



AK DIVISION OF PUBLIC HEALTH HOUSE HEALTH AND SOCIAL SERVICES MARCH 12, 2015



Healthy Alaskans 2020

**Implementing Health Improvement
Across Alaska**

Jay C. Butler, MD

Chief Medical Officer, Department of
Health & Social Services
Director, Division of Public Health

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**House Health & Social Services Committee
March 12, 2015**



Home Visiting in Alaska

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STATE OF ALASKA, DIVISION OF PUBLIC HEALTH

HOUSE HEALTH AND SOCIAL SERVICES COMMITTEE
MARCH 12, 2015



The Evidence Supporting Folic Acid Supplementation

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RICKETS AND VITAMIN D DEFICIENCY IN ALASKA NATIVE CHILDREN

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Alaska DHSS, Section of Epidemiology
March 12, 2015

House Health and Social Services Committee

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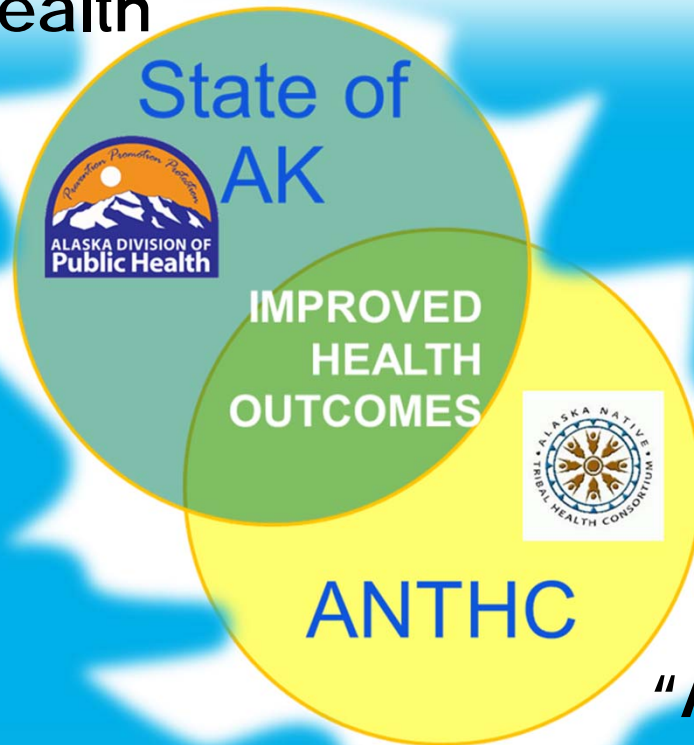
House Health & Social Services Committee

March 12, 2015



State/Tribal Partnership

“Protect and
Promote the Health
of Alaskans”



“Alaska Natives
are the Healthiest People
in the World”

Common Purposes...Mutual Goal

Healthy Alaskans 2020

Vision:
Healthy
Alaskans
in Healthy
Communities

Mission:
Provide a framework and foster
partnerships to optimize health for all
Alaskans and their communities



Guiding Principles

- Using the best scientific research and data, and local knowledge from our diverse cultures
- Strong partnerships with mutual accountability
- Health equity
- Strengthening communities & empowering individuals
- Quality of life across the lifespan

