <5000 cfu's /ml (less than 5000 colony forming units per milliliter) being reported for the vast majority of samples analyzed for the pathogens. This is important to note because it is clear illustration of the fact that a simple standard plate count (or "bacteria count") is not an indication of the safety of milk. A low standard plate count clearly does **not** mean that milk will be pathogen-free.

Many of the above-mentioned microorganisms can cause very serious, sometimes life altering and sometimes even fatal disease conditions in humans. With pregnant women, *Listeria monocytogenes*-caused illness can result in miscarriage, fetal death, or illness or death of a newborn infant. Enterohemorrhagic *E.coli* (EHEC) infection has been linked to hemolytic uremic syndrome (HUS), a condition that can cause kidney failure and death. If infected with EHEC, young children are particularly susceptible to contracting HUS as unfortunately has recently happened in this country.

Raw milk should not be consumed by anyone, at any time, for any reason. FDA's opinion in this matter is entirely consistent with that of the American Medical Association, which holds as policy the position that "all milk sold for human consumption should be required to be pasteurized" (H-150.980, Milk and Human Health). The aged, infirm, young and immuno-compromised are most at risk for severe infections from pathogens that may be present in raw milk. Yet, oftentimes, we hear arguments made by raw milk advocates that these are the very people who should consume raw milk because of its alleged curative or medicinal properties. Claims that raw milk has miraculous disease-curing properties are not supported by the scientific literature. The scientific literature is, however, rife with reports of foodborne illness attributed to

the consumption of raw milk, including an article by Werner et al. (2) which reported on the incidence of *Salmonella* Dublin infections in California between 1971-1975. During that time, the mean annual incidence of *Salmonella* Dublin infections in California increased five-fold. Investigations of the cases showed an association with raw milk consumption and that all of the implicated raw milk came from just one dairy. Eighty-nine of the 113 victims were hospitalized and 22 of them died. Almost half of the patients had serious underlying, non-infectious diseases such as leukemias and lymphomas. As we know, the immune system with such persons is often compromised as a result of the treatments they are receiving.

In 1997, Keene et al. (3) reported on a prolonged outbreak of *E.coli* O157:H7 which was caused by the consumption of raw milk sold at Oregon grocery stores. Outbreaks began in 1992 and continued until June of 1994. When the dairy that was the source of the raw milk was identified, it was discovered that 4 of the 132 animals in the herd were initially positive for *E.coli* O157:H7. Despite public warnings, new labeling requirements and increased monitoring of the culprit dairy, illnesses continued until June 1994, when retail sales were finally stopped. The authors concluded that without restrictions on distribution, *E.coli* O157:H7 outbreaks caused by raw milk consumption can continue indefinitely, with infections occurring intermittently and unpredictably.

Proctor and Davis (4) reported on *E.coli* O157:H7 infections in Wisconsin between 1992-1999. During that timeframe, there were 1333 cases, even though the disease only became reportable in Wisconsin in April 2000. The highest age-specific mean annual incidence, at 13.2 cases per 100,000 population, occurred in children aged 3-5 years old. Among case patient identifiable exposures, consumption of raw milk/milk products was among the top three causes most frequently noted. Kemland et al. (5) reported on the causes of HUS in childhood in Switzerland. Among the causes was the consumption of raw milk, which resulted in the authors concluding that pasteurization of raw milk is likely to have a positive influence on the incidence of HUS. Allerberger et al. (6) reported on a specific incident in Austria in which two children contracted *E.coli* O157:H7 infection and subsequently developed HUS after consuming raw milk. The authors concluded that "it is prudent to remind them (parents and teachers) that children should not be given unpasteurized milk."

When one reads all the literature available on the association between *E.coli* O157:H7, HUS and raw milk, one wonders whether children themselves would choose to drink raw milk if they knew that raw milk might make them very ill, cause them to lose their kidneys, or even kill them. Given a child's enthusiasm for life, I doubt very much that they would. Since children cannot and do not know about such matters, however, it is incumbent upon those of us who do know and are responsible for protecting them to ensure that the likelihood of their contracting foodborne disease from any food, including the milk that they drink, is an ever-diminishing prospect. Our collective actions should tend to make the food supply safer overall and not result in a lessening of the level of protection which we afford ourselves as a society. Permitting raw milk sales, or the operation of so-called "cow-share" schemes to occur within any given jurisdiction, will not result in the maintenance or further strengthening of our food safety systems. On the contrary, permitting such sales and schemes will inevitably result in an increased incidence of foodborne illness. Indeed, a farm operating a cow-sharing scheme in the state of Washington and which was engaged in the unlawful interstate distribution of raw milk, was relatively recently determined to have produced milk which was adulterated with *E.coli* O157:H7 and to have caused an outbreak of foodborne illness. There were eighteen victims identified in that outbreak, which represented 13% of those who reported consuming raw milk originating from the culprit farm. Unfortunately, the median age of the victims was just 9 years. Five of these victims, aged between 1-13 years, were hospitalized and four of these unfortunate children had HUS. Seventeen of the victims were farm "shareholders" or the children of "shareholders" and one other victim, a child of ten years of age, was a friend of a "shareholder." The Centers for Disease Control and Prevention (CDC) issued, on March 2, 2007, a report on this outbreak in its Morbidity and Mortality Weekly Report (MMWR). That MMWR report may be found at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5608a3.htm

On the day of the publication of this MMWR, March 2, 2007, the state of Pennsylvania issued a press release announcing that a Pennsylvania farm engaged in the practice of selling raw milk had been determined to be responsible for an outbreak of Salmonellosis in that State. The CDC has since issued an MMWR describing the Pennsylvania outbreak in 2007. It may be found at http://www.cdc.gov/mmwR/preview/mmwrhtml/mm5644a3.htm

An outbreak of foodborne illness involving E.coli O157:H7 also occurred in California last year. This outbreak was determined by California to likely be caused by a dairy owned by a raw milk advocate. The evidence linking these illnesses to this dairy was strong enough to prompt California authorities to order the milk to be recalled. According to California authorities, all of the victims in this outbreak were children. FDA had previously issued a warning letter to this same dairy farm on February, 24, 2005, for the unlawful distribution of unpasteurized milk, buttermilk, butter, cream and colostrum in interstate commerce, in finished form for human consumption, actions which were in violation of the Public Health Service Act, Title 42, U.S. Code, Sections 264 (a) and 271 (a) and Title 21, Code of Federal Regulations, Section 1240.61 (a). A copy of this warning letter is available at http://www.fda.gov/foi/warning_letters/archive/g5215d.pdf .

E.coli O157:H7 is not the only pathogen of concern for the very young. Schmid et al (7) reported on *Campylobacter jejuni* infections in Dubuque, Iowa over a twelve-month period. Forty-six of 53 victims participated in the case control study performed. Twenty-one of the 46 cases occurred in children less than ten years of age. The age-specific attack-rate was highest for children aged one to four years. Fifteen of the 46 had consumed raw milk in the week before the onset of their illness. Twelve of the 15 who had consumed raw milk were less than 10 years old. The authors concluded "eliminating the consumption of raw milk will depend on educational efforts."

FDA agrees that continued educational efforts are needed to impart an understanding of the dangers of raw milk to all, but educational efforts alone will not suffice. In order to protect the public health, raw milk should not be permitted to be sold for human consumption, nor should people be allowed to attempt to skirt laws banning direct raw milk sales by operating so-called "cow share" schemes. The CDC agrees with FDA in this regard. In the March 2, 2007, MMWR discussed above, CDC stated that "State milk regulations and methods for their enforcement should be reviewed **and strengthened** to minimize the hazards of raw milk" (emphasis added). Alaska House Bill 367, which is now before this body for consideration, would operate to relax Alaska laws governing raw milk sales by allowing sales of raw milk from farmers directly to consumers, restaurants and grocery stores. While allowing raw milk sales

directly to consumers will increase the probability of serious harm occurring to Alaskan consumers, allowing raw milk sales to restaurants and grocery stores will maximize the possibility that a raw milk adulterated with pathogens will cause a large outbreak of foodborne disease within Alaska. Alaska House Bill 367 is a measure directly contrary to the advice being given by the CDC, FDA, and many notable others. In a press release issued jointly by both CDC and FDA on March 1, 2007, the agencies noted that in addition to CDC and the FDA, "the American Medical Association, the American Academy of Pediatrics, the National Conference on Interstate Milk Shipments, the National Association of State Departments of Agriculture, the Association of Food and Drug Officials and other organizations have endorsed the pasteurization of milk and prohibition of the sale of raw milk and products containing raw milk," FDA urges that the state of Alaska maintain its current strong public health protection posture on the matter of raw milk sales and continue to prohibit them.

It is not only the very young, the aged, infirm and immunocompromised that can fall victim to the pathogens which may be present in raw milk. Anyone can be a victim, including healthy young adults, as was reported by Blaser and Williams (8) when they described how 19 of 31 college students developed an acute gastrointestinal illness caused by *C. jejuni* infection after a visit to an Oregon farm. It was determined that 3 others had an asymptomatic infection. Twenty-two of 25 students who had consumed raw milk for the first time became infected.

Raw milk advocates have claimed "It is not even clear that tuberculosis (TB) can be contracted from milk products" (Weston A. Price Foundation PowerPoint presentation available on-line entitled "Raw Milk and Raw Milk Products"). These advocates are wrong. It is clear to the medical community, to scientists, food technologists and those otherwise familiar with milk and milk products and the history of pasteurization that TB can be contracted from raw milk and raw milk products. Prior to the advent of pasteurization, *M. bovis* was reported to cause between 6-30% of all TB cases in the United States. (Karlsen and Carr) (9). De la Rua-Domenech has also recently produced a very useful review on human *M. bovis* infections (in press; available on-line) (10) which might be of further interest to this Committee.

STATISTICS ON DISEASE OUTBREAKS ASSOCIATED WITH RAW MILK

OR RAW MILK PRODUCTS

CDC's MMWR for the week of March 2, 2007, which I discussed above, reported that from 1998 to May 2005, 45 outbreaks of foodborne illness implicated unpasteurized milk, or cheese made from unpasteurized milk. Those outbreaks accounted for 1,007 illnesses, 104 hospitalizations, and two deaths. The CDC also noted that between 1973-1992, 87% of the raw milk outbreaks occurred in those states which allowed for raw milk sales to consumers while consumption of raw milk was estimated to have been less than 1% of the total milk sold in those states.

Raw milk advocates have claimed that "between 1984 and 2002, reports of outbreaks associated with raw milk produced in the U.S. are almost non-existent". (Weston A. Price Foundation PowerPoint presentation available on-line entitled "Raw Milk and Raw Milk Products") This is not the case. FDA's review of outbreaks for this period indicates that there were 35 outbreaks attributed to raw milk, an average of two outbreaks per year.

When considering these statistics, it is important to consider that not all outbreaks are actually recognized and that, even when they are recognized, not all of them are reported to CDC. Additionally, it is impossible to capture all of the incidents of individual illness that occur. Generally, outbreaks indicate a much greater incidence of unreported sporadic illness from a food, such as raw milk.

PASTEURIZATION

Pasteurization is required for all milk and milk products in final package form intended for direct human consumption which move in interstate commerce. (21 CFR 1240.61) The only exceptions to this requirement are for certain cheeses and those exceptions are not absolute but come with certain other requirements relative to the manner by which any raw milk cheese must be ripened. In promulgating this regulation, FDA made a number of findings relative to raw milk, including the following: "Raw milk, no matter how carefully produced, may be unsafe" (52 FR 29514, Aug. 10, 1987).

The case that prompted FDA to promulgate 21 CFR 1240.61 was Public Citizen v. Heckler, 653 F. Supp. 1229 (D.D.C. 1986). In its holding, the federal district court concluded

that the record presented "overwhelming evidence of the risks associated with the consumption of raw milk, both certified and non-certified." Id. at 1238. The court stated that the evidence FDA has accumulated concerning raw milk has "conclusively shown.... raw milk is unsafe" and that "[t]here is no longer any question of fact as to whether raw milk is unsafe". Id. at 1241.

Pasteurization will destroy all of the pathogens that I have mentioned thus far and others that I have not mentioned. For example, pasteurization is also destructive of *Mycobacterium paratuberculosis*, the causative organism of Johne's disease in cattle. Clearly, pasteurized milk rationally can never be considered more hazardous than raw milk, contrary to the claims of raw milk advocates. In fact, it is universally agreed within the scientific community that pasteurization has made milk a much safer food for human nutrition.

Raw milk advocates have mentioned that *Bacillus cereus* and *Clostridium botulinum* spores may survive pasteurization, labeling these microbes as "heat-resistant pathogens." Microbial endospores are indeed very resistant to heat and chemical treatments, but the vegetative cells of these microbes are not heat resistant and will be destroyed by pasteurization.

B. cereus spores are quite common in milk, raw or otherwise and are thus a common cause of spoilage concerns within the dairy industry. However, the presence of *C. botulinum* spores in milk is not a very common occurrence. Before either of these microbes can pose food safety concerns with milk or milk products, very high population levels must be reached, a condition that does not ordinarily occur in the collection and processing of milk and milk products. Interestingly, in alleging that consumers are avoiding commercial milk because it is pasteurized (which is not true insofar as FDA is aware), raw milk advocates also claim that consumers do not like the fact that cows are allegedly kept in confinement, and fed rations designed to enhance milk production, a situation which they claim causes poor health and disease. In support of such a notion, raw milk advocates claim that Dutch researchers found much lower rates of *Salmonella* infections in dairy herds and cows with access to pasture, but they neglect to mention, or are perhaps unaware, of other Dutch research (Slaghuis et al.) (11) that indicates that cows fed on pasture during the summer had **higher** levels of *B. cereus* spores in their milk than cows which were housed during the summer. Thus, it appears that raw milk advocates are somewhat selective about the research which they choose to discuss when it comes

to the subject of cattle feeding and its impact upon milk microflora.

CLAIMS ABOUT RAW MILK AND PASTEURIZED MILK

Raw milk advocates are wont to claim that pasteurization, in addition to killing any pathogens which might be present, also destroys the nutritive value of milk. Nothing could be further from the truth.

Because there is so much misinformation currently circulating about raw milk and pasteurized milk, I developed a presentation which was given at the biennial meeting of the National Conference on Interstate Milk Shipments at Columbus, Ohio in May 2005 by Ms. Cynthia Leonard, M.S., who is a member of my Division. In that presentation, we addressed several of the more common and egregious fallacies about pasteurization that one is presently likely to encounter. Due to the constant and heavy demand for that presentation, we have recently placed it on the FDA website. It can be found at: http://www.cfsan.fda.gov/~ear/milksafe.html.

In addition to the fallacies that we addressed in the presentation, we have been made aware of several other erroneous statements being made by raw milk advocates about raw milk and pasteurized milk and it may be useful for me to address some of these here:

The claim that raw milk per se kills pathogens and thus is safe is simply incorrect. Milk contains certain indigenous enzymes to which antimicrobial properties have been ascribed, and milk may contain certain strains of bacteria which might be able to produce anti-bacterial compounds known as bacteriocins, but these enzymes and microbes (if present) do not render raw milk safe. With raw milk, the temperature of storage coupled with the nature and composition of the microflora initially present and simple microbial competition and outgrowth all play an important part in the determination of which microbes will grow and which will not. Some micro-organisms are more fastidious than others. Some do not grow well in cold temperatures, whereas others do. Some pathogens can survive and grow at refrigeration temperatures.

Another version of the claim that raw milk kills pathogens is that "pathogens can multiply in pasteurized milk and other foods but not in raw milk." That too is untrue. In support of this claim, we have seen raw milk advocates cite a 1982 study by Doyle and Roman (12) and

selectively present data from that study which, at first glance, appears to support raw milk advocates' claim. However, the authors of that study found and reported in that same article that "[s]urvival of the eight *Campylobacter* strains in refrigerated unpasteurized milk varied greatly." Furthermore, the authors stated that "one strain of *C. jejuni*, bovine isolate FRI-CF147B, survived exceptionally well in unpasteurized milk at 4° C. A less than 2-log reduction in cells occurred after 14 days, indicating that under the appropriate conditions, large numbers of campylobacters may survive in raw milk for several days." The authors also determined that "[i]nactivation of *Campylobacter* strains in unpasteurized milk paralleled but was greater than the inactivation of strains in sterile milk." Note that the authors report **an inactivation** in sterile (not merely pasteurized) milk. Finally, the authors concluded: "The presence and possible persistence of *C. jejuni* in raw Grade A milk reaffirms the need for pasteurization." Thus, far from providing a support for raw milk advocates, the Doyle and Roman study clearly advocates pasteurization of raw milk. The claim that pasteurization destroys all the "built-in safety systems" or "enzymes that kill pathogens" also is simply not supported by the scientific literature. For example, it has been claimed that pasteurization inactivates lactoferrin. Lactoferrin is an iron-binding protein believed to have dual roles; the one being a facilitator of iron absorption and the other a bacteriostatic role. Paulsson et al (13) determined that "unheated and pasteurized bLf (bovine lactoferrin) preparations showed similar antibacterial properties and caused an effective metabolic inhibition with a moderate bacteriostasis." They further stated that "pasteurization seems to be the method of choice (when making a lactoferrin product) because it did not alter either the bacterial interactive capacity or the antibacterial activity of bLf." Tomita et al (14) discussed how a pasteurization process was developed for lactoferrin in order to apply active lactoferrin usage to various products. Plainly, lactoferrin is not destroyed or inactivated by pasteurization.

Similarly, lactoperoxidase, an enzyme which is integral to the lactoperoxidase system of milk preservation, has been described as being "inactivated" by pasteurization, when actually lactoperoxidase is a very heat stable enzyme which is not destroyed by minimum legal pasteurization conditions, although some literature indicates moderate inactivation. In fact, because it will survive pasteurization intact, measurement of residual lactoperoxidase activity has

been proposed as a means of indicating if a heat treatment applied to milk has exceeded high temperature short time (HTST) pasteurization conditions. Contrary to the claim that the lactoperoxidase system can be an alternative to pasteurization, the lactoperoxidase system is not, and could never be an alternative to pasteurization. (Some researchers do consider that it might possibly be used synergistically with pasteurization to extend the shelf life of dairy products).

The lactoperoxidase system, which requires the addition of hydrogen peroxide and thiocyanate ion to milk to be activated, functions as a bacteriostatic mechanism generally, i.e., it serves to keep microbial populations from growing and spoiling milk. It is used in regions of the world where it is difficult, if not impossible, to cool milk, due either to a lack of electricity or cooling equipment or both. It is reported by some researchers to be bactericidal to certain enteric pathogens. Seifu et al (15), in 2005, published an excellent review article on lactoperoxidase, which may be of further interest to this Committee. The claim that lysozyme, which, in conjunction with lactoferrin does have a bactericidal effect, is destroyed by pasteurization is also simply not true. In excess of 70% of bovine milk lysozyme will survive normal HTST conditions, as reported by Griffiths (16).

With respect to indigenous dairy enzymes in general, Stepaniak (17), in 2004, published an excellent review article of the literature available to which I would refer anyone interested in learning what the current science is on the effect of pasteurization on milk enzymes.

Claims have been made by raw milk advocates that Immunoglobulin G (referred to as "IgG antibodies" by raw milk advocates) is destroyed by pasteurization. However, Kulczycki (18) reported in 1987 that his research on bovine IgG suggested "the possibility that pasteurization of milk (and condensed milk) may not destroy the receptor-binding ability of IgG, but instead might enhance its binding by causing aggregation of the bovine IgG."

Raw milk advocates have also claimed that pasteurized milk causes lactose intolerance, (which is an inborn error of metabolism), despite the fact that all milks, raw or pasteurized, contain lactose and that pasteurization does not change the concentration of lactose. A person who is lactose intolerant has a reduced ability to synthesize the enzyme Beta-galactosidase, which hydrolyzes the disaccharide lactose into its monosaccharide constituents, glucose and

galactose. Any such person might be expected to experience the symptoms of lactose intolerance when consuming either raw or pasteurized milk.

Recently, a new version of this fallacy has been brought to our attention. A raw milk advocate has begun to claim that raw milk does not cause lactose intolerance because it contains bacteria (which he describes as being "bifido and lacto") which he believes create their own lactase (beta-galactosidase) when consumed, thus allegedly preventing the symptoms of lactose intolerance. Among the numerous difficulties with this proposition is the fact that the Bifidobacteria in the gastrointestinal tracts of humans are different to those found in animals (Gavini et al) (24) and thus the milk from animals. Furthermore, if Bifidobacteria consumed as a therapeutic or prophylactic measure are to be of any benefit, they must be consumed in appreciable quantities (as might be found, for example in a fermented milk product containing an adjunct Bifidobacteria culture) as well as be of human origin, in order to withstand transit through the intestinal tract (Arunachalam) (25). Finally, it has actually been proposed that the Bifidobacteria present in bovine milk be used as indicator organisms to gauge the extent of fecal contamination of milk.(Beerens et al.) (26). Thus, far from being of any health benefit, the Bifidobacteria present in raw milk are considered by scientists to be an indication of the extent to which it has been contaminated with manure.

Although many potential health benefits have been ascribed to Bifidobacteria in the literature, curing lactose intolerance is not among them. (Arunachalam) (22). De Vrese et al (27) published a useful paper entitled "Probiotics- compensation for lactase insufficiency" wherein they synopsize some of the research done on the utility of Bifidobacteria as promoters of lactose hydrolysis and state that Bifidobacteria "affected lactose digestion less than did lactobacilli or had no effect at all."

Although we are uncertain just what the raw milk advocate in question is referring to when he mentions "lacto bacteria," if we assume that he is referring to *Lactobacillus* species, it is true that several *Lactobacillus* species are generally considered to be probiotic and that among the possible benefits suggested as being conferred by consumption of fermented dairy products containing appreciable quantities of Lactobacilli are reduced symptoms of lactose intolerance, as

reported by De Vrese et al, Holzapfel and Schillinger, McBean and Miller, Savaiano et al. (27, 28, 29, 30) However, *Lactobacilli* typically are but a small portion of the microflora in milk.

While making the above claims and perhaps because of them, this same raw milk advocate has recently been describing his milk as being "probiotic." Raw milk is certainly not a probiotic food, as that term is defined within the FAO/WHO Guidelines for the Evaluation of Probiotics in Food, which was published in 2002 (31), and it is scientifically improper to describe raw milk as being probiotic. That document defines probiotics as being "[l]ive microorganisms which when administered in adequate amounts confer a health benefit on the host." According to FAO/WHO, in order for that term to be used, stringent requirements must be met, including strain identification, functional characterization, a safety assessment, efficacy studies, and comparison with standard treatments as well as labeling requirements. None of that has been done for raw milk.

Raw milk advocates claim that pasteurization either destroys the proteins of milk or that it renders milk proteins more allergenic, even though the milk proteins that cause allergic reactions (including lactoferrin) in dairy-sensitive people are present in raw milk as well as pasteurized milk. Interestingly, these same sorts of claims were addressed directly over twenty years ago by Coveny and Darnton-Hill (19) when they wrote in their article entitled "Goat milk and infant feeding" that "there are some who feel that pasteurization is unnecessary and even detrimental. Concern appears to centre (sic) on possible increased allergenicity and nutrient losses. However, studies show that the sensitizing capacity of cow's milk is retained or – more usually – reduced after heat treatment (cites) while pasteurization minimizes the heat destruction of nutrients (cite). There would appear to be little advantage therefore in the use of raw milk."

Caseins, the major family of milk proteins, are largely unaffected by pasteurization (Farrell and Douglas) (20). Any changes which might occur with whey proteins are barely perceptible.

With respect to vitamins, the claims about the destructive capacity of pasteurization have been many and varied and virtually none of what has been said is accurate.
Milk is a good source of the B-complex vitamins thiamine, folate and riboflavin. Pasteurization will result in losses of each of these of anywhere between zero to 10 percent, which most would

consider to be merely a marginal reduction (17), (21). Pasteurization does not cause appreciable losses of the fat-soluble vitamins, A, D, E and K (21). Milk does contain a small amount of Vitamin C, but it is not considered to be a good dietary source of that vitamin. Pasteurization will result in a loss of anywhere from 0-10% of the Vitamin C present (21). Most vitamin C losses in milk occur during storage and such will occur whether milk is pasteurized or not.

With respect to the minerals present in milk, raw milk advocates have made several different claims about the allegedly destructive impact of pasteurization. FDA has not been able to substantiate any of these claims. In fact, the scientific literature that we have reviewed thus far contradicts most of the claims being made. Where raw milk advocates indicate that "no significant change" occurs with sodium, potassium and magnesium, FDA would agree, however. Williamson et al. (22) and Zurera-Cosano et al. (23).

Finally, raw milk advocates have recently begun to claim that only raw milk produced at large commercial dairy farms, which is intended to be subsequently pasteurized, is unsafe and that raw milk produced at small farms is safe. The history of raw milk outbreaks, however, does not support such claims. Additionally, literature indicates that somatic cell counts, which are a measure of dairy herd health (with lower counts being better), tend to be lower in larger, high intensity dairy farming operations as reported by Windig et al., Norman et al., Berry et al. and Oleggini et al. (32, 33, 34, 35).

Another variation on this theme that we sometimes encounter is the claim that raw milk is safe if it originates from "certified" dairies. That is simply not correct. As was stated above, in Public Citizen v. Heckler, 653 F Supp. 1229 (D.D.C. 1986), the court was clear in its holding that there existed "overwhelming evidence of the risks associated with the consumption of raw milk, both certified and non-certified." Id. at 1238.

SUMMARY

Raw milk is inherently dangerous and should not be consumed. Raw milk continues to be a source of foodborne illness and even a cause of death within the United States. Despite the claims of raw milk advocates, raw milk is not a magical elixir possessing miraculous curative properties. Pasteurization destroys pathogens and most other vegetative microbes which might be expected and have been shown to be present in milk. Pasteurization does not appreciably alter the nutritive value of milk. Claims to the contrary by raw milk advocates are without scientific support. FDA encourages everyone charged with protecting the public health to prevent the sale of raw milk to consumers and not permit the operation of so-called "cow-sharing" or other schemes designed as attempts at circumventing laws prohibiting sales of raw milk to consumers. To do otherwise would be to take a giant step backwards with public health protection.

We would like to thank the Committee for affording us the opportunity to provide this information to the Committee and trust that the above will prove useful to you in your deliberations. If we may be of any further assistance to the Committee, we will be happy to do so.

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The Epidemiology of Raw Milk–Associated Foodborne Disease Outbreaks Reported in the United States, 1973 Through 1992

Marcia L. Headrick, DVM, MPH, Shahin Korangy, MPH, Nancy H. Bean, PhD, Frederick J. Angulo, DVM, PhD, Sean F. Altekruse, DVM, MPH, Morris E. Potter, DVM, and Karl C. Klontz, MD, MPH

ABSTRACT

Objectives. This study describes the epidemiology of raw milk–associated outbreaks reported to the Centers for Disease Control and Prevention from 1973 through 1992.

Methods. Surveillance data for each reported raw milk–associated outbreak were reviewed. A national survey was conducted to determine the legal status of intrastate raw milk sales for the period 1973 through 1995.

Results. Forty-six raw milk–associated outbreaks were reported during the study period; 40 outbreaks (87%) occurred in states where the intrastate sale of raw milk was legal.

Conclusions. Consumption of raw milk remains a preventable cause of foodborne disease outbreaks. (*Am J Public Health.* 1998;88:1219–1221)

Introduction

The hazards of drinking raw milk are evident from the list of infectious diseases that may be acquired from this product; these include campylobacteriosis,[1] salmonellosis,[2] yersiniosis,[3] listeriosis,[4] tuberculosis,[5] brucellosis,[6] staphylococcal enterotoxin poisoning,[7] streptococcal infections,[8,9] and *Escherichia coli* O157:H7 infection.[10] Additionally, raw milk has been implicated as a vehicle in the transmission of Brainerd diarrhea.[11]

The purpose of this study was 3-fold. First, we produced a description of the epidemiology of raw milk–associated outbreaks reported to the Centers for Disease Control (now called the Centers for Disease Control and Prevention; CDC) from 1973 through 1992. Second, we determined whether rates of reported raw milk–associated outbreaks differed between states in which the sale of raw milk was legal at the time of the outbreak and states where the sale of raw milk was illegal. Finally, we investigated whether the mean annual number of outbreaks reported for the period prior to 1987 differed from that beginning in 1987, when the US Food and Drug Administration implemented a ban on the interstate sale of raw milk.

Methods

We reviewed all outbreaks of foodborne disease reported to the CDC from 1973 through 1992 for which the implicated vehicle was raw milk. A foodborne disease outbreak was defined as an incident in which 2 or more persons experienced a similar illness after ingestion of a common food. Raw milk was defined as unpasteurized milk or milk not pasteurized according to recognized standards required by the Code of Federal Regulations (21 CFR 1240.61). A descriptive analysis of foodborne disease report data was conducted with SAS.[12]

In early 1995, we mailed a survey to regulatory officials in all 50 states, Puerto Rico, and the District of Columbia to determine the legality of raw milk sales within each state during the period 1973 to 19[illegible]. States that reported that raw milk sales became either legal or illegal during this period were asked to specify the date of the change. State milk officials were also asked to estimate the quantity of both pasteurized milk and, if legal, raw milk sold in their state for the most recent year such information was available.

To assess the impact of state regulations concerning intrastate raw milk sales on reported raw milk–associated outbreaks, outbreak data were combined with state survey results. To calculate the rate of reported raw milk–associated outbreaks during the study period (1973–1992) for states where the intrastate sale of raw milk was legal, we used the number of outbreaks reported from such states as the numerator and the number of state-years during which the intrastate sale of raw milk was legal as the denominator. Similarly, to calculate the rate of reported raw milk–associated outbreaks for states where the intrastate sale of raw milk was not legal at the time of the outbreak, we used the number of outbreaks reported from such states as the numerator and the number of state-years during which the intrastate sale of raw milk was not legal as the denominator. The results of the survey were used to determine the legal status of intrastate raw milk sales for each state at the time of occurrence of each reported outbreak. We also compared the number of reported outbreaks per 10 million person-years between those states in which the intrastate sale of raw milk was legal at the time of the outbreak and those states in which such sale was not legal.

Results

Forty-six raw milk–associated outbreaks were reported to the CDC from 21 states dur-

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ing the study period (Table 1). The median number of persons who became ill in the outbreaks was 19 (range, 2 to 190). Thirty-eight reported outbreaks occurred prior to 1987 (mean, 2.7 outbreaks per year), compared with 8 outbreaks after 1987 (mean, 1.3 outbreaks per year). In 38 reported outbreaks (86%), the implicated raw milk was produced at a commercial dairy.

Survey responses regarding the legal status of raw milk sales were received from all 52 jurisdictions (the 50 states plus Puerto Rico and the District of Columbia). At the time of the survey, 28 states (54%) permitted the intrastate sale of raw milk (Figure 1). In all states where the sale of raw milk was legal, the estimated volume of raw milk sold as a percentage of the total milk sold (i.e., pasteurized and unpasteurized milk) was less than 1%.

Forty (87%) of the 46 reported raw milk–associated outbreaks occurred in states in which the intrastate sale of raw milk was legal at the time of the outbreak. Specifically, 6 outbreaks were reported during 476 state-years for states in which the intrastate sale of raw milk was not legal (1.26 outbreaks per 100 state-years), compared with 40 outbreaks during 544 state-years for states in which the intrastate sale of raw milk was legal (7.35 outbreaks per 100 state-years). The number of reported outbreaks per 10 million person-years in states that permitted the intrastate sale of raw milk was 0.14, compared with 0.03 outbreaks per 10 million person-years in states where the intrastate sale of raw milk was illegal. Of the 8 reported outbreaks that occurred after implementation of the 1987 ban on the interstate sale of raw milk, 7 occurred in states where the sale of raw milk was legal.

TABLE 1—Etiology of Raw Milk–Associated Foodborne Disease Outbreaks Reported to the Centers for Disease Control, 1973–1992

Pathogen	No. of Outbreaks (%)	No. of Cases
Campylobacter	26 (57)	1100
Salmonella	12 (26)	331
Staphylococci	1 (2)	15
Escherichia coli O157:H7	1 (2)	6
Unknown	6 (13)	281
Total	46 (100)	1733

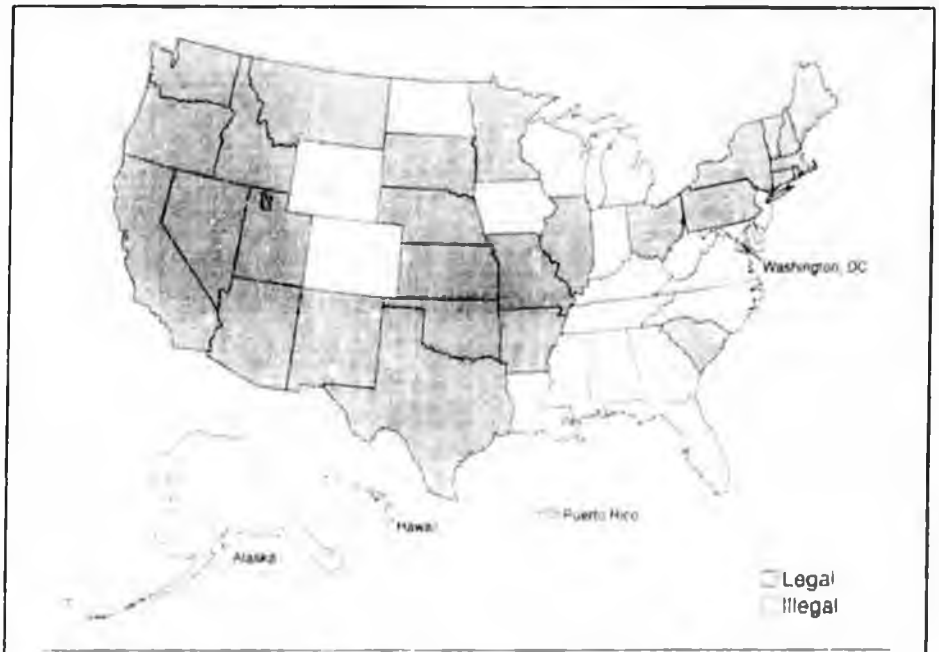

FIGURE 1—States reporting legal intrastate sale of raw milk as of May 1995.

Discussion

Consumption of raw milk is far less prevalent than consumption of pasteurized milk in the United States; we found that raw milk accounted for less than 1% of total milk sold in states that permit the sale of raw milk. Nevertheless, despite implementation in 1987 of the ban on the interstate sale of raw milk, raw milk consumption has continued to cause outbreaks of illness. With one exception, all outbreaks reported after 1987 occurred in states that permitted the intrastate sale of this product. We found that the rate of raw milk–associated outbreaks reported during the study period was far higher for states in which the sale of this product was legal than for states in which it was not legal. This suggests that banning the intrastate sale of raw milk could reduce the number of raw milk–associated outbreaks.

We also found that the mean annual number of reported outbreaks during the study period after 1987 was much lower than that for the period prior to 1987 (1.3 vs 2.7). However, because the outbreak surveillance data collected by the CDC did not specify the state where the implicated raw milk was produced, we were unable to determine whether each outbreak resulted from interstate or intrastate sales of raw milk. Consequently, we could not draw any firm conclusions about what role the ban on interstate sale of raw milk implemented in 1987 may have had in contributing to the observed reduction in the mean annual number of outbreaks reported from 1987 through 1992.

An additional limitation of this study is that it most likely captured only a fraction of the number of outbreaks that actually occurred in the study period. A review by Wood and others of *Campylobacter* enteritis outbreaks in the United States associated with drinking raw milk during youth activities indicated that only 60% of outbreaks identified by states between 1981 and 1988 were reported to the CDC.[13] Furthermore, sporadic cases of milkborne illness are not reported as part of this surveillance system. Historically, many more cases of sporadic foodborne disease have been reported than cases associated with outbreaks.[14] Despite these limitations, the results of this study illustrate the dramatically higher rate at which raw milk–associated outbreaks are reported from states that allow the sale of this product compared with states where the sale of raw milk is illegal, highlighting the continuing role of raw milk as a vehicle for infectious disease agents. □

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Milk Consumption in Older Americans

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ABSTRACT

Objectives. The purpose of this study was to identify individual characteristics associated with types and frequency of milk consumption in older American adults.

Methods. A national probability-based sample (response rate = 91%) completed a telephone survey. Generalized logit and cumulative logit analyses were used to identify predictors of and barriers to fluid milk consumption in 494 elderly people.

Results. The likelihood of drinking skim or 1% milk rather than whole milk increased with nutrition knowledge, income, trying to reduce cholesterol intake, and being female ($P < .05$). Frequency of milk consumption was higher with nutrition knowledge, frequency of milk consumption during adolescence, and following a diabetic diet but was lower with milk intolerance.

Conclusions. The present results could be used to develop intervention strategies for improving milk consumption rates among older adults. These strategies might focus on increasing elderly people's awareness of milk intolerance and lactose-reduced milk products and their concern about cholesterol. The relationship between current and adolescent milk consumption suggests that intervention strategies should begin early in life. (*Am J Public Health*. 1998; 88:1221–1224)

Introduction

Failure to consistently consume the recommended 2 or more servings of milk products per day[1] is a major indicator of low calcium intake and poor nutritional status in older people[2] and is associated with increased risk of osteoporosis.[3,4] Conversely, an adequate intake of calcium has been implicated as a potential factor in the risk reduction of calcium-sensitive hypertension[5] and colon cancer.[6]

The current recommended intake for maximum calcium retention in individuals 51 years of age or older is 1200 mg per day.[7] However, phase 1 data from the Third National Health and Nutrition Examination Survey (NHANES III)[8] indicate that mean daily dietary intakes of calcium are only 721 to 875 mg in men and 626 to 711 mg in women.

One objective of *Healthy People 2000* is to increase calcium intake; the goal is for at least 50% of people 25 years of age and older to consume 2 or more servings of foods rich in calcium per day.[9] A second objective is to reduce the current national average of 36% total calories from fat to the recommended 30%.[9] Skim or 1% milk provides essential calcium but less fat than whole milk.

Although socioeconomic status,[10] physiological factors,[11] nutrition knowledge,[12] health-seeking behaviors,[13] nutritional attitudes,[14] and food patterns established during youth[15] influence eating patterns, limited information exists relating these factors to milk consumption in older adults. Thus, our goal was to determine the predictors of and barriers to the type and frequency of fluid milk consumption among older adults.

Methods

Survey Instrument

All procedures were approved by the Institutional Review Board on Human Subjects of the University of Georgia. Data on age, gender, ethnicity, income, and education were obtained with closed-ended questions. Dietary health behaviors were assessed according to Bausell,[13] and milk consumption was measured according to NHANES III.[16] Lactose maldigestion was inferred from a self-report of perceived milk intolerance (defined as experiencing a stomachache, gas, or diarrhea after consuming milk). A 12-item nutrition knowledge instrument was adapted from a 17-item instrument.[17] Attitudes toward convenience, packaging, the shelf life of milk, and milk and sleep were investigated via original questions. The final survey instrument was constructed after input from the University of Georgia Survey Research Center and the National Dairy Council and pilot testing in a pencil-and-paper format in a local sample of 50 adults.

National Telephone Survey

A telephone survey was conducted in 1994 by the University of Georgia Survey Research Center. Respondents were randomly selected from an enumerated listing of 74 mil-

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Great American Smokeout — November 15, 2007

In 2006, approximately 45.3 million (one in five) U.S. adults were current smokers (*1*). November 15, 2007, marks the American Cancer Society's 31st annual Great American Smokeout, an event designed to encourage cigarette smokers to quit smoking for at least 1 day so that they might quit permanently. Smoking cessation has substantial and immediate health benefits for men and women of all ages (*2*).

Smokers who use effective cessation aids such as clinician assistance, pharmacotherapy approved by the Food and Drug Administration, and behavioral counseling (e.g., quitlines) can increase their likelihood of quitting permanently (*3*). All 50 states, the District of Columbia, and certain U.S. territories have quitlines that can be reached at 800-QUIT-NOW (800-784-8669). Other interventions that increase cessation include implementing sustained media campaigns, reducing patient out-of-pocket treatment costs, increasing the price of tobacco products, and establishing smoke-free environments (*4*).

Information on the Great American Smokeout is available at http://www.cancer.org/docroot/ped/ped_10_4.asp or by telephone: 800-227-2345. Advice on how to quit smoking is available at http://www.smokefree.gov.

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Cigarette Smoking Among Adults — United States, 2006

One of the national health objectives for 2010 is to reduce the prevalence of cigarette smoking among adults to ≤12% (objective 7-1a) (*1*). To assess progress toward achieving this objective, CDC analyzed data from the 2006 National Health Interview Survey (NHIS). This report summarizes the results of that analysis, which indicated that in 2006, approximately 20.8% of U.S. adults were current cigarette smokers. This prevalence had not changed significantly since 2004 (*2*), suggesting a stall in the previous 7-year (1997–2004) decline in cigarette smoking among adults in the United States. In addition, the findings indicated that persons with a diagnosis of a smoking-related chronic disease have a significantly higher prevalence of being a current smoker than persons with other chronic diseases or persons with no chronic disease. To reduce smoking prevalence further in the United States, comprehensive, evidence-based approaches for preventing smoking initiation and increasing cessation, including clinical interventions for populations at high risk, need to be fully implemented (*3*).

The 2006 NHIS adult core questionnaire, containing questions on cigarette smoking and cessation attempts, was administered by in-person interview to a nationally representative sample of 24,275 persons in the noninstitutionalized U.S. civilian population aged ≥18 years; the overall response rate was 70.8%. To classify smoking status, respondents were asked, "Have you smoked at least 100 cigarettes in your entire life?"; Those who

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answered "yes" were asked, "Do you now smoke cigarettes every day, some days, or not at all?" Ever smokers were defined as those who reported having smoked at least 100 cigarettes during their lifetimes. Current smokers were those who had smoked at least 100 cigarettes during their lifetimes and, at the time of the interview, reported smoking every day or some days. Former smokers were those who reported smoking at least 100 cigarettes during their lifetimes but currently did not smoke. Never smokers were those who reported never having smoked 100 cigarettes during their lifetimes. Among current cigarette smokers, making at least one cessation attempt during the preceding year was defined as a "yes" response to the question, "During the past 12 months, have you stopped smoking for more than one day because you were trying to quit smoking?" Respondents were categorized as having a chronic disease if they answered "yes" to any one of a series of questions about 42 chronic diseases (i.e., "Have you ever been told by a doctor or other health professional that you had...?"); of these chronic diseases, 16 were considered to be smoking related* (*4*). Data were adjusted for nonresponse and weighted to provide national estimates of cigarette smoking prevalence. Because the distribution of smoking-related morbidity varies by age, estimates of current, former, and never smokers by chronic disease status were age adjusted to the 2000 U.S. adult population; 95% confidence intervals were calculated using statistical analysis software to account for the survey's multistage probability sample design. Statistical significance was determined by non-overlapping confidence intervals.

In 2006, an estimated 20.8% (45.3 million) of U.S. adults were current cigarette smokers; of these, 80.1% (36.3 million) smoked every day, and 19.9% (9.0 million) smoked some days. Among current cigarette smokers, an estimated 44.2% (19.9 million) had stopped smoking for more than 1 day during the preceding 12 months because they were trying to quit. Of the estimated 91 million persons who had smoked at least 100 cigarettes during their lifetimes (i.e., ever smokers), 50.2% (45.7 million) had quit smoking at the time of the interview.

The prevalence of current cigarette smoking varied substantially among population subgroups. By sex, prevalence was higher among men (23.9%) than women (18.0%) (Table 1). Among racial/ethnic groups, Asians had the

* Cigarette smoking has been identified by the Surgeon General as a cause of selected malignant neoplasms, cardiovascular diseases, and respiratory diseases (*4*). Smoking-related chronic diseases include 11 cancers: lung, bladder, cervix, esophagus, kidney, larynx, windpipe, mouth, tongue, or lip, pancreas, stomach, and throat (pharynx); 2) cardiovascular diseases: coronary heart disease, angina pectoris, heart attack, and stroke; and 3) respiratory diseases: emphysema and chronic bronchitis.

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In 2006, an estimated 20.8% (45.3 million) of U.S. adults were current cigarette smokers; of these, 80.1% (36.3 million) smoked every day, and 19.9% (9.0 million) smoked some days. Among current cigarette smokers, an estimated 44.2% (19.9 million) had stopped smoking for more than 1 day during the preceding 12 months because they were trying to quit. Of the estimated 91 million persons who had smoked at least 100 cigarettes during their lifetimes (i.e., ever smokers), 50.2% (45.7 million) had quit smoking at the time of the interview.

The prevalence of current cigarette smoking varied substantially among population subgroups. By sex, prevalence was higher among men (23.9%) than women (18.0%) (Table 1). Among racial/ethnic groups, Asians had the

* Cigarette smoking has been identified by the Surgeon General as a cause of selected malignant neoplasms, cardiovascular diseases, and respiratory diseases (*4*). Smoking-related chronic diseases include 1) cancers: lung; bladder; cervix; esophagus; kidney; larynx-windpipe; mouth, tongue, or lip; pancreas; stomach; and throat-pharynx; 2) cardiovascular diseases: coronary heart disease, angina pectoris, heart attack, and stroke; and 3) respiratory diseases: emphysema and chronic bronchitis.

TABLE 1. Estimated percentage of persons aged ≥18 years who were current smokers,* by sex and selected characteristics — National Health Interview Survey, United States, 2006

Characteristic	Men (n = 10,715) %	Men (95% CI†)	Women (n = 13,560) %	Women (95% CI)	Total (N = 24,275) %	Total (95% CI)
Race/Ethnicity§						
White, non-Hispanic	24.3	(23.0–25.6)	19.7	(18.6–20.8)	**21.9**	**(21.0–22.8)**
Black, non-Hispanic	27.6	(24.2–31.0)	19.2	(17.3–21.1)	**23.0**	**(21.1–24.9)**
Hispanic	20.1	(17.8–22.4)	10.1	(8.5–11.7)	**15.2**	**(13.7–16.7)**
American Indian/Alaska Native, non-Hispanic¶	35.6	(18.7–52.5)	29.0	(15.7–42.3)	**32.4**	**(19.7–45.1)**
Asian, non-Hispanic**	16.8	(13.1–20.5)	4.6	(3.0–6.2)	**10.4**	**(8.4–12.4)**
Education (yrs)††						
0–12 (no diploma)	30.6	(27.9–33.3)	23.0	(20.7–25.3)	**26.7**	**(25.0–28.4)**
≤8	22.3	(18.5–26.1)	12.3	(9.7–14.9)	**17.4**	**(15.1–19.7)**
9–11	40.1	(35.7–44.5)	31.4	(27.7–35.1)	**35.4**	**(32.5–38.3)**
12	27.9	(21.5–34.3)	23.3	(17.5–29.1)	**25.6**	**(21.2–30.0)**
GED§§ diploma	51.3	(43.4–59.2)	40.2	(33.2–47.2)	**46.0**	**(40.5–51.5)**
High school diploma	27.6	(25.3–29.9)	20.4	(18.7–22.1)	**23.8**	**(22.3–25.3)**
Associate degree	25.4	(22.1–28.7)	17.8	(15.2–20.4)	**21.2**	**(19.1–23.3)**
Some college	26.1	(24.2–28.0)	20.0	(18.3–21.7)	**22.7**	**(21.4–24.0)**
Undergraduate degree	10.8	(9.0–12.6)	8.4	(7.0–9.8)	**9.6**	**(8.5–10.7)**
Graduate degree	7.3	(5.4–9.2)	5.8	(4.1–7.5)	**6.6**	**(5.3–7.9)**
Age group (yrs)						
18–24	28.5	(24.7–32.3)	19.3	(16.7–21.9)	**23.9**	**(21.7–26.1)**
25–44	26.0	(24.3–27.7)	21.0	(19.7–22.3)	**23.5**	**(22.4–24.6)**
45–64	24.5	(22.7–26.3)	19.3	(17.9–20.7)	**21.8**	**(20.6–23.0)**
≥65	12.6	(10.6–14.6)	8.3	(7.0–9.6)	**10.2**	**(9.2–11.2)**
Poverty status¶¶						
At or above federal poverty level	22.9	(21.6–24.2)	17.8	(16.8–18.8)	**20.4**	**(19.6–21.2)**
Below federal poverty level	34.0	(30.0–38.0)	28.0	(25.2–30.8)	**30.6**	**(28.0–33.2)**
Unknown	23.3	(21.0–25.6)	14.2	(12.6–15.8)	**18.3**	**(16.9–19.7)**
Total	**23.9**	**(22.8–25.0)**	**18.0**	**(17.2–18.8)**	**20.8**	**(20.1–21.5)**

* Persons who reported smoking at least 100 cigarettes during their lifetimes and who, at the time of interview, reported smoking every day or some days. Excludes 315 respondents whose smoking status was unknown.
† Confidence interval.
§ Excludes 266 respondents of unknown race or multiple races.
¶ Wide variances in estimates reflect small sample sizes.
** Does not include Native Hawaiians or Other Pacific Islanders.
†† Among persons aged ≥25 years. Excludes 305 persons whose educational level was unknown.
§§ General Educational Development.
¶¶ Based on family income reported by respondents and 2005 poverty thresholds published by the U.S. Census Bureau.

lowest prevalence (10.4%). Hispanics had a significantly lower prevalence of smoking (15.2%) than American Indians/Alaska Natives (32.4%), non-Hispanic blacks (23.0%), and non-Hispanic whites (21.9%).

Prevalence also varied by level of education. Smoking prevalence was highest among adults who had earned a General Educational Development (GED) diploma (46.0%) and those with 9–11 years of education (35.4%); overall, smoking prevalence decreased as education level increased. By age group, adults aged 18–24 years and 25–44 years had the highest prevalence of smoking (23.9% and 23.5%, respectively). The prevalence of current smoking was higher among adults living below the federal poverty level (30.6%) than among those at or above this level (20.4%).

Before 2006, certain population subgroups already had achieved smoking prevalences that were lower than the national health objective of 12%, and the prevalences remained low in 2006. These included Hispanic (10.1%) and Asian (4.6%) women, women with undergraduate (8.4%) or graduate (5.8%) degrees, men with undergraduate (10.8%) or graduate (7.3%) degrees, and women aged ≥65 years (8.3%).

In 2006, the age-adjusted prevalence of current smoking was 36.9% among persons with a smoking-related chronic disease and 19.3% among those without a chronic disease (Table 2). Current smoking prevalence was higher among persons with smoking-related cancers (other than lung cancer) (38.8%), coronary heart disease (CHD) (29.3%), and stroke (30.1%) than among persons without chronic diseases, and nearly half (49.1%) of U.S. adults with emphysema and 41.1% of those with chronic bronchitis were current smokers. With the exception of persons who had a stroke, persons with any smoking-related chronic disease

TABLE 2. Estimated age-adjusted prevalence of current smokers,* former smokers,† and never smokers§ among U.S. adults aged ≥18 years, by chronic disease status — National Health Interview Survey, United States, 2006

Disease	Current smokers %	Current smokers (95% CI¶)	Former smokers %	Former smokers (95% CI)	Never smokers %	Never smokers (95% CI)
Any smoking-related chronic disease**	36.9	(34.2–40.0)	26.0	(23.6–28.5)	37.1	(34.3–40.0)
Malignant neoplasms						
Lung	20.9	(9.5–39.8)	61.2	(41.5–77.9)	17.9	(8.0–35.6)
Other cancers††	38.8	(32.0–46.1)	33.2	(26.3–40.9)	28.0	(22.2–34.7)
Cardiovascular disease						
Coronary heart disease§§	29.3	(23.2–36.2)	31.8	(25.7–38.6)	38.9	(33.7–44.4)
Stroke	30.1	(22.6–38.8)	23.0	(17.8–29.1)	47.0	(38.4–55.8)
Respiratory disease						
Emphysema	49.1	(40.1–58.2)	28.6	(21.8–36.5)	22.3	(13.6–34.3)
Chronic bronchitis	41.1	(37.4–45.0)	20.0	(17.4–23.0)	38.9	(34.9–43.0)
Other chronic disease¶¶	23.0	(21.9–24.1)	23.5	(22.5–24.5)	53.5	(52.2–54.9)
No chronic disease	19.3	(18.4–20.2)	16.4	(15.4–17.4)	64.3	(63.1–65.6)

* Persons who reported smoking at least 100 cigarettes during their lifetimes and who, at the time of interview, reported smoking every day or some days.
† Persons who reported smoking at least 100 cigarettes during their lifetimes but who currently did not smoke.
§ Persons who reported never smoking 100 cigarettes during their lifetimes.
¶ Confidence interval.
** Includes smoking-related malignant neoplasms, cardiovascular diseases, and respiratory diseases. Cigarette smoking has been identified by the Surgeon General as a cause of these diseases (US Department of Health and Human Services. The health consequences of smoking: a report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, CDC; 2004).
†† Includes cancers of the bladder; cervix; esophagus; kidney; larynx-windpipe; mouth, tongue, or lip; pancreas; stomach; and throat-pharynx.
§§ Includes coronary heart disease, angina pectoris, and myocardial infarction.
¶¶ Includes chronic diseases that were not smoking related.

were significantly less likely to have never smoked than those with other chronic diseases (53.5%) or no chronic disease (64.3%). Persons with lung cancer (17.9%) and emphysema (22.3%) were least likely to be never smokers.

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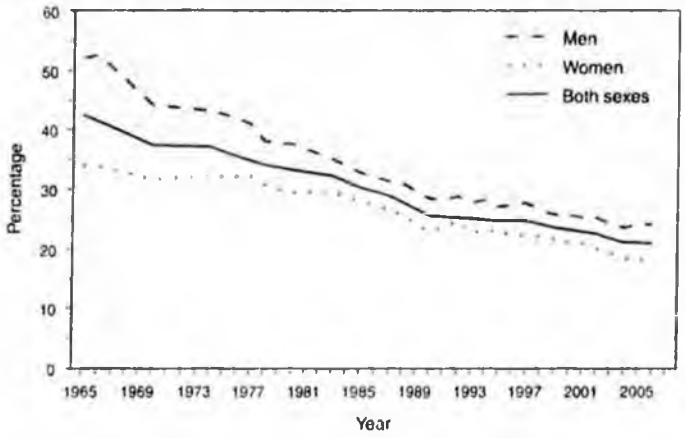
Editorial Note: Cigarette smoking remains the leading preventable cause of disease and death in the United States, resulting in approximately 438,000 deaths annually (*5*). The prevalence of cigarette smoking remained relatively unchanged during the early 1990s but gradually decreased from 1997 (24.7%) to 2004 (20.9%) (Figure). This report indicates that the prevalence of current smoking among U.S. adults in 2006 (20.8%) was not significantly different from the prevalence in 2004 (20.9%), suggesting a stall in previous declines. This lack of a decrease in cigarette use during 2 years might be a result of several factors. Most notably, funding for comprehensive state programs for tobacco control and prevention decreased by 20.3% from 2002 to 2006 (*6*), and tobacco-industry marketing expenditures nearly doubled from 1998 ($6.7 billion) to 2005 ($13.1 billion) (*7*). In 2005, approximately 81% ($10.6 billion) of tobacco-industry marketing expenditures were related to discounting strategies (e.g., coupons, two-for-one offers, or promotional discounts for retailers or wholesalers) (*7*) that reduce the impact of increases in the unit price of tobacco, which are effective in preventing initiation of smoking and increasing cessation.†

Among smokers who already have a smoking-related chronic disease, those who quit have a lower risk for death from the disease than those who continue smoking (*8*). Smokers who quit have a slower rate of decline in lung function and a lower incidence of bronchitis, emphysema, and other respiratory conditions than persons who continue to smoke (*8*). Among smokers with CHD, those who quit have a lower risk for further CHD-related morbidity and mortality than those who continue to smoke (*8*). In addition, smokers who have cancer and who continue smoking during treatment decrease treatment effectiveness, overall survival prognosis, and quality of life and increase the risk for having another malignancy or comorbid condition (*9*). The continuation of smoking among those who have smoking-related chronic diseases described in this report highlights the need for health-care providers to emphasize the importance of quitting. Health-care providers should repeatedly offer intensive smoking-cessation interventions to all of their patients, especially those with smoking-related chronic diseases who continue to smoke.

The findings in this report are subject to at least three limitations. First, estimates of cigarette smoking are based on self-report and are not validated by biochemical tests. However, self-reported population-based data on current smoking status have high validity when compared with measured serum cotinine levels (*10*). Second, the NHIS questionnaire is administered in English and Spanish only, which might have resulted in imprecise estimates for certain racial/ethnic subgroups because of language barriers. Third, the small NHIS samples for certain population groups (e.g.,

† CDC. The guide to community preventive services: tobacco. Available at http://www.thecommunityguide.org/tobacco.

FIGURE. Estimated percentage of persons aged ≥18 years who were current smokers,* by sex — National Health Interview Survey, United States, 1965–2006



*During 1965–1991, current smokers were defined as persons who reported smoking at least 100 cigarettes during their lifetimes and who, at the time of interview, reported smoking ("Have you smoked at least 100 cigarettes in your entire life?" and "Do you smoke cigarettes now?"). In 1992, the definition changed to more accurately assess intermittent smoking (i.e., smoking on some days) and included persons who reported they smoked either every day or some days ("Do you now smoke cigarettes every day, some days, or not at all?")

American Indians/Alaska Natives) resulted in unstable single-year estimates with large confidence intervals.

Since the 1960s, smoking prevalence in the United States has decreased substantially (Figure); however, recent data suggest that declines in both adolescent and adult smoking prevalence might be stalling. Cigarette smoking continues to result in substantial costs. The economic costs of smoking in the United States are estimated at $167 billion annually ($92 billion in productivity losses from premature death and $75.5 billion in health-care expenditures) (5). In 2007, the Institute of Medicine concluded that funding comprehensive tobacco-control programs at levels recommended by CDC and regulations designed to foster policy innovations are essential strategies that should be implemented to reduce tobacco use (3).

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Salmonella Typhimurium Infection Associated with Raw Milk and Cheese Consumption — Pennsylvania, 2007

In February 2007, the Pennsylvania Department of Health received reports, through routine electronic laboratory disease reporting, of two persons with recent laboratory-confirmed infections with *Salmonella enterica* serotype Typhimurium. Both persons had reported drinking raw (unpasteurized) milk from the same York County, Pennsylvania, dairy (dairy A). *S.* Typhimurium isolates from these persons had pulsed-field gel electrophoresis (PFGE) patterns that were indistinguishable by use of the *Xba*I restriction enzyme. The same month, the Pennsylvania Department of Agriculture (PDA) received reports of illness from raw-milk customers of dairy A. PDA obtained milk samples from the raw-milk bulk tank at dairy A, which yielded *S.* Typhimurium with a PFGE pattern that was identical to the pattern from patient isolates. On February 26, the Pennsylvania Department of Health and PDA launched an investigation to determine the source and scope of the outbreak. This report summarizes the findings of that investigation, which determined that 29 cases of diarrheal illness caused by *S.* Typhimurium were associated with consumption of raw milk or raw-milk products from dairy A. The findings underscore the need to inform policymakers and the public of the potential health risks associated with raw-milk consumption.

Epidemiologic and Laboratory Investigation

In Pennsylvania, raw-milk sales are legal at farms that hold a PDA permit, and vendors must display public notices regarding the potential hazards of consuming raw milk (*1*). Dairy A owned 120 cows and sold raw milk for pasteurization and by PDA permit directly to consumers. In February 2007, PDA estimated that dairy A was selling 200–300 gallons of raw milk weekly to 275 regular customers.

A case of salmonellosis was defined as a diarrheal illness with onset since February 1, 2007, in a Pennsylvania resident who provided a stool specimen that tested positive for *S.* Typhimurium with a PFGE pattern that matched the outbreak pattern by use of the *Xba*I restriction enzyme. Nationally notifiable disease reports from Pennsylvania since January 2005 were reviewed for PFGE-matched *S.* Typhimurium isolates to identify cases and risk factors. To locate additional cases, ill household contacts of persons with confirmed cases were asked to provide food histories and submit stool specimens for testing. Raw milk for testing was obtained from dairy A milk tanks on five dates (February 20, February 28, March 27, May 14, and July 19) and from households of two ill persons on two dates (February 28 and July 20). In addition, PDA conducted multiple dairy A inspections during February–July 2007.

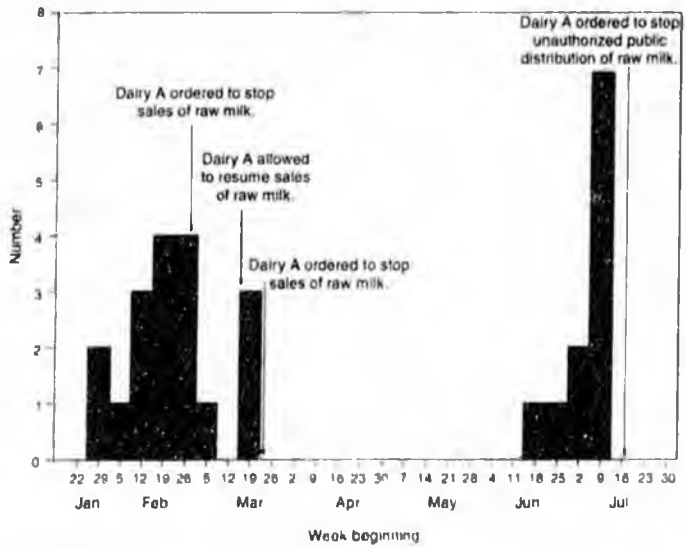
Investigative Findings

A total of 29 cases were identified, with illness onset occurring in three temporal clusters during February 3–July 14, 2007 (Figure). The first cluster consisted of 15 cases with onsets of illness from February 3 to March 5. Raw-milk samples were collected February 20 from a dairy A bulk milk tank and February 28 from the home of an ill person. Both sets of samples yielded the outbreak strain of *S.* Typhimurium. On March 2, PDA ordered dairy A to stop raw-milk sales and advised the public not to consume raw-milk products from dairy A.

On March 19, PDA allowed dairy A to resume sales of raw milk after PDA conducted inspections and recorded two consecutive negative cultures from milk-tank samples. However, a second cluster of three cases was detected when the outbreak strain of *S.* Typhimurium was identified in another patient, whose diarrheal illness began on March 21 and who had consumed raw milk from dairy A after sales resumed. The two additional cases were identified in persons with onsets of illness on March 19 and March 22. The first of these occurred in one of six ill persons who primarily spoke Spanish and who told investigators they had not consumed raw milk. However, when reinterviewed in early April, three of these six persons reported consuming queso fresco (a type of soft cheese) they bought at a grocery store serving the local Hispanic community. PDA learned that the queso fresco had been made by an unlicensed producer who purchased approximately 20 gallons of raw milk weekly from dairy A. Sale of raw-milk cheeses aged <60 days is illegal in Pennsylvania. Subsequently, in April, PDA inspectors seized 18 unlabeled retail containers of queso fresco from the gr ry store. The cheese tested positive for alkaline phosphatase, indicating the cheese was produced from unpasteurized milk (*2*). Bacterial cultures were negative for pathogens.

On March 27, PDA again ordered dairy A to halt raw-milk sales and suspended its raw-milk permit. No additional cases were noted until June–July 2007, when a third cluster of 11 PFGE-matched *S.* Typhimurium cases was detected through routine electronic laboratory reporting. Of these, 10 occurred among residents of three counties near dairy A. On July 19, PDA confirmed that dairy A had been distributing raw milk to the public despite its suspended permit; the date when illegal milk distribution began could not be determined. The outbreak strain of *S.* Typhimurium was isolated from dairy A raw milk collected from a bulk milk tank on July 19 and from the home of an ill person on July 20. PDA ordered dairy A to halt distribution of raw milk on July 20 and subsequently revoked the raw-milk permit for this dairy.

FIGURE. Number of cases* of diarrheal illness caused by infection with *Salmonella* Typhimurium, indistinguishable by pulsed-field gel electrophoresis, by week of illness onset — Pennsylvania, 2007



* N = 29.

Among the 29 persons identified with diarrheal illness and PFGE-matched *S.* Typhimurim, 17 (59%) were male, and the median age was 6 years (range: 5 months–76 years). Fourteen (48%) patients reported drinking raw milk from dairy A, four (14%) consumed unregulated queso fresco (three linked to dairy A raw milk and one from an unknown source), and two (7%) consumed raw milk but did not identify the source. Two (7%) other patients were unrelated infants aged 5 months and 7 months. The parents of these infants acknowledged that raw milk from dairy A was present in their households but told investigators the milk was not consumed by the infants. For seven (24%) patients who did not reside with any of the other patients, no source of exposure to *S.* Typhimurium could be determined. Two of the 29 patients were hospitalized; no deaths were reported.

Environmental Inspections

Eight PDA inspections of dairy A conducted during January–April 2007 revealed improper cleaning of milking equipment, insufficient supervision of workers, unspecified illness among lactating cows, and bird and rodent infestation. On at least two inspections, the required public notice regarding the potential hazards of drinking raw milk was not visible at the dairy A retail store.

S. Typhimurium matched by PFGE to the outbreak pattern was isolated from dairy A raw-milk tank samples collected on three different dates (February 20, May 14, and July 19); an *S.* Typhimurium isolate collected from a milk tank February 28 was unavailable for PFGE typing. In addition to *Salmonella*, dairy A raw-milk tank samples also yielded *Listeria monocytogenes* (February 28, May 14, and July 19) and *Campylobacter jejuni* (February 28 and May 14). Although a stool specimen from one patient with February 28 illness onset yielded both *S.* Typhimurium and *C. jejuni*, the *Campylobacter* isolate was unavailable for subtyping. No *Listeria* infections were associated with dairy A.

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Editorial Note: Raw milk is a well-documented source of infections from *Salmonella*, *Escherichia coli* O157:H7, *Campylobacter*, *Listeria*, *Mycobacterium bovis*, and other pathogens (*2–6*). In 1938, before widespread adoption of milk pasteurization in the United States, an estimated 25% of all foodborne and waterborne outbreaks of disease were associated with milk (*7*). By 2001, the percentage of such outbreaks associated with milk was estimated at <1% (*7*). During 1998–2005, a total of 45 outbreaks of foodborne illness were reported to CDC in which unpasteurized milk (or cheese suspected to have been made from unpasteurized milk) was implicated. These outbreaks accounted for 1,007 illnesses, 104 hospitalizations, and two deaths (CDC, unpublished data, 2007). Because not all cases of foodborne illness are recognized and reported, the actual number of illnesses associated with unpasteurized milk likely is greater.

In the investigations described in this report, the evidence indicating raw milk from dairy A as the source of this outbreak included the 1) high percentage of ill persons who reported consuming either raw milk (48%) or queso fresco traced to raw milk (10%) from dairy A, 2) temporal associations between clusters of illnesses and starts and stops of distribution of raw milk by dairy A, and 3) repeated isolation of the outbreak strain of *S.* Typhimurium from dairy A raw-milk tanks. The PFGE pattern of the outbreak strain (*Xba*I JPXX01.0022) is rare, previously identified only 24 times in isolates from 11 states in 3 years, in a national PulseNet database of approximately 43,000 *S.* Typhimurium isolates.

Consumers have reported consuming raw milk for convenience, taste preference, or perceived health benefits. Although some advocates claim health benefits from raw milk compared with pasteurized milk, including decreased risks for atherosclerosis, arthritis, and lactose intolerance, such claims are not supported by scientific evidence (*8*). Unsubstantiated claims of health benefits of raw milk for infants and children are particularly concerning for caregivers because infants and children are dependent on their caregivers to make safe dietary decisions for them. Sixteen of the 29 ill persons in this outbreak were aged <7 years.

Pathogens that infect humans are shed in the feces of cows, can be present in or on the udders of cows, and can contaminate their milk. Standard hygiene practices during milking can reduce but not eliminate the risk for milk contamination. In a 2001–2002 survey of Pennsylvania dairy farms, pathogenic bacteria, including *Salmonella*, were isolated from 13% of samples from raw-milk bulk tanks (*9*). Pasteurization decreases the number of pathogenic organisms, prevents transmission of pathogens, and has been determined to improve the safety of milk more than other measures, including certification of raw milk (*4,5*).

Farms in Pennsylvania that hold PDA raw-milk permits undergo twice-monthly milk testing for coliforms and standard plate counts and monthly testing for growth inhibitors and somatic cell counts; annual PDA inspection and culture of raw milk for *Salmonella*, *Campylobacter*, *E. coli* O157, and *L. monocytogenes*; and annual herd skin testing

for *Mycobacterium bovis* and *Brucella* (*1*). Despite these measures, consumers cannot be assured that certified raw milk is free of pathogens.

As of 2004, at least 27 states permitted some form of raw-milk sales to the public, including sales at dairies, farmers' markets, or through purchase of "cow shares." Certain states also allow public sales of raw milk but for pet food only (*10*). In Pennsylvania, the number of dairies with raw-milk permits increased from 42 in 2005 to 75 in 2007. During 2006–2007, three clusters of illness from *Campylobacter* were associated with consumption of raw milk from three different Pennsylvania dairies (Pennsylvania Department of Health, unpublished data, 2007). During the same period, PDA announced raw-milk recalls from three other dairies after finding *L. monocytogenes* in milk samples; no human illness was associated with these findings.

Given the continued interest in raw-milk production, policymakers, parents, and the public need to be informed regarding the potential health risks posed by raw-milk consumption. The only sure way for consumers to prevent raw-milk–associated infection from *Salmonella* or other pathogens is to refrain from consuming raw milk.

Acknowledgments

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Syringe Exchange Programs — United States, 2005

Syringe exchange programs (SEPs) provide free sterile syringes* in exchange for used syringes to reduce transmission of bloodborne pathogens among injection-drug users (IDUs) (*1*). SEPs in the United States began as a way to prevent the spread of human immunodeficiency virus (HIV) and other bloodborne infections such as hepatitis B and hepatitis C. The National Institute on Drug Abuse recommends that persons who continue to inject drugs use a new, sterile syringe for each injection (*2*). Monitoring syringe exchange activity is an important part of assessing HIV prevention measures in the United States. As of November 2007, a total of 185 SEPs were operating in 36 states, the District of Columbia (DC), and Puerto Rico (North American Syringe Exchange Network [NASEN], unpublished data, 2007). This report summarizes a survey of SEP activities in the United States during 2005 and compares the findings with previous SEP surveys (*3–7*; Beth Israel Medical Center [BIMC], unpublished data, 2000 and 2004). The findings indicated an increase in overall funding for SEPs, including an increase in public funding, and a stabilization in both the number of SEPs operating and the number of syringes exchanged since 2004. This report also documents an expansion of services offered by SEPs, a trend that resulted from an increase in state and local funding. These expanded services are helping protect IDUs and their communities from the spread of bloodborne pathogens and are providing access to health services for a population at high risk. Monitoring of syringe exchange activity should continue.

In March 2006, staff members from BIMC and NASEN mailed surveys to directors of all 166 SEPs registered with NASEN at that time (compared with 68 known SEPs for the 1994–1995 survey, 101 for 1996, 113 for 1997, 131 for 1998, 154 for 2000, 148 for 2002, and 174 for 2004) (*3–7*; BIMC, unpublished data, 2000 and 2004). Registration with NASEN provides important benefits to SEPs and does not involve any cost; thus, nearly all SEPs in the

* For this report, the term "syringes" refers to both syringes and needles.

United States are likely to be registered. The surveys included questions regarding the number of syringes exchanged, the types of services provided, and budgets and funding during 2005. Data for 2005 were collected during March–August 2006. Telephone interviews were conducted to clarify responses received on surveys. The methods were similar to those used in previous SEP surveys, except for an Internet-based option that was used in the 2002 survey only.

Of the 166 SEPs contacted, 118 (71%) completed the survey. These 118 SEPs reported operating in 91 cities[†] in 28 states/territories[§] and in DC. A total of 79 (67%) SEPs were operating in six states: 22 in California, 17 in New Mexico, 15 in Washington, 10 in Wisconsin, nine in New York, and six in Connecticut.

SEP size was determined by the number of syringes exchanged during 2005 (Table 1); 117 SEPs reported exchanging a total of 22,472,168 syringes (one SEP did not track the number of syringes exchanged in 2005). The 12 largest programs exchanged 11,863,932 (53% of all the syringes exchanged).[¶]

In addition to exchanging syringes, SEPs provided various supplies, services, and referrals in 2005 (Table 2). Nearly all SEPs provided alcohol pads (117 [99%]), male condoms (115 [97%]), and referrals to substance-abuse treatment 102 (86%). Certain medical services also were offered by SEPs, including counseling and testing for HIV (96 [81%]) and hepatitis C (66 [56%]). Vaccinations for hepatitis B were provided by 46 (39%) SEPs, and hepatitis A vaccinations were provided by 43 (37%). Thirty-four (29%) SEPs offered other on-site medical care.

In 2005, many SEPs operated multiple sites, including fixed sites and mobile van routes. The total number of hours that clients were served by SEPs was summed for all sites operated by each program. This total number of hours per program ranged from 1 to 168 hours per week (mean: 26 hours per week; median: 20 hours per week). Delivery of syringes and other risk-reduction supplies to residences or meeting spots was reported by 56 (47%) SEPs. A total of 110 (93%) SEPs allowed persons to exchange syringes on behalf of other persons (i.e., secondary exchange).

TABLE 1. Number of syringes exchanged by syringe exchange programs (SEPs), by program size — United States, 2005

SEP size	No. of syringes exchanged per SEP	No. of SEPs	Total no. of syringes exchanged	% of total syringes exchanged
Small	<10,000	24	89,626	0.4
Medium	10,000–55,000	33	810,953	3.6
Large	55,001–499,999	48	9,707,657	43.0
Very large	≥500,000	12	11,863,932	53.0
Total		**117***	**22,472,168**	**100.0**

* One of the 118 programs responding to the survey did not track the number of syringes exchanged in 2005.

TABLE 2. Number and percentage of syringe exchange programs (SEPs),* by selected supplies and services provided — United States, 2005

Supplies and services	No.	(%)
Prevention supplies		
Male condoms	115	(97)
Female condoms	98	(83)
Alcohol pads	117	(99)
Bleach	82	(69)
On-site medical screenings and services		
HIV counseling and testing	96	(81)
Hepatitis C counseling and testing	66	(56)
Hepatitis B counseling and testing	44	(37)
Hepatitis A counseling and testing	28	(24)
Hepatitis B vaccination	46	(39)
Hepatitis A vaccination	43	(37)
Sexually transmitted disease (STD) screening	57	(49)
Tuberculosis screening	33	(28)
On-site medical care	34	(29)
Referrals		
Substance-abuse treatment	102	(86)
Education		
HIV/AIDS prevention	116	(98)
Hepatitis A, B, and C prevention	114	(97)
Safer injection practice	113	(96)
Vein care	110	(93)
STD prevention	110	(93)
Abscess prevention	107	(91)
Male condom use	112	(95)
Female condom use	97	(82)

* N = 118.

† Cities with more than one SEP: Eureka, Los Angeles, Oakland, and San Francisco, California; Detroit, Michigan; Minneapolis, Minnesota; Albuquerque and Farmington, New Mexico; New York, New York; Burlington, Vermont; Bremerton, Seattle, and Tacoma, Washington; and Madison and Milwaukee, Wisconsin.

§ States/territories with SEPs: California (22), New Mexico (17); Washington (15); Wisconsin (10); New York (nine); Connecticut (six); Illinois (four); Massachusetts, Michigan, Minnesota, Oregon, and Vermont (three each); Louisiana, Maine, and Texas (two each); and Alaska, Colorado, Georgia, Hawaii, Indiana, Kansas, Missouri, New Jersey, North Carolina, Oklahoma, Pennsylvania, Puerto Rico, and Utah (one each). In addition, DC has one SEP.

¶ States with SEPs that exchanged ≥500,000 syringes in 2005: California (four SEPs); Washington (three); Illinois, New Mexico, Oregon, Pennsylvania, and Wisconsin (one each). The largest-volume SEPs were San Francisco AIDS Foundation HIV Prevention Project (2.3 million syringes exchanged per year), Chicago Recovery Alliance, Chicago, Illinois (2.3 million); Street Outreach Services, Seattle, Washington (1.0 million); HIV Education and Prevention Project of Alameda, Oakland, California (0.9 million); Public Health – Seattle & King County Needle Exchange, Seattle, Washington (0.9 million); Point Defiance AIDS Project, Tacoma, Washington (0.8 million); San Diego Clean Needle Exchange Program, San Diego, California (0.8 million); SANA Needle Exchange Program/HIV Alliance, Eugene, Oregon (0.6 million); Prevention Point Pittsburgh, Pittsburgh, Pennsylvania (0.6 million); Lifepoint, Milwaukee, Wisconsin (0.5 million); Homeless Healthcare, Los Angeles, California (0.5 million); and Project De Sida, Albuquerque, New Mexico (0.5 million).

A total of 114 SEPs reported budget information for 2005; four SEPs lacked budget information for this period. The reported budgets for these 114 SEPs totaled $15.2 million (Table 3). Some SEPs received funding from a common source, and allocating funds from the common source to individual programs was not always possible. For the 97 SEPs for which individual budget information could be generated, the 2005 budgets ranged from $648 to $1,516,375. The mean SEP budget increased from $131,301 in 2004 to $133,450 in 2005. In 2005, a total of 30 (31%) SEPs operated with a budget of <$25,000, 29 (30%) with $25,000–$100,000, and 38 (39%) with >$100,000. SEPs reported multiple sources of financial support in 2005, including individuals, foundations, and state and local governments. In 2005, a total of 72 (61%) of the 118 SEPs that responded to the survey received public funding totaling nearly $11.3 million from city, county, and state governments,** accounting for approximately 74% of total funding. The total amount of public funding increased by nearly $2 million in 2005, and the mean public funding budgets increased by nearly $10,000 ($145,633 in 2004 versus $157,273 in 2005). Federal law prohibits the use of federal funds to support SEPs.

From the period 1994–1995, when the first national survey of SEPs was conducted, to 2002, the number of SEPs and the number of syringes exchanged by these programs increased consistently. However, in 2005, a reduction was observed in the number of SEPs and syringes exchanged. In 2005, eight fewer SEPs were operating than previously indicated by results from the 2004 survey (BIMC, unpublished data, 2004), and two fewer states had SEPs operating. However, four additional cities had SEPs operating in 2005, compared with 2004. The number of syringes exchanged decreased from approximately 24.0 million in 2004 to 22.5 million in 2005.