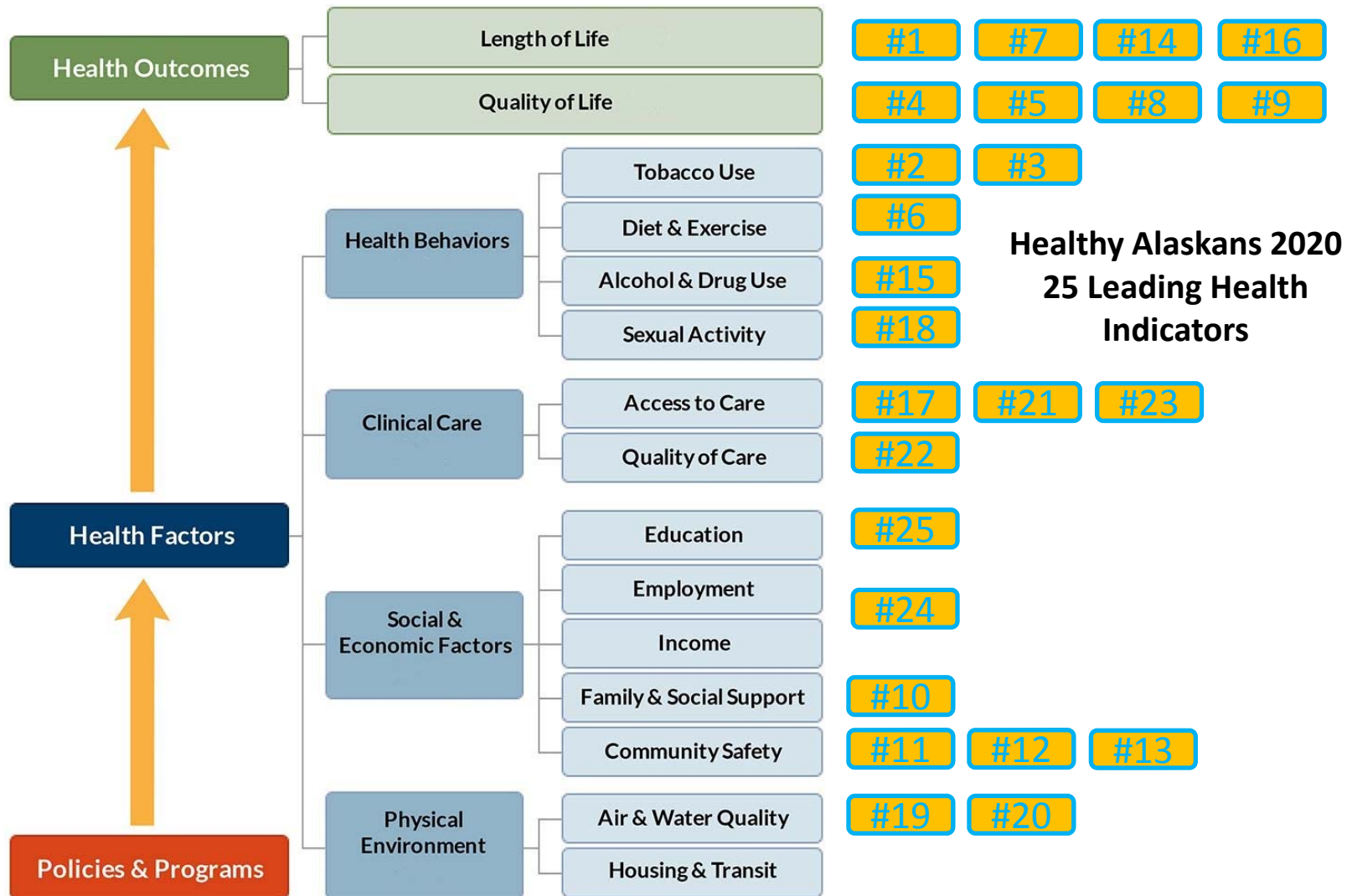
Process of Engagement



25 Health Priorities

- | | |
|---|--|
| 1. Cancer deaths | 14. Alcohol-induced Deaths |
| 2. Tobacco Use- Youth | 15. Binge Drinking-Adults and Youth |
| 3. Tobacco Use- Adults | 16. Unintentional Injury Deaths |
| 4. Overweight or Obesity-Adults | 17. Childhood vaccinations |
| 5. Overweight or Obesity-Youth and Children | 18. Chlamydia (STD) Rate |
| 6. Physical Activity-Adults and Youth | 19. Home Water and Wastewater Services |
| 7. Suicide Deaths | 20. Fluoridated Community Drinking Water |
| 8. Mental Health- Youth | 21. Early Prenatal Care |
| 9. Mental Health-Adults | 22. Preventable Hospitalizations |
| 10. Social Support- Youth | 23. Cost as a Barrier to Healthcare |
| 11. Child Abuse and Neglect | 24. Poverty |
| 12. Rape | 25. High School Graduation |
| 13. Dating Violence-Youth | |

The Full Spectrum of Health



County Health Rankings model © 2014 UWPHI

Web-based Tools

www.HA2020.alaska.gov

HEALTHY ALASKANS 2020

Discover the top health priorities for Alaska

Healthy Alaskans 2020

Healthy Alaskans 2020 (HA2020) brings together partners from many sectors across the state to improve health and ensure health equity for all Alaskans through shared understanding, united efforts, and collective accountability.

Led jointly by the State of Alaska Department of Health and Social Services and Alaska Native Tribal Health Consortium, HA2020 is a framework of 25 health priorities for Alaska. Each priority has its own target for improvement to reach by 2020. This framework is based on the latest scientific evidence and the input of Alaskans from communities across the state.

>> [Learn More](#)

Healthy Alaskans Resources

- HA2020 Scorecard
- HA2020 Health Assessment
- Community Capacity Review, 2014
- 71 Potential Leading Health Indicators
- Community of Interest Survey One Results
- Community of Interest Survey Two Results
- Healthy Alaskans 2010 Progress Report
- Healthy Alaskans 2010 Website

State and National Resources:

- Alaska Center for Health Data and Statistics
- Alaska Health Education Library Project (AHELP)
- ANTHC Epidemiology Center
- County Health Calculator

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Subscribe to email or text updates

- Performance data
- Evidence-based strategies
- Actions and key partners
- State and national resources

Stories from Partners

- Strategic planning
- Performance improvement
- Data to quantify the problem and progress
- Understanding community priorities
- Selecting strategies to improve health
- Leading efforts among partners



Progress and Next Steps...