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Editorial Note: Compared with data from previous national SEP surveys, the findings in this report indicate an overall stabilization in the number of SEPs operating in the United States. Total funding of SEPs increased in 2005 despite a reduction in the number of SEPs. Increases in funding, particularly public funding, provided opportunities for SEPs to expand the types of services they provide. As a result of these increases, many SEPs have evolved into larger, community-based organizations that provide numerous social and medical services to IDUs and their communities (e.g., testing for HIV and hepatitis A, hepatitis B, and hepatitis C; vaccinations for hepatitis A and hepatitis B; and general medical care). These more costly services have been added to many SEPs during the past several years, and continued increases in funding might make these services more available. By expanding such services, SEPs are becoming part of a comprehensive approach to the prevention of bloodborne infections among IDUs and their communities.

The findings in this report are subject to at least three limitations. First, the extent of SEP activity in the United States is likely underestimated because 48 (29%) of the SEPs known to NASEN did not complete the survey. Other

** State/territorial governments providing public funding: California, Connecticut, Georgia, Hawaii, Illinois, Massachusetts, New Mexico, New York, Oregon, Puerto Rico, Washington, and Wisconsin. County governments providing public funding: Clark, King, Pierce, and Skagit, Washington; Alameda, Humboldt, Los Angeles, and Santa Clara, California; Dane and Eau Claire, Wisconsin; Boulder, Colorado; Cook, Illinois; and Lane and Multnomah, Oregon. City governments providing public funding: Inglewood, Los Angeles, Reseda, and San Francisco, California; Seattle and Vancouver, Washington; Chicago, Illinois; Milwaukee and Madison, Wisconsin; New York, New York; and Bridgeport, Connecticut.

TABLE 3. Characteristics of syringe exchange programs (SEPs) — United States, 1994–1998, 2000, 2002, 2004, and 2005

Characteristic	1994–1995	1996	1997	1998	2000*	2002	2004*	2005
No. of SEPs known to NASEN†	68	101	113	131	154	148	174	166
No. of known SEPs participating in survey (%)	60 (88)	87 (86)	100 (88)	110 (84)	127 (82)	126 (85)	109 (63)	118 (71)
No. of cities with known SEPs participating in survey	46	71	80	81	106	102	87	91
No. of states§ (territories) with known SEPs participating in survey	20 (1)	28 (1)	30 (2)	31 (2)	33 (2)	31 (1)	30 (1)	28 (1)
No. of syringes exchanged (millions)	8.0	13.9	17.5	19.4	22.6	24.9	24	22.5
Total SEP budgets (in millions of dollars)	6.2	6.5	8.4	8.6	12.1	13.0	13.5	15.2
Total public funding budget (in millions of dollars)	2.3	4.5	4.2	6.0	8.9	7.3	9.5	11.3

* Based on unpublished data from 2000 and 2004 surveys of SEP activities, Beth Israel Medical Center, New York, New York.
† North American Syringe Exchange Network.
§ Includes District of Columbia.

SEPs might exist but are not known to NASEN. Second, certain SEPs operating within larger organizations were not able to report exact budget information because of difficulties in allocating shared costs across administrative units. Finally, data collected were based on self-reports by program directors and were not verified independently.

Although the number of SEPs in the United States has stabilized, many SEPs are providing a wider range of services than initially offered. On-site medical services are being provided by an increasing number of SEPs. IDUs often encounter problems in accessing health care, and offering these services in SEP locations increases the likelihood that IDUs will receive these services.

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Notice to Readers

Satellite Broadcast and Webcast: Cutting-Edge Legal Preparedness for Chronic Disease Prevention

Public Health Grand Rounds, a project sponsored by CDC in collaboration with the University of North Carolina School of Public Health, will air a satellite broadcast and webcast, "Cutting-Edge Legal Preparedness for Chronic Disease Prevention," on November 29, 2007, at 2:00 p.m. EST. CDC's Public Health Law Program and National Center for Chronic Disease Prevention and Health Promotion will present the broadcast, which describes innovative use of public health laws in New York City, such as posting caloric information on restaurant menus, phasing out use of trans fats, requiring laboratory reporting of blood-glucose test results, and prohibiting smoking in nearly all workplaces.

Additional information and broadcast registration are available at http://www.publichealthgrandrounds.unc.edu. Continuing education credit will be offered to participants.

Notice to Readers

World COPD Day — November 14, 2007

Chronic obstructive pulmonary disease (COPD) describes a group of slowly progressive diseases (e.g., chronic bronchitis or emphysema) characterized by airflow obstruction that interferes with normal breathing (*1*). COPD is the fourth leading cause of death in the United States and a major cause of morbidity and disability, resulting in substantial costs to persons and society. Smoking is the most common cause of COPD, accounting for approximately 80% of COPD cases (*2*). Other causes include exposure to occupational hazards, air pollution, and secondhand smoke. To increase global awareness of COPD and the importance of early diagnosis, the Global Initiative for Chronic Obstructive Lung Disease (http://www.goldcopd.com) is sponsoring World COPD Day on November 14, 2007.

Early diagnosis of COPD is important for better outcomes. The National Heart, Lung, and Blood Institute (NHLBI) recommends that persons at risk for COPD who have cough, sputum production, or shortness of breath should be tested for the disease using spirometry, a simple breathing test for assessing lung function (*3*). Persons who smoke or those at risk for COPD should stop smoking and avoid areas with tobacco smoke. Resources to help smokers quit are available at http://www.smokefree.gov, at the National Cancer Institute website (http://www.cancer.gov), or by telephone (800-QUIT-NOW [800-784-8669]).

NHLBI and the COPD Foundation also have initiated the Learn More, Breathe Better Campaign to heighten awareness of COPD as a serious lung disease, increase the understanding that COPD is treatable, and encourage those at risk for COPD to talk with their physicians and get a breathing test. A tool kit has been developed to help partner organizations share campaign information with their communities (*2*).

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TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending November 3, 2007 (44th Week)*

Disease	Current week	Cum 2007	5-year weekly average†	Total cases reported for previous years 2006	2005	2004	2003	2002	States reporting cases during current week (No.)
Anthrax	—	—	—	1	—	—	—	2	
Botulism:									
foodborne	—	16	0	20	19	16	20	28	
infant	—	70	1	97	85	87	76	69	
other (wound & unspecified)	—	19	1	48	31	30	33	21	
Brucellosis	1	101	3	121	120	114	104	125	FL (1)
Chancroid	2	30	1	33	17	30	54	67	TX (2)
Cholera	—	5	0	9	8	5	2	2	
Cyclosporiasis§	—	88	1	136	543	171	75	156	
Diphtheria	—	—	0	—	—	—	1	1	
Domestic arboviral diseases¶,*:									
California serogroup	—	27	1	67	80	112	108	164	
eastern equine	—	3	0	8	21	6	14	10	
Powassan	—	1	—	1	1	1	—	1	
St. Louis	—	4	0	10	13	12	41	28	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis¶:									
human granulocytic	5	433	10	646	786	537	362	511	NY (1), MN (4)
human monocytic	4	550	7	578	506	338	321	216	NY (1), NC (1), OK (2)
human (other & unspecified)	2	141	1	231	112	59	44	23	NC (1), TN (1)
Haemophilus influenzae,**									
invasive disease (age <5 yrs):									
serotype b	—	14	0	29	9	19	32	34	
nonserotype b	1	115	3	175	135	135	117	144	IN (1)
unknown serotype	5	181	3	179	217	177	227	153	OH (2), GA (2), UT (1)
Hansen disease¶	2	51	2	66	87	105	95	96	FL (1), CA (1)
Hantavirus pulmonary syndrome¶	—	22	0	40	26	24	26	19	
Hemolytic uremic syndrome, postdiarrheal¶	4	183	4	288	221	200	178	216	NY (1), OH (1), TN (1), CA (1)
Hepatitis C viral, acute	3	554	19	802	652	713	1,102	1,835	FL (1), TX (1), CA (1)
HIV infection, pediatric (age <13 yrs)††	—	—	6	52	380	436	504	420	
Influenza-associated pediatric mortality¶,§§	—	73	0	43	45	—	N	N	
Listeriosis	5	577	18	875	896	753	696	665	OH (1), IN (1), TN (1), TX (1), CA (1)
Measles¶¶	—	30	1	55	66	37	56	44	
Meningococcal disease, invasive***:									
A, C, Y, & W-135	3	234	4	318	297	—	—	—	PA (1), MN (2)
serogroup B	2	110	2	193	156	—	—	—	TX (2)
other serogroup	1	26	1	32	27	—	—	—	OH (1)
unknown serogroup	7	497	12	651	765	—	—	—	NY (1), OH (1), NC (1), FL (2), CA (2)
Mumps	13	635	10	6,584	314	258	231	270	NY (1), OH (1), MN (6), MO (3), WA (2)
Novel influenza A virus infections	—	4	—	N	N	N	N	N	
Plague	—	6	0	17	8	3	1	2	
Poliomyelitis, paralytic	—	—	—	—	1	—	—	—	
Poliovirus infection, nonparalytic¶	—	—	—	N	N	N	N	N	
Psittacosis¶	—	6	0	21	16	12	12	18	
Q fever¶	1	142	1	169	136	70	71	61	FL (1)
Rabies, human	—	—	0	3	2	7	2	3	
Rubella†††	—	11	—	11	11	10	7	18	
Rubella, congenital syndrome	—	—	—	1	1	—	1	1	
SARS-CoV¶,§§§	—	—	—	—	—	—	8	N	
Smallpox¶	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome¶	—	83	2	125	129	132	161	118	
Syphilis, congenital (age <1 yr)	3	376	8	380	329	353	413	412	NY (1), VA (1), TX (1)
Tetanus	—	16	1	41	27	34	20	25	
Toxic-shock syndrome (staphylococcal)¶	2	66	2	101	90	95	133	109	PA (1), CA (1)
Trichinellosis	—	6	0	15	16	5	6	14	
Tularemia	—	103	2	95	154	134	129	90	
Typhoid fever	4	291	6	353	324	322	356	321	OH (1), NC (1), AZ (1), CA (1)
Vancomycin-intermediate *Staphylococcus aureus*¶	—	19	0	6	2	—	N	N	
Vancomycin-resistant *Staphylococcus aureus*¶	—	—	0	1	3	1	N	N	
Vibriosis (noncholera *Vibrio* species infections)¶	3	318	2	N	N	N	N	N	FL (1), AZ (1), CA (1)
Yellow fever	—	—	—	—	—	—	—	1	

— No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

* Incidence data for reporting year 2007 are provisional, whereas data for 2002, 2003, 2004, 2005, and 2006 are finalized.

† Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at http://www.cdc.gov/epo/dphsi/phs/files/5yearweeklyaverage.pdf.

§ Not notifiable in all states. Data from states where the condition is not notifiable are excluded from this table, except in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/epo/dphsi/phs/infdis.htm.

¶ Includes both neuroinvasive and nonneuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for West Nile virus are available in Table II.

** Data for *H. influenzae* (all ages, all serotypes) are available in Table II.

†† Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Updates of pediatric HIV data have been temporarily suspended until upgrading of the national HIV/AIDS surveillance data management system is completed. Data for HIV/AIDS, when available, are displayed in Table IV, which appears quarterly.

§§ Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. A total of 71 cases were reported for the 2006–07 flu season.

¶¶ No measles cases were reported for the current week.

*** Data for meningococcal disease (all serogroups) are available in Table II.

††† No rubella cases were reported for the current week.

§§§ Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting Area	Chlamydia† Current week	Chlamydia† Previous 52 weeks Med	Chlamydia† Previous 52 weeks Max	Chlamydia† Cum 2007	Chlamydia† Cum 2006	Coccidioidomycosis Current week	Coccidioidomycosis Previous 52 weeks Med	Coccidioidomycosis Previous 52 weeks Max	Coccidioidomycosis Cum 2007	Coccidioidomycosis Cum 2006	Cryptosporidiosis Current week	Cryptosporidiosis Previous 52 weeks Med	Cryptosporidiosis Previous 52 weeks Max	Cryptosporidiosis Cum 2007	Cryptosporidiosis Cum 2006
United States	10,911	20,512	25,327	865,097	867,973	122	144	558	6,298	6,699	139	83	964	9,152	4,896
New England	187	699	1,357	28,932	28,421	—	0	1	2	—	2	5	39	283	346
Connecticut	—	217	829	8,684	8,404	N	0	0	N	N	—	0	39	39	38
Maine§	45	50	74	2,168	1,919	—	0	0	—	—	—	1	6	45	40
Massachusetts	—	301	480	12,943	12,735	—	0	0	—	—	2	2	11	107	169
New Hampshire	52	39	74	1,801	1,659	—	0	1	2	—	—	1	5	47	41
Rhode Island§	78	62	106	2,587	2,721	—	0	0	—	—	—	0	3	8	14
Vermont§	12	20	45	749	983	N	0	0	N	N	—	1	3	37	44
Mid. Atlantic	1,263	2,735	4,284	119,255	106,340	—	0	0	—	—	8	10	113	1,201	575
New Jersey	—	399	528	16,859	17,201	N	0	0	N	N	—	0	6	41	42
New York (Upstate)	730	515	2,758	22,820	20,558	N	0	0	N	N	6	3	20	218	145
New York City	—	951	1,982	41,123	34,999	N	0	0	N	N	—	1	6	79	134
Pennsylvania	533	754	1,760	38,453	33,582	N	0	0	N	N	2	4	103	863	254
E.N. Central	317	3,135	6,220	139,299	145,187	—	1	3	26	39	21	18	130	1,537	1,220
Illinois	—	945	1,367	39,704	45,773	—	0	0	—	—	—	2	13	145	185
Indiana	—	397	646	17,179	16,797	—	0	0	—	—	4	1	12	92	86
Michigan	124	705	1,059	29,181	30,227	—	0	3	17	33	1	3	11	155	128
Ohio	69	750	3,647	37,564	34,938	—	0	1	9	6	12	5	61	519	318
Wisconsin	124	367	443	15,671	17,452	N	0	0	N	N	4	6	58	626	503
W.N. Central	631	1,212	1,465	51,522	52,674	—	0	54	7	1	22	13	123	1,345	786
Iowa	120	162	252	7,376	7,108	N	0	0	N	N	—	2	61	574	164
Kansas	148	154	294	6,847	6,726	N	0	0	N	N	3	1	15	87	76
Minnesota	—	256	314	10,254	10,932	—	0	54	—	—	17	3	34	254	193
Missouri	321	455	551	19,688	19,579	—	0	1	7	1	2	2	13	130	177
Nebraska§	—	99	183	3,956	4,566	N	0	0	N	N	—	1	21	132	89
North Dakota	—	27	61	1,209	1,558	N	0	0	N	N	—	0	11	15	9
South Dakota	42	49	85	2,192	2,205	N	0	0	N	N	—	2	15	154	78
S. Atlantic	3,199	3,921	6,760	169,595	166,982	—	0	1	3	4	41	20	68	1,069	1,018
Delaware	122	84	140	2,899	3,052	—	0	0	—	—	—	0	4	20	13
District of Columbia	—	103	166	4,627	2,641	—	0	0	—	—	—	0	2	3	15
Florida	1,261	1,141	1,767	49,730	41,934	N	0	0	N	N	20	11	35	577	462
Georgia	9	640	3,822	20,966	30,387	N	0	0	N	N	8	4	22	202	243
Maryland§	477	393	696	17,131	18,008	—	0	1	3	4	1	0	2	29	16
North Carolina	296	550	1,905	23,672	28,721	—	0	0	—	—	—	1	18	101	86
South Carolina§	531	506	3,030	27,231	19,308	N	0	0	N	N	12	1	5	73	124
Virginia§	486	479	621	20,836	20,465	N	0	0	N	N	—	1	4	54	52
West Virginia	17	60	94	2,503	2,466	N	0	0	N	N	—	0	5	10	9
E.S. Central	1,283	1,458	2,044	61,277	64,390	—	0	0	—	—	4	4	63	552	152
Alabama§	54	367	577	14,209	19,946	N	0	0	N	N	3	1	14	105	52
Kentucky	242	150	691	7,011	6,844	N	0	0	N	N	—	1	40	240	38
Mississippi	455	342	959	16,607	16,074	N	0	0	N	N	—	0	11	91	24
Tennessee§	532	506	721	23,450	21,576	N	0	0	N	N	1	1	19	116	38
W.S. Central	1,786	2,294	2,966	103,091	98,268	—	0	1	1	1	6	5	41	304	358
Arkansas§	311	173	328	8,112	7,044	N	0	0	N	N	1	0	8	30	20
Louisiana	128	361	853	16,114	15,389	—	0	1	1	1	—	1	4	39	82
Oklahoma	156	263	467	11,087	10,508	N	0	0	N	N	5	1	11	113	35
Texas§	1,191	1,490	1,946	67,778	65,327	N	0	0	N	N	—	2	29	122	219
Mountain	184	1,205	1,710	50,944	58,901	96	94	293	4,086	4,591	35	7	572	2,735	366
Arizona	61	469	834	19,271	19,290	96	90	293	3,961	4,467	—	0	6	40	27
Colorado	—	208	558	7,581	13,899	N	0	0	N	N	—	1	25	140	65
Idaho§	—	56	253	2,883	2,639	N	0	0	N	N	25	0	71	420	35
Montana§	—	46	73	1,489	2,209	N	0	0	N	N	2	1	7	61	131
Nevada§	—	176	293	7,279	7,153	—	1	5	50	56	—	0	3	18	10
New Mexico§	—	149	393	6,918	8,287	—	0	2	17	18	—	1	8	93	39
Utah	123	104	209	4,567	4,205	—	1	7	55	48	8	0	498	1,913	15
Wyoming§	—	23	38	956	1,219	—	0	1	3	2	—	0	8	50	44
Pacific	2,061	3,368	4,362	141,182	146,810	26	45	311	2,173	2,063	—	2	19	125	77
Alaska	76	88	157	3,645	3,721	N	0	0	N	N	—	0	2	3	4
California	1,539	2,628	3,627	114,128	115,225	26	45	311	2,173	2,063	—	0	0	—	—
Hawaii	—	104	133	4,452	4,850	N	0	0	N	N	—	0	4	6	4
Oregon§	239	160	394	7,355	8,082	N	0	0	N	N	—	2	15	116	69
Washington	207	289	621	11,602	14,932	N	0	0	N	N	—	0	0	—	—
American Samoa	U	0	32	U	U	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	3	207	430	755	—	0	0	—	—	—	0	0	—	—
Puerto Rico	136	125	544	6,390	4,252	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	U	3	7	U	U	U	0	0	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional. Data for HIV/AIDS, AIDS, and TB, when available, are displayed in Table IV, which appears quarterly.
† Chlamydia refers to genital infections caused by *Chlamydia trachomatis*.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Giardiasis					Gonorrhea					*Haemophilus influenzae*, Invasive All ages, all serotypes†				
	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006
		Med	Max				Med	Max				Med	Max		
United States	212	305	1,513	14,060	15,200	3,730	6,716	8,941	281,491	302,746	26	44	184	1,899	1,929
New England	11	26	54	1,228	1,258	14	109	259	4,585	4,794	2	3	19	155	151
Connecticut	—	6	18	301	264	—	42	204	1,751	1,994	1	0	7	45	42
Maine§	2	3	10	165	159	2	2	8	104	111	—	0	3	12	18
Massachusetts	6	10	29	521	548	—	51	96	2,202	2,039	1	2	6	74	68
New Hampshire	—	0	3	23	21	4	2	8	129	166	—	0	2	15	11
Rhode Island§	—	0	15	71	100	7	8	18	351	426	—	0	10	7	4
Vermont§	3	3	9	147	166	1	1	5	48	58	—	0	1	2	8
Mid. Atlantic	34	55	127	2,374	2,992	341	715	1,537	30,863	28,364	4	10	27	379	398
New Jersey	—	4	11	142	414	—	114	159	4,911	4,654	—	1	5	51	68
New York (Upstate)	26	23	108	977	1,041	171	111	1,035	5,770	5,308	3	2	15	109	128
New York City	3	15	25	663	826	—	201	363	8,561	8,773	—	2	6	83	73
Pennsylvania	5	14	29	592	711	170	241	586	11,621	9,629	1	3	10	136	129
E.N. Central	24	46	80	2,036	2,455	152	1,258	2,593	56,456	60,032	3	6	15	245	323
Illinois	—	12	24	522	614	—	350	498	14,786	17,121	—	2	6	73	97
Indiana	N	0	0	N	N	—	164	307	7,393	7,462	1	1	7	50	71
Michigan	—	11	20	469	619	39	263	747	11,842	12,777	—	0	5	22	23
Ohio	20	15	37	698	706	39	331	1,572	16,940	16,771	2	2	5	86	72
Wisconsin	4	8	20	347	516	74	126	206	5,495	5,901	—	0	2	14	60
W.N. Central	18	21	553	997	1,589	164	380	514	16,139	16,529	8	2	24	116	136
Iowa	1	5	23	261	253	18	39	60	1,618	1,611	—	0	1	1	2
Kansas	7	2	8	122	173	28	43	86	1,924	1,895	—	0	2	9	16
Minnesota	—	0	514	12	479	—	66	86	2,657	2,754	7	0	17	56	72
Missouri	5	8	22	380	484	114	196	266	8,504	8,630	—	1	5	34	32
Nebraska§	5	2	8	125	102	—	36	57	1,140	1,192	1	0	2	14	8
North Dakota	—	0	16	18	19	—	2	7	78	127	—	0	2	2	6
South Dakota	—	1	6	79	79	4	6	11	218	320	—	0	0	—	—
S. Atlantic	50	57	106	2,432	2,360	1,415	1,575	3,209	66,298	75,088	3	11	34	490	478
Delaware	1	1	6	39	35	29	26	43	1,099	1,263	—	0	3	8	1
District of Columbia	—	0	7	34	55	—	47	71	1,906	1,526	—	0	2	3	7
Florida	35	24	47	1,099	949	528	478	717	20,340	20,529	—	3	8	139	145
Georgia	5	10	33	516	566	4	290	2,068	8,718	15,237	3	2	7	104	98
Maryland§	5	4	18	216	206	84	118	227	5,235	6,115	—	1	6	70	68
North Carolina	—	0	0	—	—	408	248	675	11,641	14,939	—	0	9	48	49
South Carolina†	2	2	8	87	92	186	209	1,361	11,394	8,995	—	1	4	11	30
Virginia†	—	9	21	396	431	168	122	220	5,196	5,694	—	1	22	53	61
West Virginia	2	0	21	45	26	6	18	37	709	802	—	0	6	25	19
E.S. Central	9	10	23	463	372	462	562	752	23,754	26,363	1	2	9	104	98
Alabama†	5	5	16	219	168	26	158	242	6,304	9,256	1	0	3	22	20
Kentucky	N	0	0	N	N	108	57	268	2,785	2,480	—	0	1	2	5
Mississippi	N	0	0	N	N	157	135	310	6,314	6,339	—	0	1	7	12
Tennessee§	4	5	16	244	204	171	184	260	8,351	8,288	—	1	6	73	61
W.S. Central	3	7	55	299	309	763	981	1,200	42,788	43,292	1	2	34	86	74
Arkansas§	1	2	13	102	117	119	78	120	3,478	3,670	—	0	2	8	8
Louisiana	—	1	9	74	80	81	220	384	9,334	9,296	—	0	2	8	19
Oklahoma	2	3	42	123	111	57	101	235	4,292	3,942	1	1	29	65	40
Texas§	N	0	0	N	N	506	575	731	25,684	26,384	—	0	3	7	7
Mountain	30	30	66	1,387	1,459	56	250	346	10,219	13,145	2	4	12	210	182
Arizona	—	3	11	165	140	21	105	175	4,037	4,848	—	1	6	78	76
Colorado	—	8	24	383	485	—	50	93	1,945	3,162	—	1	4	45	44
Idaho§	4	3	12	154	164	—	4	20	215	161	1	0	1	6	5
Montana§	—	2	8	93	91	—	1	7	57	172	—	0	1	2	—
Nevada§	—	2	8	89	99	—	44	87	1,781	2,439	—	0	2	9	13
New Mexico§	—	2	6	89	72	—	30	58	1,432	1,521	—	1	4	34	27
Utah	26	7	32	380	376	35	17	34	687	733	1	0	3	32	14
Wyoming§	—	1	4	34	32	—	1	5	65	109	—	0	1	4	3
Pacific	33	63	558	2,844	2,407	363	708	875	30,389	35,139	2	3	16	114	89
Alaska	1	1	5	63	101	10	10	27	411	517	—	0	4	14	10
California	16	45	93	1,902	1,914	302	605	734	26,375	29,006	—	0	10	34	25
Hawaii	—	1	4	59	45	—	12	22	527	807	—	0	2	10	15
Oregon§	5	9	16	386	347	22	23	63	918	1,243	2	1	6	54	39
Washington	11	8	449	434	—	29	52	142	2,158	3,566	—	0	5	2	—
American Samoa	U	0	0	U	U	U	0	2	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	0	0	—	—	—	1	38	91	92	—	0	0	—	1
Puerto Rico	—	5	15	165	218	6	8	23	291	258	—	0	1	2	3
U.S. Virgin Islands	U	0	0	U	U	U	1	3	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Data for *H. influenzae* (age <5 yrs for serotype b, nonserotype b, and unknown serotype) are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Hepatitis (viral, acute), by type† A					Hepatitis (viral, acute), by type† B					Legionellosis				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006
United States	24	52	201	2,342	3,002	65	77	405	3,342	3,748	26	43	106	1,931	2,343
New England	2	2	6	106	166	—	2	5	64	103	2	2	13	110	157
Connecticut	2	0	3	23	37	—	0	5	28	44	2	0	5	34	45
Maine§	—	0	1	3	8	—	0	2	11	2	—	0	1	5	9
Massachusetts	—	1	4	49	79	—	0	1	4	18	—	0	3	21	62
New Hampshire	—	0	3	12	22	—	0	1	5	8	—	0	2	7	13
Rhode Island§	—	0	2	11	12	—	0	3	13	9	—	0	6	34	21
Vermont§	—	0	1	8	8	—	0	1	3	3	—	0	2	9	7
Mid. Atlantic	1	8	18	360	19	1	9	21	379	460	8	12	35	617	851
New Jersey	—	2	6	89	—	—	1	8	73	148	—	1	11	75	107
New York (Upstate)	1	1	11	66	80	1	2	13	84	54	6	4	22	193	288
New York City	—	3	7	132	109	—	2	6	80	108	—	2	10	98	165
Pennsylvania	—	2	5	74	57	—	3	8	142	150	2	4	21	251	291
E.N. Central	3	6	13	251	309	1	9	23	370	431	5	8	27	429	520
Illinois	—	2	5	90	93	—	2	6	96	119	—	1	8	66	113
Indiana	1	0	7	30	43	1	0	21	47	46	—	1	7	45	40
Michigan	—	1	8	67	100	—	2	8	94	127	—	3	10	129	129
Ohio	2	1	4	57	47	—	2	7	113	107	5	3	17	181	197
Wisconsin	—	0	3	7	40	—	0	3	20	32	—	0	3	8	41
W.N. Central	1	2	18	144	120	1	2	15	112	127	—	1	9	83	74
Iowa	—	1	4	37	10	—	0	3	20	19	—	0	1	9	10
Kansas	1	0	1	4	26	—	0	2	7	10	—	0	1	2	7
Minnesota	—	0	17	62	17	—	0	13	18	18	—	0	6	23	23
Missouri	—	0	2	24	41	1	1	5	52	57	—	1	3	36	20
Nebraska§	—	0	2	12	17	—	0	2	10	18	—	0	1	9	9
North Dakota	—	0	3	—	—	—	0	1	—	—	—	0	1	—	—
South Dakota	—	0	1	5	9	—	0	1	5	5	—	0	1	4	5
S. Atlantic	9	10	21	438	479	16	19	56	827	1,043	4	7	25	314	472
Delaware	—	0	1	7	11	—	0	2	15	44	—	0	2	8	11
District of Columbia	—	0	5	14	7	—	0	2	1	7	—	0	4	1	27
Florida	—	3	7	133	186	9	7	14	297	355	3	2	10	130	138
Georgia	1	1	4	61	50	2	2	7	101	178	—	0	2	19	30
Maryland§	1	1	5	69	56	2	2	6	95	132	1	1	4	57	93
North Carolina	7	0	11	56	83	3	0	16	120	142	—	1	4	37	31
South Carolina§	—	0	4	15	23	—	1	5	52	60	—	0	2	15	5
Virginia§	—	1	5	75	55	—	3	8	107	57	—	1	4	37	54
West Virginia	—	0	2	8	6	—	0	23	39	48	—	0	4	10	13
E.S. Central	—	2	5	90	112	—	7	17	302	270	1	2	6	83	94
Alabama§	—	0	3	16	12	—	2	10	106	72	—	0	1	9	9
Kentucky	—	0	2	19	31	—	1	7	60	63	—	1	4	43	39
Mississippi	—	0	4	8	8	—	0	8	25	10	—	0	1	—	4
Tennessee§	—	1	5	47	61	—	3	8	111	125	1	1	4	31	42
W.S. Central	—	4	43	181	324	41	17	169	715	758	—	2	16	93	57
Arkansas§	—	0	2	10	44	1	1	7	58	68	—	0	3	8	4
Louisiana	—	0	3	24	27	—	1	4	62	49	—	0	1	3	10
Oklahoma	—	0	8	11	6	38	1	24	103	58	—	0	6	5	1
Texas§	—	3	39	136	247	2	13	135	492	583	—	2	13	77	42
Mountain	2	4	15	214	233	1	3	7	142	120	1	2	7	93	111
Arizona	2	3	11	153	139	—	1	4	49	—	—	0	5	37	35
Colorado	—	0	3	21	35	—	0	3	24	31	—	0	2	14	24
Idaho§	—	0	1	4	9	—	0	1	11	12	—	0	1	5	11
Montana§	—	0	2	9	10	—	0	3	—	2	—	0	1	3	6
Nevada§	—	0	2	9	11	—	1	3	29	32	—	0	2	7	8
New Mexico§	—	0	2	9	14	—	0	2	10	21	—	0	2	8	5
Utah	—	0	1	6	13	1	0	4	17	12	1	0	3	16	22
Wyoming§	—	0	1	3	2	—	0	1	2	—	—	0	1	3	—
Pacific	6	13	92	558	916	4	10	106	431	436	5	2	11	109	77
Alaska	—	0	1	4	1	—	0	1	6	8	—	0	1	—	—
California	6	10	40	482	869	3	7	31	318	349	4	1	11	79	77
Hawaii	—	0	2	4	11	—	1	2	6	7	—	0	1	2	—
Oregon§	—	1	3	25	35	—	1	4	55	72	—	0	1	9	—
Washington	—	0	52	43	—	1	1	74	46	—	1	0	3	19	—
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	1	10	45	53	—	1	9	44	55	—	0	2	3	1
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Data for acute hepatitis C, viral are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Lyme disease					Malaria					Meningococcal disease, invasive† All serogroups				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006
United States	219	255	1,194	17,257	17,285	7	21	105	912	1,227	13	21	87	867	949
New England	47	41	296	3,166	3,969	—	1	5	48	47	—	1	3	36	46
Connecticut	6	11	214	1,555	1,618	—	0	3	1	10	—	0	1	6	9
Maine§	40	3	53	406	231	—	0	2	7	4	—	0	3	7	7
Massachusetts	—	3	27	211	1,402	—	0	3	29	22	—	0	2	19	22
New Hampshire	1	6	81	722	595	—	0	4	8	9	—	0	1	—	4
Rhode Island§	—	0	93	151	31	—	0	1	—	1	—	0	1	1	2
Vermont§	—	1	13	121	92	—	0	2	3	1	—	0	1	3	2
Mid. Atlantic	78	108	615	8,779	8,891	—	5	14	227	322	2	3	8	118	140
New Jersey	—	26	143	1,859	2,283	—	0	2	—	82	—	0	2	13	18
New York (Upstate)	66	49	426	2,922	3,325	—	1	5	56	40	1	1	3	31	31
New York City	—	1	22	168	285	—	3	7	135	157	—	0	4	26	53
Pennsylvania	12	40	298	3,830	2,998	—	1	4	36	43	1	1	5	48	38
E.N. Central	1	8	136	1,164	1,654	1	2	6	93	148	2	3	9	126	145
Illinois	—	1	12	111	107	—	1	6	41	76	—	1	3	40	39
Indiana	—	0	7	41	21	—	0	2	9	11	—	0	4	24	21
Michigan	—	1	5	53	51	—	0	2	15	17	—	0	3	23	24
Ohio	—	0	3	16	42	1	0	2	19	27	2	1	2	30	42
Wisconsin	1	6	123	943	1,433	—	0	2	9	17	—	0	3	9	19
W.N. Central	57	4	195	520	716	—	0	12	28	46	2	1	5	55	58
Iowa	—	1	11	100	94	—	0	1	3	2	—	0	3	12	17
Kansas	—	0	2	9	4	—	0	1	2	7	—	0	1	1	4
Minnesota	57	1	188	374	601	—	0	12	11	26	2	0	3	18	13
Missouri	—	0	6	29	5	—	0	1	5	6	—	0	3	14	14
Nebraska§	—	0	1	6	11	—	0	1	6	3	—	0	2	5	6
North Dakota	—	0	7	2	—	—	0	1	—	1	—	0	3	2	1
South Dakota	—	0	0	—	1	—	0	1	1	1	—	0	1	3	3
S. Atlantic	33	57	175	3,358	1,893	3	4	13	215	301	3	3	11	145	164
Delaware	1	12	34	631	439	—	0	1	4	5	—	0	1	1	4
District of Columbia	—	0	7	13	55	—	0	2	3	3	—	0	1	—	1
Florida	—	1	11	77	19	1	1	7	52	52	2	1	7	56	64
Georgia	—	0	1	2	7	1	0	5	30	82	—	0	5	22	14
Maryland§	32	27	111	1,803	1,067	1	1	5	53	69	—	0	2	20	13
North Carolina	—	0	8	42	27	—	0	4	20	28	1	0	6	17	24
South Carolina§	—	0	2	23	18	—	0	1	6	9	—	0	2	14	19
Virginia§	—	12	61	700	248	—	1	4	45	51	—	0	2	13	17
West Virginia	—	0	14	67	13	—	0	1	2	2	—	0	2	2	8
E.S. Central	—	1	5	47	31	—	0	3	31	23	—	1	4	42	39
Alabama§	—	0	3	11	7	—	0	1	5	9	—	0	2	7	5
Kentucky	—	0	2	5	7	—	0	1	8	3	—	0	2	10	10
Mississippi	—	0	0	—	3	—	0	1	2	6	—	0	4	9	5
Tennessee§	—	0	4	31	14	—	0	2	16	5	—	0	2	16	19
W.S. Central	3	1	6	60	22	1	1	29	74	91	2	2	15	87	84
Arkansas§	—	0	1	1	—	1	0	1	2	4	—	0	2	9	10
Louisiana	—	0	1	2	1	—	0	2	14	8	—	0	4	25	34
Oklahoma	—	0	0	—	—	—	0	3	5	7	—	0	4	15	8
Texas§	3	1	6	57	21	—	1	25	53	72	2	0	11	38	32
Mountain	—	0	4	36	27	—	1	6	50	68	—	1	4	53	64
Arizona	—	0	1	2	9	—	0	3	12	22	—	0	2	12	15
Colorado	—	0	1	2	—	—	0	2	16	17	—	0	2	17	20
Idaho§	—	0	2	7	6	—	0	2	2	1	—	0	1	3	3
Montana§	—	0	2	4	—	—	0	1	3	2	—	0	1	2	4
Nevada§	—	0	2	8	3	—	0	1	2	4	—	0	1	4	6
New Mexico§	—	0	1	4	3	—	0	1	4	5	—	0	1	2	6
Utah	—	0	2	6	5	—	0	3	11	17	—	0	2	11	6
Wyoming§	—	0	1	3	1	—	0	0	—	—	—	0	1	2	4
Pacific	—	2	16	127	82	2	3	45	146	181	2	4	48	205	209
Alaska	—	0	1	7	3	—	0	1	2	23	—	0	1	1	3
California	—	2	9	114	73	—	2	7	106	139	2	3	10	146	162
Hawaii	N	0	0	N	N	—	0	1	2	8	—	0	2	8	8
Oregon§	—	0	1	3	6	—	0	3	13	11	—	0	3	29	36
Washington	—	0	8	3	—	2	0	43	23	—	—	0	43	21	—
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	0	—	—
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	—	0	1	3	1	—	0	1	6	6
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Data for meningococcal disease, invasive caused by serogroups A, C, Y, & W-135, serogroup B, other serogroup, and unknown serogroup are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Pertussis					Rabies, animal					Rocky Mountain spotted fever				
	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006
		Med	Max				Med	Max				Med	Max		
United States	65	171	1,479	7,360	12,608	39	94	157	4,278	4,873	33	31	211	1,757	1,890
New England	6	28	77	1,172	1,529	7	11	22	504	418	—	0	10	4	11
Connecticut	—	2	5	59	102	4	4	10	202	182	—	0	0	—	—
Maine†	—	1	13	70	123	1	2	5	75	107	—	0	0	—	—
Massachusetts	4	24	46	928	966	—	0	0	—	—	—	0	1	4	10
New Hampshire	—	1	7	50	194	1	1	4	43	41	—	0	0	—	1
Rhode Island†	—	0	31	19	49	—	0	4	36	29	—	0	9	—	—
Vermont†	2	0	9	46	95	1	3	13	148	59	—	0	0	—	—
Mid. Atlantic	8	22	155	973	1,586	—	14	44	733	474	—	1	6	55	82
New Jersey	—	2	11	117	266	—	0	0	—	—	—	0	2	6	38
New York (Upstate)	6	12	146	498	716	—	—	—	—	—	—	0	1	3	—
New York City	—	3	6	105	86	—	1	5	40	31	—	0	3	24	22
Pennsylvania	2	6	15	253	518	—	13	44	693	443	—	0	3	22	22
E.N. Central	3	28	79	1,199	1,903	7	4	48	375	152	—	1	4	40	61
Illinois	—	3	23	112	478	1	1	15	112	46	—	0	3	23	25
Indiana	—	0	45	51	200	1	0	1	12	11	—	0	2	4	6
Michigan	1	7	20	248	521	—	1	27	175	44	—	0	1	3	4
Ohio	2	14	54	589	511	5	0	11	76	51	—	0	2	10	25
Wisconsin	—	3	24	199	193	—	0	0	—	—	—	0	0	—	1
W.N. Central	4	13	151	559	1,097	4	5	13	231	275	5	4	31	365	388
Iowa	—	2	16	116	272	—	0	3	30	56	—	0	4	13	5
Kansas	1	3	12	109	258	—	2	8	96	67	—	0	1	1	1
Minnesota	—	0	119	157	161	4	0	5	32	37	—	0	1	1	3
Missouri	2	2	9	68	277	—	0	3	39	63	5	4	25	333	154
Nebraska†	1	1	12	53	84	—	0	0	—	—	—	0	2	13	25
North Dakota	—	0	18	4	25	—	0	6	16	16	—	0	0	—	—
South Dakota	—	1	6	52	20	—	0	2	18	36	—	0	1	4	—
S. Atlantic	9	17	163	797	971	16	40	76	1,823	2,024	26	12	111	852	1,045
Delaware	—	0	2	11	3	—	0	0	—	—	—	0	2	14	21
District of Columbia	—	0	1	2	6	—	0	0	—	—	—	0	1	1	1
Florida	4	4	18	194	189	—	0	29	107	176	—	0	4	20	14
Georgia	—	0	4	25	86	—	4	34	234	238	—	0	5	33	49
Maryland†	5	2	8	99	127	—	7	18	304	373	2	1	7	57	75
North Carolina	—	4	112	273	171	5	9	19	439	458	24	4	96	545	754
South Carolina†	—	2	9	66	161	—	0	11	46	154	—	1	7	60	36
Virginia†	—	2	11	99	185	11	13	31	629	535	—	2	11	117	92
West Virginia	—	0	19	28	43	—	0	10	64	92	—	0	3	5	3
E.S. Central	1	6	32	353	305	—	3	9	140	224	—	5	16	230	345
Alabama†	—	2	18	79	73	—	0	2	—	76	—	1	9	74	83
Kentucky	1	0	1	9	56	—	0	3	18	27	—	0	2	5	3
Mississippi	—	1	29	193	33	—	0	1	1	4	—	0	2	13	7
Tennessee†	—	1	7	72	143	—	3	7	121	117	—	2	10	138	252
W.S. Central	—	20	226	821	740	1	1	27	73	875	2	1	168	170	110
Arkansas†	—	2	17	130	82	1	0	5	28	26	—	0	53	90	49
Louisiana	—	0	1	14	24	—	0	1	—	6	—	0	1	2	4
Oklahoma	—	0	36	6	18	—	0	22	15	58	2	0	108	47	28
Texas†	—	17	174	671	616	—	0	20	—	785	—	0	7	31	29
Mountain	23	22	61	933	2,233	—	3	14	202	204	—	0	4	33	46
Arizona	—	4	13	179	457	—	2	12	141	133	—	0	1	7	11
Colorado	—	6	17	230	657	—	0	0	—	—	—	0	2	4	4
Idaho†	—	1	5	34	82	—	0	0	—	24	—	0	1	4	14
Montana†	—	0	7	36	108	—	0	3	17	14	—	0	1	1	2
Nevada†	—	0	5	12	66	—	0	1	2	5	—	0	0	—	—
New Mexico†	—	1	7	61	121	—	0	2	8	9	—	0	1	4	8
Utah	23	8	47	361	668	—	0	2	16	11	—	0	1	1	—
Wyoming†	—	0	4	20	74	—	0	4	18	8	—	0	2	12	7
Pacific	11	13	547	553	1,644	4	4	10	197	227	—	0	3	8	2
Alaska	—	0	8	43	88	—	0	6	39	16	N	0	0	N	N
California	—	3	167	152	1,377	4	2	8	147	188	—	0	3	6	—
Hawaii	—	0	2	18	84	N	0	0	N	N	N	0	0	N	N
Oregon†	—	2	14	102	95	—	0	3	11	23	—	0	1	2	2
Washington	11	2	377	238	—	—	0	0	—	—	N	0	0	N	N
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	0	1	—	61	—	0	0	—	—	N	0	0	N	N
Puerto Rico	—	0	1	—	3	—	0	5	37	74	N	0	0	N	N
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U

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U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Salmonellosis					Shiga toxin-producing *E. coli* (STEC)†					Shigellosis				
	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006
		Med	Max				Med	Max				Med	Max		
United States	535	869	2,338	36,973	37,563	55	80	336	3,765	3,500	262	348	1,287	13,975	11,824
New England	6	37	388	2,000	2,023	2	4	67	261	257	—	4	41	220	252
Connecticut	—	0	373	373	503	—	0	61	61	75	—	0	38	38	67
Maine§	3	3	14	124	114	—	1	4	34	37	—	0	5	14	4
Massachusetts	2	24	57	1,196	1,063	1	2	10	130	94	—	3	8	144	156
New Hampshire	1	3	10	143	193	—	0	4	19	24	—	0	2	5	6
Rhode Island§	—	2	20	90	83	—	0	2	6	8	—	0	9	16	13
Vermont§	—	1	5	72	67	1	0	1	11	19	—	0	1	3	6
Mid. Atlantic	31	103	181	4,705	4,712	4	7	63	370	421	9	12	47	616	794
New Jersey	—	16	35	642	982	—	1	20	31	107	—	2	9	107	276
New York (Upstate)	24	28	112	1,263	1,133	4	3	15	183	151	7	3	42	137	202
New York City	2	24	50	1,179	1,110	—	0	5	37	42	—	5	10	223	239
Pennsylvania	5	33	69	1,621	1,487	—	3	47	110	121	2	1	21	149	77
E.N. Central	52	99	252	4,833	4,904	6	10	34	561	603	40	34	131	1,890	1,214
Illinois	—	30	186	1,488	1,377	—	1	10	84	100	—	11	32	430	546
Indiana	22	15	54	634	766	5	1	13	91	78	12	2	13	119	137
Michigan	1	18	41	780	883	—	1	6	82	83	—	1	7	62	142
Ohio	28	27	65	1,166	1,080	1	3	11	144	158	28	12	104	1,075	1[illegible]
Wisconsin	1	16	50	765	798	—	3	10	160	184	—	4	13	204	2[illegible]
W.N. Central	34	50	102	2,376	2,322	6	13	45	678	595	20	35	156	1,612	1,544
Iowa	1	9	19	400	407	1	2	38	160	116	—	2	14	76	99
Kansas	4	7	20	296	319	—	0	4	39	23	1	0	3	21	128
Minnesota	8	13	44	604	602	2	4	17	228	181	5	5	24	214	192
Missouri	18	15	29	671	669	1	2	12	130	149	14	22	72	1,166	602
Nebraska§	3	5	13	226	169	2	1	6	75	72	—	0	7	20	118
North Dakota	—	0	23	36	29	—	0	12	2	6	—	0	127	5	92
South Dakota	—	3	11	143	127	—	0	5	44	48	—	1	30	110	313
S. Atlantic	251	222	427	9,928	9,862	14	15	37	610	538	51	88	177	3,904	2,808
Delaware	—	2	8	127	138	—	0	3	14	9	—	0	2	10	9
District of Columbia	—	0	4	16	54	—	0	1	1	2	—	0	5	4	15
Florida	181	85	176	4,020	4,028	13	2	8	133	78	33	43	76	1,988	1,290
Georgia	39	34	76	1,742	1,609	—	2	9	94	76	11	29	95	1,395	1,063
Maryland§	9	15	43	772	673	1	2	6	84	106	3	2	7	94	118
North Carolina	—	29	110	1,368	1,436	—	2	24	122	100	—	0	14	75	139
South Carolina§	16	18	51	889	913	—	0	3	18	12	4	2	20	139	77
Virginia§	1	19	38	834	887	—	3	8	126	143	—	3	11	139	93
West Virginia	5	2	31	160	124	—	0	5	18	12	—	0	36	60	4
E.S. Central	33	59	137	2,761	2,447	4	4	26	281	271	86	28	164	2,184	646
Alabama§	13	16	78	791	651	—	1	19	60	28	15	12	67	584	197
Kentucky	8	10	22	497	402	1	1	12	105	90	11	3	35	417	224
Mississippi	1	13	101	765	717	—	0	1	5	10	47	9	107	960	86
Tennessee§	11	17	34	708	677	3	2	10	111	143	13	3	27	223	139
W.S. Central	36	82	595	3,501	4,467	—	3	73	145	208	32	39	655	1,538	1,669
Arkansas§	27	14	51	740	807	—	1	3	32	44		2	10	79	101
Louisiana	—	14	35	573	974	—	0	2	3	17	—	P	22	349	226
Oklahoma	9	9	102	557	440	—	0	8	17	35	4	2	63	112	116
Texas§	—	41	470	1,631	2,246	—	2	68	93	112	23	24	580	998	1,226
Mountain	33	48	90	2,163	2,275	9	8	31	420	490	7	19	58	788	1,247
Arizona	20	17	44	821	762	4	2	8	97	97	6	10	33	474	625
Colorado	—	10	22	438	543	—	1	9	66	101	—	2	8	90	207
Idaho§	2	3	9	121	156	3	1	16	118	92	1	0	2	11	14
Montana§	1	2	6	87	115	—	0	0	—	—	—	1	13	21	37
Nevada§	—	4	10	148	192	—	0	3	18	30	—	0	9	47	115
New Mexico§	—	5	13	223	229	—	0	3	33	43	—	2	5	84	166
Utah	10	4	18	264	237	2	1	9	88	109	—	1	5	30	62
Wyoming§	—	1	4	61	41	—	0	1	—	18	—	0	19	31	21
Pacific	59	113	890	4,706	4,551	10	7	164	439	117	17	29	256	1,223	1,650
Alaska	1	1	5	72	68	N	0	0	N	N	—	0	2	7	7
California	46	94	260	3,583	3,908	4	4	33	223	N	14	24	84	1,006	1,485
Hawaii	—	5	16	217	211	—	0	4	16	17	—	0	2	21	45
Oregon§	1	7	15	270	362	3	1	11	78	100	—	1	6	67	113
Washington	11	10	625	564	2	3	1	162	120	—	3	1	170	122	—
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	0	0	—	—	N	0	0	N	N	—	0	0	—	—
Puerto Rico	—	11	66	446	527	—	0	0	—	—	—	0	4	18	36
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U

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U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Includes *E. coli* O157:H7, Shiga toxin-positive, serogroup non-O157, and Shiga toxin-positive, not serogrouped.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Streptococcal disease, invasive, group A					*Streptococcus pneumoniae*, invasive disease, nondrug resistant† Age <5 years				
	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006
		Med	Max				Med	Max		
United States	43	98	261	4,188	4,521	23	9	108	1,307	1,108
New England	—	5	28	343	307	5	2	11	108	102
Connecticut	—	0	23	111	80	—	0	6	15	30
Maine§	—	0	3	23	17	—	0	1	2	—
Massachusetts	—	3	12	155	155	4	2	6	72	60
New Hampshire	—	0	4	32	35	1	0	2	9	8
Rhode Island§	—	0	12	6	7	—	0	2	8	4
Vermont§	—	0	2	16	13	—	0	1	2	—
Mid. Atlantic	1	17	41	769	814	4	4	37	225	159
New Jersey	—	3	10	108	131	—	1	4	26	55
New York (Upstate)	1	5	27	253	262	4	3	15	94	78
New York City	—	4	13	181	147	—	1	55	105	26
Pennsylvania	—	5	11	227	274	N	0	0	N	N
E.N. Central	7	16	33	695	857	1	5	14	192	289
Illinois	—	5	13	190	260	—	1	6	48	78
Indiana	3	2	12	105	102	1	0	10	18	47
Michigan	1	4	10	170	179	—	1	4	60	64
Ohio	3	4	14	200	214	—	1	7	54	58
Wisconsin	—	0	6	30	102	—	0	2	12	42
W.N. Central	8	5	32	286	303	6	2	8	100	98
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	1	0	3	29	50	—	0	1	1	11
Minnesota	7	0	29	144	136	4	0	6	68	61
Missouri	—	2	6	68	67	2	0	2	19	13
Nebraska§	—	0	3	23	28	—	0	1	11	10
North Dakota	—	0	2	13	12	—	0	2	1	3
South Dakota	—	0	2	9	10	—	0	0	—	—
S. Atlantic	15	21	52	1,067	1,022	1	5	14	235	66
Delaware	—	0	1	10	10	—	0	0	—	—
District of Columbia	—	0	3	8	15	—	0	1	—	1
Florida	9	6	16	269	255	1	1	5	58	—
Georgia	—	5	13	212	217	—	0	5	44	—
Maryland§	5	4	10	183	187	—	1	6	53	54
North Carolina	1	1	22	145	145	—	0	0	—	—
South Carolina§	—	1	7	84	56	—	1	4	42	—
Virginia§	—	2	11	131	112	—	0	4	31	—
West Virginia	—	0	3	25	25	—	0	4	7	11
E.S. Central	7	4	13	186	184	—	1	6	78	17
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	—	1	3	35	41	—	0	0	—	—
Mississippi	N	0	0	N	N	—	0	2	3	17
Tennessee§	7	3	13	151	143	—	1	6	75	—
W.S. Central	3	6	90	265	345	5	4	43	187	185
Arkansas§	—	0	2	17	24	—	0	2	10	20
Louisiana	—	0	4	16	16	—	0	4	27	20
Oklahoma	2	1	23	63	90	2	1	13	45	47
Texas§	1	3	64	169	215	3	2	27	105	98
Mountain	2	10	23	461	583	1	4	12	154	172
Arizona	1	4	11	180	302	1	2	7	92	94
Colorado	—	3	9	128	103	—	0	4	36	46
Idaho§	—	0	2	16	8	—	0	1	2	3
Montana§	N	0	0	N	N	N	0	0	N	N
Nevada§	—	0	1	2	—	—	0	1	1	2
New Mexico§	—	1	4	50	112	—	0	4	19	27
Utah	1	2	7	80	54	—	0	2	4	—
Wyoming§	—	0	1	5	4	—	0	0	—	—
Pacific	—	3	9	116	106	—	0	4	28	20
Alaska	—	0	3	31	N	—	0	2	26	—
California	N	0	0	N	N	N	0	0	N	N
Hawaii	—	2	9	85	106	—	0	2	2	20
Oregon§	N	0	0	N	N	N	0	0	N	N
Washington	N	0	0	N	N	N	0	0	N	N
American Samoa	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U
Guam	—	0	0	—	—	N	0	0	N	N
Puerto Rico	—	0	0	—	—	N	0	0	N	N
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Includes cases of invasive pneumococcal disease, in children aged <5 years, caused by *S. pneumoniae*, which is susceptible or for which susceptibility testing is not available (NNDSS event code 11717).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	*Streptococcus pneumoniae*, invasive disease, drug resistant†										Syphilis, primary and secondary				
	All ages					Age <5 years									
	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006	Current week	Previous 52 weeks		Cum 2007	Cum 2006
		Med	Max				Med	Max				Med	Max		
United States	18	46	256	1,909	2,032	3	8	35	356	334	131	201	310	8,773	8,099
New England	—	2	12	87	108	—	0	3	11	3	2	5	13	223	172
Connecticut	—	1	5	50	82	—	0	2	4	—	—	0	10	28	37
Maine§	—	0	2	9	6	—	0	2	2	1	—	0	2	9	8
Massachusetts	—	0	0	—	—	—	0	0	—	—	—	3	8	132	105
New Hampshire	—	0	0	—	—	—	0	0	—	—	1	0	3	26	11
Rhode Island§	—	0	4	15	9	—	0	1	3	—	1	0	5	26	9
Vermont§	—	0	2	13	11	—	0	1	2	2	—	0	1	2	2
Mid. Atlantic	—	2	9	102	125	—	0	5	22	19	6	28	44	1,274	983
New Jersey	—	0	0	—	—	—	0	0	—	—	—	4	8	170	148
New York (Upstate)	—	1	5	35	40	—	0	4	7	9	5	3	14	118	129
New York City	—	0	0	—	—	—	0	0	—	—	—	17	34	783	476
Pennsylvania	—	2	6	67	85	—	0	2	15	10	1	4	10	203	230
E.N. Central	3	9	40	444	432	1	2	7	65	72	6	15	27	650	745
Illinois	—	0	4	16	22	—	0	1	2	6	—	7	13	291	361
Indiana	—	3	31	121	119	1	0	5	23	19	—	1	6	45	79
Michigan	—	0	1	2	16	—	0	1	1	2	—	2	9	101	97
Ohio	3	5	38	305	275	—	1	5	39	45	6	4	9	166	150
Wisconsin	N	0	0	N	N	—	0	0	—	—	—	1	4	47	58
W.N. Central	—	2	124	119	87	—	0	15	9	13	1	7	14	297	250
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	3	15	18
Kansas	—	0	11	63	—	—	0	2	5	—	—	0	2	18	22
Minnesota	—	0	123	—	51	—	0	15	—	10	—	1	4	62	43
Missouri	—	1	5	47	34	—	0	0	—	3	1	4	11	193	147
Nebraska§	—	0	1	2	1	—	0	0	—	—	—	0	1	2	7
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	1
South Dakota	—	0	3	7	1	—	0	1	4	—	—	0	3	7	12
S. Atlantic	11	20	59	845	965	2	4	15	182	156	47	49	180	2,081	1,815
Delaware	—	0	1	8	—	—	0	1	2	—	3	0	3	15	16
District of Columbia	—	0	1	5	24	—	0	0	—	2	—	3	12	141	102
Florida	9	11	29	487	514	1	2	8	104	100	25	17	44	787	628
Georgia	2	7	17	291	329	1	1	10	68	54	—	7	153	320	328
Maryland§	—	0	1	1	—	—	0	0	—	—	7	6	15	263	255
North Carolina	—	0	0	—	—	—	0	0	—	—	3	5	23	279	257
South Carolina§	—	0	0	—	—	—	0	0	—	—	—	2	11	83	58
Virginia§	N	0	0	N	N	—	0	0	—	—	9	4	16	188	164
West Virginia	—	1	17	53	98	—	0	1	8	—	—	0	1	5	9
E.S. Central	2	3	9	137	163	—	0	3	30	29	18	17	30	754	617
Alabama§	N	0	0	N	N	—	0	0	—	—	4	7	16	302	276
Kentucky	1	0	2	20	32	—	0	1	2	6	1	1	7	51	61
Mississippi	—	0	2	—	22	—	0	0	—	—	4	2	9	92	65
Tennessee§	1	2	8	117	109	—	0	3	28	23	9	7	14	309	215
W.S. Central	1	2	12	123	70	—	0	3	17	7	25	35	55	1,547	1,333
Arkansas§	1	0	1	3	10	—	0	0	—	2	2	2	10	107	64
Louisiana	—	1	4	52	60	—	0	2	7	5	—	9	23	391	270
Oklahoma	—	0	10	68	—	—	0	2	10	—	1	1	4	49	60
Texas§	—	0	0	—	—	—	0	0	—	—	22	21	39	1,000	939
Mountain	1	1	6	52	82	—	0	3	17	35	22	7	19	316	423
Arizona	—	0	0	—	—	—	0	0	—	—	22	3	12	147	163
Colorado	—	0	0	—	—	—	0	0	—	—	—	1	5	31	60
Idaho§	N	0	0	N	N	—	0	0	—	—	—	0	1	1	3
Montana§	—	0	0	-	—	—	0	0	—	—	—	0	2	3	1
Nevada§	—	0	3	18	16	—	0	2	5	2	—	2	6	87	116
New Mexico§	—	0	0	—	—	—	0	0	—	—	—	1	7	38	65
Utah	1	0	6	20	34	—	0	3	10	23	—	0	2	6	15
Wyoming§	—	0	2	14	32	—	0	1	2	10	—	0	1	3	—
Pacific	—	0	0	—	—	—	0	1	3	—	4	39	58	1,631	1,761
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	1	7	10
California	N	0	0	N	N	—	0	0	—	—	4	36	56	1,488	1,564
Hawaii	—	0	0	—	—	—	0	1	3	—	—	0	2	7	16
Oregon§	N	0	0	N	N	—	0	0	—	—	—	0	6	14	17
Washington	N	0	0	N	N	—	0	0	—	—	—	2	12	115	154
American Samoa	U	0	0	U	U	U	0	1	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	N	0	0	N	N	—	0	0	—	—	—	0	1	3	—
Puerto Rico	N	0	0	N	N	—	0	0	—	—	1	3	10	134	124
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Includes cases of invasive pneumococcal disease caused by drug-resistant *S. pneumoniae* (DRSP) (NNDSS event code 11720).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending November 3, 2007, and November 4, 2006 (44th Week)*

Reporting area	Varicella (chickenpox)					West Nile virus disease†								
						Neuroinvasive					Nonneuroinvasive§			
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2007	Cum 2006
United States	333	778	2,813	28,751	37,810	—	1	130	1,064	1,485	1	2	290	2,201	2,764
New England	6	15	124	589	3,644	—	0	2	7	9	—	0	2	5	3
Connecticut	—	0	76	2	1,365	—	0	2	4	7	—	0	1	1	2
Maine¶	—	0	7	—	204	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	1	—	1,141	—	0	2	3	2	—	0	2	3	1
New Hampshire	2	7	14	281	347	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	0	—	—	—	0	0	—	—	—	0	1	1	—
Vermont¶	4	6	66	306	587	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	1	98	195	3,308	4,192	—	0	3	18	26	—	0	1	5	12
New Jersey	N	0	0	N	N	—	0	1	1	2	—	0	0	—	3
New York (Upstate)	N	0	0	N	N	—	0	0	—	8	—	0	0	—	4
New York City	—	0	0	—	—	—	0	3	12	8	—	0	1	2	4
Pennsylvania	1	98	195	3,308	4,192	—	0	1	5	8	—	0	1	3	1
E.N. Central	101	214	568	8,101	12,237	—	0	18	100	244	—	0	11	57	174
Illinois	—	2	11	114	123	—	0	13	58	127	—	0	8	35	88
Indiana	—	0	0	—	—	—	0	4	12	27	—	0	2	10	53
Michigan	14	88	258	3,279	3,926	—	0	5	13	43	—	0	0	—	12
Ohio	87	91	449	3,870	7,312	—	0	4	12	36	—	0	3	7	11
Wisconsin	—	19	80	838	876	—	0	2	5	11	—	0	1	5	10
W.N. Central	21	33	136	1,383	1,485	—	0	40	233	223	—	0	114	705	484
Iowa	N	0	0	N	N	—	0	4	10	22	—	0	3	14	15
Kansas	6	8	52	456	281	—	0	3	11	17	—	0	7	26	13
Minnesota	—	0	0	—	—	—	0	11	42	31	—	0	11	57	34
Missouri	15	15	78	780	1,087	—	0	9	55	51	—	0	2	11	11
Nebraska¶	N	0	0	N	N	—	0	5	18	44	—	0	15	126	219
North Dakota	—	0	60	84	45	—	0	11	49	20	—	0	47	312	117
South Dakota	—	1	15	63	72	—	0	9	48	38	—	0	32	159	75
S. Atlantic	56	97	239	4,176	3,832	—	0	12	40	18	—	0	6	32	14
Delaware	—	1	4	38	62	—	0	1	1	—	—	0	0	—	—
District of Columbia	—	0	8	14	39	—	0	0	—	—	—	0	0	—	2
Florida	13	23	76	1,040	N	—	0	1	3	3	—	0	0	—	—
Georgia	N	0	0	N	N	—	0	8	23	2	—	0	4	23	6
Maryland¶	N	0	0	N	N	—	0	2	6	10	—	0	2	4	1
North Carolina	—	0	0	—	—	—	0	1	3	1	—	0	1	2	—
South Carolina¶	17	20	72	903	974	—	0	2	2	1	—	0	1	2	—
Virginia¶	—	23	190	1,200	1,456	—	0	1	2	—	—	0	1	1	5
West Virginia	26	22	50	981	1,301	—	0	0	—	1	—	0	0	—	—
E.S. Central	10	8	571	483	28	—	0	11	64	118	—	0	13	87	98
Alabama¶	10	8	571	480	26	—	0	2	16	8	—	0	1	4	—
Kentucky	N	0	0	N	N	—	0	1	3	5	—	0	0	—	1
Mississippi	—	0	2	3	2	—	0	7	41	89	—	0	11	80	91
Tennessee¶	N	0	0	N	N	—	0	1	4	16	—	0	1	3	6
W.S. Central	122	156	1,640	8,537	10,019	—	0	27	195	370	—	0	13	81	234
Arkansas¶	—	11	105	593	798	—	0	5	13	24	—	0	2	6	5
Louisiana	—	1	11	99	193	—	0	5	20	90	—	0	3	9	87
Oklahoma	—	0	0	—	—	—	0	10	50	27	—	0	7	38	21
Texas¶	122	149	1,534	7,845	9,028	—	0	16	112	229	—	0	5	28	121
Mountain	16	54	131	2,140	2,373	—	0	35	254	389	—	1	139	993	1,483
Arizona	—	0	0	—	—	—	0	6	35	64	—	0	12	48	78
Colorado	—	21	62	825	1,246	—	0	17	96	66	—	0	65	459	279
Idaho¶	N	0	0	N	N	—	0	2	8	139	—	0	19	101	857
Montana¶	7	6	40	341	N	—	0	10	36	12	—	0	30	159	21
Nevada¶	—	0	1	1	9	—	0	1	1	34	—	0	3	10	90
New Mexico¶	—	5	37	309	327	—	0	8	38	3	—	0	6	22	5
Utah	9	13	73	630	734	—	0	8	25	56	—	0	7	29	102
Wyoming¶	—	0	9	34	57	—	0	4	15	15	—	0	33	165	50
Pacific	—	0	9	34	—	—	0	17	153	88	1	0	22	236	262
Alaska	—	0	9	34	N	—	0	0	—	—	—	0	0	—	—
California	—	0	0	—	N	—	0	17	149	81	1	0	21	218	197
Hawaii	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Oregon¶	N	0	0	N	N	—	0	1	4	7	—	0	4	18	62
Washington	N	0	0	N	N	—	0	0	—	—	—	0	0	—	3
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	—	—	U	U	U	—	—	U	U	U	—	—	U	U
Guam	—	5	30	168	219	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	11	30	467	504	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2007 are provisional.
† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for California serogroup, eastern equine, Powassan, St. Louis, and western equine diseases are available in Table I.
§ Not notifiable in all states. Data from states where the condition is not notifiable are excluded from this table, except in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/epo/dphsi/phs/infdis.htm.
¶ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE III. Deaths in 122 U.S. cities,* week ending November 3, 2007 (44th Week)

Reporting Area	All causes, by age (years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
New England	502	345	109	30	7	11	47
Boston, MA	117	78	22	7	6	4	10
Bridgeport, CT	26	11	13	2	—	—	2
Cambridge, MA	16	13	3	—	—	—	2
Fall River, MA	12	10	1	1	—	—	—
Hartford, CT	61	42	16	3	—	—	10
Lowell, MA	18	13	1	3	—	1	2
Lynn, MA	10	4	5	1	—	—	2
New Bedford, MA	29	28	1	—	—	—	2
New Haven, CT	19	13	4	—	1	1	4
Providence, RI	63	43	10	8	—	2	—
Somerville, MA	5	4	1	—	—	—	—
Springfield, MA	52	33	14	3	—	2	5
Waterbury, CT	16	11	5	—	—	—	1
Worcester, MA	58	42	13	2	—	1	7
Mid. Atlantic	1,916	1,307	417	119	41	30	76
Albany, NY	42	30	11	—	1	—	—
Allentown, PA	21	19	2	—	—	—	—
Buffalo, NY	56	41	10	1	2	2	2
Camden, NJ	23	11	5	4	3	—	—
Elizabeth, NJ	17	15	2	—	—	—	3
Erie, PA	41	35	3	3	—	—	2
Jersey City, NJ	19	10	5	4	—	—	2
New York City, NY	981	689	205	64	11	10	31
Newark, NJ	37	15	12	4	4	2	1
Paterson, NJ	30	11	9	4	1	5	3
Philadelphia, PA	276	155	81	20	15	5	11
Pittsburgh, PA§	31	22	6	1	2	—	1
Reading, PA	32	25	4	2	—	1	—
Rochester, NY	146	111	25	8	—	2	11
Schenectady, NY	23	15	7	—	1	—	2
Scranton, PA	16	12	5	—	—	1	—
Syracuse, NY	57	42	12	1	—	2	2
Trenton, NJ	30	20	7	3	—	—	1
Utica, NY	17	13	4	—	—	—	1
Yonkers, NY	19	16	2	—	1	—	3
E.N. Central	2,051	1,312	516	119	60	43	128
Akron, OH	59	35	11	1	12	—	1
Canton, OH	44	32	11	1	—	—	3
Chicago, IL	323	181	87	31	12	11	28
Cincinnati, OH	90	52	24	8	—	6	14
Cleveland, OH	212	144	50	11	5	2	6
Columbus, OH	173	109	52	6	2	4	9
Dayton, OH	126	97	17	6	4	2	7
Detroit, MI	166	77	66	11	7	5	9
Evansville, IN	45	35	6	4	—	—	4
Fort Wayne, IN	58	39	15	3	1	—	4
Gary, IN	12	5	5	2	—	—	1
Grand Rapids, MI	57	39	15	2	1	—	4
Indianapolis, IN	174	108	45	8	6	7	10
Lansing, MI	50	36	12	2	—	—	4
Milwaukee, WI	104	57	29	8	7	3	—
Peoria, IL	55	44	11	—	—	—	9
Rockford, IL	39	29	8	1	1	—	—
South Bend, IN	74	53	17	3	—	1	4
Toledo, OH	116	80	24	9	1	2	5
Youngstown, OH	74	60	11	2	1	—	6
W.N. Central	580	368	150	36	14	11	40
Des Moines, IA	58	48	8	2	—	—	5
Duluth, MN	28	17	11	—	—	—	3
Kansas City, KS	22	11	7	1	3	—	—
Kansas City, MO	78	49	19	5	3	2	9
Lincoln, NE	39	31	7	1	—	—	6
Minneapolis, MN	61	32	20	4	1	4	5
Omaha, NE	80	48	22	8	1	1	9
St. Louis, MO	77	43	22	8	2	2	1
St. Paul, MN	65	42	17	3	1	2	2
Wichita, KS	72	47	17	4	3	—	—
S. Atlantic	1,069	640	263	85	37	44	58
Atlanta, GA	110	53	28	14	7	8	6
Baltimore, MD	145	85	40	8	6	6	16
Charlotte, NC	115	66	27	13	5	4	12
[illegible]onville, FL	176	96	48	17	4		4
[illegible]d, FL	105	69	20	9	4	3	4
Norfolk, VA	53	39	11	—	—	3	2
Richmond, VA	56	27	22	5	2	—	2
Savannah, GA	52	27	19	5	1	—	3
St. Petersburg, FL	55	38	8	3	3	3	1
Tampa, FL	185	126	38	10	5	6	8
Washington, D.C.	U	U	U	U	U	U	U
Wilmington, DE	17	14	2	1	—	—	—
E.S. Central	761	506	172	52	18	13	55
Birmingham, AL	162	121	29	4	8	—	18
Chattanooga, TN	60	42	11	4	—	3	3
Knoxville, TN	120	85	26	8	—	1	10
Lexington, KY	86	51	24	6	—	5	4
Memphis, TN	116	74	27	12	3	—	9
Mobile, AL	25	17	3	4	1	—	2
Montgomery, AL	48	37	9	1	1	—	2
Nashville, TN	144	79	43	13	5	4	7
W.S. Central	1,366	847	336	79	47	57	83
Austin, TX	75	48	20	3	2	2	6
Baton Rouge, LA	61	29	10	12	10	—	—
Corpus Christi, TX	43	33	3	3	—	4	3
Dallas, TX	186	95	57	12	7	15	8
El Paso, TX	99	74	12	8	2	3	2
Fort Worth, TX	110	65	32	3	2	8	9
Houston, TX	313	189	92	14	6	12	21
Little Rock, AR	64	33	22	4	4	1	—
New Orleans, LA¶	U	U	U	U	U	U	U
San Antonio, TX	221	151	44	11	8	7	20
Shreveport, LA	64	42	13	4	1	4	7
Tulsa, OK	130	88	31	5	5	1	7
Mountain	976	644	200	80	26	24	58
Albuquerque, NM	94	64	17	5	4	4	3
Boise, ID	59	37	16	3	1	2	3
Colorado Springs, CO	80	51	15	11	2	1	4
Denver, CO	73	48	18	4	1	2	7
Las Vegas, NV	275	189	58	20	6	2	15
Ogden, UT	28	18	5	4	1	—	5
Phoenix, AZ	119	68	21	19	8	1	6
Pueblo, CO	41	29	8	4	—	—	1
Salt Lake City, UT	113	69	27	4	1	12	12
Tucson, AZ	94	71	15	6	2	—	2
Pacific	1,215	811	274	76	22	31	83
Berkeley, CA	17	11	3	2	—	1	2
Fresno, CA	U	U	U	U	U	U	U
Glendale, CA	U	U	U	U	U	U	U
Honolulu, HI	64	51	9	3	—	1	5
Long Beach, CA	61	41	12	4	2	2	8
Los Angeles, CA	U	U	U	U	U	U	U
Pasadena, CA	28	20	5	1	1	1	6
Portland, OR	117	74	26	9	3	5	11
Sacramento, CA	183	121	44	12	1	5	14
San Diego, CA	165	110	32	14	4	4	6
San Francisco, CA	113	64	34	6	3	6	9
San Jose, CA	173	122	35	11	3	2	12
Santa Cruz, CA	32	25	7	—	—	—	3
Seattle, WA	114	67	37	5	1	4	5
Spokane, WA	53	39	13	1	—	—	2
Tacoma, WA	95	66	17	8	4	—	—
Total	10,436**	6,780	2,437	676	272	264	628

U: Unavailable. —No reported cases.

* Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of ≥100,000. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

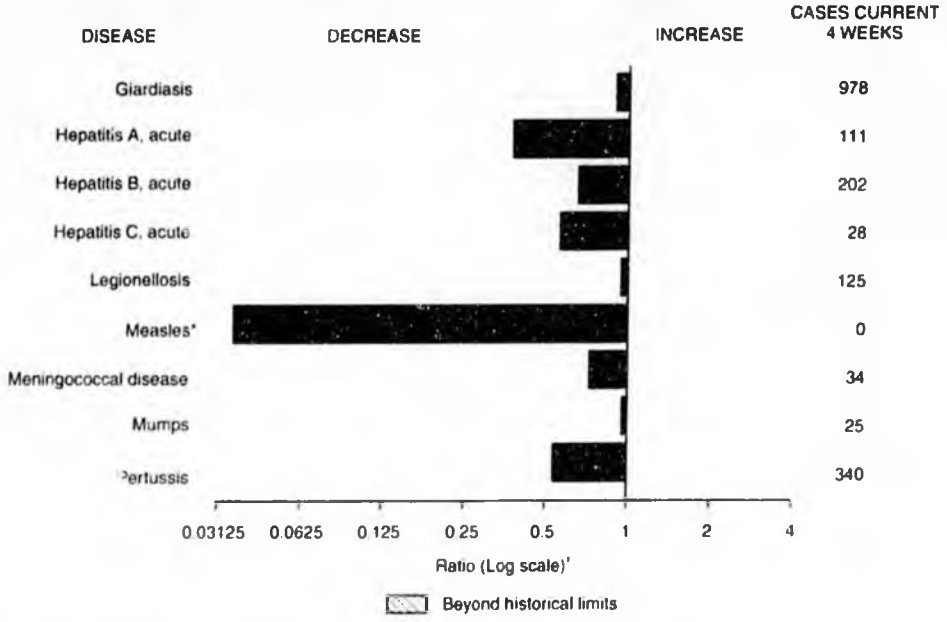
† Pneumonia and influenza.

§ Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶ Because of Hurricane Katrina, weekly reporting of deaths has been temporarily disrupted.

** Total includes unknown ages.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals November 3, 2007, with historical data



* No measles cases were reported for the current 4-week period yielding a ratio for week 44 of zero (0).
† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

Notifiable Disease Data Team and 122 Cities Mortality Data Team

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Dairy Foods Science Notes

Version 07-01-07

BASIC DAIRY BACTERIOLOGY

DEFINITION

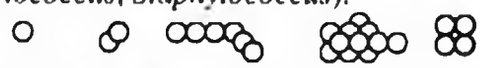
Bacteria are single celled organisms that can only be seen with the aid of a microscope ("microorganisms"). All processes needed for life occur within a single cell. Bacteria are considered *procaryotes*. Their basic cell structure differs from cells of plants and animals (*eucaryotes*); for example they lack a true nucleus and have a unique cell wall. Bacteria can be found wherever life exists; some are considered useful, such as those responsible for nutrient conversion (e.g., decomposition) and food fermentation (e.g., cheese), while others are considered harmful, such as those responsible for food spoilage and disease. Individual bacteria are named by *Genus* and *species* (e.g., *Bacillus cereus*), as are all living organisms. They are classified according to their appearance and general structure and by specific characteristics of their metabolism and growth, including nutrient requirements, growth temperatures, oxygen requirements, by their ability to use specific substrates (e.g., certain sugars), and by specific by-products of their metabolism. Currently, genetic profiling techniques have become standard tools in the identification/classification of bacteria, often beyond species level (e.g., sub-species, allelic types). There are literally thousands of species of bacteria, though only select groups are of concern to the dairy industry. The following will describe the general characteristics important for characterizing bacteria that are common in milk and dairy products. Although not specifically covered, comments pertaining to dairy fungi (yeast & molds) are included.

GENERAL CHARACTERISTICS

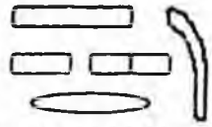
Appearance - Size and Shape:

To actually see bacteria, a microscope is required, generally one with a magnification of 1000X. Bacteria are measured in microns (1 micron = 1/1000 mm = 1/25,000 inch). When a standard light microscope is used, bacterial cells are normally stained to make them easier to see. Bacteria can be observed in milk by staining a dried milk smear on a microscope slide with a specific "milk-stain" (e.g., Levowitz-Weber Stain). Bacteria grown in a petri-dish (e.g., on a semi-solid nutrient "agar" media) or in a nutrient broth, can be smeared and dried on a slide and stained with a simple stain (e.g., methylene blue) or complex stain (see *gram-stain*, next page) for observation. Bacteria exist in a variety of shapes, sizes and arrangements, which are defining characteristics for most types. Typical shapes, sizes & arrangements of bacteria that might be seen in milk and dairy products are:

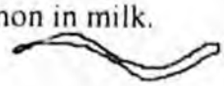
Cocci ------ Spherical cells, 0.4 - 1.5 microns. Occur as single cells, pairs, chains or clusters. (e.g., Genera - *Streptococcus*, *Staphylococcus*).



Bacilli ------ Rod shaped, 0.5 - 30 microns. Occur as single cells, pairs or chains (e.g., Genera - *Lactobacillus*, *Bacillus*, *Pseudomonas*).



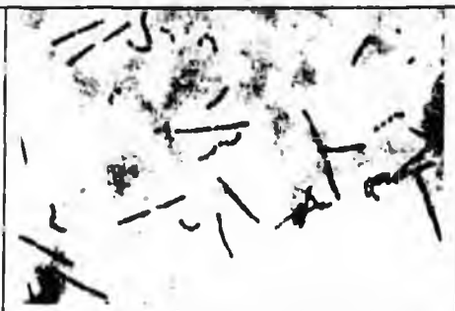
Spirilla -- Spiral or helical shaped rods of varied size. Generally are not very common in milk. (e.g., Genus - *Campylobacter*).



Provided with support from the NY State Dairy Promotion Order; dairy farmers dedicated to the production, manufacture & distribution of quality dairy products.

Milk smears under the microscope stained with Levowitz-Weber Stain:

a. Cocci in "tetrad" clusters. 1000 × magnification.



b. A smear of yogurt culture; long rods and cocci in chains.

c. Cocci in pairs ("diplococci") and a few short chains

Gram-Stain Reaction:

Most bacteria are classified as either "**gram-positive**" or "**gram-negative**." This is typically determined by the **gram-stain procedure**, which is used to view and differentiate bacteria under the microscope; it is one of the first steps used when classifying bacteria. The gram-stain is a four step procedure with Crystal Violet (blue) and Safranin (red) as the primary stains. Depending on the characteristics of the bacteria (e.g., cell wall structure), they will stain either blue (gram-positive) or red (gram-negative). In some cases an organism classified as "gram-positive" may stain red or appear grainy with blue and red shades. These organisms may be referred to as "gram-variable":

Gram-positive (blue) ... e.g., *Bacillus* (rod), *Streptococcus* (cocci), *Staphylococcus* (cocci)

Gram-negative (red) .... e.g., *Pseudomonas* (rods), *E. coli* & other coliform bacteria (rods)

Gram-variable ..... Stain blue or red depending on conditions; most are truly Gram-pos.

There are a few generalizations based on the gram-stain reaction that can be made of microorganisms common to dairy products. For example, gram-negative bacteria do not survive pasteurization; bacteria that do survive are gram-positive (but not all gram positive survive); certain gram-negative bacteria, if present, will spoil milk faster under refrigeration compared to gram-positive spoilage organisms; certain antibiotics are more effective against gram-positive than gram negative bacteria.

Large gram-positive (blue) rods and cocci in chains & clusters and gram-negative rods (red).

Spore-stain of a *Bacillus* species; vegetative cells stain red while spores stain green or appear clear.

Endospore (Spore) Formation:

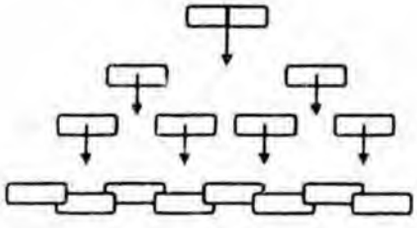
Endospores, or "spores," are protective, dormant structures that allow an organism to survive under adverse conditions. When conditions become unfavorable (e.g., lack of nutrients), vegetative growth ("multiplication") stops and "spores" begin to form within the cell. During sporulation a thick coating develops and encases the cell's genetic material. Spores forming inside a cell may be seen as swollen,

possibly clear, areas or may not be apparent at all. Special spore stains facilitate seeing spores under the microscope (see page 2). Bacterial spores released from the cell have increased resistance to heat, drying, nutrient deprivation, chemicals, sanitizers, and other conditions that would normally kill the vegetative, actively growing cell. Spores can remain dormant for extended periods of time (e.g., for years). When conditions become favorable, a spore can "germinate" and return to an actively growing state. Spores may be "activated" into growth by heat or some other "trigger." Spores are produced by only few select groups of bacteria. Bacteria in the genera *Bacillus*, *Paenebacillus*, *Geobacillus* and *Clostridium* are common gram-positive, spore-forming rods, which have some importance to dairy. Some strains stain gram-variable. Spores are commonly found in soil and other environmental sources.

BACTERIAL REPRODUCTION (GROWTH)

Bacteria reproduce by a process known as **Binary Fission**; one cell divides into two cells, each of which divides into two more cells and so on. Bacterial **Growth** is defined as an increase in cell numbers or cell mass. **Growth Rate** is the change in cell numbers per unit time. The time it takes for a bacterial population to double or go through one reproductive cycle is called the **Generation Time**. Generation times vary with each organism and are dependent on nutrient availability and environmental conditions (e.g., temperature). Under optimum conditions for growth, generation times may be as short as 10 to 20 minutes for some bacteria. When conditions are less favorable for growth, such as when temperatures are low, generation times will be longer (growth rate is slower), sometimes dramatically (e.g., it may take days for one cell division).

If One Bacterial Cell Reproduced Every Hour in 24 Hours There Would Be ~17,000,000 Cells

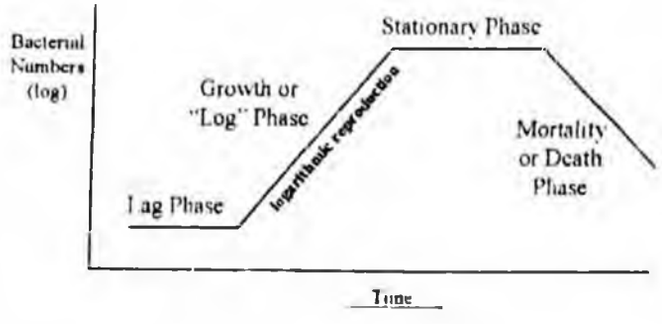


and so on .....

Hour	Count	Hour	Count
0	1	9	512
1	2	10	1,024
2	4	11	2,048
3	8	12	4,096
4	16	:	:
5	32	18	262,144
6	64	:	:
7	128	:	:
8	256	24	~17,000,000

During cell division, bacteria may not totally separate from each other. Some bacteria divide in one specific direction. With cocci (spherical bacteria), this type of cell division can result in pairs (diplococci) or chains (streptococci) that are characterizing features of certain bacteria. Other bacteria divide in several directions, resulting in tetrads or clumps. Rods generally divide in one direction resulting in pairs or chains connected end to end. Examples of cell arrangements are on page 1 & 2.

Bacterial Growth Curve: When bacteria are presented into a new growth environment, they often first go through a **lag phase** or adjustment period where no growth is apparent. This is followed by the active **exponential** or **logarithmic growth phase**. As the environment changes (e.g., nutrients deplete, inhibitors develop), growth will level off to a **Stationary Phase**, after which cells will then begin to die off (**Death Phase**).



REQUIREMENTS AND CONDITIONS FOR GROWTH

Bacterial species vary widely as to what conditions are conducive for growth. Conditions that are optimum for one organism may be lethal for another. Nutrient availability, moisture, pH, the presence or absence of oxygen, the presence of inhibitors and temperature can all influence the growth of bacteria. In most cases these are not independent variables but are interactive.

Nutrient Requirements:

Bacteria are versatile in their ability to use certain nutrients, although different organisms vary in their specific requirements. Some bacteria have very specific needs that make them difficult to culture. Generally, all bacteria require the following, in one form or another:

Energy Source – from carbohydrates, proteins, lipids.

Carbon Source – from carbohydrates, proteins, lipids, carbon dioxide

Nitrogen Source – from proteins, peptides, amino acids, ammonia, nitrates.

Vitamins – primarily water soluble B-vitamins.

Minerals, Metal Ions & Salts – such as potassium, phosphorus, calcium, magnesium, iron

Milk provides sufficient nutrients needed to support the growth of a host of microorganisms. Bacteria are capable of utilizing the proteins, fats, carbohydrates and vitamins in milk for their growth and metabolism. Different bacterial species may differ in regard to the **enzymes** they have or need to break down milk components. Enzymes are biological catalysts, usually protein in nature, that facilitate a biochemical reaction, either breaking down or building a biological compound (e.g., "protease" enzymes break down proteins; "lipase" enzymes break down fats). Microbial growth and enzyme activity results in an increase of microbial numbers that eventually leads to measurable changes in milk components and characteristics and the development of by-products that directly effect the product either in a beneficial (e.g., cheese fermentation) or harmful (e.g., milk spoilage) manner.

pH of Growth Medium or Food:

pH is a measure of acidity and alkalinity, expressed on a scale of 0-14, which is the negative logarithm of hydrogen ion activity of the solution or food.

0 ..... 7 14
Acidic Neutral Alkaline

Most bacteria grow best at a neutral (pH 7) or slightly higher pH, although this varies with the different organisms. Most bacteria will not grow below pH 4.0 or above pH 10. The pH of normal milk is around 6.7, which allows the growth of many types of bacteria. Cultured products have lower pHs.

Dairy Starter Cultures or Lactic Acid Bacteria (LAB) produce lactic acid and are capable of growth at lower pH values than other bacteria (pH 4.0 – 5.0). Culturing milk prevents many spoilage or harmful bacteria from growing. LAB may produce sufficient acid to eventually limit their own growth if allowed to do so. Yeast and mold are capable of growth over a wider pH range, including very low pH values, which is why these microorganisms are common causes of spoilage of cultured milk products.

Moisture or Available Water:

All bacteria require relatively high levels of available moisture, which can be expressed as **water activity, (A_w)**. Pure water has an A_w of 1.00, while fluid milk is extremely close to this value. Sugars and salts react with water in a manner that binds the water and lowers the level of available water (lower A_w). Drying processes lower the available water by removing it. Most bacteria require an A_w of greater than 0.91 and generally will not spoil foods that are lacking available water. Fluid milk is a perishable food that easily spoils, while milk powder can be stored unrefrigerated for long

periods of time. Yeast and molds generally require less water for growth than bacteria, which is why foods such as jams and jellies are only spoiled by these types of microorganisms.

Oxygen Requirements:

Some bacteria require oxygen while other bacteria will not grow in its presence. In fact, oxygen may actually be toxic to certain bacteria. Bacteria are classified based on their requirement for the presence or absence of oxygen as follows:

Aerobic - requires the presence of oxygen for growth.

Anaerobic - requires the absence of oxygen for growth (oxygen may be lethal).

Facultative Anaerobic - can grow with or without oxygen.

Milk contains dissolved oxygen, thus it supports the growth of aerobic and facultatively anaerobic microorganisms. Rarely do strict anaerobes grow in milk. Cheese may have a reduced oxygen environment due to the growth of culture bacteria. An oxygen-free environment may occur in the center of some cheeses allowing the growth of certain anaerobic bacteria, some of which cause serious defects (e.g., late gas-blowing). *Clostridium botulinum* is an anaerobe that produces a deadly toxin that has rarely been associated with dairy foods. Some bacteria such as certain starter cultures are considered "microaerophilic," meaning they grow best in lower levels of oxygen.

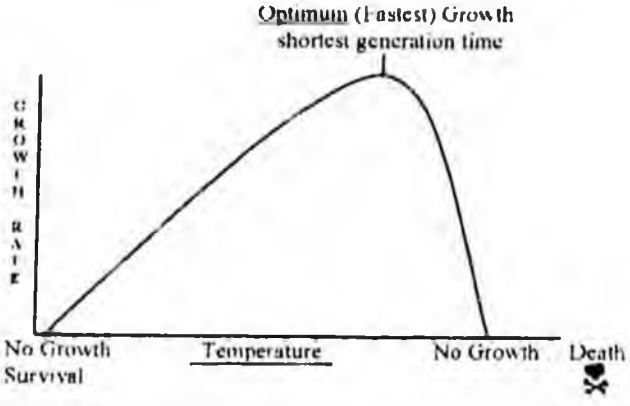
The Presence of Inhibitors:

There are a number of chemical substances that can inhibit the growth of (*bacteriostatic*) or kill (*bactericidal*) bacteria. Some examples relevant to dairy microbiology are drugs or antibiotics, lactoferrin (natural in raw milk), carbon dioxide, lysozyme (an enzyme), sanitizers, organic acids, preservatives (e.g., potassium sorbate) and natural inhibitors formed by microorganisms (e.g., nisin).

Temperatures for Growth:

The optimum temperature for growth for a bacterium is the temperature where its generation time is shortest or it grows the fastest. Each bacterium has a minimum and maximum temperature for growth, which will vary between species and strains and with other environmental conditions. Outside of this range, growth does not occur. Bacteria are often grouped based on their optimum, minimum and maximum temperatures for growth. These are not rigid ranges as some bacterial species may overlap into adjacent groups. General groupings of bacteria and approximate ranges are as follows:

Thermophilic ...	Min:	104°F (40°C)
"Heat Loving"	Max:	140°F (>60°C)
	Opt:	122-131°F (50-55°C)
Mesophilic	Min:	41°F (5°C)
Medium Temps	Max:	122°F (50°C)
	Opt:	86-98°F (30-37°C)
Psychrophilic ...	Min:	32°F (0°C) or less,
"Cold Loving"	Max:	77°F (25°C)
	Opt:	<69°F (<20°C)



Psychrotrophs:

The types of bacteria that are of most significance to the dairy industry are those that can grow under refrigeration conditions. "*Cold Tolerant*" *organisms capable of growth at temperatures at or below 7°C (44.6°F), regardless of their optimum temperatures* are generally referred to as **Psychrotrophs** or **Psychrotolerant** (the term currently used by microbiologists to describe this group). "Mesophilic" bacteria (medium optimum temp.) that grow under refrigeration would be considered *psychrotrophs*.

Regardless of the range of temperatures for growth, temperatures colder than the optimum for an organism will generally increase the generation time or slow its growth. When temperatures approach the freezing point of water (32°F/0°C), growth of most microorganisms is prevented, although a few organisms will continue to grow very, very slowly at or even below freezing. Most microorganisms will survive freezing (without growth), depending on the medium that they are frozen in. When temperatures exceed the maximum growth temperature for an organism, growth stops. When temperatures are increased further, they eventually become lethal. Heat is often used to inactivate or kill microorganisms (e.g., as in pasteurization); generally, higher temperatures result in greater kill.

Temperature versus Generation Time
(example of one organism studied)

Temperature	Generation Time
37°C (100°F)	20 Minutes
32°C (90°F)	25 Minutes
27°C (80°F)	40 Minutes
21°C (70°F)	60 Minutes
16°C (60°F)	150 Minutes
10°C (50°F)	12 Hours
4.4°C (40°F)	>24 Hours

BACTERIA OF CONCERN IN FLUID MILK

Pathogenic/Foodborne Illness Bacteria:

Pasteurization was originally designed to destroy pathogenic bacteria that caused tuberculosis, brucellosis, typhoid and Q-fever, illnesses that were often associated with the consumption of raw milk. Milk pasteurization, coupled with improved animal husbandry procedures, has virtually eliminated most of these types of illnesses. Raw milk may also harbor other organisms associated with foodborne illness, including *Salmonella*, *Listeria*, *Campylobacter*, *Yersinia* and certain strains of *E. coli*. These organisms are also killed by pasteurization. However, cross-contamination of processed dairy products with raw milk and/or the direct consumption of raw milk have resulted in relatively recent outbreaks of foodborne illnesses involving these organisms. Pasteurized milk products can also be contaminated from poor processing and handling conditions and poor worker hygiene.

Pathogens of Historical Significance (currently rare)	
Coxiella burnetti.....	Q-fever, flu-like
Mycobacterium spp.	Tuberculosis
Brucella abortus	Brucellosis, abortions
Salmonella typhi	Typhoid fever
Streptococcus spp.	Septic sore throat
Corynebacterium diphtheriae .	Diphtheria

Pathogens Associated with more Recent Outbreaks	
Salmonella spp.	GI* illness, secondary**
Campylobacter jejuni	GI illness, secondary
Yersinia enterocolitica ...	GI, pseudo-appendicitis
E. coli (O157:H7)	GI (hemorrhagic), HUS (kidney failure)
Listeria monocytogenes ..	GI* illness, meningitis, sepsis, stillbirths

For more information on Foodborne Pathogens:
http://www.cfsan.fda.gov/~mow/intro.html

* GI = gastro-intestinal illness; symptoms may include nausea, vomiting, diarrhea, cramps & sometimes fever & chills.
** Secondary = non-GI symptoms may follow, e.g., arthritic rxn

Mastitis Causing Bacteria:

Bacteria that can cause ***mastitis***, an infection of the mammary gland of dairy cattle, include contagious (e.g., *Staphylococcus aureus*, *Streptococcus agalactiae*) and environmental (e.g., coliforms) organisms. Mastitis can result in increased somatic cell counts (white blood cells) and in some cases, increased bacteria counts in the bulk milk, both of which result in decreased milk quality. For more information on mastitis visit the National Mastitis Council (http://www.nmconline.org).

Psychrotrophic (Psychrotolerant) Bacteria:

Psychrotrophic or psychrotolerant bacteria are capable of growing at 7°C (44.6°F) or less. Psychrotrophs are of primary concern to the dairy industry since they grow and cause spoilage in raw or processed dairy products commonly held under refrigeration.

a) The most commonly occurring psychrotrophs in milk are gram-negative rods, many belonging to the genus *Pseudomonas*. Gram-negative psychrotrophs generally do not survive pasteurization, thus they occur in processed milk as post-pasteurization contaminants (PPC).

b) Psychrotrophs are common in the dairy environment. Milk soils (e.g., on dirty equipment) can support the growth of psychrotrophs and other contaminants that can contaminate subsequent milk. Marginal cooling can result in relatively large numbers of these organisms in milk. Psychrotrophs may also be present in low numbers in untreated water supplies used for rinsing dairy equipment.

c) Psychrotrophic bacteria produce a variety of enzymes that cause chemical deterioration of milk resulting in off-flavors. Some of these enzymes are not inactivated by pasteurization or by other heat treatments and may continue to degrade milk products, even when the bacterium is destroyed. This has been shown to be a concern with shelf-stable (Ultra-High Temperature) milk, but there is limited information relative to conventionally pasteurized milks.

Thermoduric Bacteria:

Thermoduric bacteria are a miscellaneous group of bacteria that are capable of surviving pasteurization or other heat treatments. As a general rule, all thermoduric bacteria are gram-positive. Spore-forming bacteria (e.g., *Bacillus, Paenibacillus*) comprise some of the most heat resistant bacteria.

a) Chief sources of thermodurics in milk are poorly cleaned equipment including old rubber parts, areas of milkstone build-up, separators and other difficult to clean or neglected areas (soil build-up). They may contaminate milk at the farm or at the plant. Poor pre-milking hygiene procedures (e.g., dirty cows) may also influence thermoduric levels in raw milk, especially with spore-formers.

b) High thermoduric counts in raw milk may result in counts that exceed legal limits in the pasteurized milk made from that raw milk (> 20,000 cfu/milliliter).

c) Most thermodurics are not psychrotrophic, but some are. In the absence of gram-negative psychrotrophs, certain thermoduric bacteria may grow and cause spoilage of pasteurized milk. Heat Resistant Spore-Forming Psychrotrophs belonging to *Bacillus* & *Paenibacillus* are considered common thermoduric psychrotrophs that have become limiting factors in milk shelf-life.

Coliform Bacteria:

Coliform bacteria are defined as "aerobic or facultatively anaerobic, gram-negative rods, that ferment lactose with the production of acid and gas." These characteristics allow selective counting of these types of bacteria in milk and dairy products. They are considered "**indicator organisms**" because they are easy to detect and their presence in food & water indicate some form of contamination; e.g., the presence of "fecal" coliforms (*E. coli*) suggests the possibility of fecal contamination.

a) They are called *Coliforms* because some members of the group are found in the intestines (colon) of warm-blooded animals (fecal coliforms). However, some coliform bacteria are common as environmental contaminants and/or are associated with other habitats (e.g., plant matter).

b) Coliforms are almost always found in raw milk although with good production methods the numbers can be kept very low. Sources of coliform contamination can be dirty cows and manure, dirty equipment and, in some cases, cows with coliform mastitis.

c) Coliforms do not survive pasteurization. When detected in processed milk or dairy products, they *indicate* recontamination after pasteurization (Post-Pasteurization Contamination).

SELECT ORGANISMS COMMON TO MILK & DAIRY PRODUCTS:

Grouping/Organisms	General Characteristics and Importance to Milk or Milk Products
Gram-Positive Cocci:	
Enterococcus spp.	Short chains or pairs of cells. "Fecal" streptococci (but are not coliform); common in fecal matter, but also in the dairy farm environment. Used as indicator organisms in some foods. Acid producers. Some strains have some heat resistance.
Lactococcus lactis	Short chains or pairs. "Lactic" streptococci; produce lactic acid. Some strains are used as "mesophilic" dairy starter cultures. Associated with raw milk poor cooling. Some strains produce a "malty' defect in milk as well as acid defect.
Micrococcus spp.	Irregular clusters or tetrads, cells tend to be larger. Associated with udder skin. Some strains are thermoduric and are associated with milk-stone on equipment.
Staphylococcus aureus	Single, pairs or irregular clusters. A cause of contagious mastitis. May cause food poisoning (toxin developed) if present in high numbers in foods.
Streptococcus agalactiae	Chains, often very long. May appear as chains of pairs or with oval cocci stretched with the chain. Cause of contagious mastitis.
Streptococcus uberis	Pairs and chains of moderate length. Considered a cause of environmental mastitis, though some evidence suggests that it may/can be spread cow to cow.
Streptococcus salivarius sub-sp. thermophilus	Chains, moderate to long. Dairy "thermophilic" starter culture (incubation ~110°F) used for making yogurt and certain cheeses.
Gram-Positive Rods:	
Corynbacterium bovis	Irregular shaped rods, some "club" shaped. Cause of bovine mastitis though some strains may be natural inhabitants of the skin and mucosal membranes.
Lactobacillus delbrueckii sub-sp. *bulgaricus*	Long rods, some chains. Dairy "thermophilic" starter culture (incubation ~110°F) used for making yogurt and certain cheese.
Microbacterium lacticum	Irregular rods, some "V-Forms." Thermoduric bacterium, some strains with relatively high heat resistance for a non-spore-former.
Gram-Positive Rods, Spore-Forming:	
Bacillus cereus	Relatively large, thick rods. Some strains are psychrotrophic. Some strains cause foodborne illness if allowed to grow to sufficient levels (toxin mediated).
Bacillus spp.(others)	Many different spore-forming *Bacillus spp.* in milk. Rods very in size. Some are psychrotrophic, some are not. Some are gram-variable. Most are thermoduric in the spore state, but not as vegetative cells. Common in soil & dairy environment.
Clostridium tyrobutyricum	Anaerobic spore-former that causes "late gas blowing" defect in certain Swiss and Dutch style cheeses. Associated with poor silage and dirty cows.
Paenibacillus spp	Spore-former group with psychrotrophic strains that are important as a limiting factor to milk shelf-life. Most were previously classified as *Bacillus* spp.
Gram-Negative Rods:	
Pseudomonas fluorescens (also *P. putida, P. fragi*)	Rods, often in pairs end-to-end. Psychrotrophic bacterium that is a main cause of reduced shelf-life due to post-pasteurization contamination.
Escherichia coli (*E. coli*)	"Fecal Coliform" associated with manure/environmental contamination. Used as an indicator organism. Some pathogenic strains (e.g., O157:H7). May cause mastitis.
Coliform Bacteria	*Enterococcus, Citrobacter, Klebsiella, E. coli.* Associated with fecal & environmental contamination. Some strains are psychrotrophic. Some may cause mastitis.
Others - Psychrotrophs	A number of gram-negative psychrotrophs are reported in older literature, including *Acinetobacter, Achromobacter, Flavobacterium.*

For listing of potential human pathogens, see table on page 6 and refer to The Bad Bug Book (http://www.cfsan.fda.gov/~mow/intro.html)

BACTERIA IN RAW AND PROCESSED MILK

Bacteriological Standards: (For Grade "A" Milk)
Raw Producer Milk ..... 100,000/milliliter (ml) total count
Commingled Raw Milk ..... 300,000/ml total count
Pasteurized Milk ..... 20,000/ml total count, 10 coliform

Raw Milk: Milk, when synthesized in the udder of a healthy cow is virtually sterile. As milk passes through the teat cistern and teat channel, it may be contaminated with low levels of bacteria (<1000/ml), which are generally not significant to milk quality & safety. Milk from a cow with mastitis (infection of the mammary gland) however, may harbor large numbers of the infectious bacteria. After it leaves the cow, milk may be contaminated from the exterior of the cow (dirty cows), the environment and poorly cleaned equipment. Poor cooling allows faster growth rates and can result in rapid increases in bacterial numbers in raw milk before it is processed. While the legal limit for bacteria in raw milk is 100,000/ml, the production of milk with bacteria counts less than 10,000/ml should be easily achievable for most farms.

Pasteurized Milk: Pasteurization, while designed to destroy potential pathogens in raw milk, substantially reduces the total numbers of bacteria present, increasing the shelf-life potential of the milk. Unless gross recontamination has occurred, bacterial numbers in fresh pasteurized milk generally reflect the organisms that survive pasteurization (thermoduric). The legal limit for bacterial numbers in pasteurized milk is 20,000/ml, though bacteria counts for most fresh pasteurized milks are generally less than 1,000/ml. Under proper refrigeration, the bacteria that become significant in the shelf-life and spoilage of milk are psychrotrophic in nature. These types of organisms generally occur as post-pasteurization contaminants, although a few thermoduric bacteria may be psychrotrophs.

Sources of Bacteria in Processed Milk:

1) Survive pasteurization (thermoduric).
2) Post-Pasteurization Contamination:
   a) Insufficient cleaning/sanitizing - valves, pipelines, gaskets, pasteurized milk tanks, fillers.
   b) Personnel - hands, clothing, sneezes, coughs.
   c) Environmental - air, dust, water, condensate.

CONTROLLING BACTERIAL CONTAMINATION & DEFECTS IN DAIRY PRODUCTS

Preventing Contamination:

Bacteria are present in the environment both at the farm and at the dairy plant. Although total prevention of microbial contamination of milk at the farm is impossible, it can be minimized by milking clean, healthy cows; in a clean environment and by assuring that the milking system and storage equipment is properly cleaned, sanitized and maintained. Once raw milk leaves the farm (tank truck to plant storage) it must be properly handled to prevent further contamination before it is processed. Keeping the microbial load of raw milk to a minimum will increase the quality of the products made. At all stages of raw milk handling, milk must be rapidly and properly cooled with temperatures maintained below 40°F (4.4°C).

At the dairy plant, preventing contamination after pasteurization is critical for product shelf-life and safety. This requires that the processing equipment and the plant environment be thoroughly cleaned and sanitized such that the possibility of microbial growth and contamination is limited. Once cleaned and sanitized, recontamination should be prevented. Proper employee training in dairy and personal hygiene procedures should be an essential part of every plant's quality assurance program.

Preventing or Slowing Microbial Growth:

Microbial growth can be controlled by: 1) eliminating sources of "bacterial food" by thoroughly cleaning the milk handling equipment and the environment, thus eliminating milk residues and other sources of microbial nutrition, at the farm, during transit and at the plant; 2) holding raw milk and dairy foods well below the optimum growth temperature of bacterial contaminants, generally less than 40°F (4.4°C) without freezing; 3) lowering the pH such as in cultured dairy products; 4) reducing the moisture or water activity (A_w) such as in dry milk products; and 5) adding microbial inhibitors or preservatives such as is done with potassium sorbate addition to cottage cheese.

Eliminating or Killing Contaminants - Sanitation Procedures:

Chemical sanitizers are routinely used to reduce the load of microbial contaminants that may be present on milk/food contact surfaces. Most dairy sanitizers, when used correctly, kill off a broad spectrum of microorganisms. Sanitization procedures should be performed after washing and immediately before processing, although an additional sanitizing step after equipment washing procedures can be helpful. Most chemical sanitizers are inactivated by organic matter and are ineffective on poorly cleaned surfaces. Sanitizers commonly used in the dairy industry include chlorine and iodine compounds, quaternary ammonium compounds, acid anionics & peroxyacetic acid.

Hot water sanitization is commonly used in many dairy plants. Hot water sanitization involves circulating water of at least 170°F (determined at the outlet) for at least 5 minutes. Higher temperatures (>185°F) for longer times (10-15 minutes) are recommended to allow heat penetration into areas that are hard to reach. Hot water treatments should be followed by a cooling chemical sanitizer rinse or with cooled pasteurized water. Hot water will often provide greater kill and longer milk shelf-life than can be achieved with chemical sanitizers alone.

Eliminating or Killing Contaminants - Pasteurization:

Pasteurization procedures generally kill a large percentage of the bacteria commonly found in raw milk, including pathogenic organisms and those that rapidly cause spoilage. The higher the temperature used, the less time is required for equivalent kill. The most commonly used defined minimum temperature/time combinations are:

Batch Pasteurization:	63°C (145°F) for 30 minutes
High-Temperature/Short-Time:	72°C (161°F) for 15 seconds.

These procedures stand as legal definitions of pasteurization and are outlined in the "Pasteurized Milk Ordinance," the document of requirements for Grade "A" milk products. A majority of dairy plants use High-Temperature/Short-Time pasteurization, with temperature/time combinations often exceeding the stated minimum requirement (i.e., 170°F for 20 seconds). Most bacteria that survive pasteurization generally do not grow or else grow slowly at refrigeration temperatures, causing problems later in shelf-life. Contamination after pasteurization with psychrotrophic spoilage bacteria is not uncommon. When post-pasteurization contamination of a product occurs, both the quality and the safety of the product are jeopardized.

References:

Brock, T.D., & M.T. Madigan. 1986. Biology of Microorganisms. Prentice Hall, Englewood Cliffs, NJ; FDA-CFSAN. The Bad Bug Book; available at http://www.cfsan.fda.gov/~mow/intro.html ; Jay, J.M. 1996. Modern Food Microbiology. Chapman & Hall. NY, NY. Robinson, R.K. ed. 2002. Dairy Microbiology Handbook. J. Wiley & Sons, NY, NY

Prepared by S.C. Murphy (Sr. Extension Associate) as an update of a D. K. Bander Extension Handout. Edited by N.R. Carey. July 2007

Provided with support from the NY State Dairy Promotion Order;
Dairy Farmers dedicated to the production, manufacture & distribution of quality products.

Facts About Antibiotic Resistance

Disease-causing microbes that have become resistant to drug therapy are an increasing public health problem. Tuberculosis, gonorrhea, malaria, and childhood ear infections are just a few of the diseases that have become hard to treat with antibiotic drugs.

Other facts:

- Though food-producing animals are given antibiotic drugs for important therapeutic, disease prevention or production reasons, these drugs can cause microbes to become resistant to drugs used to treat human illness, ultimately making some human sicknesses harder to treat.
- About 70 percent of bacteria that cause infections in hospitals are resistant to at least one of the drugs most commonly used to treat infections.
- Some organisms are resistant to all approved antibiotics and must be treated with experimental and potentially toxic drugs.
- Some research has shown that antibiotics are given to patients more often than guidelines set by federal and other healthcare organizations recommend. For example, patients sometimes ask their doctors for antibiotics for a cold, cough, or the flu, all of which are viral and don't respond to antibiotics. Also, patients who are prescribed antibiotics but don't take the full dosing regimen can contribute to resistance.
- Unless antibiotic resistance problems are detected as they emerge, and actions are taken to contain them, the world could be faced with previously treatable diseases that have again become untreatable, as in the days before antibiotics were developed.

Antibiotic Resistant Pathogens

In recent years, this issue of sale of raw milk has become more relevant than ever before due to the emergence of antimicrobial resistant food borne pathogens such as *Salmonella, Staphylococcus (MRSA), Campylobacter* and *Escherichia coli*. Drug-resistant infections increase risk of death, and are often associated with prolonged hospital stays, and sometimes complications due to the lack of an effective antibiotic treatment.

These bacteria have developed this resistance due to a number of reasons and they are present in all areas of the environment: hospitals, schools, farms, in wildlife and our homes. These organisms are more prevalent in environments where animals (both wild and domestic) are located.

Pathogens resistant to the effects of antibiotics can occur in environments were antibiotics have never been used. Recently multidrug resistant strains of bacteria were isolated in normal healthy wild birds in the Arctic.

Animals and antibiotic use

The proper use of antibiotics as a treatment for a bacterial infection is a necessary tool in the management of the individual animal's health and the overall herd health of all livestock species. Antibiotic treatment may be required to provide the best animal care to individuals infected with a disease.

When antibiotics are chosen as the treatment for farm animals the producer and veterinarian are required to with hold any product from the treated animal until the medication is cleared from the animals system. To assure the products are not adulterated with antibiotic residue, meat and dairy products are sampled on a routine basis.

Milk samples are collected at the farm prior to being pumped into the milk truck. The samples are tested for antibiotics by both the processing plant and by the state laboratory. If antibiotics are detected in the milk, the entire tank of milk is immediately discarded. The farmer responsible for the impure milk may have to pay the cost of the entire truckload of milk, so each farmer's incentive to maintain milk quality is high. Data from the FDA indicates that less than one tanker in 1,000 tests positive for animal drug residues, a sign that the regulatory system is working.

Mechanisms of antibiotic resistance

The increased prevalence of antibiotic resistance is an outcome of evolution, "survival of the fittest". Any population of organisms, bacteria included, naturally includes variants with unique traits–in this case, the ability to withstand an antibiotic's attack on a microbe. When a person takes an antibiotic, the drug kills the defenseless bacteria, leaving behind–or "selecting," in biological terms–those

that can resist it. The antibiotic does not technically cause the resistance, but allows it to happen by creating a situation where an already existing variant can flourish.

Bacterial antibiotic resistance is a natural phenomenon, but certain factors also contribute to the problem.

It is the mis-use of antibiotics that is one of the main reasons for the development of antibiotic resistant strains of pathogens.

Some examples of inappropriate antibiotic use:

1) Not finishing a full course of antibiotics prescribed (antibiotics are stopped too soon because symptoms improve, but resistant bacteria proliferate and the infection returns that is now resistant),

2) Sub-therapeutic dosing of an antibiotic (too low a dose to effectively kill the pathogen so the body can eliminate the infection),

3) Inappropriate prophylaxis and extended antibiotic dosing,

4) Improper disposal of antibiotics (antibiotics entering sewage disposal systems can enter waterways at low doses causing resistance in bacteria living in soil and water).

5) Use of low dose (sub-therapeutic) antibiotics in feeds or water to induce more rapid growth rates. (Antibiotics administered at low levels in feed for long durations can increase the rate of weight gain and improve the efficiency of converting animal feed to units of animal production.)

The use of antibiotics should follow the prescription and be used under the consultation of a physician.

Summary:

The proper use of antibiotics as a treatment for a bacterial infection is a necessary tool in the management of the individual animal's health and the overall herd health of all livestock species. Antibiotic treatment is required to provide the best animal care to individuals infected with a disease.

Scientists agree that antibiotic resistance is inevitable, but there are measures that can slow the development of these resistant pathogens: improving infection control, sanitation and simple hand washing, developing new antibiotics, and using drugs with consultation and guidance from physicians (veterinarians and MDs).

Rex Shattuck

From: Silveraurora [silvera@mtaonline.net]
Sent: Tuesday, February 26, 2008 7:17 PM
To: 'Silveraurora'; Rex Shattuck; Rep. Mark Neuman; Sen. Lyda Green; Sen. Charlie Huggins; safallon@aol.com; glfcstmnrs@earthlink.net; rqw@mtaonline.net; 'Heather Fair'; 'Heather Christensen'; goatmilk@gci.net
Subject: RE: Raw milk should be legally available to the villages and small towns of Alaska

Follow Up Flag: Follow up
Flag Status: Completed

Sorry all, I forgot to add proper internet etiquette.
Permission to freely cross-post granted.
Suzanne Nevada

-----Original Message-----
From: Silveraurora [mailto:silvera@mtaonline.net]
Sent: Tuesday, February 26, 2008 7:16 PM
To: 'rex_shattuck@legis.state.ak.us'; 'rep_mark_neuman@legis.state.ak.us'; 'senator_lyda_green@legis.state.ak.us'; 'senator_charlie_huggins@legis.state.ak.us'; 'safallon@aol.com'; 'glfcstmnrs@earthlink.net'; 'rqw@mtaonline.net'; 'Heather Fair'; 'Heather Christensen'; 'goatmilk@gci.net'
Cc: 'Silveraurora'
Subject: Raw milk should be legally available to the villages and small towns of Alaska
Importance: High

Regarding House Bill 367 in favor of raw milk sales in Alaska -

One of the important facets of Alaska life are those people in remote towns and villages who are supportive of producing their own fresh, raw milk. As a registered bloodstock producer of a particular small breed of dairy goat, I have sold goat kids to numerous families in the Southeast as well as remote bush locations throughout Alaska solely for the purpose of supplying their families with fresh raw milk. I have a couple in Aniak who have a number of goats so that their family and children can have fresh raw milk, as an example. Our Alaskans in these locations should have the right to produce raw milk and to sell any excess that those animals produce to other people in their locations who wish to purchase it. You can NOT get a fresher product to these villages and towns other than by air in most cases, which forces many Alaskans then to exist on low-fat powdered milk of questionable origin and age.

These people are NOT ignorant to the safe handling procedures of foodstuffs - freshly killed moose, caribou, salmon, or shellfish for examples. In fact, Alaskans are some of THE most educated when it comes to safe handling of any food item! It is in their best interest to take great care of the food they produce, harvest, and share amongst themselves. The ability for villages and small towns to have fresh raw cow or goats milk can mean the difference of a thriving, healthy child and adult population versus one raised on milk often flown in weeks after it was collected and processed in the lower-48 and of which goes sour in a few days if not already putrid on arrival. It is an atrocity to ever think that Alaskans are not intelligent enough or are not perfectly capable of milking a clean cow or goat and properly handling that milk for their own nutrition and enjoyment. We Alaskans are some of the most well-advised procurers of fresh raw products anywhere in the US. The DEC, on the other hand, is sure that Alaskans can not take responsibility for their own health and welfare when it comes to foodstuffs - hogwash! We ARE proud Alaskans regardless of where we live and are quite capable of securing fresh raw products and processing them as we see fit for consumption.

The raw milk bill is not just for those people in the Mat-Su Valley or Anchorage, nor is it just to benefit a few farmers! House Bill 367 is the opportunity for ALL Alaskans to have free access to fresh milk from any farmer or person they see fit. If someone in a remote village wants to raise dairy goats and sell the excess raw milk to others in their

community, they should have the RIGHT to start their own small dairy business and the RIGHT to provide their community with a fresh source of raw milk. It is preposterous to assume that Alaskans are too ignorant to safely handle raw milk, and just as preposterous to deny ANY Alaskan in ANY community the right to produce fresh milk and sell, give away, barter, or by any other means freely share their product with other family, friends, or community members.

Respectfully,
Suzanne Nevada
District 15
Wasilla, Alaska
Silveraurora Nigerian Dwarf Dairy Goats
907-373-2687

Bonnie Gruening

From: theider [tianih@mtaonline.net]

Sent: Wednesday, February 27, 2008 8:55 AM

To: cherie.rice@alaska.gov; dan.easton@alaska.gov; franci.havemeister@alaska.gov; jay.fuller@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; larry.hartig@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; safallon@aol.com; goatmilk@gci.net; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Carl Gatto; Rep. Craig Johnson; Rep. Mark Neuman; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; 'representative_peggy_wilson@legis.state.ak.us; Sen. Charlie Huggins; Sen. Lyda Green; rqw@mtaonline.net'

Subject: HB 367

I wish to voice my support in favor of raw milk, and raw milk products sales.

There are a number of reasons for my wholehearted support-

Alaskans are already able to either grow, catch, or harvest quite a number of raw products (shellfish, fishes, berries, wild game, vegetables they grow, and other edibles from the wildlands) locally. From subsistence hunter/gatherers, to suburban residents who scour the forest for mushrooms, fiddle head ferns and edible greens to enhance a healthy diet, we are well versed in proper and safe food handling and preparation. Why would raw milk be any different?

In the stores are 100s of raw products from unknown locations that are subjected to tremendous shipping lengths- such as eggs, milk products, fruits, vegetables, fish, and of course grocery shelves brimming with "short shelf life" meats of all kinds. Also deli meats and foods prepared thousands of miles away and offered to Alaskans every day. On many of these products, there is no signage informing the consumer where the product came from, let alone when it was harvested or prepared. Just an "expiration date" on refrigerated items.

With fresh, local raw milk and milk products, I will *know* where the milk comes from. I will be able to see for myself the farming practises, examine the premises and make an informed decision about whether to purchase it for my family. I *cannot* do this with imported milk! Instead, I am forced to buy milk that often "goes off" in the gallon jug within days of opening. If the farm does not meet my personal criteria for safe handling, then I can chose another producer. I cannot do this as it is today. A "short shelf life" is of no concern to me, as raw milk will undoubtedly be *fresher and healthier* than what is shipped in currently. I have always supported Alaskan products in my purchases, why should fresh *local* dairy products be out of my reach?

As a mother and consumer, I cannot even identify produce in grocery stores that comes from countries whose production methods are questionable. When there is a recall of some type, we are at the "end of the food chain" and thus, most of the item has already been purchased and in many cases consumed. With local raw milk and raw milk products, we would indeed have dairy items "fresher by far" and people who have health concerns would have a *choice. I want this choice for myself and my family.*

Since I do not farm, or have dairy animals of any type, I am unable to provide this healthy alternative (raw milk) to my family. The decision to restrict sales seems to be based upon inaccurate and unproven reports of disease and/or illness in the Lower 48. Most were "attributed" to very large scale operations, which is not the situation we have here in Alaska. Here we have a handful of struggling dairies and small livestock owners, and I say we should let the Alaska consumer prove their viability, instead of choking off an entire market sector with unecessary and outdated regulations.

As a person who has lived in several remote spots in Alaska in the 60s and 70s, I can firmly state that canned, powdered, and air shipped milk are inferior in quality to raw milk. I do recall times when "the barge" was either lost, or delayed....meaning no milk (or produce) available at all, sometimes for weeks. I have heard that there are dairy animals in the Bush....why restrict raw milk, which is healthier, and *fresh*, from those communities? Is that a wise "use" of community resources?

In my mind, the issue of raw milk sales in Alaska is about choice. I want the *freedom to chose* for myself and my family! Having the choice to purchase direct from the farmer or producer supports not only Alaska agriculture, but the health of our residents.

In a time when diversifying our tiny agricultural base is crucial to our future, it would seem obvious that Alaska should join the other 28 states who allow raw milk sales.

I urge you to support sales of raw milk and raw milk products with HB 367

Respectfully

Tiani Heider
4457 S. Philie Drive
Wasilla, Alaska 99654
(907) 357-0542

Bonnie Gruening

From: cash joyce [cashin@mtaonline.net]
Sent: Saturday, January 19, 2008 1:16 PM
To: Rep. Carl Gatto
Subject: legalize it (raw milk)

Self sufficiency is what brought this borrowed beginning to the Matanuska valley. The transplants that broke ground here were for a purpose and forefront of what has evolved today.

I ask you to read a slice of Max Crawfords Bioregional Perspective.
"Sometimes it seems unlikely that a society as a whole can make wise choices. Yet there is no choice but to call for the recovery of the commons and this in a modern world that doesn't quite realize what it has lost. Take back like the night, that which is shared by all of us, that which is our larger being. There will be no tragedy of the commons greater than this if we do not recover the commons; regain personal, local, community, and peoples direct involvement in sharing the web of the wild world. Eventually our complicated industrial capitalist/socialist mixes will bring down much of the living system that supports us. It is clear the loss of the commons heralds the end of self-sufficiency and signals the doom of the vernacular culture of the region.

Cash joyce indigenous alaskan

Bonnie Gruening

From: Little Britain House Dairy [lbh@mtaonline.net]
Sent: Friday, January 18, 2008 1:30 PM
To: Rep. Carl Gatto
Subject: Raw Milk?
Attachments: Proposed Milk Law.abw

Little Britain House Dairy
12550 East Marsh Road
Palmer, Alaska 99645
(907) 746-3037

Dear Rep. Gatto,

I hope that you will remember speaking with me at the parade in Palmer this last year. Also I spoke with you the Havemiester Dairy Rally last fall also. My name is Lee Mayberry and I am trying to run a small dairy operation in Palmer.

I was speaking to you about the possibility of getting the sale of raw cow milk to the consumer from the farm. At the time I said that I would get some information together for you and send it your way but I have been rather tardy in doing that, and I must apologize for that. But I have had time recently to get down to business and I have attached a proposed rough draft for you to scan over. It is a combination of things and points from the laws in New York State, and North Carolina where both states allow the sale of raw milk to the consumer from the farm. I know that many at the State Capital have blocked some legislation in the past but I do not think to my knowledge any way that any has ever been introduced that caries a disclosure with it. What I like about the proposed copy that I sent is that the container will have a state approved label attached stating the danger of raw milk. But that doesn't turn me off because the consumer that really wants to purchase the milk will have already done their research and know all about the hazards if any. They would continue to purchase the product I believe. I just really think that it is not the governments place to participate in our families dinner each night buy legislating what we can and can not eat or drink. I think the small farmer like myself should have the opportunity to produce his products and sell them locally to try to put money in the bank so he can buy food for his family.

I am having to sell cows shares as many like myself are having to do in some other states. I know that there are a large call for raw foods and organic products. I see people every day of every week that are wanting to buy local raised produce. It is a really great way to support local farmers, and just buy local program in the first place. I would so very much appreciate a call so that I could discuss this with you further. I am ready and willing to do what I must to help get any legislation passed, if that means making trips to the capital then just call me.

Respectfully,

Lee Mayberry,
General Manager, Co-Owner
LITTLE BRITAIN HOUSE DAIRY
(907)746-3037

Bonnie Gruening

From: Heather Fair [hoofingitnorth@hotmail.com]
Sent: Sunday, January 20, 2008 9:37 AM
To: hoofinitnorth@yahoogroups.com
Cc: Sen. Lyda Green; Rep. Wes Keller; Rep. Carl Gatto; Sen. Charlie Huggins; Rep. Mark Neuman; Rep. Bill Stoltze
Subject: Please support the legal sale of raw milk in Alaska
Importance: High

I had an interesting conversation last Friday with Kristan Cole of the Creamery Board. I asked her, "So, when's the state of Alaska going to legalize the sale of raw milk from small farmers?" She smiled and said, "Well that would sure make things a lot simpler, wouldn't it?" We chatted briefly about how she used to be able to buy raw milk in the 1960s and she knows even now there is a black market for it and seemed to wonder why it's not legal now. As an owner of a small dairy goat herd, I would like to have the opportunity to legally sell my milk to informed consumers, even if under regulations as is common in other states. I'm sure our dairy farmers at Point MacKenzie would like to have the same opportunity so they find themselves standing on the unemployment line with their farms in foreclosure in this awful economy. Please sponsor and support legislation modeled after another successful state such as Oregon or Washington to legalize the sale of raw milk in Alaska. For more information on where to begin, please see http://realmilk.org (to see summaries of the laws in other states, go to http://www.realmilk.com/happening.html).

Heather Fair
All I Saw Farm
Fair Skies Nigerian Dwarf dairy goats
Wasilla, Alaska
http://FairSkiesAlaska.com
http://HoofinItNorth.com

Bonnie Gruening

From: flint brewer [flintb@gci.net]
Sent: Wednesday, February 13, 2008 9:21 PM
To: Rep. Carl Gatto
Subject: Please Support HB 367

Mr Gatto,
The Dairy farmers in Alaska could use this shot in the arm. It would be good for them and the consumers. It's in every ones best interest to keep a strong network of farmers both large and small.

Best Regards
Flint Brewer
720 W. Coville Circle
Palmer AK 99645
373-6016

Bonnie Gruening

From: Alisa Elliott [alisa@mountainmagictherapy.com]
Sent: Thursday, February 07, 2008 7:10 PM
To: Rep. Carl Gatto
Subject: legalize raw milk!

I wanted to add my name as one Alaskan resident and voter who wants raw milk available to me without legal ramifications for either me or the farmer providing it. I'd love to get into the amazing benefits of raw milk but I feel it is truly about individual rights. It is our right to feed our bodies and families with the healthful foods that we want to! The only, I repeat, ONLY reason it was ever pasturized was to increase the shelf life of milk hence increase the profit of milk producers at the time. It is time to make it a viable option for folks. If we can buy harmful products like Twinkies, cigarettes and soda (hello cancers, obesity and diabetes!) than why in the world can't we simply buy fresh milk??? Please Please Please pass legislation to legalize the sale of raw milk.
Alisa Elliott, Palmer

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367
Bill/Subject
, dated 2-29-08

Please Support This Bill
I will give ALASKANS The freedom To Choose
if AND where They Purchase Their fresh Milk.
AND Maybe, JUST Maybe it will help Bring a
Little more DAIRY out into The open

THANK YOU

Signed: Rick Williams (Testifier) RICK WILLIAMS

Representing (Optional)

7948 W. Sunset Ave WASILLA
Address

373-2687 / 373-5000 / 232-8856
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

I ~~was~~ Rised in Oregon
And I had Fresh milk every DAY
of my Child Hood.

Signed: Jack L Shull
Testifier

Representing (Optional)

1040 W. Shirley Ann Cir Wasilla AK. 99687
Address

907-357-2064
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-28-06
Bill/Subject

I Grew up drinking Raw milk for years, and never had any health issues regarding the use and consumption of such.

Signed: _____ Marc R. Pershing
Testifier

Representing (Optional)

7362 W Parks Hwy. #161 Wasilla, Ak. 99654
Address

907-357-0268
Phone number

Alaska State Legislature

Please enter into the record my testimony to the _____
Committee name

Committee on House Bill #367, dated _____
Bill/Subject

I, Rayna L. Fritcher, would like to express my full support for House Bill #367.

Signed: Rayna L Fritcher
Testifier

_____
Representing (Optional)

30160 N. Lazy Eight Ct. Suite 2, PMB103, Wasilla, Ak 99654
Address

(907) 373-8082
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated
Bill/Subject

I Support this Bill on Raw milk.
by Farmer Sale. I was Raise on A
farm and I grow up drinking Raw milk

Signed:
Testifier

Representing (Optional)

PO Box 827457 Wasilla AK
Address

907 373 4006
Phone number

Alaska State Legislature

Please enter into the record my testimony to the House Resources Committee
Committee name

Committee on House Bill #367, dated 2-2-08
Bill/Subject

I support House Bill 367. I want to buy local, fresh milk, in it's raw state, take it home, and prepare it for my own family's consumption in the manner I see fit. I don't want processed milk that comes from a farm that I have not personally been to and taken my own milk home from. I want fresh raw goats milk too - there hasn't been a creamy in this state that processes goats milk. I don't want 2 to 3 week old pasteurized milk from the lower-48 that came off some corporate farm from cows that have been fed antibiotics or hormones. I want to buy fresh raw milk from local farmers of my choice, I want to take my milk home and make my own milk products and do with that milk as I see fit. The MAJORITY of states allow raw milk sales, we should too. Alaskans need to legally purchase healthy, locally grown products including raw milk to take home and do with as they deem safe and best for their family. I am asking the state to allow all Alaskans the right to purchase raw milk directly from the local producer, support the state's agricultural economy, and preserve our right to choose what is best for myself and my family. I support House Bill 367!

Thankyou.
Suzanne S Nevada

Signed: Suzanne S Nevada / Suzanne S. Nevada
Testifier

Representing (Optional)

7948 W. Sunset Ave, Wasilla, AK 99654 - Dist. 15
Address

907-373-2687 home (day & eve)
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

I ~~Support~~ This bill. Since I
Grew up on fresh milk from The farm.
It Should be my right where to buy
It from

Signed: Larry Fatch
Testifier

Representing (Optional)

PO Box 398125 Wasilla AK 99629
Address

907-376-4382
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

People have the right to choose
whare they bye their food

Fresh milk is Good Milk

Signed: _____ Josh Ewing
Testifier

Representing (Optional)

P.O. box 870623 wasilla AK 99687
Address

907-376-2229
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

THIS BILL REALLY NEEDS TO PASS.

Signed: [signature] EARL P. LACKEY
Testifier

Representing (Optional)

3900 S. ENGLISH BAY DR. WASILLA, AK 99654
Address

376-1003
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources Committee
Committee name

Committee on HB 367, dated 2/29/08
Bill/Subject

Signed: _____
Testifier

Representing (Optional)

Po Box JZ0327, Big Lake Ak 99687
Address 626 N Victor Rd.

907 301 7781
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

I support this bill.

Signed: Robert A. Butcher
Testifier

Representing (Optional)

237 W. Meadow Lk. LP.R.D. Wasilla AK.
Address

232-1883
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-29-08
Bill/Subject

3 generations dipping out of the non pasturized tank at our family farm.

Signed: [signature]
Testifier

Representing (Optional)

1151 Robin Song Ave Wasilla AK
Address

907 357-8269
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-28-08
Bill/Subject

I DRANK all my life

Signed: Joe Hamilton
Testifier

Representing (Optional)

3596 W Lynn DR. WASILLA AK 99654
Address

907-373-3202
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources Committee
Committee name

Committee on HB367, dated 2/26/08
Bill/Subject

I support House bill 367, and the right to choose.

Signed: Laura Manary
Testifier

Representing (Optional)

4274 N Farm Loop Rd Palmer AK 99645
Address

907-745-6010
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources's
Committee name

Committee on HB367, dated 2/26/08
Bill/Subject

I Support This

Bill

Signed: Duane Bubb
Testifier

Representing (Optional)

3230 S Parrot Ct. Palmer AK 99645
Address

746-3375
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resource, Committee
Committee name

Committee on 367 HB, dated 2/27/08
Bill/Subject

I believe people should have the right to purchase milk from whom they choose, whether raw or processed. The law must be changed!

Signed: (Ben Parker)
Testifier

Neuman
Representing (Optional)

PO Box 875133 Wasilla, Ak 99687
Address

(907) 376-3226
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated 2-28-08
Bill/Subject

SUBJECT RAW MILK GROWING UP ALL WE HAD WAS RAW MILK WE WORE IN BETTER HEALTH THAN WE ARE TODAY BECAUSE OF ALL THE PROCESSING OF FOOD STUFF'S.

Signed: [signature]
Testifier

Representing (Optional)

2341 TUNDRA ROSE DRIVE WASILLA
Address

357-4285
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Resources
Committee name

Committee on HB 367, dated
Bill/Subject

I am totally in support of this bill as written, however would not be opposed to restaurants being deleted from the bill.

Signed: Dennis W. Hamann
Testifier

Self
Representing (Optional)

1200 Oat St. Wasilla AK. 99654
Address

907-373-5938
Phone number

Fax 1-907-465-4820

Alaska State Legislature

Please enter into the record my testimony to the Human Resources
Committee name

Committee on HB367 Sale of Raw Milk + Milk Products dated March 3, 2008 1:20pm
Bill/Subject

I wholeheartedly support HB367. I am witness to three generations of family raised on raw, unprocessed milk and never once witnessed any harm, ill effects or sickness as a result. I am dismayed that I no longer can choose to drink or supply for my family raw milk simply because I no longer can keep a cow. Raw milk is a natural more life-giving food than processed milk and we should all have the choice to consume it.

Thank-you.

Signed: Rebekah Lincecum
Testifier

Representing (Optional)

5660 N. Cunningham Rd. Palmer, AK
Address

907 746 5725
Phone number

1-907-465-4822

Alaska State Legislature

Please enter into the record my testimony to the Human Resources
Committee name

Committee on HB 367 Sale of Raw Milk Products, dated 3-2-08
Bill/Subject

I grew up on a dairy farm in Ohio. I drank raw milk and my mother cooked and made cheese with raw whole milk. I ran a dairy here in Alaska for three years drinking raw milk for myself and family. Presently my family and I purchase raw milk on a cow share basis. Recently I discovered that this is illegal under Alaska law. This is ridiculous! This law needs repealed and a new law that allows the sale of raw milk passed.

Signed: Robert W. Greig
Testifier

Self
Representing (Optional)

5658 N. Cunningham Rd Palmer, AK 99645
Address

1-907-745-5925
Phone number

Alaska State Legislature

Please enter into the record my testimony to the Human Resources
Committee name

Committee on HB 367 Sale of Raw Milk & Milk Products dated March 1, 2008 for 3/3/08 1:00 PM
Bill/Subject

I would like to testify in favor of making the sale of raw milk products legal. The beneficial enzymes and lactic-acid producing bacteria found in raw milk products are destroyed by pasteurization. The protective and helpful organisms along with heat sensitive proteins, vitamins and minerals are altered or destroyed through pasteurization and homogenization. Homogenization has been scientifically linked to heart disease. My husband and I raised our 4 children on raw milk products from our own cows and more recently from a valley condo cow program. We milked by modern milking machines as well as by hand when necessary following common sense, cleanliness & hand washing. None of us has ever been ill from raw milk and I believe we are healthier because of it. I was raised in the suburbs of Detroit and have been very thankful for the opportunity given me to experience the benefits of eating fresh food & milk products grown and produced at home for over 40 years. Thank you.

Signed: Christine Greig
Testifier

Representing (Optional)

5658 N. Cunningham Rd Palmer, AK
Address

907-745-5725.
Phone number

Fax 1-907-465-4822

Alaska State Legislature

Please enter into the record my testimony to the Human Resources
Committee name

Committee on HB367 Sale of Raw Milk + Milk Products dated March 3, 2008 1:00pm
Bill/Subject

I am 22 years old and consumed raw milk for the majority of my childhood with no ill effects. I greatly prefer it over processed milk and am convinced it holds many health benefits that are destroyed during the processing. I have a daughter now and as her mother am disappointed that I cannot choose to feed her this wholesome beneficial food just because I do not have the means to own my own cow. I support HB367 and the right to purchase and consume the whole foods that are healthiest for my body and that of my family as I see fit. Thank you.

Signed: Sharon Trisby
Testifier

Representing (Optional)

5704 N Farmloop Rd Palmer AK 99645
Address

907-746-3463
Phone number

Bonnie Gruening

From: daytona102@aol.com

Sent: Tuesday, February 26, 2008 2:21 PM

To: Rep. Mark Neuman; Rep. Wes Keller; Rep. Carl Gatto; Rep. Anna Fairclough; Sen. Lyda Green; Sen. Charlie Huggins

Subject: HB 367

B— place with milk bill legislation for Monday C—

Dear Represenative:

This bill will do NOTHING for the sale of raw milk.

Point #1:

Do you see the word ADDING at the beginning of the amendment? Adding means in addition too.

* Sec. 2. AS 17.20 is amended by **adding** a new section to read:
28 Sec. 17.20.014. Sale of raw milk products. (a) A person may sell a raw milk
29 product to a final consumer or to a restaurant, grocery store. or similar establishment,
30 if the principal display panel on the raw milk product prominently states that the raw
31 milk product is not pasteurized and may cause health concerns, and if the person
01 complies with the state's requirements for the sale of milk that do not conflict with this
02 section.
03 (b) This section does not apply to a sale that is governed by federal law.
04 (c) In this section,
05 (1) "raw milk" means milk that is not pasteurized;
06 (2) "raw milk product" means raw milk or a product or byproduct of
07 raw milk.

Point #2:

By having that wording you are saying the a Grade A dairy can sell raw milk to the public, but under the Grade A dairy regulations, they are only allow to sell to Grade A creameriers. So in effect you are doing nothing, but pushing paper for a bill that will accomplish nothing. The law for Pasteriation Ordiance is very clear about raw milk and in this bill it's still in affect and will causes this ordinance to be nual and void.

If you want to allow the sale of raw milk to the general public it must be stated that a small non-commerical farmer can sale raw milk and raw milk products to the general public IF they comply with the state/federal vets regulations and health safety issues. That's if the state and federal veternarians are willing to work on a plan to allow the supervision of small scale dairy farming. You MUST have the state and federal vets involved because they will ultimately be the ones enforcing and dealing with health problems and concerns of raw milk sales.

Raw milk if handled properly is safe to drink and does have benefical properties. But some owners aren't that aware of safe handling procedures of raw milk to keep it safe. The concept sound simple but it's very specific and detailed to maintain healthy milk products. If there is some type of licensing, (Not

grade A) that a small farmer could take to insure that he does know the safe handling and storing procedures of raw milk then the state is off the hook if something health wise does happen. Making the small farmer liable for his actions on maintaining healthy standards.

Sarah Godfrey
Miss Be Haven Ranch
6780 W Joe's Drive
Wasilla Alaska 99654

10920 Kasilof Blvd
Anchorage, Alaska 99507
February 29, 2008

The Honorable Carl Gatto
Co-Chairman, House Resources Committee
State Capitol, Room 108
Juneau, AK 99801-1182

Dear Representative Gatto:

I am writing to indicate my strong opposition to House Bill 367, "An Act relating to the sale of raw milk and raw milk products."

This bill is being promoted as a means of financial relief for Alaska's dairy farmers, with no concern for the danger it would pose to the public's health. While I have the highest regard for Alaska's hard-working farmers, for the past century it has been well-documented that consumption of raw unpasteurized milk can cause serious and potentially fatal human illness. A number of human pathogens, for example, *Salmonella*, *Campylobacter*, and *E. coli* O157:H7, are frequently present in the intestinal flora and feces of cows. When shed in the feces the organisms can easily contaminate milk during the milking process. Using standard hygiene practices during milking, for e ample, washing hands, keeping equipment clean, and keeping the milking area separated from other areas can reduce but not eliminate the risk for milk Young children, the elderly, and persons with impaired immunity are at especially high risk of severe illness and death should they become sick with these infections.

Early in the 20th century, widespread adoption of the pasteurization process led to substantial reductions in milk-associated disease, a milestone in the history of food safety. If this bill is allowed to become law, we will likely see a surge in raw-milk-related illness, as has been witnessed time and again in areas that permit sale of raw milk.

The Alaska Constitution states that "The legislature shall provide for the promotion and protection of public health." Please do your job to protect the public health by defeating House Bill 367. Then look for other, safer ways to help our farmers.

Sincerely,

Bruce P. Chandler, MD, MPH

Debra Higgins

From: Rep. Craig Johnson
Sent: Friday, March 07, 2008 12:10 PM
To: Debra Higgins
Subject: FW: Let us purchase raw milk!

-----Original Message-----
From: Charlotte Byers [mailto:ofcourse@gci.net]
Sent: Tuesday, February 26, 2008 12:27 PM
To. Rep. Craig Johnson; Sen. Lesil McGuire
Subject: Let us purchase raw milk!

I am writing in support of House Bill 367. Please let us purchase and drink raw milk without being criminals! Many Alaska citizens have done our own research and believe that raw milk is much healthier for our families than the pasteurized product. I personally was told to drink raw milk by a PhD. nutritionist and my health has improved.

If I can legally purchase and consume alcohol and tobacco, which are known to be harmful, with just a warning label attached, I should be able to legally purchase and consume raw milk with such a warning label. (I personally don't believe it warrants one)

I also think that passing House Bill 367 will help keep Alaska's dairy industry alive. Alaskans need a local thriving dairy industry.
Depending totally on Outside dairy is risky in these current times. We want to buy locally.

Thank you for supporting HB367.

Charlotte Byers
9550 Albatross Drive
Anchorage, AK 99502

BYERS, CHARLOTTE C
9550 ALBATROSS DR
ANCHORAGE AK 99502
District: 28-735 Party: D Sex: F

HB 367

Debra Higgins

From: Silveraurora [silvera@mtaonline.net]
Sent: Monday, March 03, 2008 8:00 PM
To: Rep. Scott Kawasaki; Rep. Paul Seaton; Rep. Bryce Edgmon
Cc: Rep. Mark Neuman; Rex Shattuck; Rep. Anna Fairclough; Rep. Peggy Wilson; Rep. Mike Kelly; Rep. Bob Roses; Rep. Carl Gatto; Rep. Craig Johnson; Rep. Reggie Joule; 'Silveraurora'; 'Heather Fair'; 'Rick'; safallon@aol.com; glfcstmnrs@earthlink.net; Sen. Lyda Green; Sen. Charlie Huggins
Subject: Regarding House Bill 367

Dear Scott, Bryce, and Paul-
I was to be one of the people that testified today, but because of the problems with the teleconference operators, I could listen but not speak. I listened to your questions and comments today, and would be happy to answer any questions that I can about my view of the bill and the health considerations of the right to purchase raw milk. I own a small herd of dairy goats and serve on a national Dairy Herd (a USDA Federal Program) Improvement committee, am the first in the state by years to have milk animals (my goats) on monthly DHI milk test, and have won awards for my goats and milk production including the lowest Somatic Cell Count for those on test one year. If I can help answer your questions, please feel free to contact me. I support house bill 367 and so do many people around the state that I know. Thank you for your time.

Suzanne Nevada
Wasilla
District 15
907-373-2687

Debra Higgins

From: Rep. Craig Johnson
Sent: Tuesday, March 11, 2008 8:05 AM
To: Debra Higgins
Subject: FW: In Support of Raw Milk Legislation

From: goatmilk@gci.net [mailto:goatmilk@gci.net]
Sent: Monday, March 10, 2008 10:23 PM
To: Silveraurora; Rep. Mark Neuman; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Carl Gatto; Rep. Bob Roses; Rep. Mike Kelly; Rep. Peggy Wilson; Rep. Bryce Edgmon; Rep. Paul Seaton; Rep. Reggie Joule; Sen. Lyda Green; Sen. Charlie Huggins; safallon@aol.com; 'Heather Christensen'; rqw@mtaonline.net; 'Heather Fair'
Subject: Re: In Support of Raw Milk Legislation

I am a struggling farmer, There are three things in my life that are important to me that are central to everything that motivates me and gives me purpose. My faith my family my farm, in that order. I want nothing more then to be able to live out my faith raise my family and produce the best and healthiest products I can while caring for and improving the land. I believe and I think it can be shown through the decline of our society that you disable people from making a living from the land and separate people farther and farther from the land you will find that you have destroyed the health, integrity, ingenuity, strength of a nation. In this post modern world we have divorced modern society from the land, it has harmed us. Here in Alaska right now we have the opportunity to support small family farms all over this state and provide opportunities for more families to make a living from the land. HB 367 as originally written can do this. I certainly hope that enough lawmakers will find the back bone to listen to the people instead of being intimidated into submission by those who have taken a stand against freedom because that is the "official stand" of many federal agencies, disregarding a plethora of scientific evidence that has been already mentioned in many emails on the safety of raw milk.

I must also admit that I have come to a place where I have lost most of my confidence in our legislators. It seems as a rule it is a cover your own backside, and line your own pocket racket, The people are rarely served well, it seems. I see HB 367 as one thing that could really promote the freedom and personal responsibility that this country was founded on, this I see is a bill for the people, but, it seems that there may be some typical political shenanigans to defeat this bill, confirming my suspicions a lot of law makers are down there to line their own pockets, not as public servants.....I'm not sure they even remember that they are public servant any more. it saddens me immensely, I am the kind of person who wants to believe the best of people but there comes a time when you've seen corruption over and over, you start wondering if there is anyone left honest down there? (my apologies to those who are trying to work for the people).

I hope that there are enough legislators with some back bone left to support this legislation, it will go a long way in restoring my faith in the public process and that you all are listening to "we the people" .
Thank you for the time. I also want to write that I am not writing from anger or malice only from sadness and frustration that big money talks and the rest are to shut up and fall in line or else.

Matt Shaul

Wasilla, AK

----- Original Message -----
From: Silveraurora
To: rep_mark_neuman@legis.state.ak.us ; 'Rep. Anna Fairclough' ; rep_craig_johnson@legis.state.ak.us ; rep_carl_gatto@legis.state.ak.us ; 'Roses, Bob (LAA)' ; 'Kelly,Mike (LAA)' ; 'Wilson, PeggyA (LAA)' ; 'Edgmon, Bryce E (LAA)' ; 'Seaton, Paul(LAA)' ; rep_reggie_joule@legis.state.ak.us ; 'Green, Lyda N (LAA)' ; 'Huggins, Charlie (LAA)' ; safallon@aol.com ; goatmilk@gci.net ; 'Heather Christensen' ; 'Silveraurora' ; rqw@mtaonline.net ; 'Heather Fair'
Sent: Monday, March 10, 2008 9:23 PM
Subject: FW: In Support of Raw Milk Legislation

This is from Ann Hackett, Founding member of the Homer Farmer's Market, who is in full support of this bill as originally intended. She has written so well what most of us are trying to convey. Thank you Ann for such a well-written post and hopefully some of the Representatives who are obviously delaying this bill and making it drag through committee will stop and listen to their constituents who will be voting this fall for their re-election, or not. All we want is to buy raw milk directly from the farmer.

Suzanne Nevada
Wasilla
District 15
907-373-2687

-----Original Message-----
From: ann hackett [mailto:aha@xyz.net]
Sent: Sunday, March 09, 2008 11:25 PM
To: 'Rep_Mark_Neuman@legis.state.ak.us'; 'Rep_Paul_Seaton@legis.state.ak.us'
Cc: 'Governor Sarah Palin (GOV sponsored)'
Subject: In Support of Raw Milk Legislation

Dear Representative Neuman and Representative Seaton,

I am a very enthusiastic supporter of raw milk legislation. I do not believe that raw milk is inherently dangerous. I believe that it is as safe as any other raw food when properly produced and handled. Raw fish, meat, eggs, and produce can all be infected with microbial contaminants at many steps of their production, processing, and sale. The solution is proper sanitation practices. I believe that the same holds true for raw milk.

I have purchased raw milk from individuals who had a little excess from their family cows. It was sold as pet food. I found it quite satisfactory as human food. I am now raising milk goats, so that I may have my own source of raw milk. I find the taste fantastic. It is so fresh and flavorful. I love how the cream rises to the top, since it is also not homogenized. I have never suffered any negative consequences from drinking raw milk or making yogurt and cheese from it.

I also prefer raw milk for health reasons. I believe that raw milk is nutritionally superior to pasteurized milk, especially when dairy animals have access to pasture, as is more often the case with family farms or small scale dairies. I highly recommend the website, The Campaign for Real Milk (www.realmilk.com). The site presents scientific evidence much more thorough than I can restate here, supporting the nutritional benefits, and also the safety, of raw milk.

As a founding member of the Homer Farmers' Market, I also am a strong believer in building local food sources. Alaska is too isolated to be so dependent on distant food suppliers. I lived in Anchorage during the 1964 earthquake, so I know how vulnerable our state is to food supply chain disruptions. Even a week or so of avalanches on the Seward Highway, as the Kenai Peninsula experienced during the winter of 2000, was enough to throw Homer into emergency food mode. During the Bioneers Conference, which I attended in Anchorage last October, the statistic was presented that Alaska only supplies 2% of its food, the other 98% being imported. This is way down from what it was when I was growing up in Anchorage. With the closure of the Matanuska Maid plant, Alaska seems to be headed even further down this unwise path. The reason that this discussion is particularly relevant to raw milk legislation is that selling raw milk can be a more secure source of income for dairy farmers. This is a specialty market. Raw milk fans are willing to pay more for their milk. While local dairies may not be able to compete with milk from giant confined feeding operations sold at bargain barn prices in the big chain stores, tapping into this specialty market can help ensure their survival. My hope would be that the new dairy plant in Palmer and others around the state might also begin to bottle raw milk and produce raw milk cheeses.

I also support allowing small family farms to sell directly to their neighbors. This could be a boon to our many isolated small communities. Having lived in bush Alaska as a schoolteacher, I know what it's like to live with limited access to fresh foods. Raising milk goats, I now also appreciate that raising dairy animals is not as easy as having dogs or cats, or even horses. It makes more sense for one farm to raise milk for a neighborhood. While it would not be as easy to inspect for production and processing practices, as it would be with bulk milk sold to bottling plants, I believe that public education programs would be sufficient. For example, programs that teach safe canning methods, safe fish smoking, handling raw meats, etc. have been successful. I believe that there is less danger from microbial contamination in small scale milk production than in giant commercial operations, where the more deadly strains of microbes are evolving. In addition, as detailed in the campaign for Real Milk website, raw milk contains human-friendly gram positive microbes which, in order to create an environment more favorable to their proliferation, produce substances toxic to dangerous gram negative microbes.

The concept of food miles, the distance a food travels from its point of production to its point of processing to the

warehouse to its final point of use, is quite relevant to Alaskans, as well. I know it may appear on the surface to be a ridiculous argument, but when I follow the chain of cause and effect, I can make a connection between baby walruses trampled by the thousands in Kamchatka and buying milk at the supermarket. Locally produced foods are more efficient in that the food miles are greatly reduced, resulting in significantly less energy expenditure, thus less greenhouse gasses, thus less global warming, thus less ice loss in the Arctic, thus no need for walruses to congregate disastrously on beaches. Raw milk, locally produced, is a one piece of the puzzle in solving global warming and its catastrophic consequences.

Like the Victory Gardens of my parents' generation, the time has come for Americans to champion local foods. This is already happening all across America. In part this has been a result of government support, as in the case of programs which have supported the growth of farmers' markets. Largely, though, it's happening because people are demanding it, sometimes in spite of the government. The equation which I see driving it is this: local food equals freshness, variety, better nutrition, protecting the earth, promoting humane treatment of farm animals, preserving family farms and farmland, feeling connected again to the sources of our sustenance, and saying no to the diminishment of community as the price of cheap food. Raw milk is an important part of this equation.

I wholeheartedly support the sale of raw milk in Alaska. Thank you Representative Neuman for introducing it. Representative Seaton, I urge you to support this legislation for the good of our district and for the good of the whole.

Sincerely,
Ann Agosti-Hackett
P.O Box 15344
Fritz Creek, AK 99603

Debra Higgins

From: Rep Craig Johnson
Sent: Wednesday, March 12, 2008 1:06 PM
To: Debra Higgins
Subject: FW: HB367
Follow Up Flag: Follow up
Flag Status: Red

From: Connie Duran [mailto:jocon@mtaonline.net]
Sent: Tuesday, March 11, 2008 3:07 PM
To: Rep. Carl Gatto; Rep. Craig Johnson
Subject: HB367

Dear Representatives,

I am interested in the Raw Milk Bill. I am very much in support of it. I was very, very disappointed in what happened on Monday the 10th, and having to listen to the exchange students and the waste of time that took. With the shortened time you now have, I think you really need to spend it towards the constituents concerns. We really need to be able to get this bill through in this session if humanly possible. Please see to it that we are heard in this matter. I for one want it to go through. Raw Milk is very safe if measures are taken carefully. Please do not buy into the myth that it is unsafe. We need to help the farmers as well as the public that want a healthy and safe food.
Enclosed is some information.....PLEASE read it and be informed.

http://www.raw-milk-facts.com/

http://www.drrons.com/benefits-raw-milk.htm

Thank you for your time.
Sincerely yours,

Connie Duran
24344 Hearthstone Dr.
Chugiak, AK. 99567
jocon@mtaonline.net

Debra Higgins

From: Heather Fair [hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:59 PM
To: Rep. Craig Johnson; Rep. Anna Fairclough; Rep. Bob Roses; Rep. Paul Seaton; Rep. Peggy Wilson; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Scott Kawasaki
Subject: *****SPAM***** FW: Alaska HB367 raw milk sales
Importance: High

Members of the Resources Committee, I have am forwarding this message for your review.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

From: hoofingitnorth@hotmail.com
To: bob.gerlach@alaska.gov
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net
Subject: RE: Alaska HB367 raw milk sales
Date: Mon, 18 Feb 2008 21:06:05 -0900

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to operate in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

I know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious.

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat,

cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease, etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face foreclosure on their farms and their homes in a difficult economy.

I encourage you to review the literature compiled by the Weston A. Price Foundation for their campaign for raw milk (available at http://realmilk.org) and find the facts and truth behind the real risk of illness from raw milk versus other legally producing industries. I hope that you will come to understand the importance of making this vital food available to our informed public and reverse your decision against the legal sale of raw milk.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Date: Mon, 18 Feb 2008 08:42:38 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov;

cherie.rice@alaska.gov; franci.havemeister@alaska.gov

Heather,
I find myself in a position that I cannot support the sale of raw milk in the state. The primary problem is that health risk associated with raw milk makes it difficult to endorse its sale or distribution to the public. As you know the very young and very old are the portion of the population that is most at risk for health problems that have been associated with the consumption of raw milk due to their immunocomprised state. There have been various food borne related outbreaks associated with the consumption of raw milk and raw milk products, over a dozen in 2007 alone. Most of the outbreaks occurred in states that allow the sale of raw milk and are traced back to farms that are on a state testing program.

One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

There is also concern for the negative economic impact on the agricultural industry that such an outbreak has on the public. After a food borne outbreak occurs the public looses trust in agricultural products, especially dairy products, this results in economic losses not just to the farm at the source of the investigation but agriculture in general. The dairy industry in Alaska is at a critical and vulnerable period, there are only 6 dairy farms left in the entire state and South-central Dairy Venture in the process of trying to support the 4 dairies in the Matanuska Valley. We are trying to support the dairy industry in a number of ways, including the promotion of herd health initiatives and disease surveillance programs such as the Johne's Disease Program.

Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
Alaska State Veterinarian
5251 Hinkle Road
Anchorage, AK 99507
907-375-8200
bob.gerlach@alaska.gov

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan, Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement (DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Need to know the score, the latest news, or you need your Hotmail®-get your "fix". Check it out.

Debra Higgins

From: Heather Fair [hoofingitnorth@hotmail.com]
Sent: Tuesday, February 19, 2008 5:18 PM
To: Gerlach, Robert F (DEC)
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; silvera@mtaonline.net; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson
Subject: RE: Alaska HB367 raw milk sales
Importance: High
Follow Up Flag: Follow up
Flag Status: Red

Dr. Gerlach, there have in fact been quite a number of peer-reviewed studies conducted on the benefits and potential dangers of raw milk. I refer you to the various publications of:

Dr. William Campbell Douglass II, M.D.
Aajonus Vonderplanitz, Scientific Nutritional Researcher
Dr. Edward Howell, M.D.
Dr. Weston A. Price, D.D.S.
Peter Elwood, director of the Epidemiology Unit at Landough Hospital in Penarth, South Glamorgan
Dr. Royal Lee, D.D.S., and
Dr. J.E. Crewe with the Mayo Foundation,

among others, in which they cite several related studies and describe their own research. Additionally, according to Weston A. Price Foundation's Campaign for Raw Milk site, "two articles appearing recently in the prestigious British medical journal, The Lancet, illustrate the ongoing debate on the dangers and merits of raw milk," and there are citations for these articles included (such as those by:

Winkler, et al, American Journal of Medicine
N. England Journal Medicine
JAMA
Mathews, Et al, The Lancet, B.M. Bernstein presentation at AAMMC Conference
Klagsbrun, et al, J. Surg. Res.
Sheehan & Davis
Sinclair & Crawford
New Zealand Medical Journal
Hollen, Journal Ped. Env. Child. Health
Grulee
Jelliffee & Jelliffee
Wickes
Oski & Bell, American Journal Clin. Nut.
Zikakis , et al, J. Dairy Science
P.R. Meyer, American Journal of Epidemiology
McClure, et al, Cancer Research
Darlington, Enos, et al, JAMA
So. Cal. State Dent. Assoc. J.
Scientific American
J. Food Protection
Indian J. Experimental Biology
Cent. Afr. J. Med.
Eur. J. Pediatr.

J. Appl. Microbiol.
J. Hosp. Infec.
Curr. Med. Chem.
Am. J. Physiology.
J. Allergy Clin. Immunol.
American J. Public Health
British J. Nutrition
J. Experimental Medicine, and more.

Furthermore, the Weston A. Price Foundation has a point-by-point Powerpoint presentation entitled "Raw Milk and Raw Milk Products: Safety, Health, Economic, and Legal Issues" (available at http://realmilk.com/ppt/08rawmilk.ppt) that you may find quite informative. You may also benefit from reviewing the chart of "REPORTED OUTBREAKS OF FOOD BORNE ILLNESS" compiled and "drawn up for a Los Angeles County Board of Supervisors vote on permitting raw milk in the County" (available at http://www.westonaprice.org/children/rawmilk.html), an article entitled, "Irradiated Meat: A Sneak Attack on School Lunches" by Monique Mikhail (available at http://www.westonaprice.org/modernfood/irradiatedmeat.html), another article entitled, "Wheaty Indiscretions--What Happens to Wheat, from Seed to Storage" by Jen Allbritton, Certified Nutritionist (available at http://www.westonaprice.org/modernfood/wheatyindiscretions.html), as well as an article by Sally Fallon, a nutrition researcher and President of the Weston A. Price Foundation, entitled, "Dirty Secrets of the Food Processing Industry" (available at http://www.westonaprice.org/modernfood/dirty-secrets.html). If you wish to examine Dr. Douglass' *The Milk Book: How Science is Destroying Nature's Nearly Perfect Food*, I would be happy to loan you my personal copy.