- ✓ Priorities identified
- ✓ Targets set
- ✓ Strategies selected
- Efforts aligned

Working
together
we can
reach
greater
heights



HEALTHY ALASKANS 2020

A JOINT PROJECT OF THE STATE OF ALASKA DEPARTMENT OF HEALTH AND SOCIAL SERVICES & THE ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Healthy Alaskans 2020 Scorecard

	HA2020 Leading Health Indicator	2010* Baseline	HA2020 Target	Current Data	Progress to Date
1	Reduce the cancer mortality rate per 100,000 population	176.0	162.0	163.3 (2012)	▲
2	Increase the percentage of adolescents (high school students in grades 9-12) who have not smoked cigarettes or cigars or used chewing tobacco, snuff, or dip on one or more of the past 30 days	74.8% ^a	80%	82.9% (2013)	★
3	Increase the percentage of adults (age 18 years and older) who currently do not smoke cigarettes	77.8%	83%	79.0% (2012)	▲
4.a	Reduce the percentage of adults (age 18 years and older) who meet criteria for overweight (body mass index of ≥ 25 and < 30 kg/m ²)	38.3%	36%	37.2% (2012)	▲
4.b	Reduce the percentage of adults (age 18 years and older) who meet criteria for obesity (body mass index of ≥ 30 kg/m ²)	29.2%	27%	28.1% (2012)	▲
5.a.i	Reduce the percentage of adolescents (high school students in grades 9-12) who meet criteria for overweight (age- and sex-specific body mass index of ≥ 85 th and < 95 th percentile)	14.4% ^a	12%	13.7% (2013)	▲
5.a.ii	Reduce the percentage of adolescents (high school students in grades 9-12) who meet criteria for obesity (age- and sex-specific body mass index of ≥ 95 th percentile)	11.8% ^a	10%	12.4% (2012)	●
5.b.i	Reduce the percentage of children (students in grades K-8) who meet criteria for overweight (age- and sex-specific body mass index of ≥ 85 th and < 95 th percentile)	16.7% ^{b,c}	15%	16.7% (2013-2014)	●
5.b.ii	Reduce the percentage of children (students in grades K-8) who meet criteria for obesity (age- and sex-specific body mass index of ≥ 95 th percentile)	16.6% ^{b,c}	15% ^c	16.8% (2013-2014)	●
6.a	Increase the percentage of adults (age 18 years and older) who report 150 or more total minutes per week of moderate or vigorous exercise where each minute of vigorous exercise contributes 2 minutes to the total	57.5% ^d	61%	no update	n/a
6.b	Increase the percentage of adolescents (high school students in grades 9-12) who do at least 60 minutes of physical activity a day, every day of the week	20.2% ^a	23%	20.9% (2013)	▲
7.a	Reduce the suicide mortality rate per 100,000 population, among the population aged 15-24 years	46.0	43.2	34.1 (2012)	★
7.b	Reduce the suicide mortality rate per 100,000 population, among the population aged 25 years and older	25.0	23.5	27.4 (2012)	●
8	Reduce the percentage of adolescents (high school students in grades 9-12) who felt so sad or hopeless every day for 2 weeks or more in a row that they stopped doing some usual activities during the past 12 months	25.2% ^a	23%	27.2% (2013)	●
9	Reduce the mean number of days in the past 30 days adults (age 18 and older) report being mentally unhealthy	3.2	2.9	3.3 (2012)	●
10	Increase the percentage of adolescents (high school students in grades 9-12) with three or more adults (besides their parents) from whom they feel comfortable seeking help	44.6% ^a	47%	42.8% (2013)	●

Notes: *2010 unless otherwise noted; ^a 2009; ^b 2009-2010 school year, ASD and Mat-Su School Districts only; ^c Modified due to change in data collection methodology; ^d 2011; ^e 2013; ^f 2009-2011

★ Target Met ▲ On Track to Reach Target ● Not on Track to Reach Target

Updated 09/30/2014

Home Visiting in Alaska



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Why Home Visiting?

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- Home visits by a nurse, social worker, or early childhood educator can improve child and family outcomes
- Early Childhood is a critical time for brain development
- Home is an critical part of the learning environment
- Parents need support

(Office of the Deputy Assistant Secretary for Early Childhood Development, 2015)



Evidence-Based Home Visiting Models

3

- **Nurse-Family Partnership (AK)**
 - **Parents as Teachers (AK)**
 - **Early Head Start – Home Visiting (AK)**
 - Family Spirit
 - Family Check-up
- Child FIRST
 - SafeCare
 - Minding the Baby
 - Healthy Steps
 - Early Intervention Program for Adolescent Mothers

(HRSA, 2015)



Home Visiting within the Division of Public Health

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- Maternal, Infant, & Early Childhood Home Visiting Program
 - Nurse-Family Partnership
- Healthy Start
- Public Health Nursing



Maternal, Infant & Early Childhood Home Visiting (MIECHV) Program

5

- Federal Grant to implement evidence-based home visiting services to at-risk families and communities
- Section of Women's, Children's, and Family Health
 - Statewide needs assessment
 - Determine best model for selected population



Goals of the MIECHV program

6

- Improved health outcomes for mother and child
- Improved socioeconomic status of family
- Better coordination of referrals for family
- Increased readiness for school
- Reduced incidence of child maltreatment and intimate partner violence
- Improved parenting skills



Nurse-Family Partnership®

7

Nurse-Family Partnership is an evidence-based community health program based on over 37 years of randomized, controlled trials

(Source: Nurse Family Partnership, 2014)



Nurse-Family Partnership®

8

- Outcomes identified:
 - 79% reduction in pre-term delivery in mothers who smoked
 - 48% reduction in child abuse and neglect
 - 50% reduction in language delays of children age 21 months
 - 61% fewer arrests of the mother
 - 82% increase in months employed

(Source: Nurse Family Partnership, 2014)



Nurse-Family Partnership

9

- Program is delivered by Registered Nurses in the home
- Set of visit-to-visit guidelines and data collection forms
- Women are enrolled early in pregnancy for early education
- Model offers visits prenatally and up until the child is age two

(Source: Nurse Family Partnership, 2014)



Nurse-Family Partnership

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- Having a healthy pregnancy
- Nutrition and breastfeeding
- Parenting support
- Immunizations
- Well-child visits
- Child safety education
- Linking the family to needed supports
- Developmental screening
- Domestic violence screening
- Maternal depression screening
- Tobacco cessation



What makes this evidence-based?