With regard to the "Grade A" status of pasteurized milk, after discussing the process with a number of dairy farmers here in Alaska, I have no faith in the sanitation of this process, especially when I am told that if the tank did not test satisfactorily, BLEACH is added directly to the milk, the inspector waits, and then retests the milk until the bacteria counts are acceptable! This comes DIRECTLY from past Alaskan dairy farmers! While chlorine may be viewed as a harmless substance by many, especially in small doses, it is not something I believe should be added to my food to mask sanitation and health issues. Additionally, after reviewing several publications regarding the historical statistics of food-borne illnesses in the United States from items such as deli meats, raw foods (including vegetables), cooked foods, and prepared foods, I also hold no confidence in the current processes and handling practices of various foodstuffs available to the American Public.

Although I hold deep-seated beliefs regarding the safety and benefits of consuming raw milk, in addition to personal anecdotal evidence, these beliefs are centered in factual research. But for many, the simplest issue at hand with legalizing raw milk in Alaska is that informed producers and consumers should have the freedom of choice to distribute and consume milk in its raw state without intervention from the State or other agencies, as is the case in 28 other states in this country. Alaska is known as the "Frontier State" yet our freedoms seem to be limited by misinformed individuals stoking the fires of unrealistic and irrational fears. I believe we should trust the consumer's ability to use common sense and apply reliable information provided to them on the products they consume, rather than instating and maintaining a nanny state to protect people from themselves. I hope this message enlightens you as to the immense volume of data available on the subject and that, in time, you will come to understand and support the sound practices of using clean, raw milk in one's diet.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Date: Tue, 19 Feb 2008 10:56:08 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com

CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net

Heather,
I appreciate your viewpoint concerning raw milk. Due to the increase risk of food borne disease associated with raw milk I cannot support the sale and distribution of such a product to the public. I realize that there strong supporters and anecdotal reports of the health benefits of raw milk but as of yet there has been no studies published in scientific peer review journals to substantiate the health claims.

The milk produced from dairies in this state is a grade A product. The regulatory process associated with attaining this status involves an inspection of the farm to evaluate the sanitary conditions under which the milk is produced, the farm has to maintain a specified standard. The raw product collect from the farm and is tested to ensure it meets the quality standards set by the FDA. After the milk is pasteurized the product is retested validate the quality prior to distribution to the public. A raw product that does not meet grade A standards is not allowed to be processed, so pasteurization is not used to allow poor quality product to be marketed.

Food products, as such, are problematic with regard to pathogens since they contain nutrients that humans as well as bacteria need to grow. Food has to be handled properly in production, distribution and at the home of the consumer to prevent illnesses associated with these pathogens. Food products are not sterilized prior to sale but they go through a process to reduce the risk of food borne pathogens from being consumed by the public. The pasteurization process is one step in keeping the food in our markets safe.

I want to assure you that I continue to read the scientific literature regarding animal diseases, food borne diseases and public health. I appreciate your comments and opinions.
Thank you,

Bob Gerlach

Robert F Gerlach VMD
Alaska State Veterinarian
5251 Hinkle Road
Anchorage, AK 99507
(907) 375-8214 FAX: (907) 929-7335
Bob.gerlach@alaska.gov
Do you have livestock?
You need a premises identification number.
Please call (907) 375 8200 to register

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:06 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); Rainy4279@aol.com; Rep_Carl_Gatto@legis.state.ak.us; Rep_Mark_Neuman@legis.state.ak.us; Rhonda & Matt Shaul Crannberry Ridge Farm; Rick Williams; Sally Fallon Weston A. Price Foundation; Huggins, Charlie (LAA); Green, Lyda N (LAA); Silveraurora
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to operate

in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

I know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious.

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat, cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease, etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face foreclosure on their farms and their homes in a difficult economy.

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To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov

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One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

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Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
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Anchorage, AK 99507
907-375-8200
bob.gerlach@alaska.gov

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan, Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement (DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
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Debra Higgins

From: Silveraurora [silvera@mtaonline.net]
Sent: Tuesday, February 19, 2008 6:48 PM
To: 'Heather Fair'; 'Gerlach, Robert F (DEC)'
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilsor.
Subject: *****SPAM***** RE: Alaska HB367 raw milk sales
Importance: High
Follow Up Flag: Follow up
Flag Status: Red

From the Weston Price Foundation in Washington, DC, the public's voice at the Capitol, in support of the right to purchase raw milk – a brochure found at http://www.westonaprice.org/brochures/RealMilkTrifold.pdf
(please note those items in red)

"Back in the 1920s, Americans could buy fresh raw whole milk, real clabber and buttermilk, luscious naturally yellow butter, many kinds of fresh and aged cheeses, and cream in various thicknesses. Today's milk is accused of causing everything from allergies to cancer, but when Americans could buy Real Milk, these diseases were rare. In fact, Americans considered a supply of high-quality dairy products vital to American security and the economic well-being of the nation.
What's needed today is a return to humane, pasture-based dairying, small-scale traditional processing and direct farm-to-consumer sales.

Galen, Hippocrates, Pliny, Varro, Marcellus Empiricus, Bacchis and Anthimus, leading physicians of their day, all used raw milk in the treatment of disease. During the 1920s, Dr. J. E. Crewe of the Mayo Foundation used a diet of raw milk to cure TB, edema, heart failure, high blood pressure, prostate disease, urinary tract infections, diabetes, kidney disease, chronic fatigue and obesity. Today, in Germany, successful raw milk therapy is provided in many hospitals.
Studies show that children fed raw milk have more resistance to TB than children fed pasteurized milk (*Lancet*, p 1142, 5/8/37); that raw milk is very effective in preventing scurvy and protecting against flu, diphtheria and pneumonia (*Am J Dis Child*, Nov 1917); that raw milk prevents tooth decay, even in children

who eat a lot of sugar (*Lancet*, p 1142, 5/8/37); that raw milk is better than pasteurized milk in promoting growth and calcium absorption (*Ohio Agricultural Experiment Station Bulletin* 8, p 8, 1/33); that a substance present in raw cream (but not in pasteurized cream) prevents joint stiffness and the pain of arthritis (*Annual Review of Biochemistry*, 18:435, 1944); and that children who drink raw milk have fewer allergic skin problems and far less asthma than children who drink pasteurized milk (*Lancet* **2001** 358(9288):1129-33)."

I believe that, much like raw meat, raw vegetables, raw eggs, and raw fruits currently available in Alaska's stores, Alaskans have the intelligence to properly handle ANYTHING raw that an Alaskan farmer produces here in our State. By SINGLING OUT raw milk as the ONLY item Alaskans do not have the freedom to purchase is not only an insult to all Alaskans but a removal of our RIGHT TO CHOOSE what we want to eat, and where we can purchase it from. I am in full support of House Bill 367 so that the buying public can go directly to ANY farmer in this state and purchase ANY product that farmer produces with the assumption of liability falling on both parties, much as I have the right to buy my RAW meat, produce, and/or eggs from Carrs, Safeway, Three Bears, Wal Mart, or any other marketer of raw meat, produce, and/or eggs. I believe all containers containing raw milk should have a safe handling label just as raw meat has – that the consumer be instructed how to wash hands, use clean utensils and surfaces, and properly prepare that raw milk for use. If someone wants to buy fresh raw milk and go home and pasteurize it themselves in their own pasteurizer in their own kitchen, then THAT SHOULD BE THEIR RIGHT. Alaskans should retain the right to purchase and prepare any product purchased directly from the farmer in this state. The population of Alaska supports Alaskan produced products, and the population of Alaska supports the local economy. They would like to have the SAME RIGHTS granted to other free citizens of our democracy in 28 other US states where the public CAN purchase raw milk ON FARM. WE should be at the FOREFRONT of the liberty of our citizens in this state to retain the right of choice, instead we are SO far behind what 28 other states already realize – when the public is given a choice, they would much rather go to the farm, look at the animals, see the care that goes into those animals, and buy products from the people that produce them rather than those produced by faceless corporations more than 1300 air miles away. We want to support the agricultural industry and economy of Alaska and this includes the right to buy ANY RAW PRODUCT FROM ALASKAN FARMERS, including raw milk.

There are thousands of people in Alaska being made aware of this bill, and are being told to keep a watchful eye on their representatives in the House and Senate of Alaska as to how they will vote for or against this issue. These are not the handful of farmers who are producing the raw milk who have little to no effect or voice on the decisions of our House and Senate, instead these are the people of Alaska who are most interested in protecting their rights that, until recently, they never knew they lost back when our state decided years ago that raw milk was a 'health hazard' and that the people of Alaska were too stupid to buy anything but pasteurized cows milk shipped up from the lower-48 in convenient and pretty plastic or cardboard jugs or boxes. The largest pool of interested buyers are in ANCHORAGE where half of the states population resides. If our House and Senate representatives will only realize that the voting public is in favor of the right to purchase anything raw from any farmer here in the state, then the 89 page Power Point Rebuttal to the FDA's Anti-Raw milk Power Point Presentation found at **http://realmilk.com/ppt/08rawmilk.ppt** should be part of one of their evening's reading material. Many of us in our 40's and 50's realize now that what we may have been taught in college back in the 70's is no longer correct and up to date information. With the huge upsurge in Asthma, Crone's disease, cancers, Autism, and other health problems, what was once accepted conclusions and guidelines back in the 70's is no longer applicable. We NOW KNOW the safest products to consume are not those items that were packed in some warehouse or facility many weeks ago, but in fact those items that are freshest and hand selected from the farm where they are produced. Support Alaskan Growers, support OUR agricultural community and our ECONOMY, let Alaskans go shopping right here and buy whatever products they want to buy INCLUDING RAW MILK DIRECTLY FROM THE FARMER!!

Thank you so much for taking the time to read my thoughts and beliefs. I am proud to be an Alaskan since 1981 and I support those politicians that support my right to choose what is best for me and my family's health and nutritional well-being.

With respect,

3/3/2008

Suzanne Nevada
District 15
Wasilla, Alaska
907-373-2687

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Tuesday, February 19, 2008 5:18 PM
To: Gerlach, Robert F (DEC)
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net; artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; representative_bob_roses@legis.state.ak.us; representative_bryce_edgmon@legis.state.ak.us; representative_david_guttenberg@legis.state.ak.us; representative_mike_kelly@legis.state.ak.us; representative_paul_seaton@legis.state.ak.us; representative_peggy_wilson@legis.state.ak.us
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach, there have in fact been quite a number of peer-reviewed studies conducted on the benefits and potential dangers of raw milk. I refer you to the various publications of:

Dr. William Campbell Douglass II, M.D.
Aajonus Vonderplanitz, Scientific Nutritional Researche.
Dr. Edward Howell, M.D.
Dr. Weston A. Price, D.D.S.
Peter Elwood, director of the Epidemiology Unit at Landough Hospital in Penarth, South Glamorgan
Dr. Royal Lee, D.D.S., and
Dr. J.E. Crewe with the Mayo Foundation,

among others, in which they cite several related studies and describe their own research. Additionally, according to Weston A. Price Foundation's Campaign for Raw Milk site, "two articles appearing recently in the prestigious British medical journal, The Lancet, illustrate the ongoing debate on the dangers and merits of raw milk," and there are citations for these articles included (such as those by:

Winkler, et al, American Journal of Medicine
N. England Journal Medicine
JAMA
Mathews, Et al, The Lancet, B.M. Bernstein presentation at AAMMC Conference
Klagsbrun, et al, J. Surg. Res.
Sheehan & Davis
Sinclair & Crawford
New Zealand Medical Journal
Hollen, Journal Ped. Env. Child. Health
Grulee
Jelliffee & Jelliffee
Wickes
Oski & Bell, American Journal Clin. Nut.
Zikakis , et al, J. Dairy Science
J.R. Meyer, American Journal of Epidemiology
McClure, et al, Cancer Research
Darlington, Enos, et al, JAMA
So. Cal. State Dent. Assoc. J.
Scientific American

J. Food Protection
Indian J. Experimental Biology
Cent. Afr. J. Med.
Eur. J. Pediatr.
Appl. Microbiol.
J. Hosp. Infec.
Curr. Med. Chem.
Am. J. Physiology.
J. Allergy Clin. Immunol.
American J. Public Health
British J. Nutrition
J. Experimental Medicine, and more.

Furthermore, the Weston A. Price Foundation has a point-by-point Powerpoint presentation entitled "Raw Milk and Raw Milk Products: Safety, Health, Economic, and Legal Issues" (available at http://realmilk.com/ppt/08rawmilk.ppt) that you may find quite informative. You may also benefit from reviewing the chart of "REPORTED OUTBREAKS OF FOOD BORNE ILLNESS" compiled and "drawn up for a Los Angeles County Board of Supervisors vote on permitting raw milk in the County" (available at http://www.westonaprice.org/children/rawmilk.html), an article entitled, "Irradiated Meat: A Sneak Attack on School Lunches" by Monique Mikhail (available at http://www.westonaprice.org/modernfood/irradiatedmeat.html), another article entitled, "Wheaty Indiscretions--What Happens to Wheat, from Seed to Storage" by Jen Allbritton, Certified Nutritionist (available at http://www.westonaprice.org/modernfood/wheatyindiscretions.html), as well as an article by Sally Fallon, a nutrition researcher and President of the Weston A. Price Foundation, entitled, "Dirty Secrets of the Food Processing Industry" (available at http://www.westonaprice.org/modernfood/dirty-secrets.html). If you wish to examine Dr. Douglass' *The Milk Book: How Science is Destroying Nature's Nearly Perfect Food*, I would be happy to loan you my personal copy.

With regard to the "Grade A" status of pasteurized milk, after discussing the process with a number of dairy farmers here in Alaska, I have no faith in the sanitation of this process, especially when I am told that if the tank did not test satisfactorily, BLEACH is added directly to the milk, the inspector waits, and then retests the milk until the bacteria counts are acceptable! This comes DIRECTLY from past Alaskan dairy farmers! While chlorine may be viewed as a harmless substance by many, especially in small doses, it is not something I believe should be added to my food to mask sanitation and health issues. Additionally, after reviewing several publications regarding the historical statistics of food-borne illnesses in the United States from items such as deli meats, raw foods (including vegetables), cooked foods, and prepared foods, I also hold no confidence in the current processes and handling practices of various foodstuffs available to the American Public.

Although I hold deep-seated beliefs regarding the safety and benefits of consuming raw milk, in addition to personal anecdotal evidence, these beliefs are centered in factual research. But for many, the simplest issue at hand with legalizing raw milk in Alaska is that informed producers and consumers should have the freedom of choice to distribute and consume milk in its raw state without intervention from the State or other agencies, as is the case in 28 other states in this country. Alaska is known as the "Frontier State" yet our freedoms seem to be limited by misinformed individuals stoking the fires of unrealistic and irrational fears. I believe we should trust the consumer's ability to use common sense and apply reliable information provided to them on the products they consume, rather than instating and maintaining a nanny state to protect people from themselves. I hope this message enlightens you as to the immense volume of data available on the subject and that, in time, you will come to understand and support the sound practices of using clean, raw milk in one's diet.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
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http://FairSkiesAlaska.com
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Date: Tue, 19 Feb 2008 10:56:08 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net

Heather,
I appreciate your viewpoint concerning raw milk. Due to the increase risk of food borne disease associated with raw milk I cannot support the sale and distribution of such a product to the public. I realize that there strong supporters and anecdotal reports of the health benefits of raw milk but as of yet there has been no studies published in scientific peer review journals to substantiate the health claims.

The milk produced from dairies in this state is a grade A product. The regulatory process associated with attaining this status involves an inspection of the farm to evaluate the sanitary conditions under which the milk is produced, the farm has to maintain a specified standard. The raw product collect from the farm and is tested to ensure it meets the quality standards set by the FDA. After the milk is pasteurized the product is retested validate the quality prior to distribution to the public. A raw product that does not meet grade A standards is not allowed to be processed, so pasteurization is not used to allow poor quality product to be marketed.

Food products, as such, are problematic with regard to pathogens since they contain nutrients that humans as well as bacteria need to grow. Food has to be handled properly in production, distribution and at the home of the consumer to prevent illnesses associated with these pathogens. Food products are not sterilized prior to sale but they go through a process to reduce the risk of food borne pathogens from being consumed by the public. The pasteurization process is one step in keeping the food in our markets safe.

I want to assure you that I continue to read the scientific literature regarding animal diseases, food borne diseases and public health. I appreciate your comments and opinions. Thank you.

Bob Gerlach

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Do you have livestock?
You need a premises identification number.
Please call (907) 375 8200 to register

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:06 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); Rainy4279@aol.com; Rep_Carl_Gatto@legis.state.ak.us; Rep_Mark_Neuman@legis.state.ak.us; Rhonda & Matt Shaul Crannberry Ridge Farm; Rick Williams; Sally Fallon Weston A. Price Foundation; Huggins, Charlie (LAA); Green, Lyda N (LAA); Silveraurora
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to

operate in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

[redacted]know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious.

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat, cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face foreclosure on their farms and their homes in a difficult economy.

I encourage you to review the literature compiled by the Weston A. Price Foundation for their campaign for raw milk (available at http://realmilk.org) and find the facts and truth behind the real risk of illness from raw milk versus other legally producing industries. I hope that you will come to understand the importance of making this vital food available to our informed public and reverse your decision against the legal sale of raw milk.

[redacted]eather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska

3/3/2008

http://FairSkiesAlaska.com
http://AllISawFarm.com

Date: Mon, 18 Feb 2008 08:42:38 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov

Heather,
I find myself in a position that I cannot support the sale of raw milk in the state. The primary problem is that health risk associated with raw milk makes it difficult to endorse its sale or distribution to the public. As you know the very young and very old are the portion of the population that is most at risk for health problems that have been associated with the consumption of raw milk due to their immunocomprised state. There have been various food borne related outbreaks associated with the consumption of raw milk and raw milk products, over a dozen in 2007 alone. Most of the outbreaks occurred in states that allow the sale of raw milk and are traced back to farms that are on a state testing program.

One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

There is also concern for the negative economic impact on the agricultural industry that such an outbreak has on the public. After a food borne outbreak occurs the public looses trust in agricultural products, especially dairy products, this results in economic losses not just to the farm at the source of the investigation but agriculture in genera.. The dairy industry in Alaska is at a critical and vulnerable period, there are only 6 dairy farms left in the entire state and South-central Dairy Venture in the process of trying to support the 4 dairies in the Matanuska Valley. We are trying to support the dairy industry in a number of ways, including the promotion of herd health initiatives and disease surveillance programs such as the Johne's Disease Program.

Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
Alaska State Veterinarian
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From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan,

Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement (DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Debra Higgins

From: Sue Ann Kelly [ridgebacks@alaska.com]
Sent: Tuesday, February 19, 2008 8:56 PM
To: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; Rayna Fritcher; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson
Subject: Alaska HB367 Raw Milk Sales

Follow Up Flag: Follow up
Flag Status: Red

I fully support the passage of this Bill, to allow Alaskan citizens to purchase raw milk directly from local farmers and/or grocery stores.

Prior to moving to Alaska in 1999 from California, I enjoyed the freedom to purchase and consume raw milk from grocery and health food stores, and immensely enjoyed the health benefits attained therefrom. Having been born with JRA, a condition that affects my body's use of calcium, the availability of raw milk led to many years of decent mobility, which is --believe me-- the only thing I miss about California. I would, however, dearly love to be able to both enjoy my 'adopted' home state of Alaska AND be able to walk well!

Please give this bill your full consideration, and I personally hope you will give it your support as well. Your constituents are responsible enough to handle raw milk!

Sue Ann Kelly
5924 E. Fireweed Dr.
Wasilla, AK 99654
907/357-7884
"The worst thing that can happen to a good cause is, not to be skillfully attacked, but to be ineptly defended." -- Fredrick Bastiat

Debra Higgins

From: housemajority_email@housemajority.org
Sent: Tuesday, February 19, 2008 11:26 PM
To: Rep. Craig Johnson
Subject: Alaska HB367 Raw Milk Sales

Follow Up Flag: Follow up
Flag Status: Red

From: ridgebacks@alaska.com

I fully support the passage of this Bill, to allow Alaskan citizens to purchase raw milk directly from local farmers and/or grocery stores.

Prior to moving to Alaska in 1999 from California, I enjoyed the freedom to purchase and consume raw milk from grocery and health food stores, and immensely enjoyed the health benefits attained therefrom. Having been born with JRA, a condition that affects my body's use of calcium, the availability of raw milk led to many years of decent mobility, which is --believe me-- the only thing I miss about California. I would, however, dearly love to be able to both enjoy my 'adopted' home state of Alaska AND be able to walk well!

Please give this bill your full consideration, and I personally hope you will give it your support as well. Your constituents are responsible enough to handle raw milk!

Sue Ann Kelly
5924 E. Fireweed Dr.
Wasilla, AK 99654
907/357-7884

~ Sue Ann Kelly
Zip Code: 99654

Debra Higgins

From: Heather Fair [hoofingitnorth@hotmail.com]
Sent: Friday, February 22, 2008 6:43 PM
To: bob.gerlach@alaska.gov
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; silvera@mtaonline.net; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson
Subject: RE: Alaska HB367 raw milk sales
Importance: High
Follow Up Flag: Follow up
Flag Status: Red

Dr. Gerlach,

Your last message mentioned an alleged outbreak of salmonella at Stump Acres Farm in Pennsylvania. I did a little research on this incident and found it interesting that according to Weston A. Price Foundation's article entitled, "FDA and CDC Bias Against Raw Milk--No Facts Provided in Recent Reminder about Raw Milk Consumption" (available at http://www.westonaprice.org/press/press-12mar07-fda-cdc-raw-milk-reminder.html), "A more recent example is the March 2, 2007, recall and warning against "Tainted Raw Milk Sold by a York County Dairy," also in Pennsylvania. Stump Acres Dairy was "linked" to two cases in a *Salmonella* outbreak. Although none of the dairy's remaining 250 customers showed signs of illness, Stump Acres Dairy was ordered to suspend sales. Cultures subsequently taken from the dairy and the milk tested negative for *Salmonella* and the dairy has reopened." Additionally, the article discusses a number of alleged cases of infections stemming form raw milk consumption and goes on to cite, "Over the past eight years, Organic Pastures Dairy of Fresno, California has sold over 40 million servings of raw milk without one case of illness; during the same period the California Department of Food and Agriculture has issued at least 19 recalls of pasteurized milk products in California. Frequent testing by Organic Pastures, the state of California, and the veterinary departments of local universities has failed to detect even a single human pathogen in the milk.

"Yet in September 2006, after four children who had consumed raw milk and also raw spinach or sushi became ill, state officials ordered the dairy to shut down. All Organic Pastures products were recalled. Officials performed over 2,000 tests of the entire dairy operation, including swabs taken from the 300 cows, the farm, the manure and the equipment, without finding a single pathogen. The raw dairy products are now back on store shelves, yet many state health officials continue to report that Organic Pasture's raw milk caused illness due to *E. coli*."

The article goes on to state, "While all dairy (pasteurized and raw) constitutes less than 1 percent of all reported food borne illnesses, the FDA along with the CDC, continue to misuse, manipulate, and suppress data to frighten the public. Their recent 'reminder' against drinking raw milk is no exception," reports Ruth Ann Foster, a North Carolina volunteer chapter leader for the Foundation. "In the majority of cases it is only a coincidence that the individual(s) happened to consume raw milk. For many foodborne outbreaks associated with raw milk, there are frequently a large number of sick individuals who did not consume any raw milk. Still, health officials disregard this important fact and blame the milk. When the FDA, CDC, and state health officials target raw milk, they distract themselves from isolating the true source of illness. The risk of foodborne illness is far greater for many other foods." "Between 1990 and 2004, a CSPI (Center for Science in the Public Interest) report shows a much greater risk from consuming the following foods:

31,496 illnesses, 639 outbreaks from produce (38%)
16,280 illnesses, 541 outbreaks from poultry (20%)
13,220 illnesses, 467 outbreaks from beef (16%)
11,027 illnesses, 341 outbreaks from eggs (13%)
9,969 illnesses, 984 outbreaks from seafood (12%)"

Furthermore, the article cites specific issues with campylobacter, salmonella, e. coli, and other bacteria commonly found on other foods excluding raw milk that account for an estimated 9,200,000 cases of food-borne illness annually.

It may also surprise you to know that, "PASTEURIZED milk has been the source of many widespread outbreaks. A total for some of the documented outbreaks due to PASTEURIZED milk over the past few decades is 239,884 cases and 620 deaths.

"The nation's largest recorded outbreak of *Salmonella* was due to PASTEURIZED milk contaminated with antibiotic-resistant *Salmonella typhimurium*. The outbreak, which occurred between June 1984 and April 1985 sickened over 200,000 and caused 18 deaths. Disturbingly, the CDC did not issue a specific *Morbidity and Mortality Weekly Report* for this outbreak; information must be gleaned from other reports published in the *FDA Consumer* and the *Journal of the American Medical Association*.

"A 2004 outbreak in Pennsylvania and New Jersey involved multidrug-resistant *Salmonella typhimurium* infection from milk contaminated after pasteurization.

"Despite numerous outbreaks due to pasteurized milk, neither the FDA nor the CDC has ever issued a warning against consuming pasteurized milk. Pasteurization is not a guarantee; pasteurized milk is not sterile. The FDA permits the presence of up to 20,000 bacteria /ml and 10 *E.coli*/ml in milk after the pasteurization process has been completed.

"Because pasteurization destroys probiotics (good bacteria), any harmful bacteria present in the milk after pasteurization can and will flourish. On the other hand, published research shows that good bacteria and many other components in raw milk actually destroy pathogens added to the milk."

Finally, with regard to your claim that there have been no studies published in peer-reviewed scientific journals regarding the health benefits of consuming raw milk, in addition to the numerous citations I provided you in my last message, the aforementioned article tackles this myth directly, stating, "The FDA/CDC reminder claims that "numerous studies" show no nutritional difference between raw and pasteurized milk. The reference provided for these "numerous studies" is a single 1984 article, "Unpasteurized milk: a health fetish," by Dr. ME Potter, in which Potter creatively misinterprets a 1946 study Dr. Francis Pottenger conducted for a dental journal. Dr. Francis Pottenger's studies on cats showed that feeding of pasteurized milk to cats resulted in widespread disease leading to infertility and early death by the third generation; cats fed raw milk remained disease-free and healthy throughout the length of the experiment, which lasted for several generations. "The FDA/CDC "reminder" provides no additional references on the comparative nutritional benefits of raw and pasteurized milk. Requests to the FDA for additional references have not been answered.

A 2006 study published the *Journal of Allergy and Clinical Immunology* reported that childhood consumption of unpasteurized milk resulted in large reductions in the incidence of asthma, eczema and hay fever. Blood tests revealed that drinking raw milk cuts levels of histamine, a chemical produced by the cells in response to an allergen, by more than 50 percent. This study corroborates numerous reports of asthma in children--a life-threatening condition that is increasing in frequency--clearing up after the introduction of raw milk into the diet.

"By contrast, several studies have linked asthma and allergies with the consumption of pasteurized milk. Increasing intolerance to processed milk explains the relentless decline in processed milk consumption in the US, at 1 percent per year. "Fewer and fewer people can tolerate commercial milk," states Fallon. "Pasteurization distorts the delicate protein compounds in milk. The body recognizes these warped components as foreign and mounts an energy-sapping immune response."

"Animal and human studies carried out in the early part of the century showed that raw milk was superior to pasteurized in building strong bones and teeth, promoting optimal growth and development, and protecting against disease."

I know you are interested in the truth about raw milk and protecting our public's safety and I am confident that you will review this important article in its entirety. Thank you for your attention to this important matter.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

From: hoofingitnorth@hotmail.com
To: bob.gerlach@alaska.gov
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; ralny4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net;

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representative_david_guttenberg@legis.state.ak.us; representative_mike_kelly@legis.state.ak.us;
representative_paul_seaton@legis.state.ak.us; representative_peggy_wilson@legis.state.ak.us
Subject: RE: Alaska HB367 raw milk sales
Date: Tue, 19 Feb 2008 17:18:14 -0900

Dr Gerlach, there have in fact been quite a number of peer-reviewed studies conducted on the benefits and potential dangers of raw milk. I refer you to the various publications of:

Dr. William Campbell Douglass II, M.D.
Aajonus Vonderplanitz, Scientific Nutritional Researcher
Dr. Edward Howell, M.D.
Dr. Weston A. Price, D.D.S.
Peter Elwood, director of the Epidemiology Unit at Landough Hospital in Penarth, South Glamorgan
Dr. Royal Lee, D.D.S., and
Dr. J.E. Crewe with the Mayo Foundation,

among others, in which they cite several related studies and describe their own research. Additionally, according to Weston A. Price Foundation's Campaign for Raw Milk site, "two articles appearing recently in the prestigious British medical journal, The Lancet, illustrate the ongoing debate on the dangers and merits of raw milk," and there are citations for these articles included (such as those by:

Winkler, et al, American Journal of Medicine
N. England Journal Medicine
JAMA
Mathews, Et al, The Lancet, B.M. Bernstein presentation at AAMMC Conference
Klagsbrun, et al, J. Surg. Res.
Sheehan & Davis
Sinclair & Crawford
New Zealand Medical Journal
Hollen, Journal Ped. Env. Child. Health
Grulee
Jelliffee & Jelliffee
Wickes
Oski & Bell, American Journal Clin. Nut.
Zikakis , et al, J. Dairy Science
P.R. Meyer, American Journal of Epidemiology
McClure, et al, Cancer Research
Darlington, Enos, et al, JAMA
So. Cal. State Dent. Assoc. J.
Scientific American
J. Food Protection
Indian J. Experimental Biology
Cent. Afr. J. Med.
Eur. J. Pediatr.
J. Appl. Microbiol.
J. Hosp. Infec.
Curr. Med. Chem.
Am. J. Physiology.
J. Allergy Clin. Immunol.
American J. Public Health
British J. Nutrition
J. Experimental Medicine, and more.

Furthermore, the Weston A. Price Foundation has a point-by-point Powerpoint presentation

entitled "Raw Milk and Raw Milk Products: Safety, Health, Economic, and Legal Issues" (available at http://realmilk.com/ppt/08rawmilk.ppt) that you may find quite informative. You may also benefit from reviewing the chart of "REPORTED OUTBREAKS OF FOOD BORNE ILLNESS" compiled and "drawn up for a Los Angeles County Board of Supervisors vote on permitting raw milk in the County" (available at http://www.westonaprice.org/children/rawmilk.html), an article entitled, "Irradiated Meat: A Sneak Attack on School Lunches" by Monique Mikhail (available at http://www.westonaprice.org/modernfood/irradiatedmeat.html), another article entitled, "Wheaty Indiscretions--What Happens to Wheat, from Seed to Storage" by Jen Allbritton, Certified Nutritionist (available at http://www.westonaprice.org/modernfood/wheatyindiscretions.html), as well as an article by Sally Fallon, a nutrition researcher and President of the Weston A. Price Foundation, entitled, "Dirty Secrets of the Food Processing Industry" (available at http://www.westonaprice.org/modernfood/dirty-secrets.html). If you wish to examine Dr. Douglass' *The Milk Book: How Science is Destroying Nature's Nearly Perfect Food*, I would be happy to loan you my personal copy.

With regard to the "Grade A" status of pasteurized milk, after discussing the process with a number of dairy farmers here in Alaska, I have no faith in the sanitation of this process, especially when I am told that if the tank did not test satisfactorily, BLEACH is added directly to the milk, the inspector waits, and then retests the milk until the bacteria counts are acceptable! This comes DIRECTLY from past Alaskan dairy farmers! While chlorine may be viewed as a harmless substance by many, especially in small doses, it is not something I believe should be added to my food to mask sanitation and health issues. Additionally, after reviewing several publications regarding the historical statistics of food-borne illnesses in the United States from items such as deli meats, raw foods (including vegetables), cooked foods, and prepared foods, I also hold no confidence in the current processes and handling practices of various foodstuffs available to the American Public.

Although I hold deep-seated beliefs regarding the safety and benefits of consuming raw milk, in addition to personal anecdotal evidence, these beliefs are centered in factual research. But for many, the simplest issue at hand with legalizing raw milk in Alaska is that informed producers and consumers should have the freedom of choice to distribute and consume milk in its raw state without intervention from the State or other agencies, as is the case in 28 other states in this country. Alaska is known as the "Frontier State" yet our freedoms seem to be limited by misinformed individuals stoking the fires of unrealistic and irrational fears. I believe we should trust the consumer's ability to use common sense and apply reliable information provided to them on the products they consume, rather than instating and maintaining a nanny state to protect people from themselves. I hope this message enlightens you as to the immense volume of data available on the subject and that, in time, you will come to understand and support the sound practices of using clean, raw milk in one's diet.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
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Date: Tue, 19 Feb 2008 10:56:08 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us;

senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net

Heather,
I appreciate your viewpoint concerning raw milk. Due to the increase risk of food borne disease associated with raw milk I cannot support the sale and distribution of such a product to the public. I realize that there strong supporters and anecdotal reports of the health benefits of raw milk but as of yet there has been no studies published in scientific peer review journals to substantiate the health claims

The milk produced from dairies in this state is a grade A product. The regulatory process associated with attaining this status involves an inspection of the farm to evaluate the sanitary conditions under which the milk is produced, the farm has to maintain a specified standard. The raw product collect from the farm and is tested to ensure it meets the quality standards set by the FDA. After the milk is pasteurized the product is retested validate the quality prior to distribution to the public. A raw product that does not meet grade A standards is not allowed to be processed, so pasteurization is not used to allow poor quality product to be marketed.

Food products, as such, are problematic with regard to pathogens since they contain nutrients that humans as well as bacteria need to grow. Food has to be handled properly in production, distribution and at the home of the consumer to prevent illnesses associated with these pathogens. Food products are not sterilized prior to sale but they go through a process to reduce the risk of food borne pathogens from being consumed by the public. The pasteurization process is one step in keeping the food in our markets safe.

I want to assure you that I continue to read the scientific literature regarding animal diseases, food borne diseases and public health. I appreciate your comments and opinions.
Thank you.

Bob Gerlach

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Do you have livestock?
You need a premises identification number.
Please call (907) 375 8200 to register

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:06 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); Rainy4279@aol.com; Rep_Carl_Gatto@legis.state.ak.us; Rep_Mark_Neuman@legis.state.ak.us; Rhonda & Matt Shaul Crannberry Ridge Farm; Rick Williams; Sally Fallon Weston A. Price Foundation; Huggins, Charlie (LAA); Green, Lyda N (LAA); Silveraurora
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to operate in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly

produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

I know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious.

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat, cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease, etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face

foreclosure on their farms and their homes in a difficult economy.

I encourage you to review the literature compiled by the Weston A. Price Foundation for their campaign for raw milk (available at http://realmilk.org) and find the facts and truth behind the real risk of illness from raw milk versus other legally producing industries. I hope that you will come to understand the importance of making this vital food available to our informed public and reverse your decision against the legal sale of raw milk.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
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Wasilla, Alaska
http://FairSkiesAlaska.com
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Date: Mon, 18 Feb 2008 08:42:38 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov

Heather,
I find myself in a position that I cannot support the sale of raw milk in the state. The primary problem is that health risk associated with raw milk makes it difficult to endorse its sale or distribution to the public. As you know the very young and very old are the portion of the population that is most at risk for health problems that have been associated with the consumption of raw milk due to their immunocomprised state. There have been various food borne related outbreaks associated with the consumption of raw milk and raw milk products, over a dozen in 2007 alone. Most of the outbreaks occurred in states that allow the sale of raw milk and are traced back to farms that are on a state testing program.

One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

There is also concern for the negative economic impact on the agricultural industry that such an outbreak has on the public. After a food borne outbreak occurs the public looses trust in agricultural products, especially dairy products, this results in economic losses not just to the farm at the source of the investigation but agriculture in general. The dairy industry in Alaska is at a critical and vulnerable period, there are only 6 dairy farms left in the entire state and South-central Dairy Venture in the process of

trying to support the 4 dairies in the Matanuska Valley. We are trying to support the dairy industry in a number of ways, including the promotion of herd health initiatives and disease surveillance programs such as the Johne's Disease Program.

Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
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From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan, Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement

(DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
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The undersigned members of the House Finance Committee request that Committee Substitute for HB 255, DUAL SENTENCING, be waived from committee. The bill was heard in House Judiciary on March 3, 2008 and passed out. The fiscal notes are zero.

Debra Higgins

From: Silveraurora [silvera@mtaonline.net]
Sent: Friday, February 22, 2008 7:39 PM
To: 'Heather Fair'; bob.gerlach@alaska.gov
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson
Subject: RE: Alaska HB367 raw milk sales - Is it really making people sick?

Perhaps we can do a simple layman's synopsis here - many of the 'reported outbreaks' of raw milk illnesses that are televised on the news and from the FDA, with the FDA shutting down a farm and causing major losses for the farmer, have ended with no problems whatsoever found in the milk. What we often hear is the 'sensationalism' from a potential hazard but what we often do not get from the media or FDA is the final report that there wasn't anything wrong with the raw milk in the first place. It's so easy to report that the sky is falling, but it seems much harder to get the FDA to come out and honestly say "Oops, we were wrong folks and we're sorry, we'll pay you back for your loss of income and provide fair retribution for ruining your farm's good name". Sadly, we don't live in a society interested in final outcomes, only attention-grabbing headlines. The reports of 'final outcomes' in favor of the farmer and non-infectious raw milk are stated below in Heather's post, as example.

I support that raw milk should be made legally available for Alaskans to purchase directly from the farm of their choice. I support a safe handling label that I'm sure the Alaska DEC could print up, about the same size of label found on all raw meats in the grocery store, and make that label readily available to farmers to put on every container that they are filling for customers. This would be a very good win-win situation for our health officials, our farmers, and the continued economic viability of agriculture for **all Alaskans**. We should welcome the opportunity to join those states, already the majority across the US, that allow the legal sale of raw milk. Sensationalism has no place in Alaska, **freedom of choice** is the main issue at hand.

I am a voting citizen, and I will strongly support those State Representatives and Senators for re-election who vote in favor of passing raw milk legislation for Alaskans. The economic importance alone is enormous to this state. I welcome any of our State Elected Officials to email me privately with their thoughts and I will be happy to reply.

Thank you for your time and consideration.

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907-373-2687
suzannes@matnet.com

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Friday, February 22, 2008 6:43 PM
To: bob.gerlach@alaska.gov
Cc: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net;

rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net; artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; representative_bob_roses@legis.state.ak.us; representative_bryce_edgmon@legis.state.ak.us; representative_david_guttenberg@legis.state.ak.us; representative_mike_kelly@legis.state.ak.us; representative_paul_seaton@legis.state.ak.us; representative_peggy_wilson@legis.state.ak.us
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Your last message mentioned an alleged outbreak of salmonella at Stump Acres Farm in Pennsylvania. I did a little research on this incident and found it interesting that according to Weston A. Price Foundation's article entitled, "FDA and CDC Bias Against Raw Milk--No Facts Provided in Recent Reminder about Raw Milk Consumption" (available at http://www.westonaprice.org/press/press-12mar07-fda-cdc-raw-milk-reminder.html), "A more recent example is the March 2, 2007, recall and warning against "Tainted Raw Milk Sold by a York County Dairy," also in Pennsylvania. Stump Acres Dairy was "linked" to two cases in a *Salmonella* outbreak. Although none of the dairy's remaining 250 customers showed signs of illness, Stump Acres Dairy was ordered to suspend sales. Cultures subsequently taken from the dairy and the milk tested negative for *Salmonella* and the dairy has reopened." Additionally, the article discusses a number of alleged cases of infections stemming form raw milk consumption and goes on to cite, "Over the past eight years, Organic Pastures Dairy of Fresno, California has sold over 40 million servings of raw milk without one case of illness; during the same period the California Department of Food and Agriculture has issued at least 19 recalls of pasteurized milk products in California. Frequent testing by Organic Pastures, the state of California, and the veterinary departments of local universities has failed to detect even a single human pathogen in the milk.

"Yet in September 2006, after four children who had consumed raw milk and also raw spinach or sushi became ill, state officials ordered the dairy to shut down. All Organic Pastures products were recalled. Officials performed over 2,000 tests of the entire dairy operation, including swabs taken from the 300 cows, the farm, the manure and the equipment, without finding a single pathogen. The raw dairy products are now back on store shelves, yet many state health officials continue to report that Organic Pasture's raw milk caused illness due to *E. coli*."

The article goes on to state, "While all dairy (pasteurized and raw) constitutes less than 1 percent of all reported food borne illnesses, the FDA along with the CDC, continue to misuse, manipulate, and suppress data to frighten the public. Their recent 'reminder' against drinking raw milk is no exception," reports Ruth Ann Foster, a North Carolina volunteer chapter leader for the Foundation. "In the majority of cases it is only a coincidence that the individual(s) happened to consume raw milk. For many foodborne outbreaks associated with raw milk, there are frequently a large number of sick individuals who did not consume any raw milk. Still, health officials disregard this important fact and blame the milk. When the FDA, CDC, and state health officials target raw milk, they distract themselves from isolating the true source of illness. The risk of foodborne illness is far greater for many other foods." "Between 1990 and 2004, a CSPI (Center for Science in the Public Interest) report shows a much greater risk from consuming the following foods:
31,496 illnesses, 639 outbreaks from produce (38%)
16,280 illnesses, 541 outbreaks from poultry (20%)
13,220 illnesses, 467 outbreaks from beef (16%)
11,027 illnesses, 341 outbreaks from eggs (13%)
9,969 illnesses, 984 outbreaks from seafood (12%)"
Furthermore, the article cites specific issues with campylobacter, salmonella, e. coli, and other bacteria commonly found on other foods excluding raw milk that account for an estimated 9,200,000 cases of food-borne illness annually.

It may also surprise you to know that, "PASTEURIZED milk has been the source of many widespread outbreaks. A total for some of the documented outbreaks due to PASTEURIZED milk over the past few decades is 239,884 cases and 620 deaths.
"The nation's largest recorded outbreak of *Salmonella* was due to PASTEURIZED milk contaminated with antibiotic-resistant *Salmonella typhimurium*. The outbreak, which occurred between June 1984 and April 1985 sickened over 200,000 and caused 18 deaths. Disturbingly, the CDC did not issue a specific *Morbidity and Mortality Weekly Report* for this outbreak; information must be gleaned from other reports published in the *FDA Consumer* and the *Journal of the American Medical Association*.
"A 2004 outbreak in Pennsylvania and New Jersey involved multidrug-resistant *Salmonella typhimurium* infection from milk contaminated after pasteurization.
"Despite numerous outbreaks due to pasteurized milk, neither the FDA nor the CDC has ever issued a warning against

consuming pasteurized milk. Pasteurization is not a guarantee; pasteurized milk is not sterile. The FDA permits the presence of up to 20,000 bacteria /ml and 10 *E.coli*/ml in milk after the pasteurization process has been completed. "Because pasteurization destroys probiotics (good bacteria), any harmful bacteria present in the milk after pasteurization can and will flourish. On the other hand, published research shows that good bacteria and many other components in raw milk actually destroy pathogens added to the milk."

Finally, with regard to your claim that there have been no studies published in peer-reviewed scientific journals regarding the health benefits of consuming raw milk, in addition to the numerous citations I provided you in my last message, the aforementioned article tackles this myth directly, stating, "The FDA/CDC reminder claims that "numerous studies" show no nutritional difference between raw and pasteurized milk. The reference provided for these "numerous studies" is a single 1984 article, "Unpasteurized milk: a health fetish," by Dr. ME Potter, in which Potter creatively misinterprets a 1946 study Dr. Francis Pottenger conducted for a dental journal. Dr. Francis Pottenger's studies on cats showed that feeding of pasteurized milk to cats resulted in widespread disease leading to infertility and early death by the third generation; cats fed raw milk remained disease-free and healthy throughout the length of the experiment, which lasted for several generations. "The FDA/CDC "reminder" provides no additional references on the comparative nutritional benefits of raw and pasteurized milk. Requests to the FDA for additional references have not been answered.

"A 2006 study published the *Journal of Allergy and Clinical Immunology* reported that childhood consumption of unpasteurized milk resulted in large reductions in the incidence of asthma, eczema and hay fever. Blood tests revealed that drinking raw milk cuts levels of histamine, a chemical produced by the cells in response to an allergen, by more than 50 percent. This study corroborates numerous reports of asthma in children--a life-threatening condition that is increasing in frequency--clearing up after the introduction of raw milk into the diet.

"By contrast, several studies have linked asthma and allergies with the consumption of pasteurized milk. Increasing intolerance to processed milk explains the relentless decline in processed milk consumption in the US, at 1 percent per year. "Fewer and fewer people can tolerate commercial milk," states Fallon. "Pasteurization distorts the delicate protein compounds in milk. The body recognizes these warped components as foreign and mounts an energy-sapping immune response."

"Animal and human studies carried out in the early part of the century showed that raw milk was superior to pasteurized in building strong bones and teeth, promoting optimal growth and development, and protecting against disease."

I know you are interested in the truth about raw milk and protecting our public's safety and I am confident that you will review this important article in its entirety. Thank you for your attention to this important matter.

[redacted]Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

From: hoofingitnorth@hotmail.com
To: bob.gerlach@alaska.gov
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net; artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; representative_bob_roses@legis.state.ak.us; representative_bryce_edgmon@legis.state.ak.us; representative_david_guttenberg@legis.state.ak.us; representative_mike_kelly@legis.state.ak.us; representative_paul_seaton@legis.state.ak.us; representative_peggy_wilson@legis.state.ak.us
Subject: RE: Alaska HB367 raw milk sales
Date: Tue, 19 Feb 2008 17:18:14 -0900

Dr. Gerlach, there have in fact been quite a number of peer-reviewed studies conducted on the benefits and potential dangers of raw milk. I refer you to the various publications of:

[redacted]**Dr. William Campbell Douglass II, M.D.**
Aajonus Vonderplanitz, Scientific Nutritional Researcher
Dr. Edward Howell, M.D.
Dr. Weston A. Price, D.D.S.

Peter Elwood, director of the Epidemiology Unit at Landough Hospital in Penarth, South Glamorgan
Dr. Royal Lee, D.D.S., and
Dr. J.E. Crewe with the Mayo Foundation,

among others, in which they cite several related studies and describe their own research. Additionally, according to Weston A. Price Foundation's Campaign for Raw Milk site, "two articles appearing recently in the prestigious British medical journal, The Lancet, illustrate the ongoing debate on the dangers and merits of raw milk," and there are citations for these articles included (such as those by:

Winkler, et al, American Journal of Medicine
N. England Journal Medicine
JAMA
Mathews, Et al, The Lancet, B.M. Bernstein presentation at AAMMC Conference
Kiagsbrun, et al, J. Surg. Res.
Sheehan & Davis
Sinclair & Crawford
New Zealand Medical Journal
Hollen, Journal Ped. Env. Child. Health
Grulee
Jelliffee & Jelliffee
Wickes
Oski & Bell, American Journal Clin. Nut.
Zikakis , et al, J. Dairy Science
P.R. Meyer, American Journal of Epidemiology
McClure, et al, Cancer Research
Darlington, Enos, et al, JAMA
So. Cal. State Dent. Assoc. J.
Scientific American
J. Food Protection
Indian J. Experimental Biology
Cent. Afr. J. Med.
Eur. J. Pediatr.
J. Appl. Microbiol.
J. Hosp. Infec.
Curr. Med. Chem.
Am. J. Physiology.
J. Allergy Clin. Immunol.
American J. Public Health
British J. Nutrition
J. Experimental Medicine, and more.

Furthermore, the Weston A. Price Foundation has a point-by-point Powerpoint presentation entitled "Raw Milk and Raw Milk Products: Safety, Health, Economic, and Legal Issues" (available at http://realmilk.com/ppt/08rawmilk.ppt) that you may find quite informative. You may also benefit from reviewing the chart of "REPORTED OUTBREAKS OF FOOD BORNE ILLNESS" compiled and "drawn up for a Los Angeles County Board of Supervisors vote on permitting raw milk in the County" (available at http://www.westonaprice.org/children/rawmilk.html), an article entitled, "Irradiated Meat: A Sneak Attack on School Lunches" by Monique Mikhail (available at http://www.westonaprice.org/modernfood/irradiatedmeat.html), another article entitled, "Wheaty Indiscretions--What Happens to Wheat, from Seed to Storage" by Jen Allbritton, Certified Nutritionist (available at http://www.westonaprice.org/modernfood/wheatyindiscretions.html), as well as an article by Sally Fallon, a nutrition researcher and President of the Weston A. Price Foundation, entitled, "Dirty Secrets of the Food Processing Industry" (available at http://www.westonaprice.org/modernfood/dirty-secrets.html). If you wish to examine Dr. Douglass' *The Milk Book: How Science is Destroying Nature's Nearly Perfect Food*, I would be happy to loan you my personal copy.

With regard to the "Grade A" status of pasteurized milk, after discussing the process with a number of dairy farmers here in Alaska, I have no faith in the sanitation of this process, especially when I am told that if the tank did not test satisfactorily, BLEACH is added directly to the milk, the inspector waits, and

then retests the milk until the bacteria counts are acceptable! This comes DIRECTLY from past Alaskan dairy farmers! While chlorine may be viewed as a harmless substance by many, especially in small doses, it is not something I believe should be added to my food to mask sanitation and health issues. Additionally, after reviewing several publications regarding the historical statistics of food-borne illnesses in the United States from items such as deli meats, raw foods (including vegetables), cooked foods, and prepared foods, I also hold no confidence in the current processes and handling practices of various foodstuffs available to the American Public.

Although I hold deep-seated beliefs regarding the safety and benefits of consuming raw milk, in addition to personal anecdotal evidence, these beliefs are centered in factual research. But for many, the simplest issue at hand with legalizing raw milk in Alaska is that informed producers and consumers should have the freedom of choice to distribute and consume milk in its raw state without intervention from the State or other agencies, as is the case in 28 other states in this country. Alaska is known as the "Frontier State" yet our freedoms seem to be limited by misinformed individuals stoking the fires of unrealistic and irrational fears. I believe we should trust the consumer's ability to use common sense and apply reliable information provided to them on the products they consume, rather than instating and maintaining a nanny state to protect people from themselves. I hope this message enlightens you as to the immense volume of data available on the subject and that, in time, you will come to understand and support the sound practices of using clean, raw milk in one's diet.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
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Date: Tue, 19 Feb 2008 10:56:08 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net

Heather,
I appreciate your viewpoint concerning raw milk. Due to the increase risk of food borne disease associated with raw milk I cannot support the sale and distribution of such a product to the public. I realize that there strong supporters and anecdotal reports of the health benefits of raw milk but as of yet there has been no studies published in scientific peer review journals to substantiate the health claims.

The milk produced from dairies in this state is a grade A product. The regulatory process associated with attaining this status involves an inspection of the farm to evaluate the sanitary conditions under which the milk is produced, the farm has to maintain a specified standard. The raw product collect from the farm and is tested to ensure it meets the quality standards set by the FDA. After the milk is pasteurized the product is retested validate the quality prior to distribution to the public. A raw product that does not meet grade A standards is not allowed to be processed, so pasteurization is not used to allow poor quality product to be marketed.

Food products, as such, are problematic with regard to pathogens since they contain nutrients that humans as well as bacteria need to grow. Food has to be handled properly in production, distribution and at the home of the consumer to prevent illnesses associated with these pathogens. Food products are not sterilized prior to sale but they go through a process to reduce the risk of food borne pathogens from being consumed by the public. The pasteurization process is one step in keeping the food in our markets safe.

I want to assure you that I continue to read the scientific literature regarding animal diseases, food borne diseases and public health. I appreciate your comments and opinions. Thank you.

Bob Gerlach

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Do you have livestock?

You need a premises identification number.
Please call (907) 375 8200 to register

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:06 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); Rainy4279@aol.com; Rep_Carl_Gatto@legis.state.ak.us; Rep_Mark_Neuman@legis.state.ak.us; Rhonda & Matt Shaul Crannberry Ridge Farm; Rick Williams; Sally Fallon Weston A. Price Foundation; Huggins, Charlie (LAA); Green, Lyda N (LAA); Silveraurora
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to operate in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

I know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious.

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat, cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease, etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face foreclosure on their farms and their homes in a difficult economy.

I encourage you to review the literature compiled by the Weston A. Price Foundation for their campaign for raw milk (available at http://realmilk.org) and find the facts and truth behind the real risk of illness from raw milk versus other legally producing industries. I hope that you will come to understand the importance of making this vital food available to our informed public and reverse your decision against the legal sale of raw milk.

Heather Fair
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Date: Mon, 18 Feb 2008 08:42:38 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov

Heather,
I find myself in a position that I cannot support the sale of raw milk in the state. The primary problem is that health risk associated with raw milk makes it difficult to endorse its sale or distribution to the public. As you know the very young and very old are the portion of the population that is most at risk for health problems that have been associated with the consumption of raw milk due to their immunocomprised state. There have been various food borne related outbreaks associated with the consumption of raw milk and raw milk products, over a dozen in 2007 alone. Most of the outbreaks occurred in states that allow the sale of raw milk and are traced back to farms that are on a state testing program.

One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

There is also concern for the negative economic impact on the agricultural industry that such an outbreak has on

the public. After a food borne outbreak occurs the public looses trust in agricultural products, especially dairy products, this results in economic losses not just to the farm at the source of the investigation but agriculture in general. The dairy industry in Alaska is at a critical and vulnerable period, there are only 6 dairy farms left in the entire state and South-central Dairy Venture in the process of trying to support the 4 dairies in the Matanuska Valley. We are trying to support the dairy industry in a number of ways, including the promotion of herd health initiatives and disease surveillance programs such as the Johne's Disease Program.

Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
Alaska State Veterinarian
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907-375-8200
bob.gerlach@alaska.gov

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan, Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement (DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American

Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
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Shed those extra pounds with MSN and The Biggest Loser! Learn more.

Debra Higgins

From: Gerlach, Robert F (DEC) [bob.gerlach@alaska.gov]
Sent: Sunday, February 24, 2008 5:39 PM
To: Heather Fair
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; silvera@mtaonline.net; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson; Castrodale, Louisa J (HSS)
Subject: RE: Alaska HB367 raw milk sales

Heather,
When I sent out the information on the Stump Acres Farm incident. I gathered my information directly from the Pennsylvania Health Department and the Dairy Science Department from the Pennsylvania State University (PSU). I gathered data from the agencies directly involved in the investigation of the outbreak and the health officials that performed the testing of the samples, I did not gather information from other sources.
http://www.fda.gov/oc/po/firmrecalls/stumpacres03_07.html
http://www.dsf.health.state.pa.us/health/cwp/view.asp?A=190&Q=248293&pp=12&n=1
http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/07-20-2007/0004629753&EDATE=

I would note that after the outbreak at Stump Acres law offices all across the state descended upon the state and the dairy.
http://foodpoisoning.pritzkerlaw.com/archives/salmonella-salmonella-risk-stump-acres-dairy-raw-milk.html
The impact to the dairy industry, both the raw milk dairies and the rest of the commercial dairies was significant according to the Dairy Science Department at PSU.

Most foods run the risk of food borne diseases, the risk varies depending on the origin of the food product, how it is raised, how it is handled and marketed and how it is handled (stored and cooked) by the consumer. There is no doubt the risk associated with raw foods is great as you mentioned below. Chicken, beef, eggs and seafood although sold raw are intended to be cooked to eliminated the bacterial pathogens so this is a bit different than the raw milk products that are consumed as is. The state and federal agencies regulating foods try to minimize the disease risk through varies steps each specific to the type of food. The goal is to minimize the risk as much as possible; and as you note it may be reduced but it is never eliminated.

In evaluating the risk of food borne disease related to dairy products, I only compare the risks associated with raw milk in comparison to pasteurized milk products. Using this comparison the risks associated with raw milk products are significantly greater. It is important to remember that pasteurized milk is not sterilized and as I mentioned there is risk associated with all food products.

The studies involved with raw milk and allergy are very interesting and the authors of the research are encouraging further work to understand what component of the raw milk is associated with the benefits seen. Several of these authors have stated that although there is some benefits that the risk of food borne disease appears to be greater and they cannot recommend raw milk consumption by the public. The attached reference below was published in Science Direct (May 11,2007)

More than 35 researchers took part in the PARSIFAL study -- Prevention of allergy risk factors for sensitization in children related to farming and anthroposophic lifestyle.
The work was carried out with research grants from the European Union, the Swiss National Research Foundation, the Swiss-based Kuehne-Foundation and the Swedish Foundation for Health Care Science and Allergy Research.
"However raw milk may contain pathogens such as salmonella or enterohaemorrhagic E coli and its consumption may have serious health risks.
"We need to develop a deeper understanding of why farm milk offers children this higher level or protection

and investigate ways of making the product safer, while retaining these protective qualities. "At the moment we can only speculate about why farm milk protects children against asthma and allergies. Perhaps it is because farm milk has different levels or compositions of pathogenic and non-pathogenic microbes to milk sold in shops.

It is interesting that there was no difference in the farm milk results regardless of whether it was boiled before consumption. As boiling is likely to have been over-reported, this could indicate that pasteurization is not as important as previously thought, as compounds other than microbes may offer a protective role.

"But despite our findings, we cannot recommend consumption of raw farm milk as a preventative measure against asthma and allergies."

There is definitely a need for further research to understand the benefits associated with raw milk, but at this time I cannot support the sale and distribution of raw milk to the public.

I thank you for the references and you opinion,

Bob Gerlach

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Fri 2/22/2008 6:42 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Huggins, Charlie (LAA); Green, Lyda N (LAA); silvera@mtaonline.net; artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; Roses, Bob (LAA); Edgmon, Bryce E (LAA); Guttenberg, David (LAA); Kelly, Mike (LAA); Seaton, Paul (LAA); Wilson, Peggy A (LAA)
Subject: RE: Alaska HB367 raw milk sales

Dr. Gerlach,

Your last message mentioned an alleged outbreak of salmonella at Stump Acres Farm in Pennsylvania. I did a little research on this incident and found it interesting that according to Weston A. Price Foundation's article entitled, "FDA and CDC Bias Against Raw Milk--No Facts Provided in Recent Reminder about Raw Milk Consumption" (available at http://www.westonaprice.org/press/press-12mar07-fda-cdc-raw-milk-reminder.html), "A more recent example is the March 2, 2007, recall and warning against "Tainted Raw Milk Sold by a York County Dairy," also in Pennsylvania. Stump Acres Dairy was "linked" to two cases in a *Salmonella* outbreak. Although none of the dairy's remaining 250 customers showed signs of illness, Stump Acres Dairy was ordered to suspend sales. Cultures subsequently taken from the dairy and the milk tested negative for *Salmonella* and the dairy has reopened." Additionally, the article discusses a number of alleged cases of infections stemming form raw milk consumption and goes on to cite, "Over the past eight years, Organic Pastures Dairy of Fresno, California has sold over 40 million servings of raw milk without one case of illness; during the same period the California Department of Food and Agriculture has issued at least 19 recalls of pasteurized milk products in California. Frequent testing by Organic Pastures, the state of California, and the veterinary departments of local universities has failed to detect even a single human pathogen in the milk.

"Yet in September 2006, after four children who had consumed raw milk and also raw spinach or sushi became ill, state officials ordered the dairy to shut down. All Organic Pastures products were recalled. Officials performed over 2,000 tests of the entire dairy operation, including swabs taken from the 300 cows, the farm, the manure and the equipment, without finding a single pathogen. The raw dairy products are now back on store shelves, yet many state health officials continue to report that Organic Pasture's raw milk caused illness due to *E. coli*."

The article goes on to state, "While all dairy (pasteurized and raw) constitutes less than 1 percent of all reported food borne illnesses, the FDA along with the CDC, continue to misuse, manipulate, and suppress data to frighten the public. Their recent 'reminder' against drinking raw milk is no exception," reports Ruth Ann Foster, a North Carolina volunteer chapter leader for the Foundation. "In the majority of cases it is only a coincidence that the individual(s) happened to consume raw milk. For many foodborne outbreaks associated with raw milk, there are frequently a large number of sick individuals who did not consume any raw milk. Still, health officials disregard this important fact and blame the milk.

When the FDA, CDC, and state health officials target raw milk, they distract themselves from isolating the true source of illness. The risk of foodborne illness is far greater for many other foods." "Between 1990 and 2004, a CSPI (Center for Science in the Public Interest) report shows a much greater risk from consuming the following foods:

- 31,496 illnesses, 639 outbreaks from produce (38%)
- 16,280 illnesses, 541 outbreaks from poultry (20%)
- 13,220 illnesses, 467 outbreaks from beef (16%)
- 11,027 illnesses, 341 outbreaks from eggs (13%)
- 9,969 illnesses, 984 outbreaks from seafood (12%)"

Furthermore, the article cites specific issues with campylobacter, salmonella, e. coli, and other bacteria commonly found on other foods excluding raw milk that account for an estimated 9,200,000 cases of food-borne illness annually.

It may also surprise you to know that, "PASTEURIZED milk has been the source of many widespread outbreaks. A total for some of the documented outbreaks due to PASTEURIZED milk over the past few decades is 239,884 cases and 620 deaths.

"The nation's largest recorded outbreak of *Salmonella* was due to PASTEURIZED milk contaminated with antibiotic-resistant *Salmonella typhimurium*. The outbreak, which occurred between June 1984 and April 1985 sickened over 200,000 and caused 18 deaths. Disturbingly, the CDC did not issue a specific *Morbidity and Mortality Weekly Report* for this outbreak; information must be gleaned from other reports published in the *FDA Consumer* and the *Journal of the American Medical Association*.

"A 2004 outbreak in Pennsylvania and New Jersey involved multidrug-resistant *Salmonella typhimurium* infection from milk contaminated after pasteurization.

"Despite numerous outbreaks due to pasteurized milk, neither the FDA nor the CDC has ever issued a warning against consuming pasteurized milk. Pasteurization is not a guarantee; pasteurized milk is not sterile. The FDA permits the presence of up to 20,000 bacteria /ml and 10 *E.coli*/ml in milk after the pasteurization process has been completed.

"Because pasteurization destroys probiotics (good bacteria), any harmful bacteria present in the milk after pasteurization can and will flourish. On the other hand, published research shows that good bacteria and many other components in raw milk actually destroy pathogens added to the milk."

Finally, with regard to your claim that there have been no studies published in peer-reviewed scientific journals regarding the health benefits of consuming raw milk, in addition to the numerous citations I provided you in my last message, the aforementioned article tackles this myth directly, stating, "The FDA/CDC reminder claims that "numerous studies" show no nutritional difference between raw and pasteurized milk. The reference provided for these "numerous studies" is a single 1984 article, "Unpasteurized milk: a health fetish," by Dr. ME Potter, in which Potter creatively misinterprets a 1946 study Dr. Francis Pottenger conducted for a dental journal. Dr. Francis Pottenger's studies on cats showed that feeding of pasteurized milk to cats resulted in widespread disease leading to infertility and early death by the third generation; cats fed raw milk remained disease-free and healthy throughout the length of the experiment, which lasted for several generations. "The FDA/CDC "reminder" provides no additional references on the comparative nutritional benefits of raw and pasteurized milk. Requests to the FDA for additional references have not been answered.

"A 2006 study published the *Journal of Allergy and Clinical Immunology* reported that childhood consumption of unpasteurized milk resulted in large reductions in the incidence of asthma, eczema and hay fever. Blood tests revealed that drinking raw milk cuts levels of histamine, a chemical produced by the cells in response to an allergen, by more than 50 percent. This study corroborates numerous reports of asthma in children--a life-threatening condition that is increasing in frequency--clearing up after the introduction of raw milk into the diet.

"By contrast, several studies have linked asthma and allergies with the consumption of pasteurized milk. Increasing intolerance to processed milk explains the relentless decline in processed milk consumption in the US, at 1 percent per year. "Fewer and fewer people can tolerate commercial milk," states Fallon. "Pasteurization distorts the delicate protein compounds in milk. The body recognizes these warped components as foreign and mounts an energy-sapping immune response."

"Animal and human studies carried out in the early part of the century showed that raw milk was superior to pasteurized in building strong bones and teeth, promoting optimal growth and development, and protecting against disease."

I know you are interested in the truth about raw milk and protecting our public's safety and I am confident that you will review this important article in its entirety. Thank you for your attention to this important matter.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com

3/3/2008

From: hoofingitnorth@hotmail.com
To: bob.gerlach@alaska.gov
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net; artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; representative_bob_roses@legis.state.ak.us; representative_bryce_edgmon@legis.state.ak.us; representative_david_guttenberg@legis.state.ak.us; representative_mike_kelly@legis.state.ak.us; representative_paul_seaton@legis.state.ak.us; representative_peggy_wilson@legis.state.ak.us
Subject: RE: Alaska HB367 raw milk sales
Date: Tue, 19 Feb 2008 17:18:14 -0900

Dr. Gerlach, there have in fact been quite a number of peer-reviewed studies conducted on the benefits and potential dangers of raw milk. I refer you to the various publications of:

Dr. William Campbell Douglass II, M.D.
Aajonus Vonderplanitz, Scientific Nutritional Researcher
Dr. Edward Howell, M.D.
Dr. Weston A. Price, D.D.S.
Peter Elwood, director of the Epidemiology Unit at Landough Hospital in Penarth, South Glamorgan
Dr. Royal Lee, D.D.S., and
Dr. J.E. Crewe with the Mayo Foundation,

among others, in which they cite several related studies and describe their own research. Additionally, according to Weston A. Price Foundation's Campaign for Raw Milk site, "two articles appearing recently in the prestigious British medical journal, The Lancet, illustrate the ongoing debate on the dangers and merits of raw milk," and there are citations for these articles included (such as those by:

Winkler, et al, American Journal of Medicine
N. England Journal Medicine
JAMA
Mathews, Et al, The Lancet, B.M. Bernstein presentation at AAMMC Conference
Klagsbrun, et al, J. Surg. Res.
Sheehan & Davis
Sinclair & Crawford
New Zealand Medical Journal
Hollen, Journal Ped. Env. Child. Health
Grulee
Jelliffee & Jelliffee
Wickes
Oski & Bell, American Journal Clin. Nut.
Zikakis , et al, J. Dairy Science
P.R. Meyer, American Journal of Epidemiology
McClure, et al, Cancer Research
Darlington, Enos, et al, JAMA
So. Cal. State Dent. Assoc. J.
Scientific American
J. Food Protection
Indian J. Experimental Biology
Cent. Afr. J. Med.
Eur. J. Pediatr.

J. Appl. Microbiol.
J. Hosp. Infec.
Curr. Med. Chem.
Am. J. Physiology.
J. Allergy Clin. Immunol.
American J. Public Health
British J. Nutrition
J. Experimental Medicine, and more.

Furthermore, the Weston A. Price Foundation has a point-by-point Powerpoint presentation entitled "Raw Milk and Raw Milk Products: Safety, Health, Economic, and Legal Issues" (available at http://realmilk.com/ppt/08rawmilk.ppt) that you may find quite informative. You may also benefit from reviewing the chart of "REPORTED OUTBREAKS OF FOOD BORNE ILLNESS" compiled and "drawn up for a Los Angeles County Board of Supervisors vote on permitting raw milk in the County" (available at http://www.westonaprice.org/children/rawmilk.html), an article entitled, "Irradiated Meat: A Sneak Attack on School Lunches" by Monique Mikhail (available at http://www.westonaprice.org/modernfood/irradiatedmeat.html), another article entitled, "Wheaty Indiscretions--What Happens to Wheat, from Seed to Storage" by Jen Allbritton, Certified Nutritionist (available at http://www.westonaprice.org/modernfood/wheatyindiscretions.html), as well as an article by Sally Fallon, a nutrition researcher and President of the Weston A. Price Foundation, entitled, "Dirty Secrets of the Food Processing Industry" (available at http://www.westonaprice.org/modernfood/dirty-secrets.html). If you wish to examine Dr. Douglass' *The Milk Book: How Science is Destroying Nature's Nearly Perfect Food*, I would be happy to loan you my personal copy.

With regard to the "Grade A" status of pasteurized milk, after discussing the process with a number of dairy farmers here in Alaska, I have no faith in the sanitation of this process, especially when I am told that if the tank did not test satisfactorily, BLEACH is added directly to the milk, the inspector waits, and then retests the milk until the bacteria counts are acceptable! This comes DIRECTLY from past Alaskan dairy farmers! While chlorine may be viewed as a harmless substance by many, especially in small doses, it is not something I believe should be added to my food to mask sanitation and health issues. Additionally, after reviewing several publications regarding the historical statistics of food-borne illnesses in the United States from items such as deli meats, raw foods (including vegetables), cooked foods, and prepared foods, I also hold no confidence in the current processes and handling practices of various foodstuffs available to the American Public.

Although I hold deep-seated beliefs regarding the safety and benefits of consuming raw milk, in addition to personal anecdotal evidence, these beliefs are centered in factual research. But for many, the simplest issue at hand with legalizing raw milk in Alaska is that informed producers and consumers should have the freedom of choice to distribute and consume milk in its raw state without intervention from the State or other agencies, as is the case in 28 other states in this country. Alaska is known as the "Frontier State" yet our freedoms seem to be limited by misinformed individuals stoking the fires of unrealistic and irrational fears. I believe we should trust the consumer's ability to use common sense and apply reliable information provided to them on the products they consume, rather than instating and maintaining a nanny state to protect people from themselves. I hope this message enlightens you as to the immense volume of data available on the subject and that, in time, you will come to understand and support the sound practices of using clean, raw milk in one's diet.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
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Date: Tue, 19 Feb 2008 10:56:08 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; senator_charlie_huggins@legis.state.ak.us; senator_lyda_green@legis.state.ak.us; silvera@mtaonline.net

Heather,
I appreciate your viewpoint concerning raw milk. Due to the increase risk of food borne disease associated with raw milk I cannot support the sale and distribution of such a product to the public. I realize that there strong supporters and anecdotal reports of the health benefits of raw milk but as of yet there has been no studies published in scientific peer review journals to substantiate the health claims.

The milk produced from dairies in this state is a grade A product. The regulatory process associated with attaining this status involves an inspection of the farm to evaluate the sanitary conditions under which the milk is produced, the farm has to maintain a specified standard. The raw product collect from the farm and is tested to ensure it meets the quality standards set by the FDA. After the milk is pasteurized the product is retested validate the quality prior to distribution to the public. A raw product that does not meet grade A standards is not allowed to be processed, so pasteurization is not used to allow poor quality product to be marketed.

Food products, as such, are problematic with regard to pathogens since they contain nutrients that humans as well as bacteria need to grow. Food has to be handled properly in production, distribution and at the home of the consumer to prevent illnesses associated with these pathogens. Food products are not sterilized prior to sale but they go through a process to reduce the risk of food borne pathogens from being consumed by the public. The pasteurization process is one step in keeping the food in our markets safe.

I want to assure you that I continue to read the scientific literature regarding animal diseases, food borne diseases and public health. I appreciate your comments and opinions.
Thank you.

Bob Gerlach

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Do you have livestock?
You need a premises identification number.
Please call (907) 375 8200 to register

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Monday, February 18, 2008 9:06 PM
To: Gerlach, Robert F (DEC)
Cc: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); Rainy4279@aol.com; Rep_Carl_Gatto@legis.state.ak.us; Rep_Mark_Neuman@legis.state.ak.us; Rhonda & Matt Shaul Crannberry Ridge Farm; Rick Williams; Sally Fallon Weston A. Price Foundation; Huggins, Charlie (LAA); Green, Lyda N (LAA); Silveraurora
Subject: RE: Alaska HB367 raw milk sales
Importance: High

Dr. Gerlach,

Thank you for your reply to my email on legalizing the sale of raw milk through House Bill 367. My original message suggested a compromise for the concern of raw milk sales without grading the milk. I read your reply with great interest and I appreciate your support in developing marketing options for my wholesome goats' milk. However, your message seemed to primarily involved food borne illnesses. While I certainly understand and respect your concerns for public health issues, I am saddened to see your view of milk in relation to other food products is apparently skewed. The sale of pasteurized milk is legal in Alaska and it appears to be something you support since you noted that you would support the sale of milk through other venues excluding the sale of the product in its raw state. However, the pasteurization process not only destroys milk's natural nutritional benefits, but also offers an excuse and actually enables dairies to operate in filthy conditions that would not and should not be tolerated in any food industry. I wish to consume only foods that are responsibly produced and handled and I am not willing to support the continued masking of sanitation issues with pasteurization. This is one of the reasons I choose to consume raw milk.

I know and experience the great health benefits of consuming raw milk and I believe these benefits far outweigh the potential risks involved with the product. In fact, my own immune system has been in an extremely depressed state for a number of years, such that I actually had to take an extended medical hiatus from my businesses and career. Yet after many years of research, I very recently purchased my goats specifically to improve my health through the consumption of home-produced, healthy, whole, raw milk, which I safely consume on a daily basis. I did not consider the risks lightly and you need not take my word, as I was pleased to find a plethora of data and proof that in fact, raw milk, when handled appropriately, is safe and nutritious

I was surprised to read that you are so concerned with potential illnesses from raw milk that you feel you must support the continued prohibition of its sale in Alaska. In fact, there are far more concerns than a dozen illnesses nationwide annually with products like raw eggs, raw meat, raw seafood, even cooked meat, cooked seafood, and raw vegetables! Serving raw seafood and certain other raw meats for direct consumption, even in restaurants, grocery stores, and convenience stores, is completely legal, yet raw milk, which is intended for raw consumption is illegal. I find this quite intriguing, especially when one considers that over 70% of all commercially produced chicken in America is contaminated with campylobacter bacteria and we've seen our share of e. coli concerns, even on raw spinach! With all the recalls and outbreaks involving legal foods, even those originating from those in wide distribution in our schools and fast food restaurants, are we to outlaw the sale of these products and completely shut down these industries? Is farming and gathering foods on any scale then not worth the economic cost of public illness? What makes milk different and more dangerous from meat, eggs, fish, and vegetables? There are many illnesses to which we are exposed on a daily basis and each of us is affected to varying degrees but we cannot and should not attempt to cleanse our world of these disease. Beyond being futile, it leaves our species at a decided disadvantage in sustainable living. Instead, I believe we should build our own immune systems to compensate for the presence of these everyday pathogens. We, as mammals, evolved drinking raw milk and we have come quite far! Additionally, the vast majority of our modern civilization still consumes raw milk at will with very few attributable illnesses. Thus, the answer is not to shut down and prohibit production of whole raw foods, but rather to educate both producers and consumers on the safe production and handling of raw food products.

I also believe far more people are sickened by processed foods, especially pasteurized and homogenized milk and foods containing preservatives and unnatural chemicals and dyes. The difference, however, is that we have not yet learned to identify these illnesses beyond general malaise or other conditions, probably because they are contributors to other major diseases like obesity, diabetes, heart disease, etc. and because the illnesses likely compound and come on slowly rather than acutely. I also believe it is simpler and better for the patient to identify an acute illness for quick treatment than spend years trying to diagnose a long-term group of symptoms, which may mimic other diseases. I am living proof of this as I have been seriously ill for about eight years now and after meeting with countless specialists within Alaska and in Washington state, I still do not have a diagnosis! My predicament is precisely why I felt it

important to return to basics and produce as much of my own food as possible, including raw milk.

You also mentioned your concern for preserving the viability of Alaska's agricultural industry. I am trained as an economist and I understand the importance of public perception, public health and safety, and the growth of a strong support sector that is not highly dependent on natural resources or government, as Alaska's economy has historically been. While I understand your concerns for the dairy industry's sensitive position with only 6 farms remaining, I believe this is an argument for the support of legalizing raw milk sales in Alaska, as it would enable them to continue their operations, possibly even expanding. Additionally, the passing of House Bill 367 would allow many more small farmers to offer their products and garner income from their operations rather than walk the unemployment line or face foreclosure on their farms and their homes in a difficult economy.

I encourage you to review the literature compiled by the Weston A. Price Foundation for their campaign for raw milk (available at http://realmilk.org) and find the facts and truth behind the real risk of illness from raw milk versus other legally producing industries. I hope that you will come to understand the importance of making this vital food available to our informed public and reverse your decision against the legal sale of raw milk.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Date: Mon, 18 Feb 2008 08:42:38 -0900
From: bob.gerlach@alaska.gov
Subject: RE: Alaska HB367 raw milk sales
To: hoofingitnorth@hotmail.com
CC: joseph.mclaughlin@alaska.gov; larry.hartig@alaska.gov; dan.easton@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; jay.fuller@alaska.gov; cherie.rice@alaska.gov; franci.havemeister@alaska.gov

Heather,
I find myself in a position that I cannot support the sale of raw milk in the state. The primary problem is that health risk associated with raw milk makes it difficult to endorse its sale or distribution to the public. As you know the very young and very old are the portion of the population that is most at risk for health problems that have been associated with the consumption of raw milk due to their immunocompromised state. There have been various food borne related outbreaks associated with the consumption of raw milk and raw milk products, over a dozen in 2007 alone. Most of the outbreaks occurred in states that allow the sale of raw milk and are traced back to farms that are on a state testing program.

One of the most recent food borne outbreaks associated with raw milk occurred in York, Pennsylvania at Stump Acres Farm. The Pennsylvania Public Health Officials stopped Stump Acres Dairy raw milk sales due to an outbreak of Salmonella in March of 2007. After the first outbreak the raw milk was put back on sale after the dairy farm passed the state's regulatory testing. Raw milk sales were again prohibited several weeks later after a second outbreak of Salmonella was identified. The dairy was allowed to re-open its raw milk market until a third outbreak of

Salmonella occurred in July. Even with testing and the utmost care by the producer in the production of the raw milk product could not be kept safe for public consumption.

There is also concern for the negative economic impact on the agricultural industry that such an outbreak has on the public. After a food borne outbreak occurs the public looses trust in agricultural products, especially dairy products, this results in economic losses not just to the farm at the source of the investigation but agriculture in general. The dairy industry in Alaska is at a critical and vulnerable period, there are only 6 dairy farms left in the entire state and South-central Dairy Venture in the process of trying to support the 4 dairies in the Matanuska Valley. We are trying to support the dairy industry in a number of ways, including the promotion of herd health initiatives and disease surveillance programs such as the Johne's Disease Program.

Although I cannot support the sale and distribution of raw milk to the public the staff our office would be willing to work with the Division of Agriculture to research other options for you to market the goat milk you produce on your farm.

Thank you for your email,
Bob Gerlach

Robert F Gerlach
Alaska State Veterinarian
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907-375-8200
bob.gerlach@alaska.gov

From: Heather Fair [mailto:hoofingitnorth@hotmail.com]
Sent: Thu 2/14/2008 8:39 PM
To: Gerlach, Robert F (DEC); DEC-Commissioner (DEC sponsored); DEC-Deputy. Commissioner (DEC sponsored); Ryan, Kristin J (DEC)
Subject: re: Alaska HB367 raw milk sales

Dr. Gerlach et al,

As an informed consumer and dairy goat owner from the Matanuska Susitna Valley, I have spent some time studying the issue of safely consuming raw milk. I wish to inform you of my support for allowing the legal sale of raw milk in Alaska via HB367, currently before the 2008 Alaska Legislature for consideration. I am asking that the law allow for legal sales of raw milk AT LEAST through direct-to-consumer transactions, for all facilities, regardless of grade or USDA status. I do NOT support a limitation of Grade A status, which would not be achievable or sustainable for most, even for some of those with existing dairies. Thus the stringent Grade A regulations would defeat the original intent of the bill, which included providing continued employment for our existing dairy farmers and encouraging new entrepreneurs to build new businesses based on the legal sale of raw milk.

The aforementioned bill is obviously still in it's infancy and I am aware that there is some opposition to the sale of raw milk. Considering some of the concerns

already made apparent, I have a few proposals that may make the bill more palatable to those that currently oppose the issue. For instance, I would support a requirement for regular testing of butterfat, protein, and somatic cell content in exchange for the ability to sell an amount of milk exceeding a suggested lower limit. For instance, some states currently allow sale of ungraded, untested, unpasteurized milk at the farm of up to 100 gallons per month. To provide producers, consumers, and the State with some information on the quality and nutritional content of the milk, I would support a possible compromise of requiring mandatory monthly testing of butterfat, protein, and somatic cell content for sales of over, say, 100 gallons monthly. (For sales under 100 gallons monthly, perhaps these tests could be voluntary.) Such tests are readily available to dairy farmers through the existing Standard Dairy Herd Improvement (DHI) programs.

DHI testing is available through various labs throughout the United States and there are several certified testers already in Alaska. Additionally, I expect there will be a handful more testers certified in short order (myself included). Through this program, dairy farmers have a third party witness at least two consecutive milkings monthly for their entire lactating herd. The testers record the weight of the milk accumulated and also collect a sample of each animals' milk, which is then submitted to a certified lab for butterfat, protein, and somatic cell count testing. The results are recorded and become part of the individual animals' permanently records in cooperation with the American Goat Society, the American Dairy Goat Association, and the USDA and they are readily available for review. In fact, the program is already so accessible and affordable that I and a handful of my fellow dedicated goat breeders already participate. As such, my proposal would be an efficient solution to the concerns related to selling ungraded milk, while avoiding the necessity for the state to implement a new program to provide the testing locally. However, if the State did decide to provide this service through their existing testing labs, it may offer yet another opportunity for economic expansion.

If you would like further information on DHI testing, please feel free to contact me. I know Rick Williams of Sunset Acres Farm and SilverAurora have been working tirelessly on this bill of late and it is interesting to note that he and Suzanne Nevada also participate in DHI testing and have done so for a number of years now. I hope you will join me in the educational process of understanding the benefits of consuming raw milk and eventually support HB367 to become law as proposed.

Heather Fair
Fair Skies Nigerian Dwarf dairy goats
All I Saw Farm
Wasilla, Alaska
http://FairSkiesAlaska.com
http://AllISawFarm.com

Debra Higgins

From: theider [tianih@mtaonline.net]

Sent: Wednesday, February 27, 2008 8:55 AM

To: cherie.rice@alaska.gov; dan.easton@alaska.gov; franci.havemeister@alaska.gov; jay.fuller@alaska.gov; joseph.mclaughlin@alaska.gov; kristin.ryan@alaska.gov; larry.hartig@alaska.gov; lt.governor@alaska.gov; rainy4279@aol.com; safallon@aol.com; goatmilk@gci.net; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Carl Gatto; Rep. Craig Johnson; Rep. Mark Neuman; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; 'representative_peggy_wilson@legis.state.ak.us; Sen. Charlie Huggins; Sen. Lyda Green; rqw@mtaonline.net'

Subject: HB 367

Follow Up Flag: Follow up

Flag Status: Red

I wish to voice my support in favor of raw milk, and raw milk products sales.

There are a number of reasons for my wholehearted support-

Alaskans are already able to either grow, catch, or harvest quite a number of raw products (shellfish, fishes, berries, wild game, vegetables they grow, and other edibles from the wildlands) locally. From subsistence hunter/gatherers, to suburban residents who scour the forest for mushrooms, fiddle head ferns and edible greens to enhance a healthy diet, we are well versed in proper and safe food handling and preparation. Why would raw milk be any different?

In the stores are 100s of raw products from unknown locations that are subjected to tremendous shipping lengths-such as eggs, milk products, fruits, vegetables, fish, and of course grocery shelves brimming with "short shelf life" meats of all kinds. Also deli meats and foods prepared thousands of miles away and offered to Alaskans every day. On many of these products, there is no signage informing the consumer where the product came from, let alone when it was harvested or prepared. Just an "expiration date" on refrigerated items.

With fresh, local raw milk and milk products, I will *know* where the milk comes from. I will be able to see for myself the farming practises, examine the premises and make an informed decision about whether to purchase it for my family. I *cannot* do this with imported milk! Instead, I am forced to buy milk that often "goes off" in the gallon jug within days of opening. If the farm does not meet my personal criteria for safe handling, then I can chose another producer. I cannot do this as it is today. A "short shelf life" is of no concern to me, as raw milk will undoubtedly be *fresher and healthier* than what is shipped in currently. I have always supported Alaskan products in my purchases, why should fresh *local* dairy products be out of my reach?

As a mother and consumer, I cannot even identify produce in grocery stores that comes from countries whose production methods are questionable. When there is a recall of some type, we are at the "end of the food chain" and thus, most of the item has already been purchased and in many cases consumed. With local raw milk and raw milk products, we would indeed have dairy items "fresher by far" and people who have health concerns would have a *choice. I want this choice for myself and my family.*

SInce I do not farm, or have dairy animals of any type, I am unable to provide this healthy alternative (raw milk) to my family. The decision to restrict sales seems to be based upon inaccurate and unproven reports of disease and/or illness in the Lower 48. Most were "attributed" to very large scale operations, which is not the situation we have here in Alaska. Here we have a handful of struggling dairies and small livestock owners, and I say we should let the Alaska consumer prove their viability, instead of choking off an entire market sector with unecessary and outdated regulations.

As a person who has lived in several remote spots in Alaska in the 60s and 70s, I can firmly state that canned, powdered, and air shipped milk are inferior in quality to raw milk. I do recall times when "the barge" was either lost, or delayed....meaning no milk (or produce) available at all, sometimes for weeks. I have heard that there are dairy animals in the Bush....why restrict raw milk, which is healthier, and *fresh*, from those communities? Is that a wise "use" of community resources?

In my mind, the issue of raw milk sales in Alaska is about choice. I want the *freedom to chose* for myself and my family! Having the choice to purchase direct from the farmer or producer supports not only Alaska agriculture, but the health of our residents.

In a time when diversifying our tiny agricultural base is crucial to our future, it would seem obvious that Alaska should join the other 28 states who allow raw milk sales.

I urge you to support sales of raw milk and raw milk products with HB 367

Respectfully

Tiani Heider
4457 S. Philie Drive
Wasilla, Alaska 99654
(907) 357-0542

Debra Higgins

From: Gerlach, Robert F (DEC) [bob.gerlach@alaska.gov]

Sent: Wednesday, February 27, 2008 12:19 PM

To: theider; McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson; Butler, Jay (HSS-CDC); Castrodale, Louisa

Cc: Silveraurora; DEC Legislative Contacts

Subject: RE: 367

Follow Up Flag: Follow up

Flag Status: Red

Ms. Heider,
I appreciate your email and feel that it is your right and responsibility to question the regulations and ask for a justification of why they are in place. At this time the regulations regarding the sale an processing of dairy products prohibit the sale and distribution of raw milk in Alaska. This is consistent with the regulations of 21 other states. I thought you should know the topic of raw milk is very popular and being discussed in several states. Many authorities have been consulted and in order to protect the public health the following agencies and groups to oppose the sale and distribution of raw milk to the public due the health hazards associated with the product.

Alaska Department of Health and Social Services
American Medical Association
American Veterinary Medical Association
American Academy of Pediatricians
American Public Health Association
Centers for Disease Control
Federal Food and Drug Administration
International Association for Food Protection
National Farm Bureau
National Association of States Departments of Agriculture
National Environmental Health Association
National Association of Food and Drug Officials

It is not my intention to prohibit or deny your choice to drink raw milk but it is the of this position of this office and the Department of Health and Social Services to protect public health. That is why neither this office nor the Department of Health and Social Services can support the sale and distribution of raw milk to the public.

I have had similar questions regarding the ones that you have raised about the other raw foods and the risk of food borne diseases. The degree of risk varies depending on the origin of the food product, how it is raised, how it is handled and marketed and how it is handled (stored and cooked) by the consumer. There is no doubt the risk associated with raw foods is much greater. Chicken, beef, eggs and some seafood although sold raw are handled in such a manner to reduce the contamination with disease causing pathogens and these are intended to be cooked to eliminate any pathogens that may be inherently present in the product. The public health Officials in Alaska as well as the federal agencies regulating foods try to minimize the disease risk to the public by requiring certain procedures to be followed at critical handling or processing steps each specific to the type of food. For milk, pasteurization has been the process used to reduce the risk of food borne diseases. The goal is to minimize the risk as much as possible. It is impossible to eliminate the risk completely, only to reduce it in an attempt to stop the negative effects of a food borne disease outbreak.

Unfortunately, the current scientific research shows the risks associated with raw food products is increasing. One area of increased risk is the greater incidence of multidrug resistant bacteria being found on farms and on agricultural products. These pathogens are resistant to the standard treatment offered by the medical profession, require extraordinary

measures to manage and put patients at greater risk for a poor prognosis and outcome. The historic evidence illustrates that about 90 % of the food borne outbreaks associated with raw milk have occurred in states that regulate the sale of the product. Several states that allow the sale of raw milk have just revised their regulations in an attempt to deal with this problem. California, for example, in response to an disease outbreak (September 2006) in January 2007 tightened the regulations regarding the sale of raw milk. It is not possible to eliminate the risk associated with raw milk but it may be reduced by pasteurization. If you are interested in finding more information concerning the outbreak in California or other states, I would encourage you to contact the state health departments involved in the investigation since I have found this information to be most accurate.

In evaluating the risk of food borne disease related to dairy products, I focus on the dairy products and only compare the risks associated with raw milk in comparison to pasteurized milk products. Using this comparison the risks associated with raw milk products are significantly greater. It is important to remember that pasteurized milk is not sterilized and as I mentioned there is risk associated with all food products. In this case the logic is sound, compare the risks associated with similar food groups, use regulations to minimize the risk of disease as best as we are able to protect public health.

Thank you for your email,
Bob Gerlach

Robert F Gerlach VMD
Alaska State Veterinarian
5251 Hinkle Road
Anchorage, AK 99507
(907) 375-8214 FAX: (907) 929-7335
Bob.gerlach@alaska.gov
Do you have livestock?
You need a premises identification number.
Please call (907) 375 8200 to register

From: theider [mailto:tianih@mtaonline.net]
Sent: Wednesday, February 27, 2008 7:34 AM
To: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Huggins, Charlie (LAA); Green, Lyda N (LAA); artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; Roses, Bob (LAA); Edgmon, Bryce E (LAA); Guttenberg, David (LAA); Kelly, Mike (LAA); Seaton, Paul (LAA); Wilson, Peggy A (LAA); Gerlach, Robert F (DEC)
Cc: Silveraurora
Subject: HB: 367
Importance: High

I wish to voice my support in favor of raw milk, and raw milk products sales.

There are a number of reasons for my wholehearted support-

Alaskans are already able to either grow, catch, or harvest quite a number of raw products (shellfish, fishes, berries, wild game, vegetables they grow, and other edibles from the wildlands) locally. From subsistence hunter/gatherers, to suburban residents who scour the forest for mushrooms, fiddle head ferns and edible greens to enhance a healthy diet, we are well versed in proper and safe food handling and preparation. Why would raw milk be any different?

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kinds. Also deli meats and foods prepared thousands of miles away and offered to Alaskans every day. On many of these products, there is no signage informing the consumer where the product came from, let alone when it was harvested or prepared. Just an "expiration date" on refrigerated items.

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Respectfully

Tiani Heider
4457 S. Philie Drive
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(907) 357-0542

Debra Higgins

From: Silveraurora [silvera@mtaonline.net]
Sent: Wednesday, February 27, 2008 3:26 PM
To: 'Gerlach, Robert F (DEC)'; 'theider'; 'McLaughlin, Joseph B (HSS)'; 'Hartig, Lawrence L (DEC)'; 'Easton, Dan (DEC)'; 'Ryan, Kristin J (DEC)'; 'Fuller, Jay D (DEC)'; 'Rice, Cherie L (DEC)'; 'Havemeister, Franci A (DNR)'; 'Lieutenant Governor Sean Parnell (GOV sponsored)'; rainy4279@aol.com; Rep. Carl Gatto; Rep. Mark Neuman; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Sen. Charlie Huggins; Sen. Lyda Green; artemisdreaming@hotmail.com; Rep. Anna Fairclough; Rep. Craig Johnson; Rep. Scott Kawasaki; Rep. Bob Roses; Rep. Bryce Edgmon; Rep. David Guttenberg; Rep. Mike Kelly; Rep. Paul Seaton; Rep. Peggy Wilson; 'Butler, Jay (HSS-CDC)'; 'Castrodale, Louisa'; 'Silveraurora'; tfarm@mabeltel.coop; Franci.Haverneister@alaska.gov; sarah.palin@alaska.gov; agusty@ktva.com; Rex Shattuck; 'Heather Christensen'; 'Heather Fair'; ralph@akchip.com
Cc: 'DEC Legislative Contacts'
Subject: RE: 367
Follow Up Flag: Follow up
Flag Status: Red

Dr. Gerlach, I appreciate your comments below and taking the time to address this issue. Where in this House Bill does it say that raw milk sold to the consumer will only be consumed raw? It does NOT. While many consumers prefer to drink raw milk much as they prefer to eat raw fish in Sushi Bars and Steak Tartar (ground raw beef) in some of the finest restaurants in Alaska, this law does not prohibit the consumer from pasteurizing the milk they take home from a farm **if they so choose**. To jump to the conclusion that all Alaskans will drink only fresh raw milk purchased in it's raw state is preposterous. To require all Alaskans to cook their milk before consumption **is equally preposterous**. The enzymes and natural cultures present in raw milk makes some of the finest fresh artisan cheeses in this world today. If I want to buy raw milk and make fresh cheese for myself and my family, I am intelligent enough to follow directions and do so. The present law PROHIBITS MY ABILITY TO DO SO legally.

We in Alaska do not need a law that requires us to cook all raw fruits, raw vegetables, raw meats, raw fish, nor raw eggs, nor do we need a law requiring us to cook (or purchase only cooked) milk. The right to purchase fresh raw products from local producers including raw milk is in place, by law, in the majority of states in the United States, **preserving the rights of citizens, RELIGIOUS CULTURES, ETHNIC CULTURES, and the citizen's right to freedom of choice.**

From Christianity Today magazine, February 27, 2008:
"3. You gotta fight for your right to raw milk
Milk that comes straight from the cow tastes a lot different than the kind you buy in the store. Partly, that's because pasteurization kills off the bacteria and destroys the milk's vitamins. In response a lot of farmers, including many Christians, drink their milk raw. Unfortunately for them, it's illegal to sell raw milk. But you can drink your milk from your own cow. Some farmers sell shares of their cows and give the "owners" their raw milk.
You can be sure that plenty of farmers are watching the case of Arlie Stutzman, who was busted for selling an undercover agent raw milk. "While I can and I have food, I'll share it," said Stutzman, who is Amish. "Do unto others what you would have others do unto you."
"We know people are deprived of this real food," he told The Washington Post."

I don't believe that I need to go into great detail here on behalf of the many ethnic and religious cultures present in Alaska today, including Amish as an example above, and each group's specific milk procurement and handling dictations, but will be happy to if needed. We are reminded to respect those ethnic cultures and

religions in Alaska that require raw milk as part of their practices. The population of Alaska is not solely made of up of Ethno-Europeans – all Alaskans should be treated fairly and equitably and have the right to purchase raw milk directly from the producer.

Those of us who are asking our state Representatives and Senators to allow Alaskans to join the ***majority*** of the states allowing the sale of raw milk directly from the farmer to the consumer are only requesting the right to procure the freshest, most wholesome product for our selves and our families. What an individual does at home with anything legally purchased should be left up to that individual, not a department of the Government of Alaska that is in place to serve Alaskans. In this society of up to the minute internet conversations and education there is no need for the state to prohibit the sale of raw milk directly from the farmer to the consumer **any longer**. There is no need any longer for the government to hold my and other's hands and tell me that I and others are a bad person for purchasing **any** fresh item from the local producer of my choice – purchase raw milk for personal use, whatever that use may be in the privacy of our homes, to include but not limited to drinking it cooked, raw, or white-washing a barn with it. Since one of the DEC's inspectors ***this week*** has told a local Grade A milk producer to cease and desist from selling raw milk via cow shares, ALL raw milk sales in Alaska are now said to be illegal and I just will not just sit and allow an outdated law to take away my right to choose without standing up for my rights and those of my fellow Alaskans. There is no reason for Alaskans to purchase and have flown in fresh raw milk from another state. I am asking our State Representatives and Senators to continue to support the rights of it's citizens to have the freedom to choose, to include the purchase of fresh raw milk from the producer of each individual's choice. There is no longer a need for the state to require the delivery of all raw milk produced in this state to a state-owned creamery; nor is there a need any longer for the state to protect it's financial investments in the repeatedly-failed state-sponsored dairies of the 80's and 90's. That dismal chapter in our state's history is closed! It is time to move on and allow the citizens of Alaska to buy fresh raw milk from the small or large producer themselves and to support Alaska's economy. It is time to allow the citizens of Alaska the **freedom of choice without fear of legal prosecution,** that legal right which the majority of other US citizens have already in place. Please let the citizens of Alaska have the legal right to purchase any farm product produced in this state, including farm fresh raw milk, as they so choose.

With respect,
Suzanne Nevada
District 15
Wasilla
907-373-2687

From: Gerlach, Robert F (DEC) [mailto:bob.gerlach@alaska.gov]
Sent: Wednesday, February 27, 2008 12:19 PM
To: theider; McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Huggins, Charlie (LAA); Green, Lyda N (LAA); artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; Roses, Bob (LAA); Edgmon, Bryce E (LAA); Guttenberg, David (LAA); Kelly, Mike (LAA); Seaton, Paul (LAA); Wilson, Peggy A (LAA); Butler, Jay (HSS-CDC); Castrodale, Louisa
Cc: Silveraurora; DEC Legislative Contacts
Subject: RE: 367

Ms. Heider,
I appreciate your email and feel that it is your right and responsibility to question the regulations and ask for a justification of why they are in place. At this time the regulations regarding the sale an processing of dairy products prohibit the sale and distribution of raw milk in Alaska. This is consistent with the regulations of 21 other states. I thought you should know the topic of raw milk is very popular and being discussed in several states. Many authorities have been consulted and in order to protect the public health the following agencies and groups to oppose the sale and distribution of raw milk to the public due the health hazards associated with the product.

Alaska Department of Health and Social Services
American Medical Association
American Veterinary Medical Association
American Academy of Pediatricians
American Public Health Association
Centers for Disease Control
Federal Food and Drug Administration
International Association for Food Protection

National Farm Bureau
National Association of States Departments of Agriculture
National Environmental Health Association
National Association of Food and Drug Officials

It is not my intention to prohibit or deny your choice to drink raw milk but it is the of this position of this office and the Department of Health and Social Services to protect public health. That is why neither this office nor the Department of Health and Social Services can support the sale and distribution of raw milk to the public.

I have had similar questions regarding the ones that you have raised about the other raw foods and the risk of food borne diseases. The degree of risk varies depending on the origin of the food product, how it is raised, how it is handled and marketed and how it is handled (stored and cooked) by the consumer. There is no doubt the risk associated with raw foods is much greater. Chicken, beef, eggs and some seafood although sold raw are handled in such a manner to reduce the contamination with disease causing pathogens and these are intended to be cooked to eliminate any pathogens that may be inherently present in the product. The public health Officials in Alaska as well as the federal agencies regulating foods try to minimize the disease risk to the public by requiring certain procedures to be followed at critical handling or processing steps each specific to the type of food. For milk, pasteurization has been the process used to reduce the risk of food borne diseases. The goal is to minimize the risk as much as possible. It is impossible to eliminate the risk completely, only to reduce it in an attempt to stop the negative effects of a food borne disease outbreak.

Unfortunately, the current scientific research shows the risks associated with raw food products is increasing. One area of increased risk is the greater incidence of multidrug resistant bacteria being found on farms and on agricultural products. These pathogens are resistant to the standard treatment offered by the medical profession, require extraordinary measures to manage and put patients at greater risk for a poor prognosis and outcome. The historic evidence illustrates that about 90 % of the food borne outbreaks associated with raw milk have occurred in states that regulate the sale of the product. Several states that allow the sale of raw milk have just revised their regulations in an attempt to deal with this problem. California, for example, in response to an disease outbreak (September 2006) in January 2007 tightened the regulations regarding the sale of raw milk. It is not possible to eliminate the risk associated with raw milk but it may be reduced by pasteurization. If you are interested in finding more information concerning the outbreak in California or other states, I would encourage you to contact the state health departments involved in the investigation since I have found this information to be most accurate.

In evaluating the risk of food borne disease related to dairy products, I focus on the dairy products and only compare the risks associated with raw milk in comparison to pasteurized milk products. Using this comparison the risks associated with raw milk products are significantly greater. It is important to remember that pasteurized milk is not sterilized and as I mentioned there is risk associated with all food products. In this case the logic is sound, compare the risks associated with similar food groups, use regulations to minimize the risk of disease as best as we are able to protect public health.

Thank you for your email,
Bob Gerlach

Robert F Gerlach VMD
Alaska State Veterinarian
[illegible]251 Hinkle Road
[illegible]nchorage, AK 99507
(907) 375-8214 FAX: (907) 929-7335
Bob.gerlach@alaska.gov
Do you have livestock?

3/3/2008

You need a premises identification number.
Please call (907) 375 8200 to register

From: theider [mailto:tianih@mtaonline.net]
Sent: Wednesday, February 27, 2008 7:34 AM
To: McLaughlin, Joseph B (HSS); Hartig, Lawrence L (DEC); Easton, Dan (DEC); Ryan, Kristin J (DEC); Fuller, Jay D (DEC); Rice, Cherie L (DEC); Havemeister, Franci A (DNR); Lieutenant Governor Sean Parnell (GOV sponsored); rainy4279@aol.com; rep_carl_gatto@legis.state.ak.us; rep_mark_neuman@legis.state.ak.us; goatmilk@gci.net; rqw@mtaonline.net; safallon@aol.com; Huggins, Charlie (LAA); Green, Lyda N (LAA); artemisdreaming@hotmail.com; rep_anna_fairclough@legis.state.ak.us; rep_craig_johnson@legis.state.ak.us; rep_scott_kawasaki@legis.state.ak.us; Roses, Bob (LAA); Edgmon, Bryce E (LAA); Guttenberg, David (LAA); Kelly, Mike (LAA); Seaton, Paul (LAA); Wilson, Peggy A (LAA); Gerlach, Robert F (DEC)
Cc: Silveraurora
Subject: HB: 367
Importance: High

I wish to voice my support in favor of raw milk, and raw milk products sales.

There are a number of reasons for my wholehearted support-

Alaskans are already able to either grow, catch, or harvest quite a number of raw products (shellfish, fishes, berries, wild game, vegetables they grow, and other edibles from the wildlands) locally. From subsistence hunter/gatherers, to suburban residents who scour the forest for mushrooms, fiddle head ferns and edible greens to enhance a healthy diet, we are well versed in proper and safe food handling and preparation. Why would raw milk be any different?

In the stores are 100s of raw products from unknown locations that are subjected to tremendous shipping lengths-such as eggs, milk products, fruits, vegetables, fish, and of course grocery shelves brimming with "short shelf life" meats of all kinds. Also deli meats and foods prepared thousands of miles away and offered to Alaskans every day. On many of these products, there is no signage informing the consumer where the product came from, let alone when it was harvested or prepared. Just an "expiration date" on refrigerated items.

With fresh, local raw milk and milk products, I will *know* where the milk comes from. I will be able to see for myself the farming practises, examine the premises and make an informed decision about whether to purchase it for my family. I *cannot* do this with imported milk! Instead, I am forced to buy milk that often "goes off" in the gallon jug within days of opening. If the farm does not meet my personal criteria for safe handling, then I can chose another producer. I cannot do this as it is today. A "short shelf life" is of no concern to me, as raw milk will undoubtedly be *fresher and healthier* than what is shipped in currently. I have always supported Alaskan products in my purchases, why should fresh *local* dairy products be out of my reach?

As a mother and consumer, I cannot even identify produce in grocery stores that comes from countries whose production methods are questionable. When there is a recall of some type, we are at the "end of the food chain" and thus, most of the item has already been purchased and in many cases consumed. With local raw milk and raw milk products, we would indeed have dairy items "fresher by far" and people who have health concerns would have a *choice. I want this choice for myself and my family.*

SInce I do not farm, or have dairy animals of any type, I am unable to provide this healthy alternative (raw milk) to my family. The decision to restrict sales seems to be based upon inaccurate and unproven reports of disease and/or illness in the Lower 48. Most were "attributed" to very large scale operations, which is not the situation we have here in Alaska. Here we have a handful of struggling dairies and small livestock owners, and I say we should let the Alaska consumer prove their viability, instead of choking off an entire market sector with unecessary and outdated regulations.

As a person who has lived in several remote spots in Alaska in the 60s and 70s, I can firmly state that canned, powdered, and air shipped milk are inferior in quality to raw milk. I do recall times when "the barge" was either lost, or delayed....meaning no milk (or produce) available at all, sometimes for weeks. I have heard that there are dairy animals in the Bush....why restrict raw milk, which is healthier, and *fresh*, from those communities? Is that a wise "use" of community

res rces?

In my mind, the issue of raw milk sales in Alaska is about choice. I want the *freedom to chose* for myself and my family! Having the choice to purchase direct from the farmer or producer supports not only Alaska agriculture, but the health of our residents.

In a time when diversifying our tiny agricultural base is crucial to our future, it would seem obvious that Alaska should join the other 28 states who allow raw milk sales.

I urge you to support sales of raw milk and raw milk products with HB 367

Respectfully

Tiani Heider
4457 S. Philie Drive
Wasilla, Alaska 99654
(907) 357-0542

Date: February 13, 2008

To: Senator Lyda Green
Senator Charlie Huggins
Representative Mark Neuman
Representative Bill Stoltze
Representative Carl Gatto
Representative Wes Keller
Representative Craig Johnson
Representative Anna Fairclough
Representative David Guttenberg
Representative Bob Roses
Representative Scott Kawasaki
Representative Paul Seaton
Representative Peggy Wilson
Representative Bryce Edgmon

State Capitol
Juneau, Alaska 99801-1182

From: Rick Williams
Wasilla, Alaska

Subject: An act relating to the Sale Of Raw Milk and Raw Milk Products
Sponsored by Representative Mark Neuman

As you may be aware, the dairy farmers in Alaska no longer have a market for their milk. All of our milk now comes from Washington, Oregon or California in refrigerated trailers on a barge, shortly before the end of its shelf life.

Raw milk is available to consumers though cow-share and herd-share programs in Alaska, but these are cumbersome to administer and of limited value to our farmers. The proposed bill would expand the market for Alaska dairy farmers, help them stay in business, strengthen the rural economy and provide a safe and nutritious product for Alaska citizens.

According to the FDA and other government officials, raw milk is a public health hazard that puts consumers at risk. You have received documents citing dire health risks from the consumption of raw milk and the FDA has a long PowerPoint presentation on its website which argues that raw milk should not be consumed. The enclosed document is a point by point rebuttal of the FDA PowerPoint. To summarize:

1. The FDA presents 15 studies purporting to show that raw milk has caused illness and that pasteurization could have protected the public from the illness. Careful analysis reveals that every one of these reports is seriously flawed. In 14 of the studies, there was either no valid positive milk sample or no valid statistical association; in 7 of the studies the findings were misrepresented by the FDA; in 5 of the studies alternative explanations were discovered but not pursued; in 2 of the studies, there was no evidence that anyone consumed raw milk products; and in one study the outbreak did not even exist.

2. All of the outbreaks of Listeria attributed to raw milk involved soft cheeses. It is actually impossible to determine whether a cheese is raw using current tests so these cheeses were not necessarily raw as FDA claims. Cases of Listeria in raw milk are virtually nil.

3. Not one of the studies presented showed that pasteurization would have prevented the outbreak. The FDA does not present evidence showing that dangerous organisms can survive pasteurization nor that there have been many outbreaks of illness from pasteurized milk.

4. The vast majority of reports on illness caused by raw milk are seriously flawed. But even using these flawed FDA counts of illness, raw milk accounts for only 0.4% of cases of food borne illness between 1998 and 2005. This is an extremely low number considering that about 5% of all milk drinkers drink raw milk.

5. Adjusting for bias, pasteurized milk is from 1.1 to 15.3 times more dangerous as raw milk on a per serving basis

6. According to FDA documents (based on exaggerated data on illness from raw milk), deli meats and uncooked hotdogs are 10 times more likely to cause food borne illness than raw milk. Yet deli meats and hotdogs are freely sold in the state of Alaska.

7. FDA insists that there are no health benefits from raw milk compared to pasteurized, yet the very studies they cite clearly show that raw milk is superior. Enzymatic components in raw milk ensure assimilation of nutrients, kill pathogens and strengthen the immune system. These components are largely inactivated by pasteurization.

8. Pasteurized milk is now one of the eight top allergens; a survey carried out in Michigan indicates that 90% of individuals diagnosed as lactose-intolerant or allergic to milk can drink raw milk without problem.

9. The recent PARSIFAL study in Europe found that the most important factor in protecting children against asthma and allergies was raw milk consumption; the younger the children were when introduced to raw milk, the more protection it conferred. Asthma kills more than 5,000 people in the US yearly; raw milk has killed no one.

10. According to FDA data, out of a total of 437 million servings of raw milk in the US per year, 137 people got some sort of illness. On a per serving basis, that is 3.18 x 10-7. Put another way, you would have to drink 3.18 million glasses of raw milk before you might expect to get an illness of any kind due to that milk. By contrast, 16.5 percent of all broiler chickens tested by the FDA in 2006 contained salmonella bacteria. The rate of human salmonellosis in the US was 14.7 cases per 100,000 people in 2004. This is 4200 cases per year. Yet the citizens of Alaska are free to purchase poultry, but not raw milk.

For the sake of the farmers and citizens of Alaska, I urge you to support House Bill 367.

For further information please contact:

Rick Williams	232-8856
Larry Devilbess, former Director of Agriculture	746-6593
Sally Fallon, President, The Weston A Price Foundation	202-363-4394

LOCAL CITIZENS IN SUPPORT OF THIS LEGISLATION

Ray Williams	373-2384
Sheila Thacker	929-9051
Jesse Thacker	929-9051
Jane Erickson	324-6373
Erick White	696-2332
Tonya White	696-2332
LaVonne Boyd	841-6951
Anne-Corinne Kell	745-7406
Judith Keech	746-0245
Beverly Short	345-2946
Joel Schmutz	345-2946
Kelly Dellar	357-8256
Stephanie Sanberg	451-4884
Ashley Mullen	226-1137
Ryan Zinn	222-6619
Bob & Chris Greig	745-5725
Ben Parker	373-2000
Mark & Renea Ogle	373-3770
Howard Nugent	355-4722
Shell & Cindy Ewing	373-2333
David Ratner	355-8327
Daniel & Stella Parks	746-1353
Pete & Beth Bassney	376-0474
Garreth Byers	841-1437
Steve Lovell	373-2613
Cliff Silvers	841-3986
James & Barb Mack	376-2238
Kris Reynolds	376-6707
Jim & Diane Erickson	745-4866
Robyn McBride	376-4951
Lynn Bywater	376-6628
Karlene Brouillett	357-4865
Dr. Stacy Lowe & Daryl	357-5496
Suzanne Nevada	373-2687
Laura & Daniel Manary	745-6010
Ann Schraeder	373-6050
Rayna Fritcher	373-8082
Digger Trytten	947-0727
Earl & Karen Lackey	355-1541
Heather Hair	232-5414
Dr.James Martin & Cindi	373-2022
Dan Collins	373-4006
Russell & Mimi Joyce	376-4895
Don Brainard	355-2568
Debbie Anderson	274-9162
John Levan	841-1954
Vernon Logan	892-7446
Larry & Lou Fetchenhier	376-4382
Tom Logan	892-7072
Robert Butcher	232-1883
Ray Devilbiss	745-4102
Flint Brewer	373-6016
Bennett Durgeloh	376-3958

RESPONSE TO THE FDA

A Point-by-Point Rebuttal to the Anti-Raw Milk Powerpoint Presentation By John F. Sheehan, BSc (Dy), JD, Division of Dairy and Egg Safety

Prepared by
The Weston A. Price Foundation
November, 2007

The Weston A. Price Foundation
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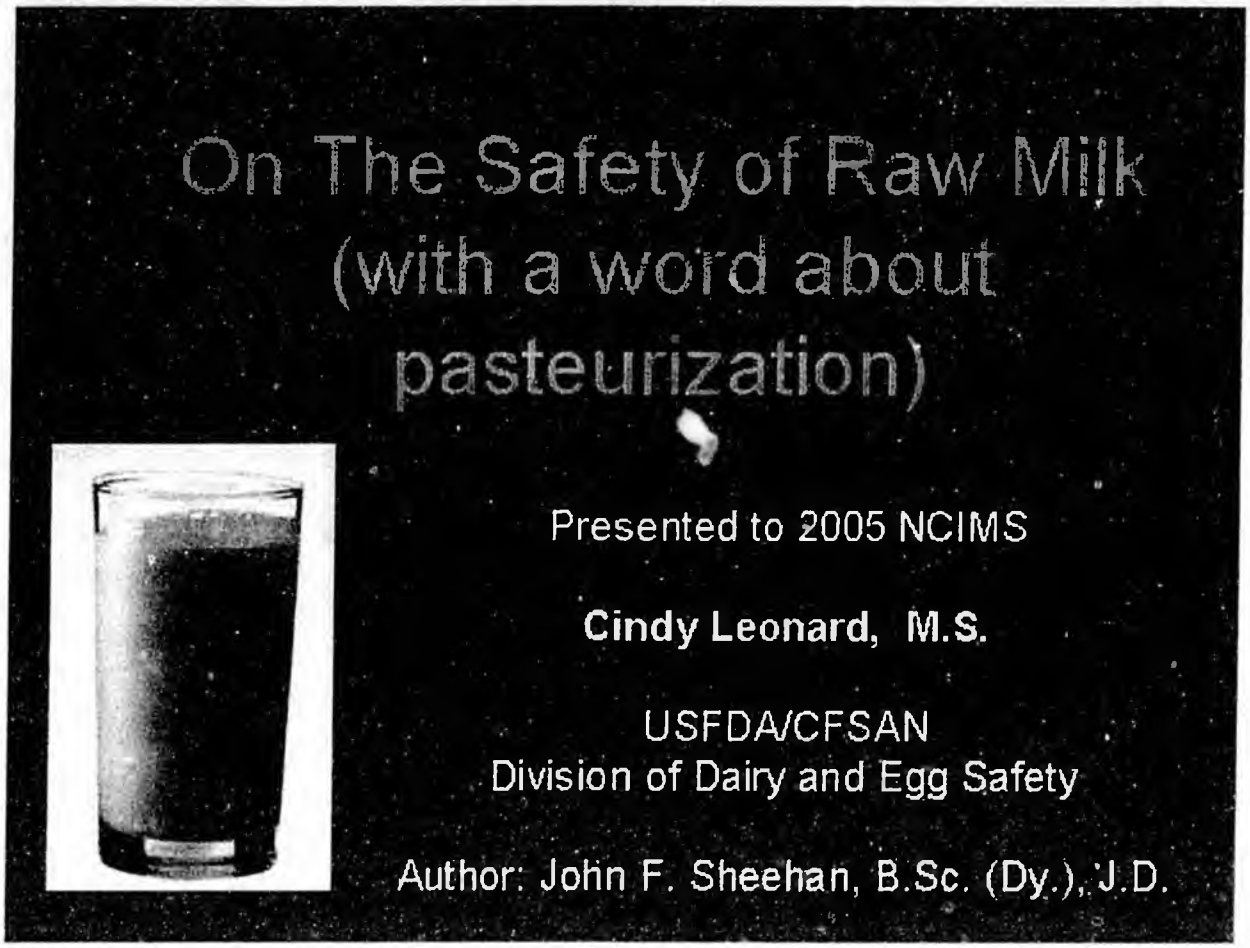
Washington, DC 20016
(202) 363-4394
westonaprice.org
realmilk.com

Slide 1
http://www.cfsan.fda.gov/~ear/milksafe/milksa1.htm

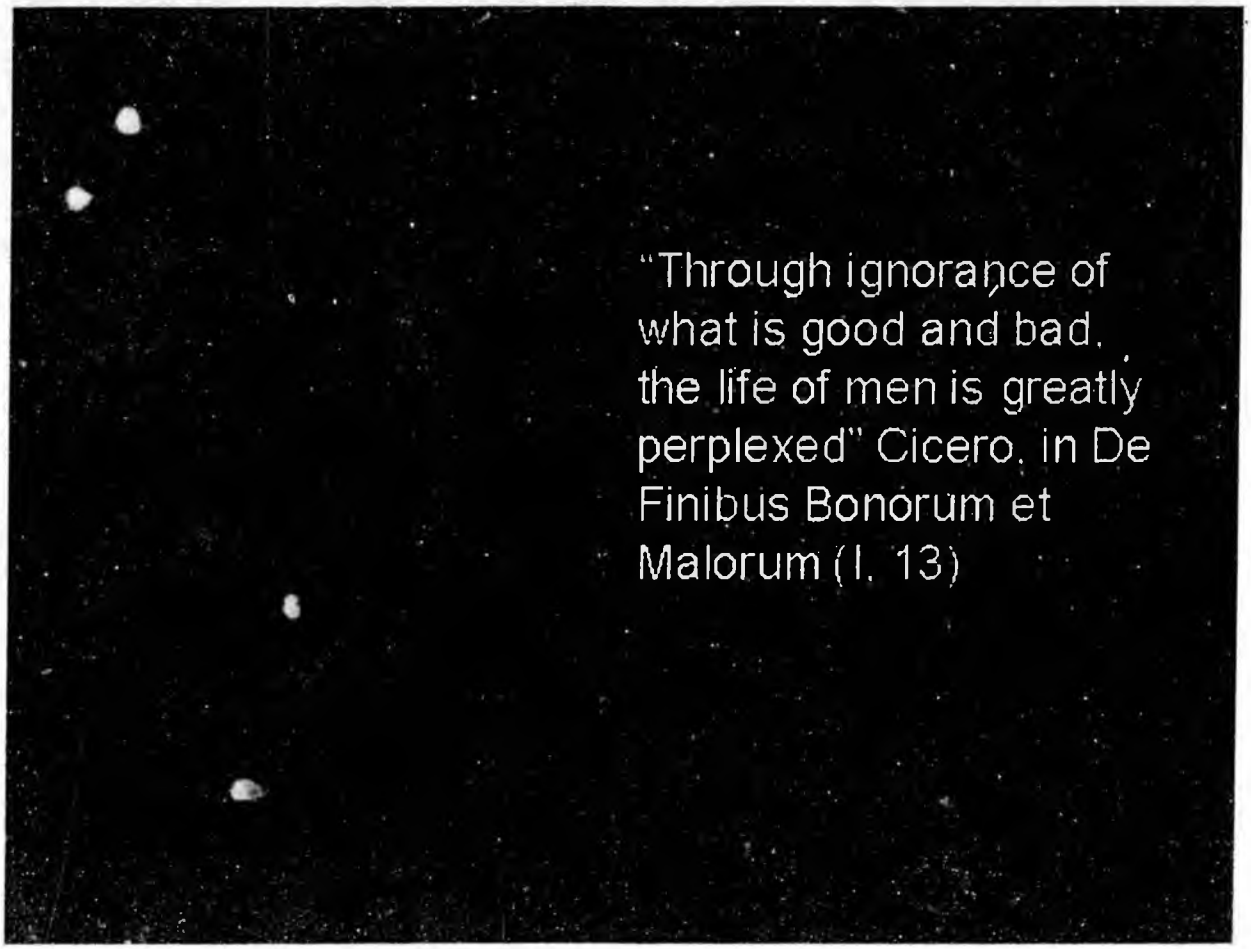


The FDA begins by making two important mistakes: addressing the safety of raw milk outside of the context of general food safety and addressing pasteurization as the only means of making milk safe.

That the consumption of raw milk carries some risk is undeniable. The question is whether raw milk carries a unique risk that distinguishes it from other foods ordinarily consumed – such as pasteurized milk, produce, hot dogs, or deli meats. The FDA does not make this comparison.

The second question that must be addressed is how milk can best be made safe. The FDA considers pasteurization the only option and ignores other measures such as improved sanitation and pasture-based farming.

Slide 2
http://www.cfsan.fda.gov/~ear/milksafe/milksa2.htm



The saying is true. Yet we may also be greatly perplexed through failure to recognize important nuances or to fully consider all possibilities. Seeing pasteurized milk as "good" and raw milk as "bad" ignores the drawbacks of pasteurization, fails to acknowledge the differences in the quality and safety of raw milks produced by different procedures and leaves the question of how to safely reap the benefits of raw milk unanswered.

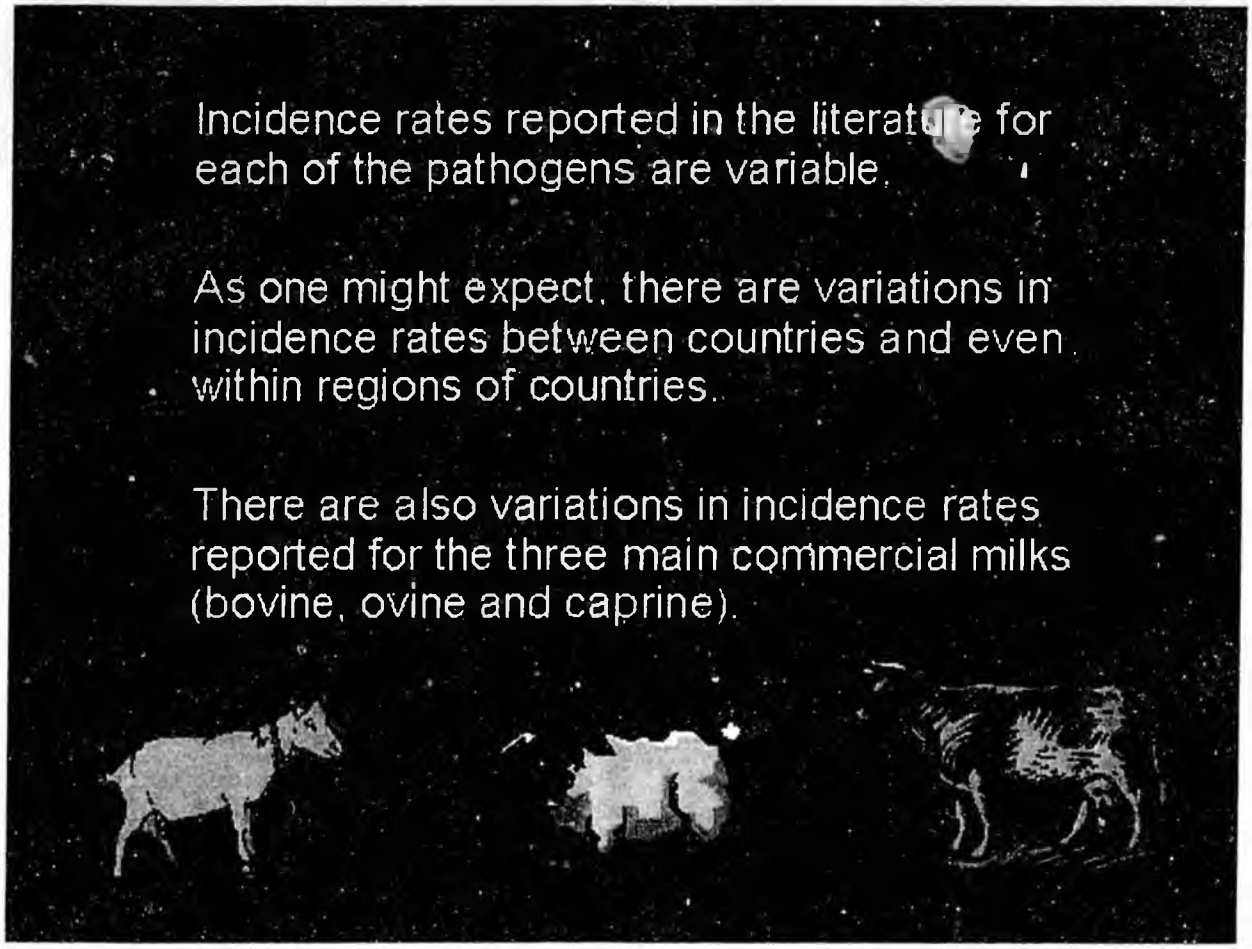
Slide 3
http://www.cfsan.fda.gov/~ear/milksafe/milksa3.htm

The consumption of all foods, including milk – whether pasteurized or unpasteurized – inherently carries some degree of risk. Some organisms or their associated toxins can survive the pasteurization process; these and others can also contaminate milk after it has been pasteurized. **Pasteurized milk may contain a whole host of pathogens and associated toxins, including:**

- *Staphylococcus aureus enterotoxin A*
- *Salmonella species*
- *Escherichia coli*
- *Listeria monocytogenes*
- *Mycobacterium paratuberculosis*
- *Bacillus species*
- *Clostridium species*
- *Yersinia entercolitica*

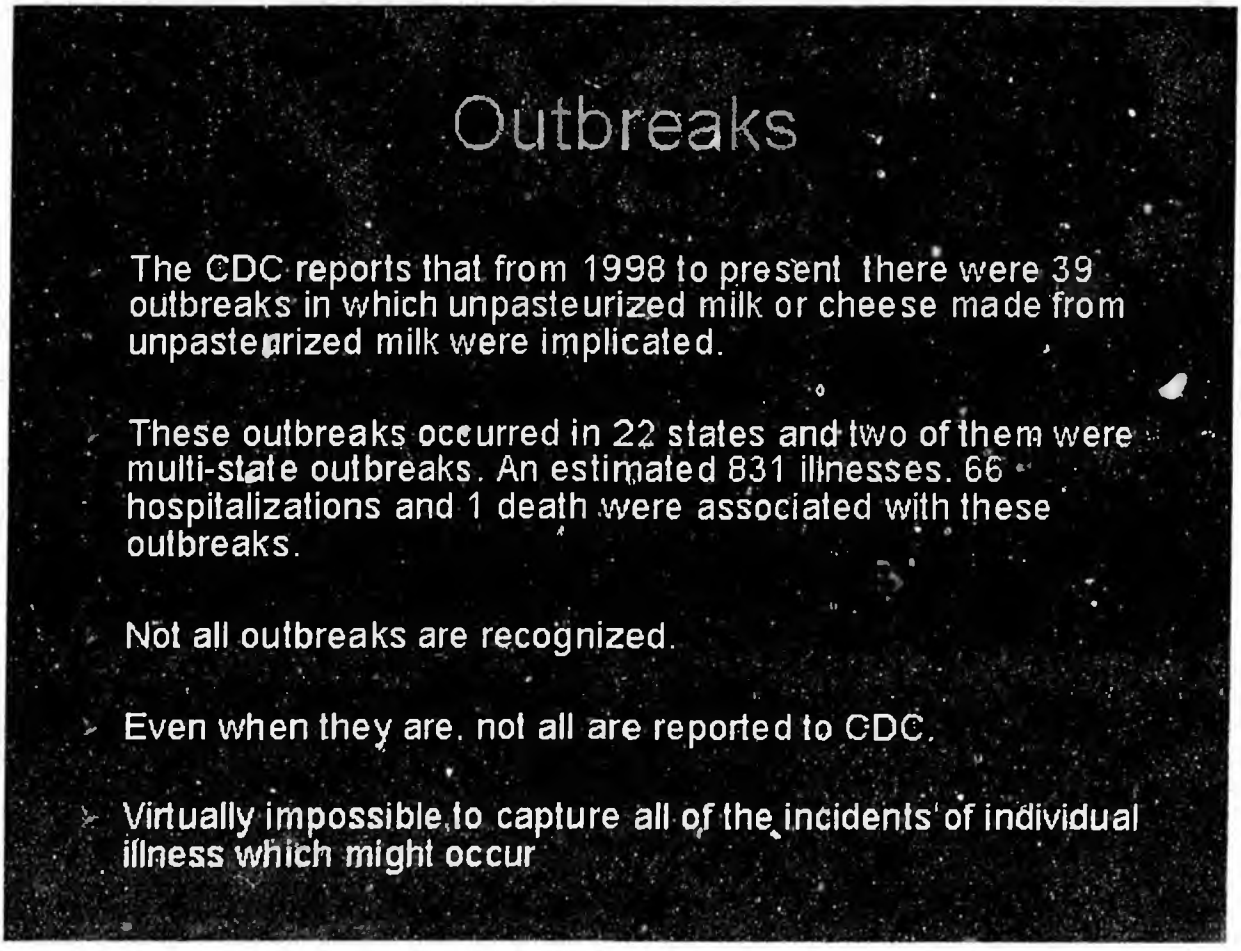
These and other pathogens may also occur in many other foods.

Slide 4
http://www.cfsan.fda.gov/~ear/milksafe/milksa4.htm



Incidence rates for outbreaks associated with pasteurized milk, eggs, beef, game, pork, poultry, fish, shellfish, grains, fats and oils, processed foods, vegetables, fruits, and nuts also exist and exhibit similar variation.

Slide 5
http://www.cfsan.fda.gov/~ear/milksafe/milksa5.htm



These figures mean that raw milk products are implicated in 92 illnesses per year, seven hospitalizations per year, and one death every nine years.

Between 1998 and 2005, there were over 10,000 documented outbreaks that contributed to 199,263 documented cases of foodborne illness. Raw milk was associated with 0.4% of these cases.

While some illnesses due to raw milk may go unreported, the same is true for pasteurized milk and all other foods.

Cases of foodborne illness are investigated with a systematic bias against raw milk. Many outbreaks in which raw milk has been "implicated" are almost certainly attributable to another cause.

Slide 5 Response Continued

Sources of Bias

As we review the cases of foodborne illness attributed to raw milk, we must take note of the following sources of bias:

- Some questionnaires used in investigations of foodborne illness ask about many foods and some ask about only a few – but *all* ask about raw milk.

- Often, equally likely or more likely sources of infection – such as hot dogs in the case of *Listeria* – are ignored when investigators discover that some of the patients had consumed raw milk products.

- In many instances, case-control studies are used to show that those who became ill were statistically more likely to use raw milk than those who did not become ill. While this is valid grounds for *hypothesizing* that raw milk is to blame, it is not valid grounds for confirming it. Nevertheless, investigators often claim that raw milk caused an outbreak on this basis alone, even when all milk samples tested negative for the organism.

Slide 5 Response Continued

More Sources of Bias

- Since the availability of raw milk is limited, its consumption can often be a marker for visits to specific farms, purchases from specific street vendors, or associations with specific groups of people. Because organisms that cause foodborne illness can also be spread through contact with animals, animal manure, infected people, and other foods prepared by infected people, statistical associations with raw milk may arise in cases where the actual cause of the outbreak is contact with animals or their manure, person-to-person contact, or the consumption of other foods sold by raw milk product street vendors.

- Although people can acquire an infection from consuming milk and cheese, infected people can also spread an infectious organism to uncontaminated milk, cheese, and other foods by drinking milk out of the container and biting into or handling other foods. Demonstrating that leftover cheese or milk is contaminated, then, means very little if it is not also demonstrated that products from the original source are contaminated with the same strain.

- Milk products can become contaminated at many different points over the course of their production, both before and after pasteurization. Cheese products can become contaminated during the cheese-making process, especially if the facility and implements are not properly sanitized and separated from other sources of contamination, such as raw meats.

- For this reason, even in cases where an outbreak is genuinely traced to a raw milk product, the question must be asked: "Would pasteurization have prevented this outbreak?"

- Often times the answer is, "We don't know," or simply, "No."

Slide 5 Response Continued

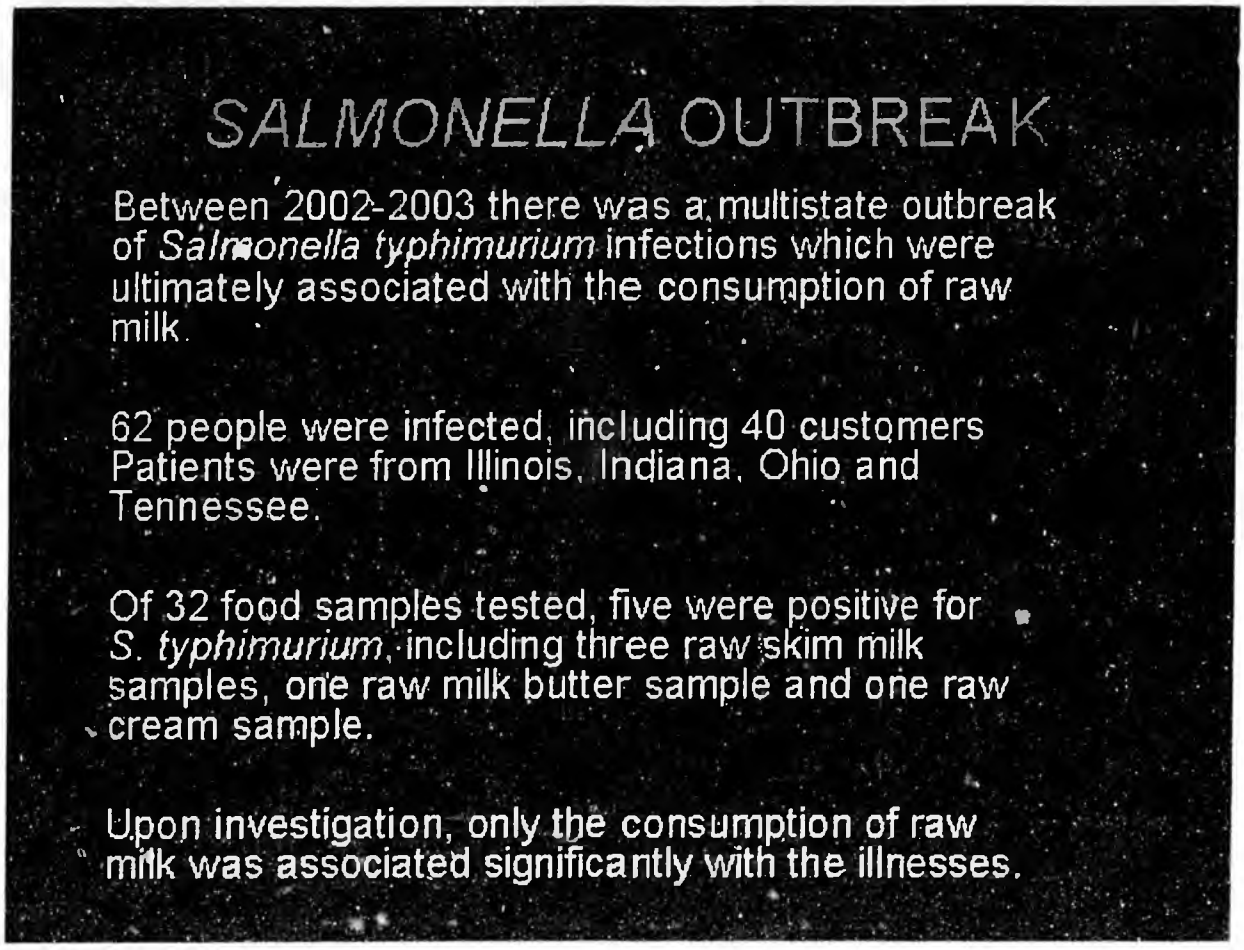
Seeing It All in Perspective

Finally, we must always evaluate the safety of raw milk within the context of general food safety. All foods – as well as water, household or public surfaces, and various inanimate objects – carry some risk of contamination. The questions we must ask, however, are the following:

- How does the safety of raw milk compare to that of pasteurized milk?
- How does the safety of raw milk compare to that of other commonly consumed foods, such as fresh produce, deli meats, or hot dogs?
- How does the approach of the FDA and other federal and state agencies to the safety of raw milk compare to their approach to the safety of these other foods? Are these approaches fair and in the interest of the consumer?

Keeping these questions in mind, let us review the cases of foodborne illness attributed to raw milk that the FDA presents.

Slide 7 (Slide 6 is a picture)
http://www.cfsan.fda.gov/~ear/milksafe/milksa7.htm



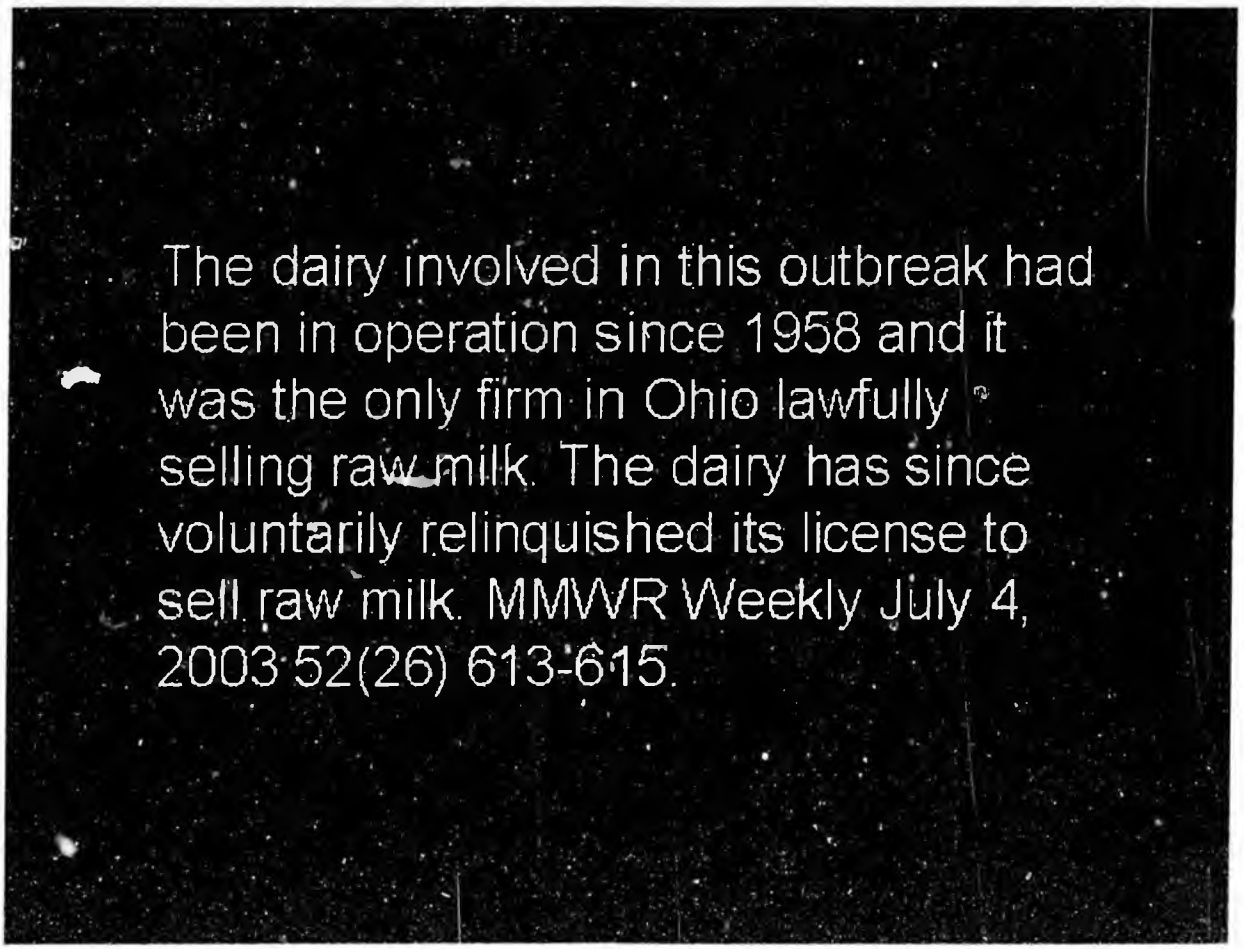
All 31 stool samples taken from dairy cows tested negative. Only products made from skim milk or the cream separated from it tested positive. **The milk was probably contaminated during processing.**

The Clark County Health Authorities concluded on January 15, 2003 – one day before the farm relinquished its license to sell raw milk – "We . . . cannot say as to whether or not pasteurization would have prevented this outbreak."

The farm had no established program for evaluating milk quality. The Ohio Department of Agriculture recommended a number of sanitation improvements and repairs in addition to the cessation of raw milk sales.

Whether the recommended sanitation improvements and repairs and the establishment of a program for evaluating milk quality could have allowed the safe production and sale of raw milk was never investigated.

Slide 8
http://www.cfsan.fda.gov/~ear/milksafe/milksa8.htm



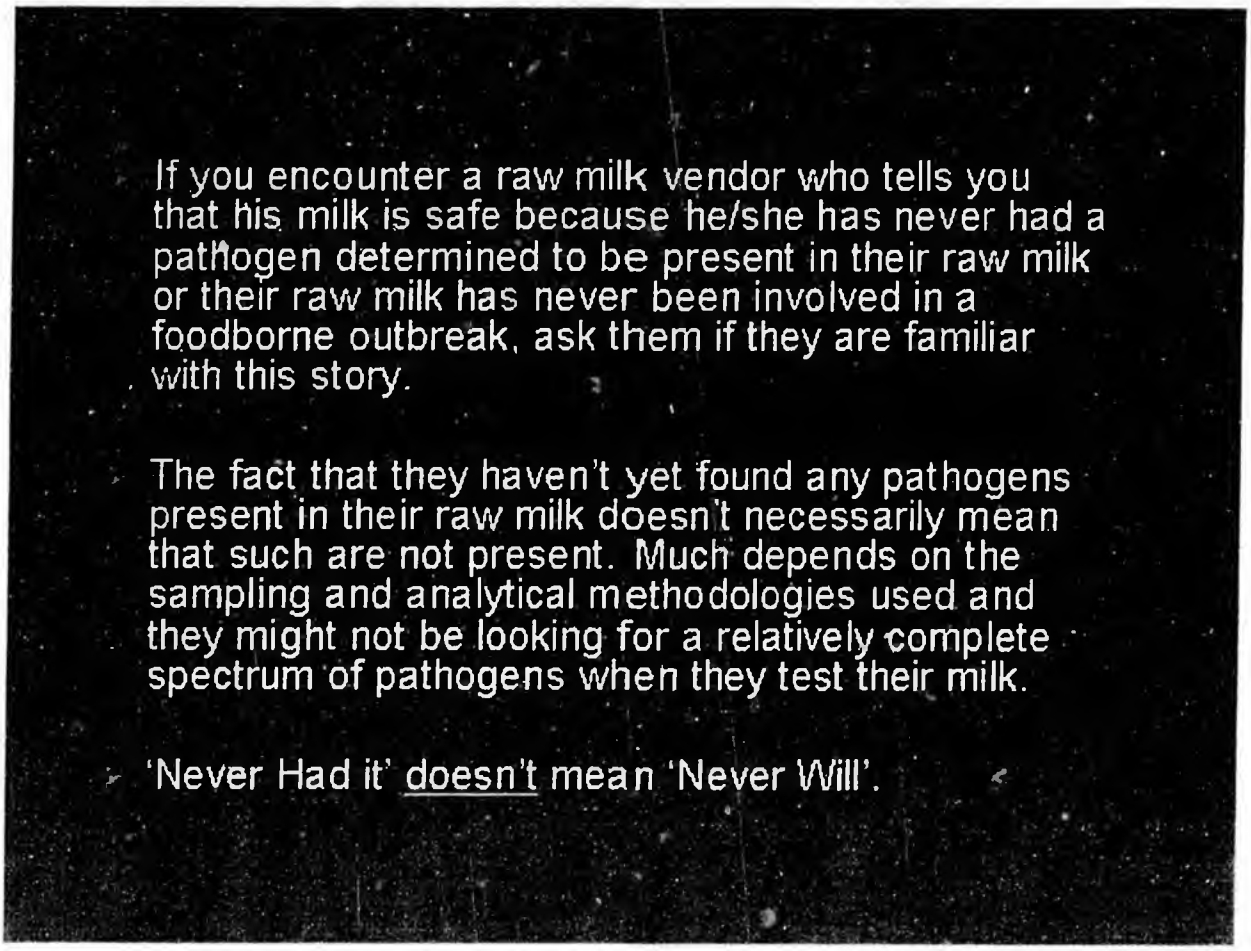
On December 13, 2002, the Clark County Health Authorities ordered the farm to discontinue the sale of raw milk products in its food service areas. On Decem' er 23, 2002, the Ohio Department of Agriculture (ODA) temporarily ordered the farm to discontinue the retail sale of bottled milk and milk products. On January 13, 2003, the ODA informed the farm that the "temporary" stop-sale order would remain in effect "until further notice" and recommended that the farm voluntarily relinquish its license. Three days later, the farm did so.

The farm was serving 1.35 million customers per year.

The outbreak, involving 40 customers, was much smaller than outbreaks of *Salmonella* that have resulted from contaminated pasteurized milk.

Unfortunately, the authorities were more interested in closing down the state's last raw milk dairy than working with the farm to make its raw milk safe by improving sanitation and quality control.

Slide 9
http://www.cfsan.fda.gov/~ear/milksafe/milksa9.htm



In 1985, there was a multi-state outbreak of antibiotic-resistant *Salmonella typhimurium* traced to **pasteurized** 2% milk from a Chicago milk plant.

Over 16,000 culture-confirmed cases were documented in seven states, and the researchers estimated that between 150,000 and 200,000 people had been affected. It was the largest outbreak of *Salmonella* in the nation's history.

If you encounter raw milk opponents who tell you that pasteurized milk is inherently safer than raw milk because pasteurization destroys *Salmonella*, ask them if they are familiar with this story.

Response Slide to Slide 9 Continued

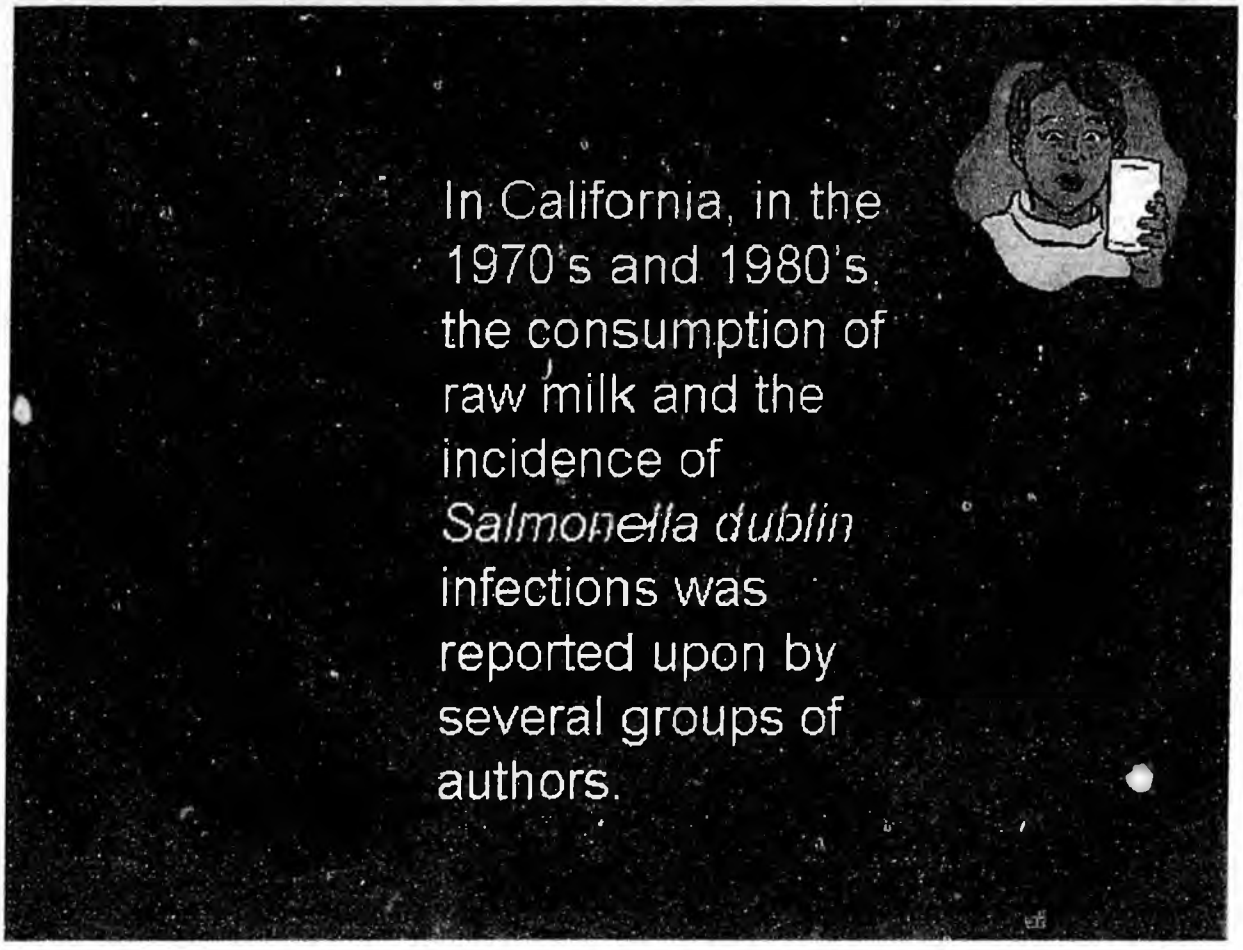
A more recent multi-state outbreak of antibiotic-resistant *S. typhimurium* in April, 2000 implicated **pasteurized** milk from a Pennsylvania dairy plant. There were 38 culture-confirmed cases.

The investigation of the plant revealed that pasteurization was adequate, but bacteria counts in the milk were elevated up to six-fold above the legal limit. The authors of the report noted that "inadequate pasteurization is a relatively uncommon event compared to contamination after pasteurization."

The plant hired an outside consultant to help it meet FDA standards and the Pennsylvania Department of Agriculture integrated employee training with its routine inspections.

No one suggested that pasteurized milk was inherently dangerous or tried to close down the plant.

Slide 10
http://www.cfsan.fda.gov/~ear/milksafe/milksa10.htm



These reports were published against the historical backdrop of a concerted effort on the part of California health authorities to push the state's largest raw milk producer, Alta Dena Dairy, out of business. The dairy was selling 20,000 gallons of raw milk per day. A timeline of this effort will help us view these reports in the proper context:

- In 1965, the San Diego County health officer banned raw milk because he supposedly found *Staphylococcus aureus* in Alta Dena milk. The ban stood against the will of the County Board of Supervisors for three years until the 4th District Court of Appeals removed it. **No one ever got sick from *S. aureus*.**

- In 1966, the Los Angeles County Department of Health Services reported seven cases of Q fever (*Coxiella burnetti*) among people who lived "in or around dairies." **Although the illness is contracted through inhalation and none of those who fell ill had drunk raw milk, the Department concluded that the most practical solution was the universal pasteurization of milk.**

Slide 10 Response Continued

- In 1969, the department banned Alta Dena milk throughout the county, claiming that some samples were contaminated with *C. burnetti.* No one got sick, and the dairy continued sales. The owners were found in contempt of court, but **the charges were dropped** when expert witnesses testified that Q fever was contracted through inhalation upon close contact with animals rather than through drinking raw milk.

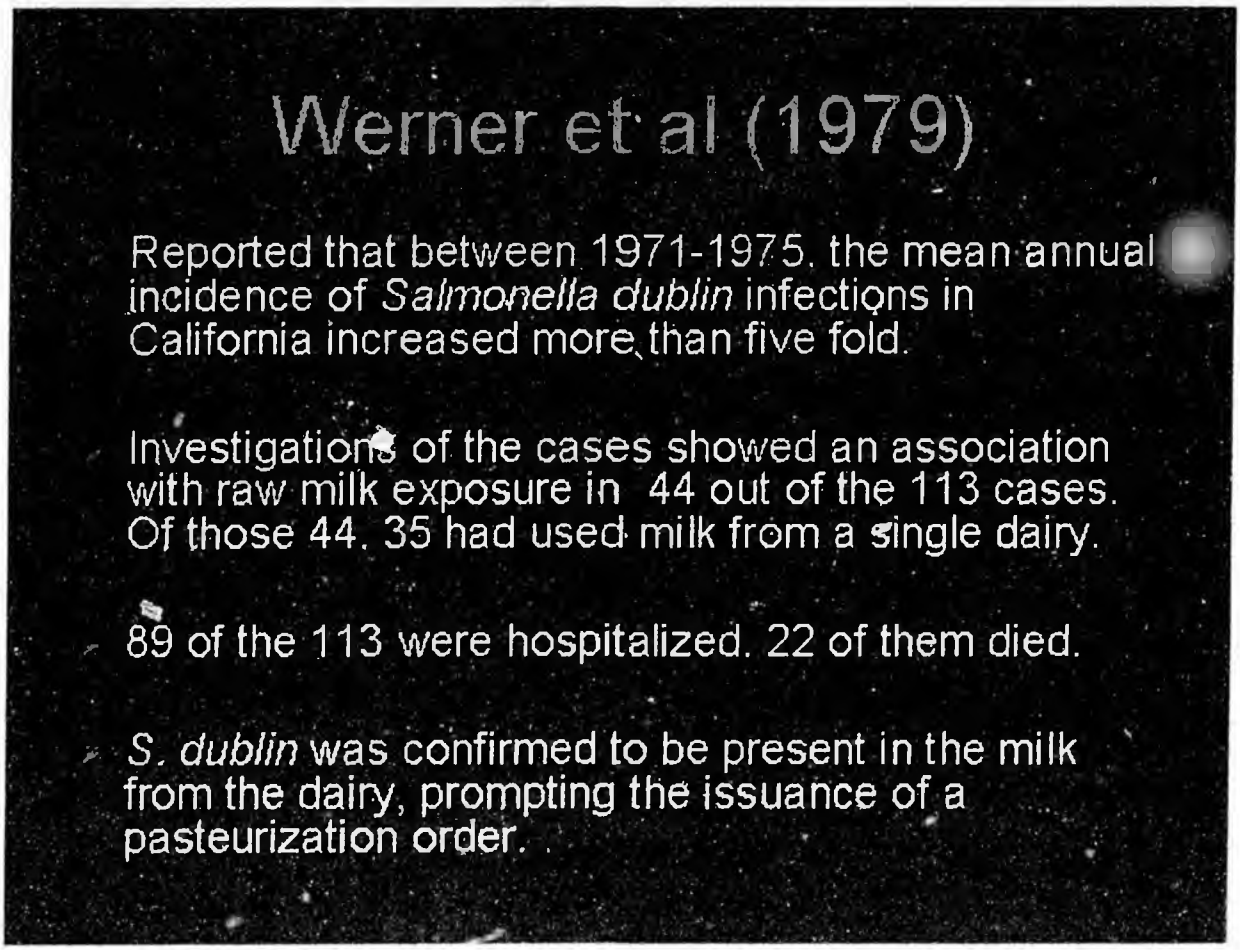
- In 1974, the California Department of Health Services issued a statewide ban on Alta Dena milk, citing the threat of brucellosis. Alta Dena's dairy herd had been vaccinated against this disease and was routinely tested for it. **No brucellosis had been found.** The owners went to court again, retested the herd, and the ban was dropped.

- In the mid-1970s, the state made numerous claims that *Salmonella* was found in Alta Dena milk.

- In 1978, the owners of Alta Dena led raw milk producers in support of a state Senate bill that would introduce state oversight of raw milk production similar to its oversight of the production of other foodstuffs. Two days before the Senate debate began, the state alerted media outlets to an imminent *Salmonella* outbreak. **The state lab claimed to find *Salmonella* in Alta Dena milk but two independent laboratories could not replicate the finding.**

- The following year, scientists working for the Infectious Disease Section of the California Department of Health Services published a report in the *British Medical Journal* claiming to link *Salmonella dublin* from Alta Dena milk to the deaths of cancer patients. This report will be discussed in the following slides.

Slide 11
http://www.cfsan.fda.gov/~ear/milksafe/milksa11.htm



The authors reported that 31% of the patients had used raw milk from "dairy X" (Alta Dena), but did not compare this group to a control group.

According to the report, many of the severely ill patients were using the milk precisely to treat their illness. We should expect the rate of raw milk consumption among the severely ill patients to have been higher than that among age-matched controls for this very reason, although the authors presented no evidence that this was the case.