11

- Implementation which is faithful to model
- Follows model elements and guidelines
- Allows you to replicate the findings to your population
- Consistent content based on prevention science



Return on Investment

12

“The RAND Corporation reports that for every dollar a community invests in NFP, they can see up to \$5.70 in return”

(Source: Nurse Family Partnership, 2014)



Alaska MIECHV Preliminary Outcomes (1/1/13-9/30/14)

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- Demonstrated improvement
 - Prenatal Care
 - Breastfeeding
 - Education Attainment
 - Employment Status
 - Health Insurance
 - Visits to the Emergency Room
 - Child Maltreatment



Healthy Start - Nome

14

- Case management program - includes home visits
- Serves pregnant and interconceptional women who have children younger than two years of age
- Strong focus on behavioral health and community involvement
- Outcomes include: decreased infant mortality and improved perinatal outcomes



Public Health Nursing

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- Provides home visiting services on a case-by-case basis for high risk families
 - Low birth weight newborns
 - No family support in the home, single parent
 - Referred to Public Health Nursing for support with breastfeeding, parenting
- Screening for body mass index
- Health promotion and education
- Screening for immunizations, domestic violence and alcohol use



Public Health Nursing

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- Links families with resources such as local food bank, Medicaid, WIC, housing authority, homeless shelters, women's and families' shelters
- Connects families with referrals
- Facilitates initiation of case management

Thank You

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The Evidence Supporting Folic Acid Supplementation



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**HOUSE HEALTH AND SOCIAL SERVICES COMMITTEE
MARCH 12, 2015**



What is Folic Acid?

2

- B Vitamin commonly found in foods
- Folate – synthetic form found in supplements and fortified foods
- Helps to prevent Neural Tube Defects (ACOG, 2013)
- Difficult to get adequate folic acid from diet alone (ACOG, 2013)

Neural Tube Defects (NTD)

3

- Spina Bifida
- Anencephaly and Encephalocele
- 3,000 pregnancies effected annually in the U.S (CDC, 2014)
- 50%-70% could be prevented by taking 0.4 mg of Folic Acid daily (CDC, 2014)
- All women of child bearing age should take a multivitamin with Folic Acid (CDC, 2014)(March of Dimes, 2015)



Early Recommendations

4

- 1992 – U.S Public Health Services recommended all childbearing women take 0.4 mg daily (CDC, 2014)
- 1996 – USPSTF recommended 0.4 mg daily based on several studies (USPSTF, 2009)
- By 1998 – FDA mandated Folic Acid added to enriched grain products (CDC, 2014)
- 1998 – Food Nutrition Board of IOM recommended 0.4 mg daily supplement along with folate in foods (IOM, 1998)

2009 USPSTF Evidence Review

5

- **Systematic review of evidence of benefits and harms (USPSTF, 2009)**
- **Randomized Controlled Trial in Hungary demonstrated protective effects against NTDs (Wolfe et. al, 2009)**
- **Reviewed two Case-Control Studies (Wolfe et. al, 2009)**
- **Meta-Analysis also demonstrated Folic Acid was protective for NTDs (Wolfe et. al, 2009)**



2009 USPSTF Evidence Review

6

- Comprehensive evidence review led to updated recommendation that all women planning or capable of pregnancy take daily supplement with 0.4 to **0.8 mg** of Folic Acid (Wolfe et. al, 2009)
- Grade A recommendation
 - Net benefit is substantial and the scientific evidence supports the net benefit
 - High level of certainty(USPSTF, 2009)



National Folic Acid Campaign

7

- Established in 1999
- Collaboration between CDC, March of Dimes, National Council on Folic Acid
- Public Health opportunity to educate



Alaska Folic Acid Coalition

8

- Started in 1999
- Collaboration between multiple state partners
- The State of Alaska was awarded a \$10,000 leadership grant from March of Dimes to lead a public health campaign on the importance of Folic Acid supplementation



Alaska Folic Acid Coalition

9

- Educational materials
- Survey of Alaskan women
- Fact sheets for health care providers
- Media opportunities
- Community health education



Since Supplementation Recommendations

10

- Prevalence rate of Spina Bifida declined 31% between 1995-1996 and 1998-2006 nationally (CDC, 2014)
- Decrease from 5.04 per 10,000 live births to 3.49 per 10,000 in the U.S. (CDC, 2014)



Alaska Data on NTDs

11

- Prevalence rate of Neural Tube Defects has also decreased
- Decreased from 9.7 per 10,000 live births in 1996-1998 (pre-media campaign) to 5.7 per 10,000 live births (2000-2002)
- 54 infants were born with NTDs between 1996-2002
- Prevalence of spina bifida between 1996-2011 decreased further to 5.2 per 10,000 live births; of encephalocele 3.4 and anencephalus was 1.4. This represents 21% of all central nervous system anomalies.