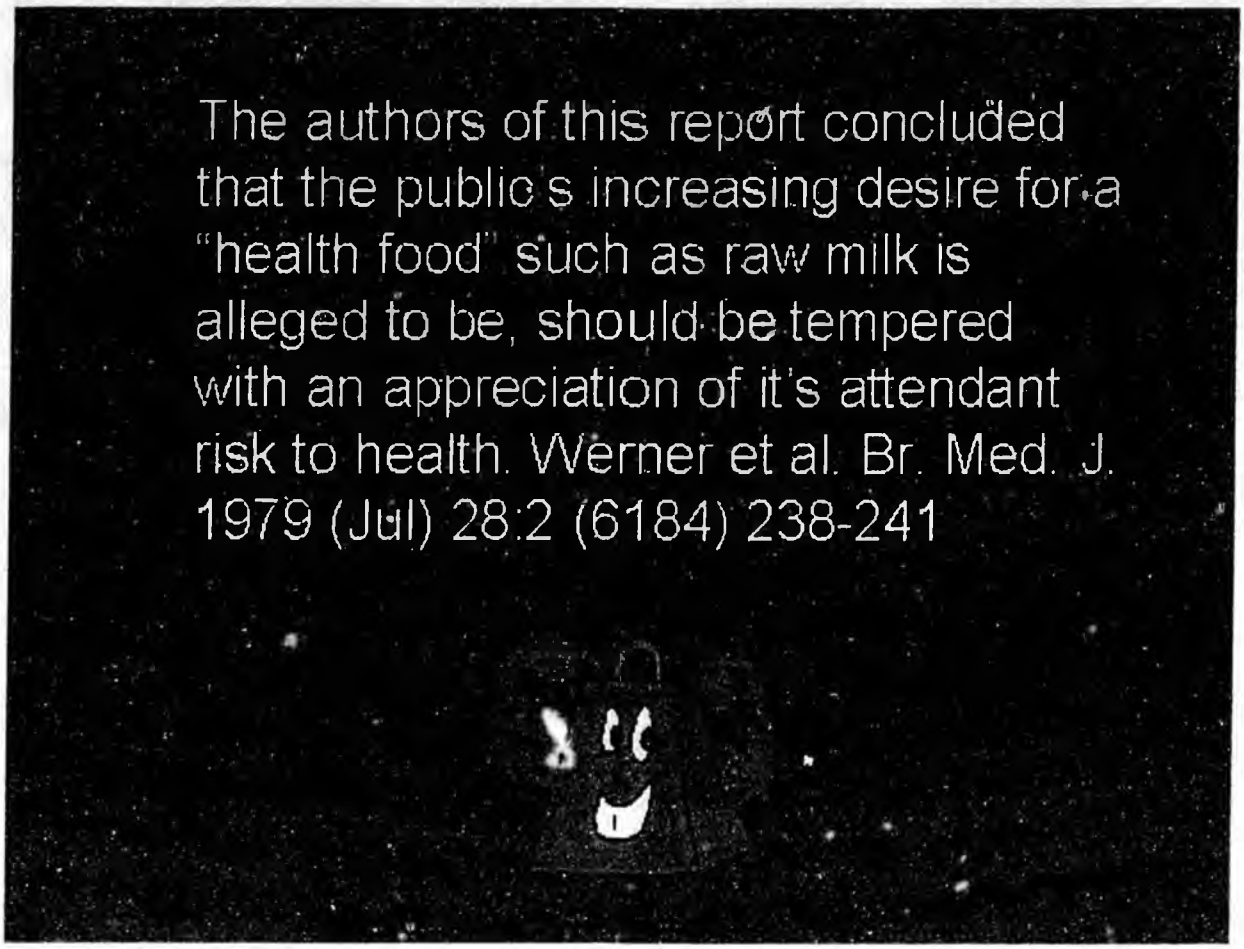
The authors reported that the deaths owed to the seriousness of the patients' underlying diseases, such as leukemia and lymphoma, and regarded "the *S. dublin* infections as an associative feature in their death but not necessarily the underlying cause."

Response to Slide 11 Continued

The authors claimed to find *S. dublin* in one out of 98 quarts of Alta Dena milk tested, but did not find the organism in the feces of any of the dairy animals. They presented no evidence that infected patients were more likely to have drunk Alta Dena milk than anyone else, nor an explanation of how the 69% of patients who had not drunk the dairy's milk became infected.

The pasteurization order was issued in April, 1974. There were no cases of infection "associated" with the dairy before the order in March, but three cases after the order went into effect between April and June. **The authors presented no evidence that the pasteurization order had any effect on the occurrence of *S. dublin* infections.**

Slide 12
http://www.cfsan.fda.gov/~ear/milksafe/milksa12.htm

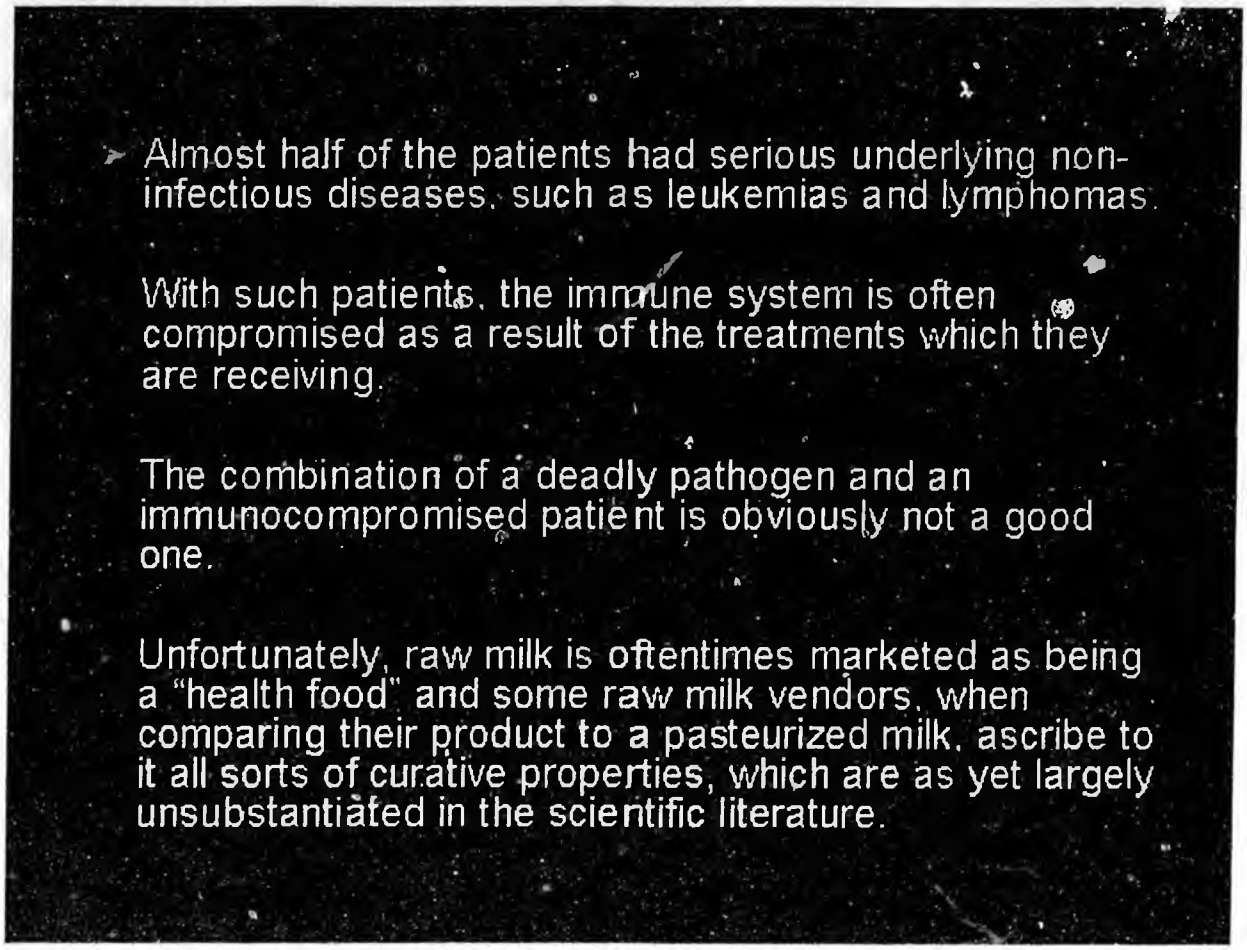


That the authors used the words "health food" in quotation marks reveals that they did not take the potential benefits of raw milk seriously. Although they noted "the large public demand for raw milk that exists in California" and the consequent unlikelihood "that its sale will be prohibited," they offered no scientific evaluation of the health claims of raw milk proponents in either the introduction or the discussion of the study.

The authors noted that fecal contamination and mastitis were the primary causes of *Salmonella* contamination of milk, but offered no suggestions for reducing these factors.

Although the public should understand that *Salmonella* can contaminate both raw and pasteurized milk, health authorities should look beyond pasteurization as the only protection and help raw milk farmers pursue practices that reduce fecal contamination and mastitis, such as proper sanitation and grass-feeding, in order to make raw milk safely available to those who wish to consume it.

Slide 13
http://www.cfsan.fda.gov/~ear/milksafe/milksa13.htm

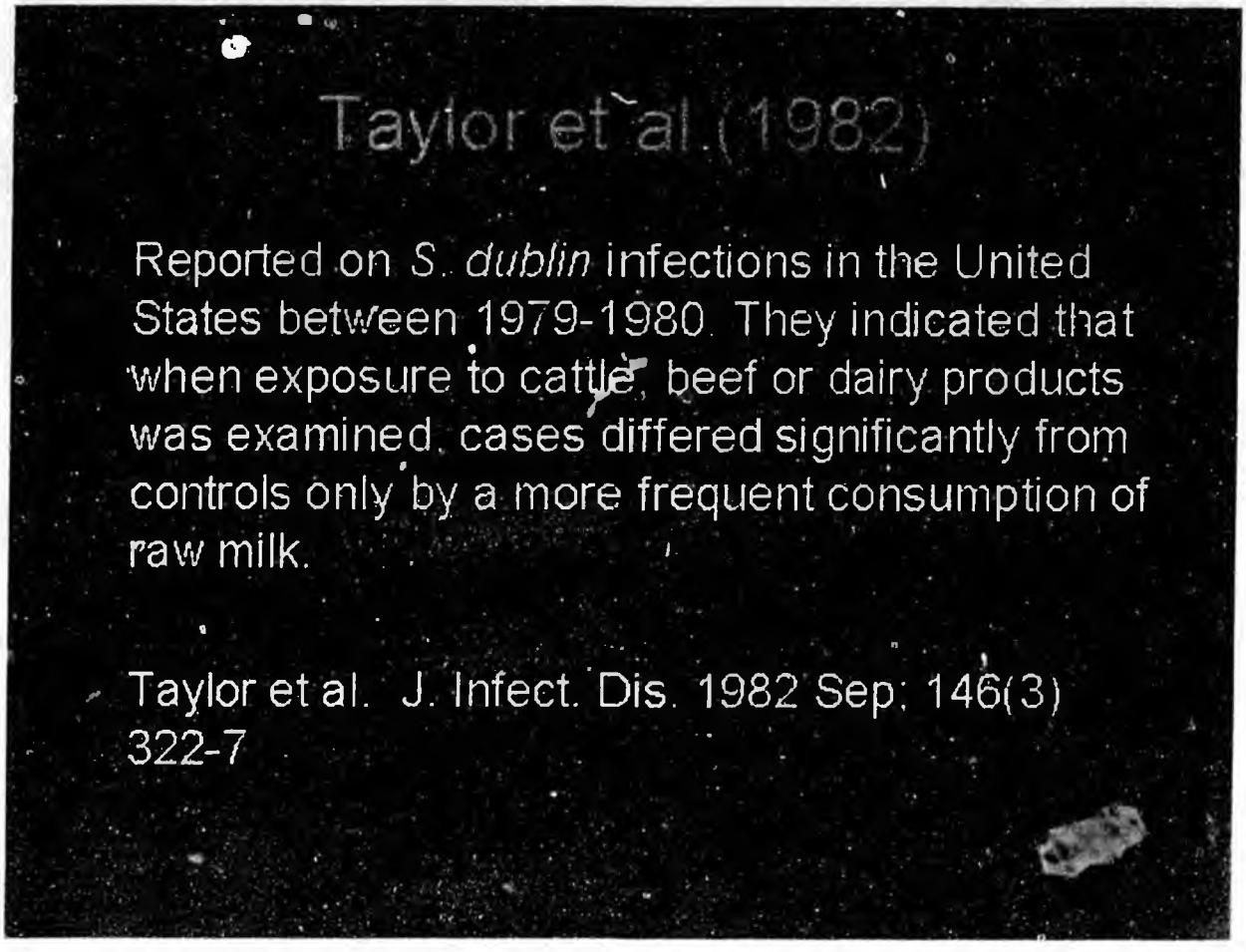


Much of the research demonstrating the health benefits of raw milk was conducted prior to the 1960s and is therefore not indexed in databases such as *PubMed*. Modern experimental methods, tools of biochemical analysis, and methods of pasteurization are needed to reevaluate the question to the satisfaction of academic scientists and policy experts – but there is a large gulf between something that is "as yet largely unsubstantiated" and something that has been refuted. The former implies that the claims have been partially substantiated and may be fully substantiated in the future.

Many people who consume raw milk rely on anecdotal evidence of its superiority, including but not limited to their own experiences. Although anecdotal evidence is not sufficient to confirm a hypothesis, it is a valid means for generating one. Whether it is sufficient means for *acting* on one is a personal decision that every individual should have a right to make.

In the second part of this presentation, we will show that **many of the health claims that the FDA labels "myths" are actually substantiated in today's scientific literature** and that much of the older research showing the superiority of raw milk still stands.

Slide 14
http://www.cfsan.fda.gov/~ear/milksafe/milksa14.htm



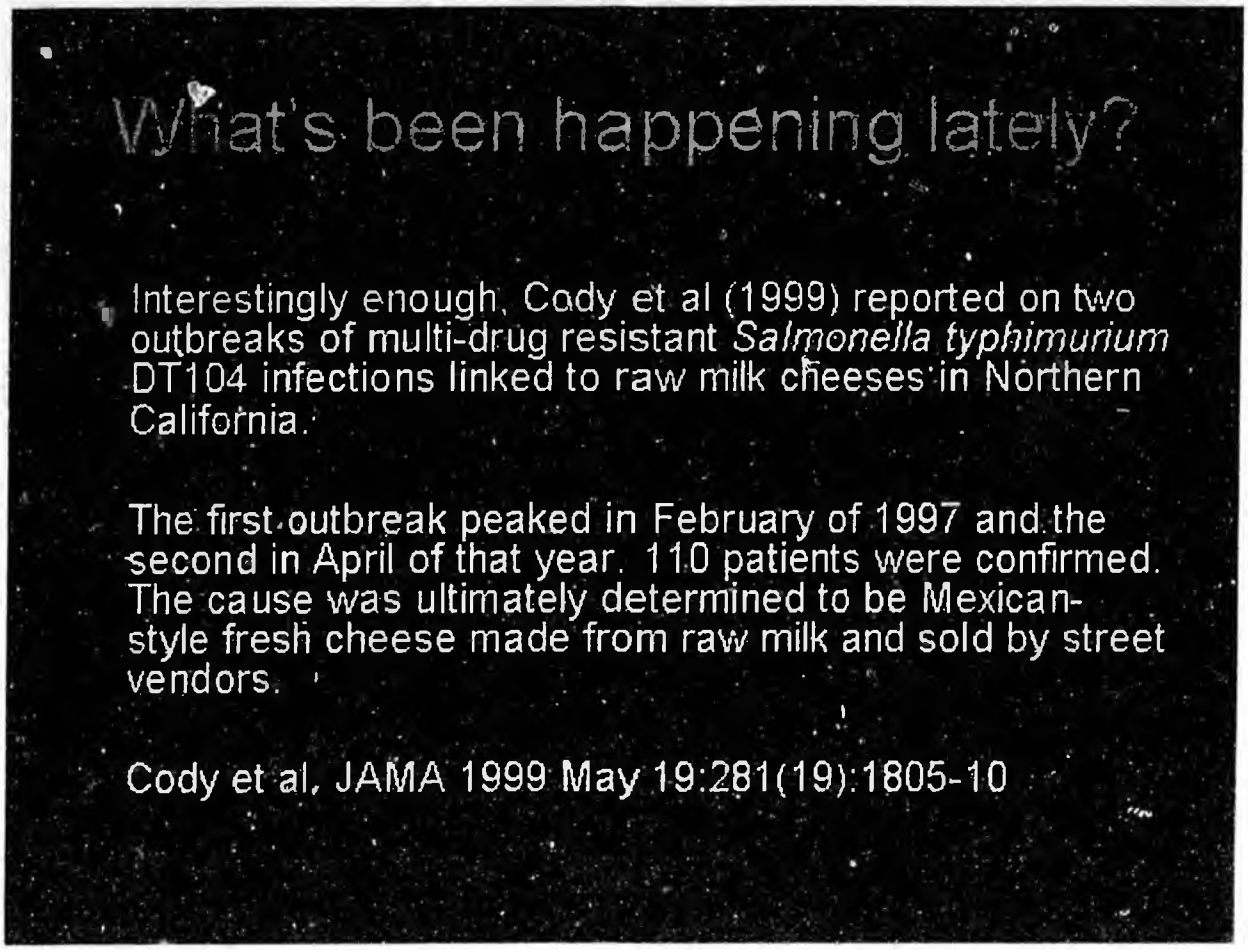
Eight out of twelve subjects who drank raw milk obtained it from "a local farm that was not intended for commercial sale." The authors made no investigation of the sanitation or feeding methods at these farms.

In 38% of the cases the patients "drank raw milk in the two weeks before they became ill," whereas in only 8% of the controls the subjects "drank raw milk the week before [the case patient to whom they were matched] became ill." **The authors did not explain why they compared two-week exposure in the case group to one-week exposure in the control group.** These statistics may therefore be invalid.

Antacids were used by 19% of cases and anti-microbial agents were used by 16% of cases. Half suffered from chronic illnesses such as diabetes, peptic ulcer, or cancer.

No raw milk samples were tested for *S. dublin*.

Slide 15
http://www.cfsan.fda.gov/~ear/milksafe/milksa15.htm



In the first outbreak, a case-control study found that 94% of cases and 58% of controls had eaten "fresh Mexican-style cheese" in the week before illness, and that 53% of cases and 9% of controls had attended a specific local flea market.

None of the patients had cheese left over for sampling.

The cheese was purchased mostly from Hispanic specialty markets, not street vendors. The California Department of Food and Agriculture tested fresh Mexican-style cheeses from 16 of these markets. Although it found that 25% of them sold cheese demonstrating "incomplete pasteurization of milk," **none of the cheese tested positive for *S. typhimurium*.**

Murthy and Cox (1988) showed that the test used gives false positives because of enzymes produced by the microbes that ferment Mexican-style soft cheese.

There was no direct evidence that the cheese eaten was made with raw milk or that it caused the outbreak.

Slide 15 Response Continued

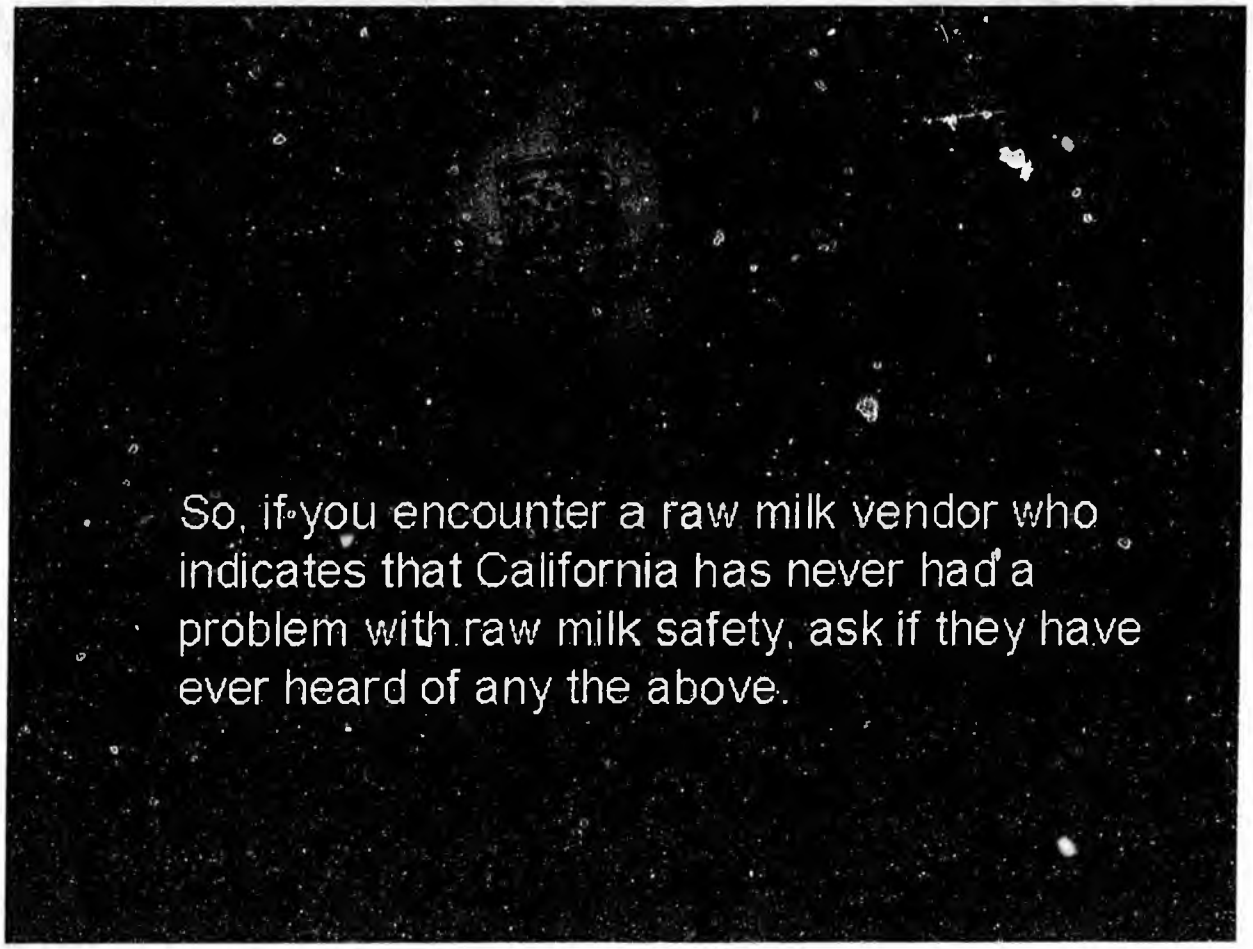
In the second outbreak, a case was defined as someone "who had eaten fresh, Mexican-style cheese in the week before illness onset." No case-control study was performed.

Cheese testing positive for *S. typhimurium* was obtained from ten out of 51 infected households. In two of these ten cases, the cheese was traced back to the street vendor who sold it.

Only one vendor's cheese tested positive for *S. typhimurium*. It was made from raw milk in the vendor's home kitchen. Although a sample of milk from the dairy that supplied it also contained *S. typhimurium*, it was a different subtype than the one found in the cheese made with it. The authors concluded that the milk may have been contaminated with multiple subtypes that they failed to detect.

Since *S. typhimurium* is also spread by chicken, pork, beef, salami, and sausages, however, it may well have come from the cheese vendor's kitchen counter.

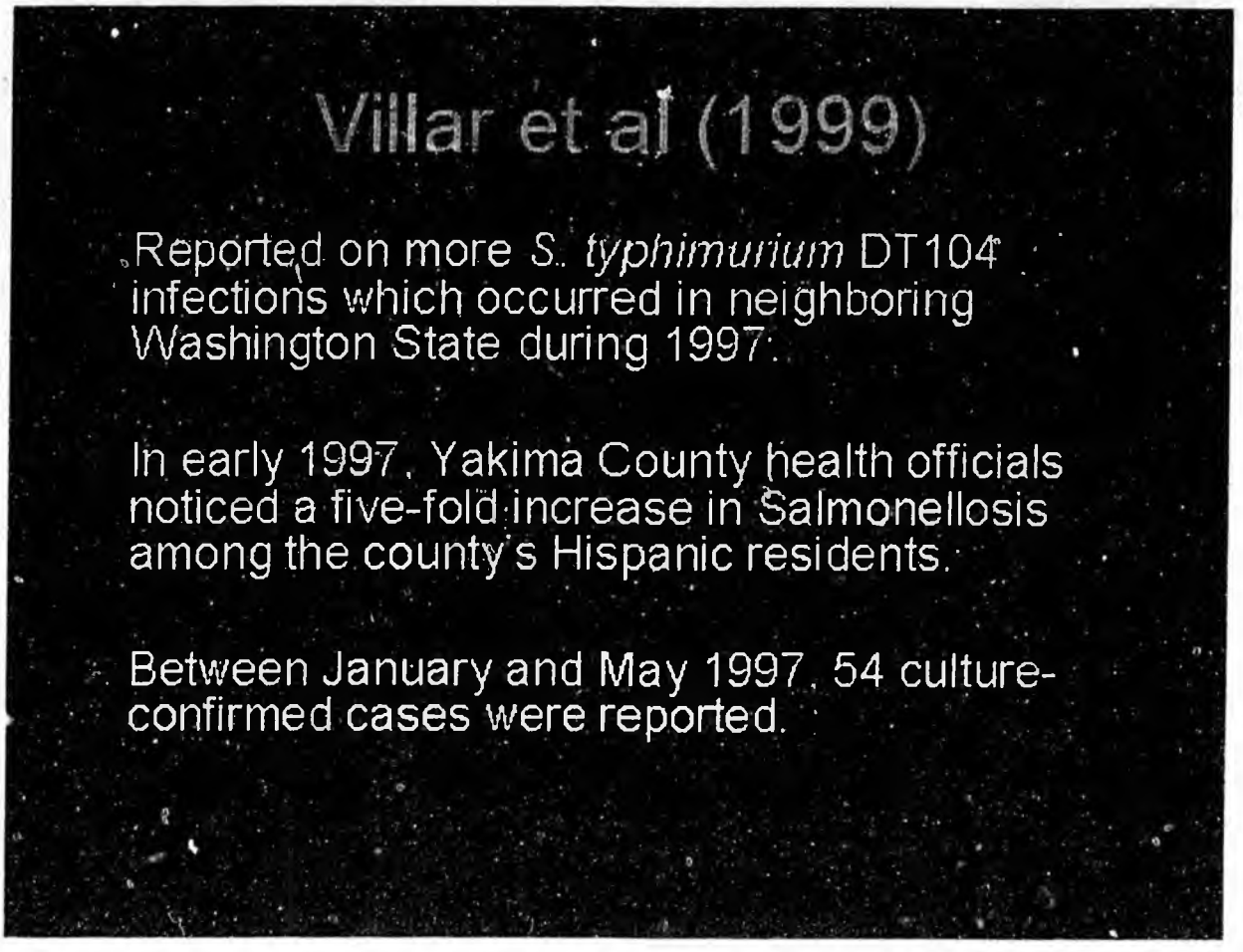
Slide 16
http://www.cfsan.fda.gov/~ear/milksafe/milksa16.htm



The vendor might make the following replies:

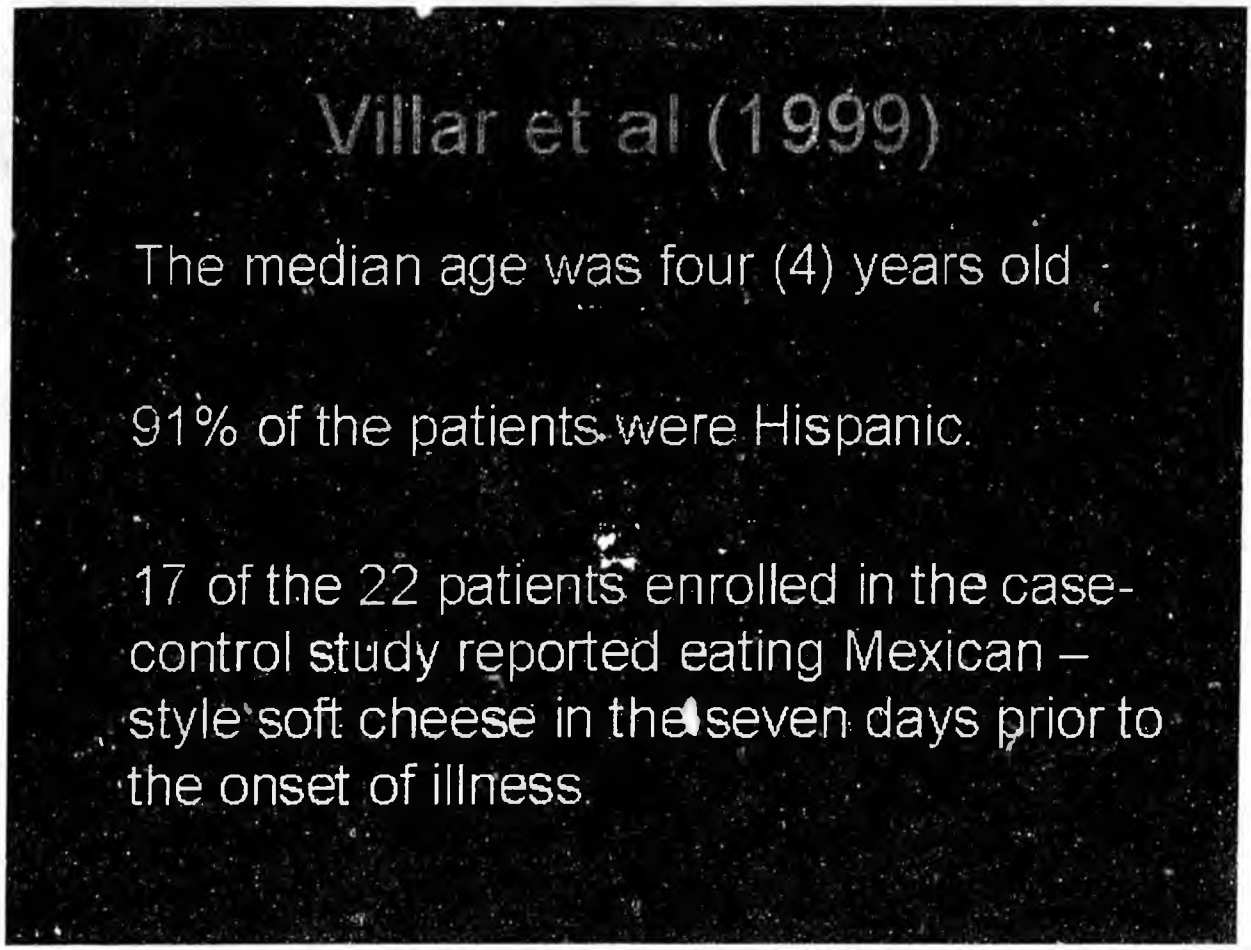
- A person may become infected with *Salmonella* by eating cheese, but a person infected by another source could also spread *Salmonella* to the cheese through handling it or biting into it.
- **In the first outbreak, no cheese was traced to contaminated raw milk; in the second outbreak, less than two percent of infected households had cheese traceable to contaminated raw milk.** Even if the subtypes had matched – which they did not – 99% of the cases would be left unexplained.
- There are many opportunities for cheese to be contaminated even if the milk is pasteurized – especially if the cheese is made in a home kitchen. Education, training and oversight can all be used to ensure the provision of safe raw milk cheese.

Slide 17
http://www.cfsan.fda.gov/~ear/milksafe/milksa17.htm



According to the authors, anecdotal reports suggested that this rise paralleled the rise in consumption of fresh, Mexican-style soft cheese (*queso fresco)* and returned to previous levels after the institution of a safe cheese-making education program. There were no citations for the anecdotal reports. If the rise and fall of *S. typhimurium* did indeed parallel these changes, it would suggest that the cheese may have been a source of infection. As we will see in coming slides, however, **there is no evidence tracing the problem to raw milk.**

Slide 18
http://www.cfsan.fda.gov/~ear/milksafe/milksa18.htm

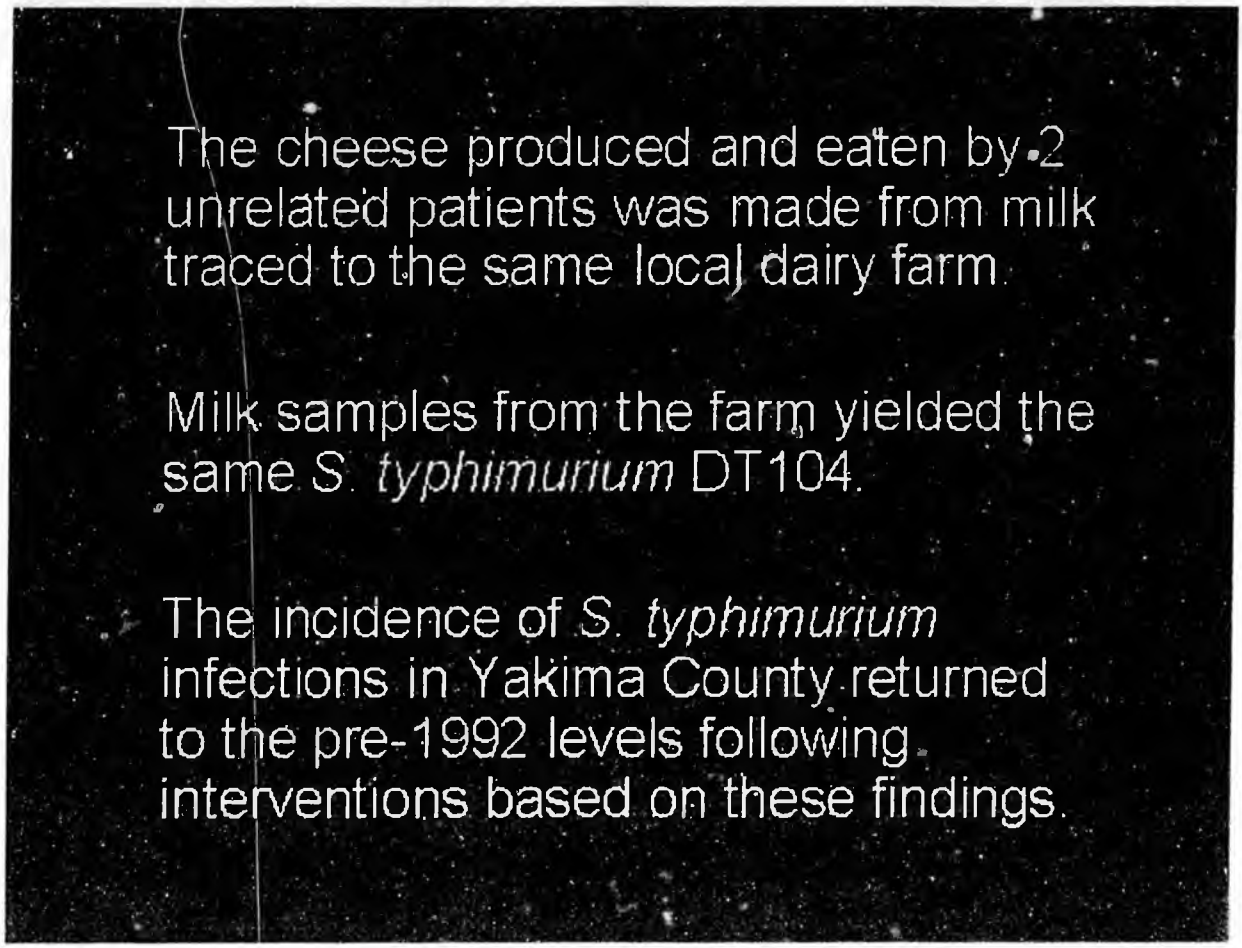


The illnesses occurred between January 1 and May 5, 1997. The case-control study was conducted later in May and the interviewer was not blinded to the case or control status of the interviewee. The authors wrote, "The time delay from when illnesses began and when we initiated the investigation may have contributed to recall bias. However, it is unlikely given the study design that this bias would have been selective for raw-milk Mexican-style soft cheese."

News reports of the putative association between *S. typhimurium* and Mexican-style soft cheese in California, however, began in April of 1997.

While 77% of cases and only 28% of controls reported eating such cheese a week before their illnesses, **some of them were attempting to recall what they had eaten five months previously. Since the California outbreaks were recently publicized, the probability that recall bias affected these results is substantial.**

Slide 19
http://www.cfsan.fda.gov/~ear/milksafe/milksa19.htm



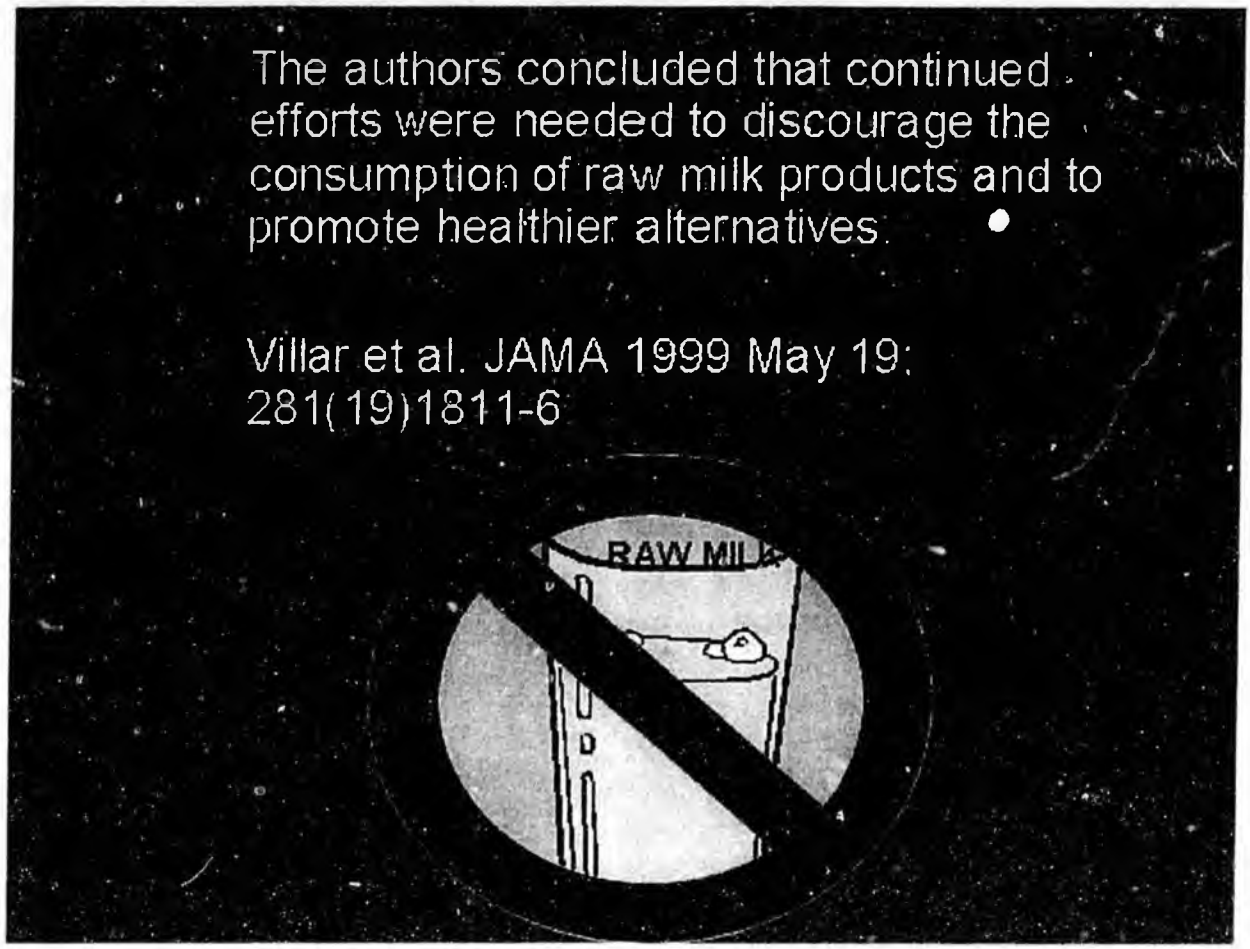
Contrary to the FDA's statement, samples from the farm did *not* yield *S. typhimurium* DT104.

"Cultures of milk from tanker trucks that collected unpasteurized milk from area dairies" yielded *S. thypnimurium.* By contrast, the authors reported that "cultures from 5 samples of the cheese made from unpasteurized milk, 2 samples of rennet, 2 samples of unpasteurized milk from the bulk tank of the implicated dairy, and rectal swabs obtained from 5 (3%) of 175 cows on the implicated dairy did not yield *Salmonella.*"

The cheeses eaten by the other 20 case patients were not traced to their sources.

The interventions focused on education about safe cheese-making practices that went beyond the use of pasteurized milk. **No evidence was ever produced tracing *Salmonella* to raw milk.**

Slide 20
http://www.cfsan.fda.gov/~ear/milksafe/milksa20.htm

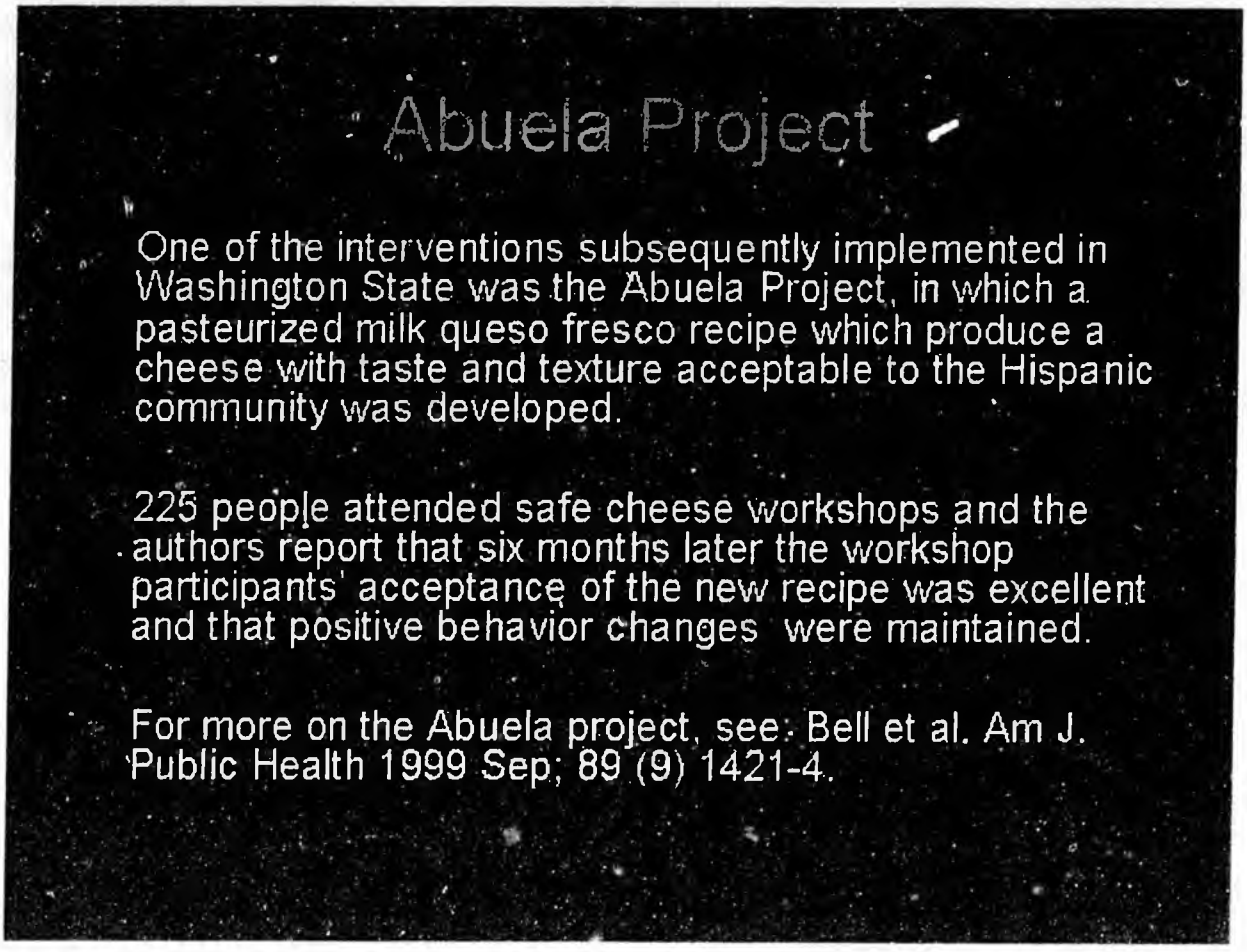


Because of the systematic bias against raw milk with which public health authorities approach the issue of food safety, no evidence showing contamination of raw milk with *Salmonella* was required to come to this conclusion.

Prior to the publication of this study, Canadian and European studies had linked *S. typhimurium* DT104 outbreaks to chicken, beef, pork, salami and sausages. These items are common enough in a typical kitchen that homemade cheese could easily become contaminated if it is not made carefully enough.

Health authorities never attempted to provide the residents of Yakima County with information about how to make raw milk cheese safely; they did, however, incorporate safe cheese-making ed[illegible]ation into a program encouraging the exclusive use of pasteurized milk.

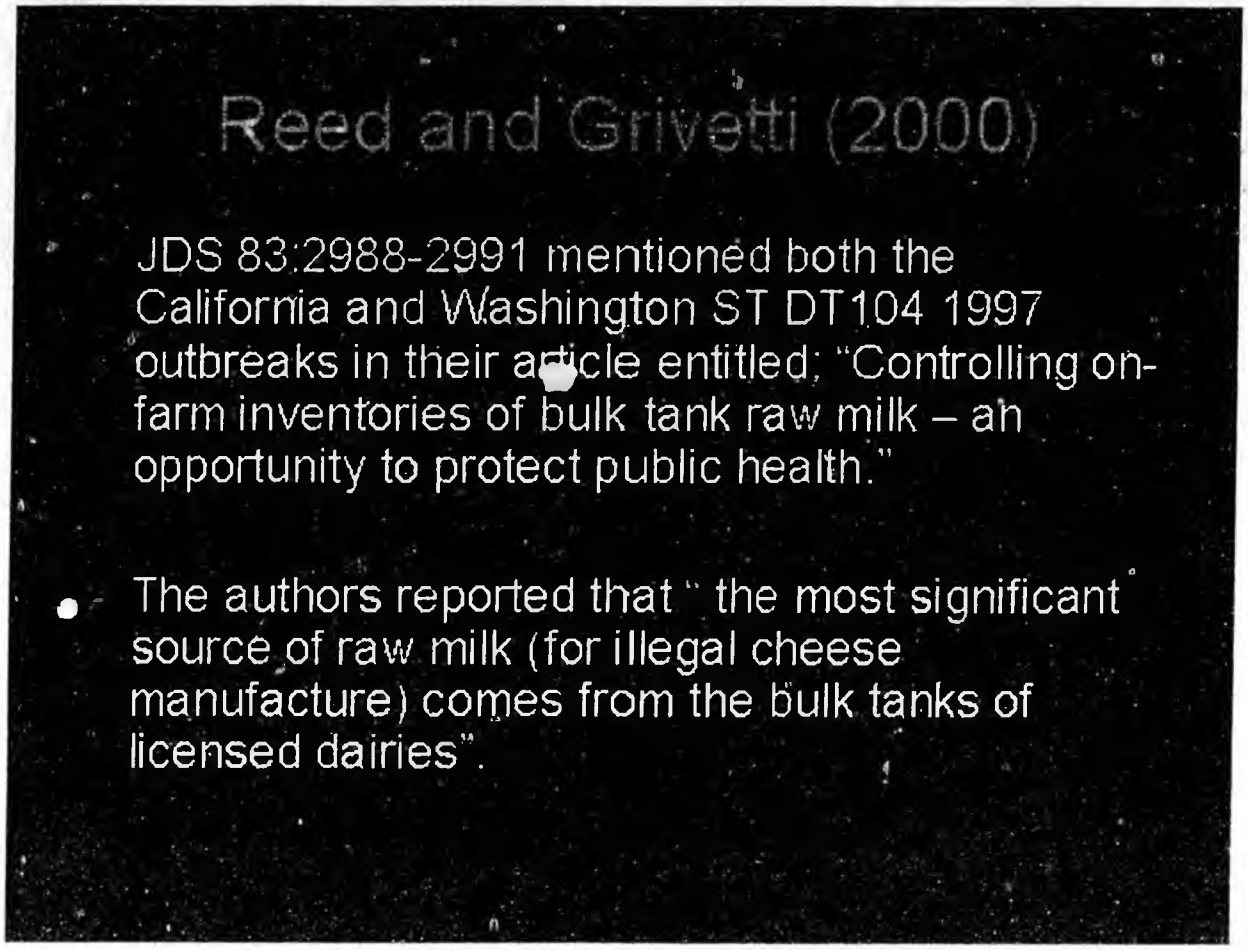
Slide 21
http://www.cfsan.fda.gov/~ear/milksafe/milksa21.htm



The program encouraged the exclusive use of pasteurized milk for the production of *queso fresco* but also educated community members about how to properly sanitize cheese-making implements.

Such a program would be expected to reduce the incidence of cheese-borne *Salmonella* whether it was present in the milk before leaving the farm or introduced into the milk during the cheese-making process.

Slide 22
http://www.cfsan.fda.gov/~ear/milksafe/milksa22.htm



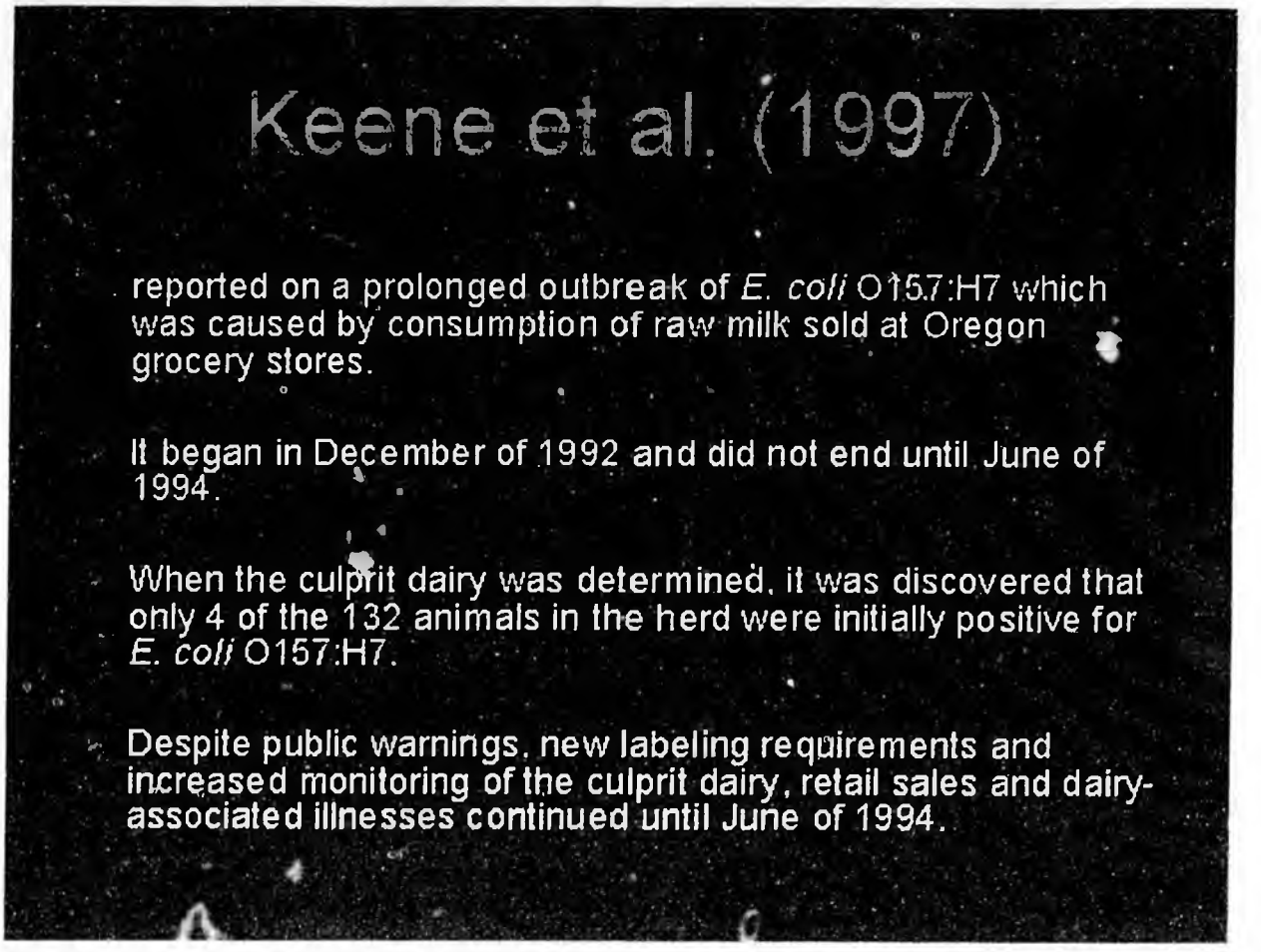
According to this article, a California Department of Food and Agriculture investigation of illegal cheese production found that cheese makers most commonly use the false claim that they need milk to feed to young livestock in order to convince large dairies to sell them unpasteurized milk under the table. They load up the purchased milk into pick-up trucks full of plastic 19-liter buckets. A farm that produces 20,000 to 40,000 liters of milk per day may sell about 200 liters to unlicensed cheese makers this way.

The farmer earns $12 per bucket, which is double the price he gets for selling the milk to a processing plant.

Raw milk illegally taken from a source that is intended for pasteurization *is* unsafe.

The open and legal sale of raw milk produced according to high standards is the safest solution to the public demand for nature's perfect food.

Slide 23 is a picture. Slide 24
http://www.cfsan.fda.gov/~ear/milksafe/milksa24.htm



There was no outbreak of *E. coli* O157:H7 in this community. The "outbreak" was "prolonged" precisely because it "never caused a noticeable increase in reported infections." In other words, it did not exist.

"Raw milk-associated cases" were defined as "those who reported drinking raw milk within the 10 days before symptom onset." The cases started in 1992 because this is when the researchers began looking for them, and ended in 1994 because this is when the state health authorities banned the sale of the local farm's raw milk.

Because of the "ongoing nature of the outbreak," the authorities decided that "it was not clear how to delimit a case-control study without significant bias." Since "a cohort study was also infeasible," they "elected to notify the public immediately."

No *E. coli* O157:H7 was ever found in the dairy's milk.

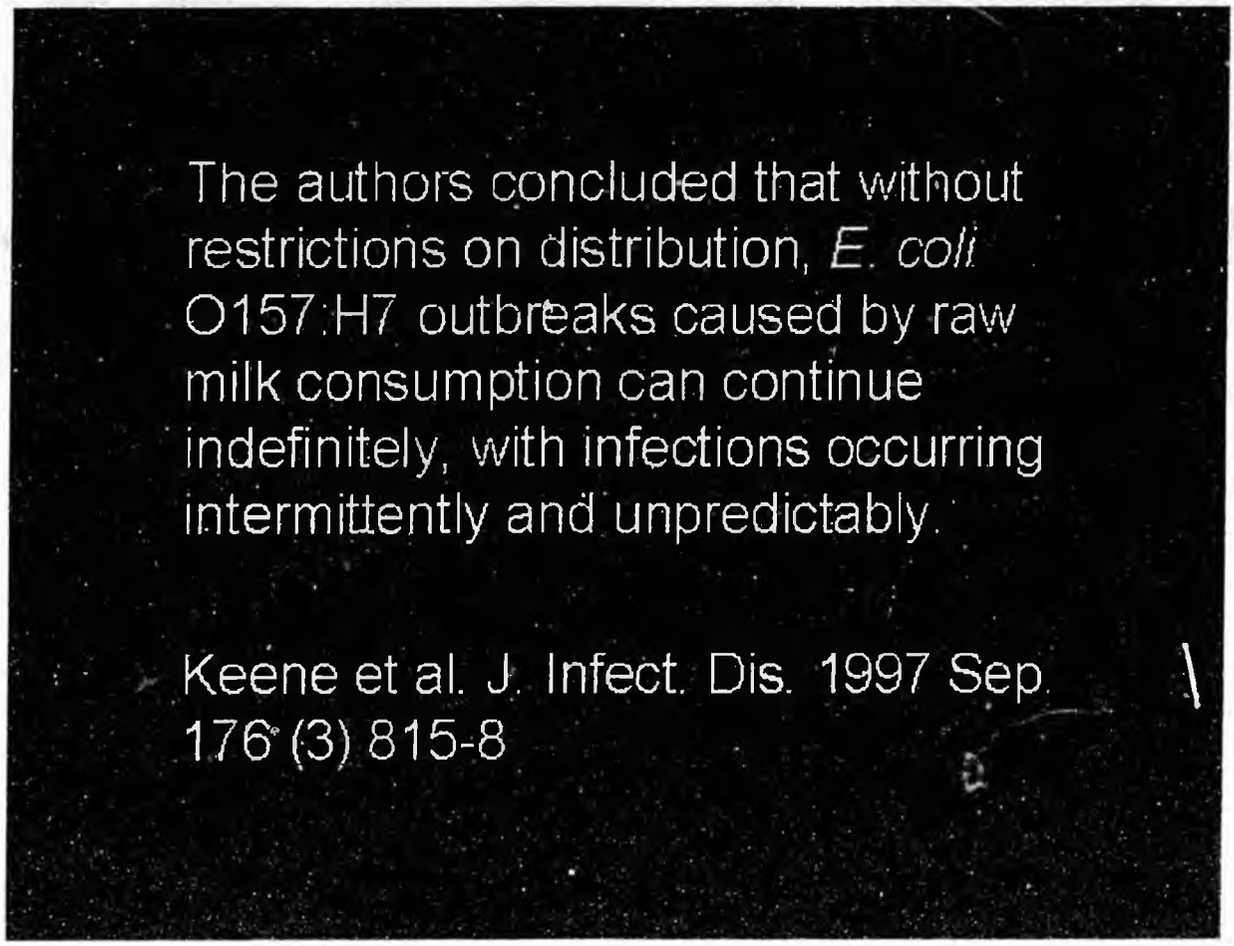
Response to Slide 24 Continued

Nevertheless, an injunction was issued in June of 1994 banning sales of the milk. The farmer continued to sell the uncontaminated milk until October of 1995 and was fined and jailed for contempt of court.

Although the incidence of *E. coli* O157:H7 never changed, no cases associated with the consumption of milk from this dairy have been reported since the milk was banned in June of 1994.

The authors correctly concluded from this that "the only effective way to stop raw milk-associated disease is to stop people from drinking raw milk."

Slide 25
http://www.cfsan.fda.gov/~ear/milksafe/milksa25.htm



The authors lamented that it is "easier said than done" to "stop people from drinking raw milk" and that sales of the milk in question had "continued until the dairy was forced out of the retail business."

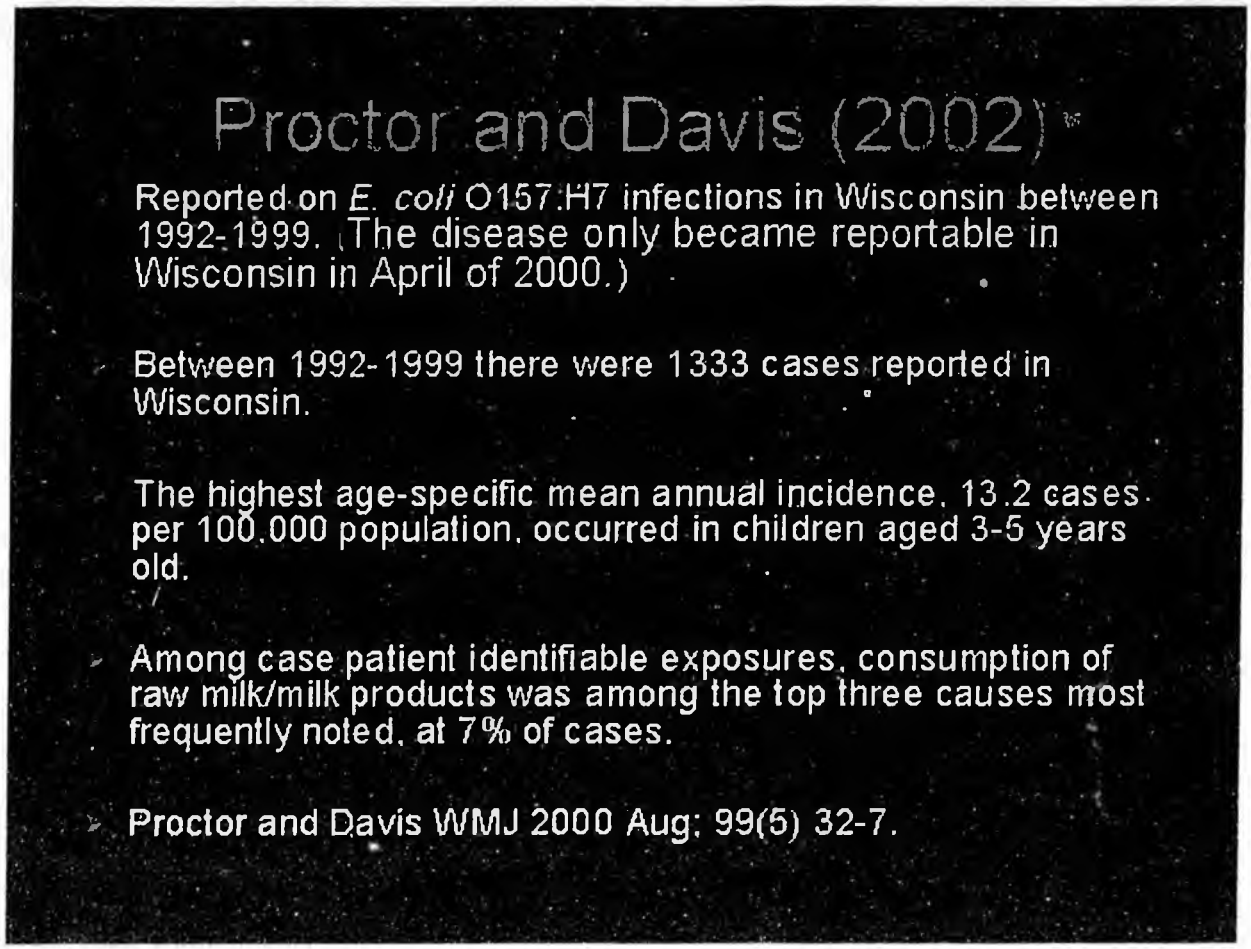
Legislation to outlaw the retail sale of raw milk in Oregon had recently died in committee.

The authors concluded that "short of an outright ban on sales," the next best solution was "continuing consumer education and increasing financial risks for suppliers."

The FDA estimates that between 1996 and 2005, fresh produce was responsible for over 8,000 *E. coli* O157:H7 infections. Eggs were responsible for over 6,500; processed foods for over 3,000; and sprouts for over 1,500.

No legislation has yet been drafted to outlaw the retail sales of fresh produce, eggs, processed foods, or sprouts.

Slide 26
http://www.cfsan.fda.gov/~ear/milksafe/milksa26.htm



This study did not identify the causes of any of the 1333 infections.

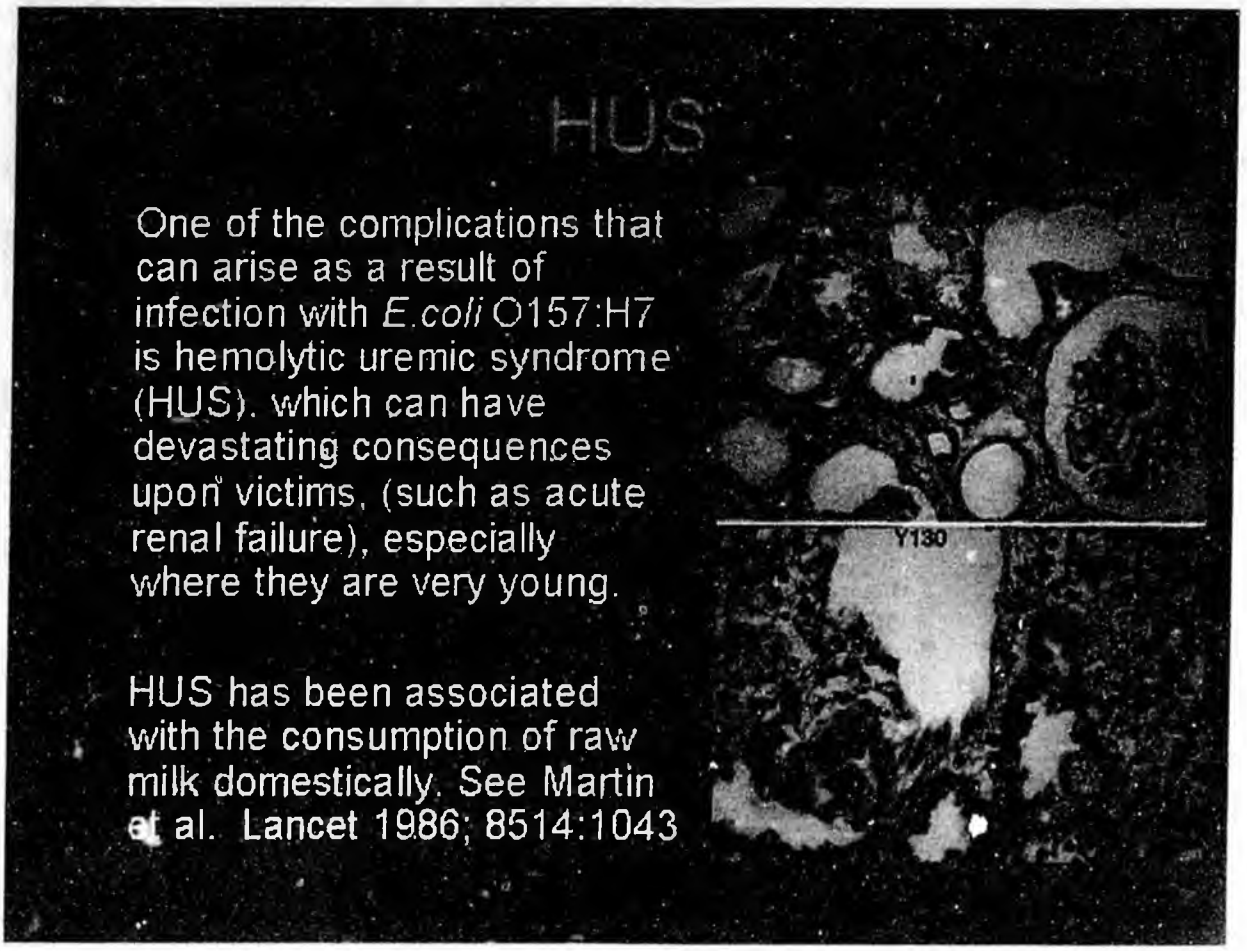
The authors simply compiled the cases that were reported during this time period. They identified risk factor information additional to that which was originally reported by reviewing case follow-up forms. They did not provide any information about the content of these forms except that they ascertained whether the patients had drunk unpasteurized milk or had contact with other infected patients in a daycare setting.

The authors identified consumption of unpasteurized milk as the "most probable risk exposure" in 7.0% of cases but did not describe any scientific methodology that they used to determine which risk exposure was "most probable."

Other "most probable risk exposures" included farm-related exposures (13.4%), recreational water exposures (8.1%) and person-to-person exposures (5.1%).

No evidence was provided or cited indicating that any unpasteurized dairy was contaminated with *E. coli*.

Slide 27
http://www.cfsan.fda.gov/~ear/milksafe/milksa27.htm

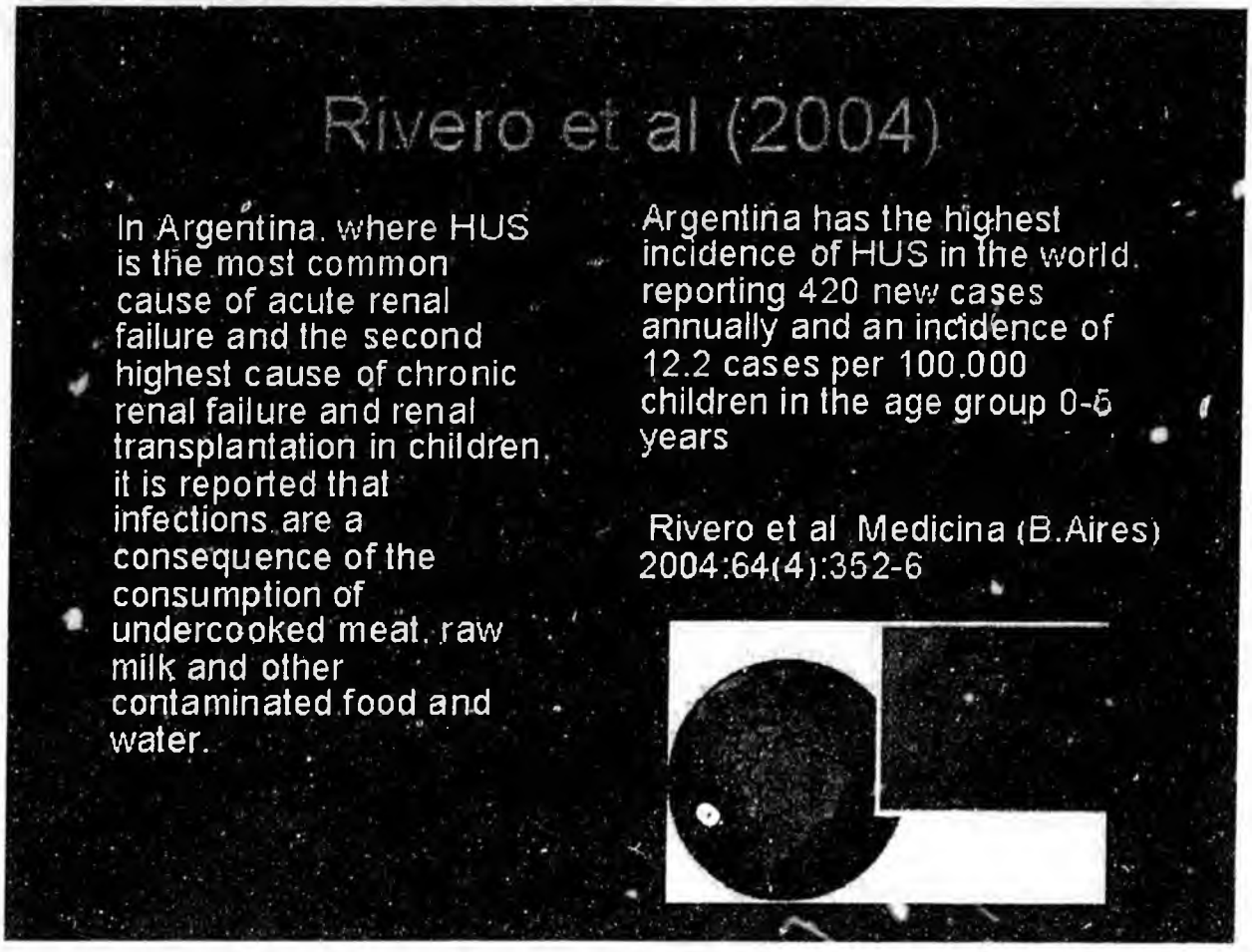


This reference is a report of two cases of HUS that occurred in children who had drunk raw milk. One child tested positive for *E. coli* O157:H7 but the other did not.

Manure from cattle on the dairy farm tested positive for *E. coli* O157:H7 – as does the manure from nearly 30% of feedlot cattle in the United States – but the authors did not report testing any of the milk.

There was no evidence that raw milk was contaminated with *E. coli*, nor any evidence that this organism was the cause of the second case of HUS.

Slide 28
http://www.cfsan.fda.gov/~ear/milksafe/milksa28.htm



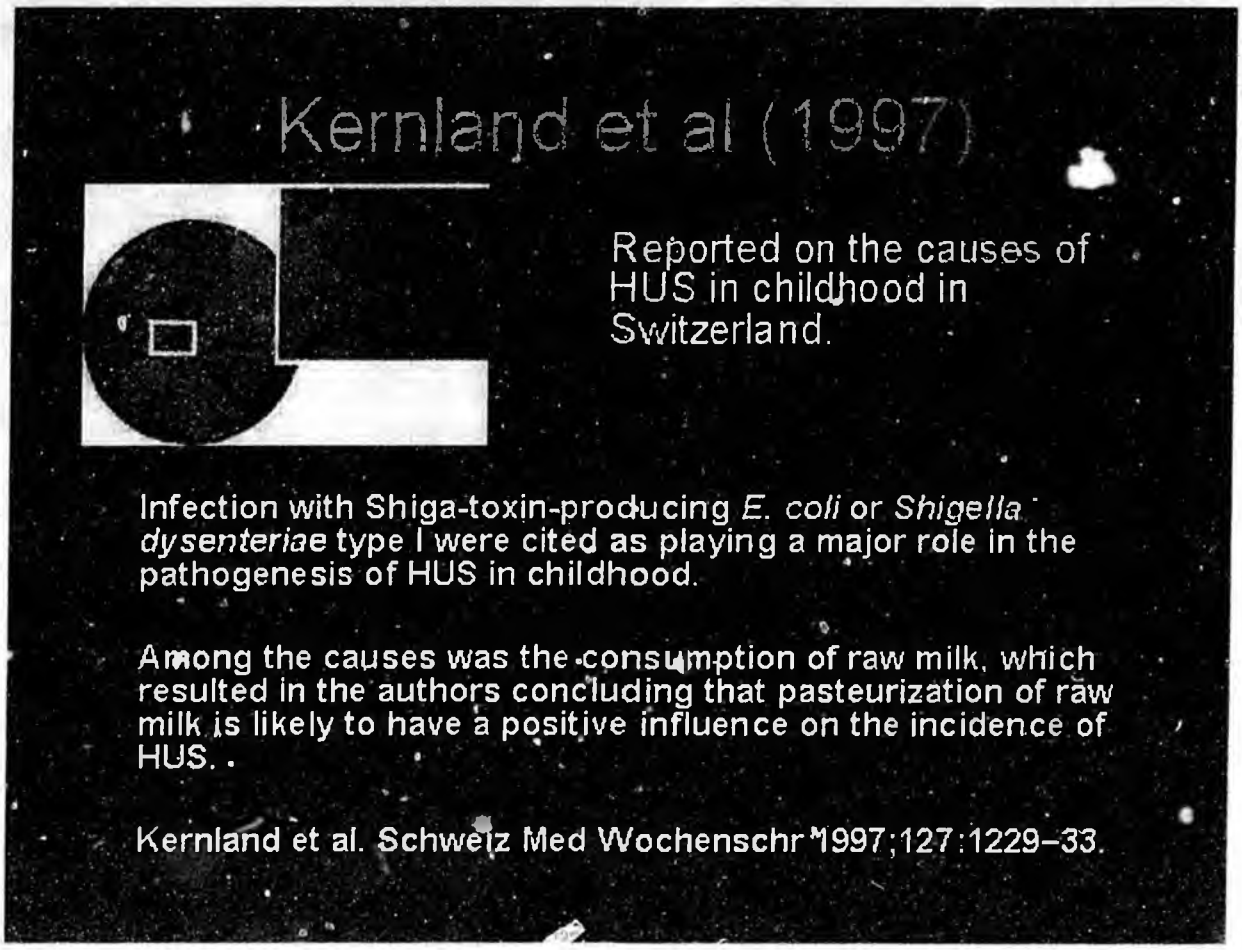
The authors of this review stated that human infections with the "verocytotoxigenic" subgroup of *Escherichia coli* O157:H7 (named for the toxins it makes) are frequently due to unpasteurized milk and inadequately cooked meat, direct contact with animals or their feces, or the consumption of contaminated water, fruits and vegetables.

They did not present new data, but cited two references for these facts: one study conducted in England and one conducted in Scotland. Both found environmental factors such as direct and indirect contact with farm animals to be the primary means of infection.

The authors of one of them concluded in their abstract, "The most important findings were the high proportion of cases who had been exposed to environmental factors such as farm animals and/or their by-products; or who had participated in gardening or garden-play; or who had suspected or confirmed household water supply problems, prior to the onset of illness."

There is no evidence that raw milk is responsible for Argentina's high incidence of HUS.

Slide 29
http://www.cfsan.fda.gov/~ear/milksa29.htm



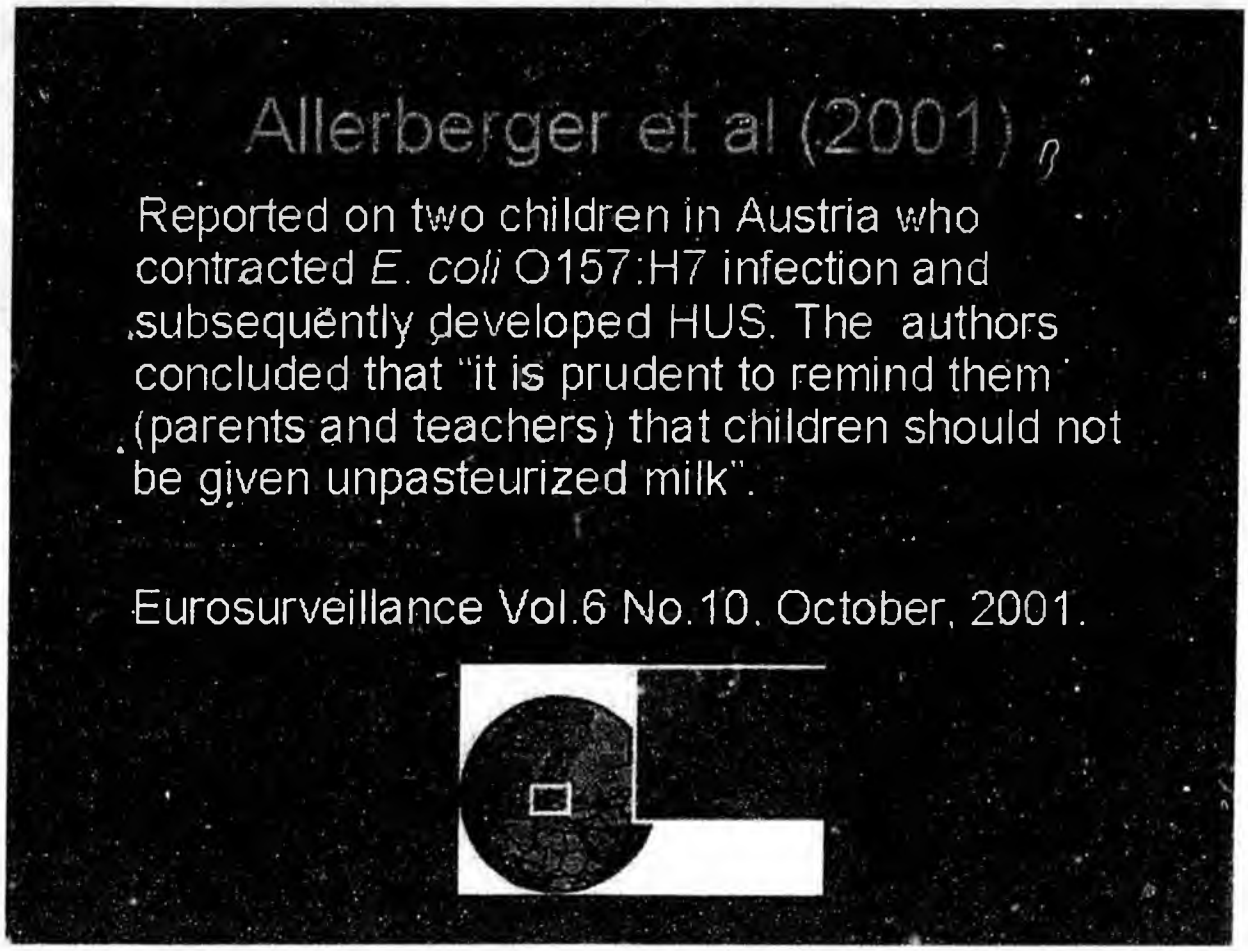
The authors sought to identify statistical risk factors of HUS, not causes.

They compared 27 children with HUS to 27 children without HUS in a case-control study. Seven children with HUS had parents who were farmers, five lived in rural cattle-breeding areas, and five had visited a stable or come into contact with cow manure. By contrast, only two children without HUS had parents who were farmers, and only one lived in a rural cattle-breeding area or had visited a stable and come into contact with manure.

Only one out of 27 children with HUS had drunk raw milk. None of the 27 children without HUS had drunk raw milk. The authors could not perform any statistical analysis indicating that raw milk was a risk factor. Instead, they grouped it in with the other farm-related exposures and concluded that this group of exposures as a whole was associated with HUS.

There was no evidence that raw milk caused the *E. coli*. infection in the single person who drank it.

Slide 30
http://www.cfsan.fda.gov/~ear/milksafe/milksa30.htm



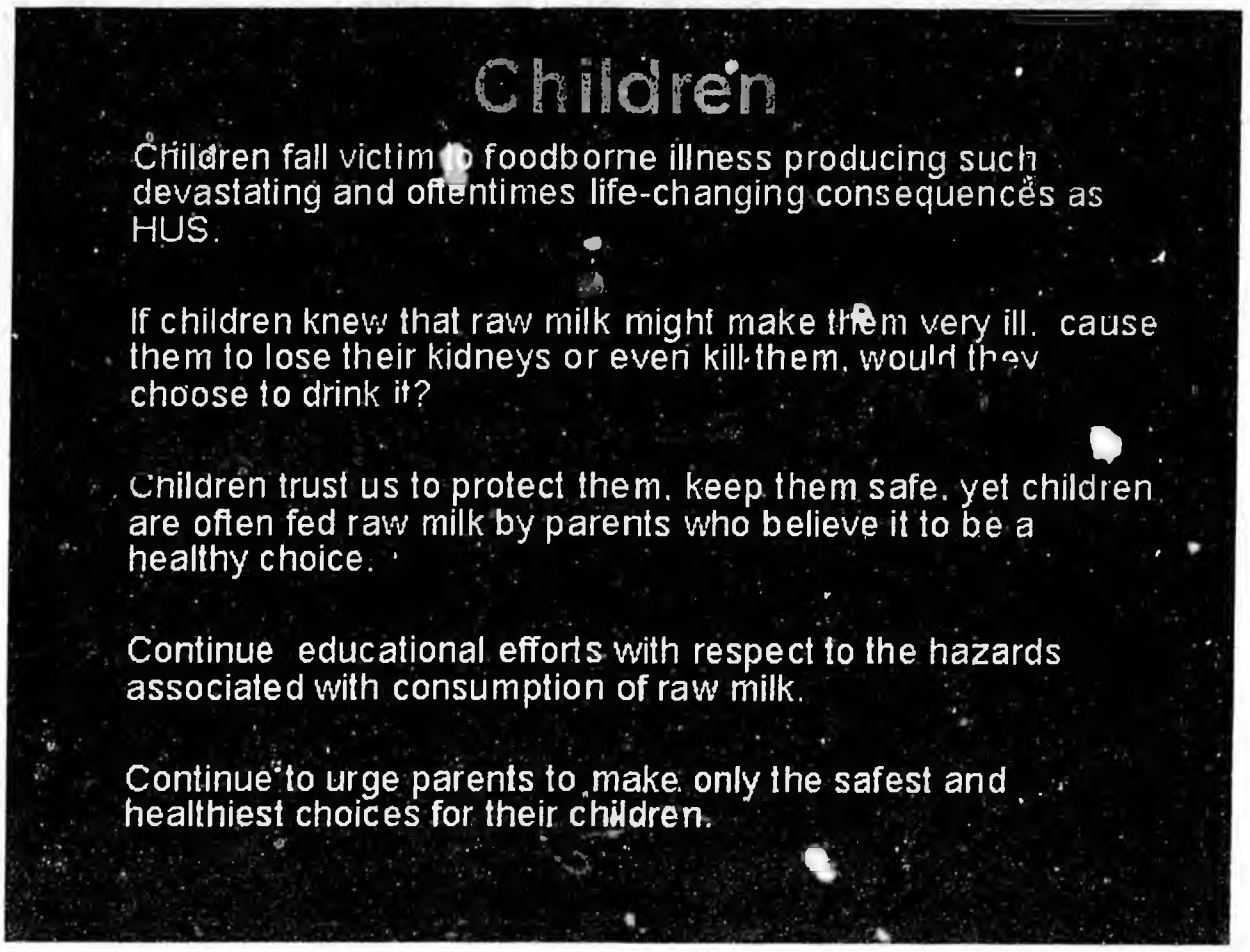
Only one of these children developed HUS. Neither case was conclusively linked to raw milk; **in the HUS case, raw milk was explicitly ruled out.**

In the first case, the boy was visiting a rural farm on a school trip where he had direct contact with farm animals and their manure. He did not develop HUS. The authors of the report concluded that it was more likely that he contracted *E. coli* from drinking raw milk than from contact with manure. **Nevertheless, they only found *E. coli* present in manure and none of the milk samples they tested were contaminated. One teacher and 13 other school children also drank the milk and did not get sick.**

Of the second case, the authors concluded: "Although the child with HUS was given unpasteurized cows' milk regularly by his parents, his severe illness . . . was not related to consumption of raw milk."

Both boys fully recovered.

Slide 31
http://www.cfsan.fda.gov/~ear/milksafe/milksa31.htm

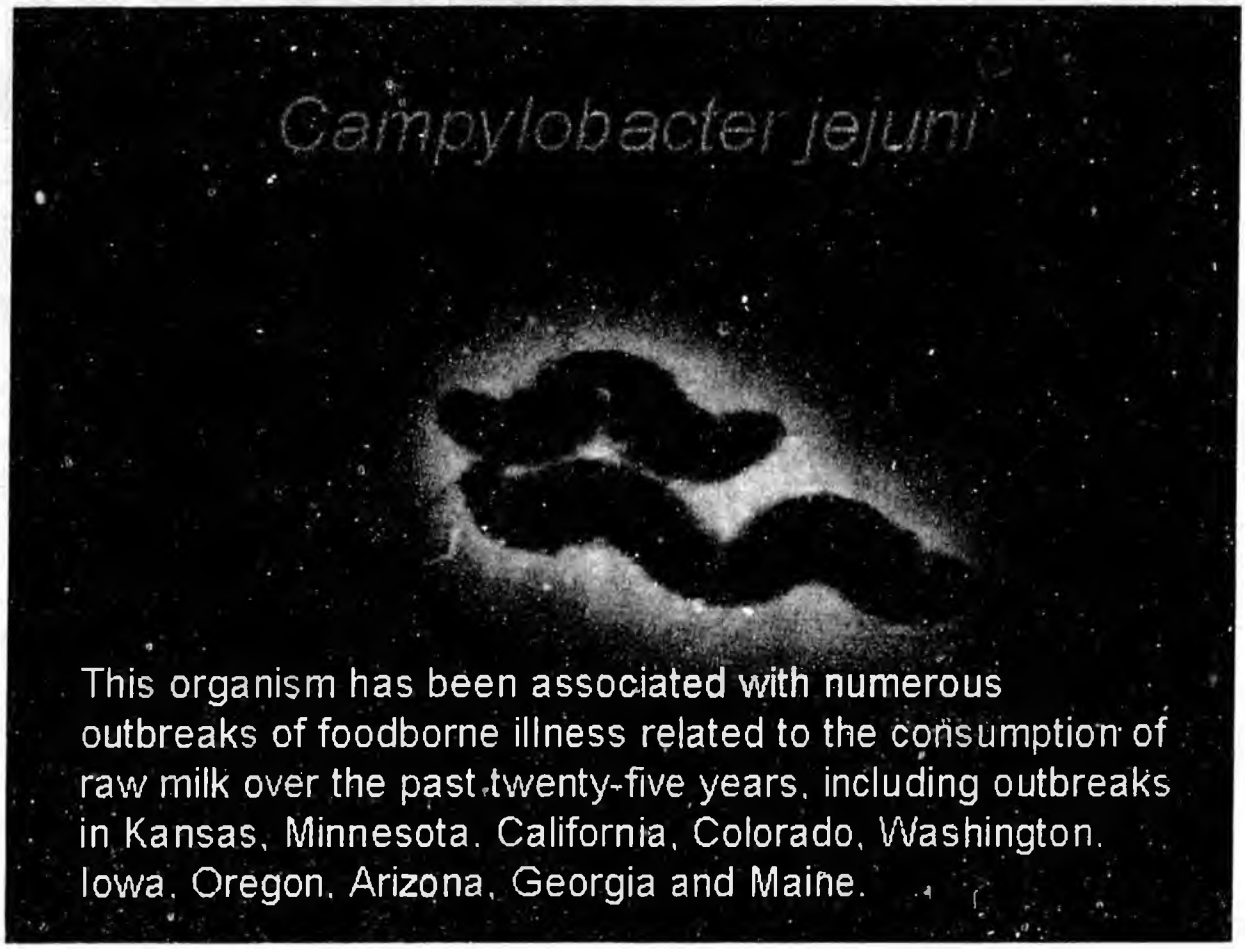


The conclusion of the previous case rep. . bears repeating: "Although the child with HUS was given unpasteurized cows' milk regularly by his parents, his severe illness . . . was not related to consumption of raw milk."

Education is only valuable insofar as it is founded upon truth.

The use of properly produced raw milk *is* among the safest and healthiest choices parents can make for their children.

Slide 32
http://www.cfsan.fda.gov/~ear/milksafe/milkse31.htm



Between 1990 and 2005, this organism has also been associated with numerous outbreaks of foodborne illness reported to the CDC as relating to the consumption of the following foods: beef, pork, quail, grilled chicken, baked chicken, barbecued chicken, chicken liver, oysters, chicken and beef fajita, potato salad, Caesar salad, tuna salad, green salad, taco salad, fruit salad, pasta salad, green peas, baked beans, lettuce, melon, strawberries **and pasteurized milk.**

Slide 33
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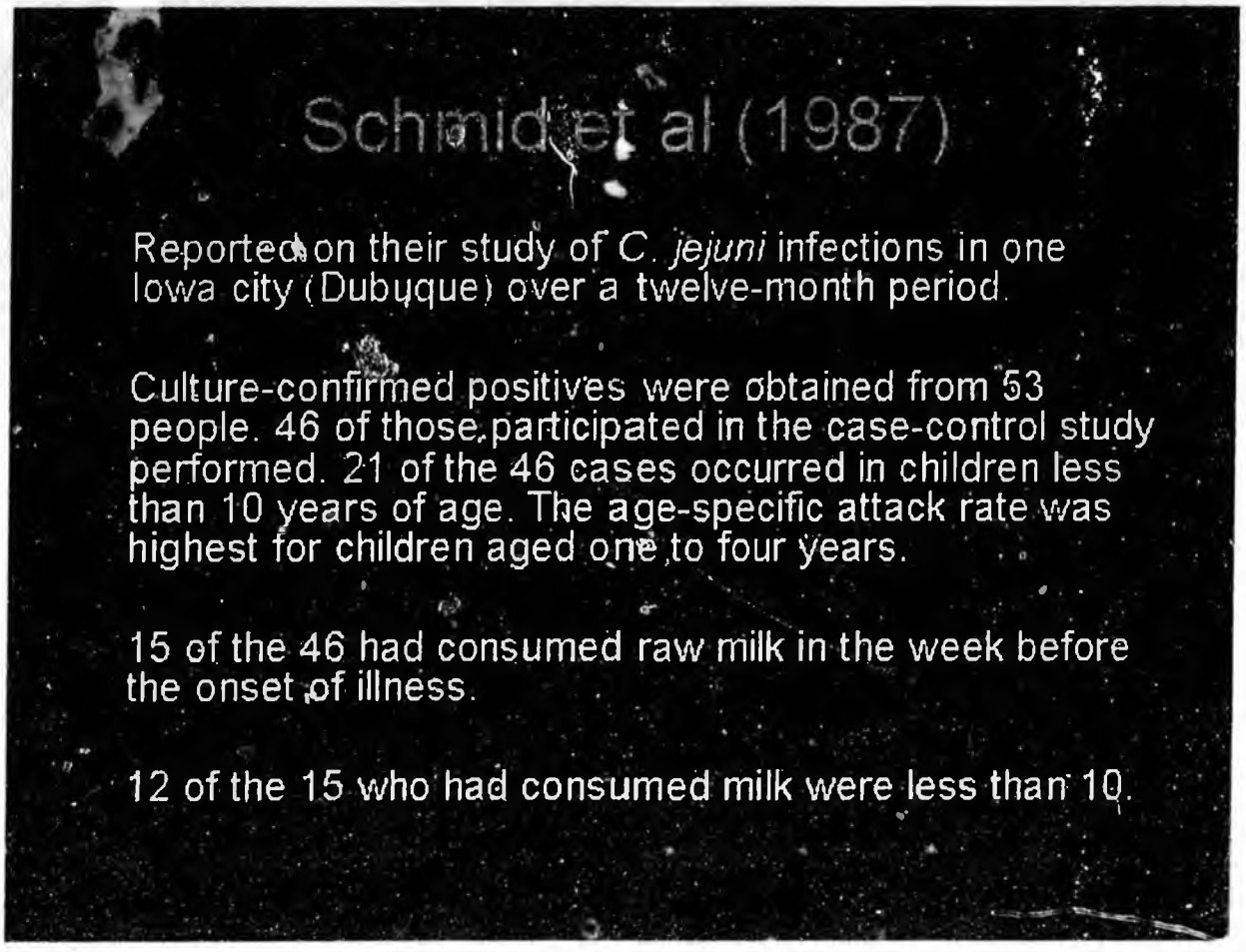

The statistical association of illness with the consumption of raw milk was compelling: 32.6% of infected patients had drunk raw milk and 10.9% of matched control subjects had drunk raw milk. This association, however, does not prove causation. It could reflect the consumption of contaminated milk or it could reflect a common exposure to another cause.

Six of the 15 patients who had drunk raw milk lived in the city and drank raw milk during visits to rural farms. The remaining nine lived in rural environments – the investigators did not report whether they visited or lived on farms. One patient who drank raw milk was staying overnight at a farm where two out of eight asymptomatic family members tested positive for the organism.

The authors of the report noted that "owning farm animals of various types" is a risk factor for *C. jejuni* infection.

Multiple milk samples from seven patients' households were tested for *C. jejuni*. All of them tested negative. By contrast, 360 samples of locally sold chicken tested positive.

Slide 34
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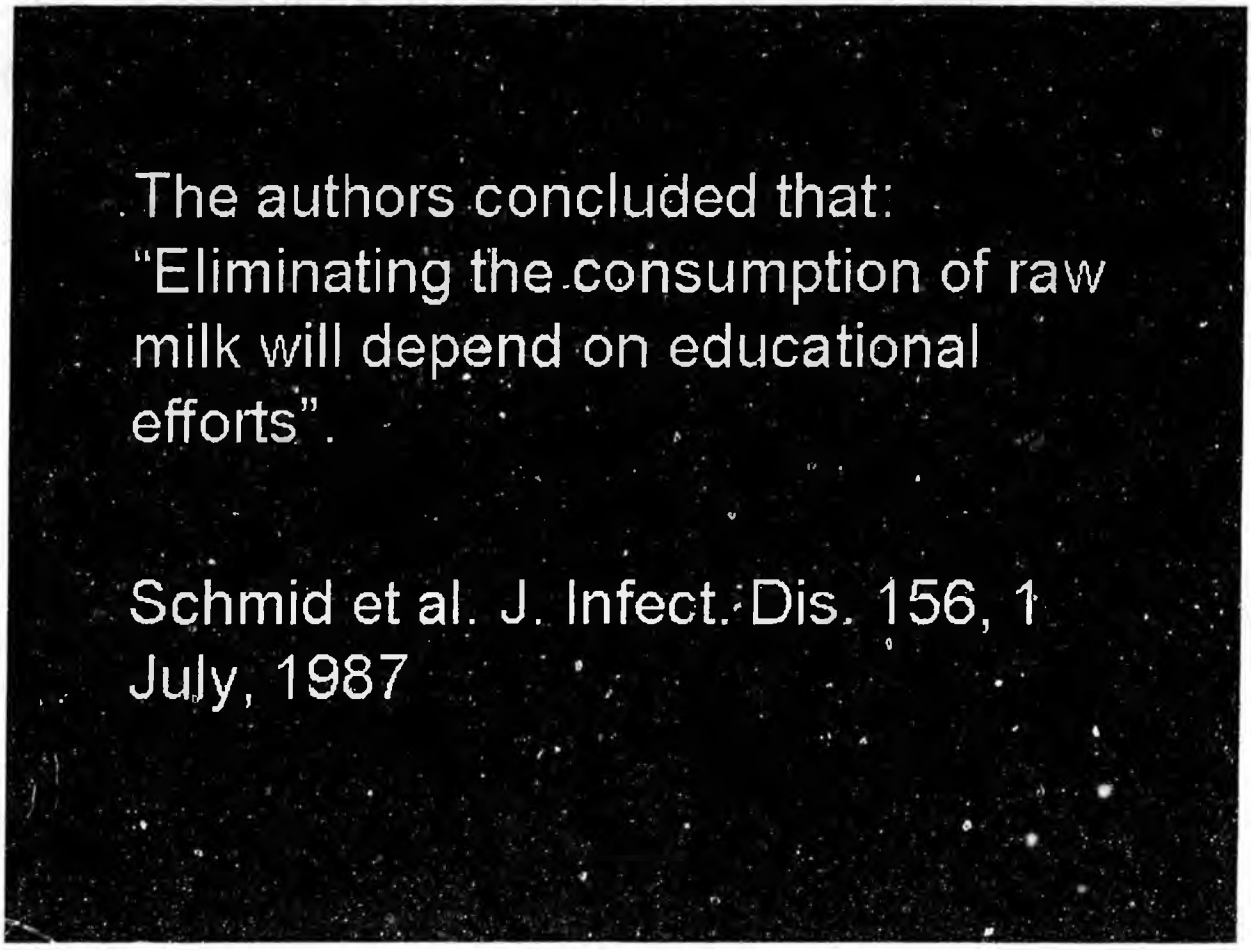

They stated that this was because "the ready availability of raw milk" persisted despite the fact that "the commercial and private sale of raw milk is already illegal in Iowa." Clearly, the demand for raw milk – because of its superior taste and health value – is not going away. The government cannot do anything to ensure the safety of raw milk if it is illegal. Only an open system of private or governmental oversight and certification will ensure that consumers have access to safely produced, healthy raw milk.

These authors did not explain why such a tenuous association with raw milk that could not be confirmed by a single contaminated sample should be considered grounds for eliminating its consumption.

Despite hundreds of positive samples, they offered no suggestions about how to eliminate the consumption of chicken.

And despite a 65% reduced risk of infection among those who always washed their hands before eating, they made no remarks about the necessity of educational efforts addressing personal hygiene.

Slide 35
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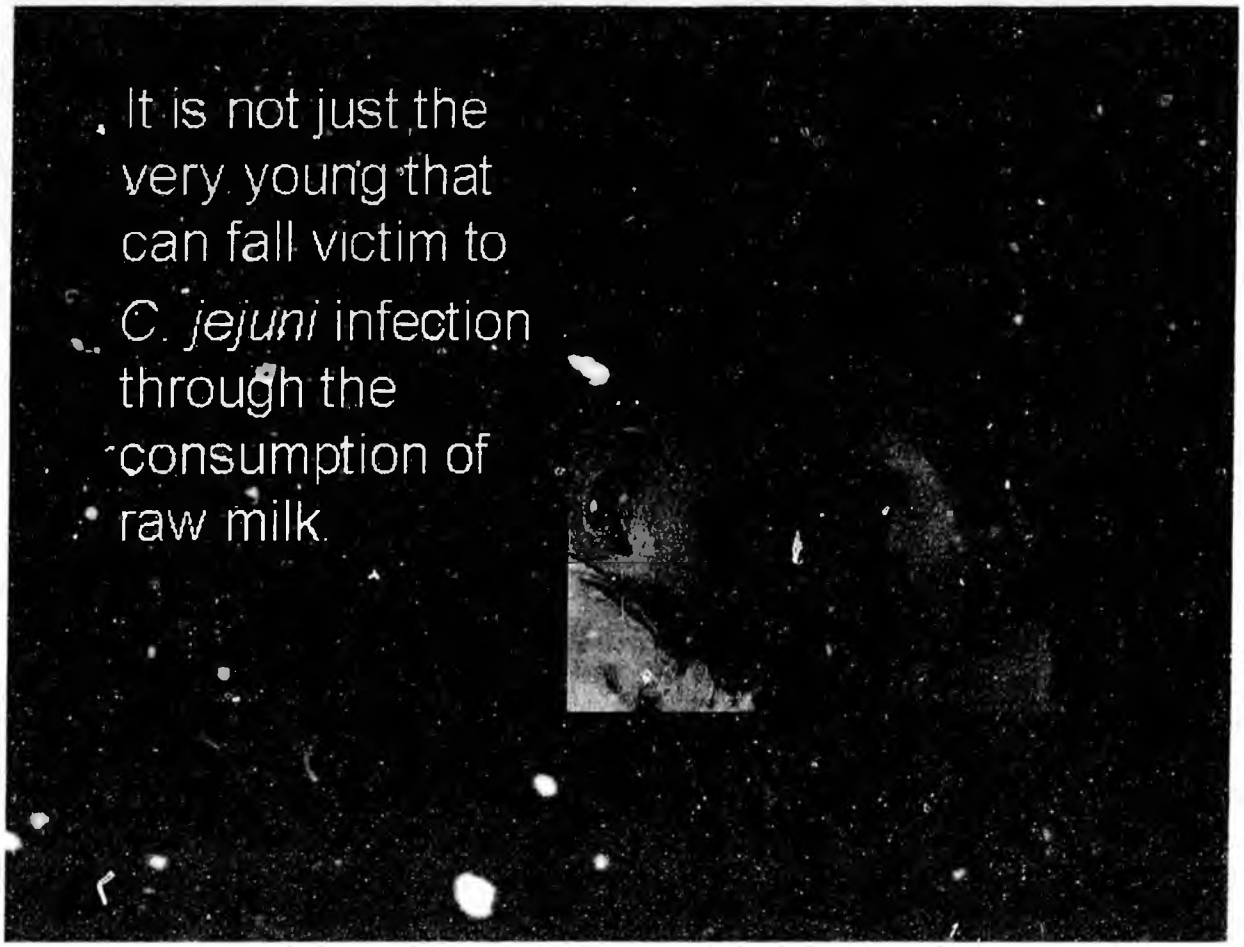

Nor is it only those who drink raw milk that may fall victim to the disease. In the preceding outbreak, almost 70% of infected patients had not drunk raw milk. **Between 1990 and 2005, 22 other foods were reported to the CDC as associated with a *C. jejuni* outbreak, including meats, salads, fruit, and pasteurized milk.**

Slide 36
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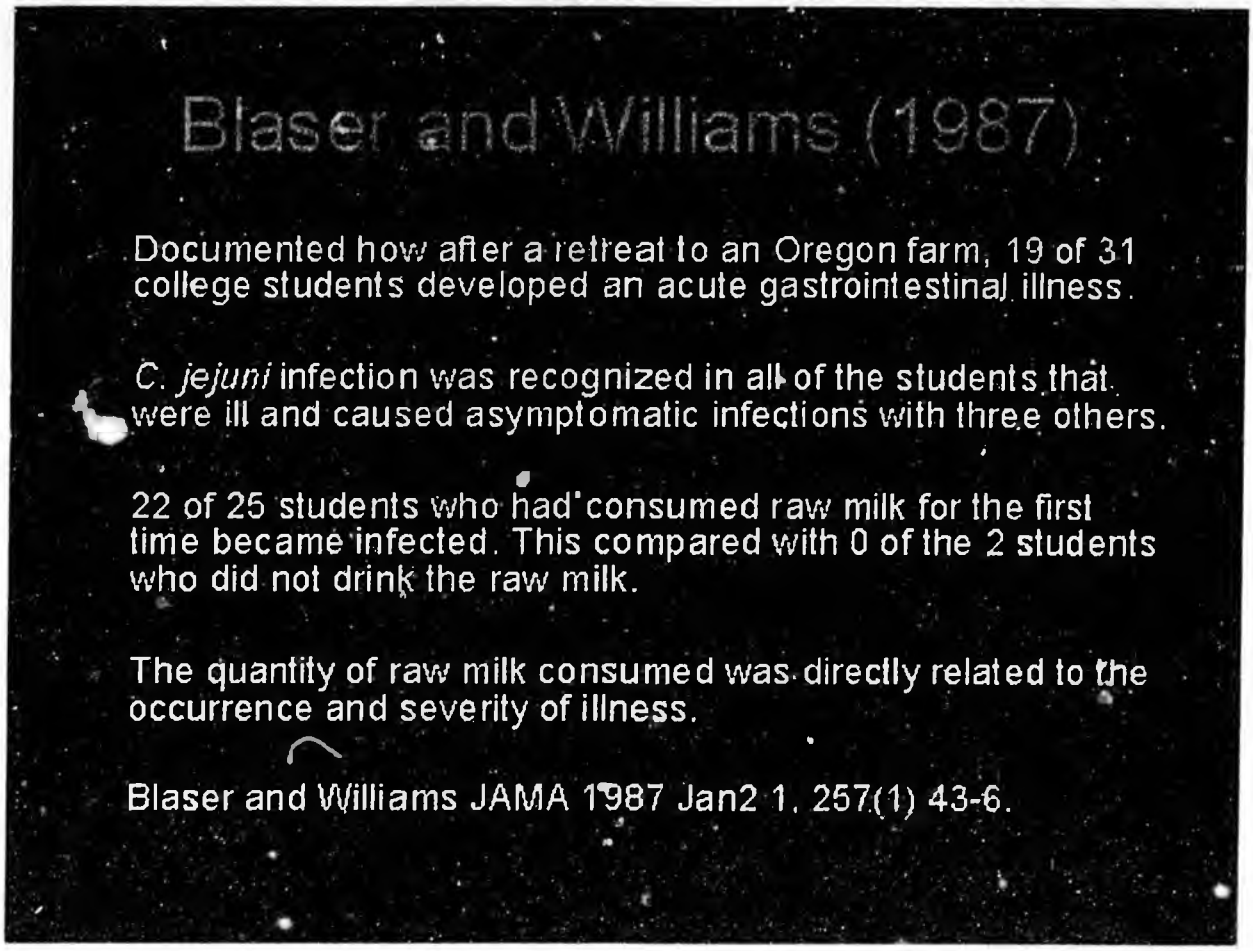


The presence of *C. jejuni* was demonstrated in 7 out of the 15 symptomatic students from whom fecal samples were obtained.

The incidence of illness increased between consumption of one and four glasses of milk from 30% to 100%, but those who drank more than four glasses of milk had an even lower incidence (67%) than those who drank two glasses of milk (80%).

The owner of the farm tested positive for *C. jejuni* and had prepared breakfast for the students. Four weeks later, a sample of cow manure tested positive for *C. jejuni*, but the investigators made no attempt to test any of the milk for the organism, claiming that no reliable methods were available at the time.

Although the *C. jejuni* was not conclusively linked to the milk, the milk was taken from a bulk tank intended for pasteurization, so may not have been subject to as strict standards of quality as milk intended to be drunk unpasteurized would be. The farmer who tested positive could also have contaminated any of the food consumed by the students including the milk, **in which case pasteurization would not have prevented the outbreak.**

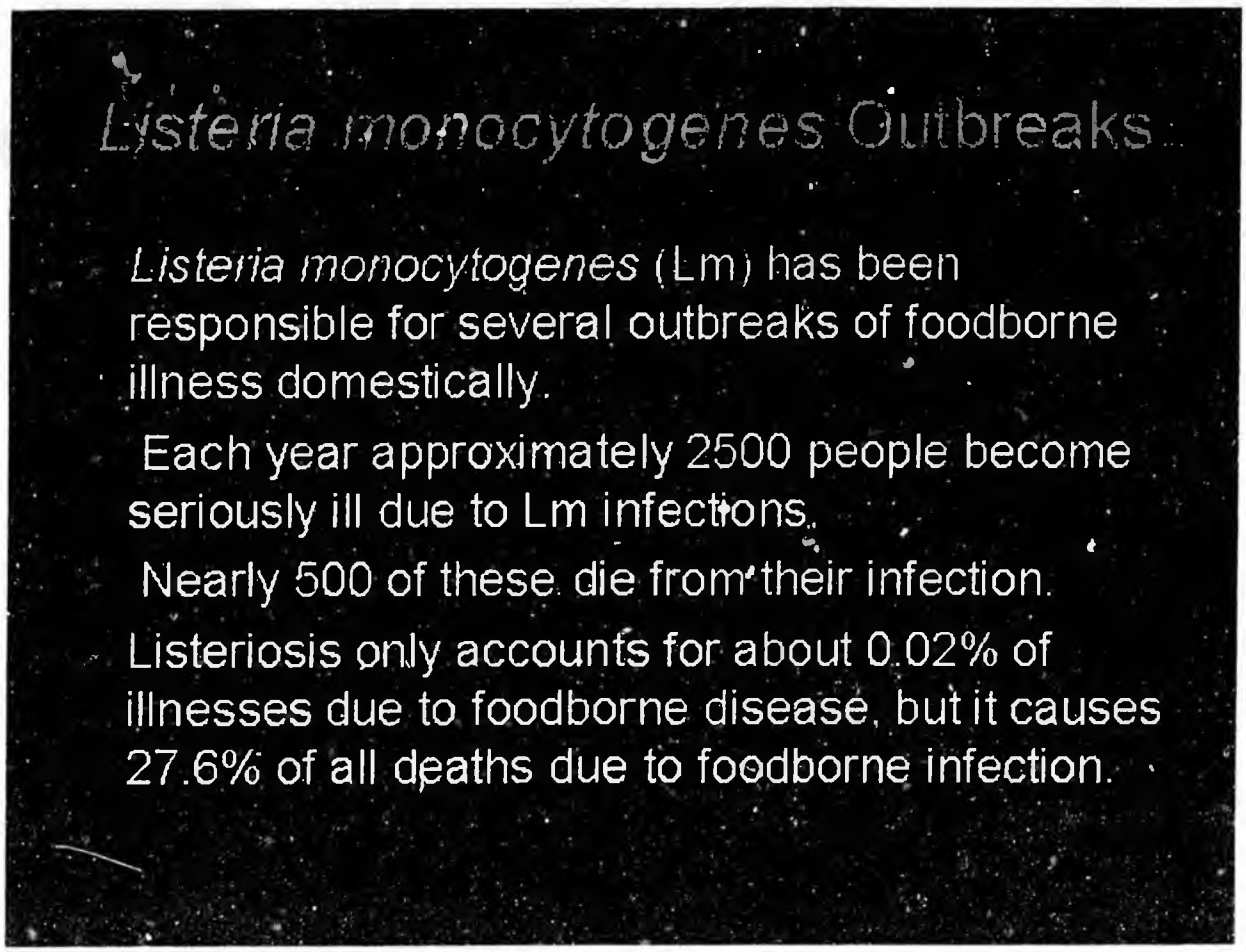
Response to Slide 36 Continued

Six farm workers and four students who drank the raw milk were chronic raw milk drinkers. Despite drinking the implicated milk, **none of the ten chronic raw milk drinkers got sick.**

All ten chronic raw milk drinkers had an acute-phase antibody reaction to *C. jejuni* comparable to those who became ill, but none of them yielded fecal samples positive for the organism or developed symptoms. The authors suggested that this was because **they had developed immunity to *C. jejuni* through previous consumption of raw milk**, but admitted that they had no evidence showing that the presence of antibodies was due to past rather than current exposure. Alternatively, there may be nutritive factors in raw milk that confer a general robustness of immunity on those who consume it regularly.

Regardless of the mechanism, **the study clearly demonstrates that the regular consumption of raw milk offers powerful protection against foodborne illness.**

Slide 37 is a picture. Slide 38.
http://www.cfsan.fda.gov/~ear/milksafe/milksa38.htm



Listeriosis is indeed a serious disease. As we will see shortly, many commonly consumed foods carry a far greater risk of causing the disease than raw milk does.

Pasteurized milk can carry *Listeria* as well.

Slide 39
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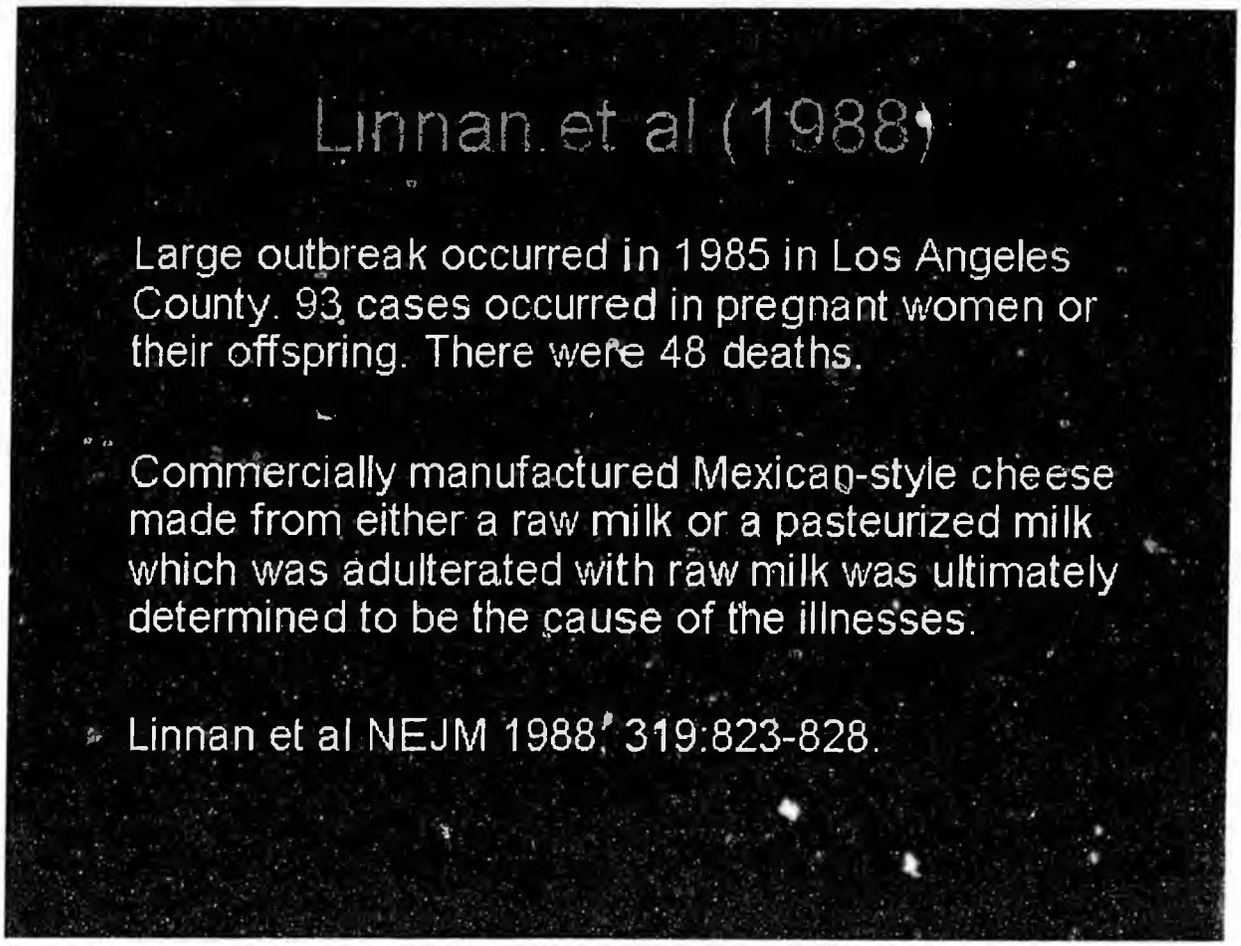

There was never any evidence that the contamination of this cheese – which was sold as a pasteurized product – was related to contaminated raw milk.

The initial investigation found that, compared to uninfected controls, infected patients were 5.5 times more likely to eat Mexican-style cheese, 4.3 times more likely to have sexual intercourse in the preceding month, and 4.1 times as likely to consume a root vegetable called jicama.

A secondary investigation found that the association with cheese was due specifically to the use of a cheese produced by Jalisco Mexican Products. The investigators did not pursue the associations with sexual intercourse or jicama any further.

They found the matching strain of *Listeria* in multiple unopened packages of the cheese on June 12, 1985 and initiated a recall of the product the following day. **Despite the recall, the outbreak continued producing new cases at full force through the end of July.**

Response to Slide 39 Continued

Investigation of the factory showed that the pasteurizer was working properly. Tests of the cheese for activity of the enzyme alkaline phosphatase (ALP), however, showed excessive activity in 9 out of 80 samples of cheese. Activity of this enzyme was taken to indicate inadequate pasteurization.

The authors provided no data showing a relationship between ALP levels and contamination with live *Listeria.* **Thus, there was no evidence that adequate pasteurization would have prevented the outbreak.**

Moreover, some bacteria produce ALP that cannot be differentiated from ALP indigenous to milk. Murthy and Cox (1988) showed that Mexican-style soft cheeses contain both heat-stable and heat-labile forms of microbial ALP. Geneix et al. (2007) published a new detection method this year to correct this problem. Thus, this test when performed in 1985 was not a valid means for demonstrating inadequate pasteurization in this type of cheese.

Of 27 dairy farms that supplied raw milk to the cheese plant, there were no cases of listeriosis in any of the herds and **all raw milk samples tested negative for the organism.**

The milk or cheese was clearly contaminated at the cheese manufacturing plant, whether before pasteurization, after pasteurization, or both.

Jalisco sued Alta Dena dairy, one of its suppliers, for a portion of the estimated $100 million in damage claims filed by victims of the listeriosis epidemic. **In 1989, however, a jury absolved Alta Dena of all responsibility for the epidemic because there was never any evidence that its raw milk was contaminated.**

According to the paper cited by the FDA, this outbreak of *Listeria* was the third one traced to a specific food product. The first occurred in 1981 and was traced to coleslaw. The second occurred in 1983 and was traced to **pasteurized** milk – 49 patients became ill and 14 died.

Slide 40
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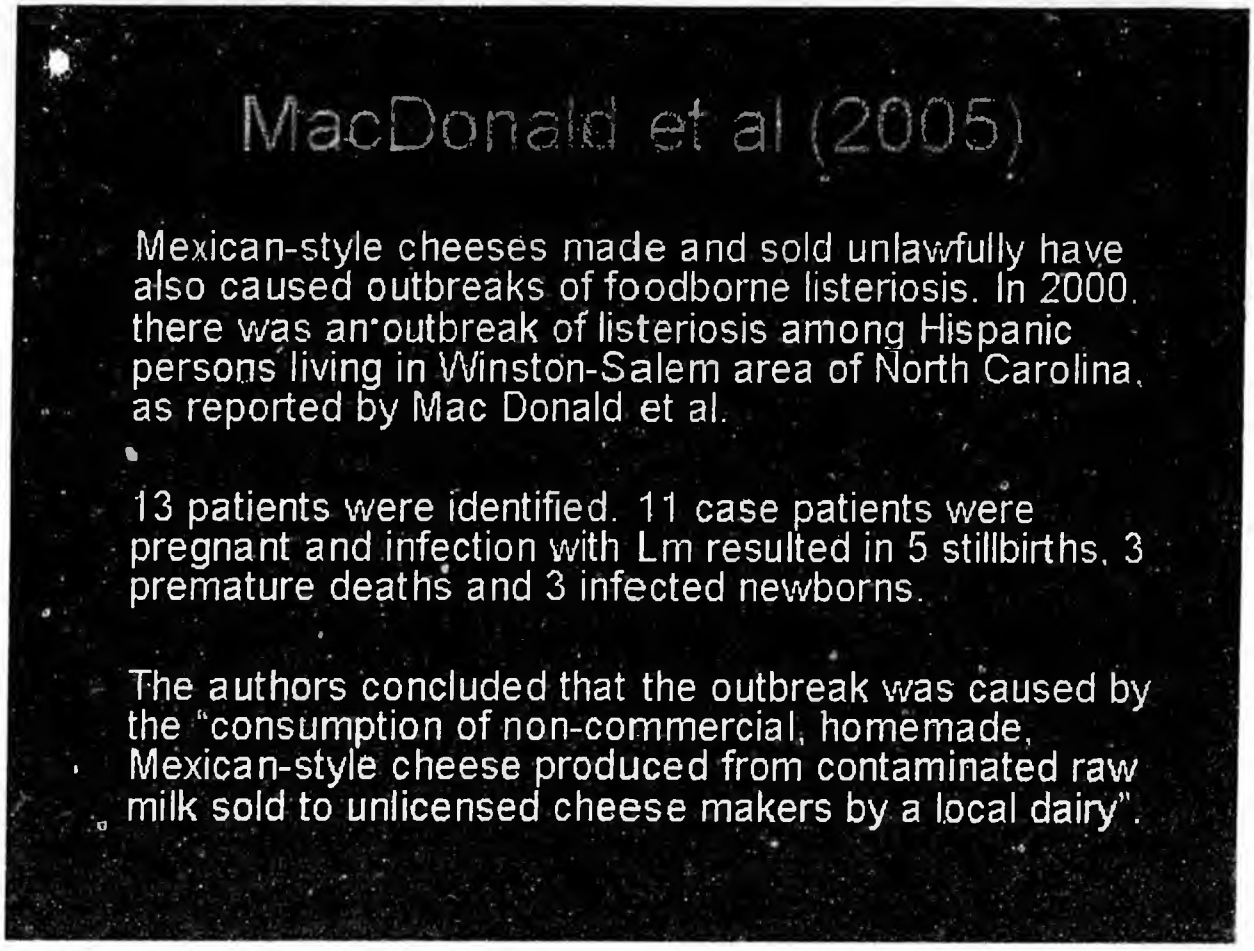


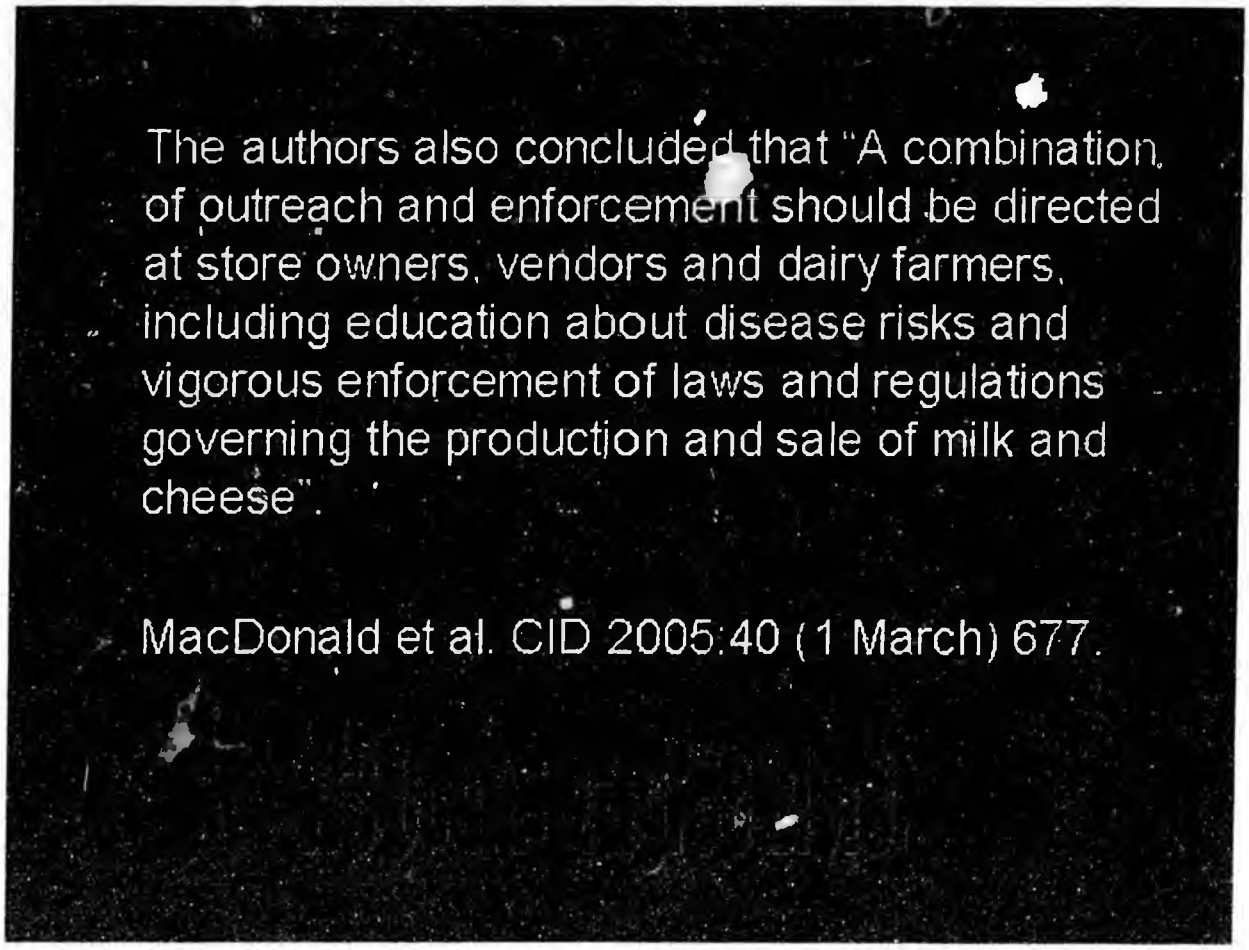
The results of the case-control study may have been biased. The authors reported: "During the study, rumors spread that the suspected vehicle of infection was homemade Mexican-style cheese."

Case patients were almost five times as likely as controls to have eaten hot dogs. According to a 2003 risk assessment jointly published by the FDA, USDA and CDC, **non-reheated hot dogs are over 280 times as likely as fresh, soft cheese to cause listeriosis.** No hot dogs were tested for the presence of *Listeria.*

Listeria was present in the bulk tank raw milk of a manufacturing-grade dairy equipped only to produce processed dairy products such as cheese and butter. **Bulk tank raw milk from dairies equipped to sell milk as a beverage did not contain the organism.**

The milk from the manufacturing-grade dairy was no longer contaminated once the dairy implemented "revised milking procedures that focused on proper preparation of cow teats and thorough cleaning of equipment." **No pasteurization was necessary to prevent contamination with *Listeria.***

Slide 41
http://www.cfsan.fda.gov/~ear/milksafe/milksa41.htm



The preceding sentence reads, "For Hispanic women, we recommend targeted education and dietary counseling about the hazards of eating fresh cheese, undercooked hot dogs, deli meats, and other ready-to-eat meat products implicated as vehicles for listeriosis during pregnancy."

In September, 2003, the FDA, USDA and CDC jointly released a report comparing the risk of listeriosis carried by various foods. The report estimated how many people were likely to catch listeriosis from a given food per year on an absolute basis and on a per serving basis.

On a per-serving basis, this report estimated that deli meats are 10.8 times more dangerous than raw milk and that non-reheated hot dogs are 9.2 times more dangerous than raw milk. Since deli meats are so commonly consumed, on an absolute basis they carry 515 times as great a risk as raw milk.

The FDA has yet to inform us that "hot dogs and deli meats are ***inherently*** dangerous."

Conclusions – Biased Studies Fail to Indict Raw Milk

As can be seen in the table below, *all* of the 15 reports associating outbreaks of foodborne illness with raw milk that the FDA cites are seriously flawed. **Not one of the studies showed that pasteurization would have prevented the outbreak.**

Either No Valid Positive Milk Sample or No Valid Statistical Association	14/15 (93%)
No Valid Positive Milk Sample	12/15 (80%)
No Positive Milk Samples at All	11/15 (73%)
Outbreak Did Not Match Milk Strain	1/15 (7%)
No Valid Statistical Association with Raw Milk:	10/15 (67%)
No Statistical Association with Raw Milk at All:	7/15 (47%)
Invalid Case-Control Comparison:	1/15 (7%)
Case-Control Study Tainted by Publicity:	2/15 (13%)
Neither Association nor Milk Sample	8/15 (53%)
Findings Misrepresented by FDA	7/15 (47%)
Authors Themselves Concluded Raw Milk Unrelated	1/15 (7%)
Authors Concluded Regular Raw Milk Consumption Protective	1/15 (7%)
Alternative Explanations Discovered but Not Pursued	5/15 (33%)
No Evidence Anyone Consumed Raw Milk Products	2/15 (13%)
Outbreak Did Not Even Exist	1/15 (7%)
Did Not Show that Pasteurization Would Have Prevented Outbreak:	**15/15 (100%)**
Evidence that Pasteurization Would Not Have Prevented Outbreak	1/15 (7%)
Evidence that Pasteurization Was Not Necessary to Prevent Outbreak:	1/15 (7%)

Conclusions – The Failure of Pasteurization

Slide 42
http://www.cfsan.fda.gov/~ear/milksafe/milksa42.htm

The most important flaw in the reports that the FDA cites is that **none of them generates any evidence that pasteurization would have prevented the outbreak.** The FDA merely makes this assumption based on the flimsily supported statement above. **In reality, pasteurization is not in any way a foolproof means of eliminating pathogens.**

In 1999, Czechoslovakian researchers Binderova and Rysanek showed that if pre-pasteurization contamination is high, **dangerous levels of *L. m nocytogenes* and *E. coli* O157:H7 can survive high-temperature short-time pasteurization.** Various *Bacillus* and *Clostridium* species and *Mycobacterium paratuberculosis* may also survive pasteurization. Heat-treatment can cause bacteria to enter into a state of dormancy from which they can potentially recover in the human intestine. **This state of dormancy can cause typical laboratory culture techniques to underestimate the actual presence of *E. coli* in heat-treated milk 100-fold.** These and other organisms can also contaminate milk after pasteurization. The production of cheese or other processed dairy products allows additional opportunities for contamination.

As we will see in the coming slides, pasteurized milk may actually be much more dangerous than raw milk.

Conclusions – Comparing Raw Milk to Pasteurized Milk

Between 1980 and 2005, 41 outbreaks were reported to the CDC attributing 19,531 illnesses to the consumption of pasteurized milk and milk products. This is 10.7 times the number of illnesses attributed to raw milk during the same period.

The FDA, CDC and USDA estimate that 0.5% of milk consumed is raw. This estimation assumes that no raw milk is sold in states where its sale is prohibited. If raw milk sales in these states are similar to other states, however, raw milk may represent 1% of the nation's milk sales.

Using both of these figures, the risk of foodborne illness associated with raw milk on a per serving basis is between 87% greater than that with pasteurized milk and 7% lower than that with pasteurized milk.

Because 93% of reports associating raw milk with illness that the FDA cites in this presentation either fail to generate a valid statistical association or fail to generate a positive test sample and 53% fail to generate both, **the association with raw milk may be greatly exaggerated.**

Adjusting for this bias, pasteurized milk may be between 1.1 and 15.3 times as dangerous as raw milk on a per serving basis.

Since 100% of the reports that the FDA cites fail to generate evidence that pasteurization would have prevented the outbreak, the risk of illness genuinely attributable to lack of pasteurization may approach zero.

Conclusions – Comparing Raw Milk to Other Foods

Between 1998 and 2005, there were over 10,000 documented outbreaks that contributed to 199,263 documented cases of foodborne illness. Raw milk was associated with 0.4% of these cases.

Adjusting for the aforementioned biases, raw milk may have been genuinely associated with between 0.03% and 0.19% of these cases.

Again, since the FDA has presented no evidence that pasteurization would have prevented any of the outbreaks purportedly associated with raw milk, the risk genuinely attributable to lack of pasteurization may approach zero.

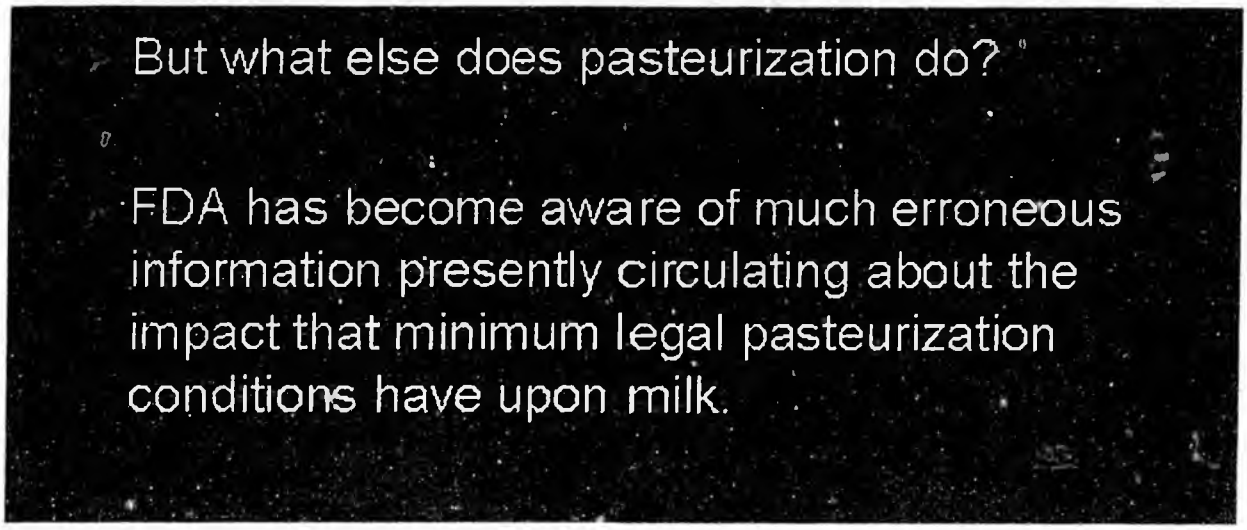
Conclusions – Putting It All in Perspective

Raw milk is clearly no more dangerous than other foods commonly consumed.

Yet there are no FDA warnings about the inherent dangers of deli meats; there are no executive orders prohibiting the interstate transport of chicken; no state legislation banning the sales of spinach; no consumer education campaigns to eliminate the attendance of flea markets; and no farmers being fined and jailed for the sale of root vegetables.

Producers and consumers of raw milk have a fundamental right to be treated fairly under the law that they are clearly being denied.

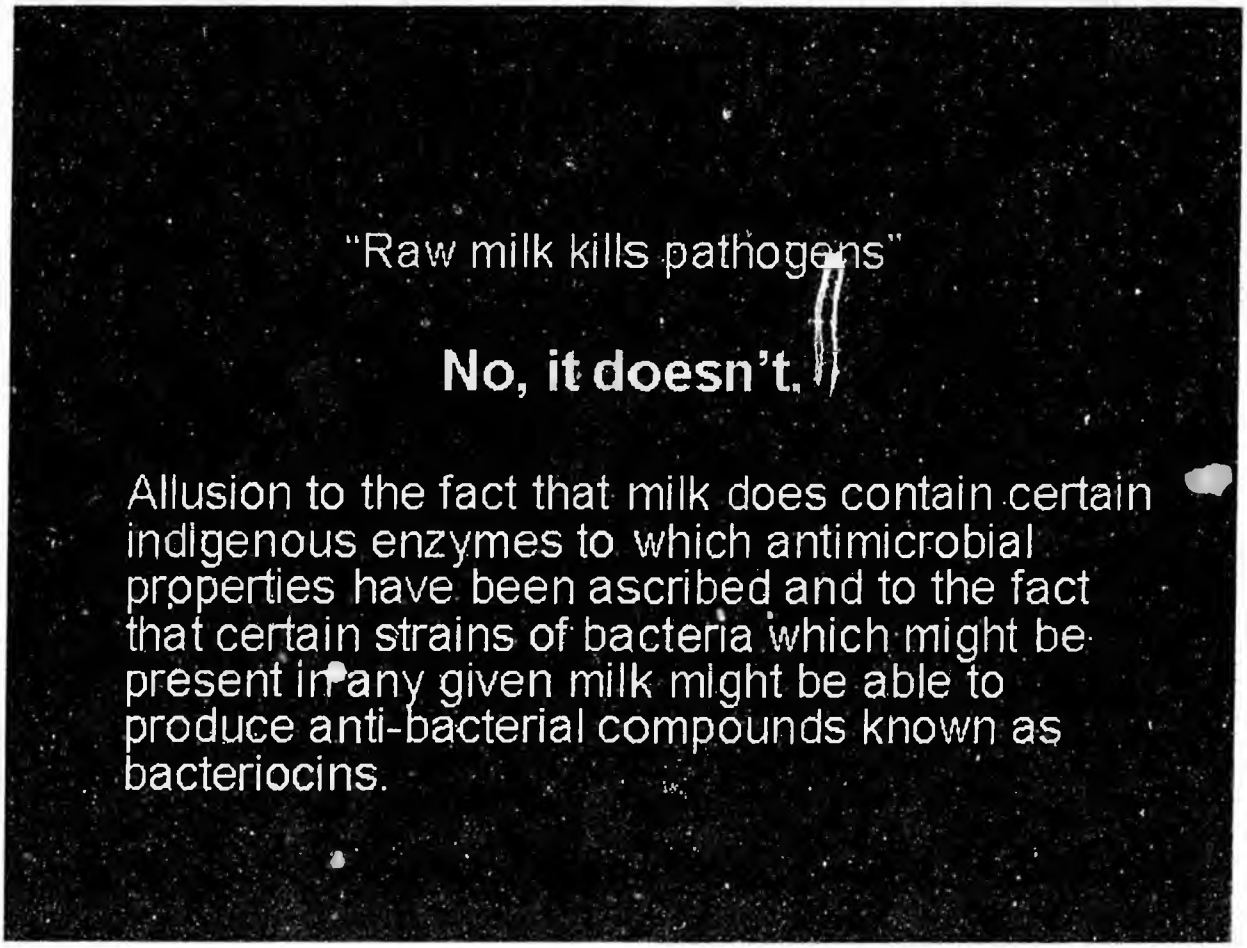
Slide 42
http://www.cfsan.fda.gov/~ear/milksafe/milksa42.htm



The FDA does not provide references for the quotations in the following section and they are not necessarily statements associated with the Weston A. Price Foundation.

Although a few of them cannot be supported, **most of the "myths" that the FDA cites are indeed substantiated in the scientific literature.** Our comments follow.

Slide 43
http://www.cfsan.fda.gov/~ear/milksafe/milksa43.htm



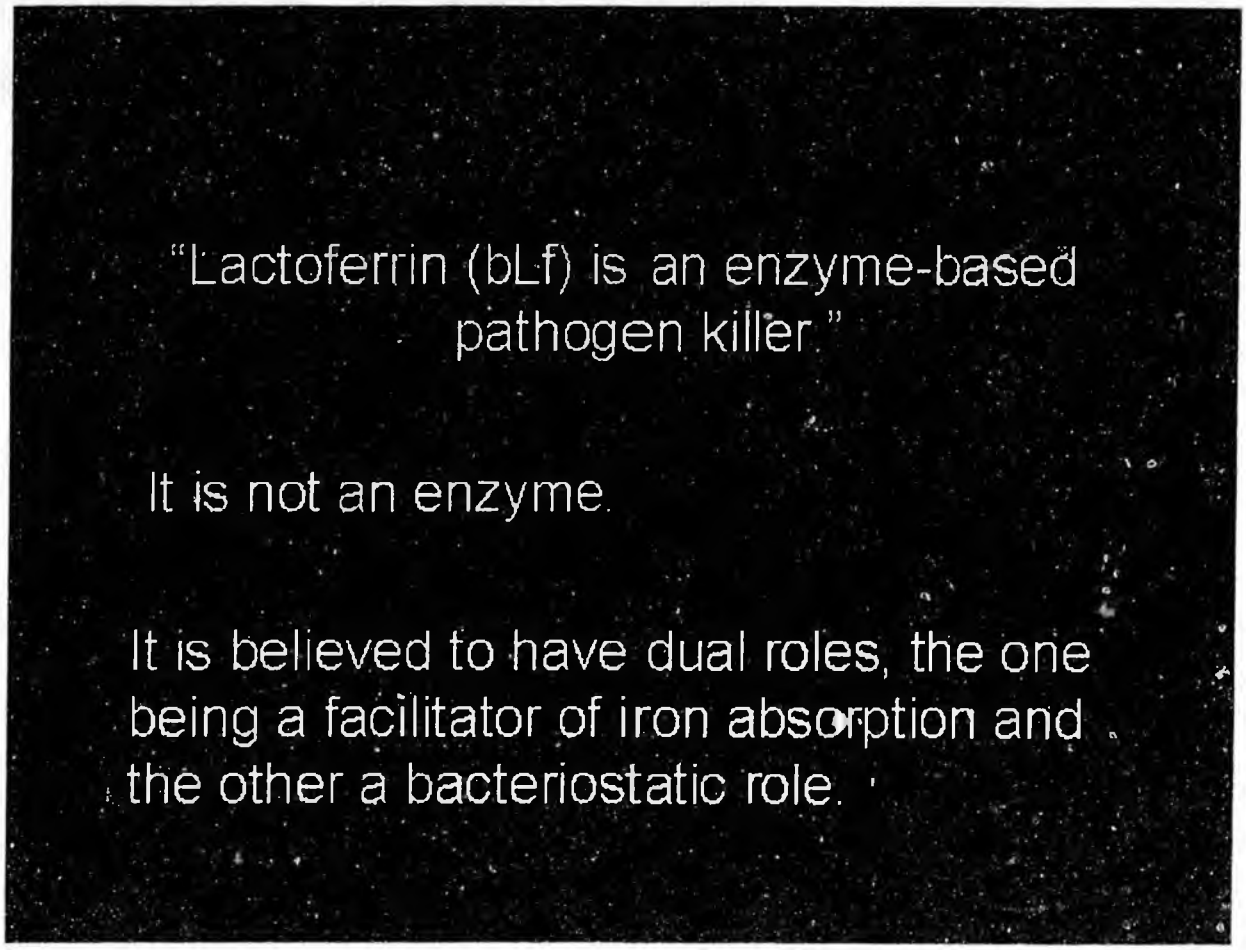
Doyle et al. (1982) showed that *C. jejuni* survived longer in sterile milk than in raw milk and suggested that the microflora of the latter "may have produced metabolites toxic to *C. jejuni*." They also noted that, "unlike sterile milk, raw milk contains lactoperoxidase," which "produces metabolites that are toxic to many gram-negative bacteria."

BSK Food & Dairy Laboratories (2002) inoculated raw colostrum and raw milk samples provided by Organic Pastures, a family-owned dairy from Fresno, CA with a mix of three pathogens and monitored the bacterial counts over the course of 14 days. The laboratory concluded, "Raw colostrum and raw milk do not appear to support the growth of Salmonella, *E. coli* O157:H7 or *Listeria monocytogenes*."

In both studies, pathogen counts declined over time and in some cases reached below the limit of detection within a week.

Raw milk may not kill pathogens but it contains important substances that do.

Slide 44
http://www.cfsan.fda.gov/~ear/milksafe/milksa44.htm



According to a recent review in the *Journal of Experimental Therapeutics and Oncology*, there is evidence that a portion of the lactoferrin molecule acts as a serine protease. Since serine protease activity is enzymatic and since it is responsible for part of the molecule's antibacterial effects, lactoferrin is technically an "enzyme-based pathogen-killer."

Lactoferrin, according to this review, exhibits fungistatic, bacteriostatic, bactericidal, and antiviral properties and inhibits the growth of parasites.

It is effective against *E. coli*, *S. typhimurium*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, *Vibrio cholerae*, *Haemophilus influenzae*, *S. aureus*, *Klebsiella pnemoniae*, *Candida albicans*, *Candida crusei*, *Tinea pedis*, *Toxoplasma gondii*, *Plasmodium falciparum*, *Herpes simplex*, hepatitis C virus, human papillomavirus, and various other pathogens.

It is not effective against gram-positive bacteria such as *Bifidobacterium* and *Lactobacillus* species. These species are friendly to the human intestine.

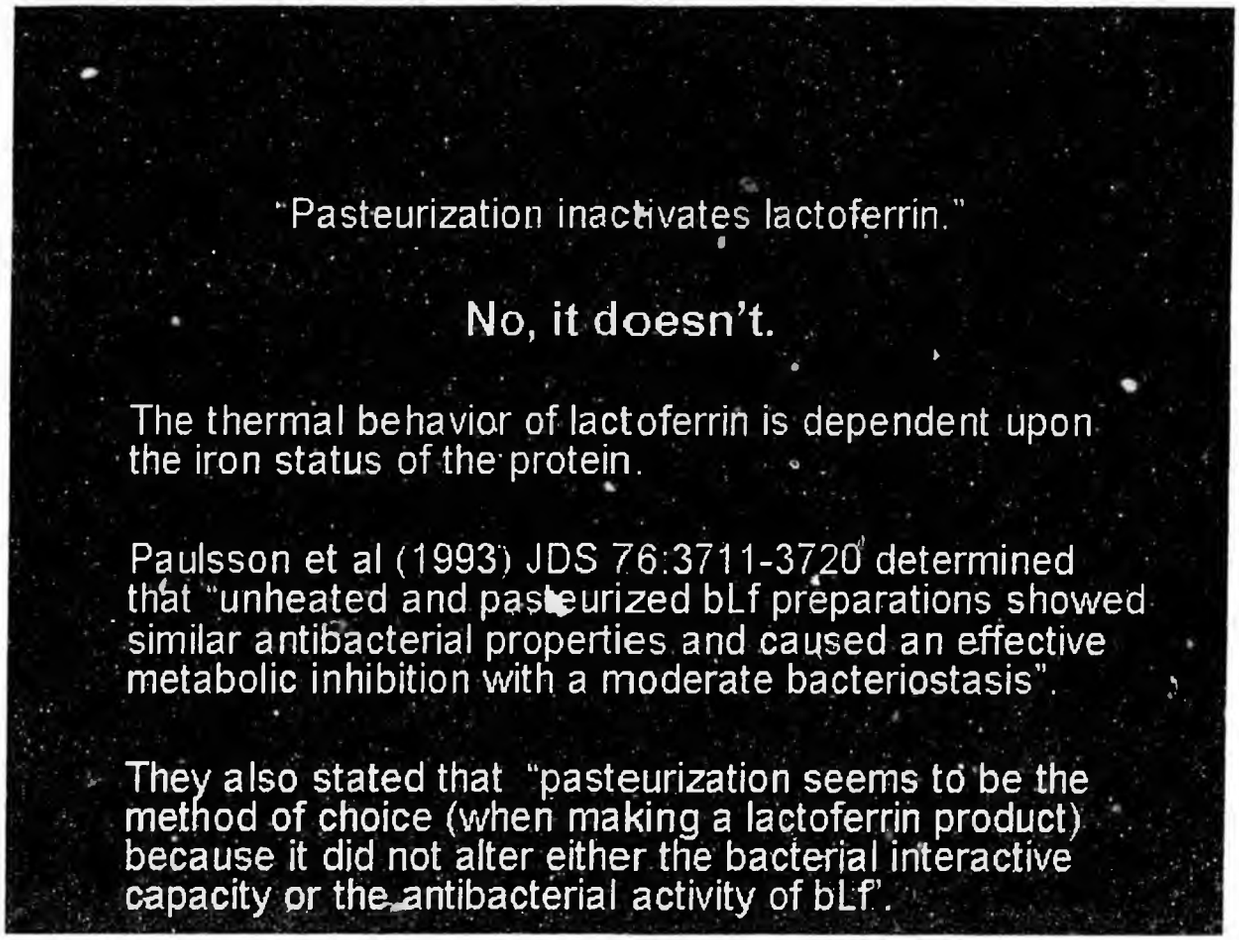
Slide 44 Response Continued

In 2003, the FDA approved the use of a lactoferrin-based anti-microbial spray to combat *E. coli* O157:H7 contamination in the meat industry. The FDA press release praised the product as an innovative way to protect the nation from foodborne illness.

"Innovative technology is a critical building block in preserving the strong foundation of the U.S. food supply," said Dr. Lester Crawford, Deputy Commissioner of the Food and Drug Administration. "We must continue to encourage scientific research and new technology to maintain this nation's safe food supply."

Since the dawn of mammalian history, nature has provided this "innovative technology" to nursing infants to protect their vulnerable and sensitive digestive systems from the insults of invading pathogens. Perhaps this is one reason why responsibly handled raw milk rarely leads to genuine cases of foodborne illness.

Slide 45
http://w\ .cfsan.fda.gov/~ear/milksafe/milksa45.htm

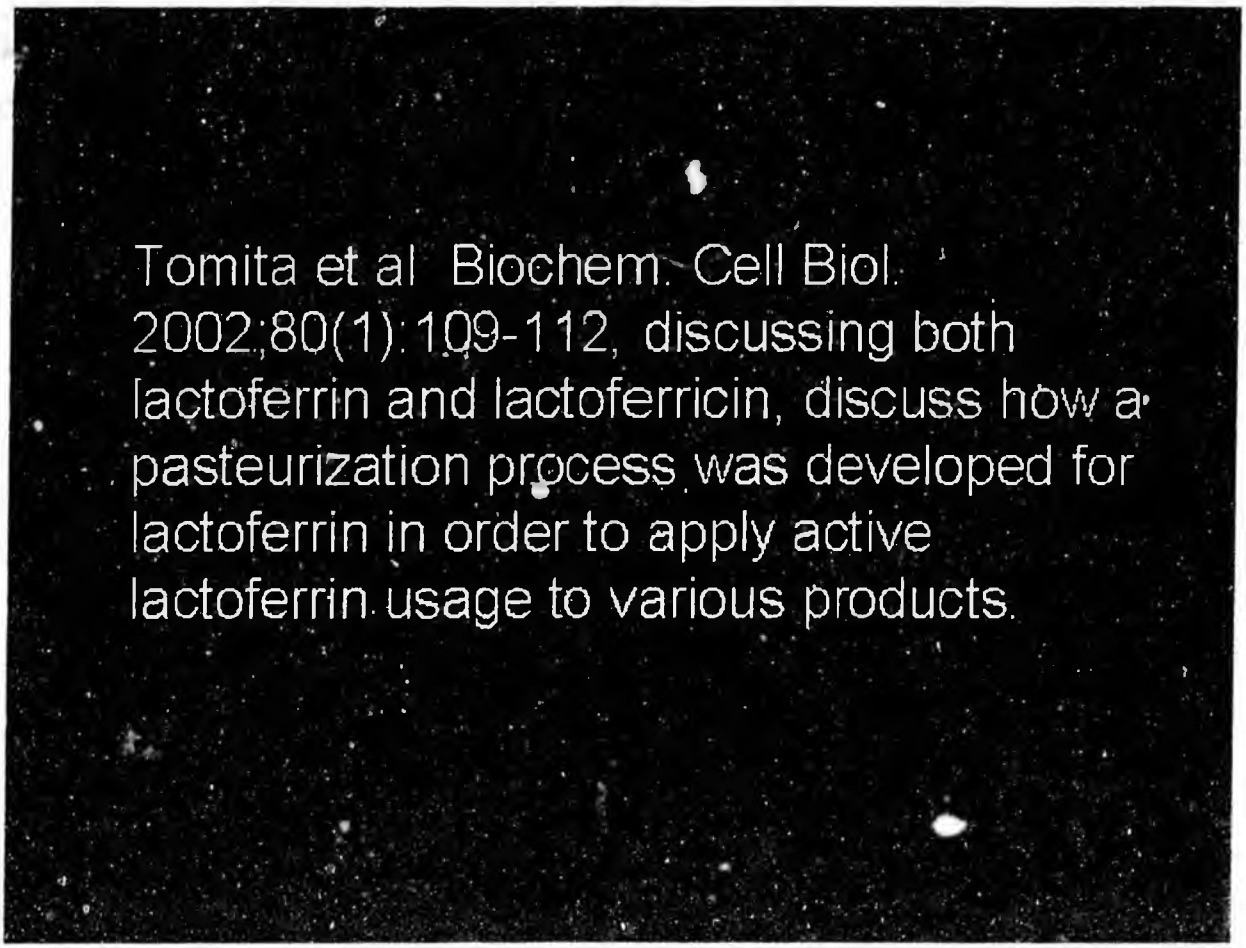


The authors of this study used purified lactoferrin, not milk. Although lactoferrin is more heat-stable when the iron is removed, accomplishing this requires incubating purified lactoferrin with citric acid at 5 degrees Celsius for 24 hours and running it through a gel filtration system. Such a "lactoferrin product" bears very little resemblance to the milk one would find in a grocery store.

In 1977, Ford et al. showed that classic pasteurization of human milk at 62.5 degrees Celsius for 30 minutes destroys 65% of the lactoferrin. They did not evaluate the antibacterial efficacy of the remaining 35%, which may have been damaged or completely destroyed.

Heating human milk at 70 degrees Celsius for 15 minutes caused 96% destruction of its lactoferrin. Again, we do not know whether the remaining 4% retained its antibacterial potency.

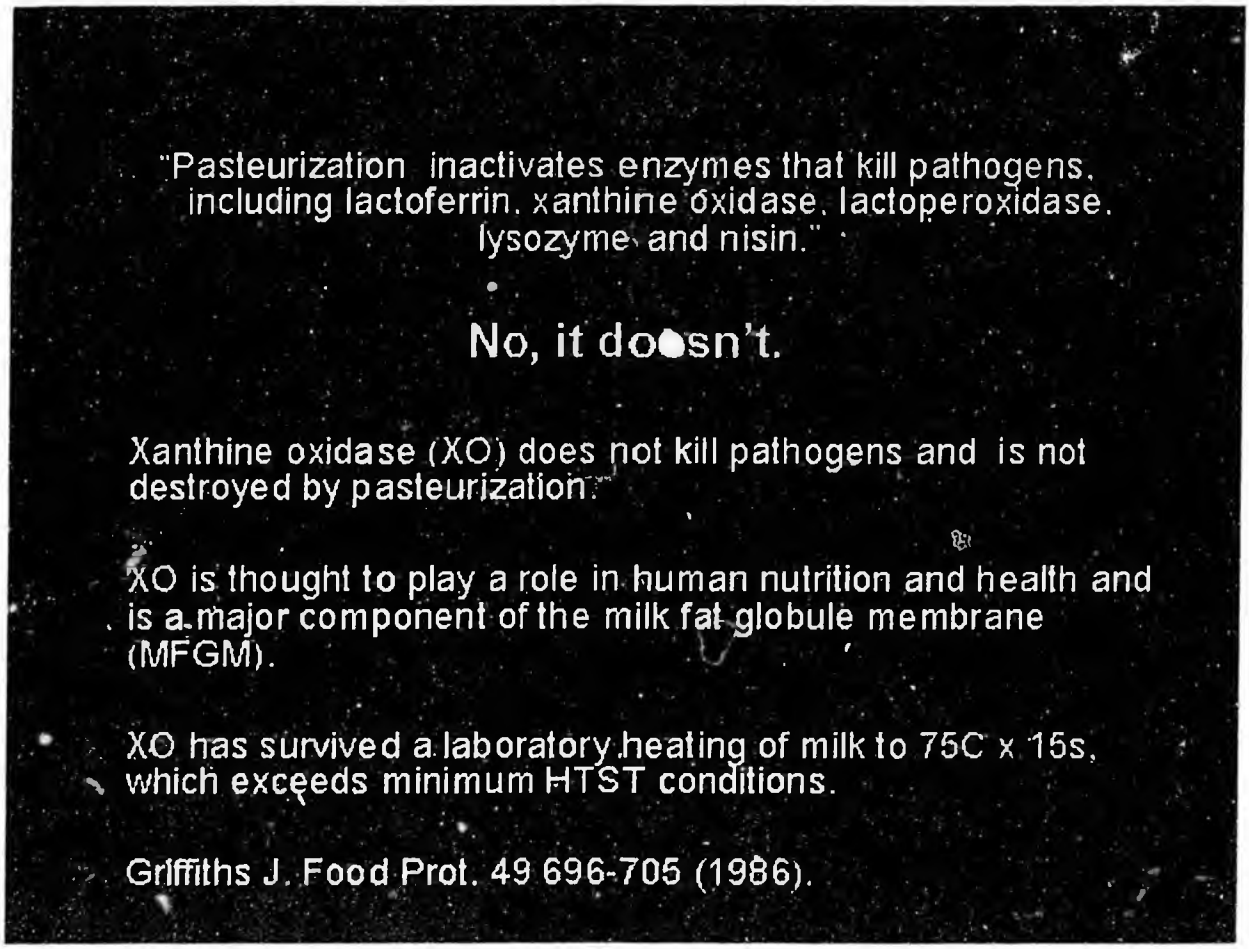
Slide 46
http://www.cfsan.fda.gov/~ear/milksafe/milksa46.htm



These authors patented a process in which the pH of a solution containing purified lactoferrin is lowered to 4.0 before being pasteurized. They found that lactoferrin "is stable against heat treatment under acidic conditions, while heat treatment at a neutral pH causes denaturation of the protein."