(State of Alaska, Division of Public Health, 2011)



Current Status

12

- Standard practice in prenatal care
- Multivitamins should contain a minimum of 0.4 mg of Folic Acid
- Public Health continuously monitors data on NTDs
- Data and evidence are used to determine program priorities
- Ongoing studies looking at relationship between Folic Acid intake and congenital heart defects and cleft lip and palate defects (March of Dimes, 2012)



Thank You

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RICKETS AND VITAMIN D DEFICIENCY IN ALASKA NATIVE CHILDREN

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Alaska DHSS, Section of Epidemiology

March 12, 2015

House Health and Social Services Committee

Objectives

- Understand the causes and prevention of rickets and vitamin D deficiency in Alaska Native children
- Explore the relationship between traditional marine diet and maternal vitamin D levels
- Discuss current education and outreach efforts

Vitamin D deficiency

- Nutritional deficiency
- Increasing in prevalence
- Risk factors—insufficient dietary intake and sun exposure:
 - Darker skin color
 - Use of sunscreen
 - Limited intake of foods high in Vitamin D
 - Northern latitudes (above 37 degrees latitude)
 - Breastfeeding without Vitamin D supplementation

Rickets

- Failure of mineralization of growing bone and cartilage
- A state of extreme vitamin D deficiency
- Peak incidence between 3 and 18 months of age

Holick, M. Am J Clin Nutr. 2004;80:1678S-88S.



Definition of Vitamin D Deficiency

2014 AAP Guidelines (Ped 2014;134:e1229)

- Vitamin D deficiency is 25OHD below **20ng/ml**
 - Also Institute of Medicine (2010), Pediatric Endocrine Society, and the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition

2011 Endocrine Society Clinical Practice Guidelines (JCEM 2011;96(7):1911)

- Vitamin D deficiency is 25OHD below **20 ng/ml**;
- Vitamin D insufficiency is 25OHD **21-29 ng/ml**

Screening for Vitamin D Deficiency

- Evidence is insufficient to recommend universal screening for vitamin D deficiency
- AAP advises screening for vitamin D deficiency only in children and adolescents with conditions associated with reduced bone mass and/or recurrent low impact fractures
 - Endocrine society: screen “at-risk individuals,” including children with obesity, black and Hispanic children, malabsorption syndrome, and medications that alter vitamin D
 - Controversial because would involve screening, treating, and retesting large numbers of children without good evidence of cost-benefit in reducing fracture risk
- Test with 25-hydroxyvitamin D (25-OH-D)

Calcium and Vitamin D content of some traditional foods

- Chum Salmon, canned with bone (3 oz)
 - 212mg Calcium
 - 328 IU Vit D
- Sockeye Salmon, canned (3 oz)
 - 197 mg Calcium
 - 715 IU Vit D
- King Salmon, with skin, kippered (3oz)
 - 39mg Calcium
 - 44 IU Vit D
- Muktuk (3.5oz)
 - 5mg Calcium
 - ? Vit D
- Beluga Whale Oil
 - 51 IU Vit D
- Seal Flesh (100g)
 - 5mg Calcium
- Seal Oil (100g)
 - 1mg Calcium
 - 30 IU Vit D
- Caribou (3oz)
 - 19mg Calcium

Nutrient Values of Alaska Native Foods, Nobmann E, Alaska Area Native Health Service, Revised December 11, 1992; October 1993.

Salmon has one of the highest vitamin D contents of any food.

Vitamin D Supplementation

- American Academy of Pediatrics Guidelines:
 - Any breastfed or partially breastfed infant: supplement with **400 IU Vitamin D**.
 - Non-breastfed infants who take <1 L/day of vitamin D fortified milk/formula: supplement with **400 IU Vit D** (the amount found in 1 L infant formulas).
 - Infant consuming >1 L per day fortified infant formula or weaned to vitamin-D fortified milk: no supplementation.
 - Older children and adolescents: supplementation with **600 IU Vit D** is warranted if dietary intake is inadequate.

Study: Rickets and Vitamin D Deficiency in Alaska Native Children

Background and Methods:

- Increasing reports of vitamin D deficiency and rickets in Alaska Native children led ANTHC providers to conduct an epidemiologic study with two components:
 - Data analysis of rickets hospitalizations in Alaska Native children and US child population
 - Case control study of Alaska Native children with rickets/vitamin D deficiency and matched controls