In the introduction to the original 1991 paper describing this process, they stated that "it is well known that heat treatment of milk and milk protein solutions affects the functional properties of the native proteins." In the discussion, they stated that **"it has been widely accepted that [lactoferrin] is easily denatured by heat treatment" and cited several studies demonstrating "virtually complete destruction" of lactoferrin in milk upon pasteurization.**

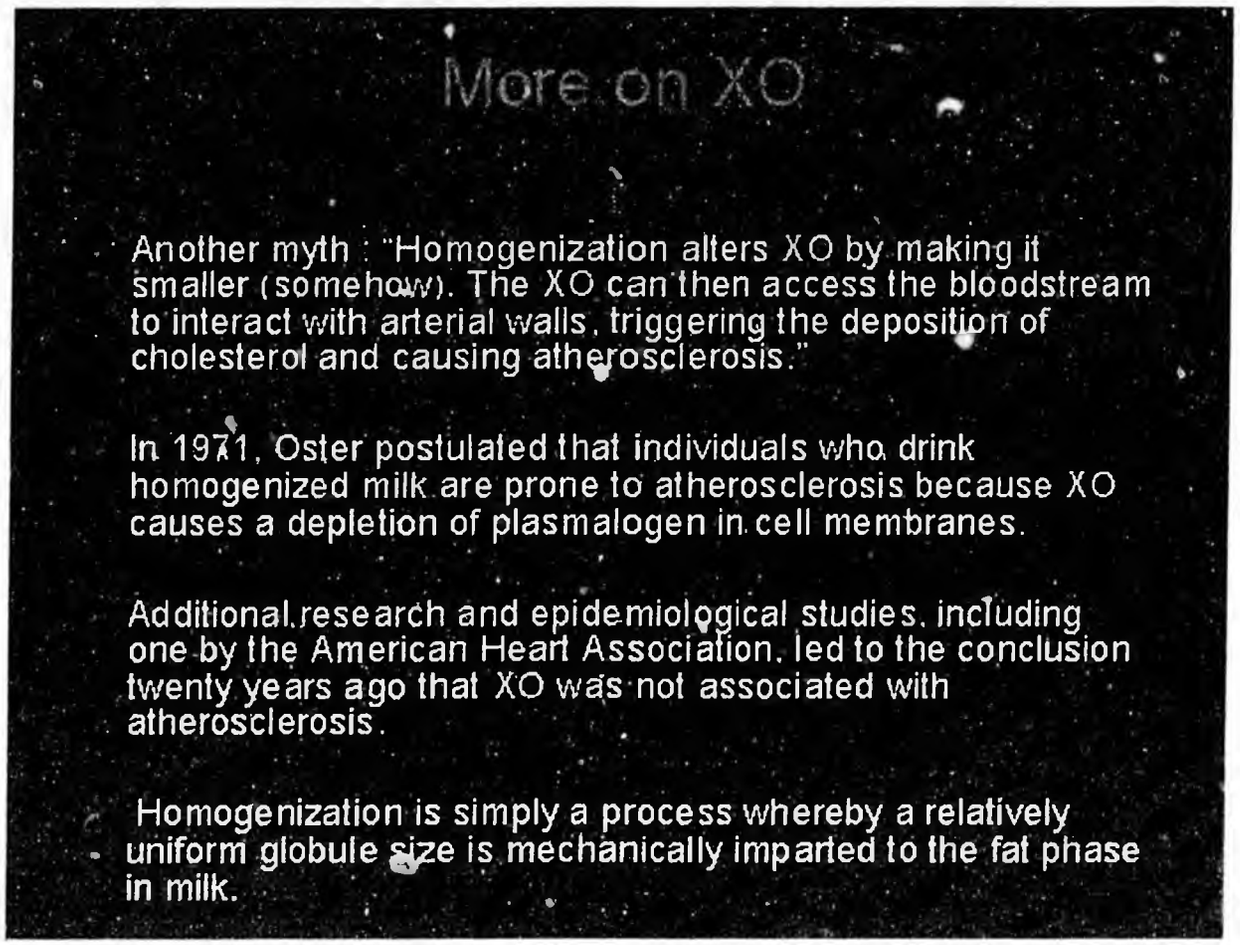
Slide 47
http://www.cfsan.fda.gov/~ear/milksafe/milksa47.htm



Cerbulis and Farrell (1977) showed that homogenization only destroyed xanthine oxidase when it was preceded by heat treatment. Pasteurization and homogenization of milk together destroyed 69% of the activity of this enzyme.

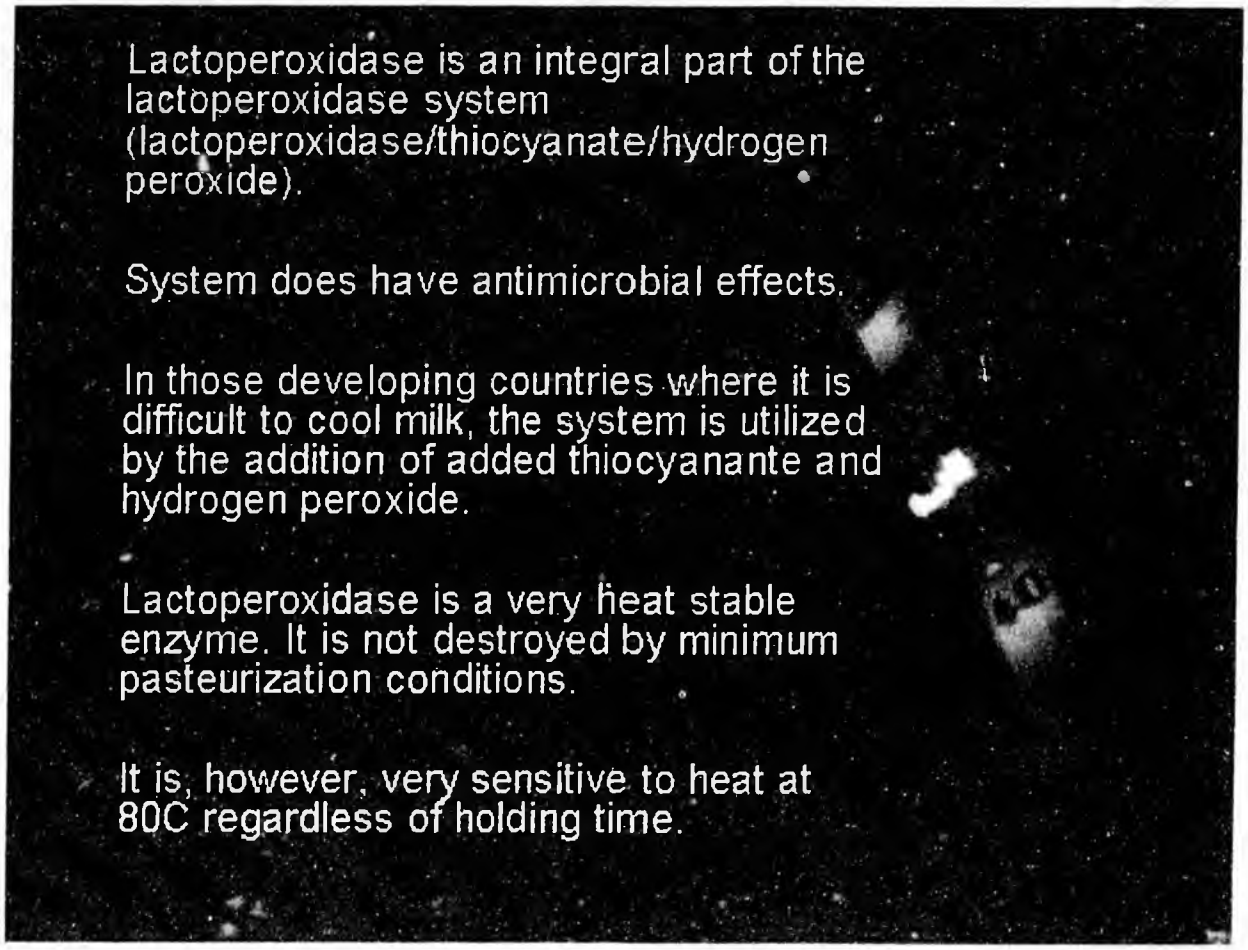
Stevens et al. (2000) showed that xanthine oxidase "showed potent growth-inhibiting activity" against *E. coli* and *Salmonella enteritidis* at concentrations present in raw milk.

Slide 48
http://www.cfsan.fda.gov/~ear/milksafe/milksa48.htm



We agree that the scientific data does not support this theory. A critique of this theory by Mary G. Enig, PhD, is available on the RealMilk.Com site at http://www.realmilk.com/homogenization.html.

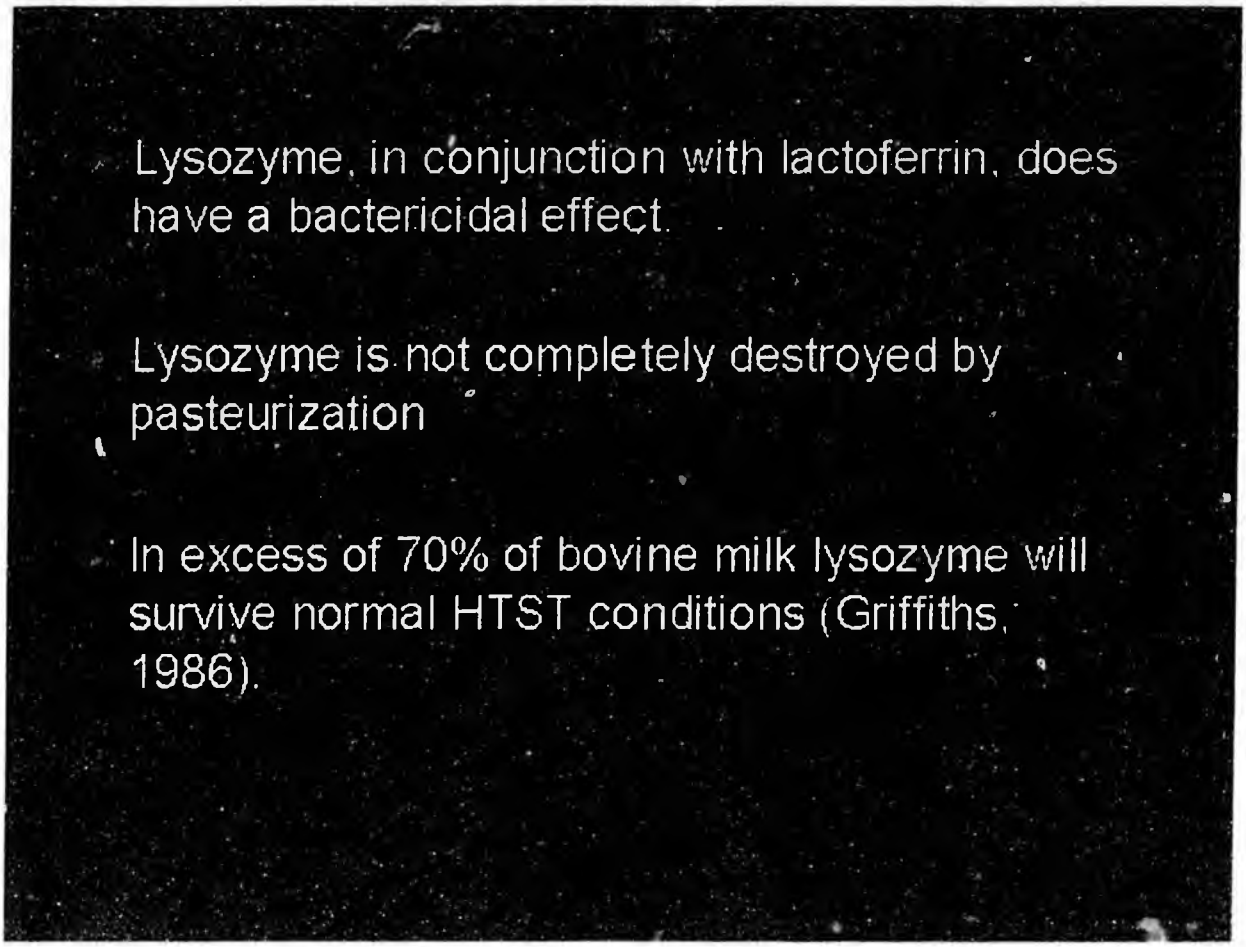
Slide 49
http://www.cfsan.fda.gov/~ear/milksafe/milksa49.htm



Barrett et al. (1999) showed that HTST pasteurization of cow milk destroys 30% of the lactoperoxidase (LP). Marks et al. (2001) showed that ultra-high temperature (UHT) pasteurization of milk completely destroys LP.

Using buffalo milk, Nieuwenhove et al. (2004) showed that classic pasteurization destroys 16% of the lactoperoxidase and HTST pasteurization destroys 80% of the lactoperoxidase.

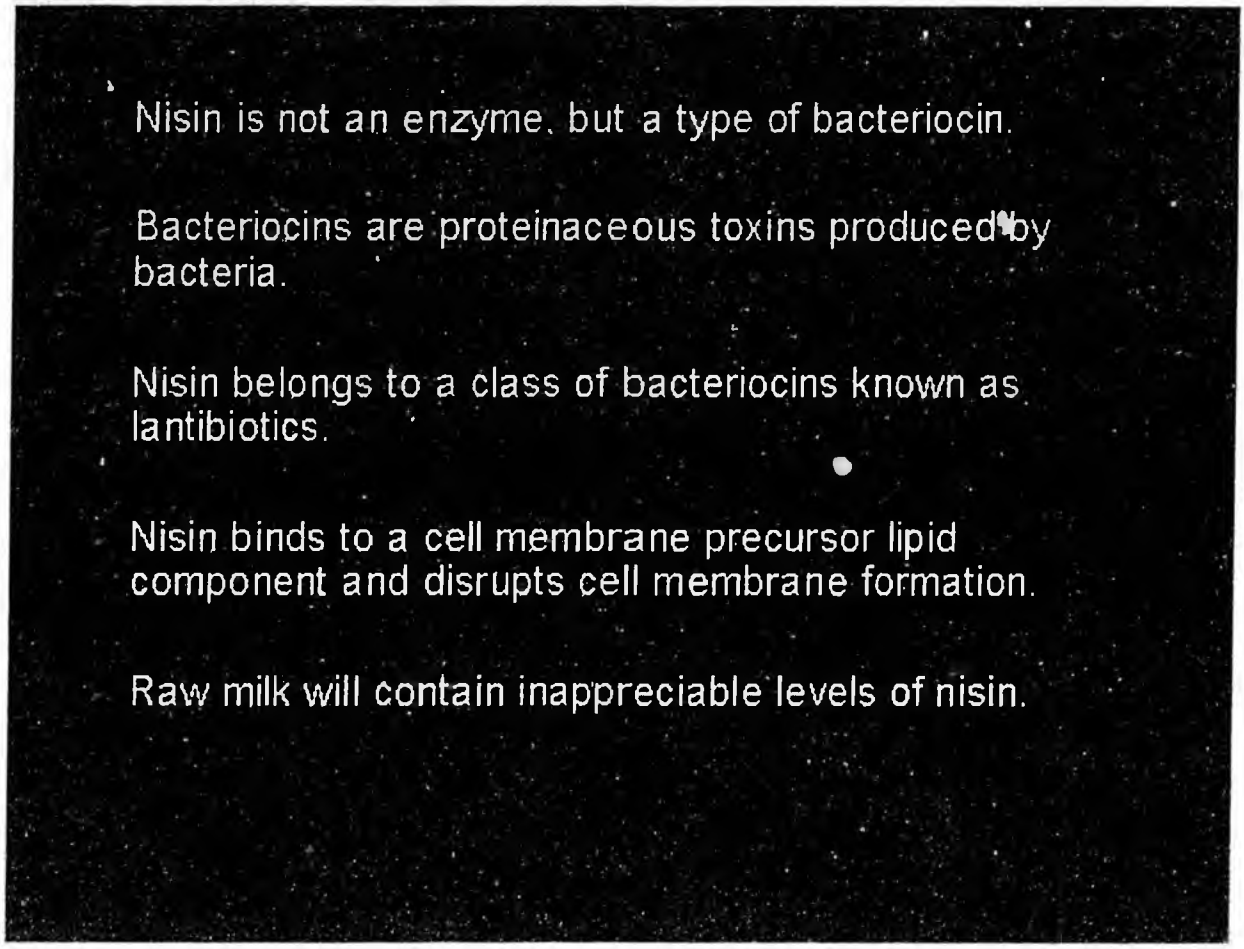
Slide 50
http://www.cfsan.fda.gov/~ear/milksafe/milksa50.htm



If pasteurization destroys 30% of the lysozyme in milk, then it is not a "myth" that pasteurization inactivates lysozyme. If lysozyme requires lactoferrin to carry out its function, the substantial destruction of lactoferrin induced by pasteurization must render the remaining lysozyme much less effective.

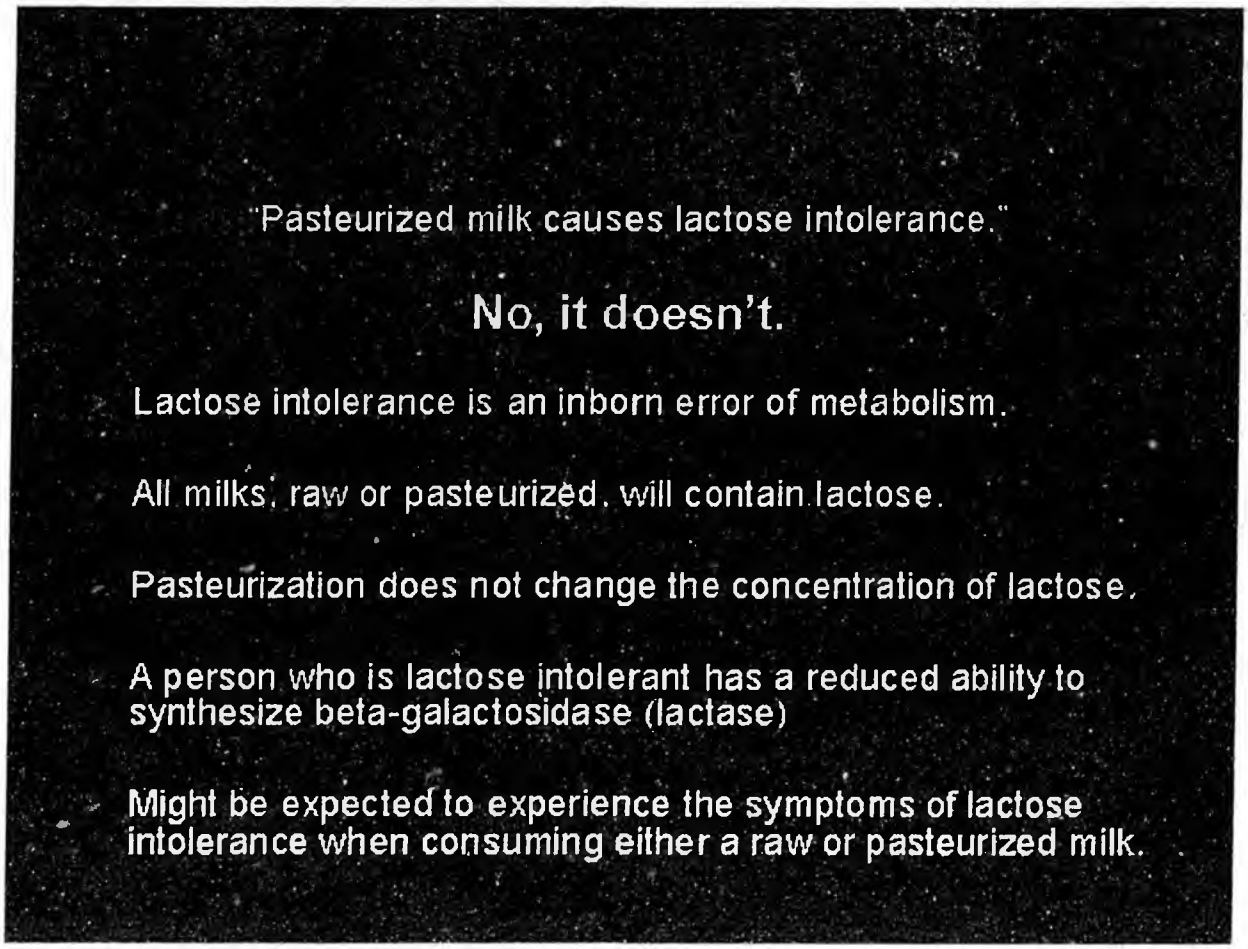
Nieuwenhove et al. (2004) showed that both classic and HTST pasteurization of buffalo milk completely inactivates lysozyme.

Slide 51
http://www.cfsan.fda.gov/~ear/milksafe/milksa51.htm



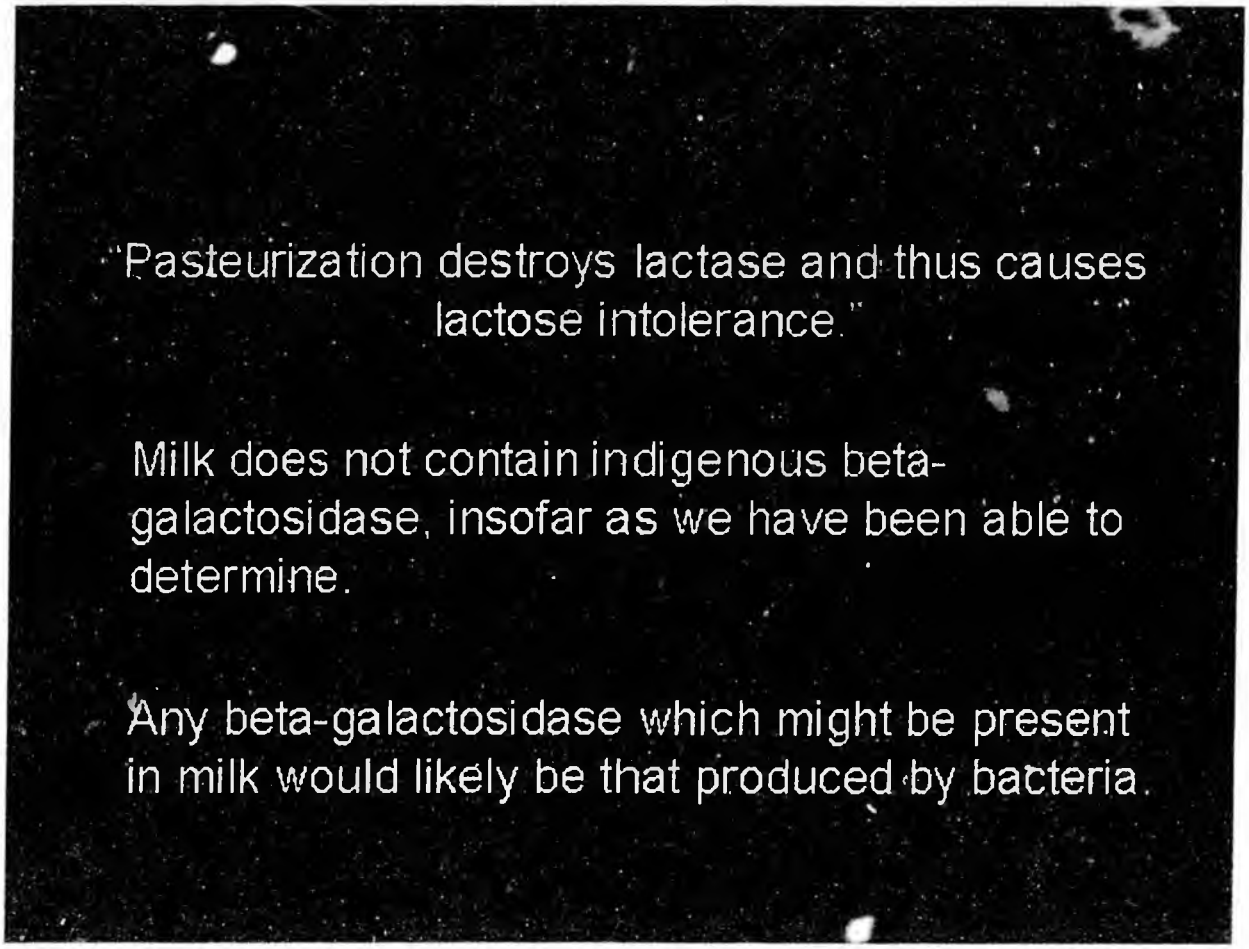
Lactococcus lactis produces nisin as a defense against other types of bacteria such as *L. monocytogenes* that are pathogenic to humans. **Pasteurization destroys *L. lactis* and Bhatti et al. (2004) showed that nisin is only effective against *L. monocytogenes* in non-homogenized milk.**

Slide 52
http://www.cfsan.fda.gov/~ear/milksafe/milksa52.htm



While pasteurized milk will not cause lactose intolerance *per se*, many people report more easily digesting raw milk, which naturally contains the enzyme lactase.

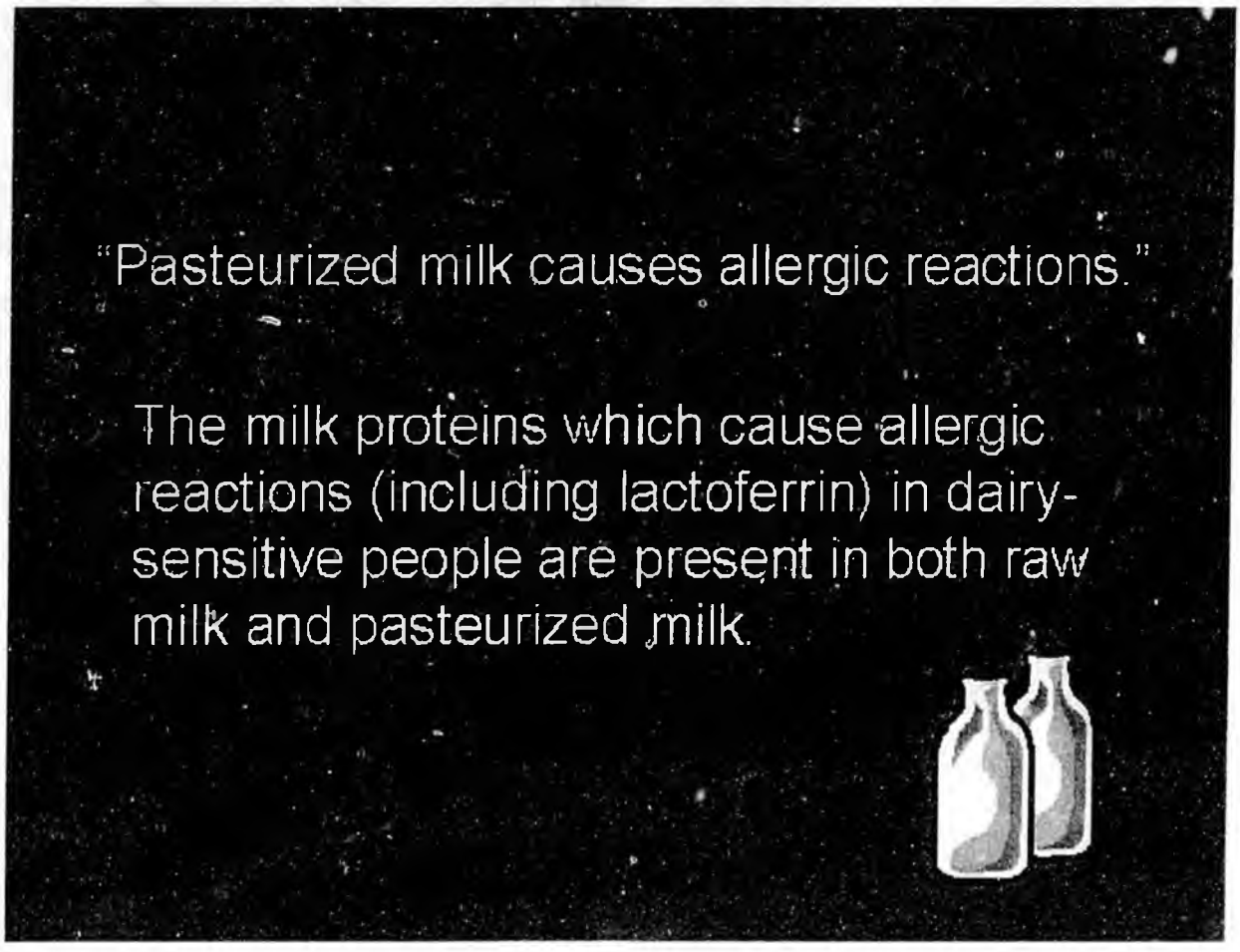
Slide 53
http://www.cfsan.fda.gov/~ear/milksafe/milksa53.htm



Raw milk naturally contains healthy bacteria that produce lactase. The fact that the lactase is produced by bacteria does not make it any less functional than if it were synthesized directly by the mammary gland.

Research on the effects of heat on microbial lactase present in milk is lacking. Mahoney and Wilder (1989), however, showed that **losses are incurred at 60 degrees Celsius, which is a considerably lower temperature than that typically used for pasteurization (72 degrees Celsius).**

Slide 54
http://www.cfsan.fda.gov/~ear/milksafe/milksa54.htm

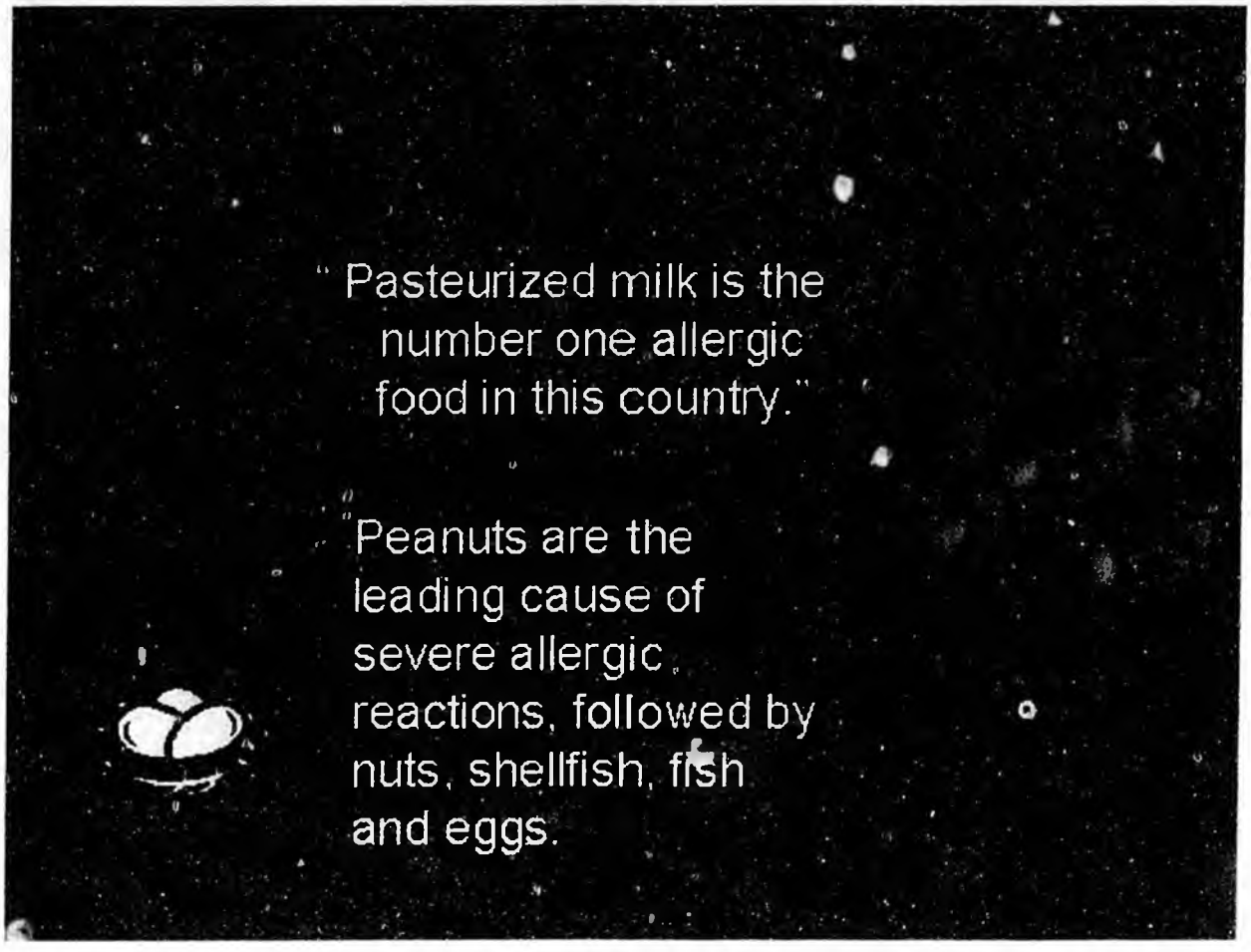


Although there may be insufficient evidence to claim that pasteurized milk is more allergenic than raw milk, there is evidence that raw milk prevents the development of allergic disorders in general.

Riedler et al. (2001) published a study in *The Lancet* showing that **children who drank "farm milk" – independent of other types of exposure to farming environments – had a 52% lower risk of asthma, a 57% lower risk of having had at least one wheeze attack in the past year, a 76% lower risk of hay fever, a 58% lower risk of having had a runny nose and itchy eyes in the past year, and an 85% lower risk of allergies to cows, dust mites, cat dander, and pollen.**

The authors noted that "farm milk" is "usually raw" and contains more bacteria than pasteurized milk. They suggested that "the ingestion of non-infectious microbial components," in raw milk or the milk's effects on intestinal flora might protect against the development of allergies.

Slide 55
http://www.cfsan.fda.gov/~ear/milksafe/milksa55.htm



We cannot defend this statement as it is quoted; pasteurized milk, however, is still a major cause of allergic reactions.

Slide 56
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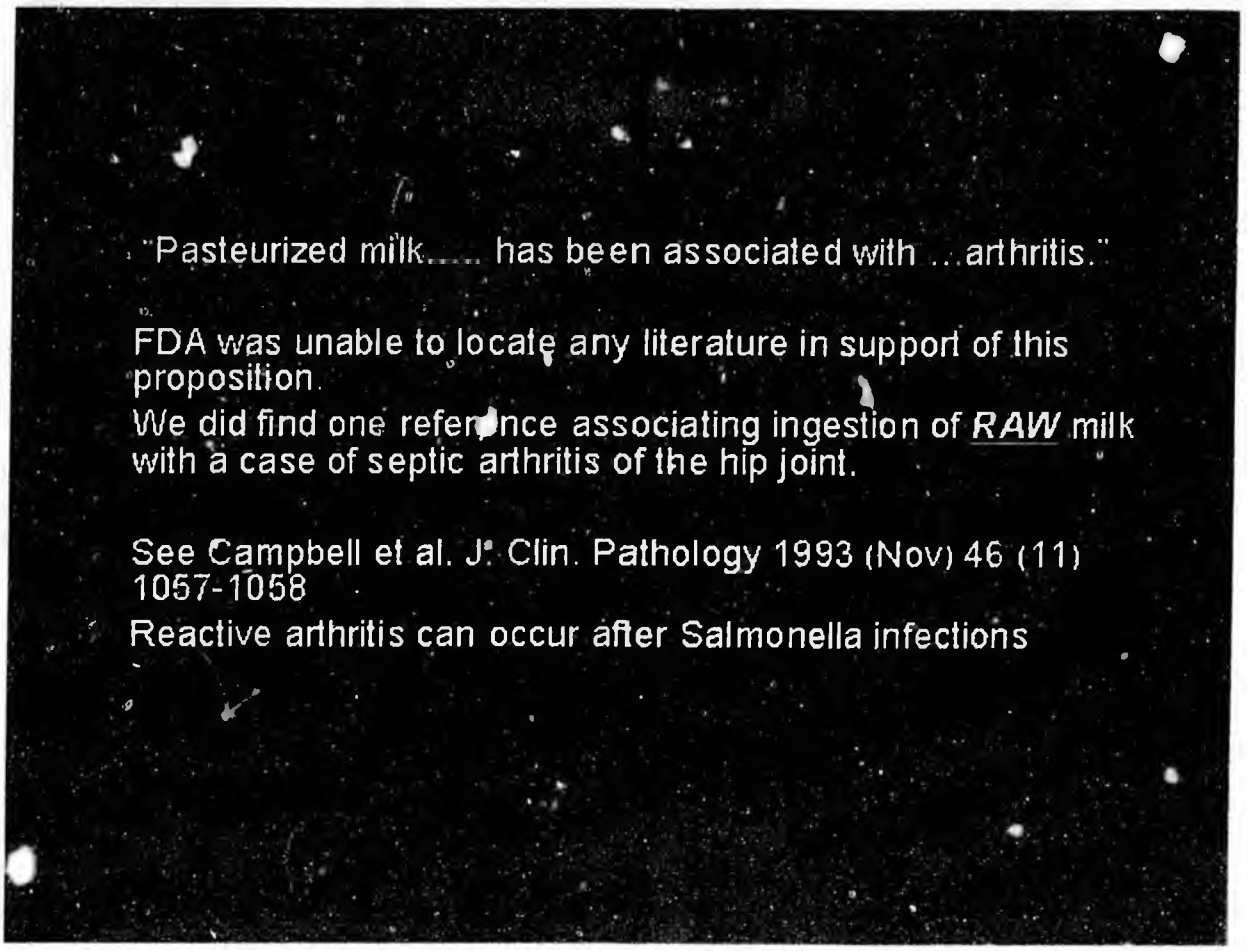


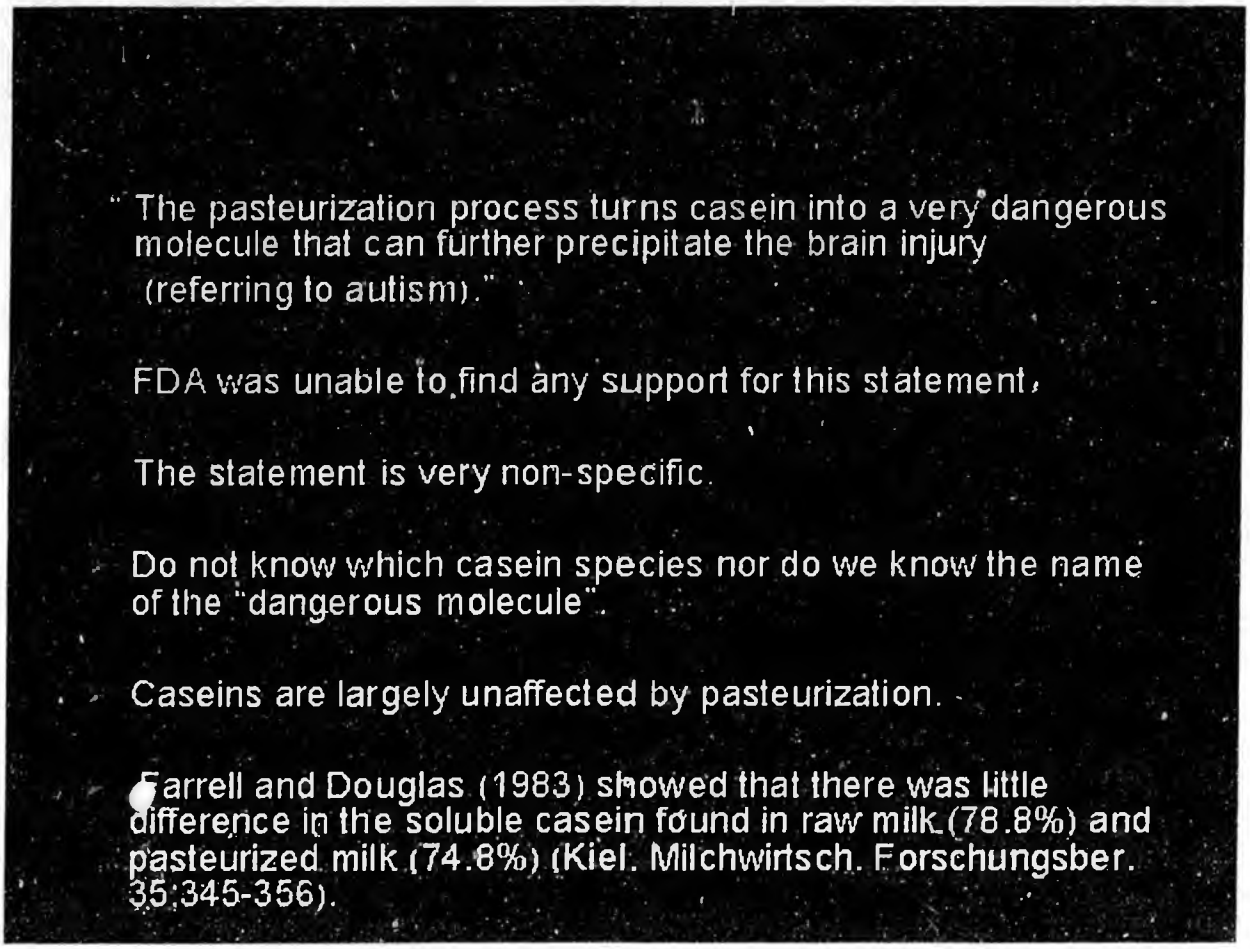
The report merely established that the septic arthritis patient came from a farming community and drank unpasteurized milk exclusively.

The infecting organism. *Streptococcus lactis (Lactococcus lactis)*, is used industrially in fermented milk products such as cheese, yogurt and kefir. As the authors stated, it "is a rare cause of disease in men, and there has been only one previous report of a serious *Streptococcus lactis* infection." If the mere presence of the organism was to blame, commonly consumed fermented milk products would be far more dangerous than raw milk.

The largest *Salmonella* outbreak in the nation's history was due to pasteurized milk. It infected more people than all outbreaks involving any type of organism attributed to raw milk between 1980 and 2005 combined. It would logically follow that, statistically, reactive arthritis has been much more likely to result from pasteurized milk than from raw milk.

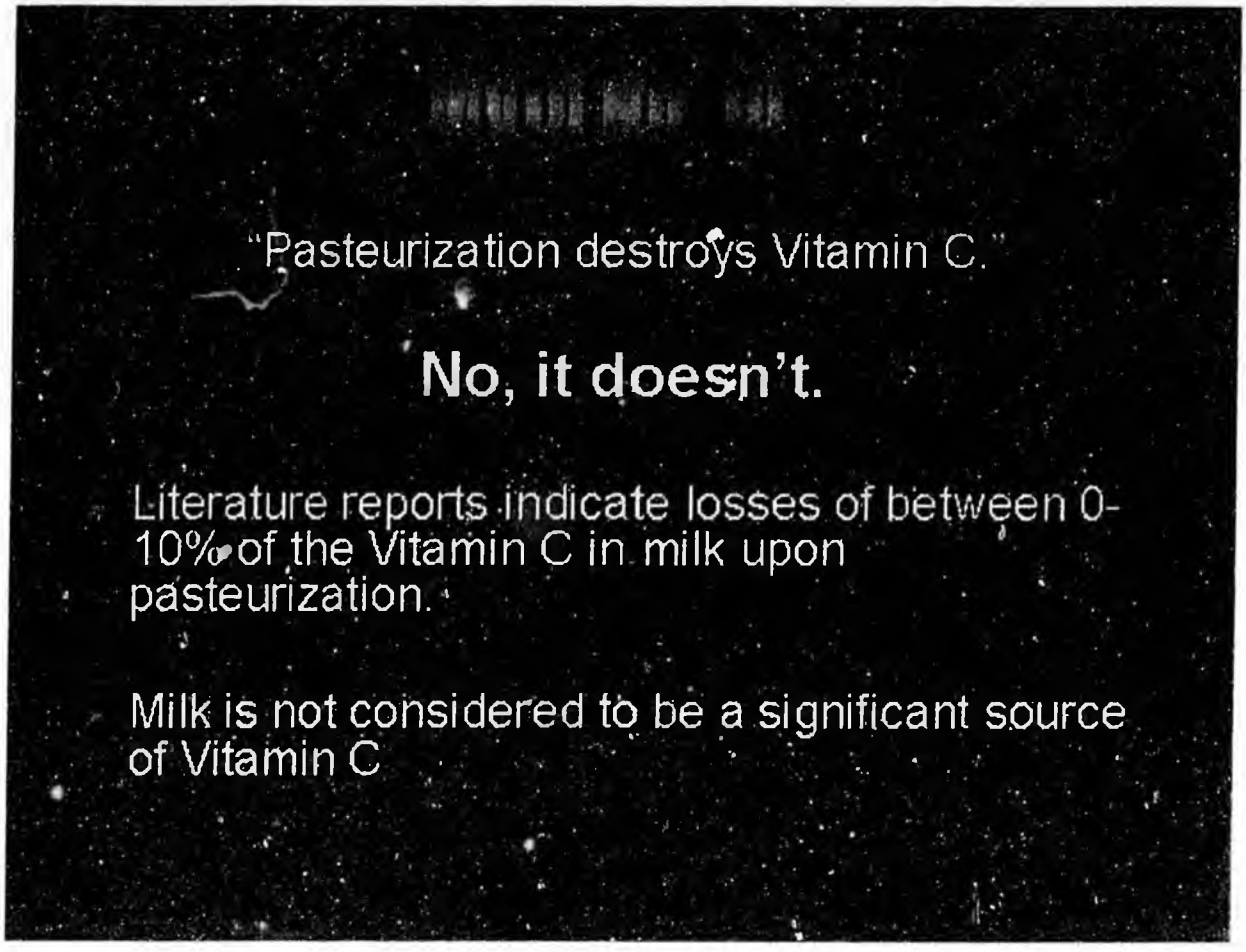
Research carried out in 1944 indicated that raw cream has anti-arthritic effects but heated cream does not.

Slide 57
http://www.cfsan.fda.gov/~ear/milksafe/milksa57.htm



While the statement addressed is poorly formulated, **there may be a connection between milk pasteurization and autism.** Pasteurization destroys *L. lactis* and other members of the lactic acid bacteria system indigenous to milk. These bacteria produce enzymes that break down the casein molecule, liberating and in some cases further degrading biologically active peptides that have been associated with autism. Friendly bacteria from raw milk could partially pre-digest the casein within it or could alter the intestinal flora, enhancing the individual's digestion of casein.

Slide 58
http://www.cfsan.fda.gov/~ear/milksafe/milksa58.htm

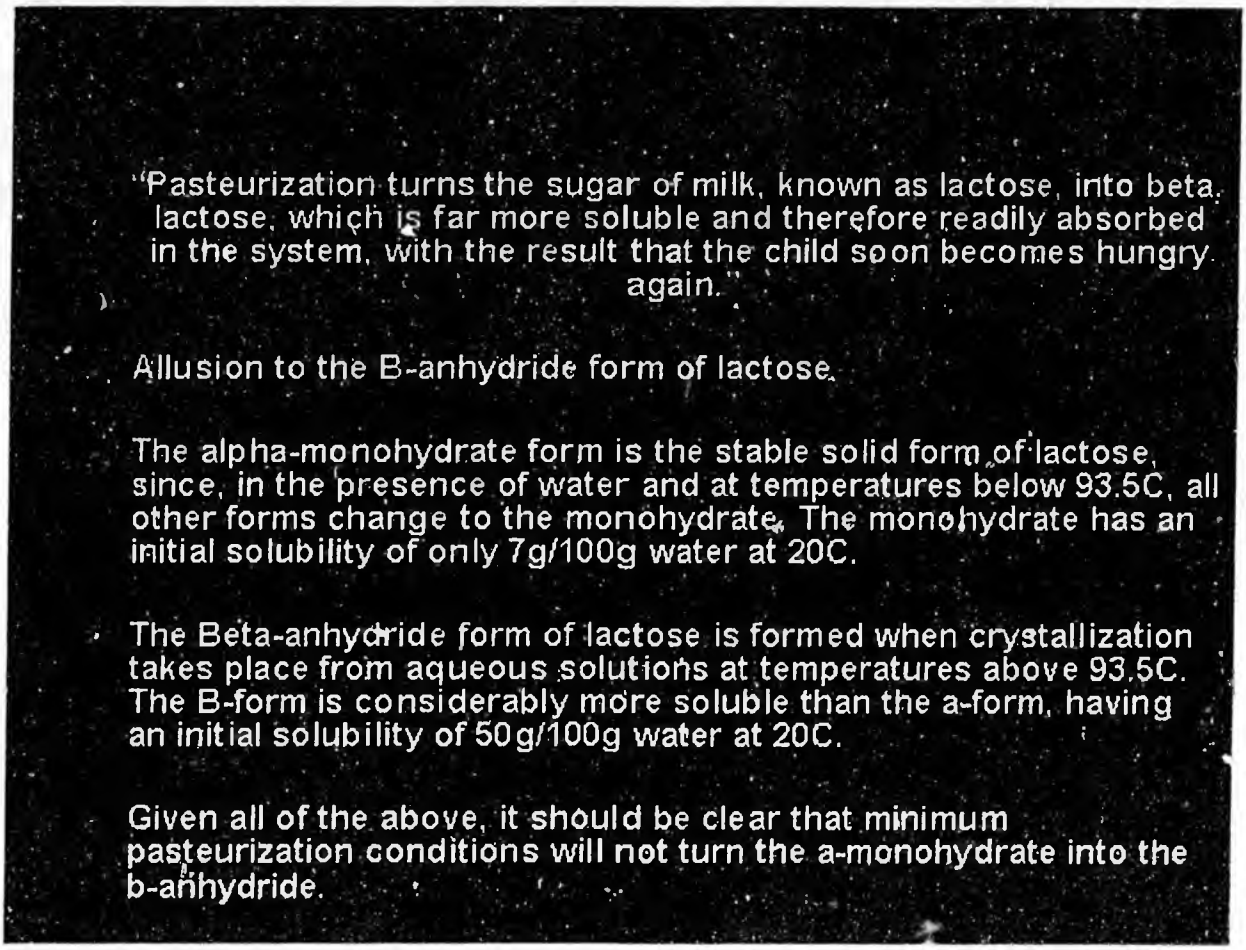


According to a recent review (2001) in *Pediatrics,* the official journal of the American Academy of Pediatrics, it is **"without doubt" that "the explosive increase of infantile scurvy during the latter part of the 19th century coincided with the advent of usage of heated milks and proprietary foods."**

In 1914, Alfred Hess of the Hebrew Asylum in New York noted several cases of scurvy among infants fed on pasteurized milk. Hess experimentally demonstrated that raw milk, orange juice and potatoes could each effectively cure scurvy and that pasteurization rendered milk ineffective.

Feeding experiments assessing the effects of a food on a biological outcome such as scurvy are superior to laboratory tests assessing the amounts of a given chemical within the food. Whether pasteurization causes direct loss of some vitamin C, alters its bioavailability, or alters other compounds such as hydroxyproline that could potentially reduce the need for vitamin C, the superior biological efficacy of raw milk for preventing and treating scurvy is experimentally established.

Slide 59
http://www.cfsan.fda.gov/~ear/milksafe/milkse59.htm

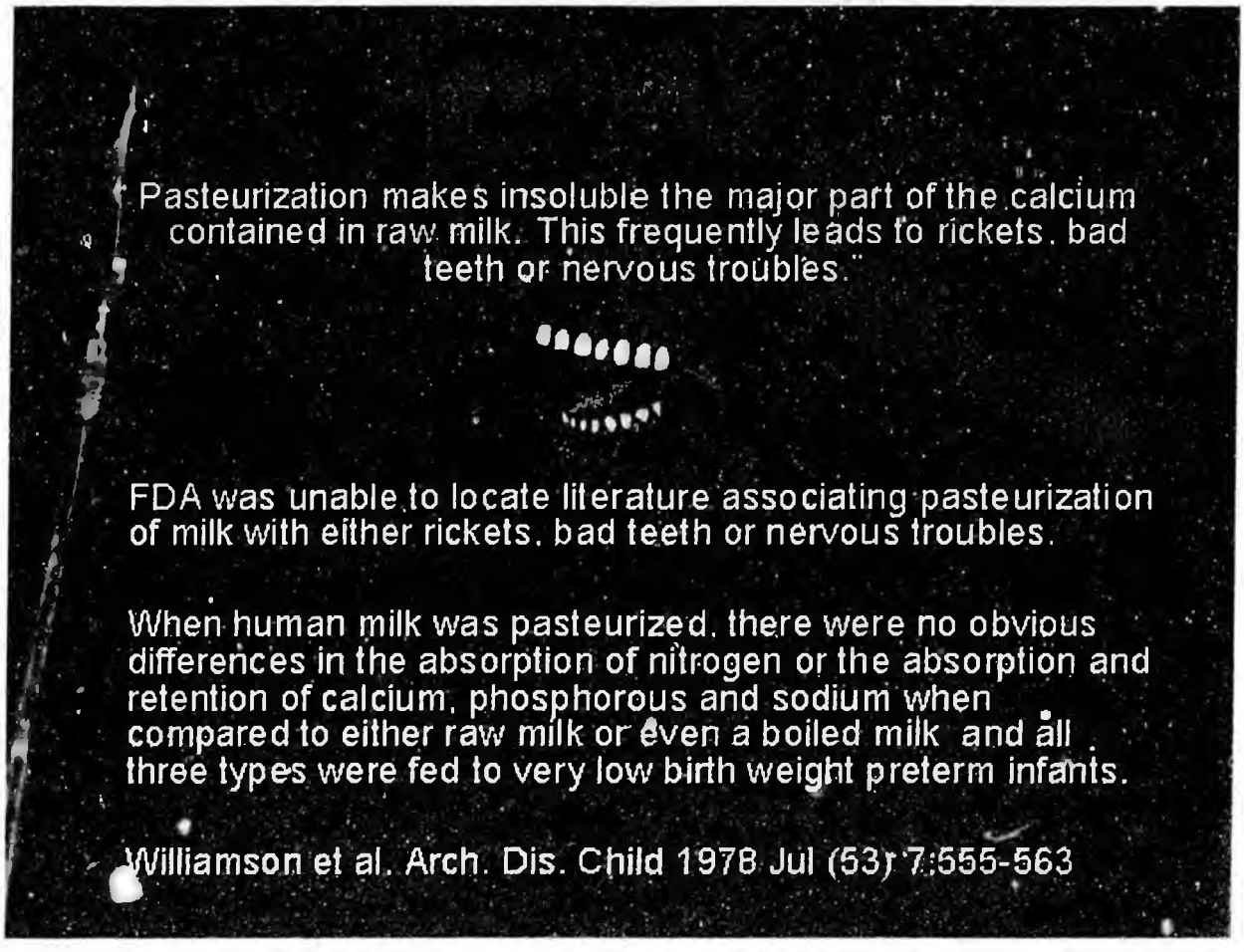


Although the original statement (quoted from a 1938 article published in a popular science journal) does not appear to be correct, spray or drum drying milk increases the content of beta-lactose in proportion to the length of time spent drying. Powdered milk can therefore contain up to 90% beta-lactose.

The original statement may be taken from the observation that the reversible inter-conversion between the alpha and beta forms of lactose reaches equilibrium instantaneously when milk is heated to 75 degrees Celsius.

On a related note, according to a 1948 review in the *Journal of Dairy Science*, both boiling and homogenization cause milk to be digested more rapidly and to exit the stomach more quickly, but not to be digested more completely. It is probably true, then, that raw milk contributes to longer-lasting satiety than does pasteurized and homogenized milk.

Slide 61
http://www.cfsan.fda.gov/~ear/milksafe/milksa60.htm

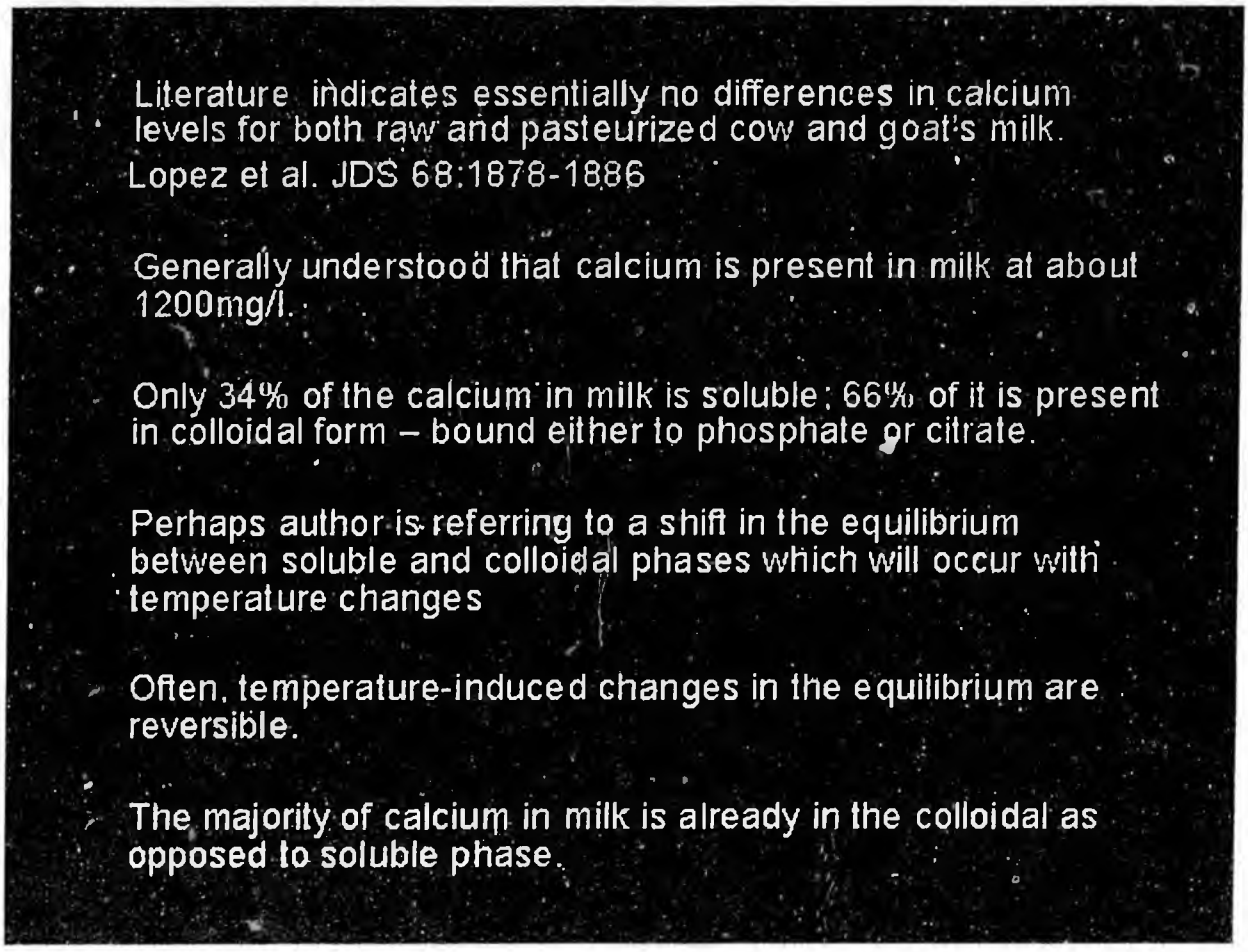


Although this study did not demonstrate a statistically significant difference in mineral absorption, **it did show that fat absorption was reduced by one third when infants were fed pasteurized or boiled milk**, which the authors attributed to the destruction of heat-sensitive lipase enzymes that are indigenous to raw milk.

Calcium absorption correlated with fat absorption, so the four infants whose fat absorption was most compromised on the pasteurized and boiled milk diets did indeed demonstrate greater calcium absorption while consuming raw milk.

Infants also gained weight 33% more rapidly during the week they were fed raw milk than during the weeks they were fed pasteurized or boiled milk.

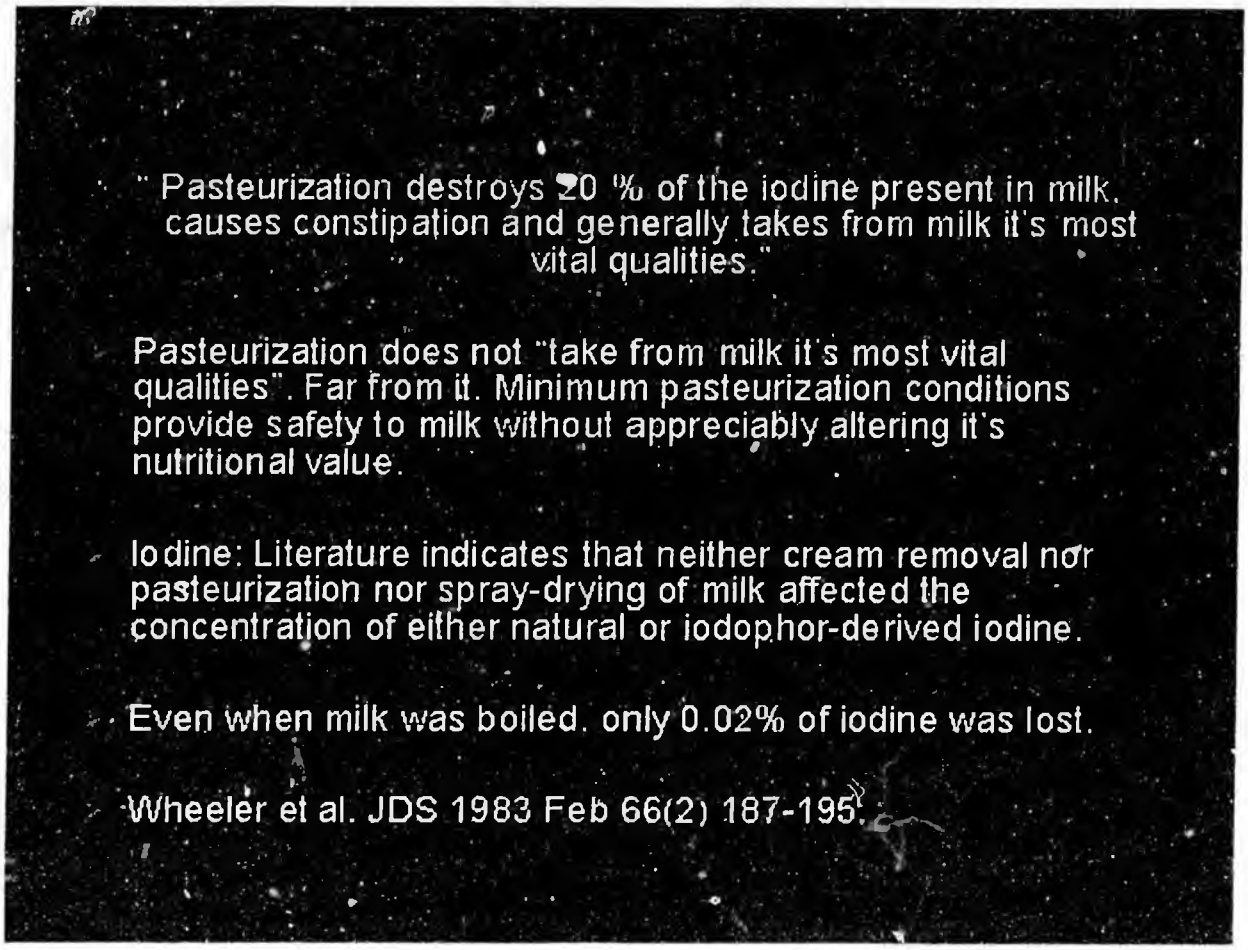
Slide 61
http://www.cfsan.fda.gov/~ear/milksafe/milksa61.htm



Although there does not appear to be any current literature substantiating the claim that pasteurization directly damages the bioavailability of the calcium within it, it should be kept in mind that pasteurization is only one of several important quality issues. High-quality milk is not only raw but also obtained from cows eating green pasture grown on rich soil. The fat-soluble vitamins and other nutrients in grass are important to calcium utilization.

Additionally, the network of lactic acid bacteria that is indigenous to milk may favorably influence the intestinal flora of the consumer over an extended period of time. A long-term study might therefore be able to detect differences in calcium status that a short-term study cannot.

Slide 62
http://www.cfsan.fda.gov/~ear/milksafe/milksa62.htm

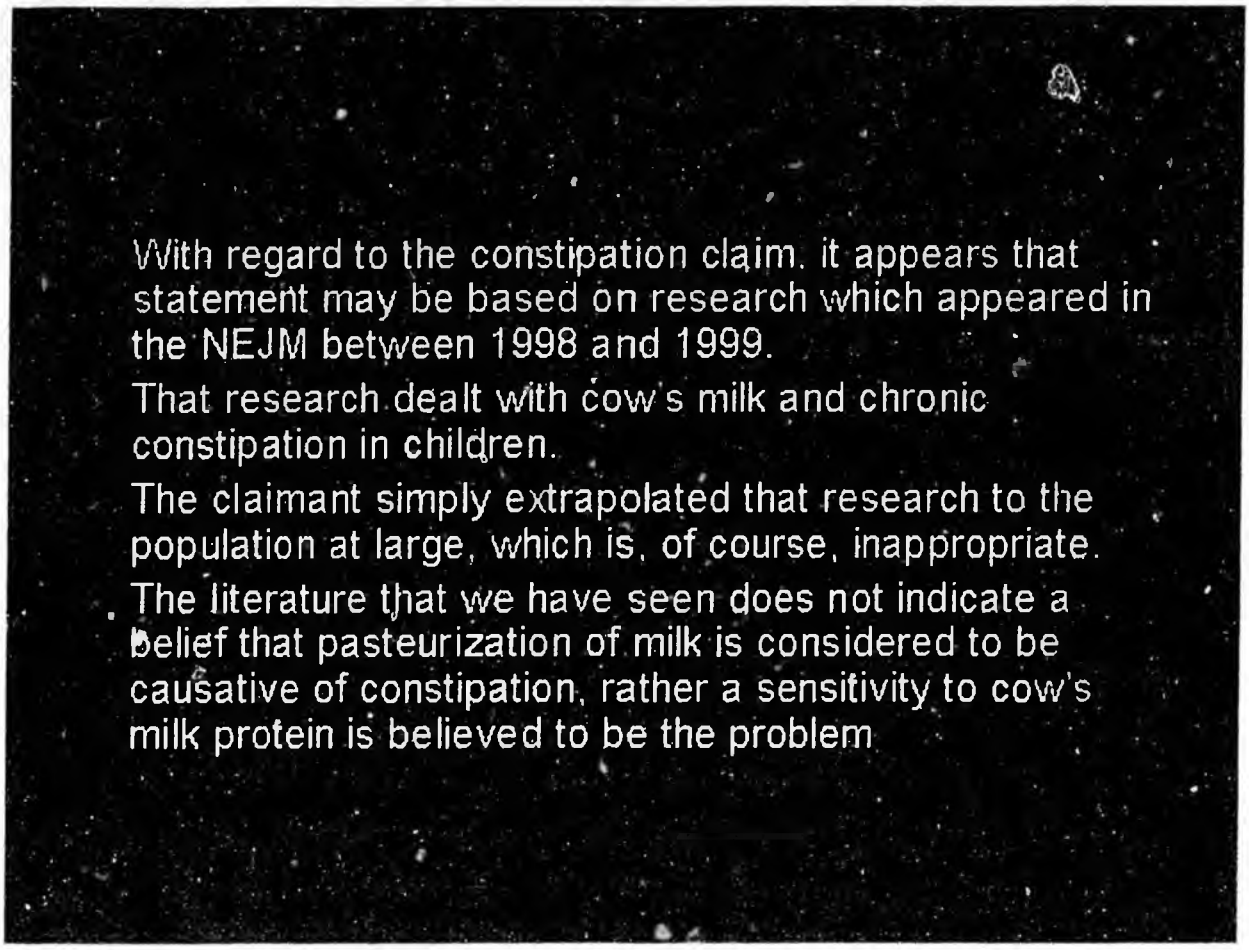


Thus far we have seen that pasteurization of milk causes from 65% to "virtually complete" destruction of its lactoferrin, in conjunction with homogenization destroys 69% of its xanthine oxidase, destroys between 30% and 100% of its lactoperoxidase and lysozyme, destroys its vitamin C activity, and destroys its indigenous network of friendly bacteria that may make the milk more digestible and help prevent the development of allergies. **These are indeed among milk's "most vital qualities."**

The authors of this report cited three earlier studies demonstrating that heating milk causes a 20% loss of iodine and one study showing that spray drying milk causes a 40% loss of iodine.

They noted that their "conclusion is at variance with results of previous workers who reported losses of milk iodine during processing" and stated that "this discrepancy may reflect the difficulty of measuring iodine concentration of milk accurately."

Slide 63
http://www.cfsan.fda.gov/~ear/milksafe/milksa63.htm

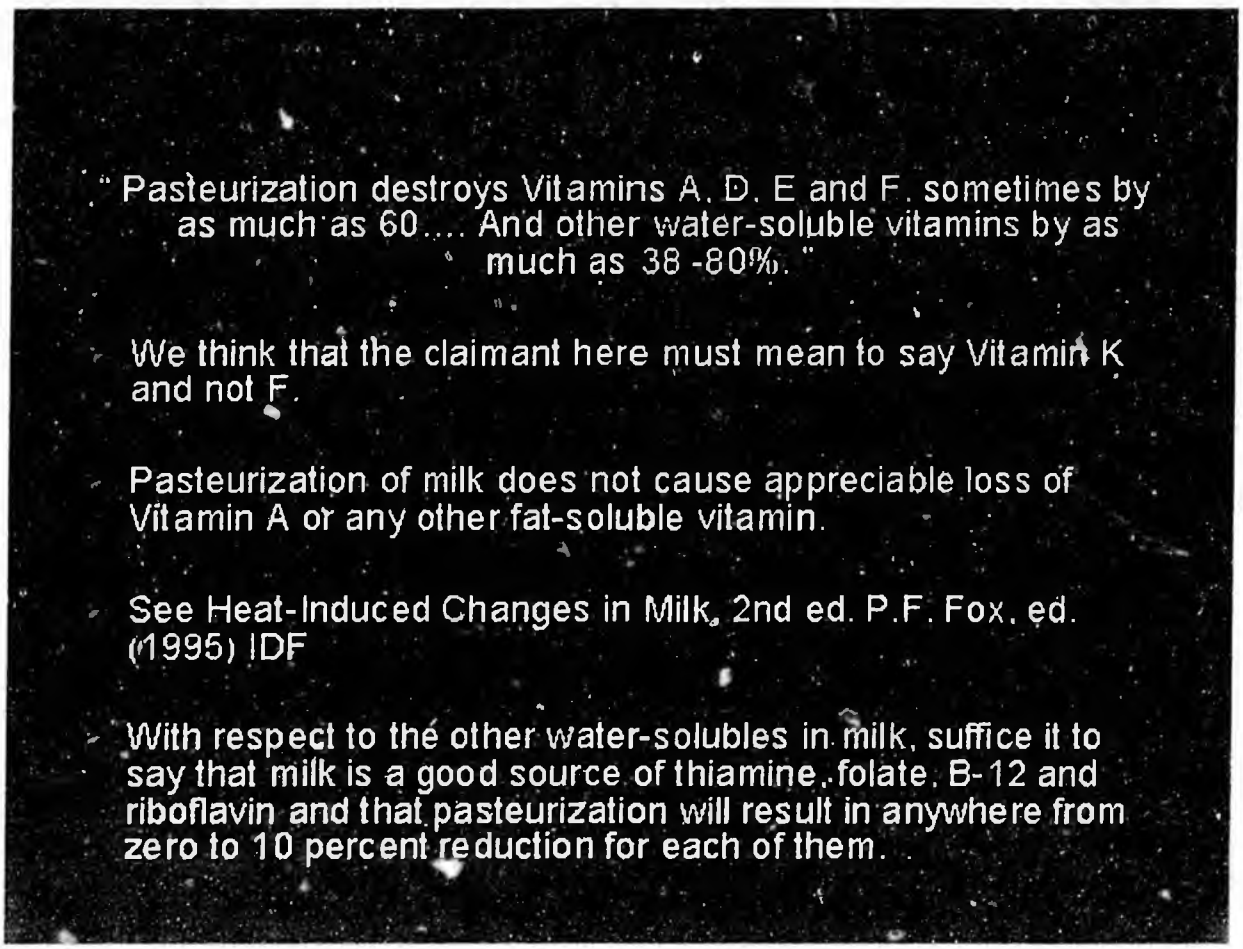


It is doubtful that the author of the 1938 article being quoted had in mind research published between 1998 and 1999, sixty years after the article was published.

A *PubMed* search for "milk constipation" yields 170 results.

Since the FDA does not cite which literature it has seen indicating that pasteurization does not contribute to the relationship between milk and constipation, we cannot address this statement.

Slide 64
http://www.cfsan.fda.gov/~ear/milksafe/milksa64.htm



In the 1930s, when the article being quoted was written, some writers used "vitamin F" to refer to the essential fatty acids.

During this time, scientists often assessed the vitamin contents of foods on the basis of their ability to prevent or cure a deficiency disease when fed to animals.

Although the modern practice of directly measuring the vitamin content is more precise, it does not take into account the effect of heat treatment on the bioavailability of the nutrients. In order to gain an accurate scientific understanding of how pasteurization affects the nutritive value of milk, researchers must study not only the loss of the actual vitamin, but also the loss or alteration of binding proteins that enhance the bioavailability the vitamin as well as the heat-induced formation of compounds that interfere with the vitamin's biological activity.

Until this is achieved, we should give greater weight to the feeding experiments performed in the 1930s. Abstracts of these studies can be found at http://www.realmilk.com/abstractsmilk.html.

Response to Slide 64 Continued

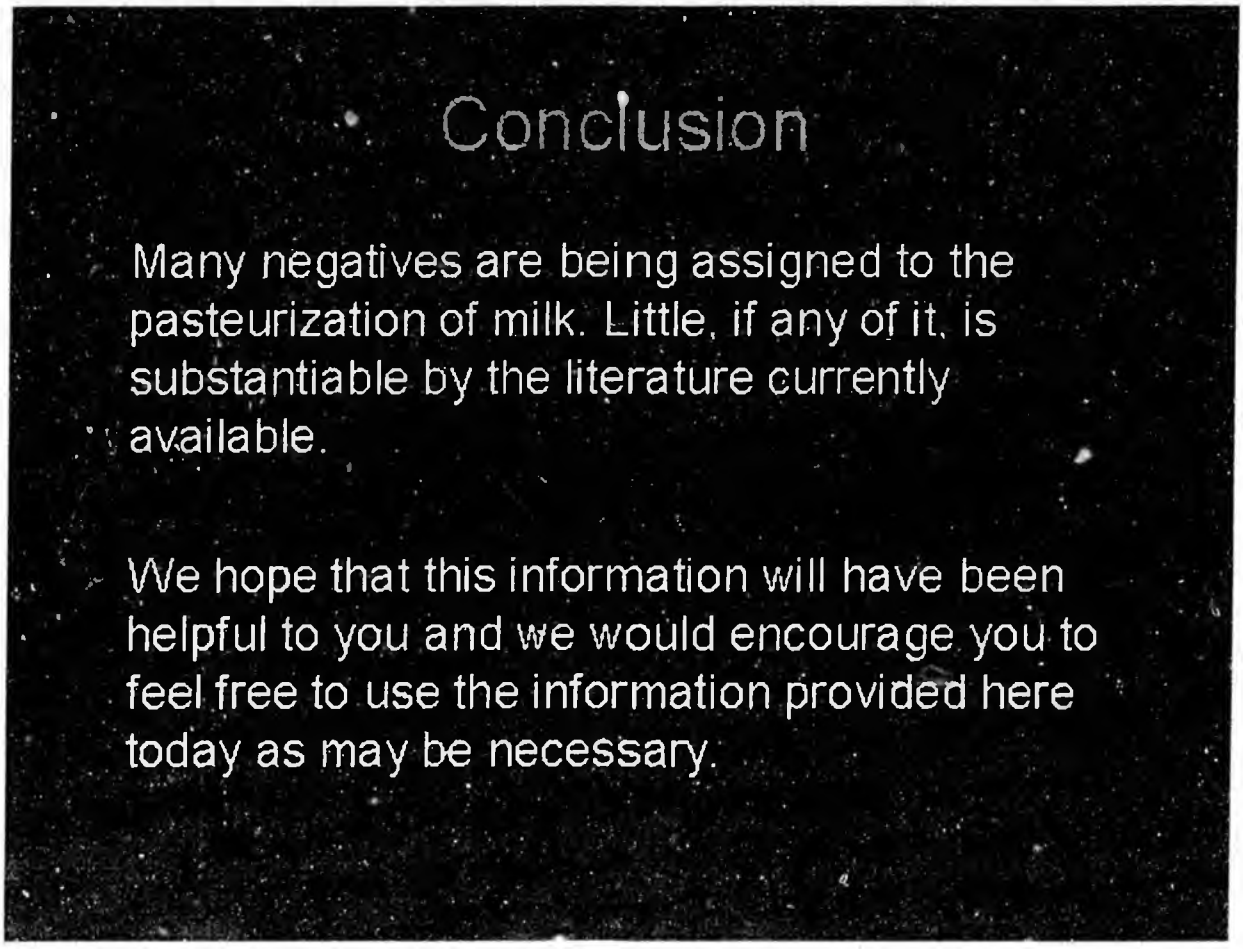
According to the reference cited by the FDA, between 90 and 100% of milk folate is bound by a protein that doubles its intestinal absorption. This protein is inactivated by pasteurization. Vitamin B_{12} is also bound by heat-sensitive proteins whose functions are unknown.

Vitamin B_6 that has been damaged by heat interferes with the activity of the intact vitamin and aggravates the symptoms of its deficiency.

Beta-lactoglobulin, a heat-sensitive protein in milk, increases the intestinal absorption of vitamin A. Vitamin D is also present in milk in a protein-bound form, but the effects of pasteurization on the protein and the effect of the protein on the bioavailability of the vitamin are unknown.

There are likely many other factors affecting nutrient bioavailability that are altered by pasteurization.

Slide 65
http://www.cfsan.fda.gov/~car/milksafe/milksa65.htm



Many of the statements that the FDA calls "myths" are in fact clearly demonstrated in the scientific literature. Other such statements are poorly formulated but refer to something that is nevertheless true and important. While a few of the assertions may be unsubstantiated, the fact is that **there exists an overwhelming set of observations recorded in the scientific literature justifying interest in the benefits of raw milk.**

There exist many more anecdotal reports of potential benefits that the scientific establishment has not yet addressed. Consumers, however, should not be at the mercy of funding institutions that control which of these issues are researched; they should have the right to put into their bodies the milk of their own choosing.

Our federal and state governments, for their part, should be helping farmers produce raw milk safely, and **the FDA should be providing us with a sober and balanced report on the safety and merits of raw milk rather than a piece of sensationalist propaganda.**

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