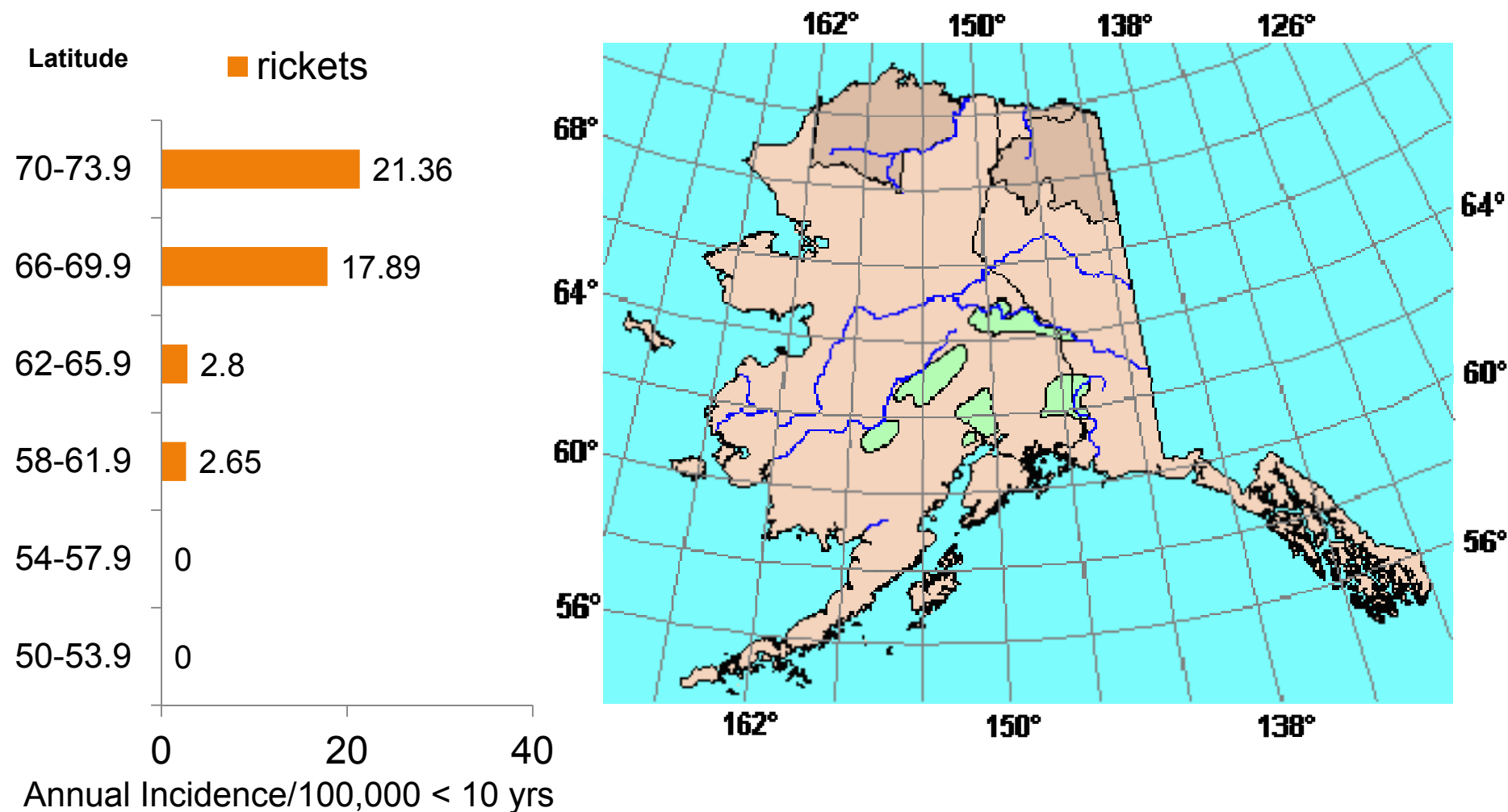
Institutions:

- Alaska Native Tribal Health Consortium
- Arctic Investigations Program – CDC

Investigators:

- Rachel Lescher MD
- Rosalyn Singleton MD
- Robert Holman MS
- Bradford Gessner MD
- Timothy Thomas MD
- Thomas Hennessy MD
- Matthew Benson MD
- John Rosenfeld
- Dana Haberling
- Lisa Bulkow MS
- Anthony Kretz
- Gail Thompson RN
- James Tiesinga MD
- Michael Bruce MD

Study Results: Rickets Incidence by Latitude, Alaska Native children <10 years, 1999-2010



Study Results: Rickets and Vitamin D Deficiency in Alaska Native children

- Rickets inpatient and outpatient visits were more common in Alaska Native children than in the US or other IHS sites
- Rickets diagnosis increased with:
 - Increasing latitude
 - Diagnosis of malnutrition
- Rickets and vitamin D deficiency occurred in both breastfed and formula fed infants
- Rickets and vitamin D deficiency were more common in infants who did not receive vitamin D supplementation.

Confirms importance of AAP recommended vitamin D supplementation of infants to prevent vitamin D deficiency

Serologic Survey of Biomarkers for Traditional Marine Diet and Vitamin D Levels in YK Delta Childbearing-aged Women

- **Objective:**

Explore how intake of traditional marine foods and serum Vitamin D levels have changed from 1960's through the present

Method:

- Test representative Alaska Area Specimen Bank serum samples of YK Delta women 20-29 years old at points in time from 1960s to 1990s, for biomarkers of traditional marine diet ($\delta^{15}\text{N}$) and 25-OH vitamin D levels

- Diane O'Brien PhD, University of Fairbanks, Center for Alaska Native Health Research (CANHR)
- Rosalyn Singleton MD, ANTHC
- Ken Thummel PhD, U Wash, Pharmacy, CANHR
- Bert Boyer PhD, U of Fairbanks, CANHR
- Lisa Bulkow MS, AIP-CDC
- Joseph Klejka MD, YKHC

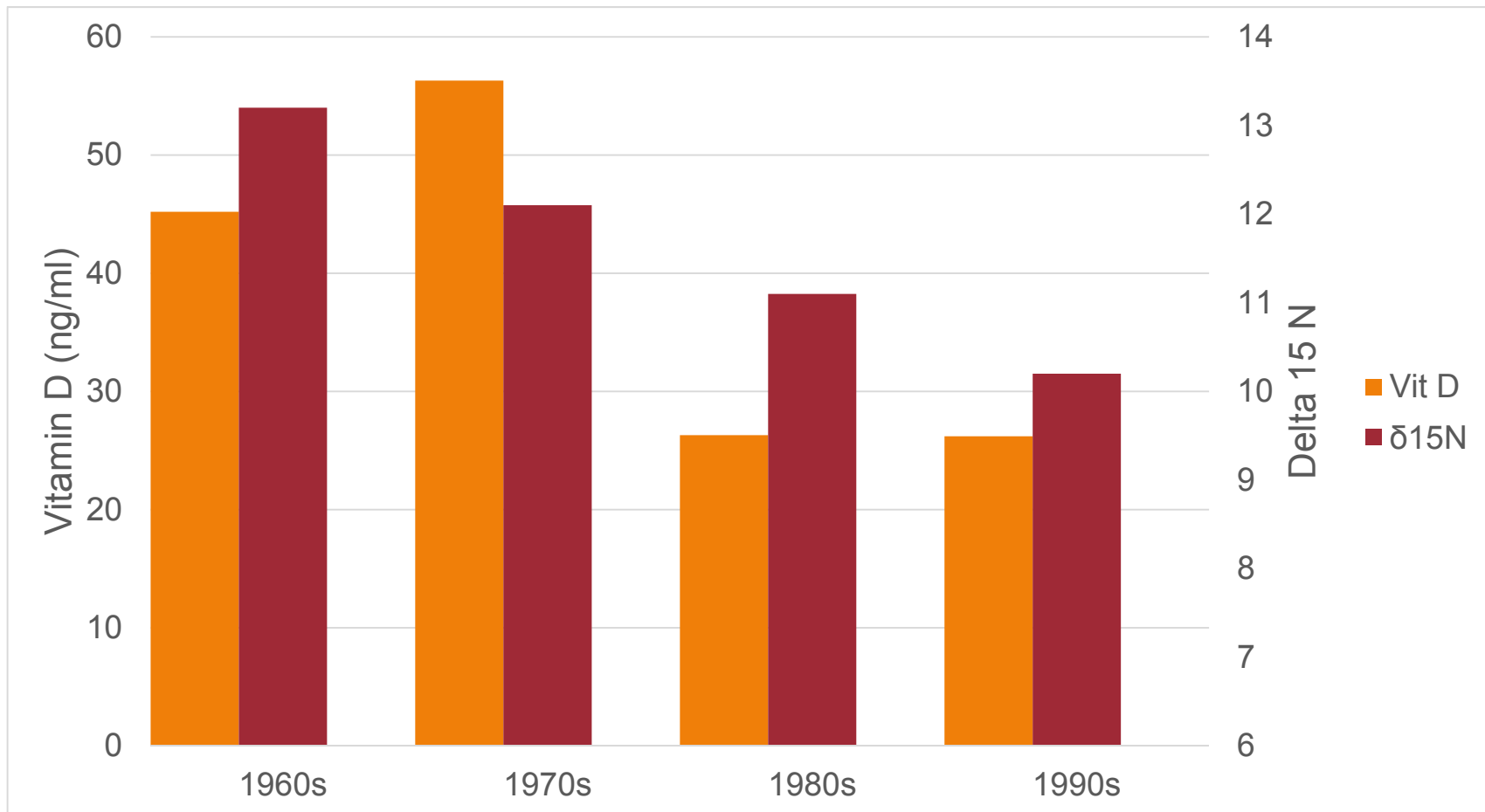
A Biomarker of Traditional Marine Food Intake – $\delta^{15}\text{N}$



- Fish and marine mammals are naturally enriched in the heavy stable isotope of nitrogen
- As fish and marine mammal intake increases, so does the nitrogen isotope ratio ($\delta^{15}\text{N}$) in blood and hair
- A person with no marine diet intake would have a $\delta^{15}\text{N}$ of $\sim 8\text{‰}$
- Each increase of 1‰ (unit of relative enrichment) corresponds to an increase in traditional food intake of $\sim 7\%$ of total energy

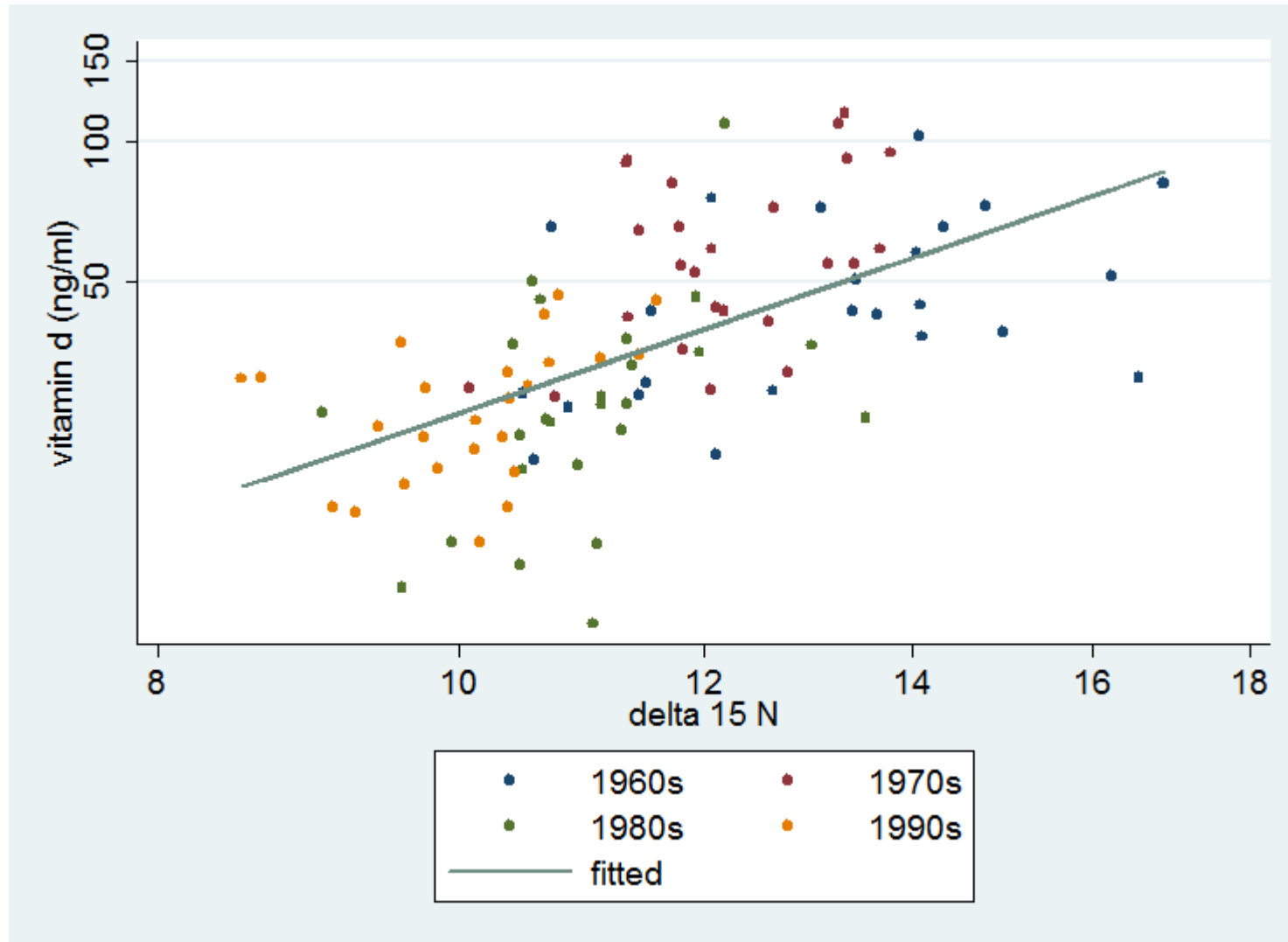
Validated by Diane O'Brien's group at UAF (CANHR)

Serum Vitamin D and $\delta^{15}\text{N}$ values, YK Women, 1960s to 1990s



Significant decline in both Vitamin D and $\delta^{15}\text{N}$ levels from 1960s to 1990s

Serum Vitamin D and $\delta^{15}\text{N}$ values



Correlation of Vit D and Delta 15N (log scale) - Pearson correlation 0.596 ($p < 0.001$)

Summary: Vitamin D and $\delta^{15}\text{N}$

- Vitamin D levels and intake of traditional marine foods decreased in YK child-bearing aged women during 1960-1990s.
- Vitamin D levels highly correlated with traditional marine food intake.
- Marine dietary intake by women of child-bearing age was very high in the 1960's – similar to that of current Yup'ik elders - but has dropped to low levels.
- Decreased marine food intake and vitamin D levels in pregnant women could put their infants at risk for vitamin D deficiency/rickets

Study Outcomes and Next Steps

- **What DPH has done**
 - **State Epi Bulletin** on Rickets and vitamin D deficiency in children
 - Highlighted infant vitamin D supplementation guidelines
 - Anchorage and Bethel **Grand Rounds** presentations to providers
 - Peer-reviewed **journal article** in *J. Pediatric Endocrine & Metabolism*
 - **Presentation** at Alaska Native Research Conference, 2014
- **What DPH and partners are planning**
 - Public relations outreach by tribal organizations and state agencies
 - **Nutritional benefit of salmon and importance of recommended vitamin D supplementation for infants and pregnant women**
 - ANTHCs “Store Outside Your Door” engaging communities to increase subsistence diet.