

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED
DATE 08/2

11759 SENATE HEALTH, EDUCATION & SOCIAL SERVICES

- 1 (5) dihydrotestosterone (4-dihydrotestosterone);
- 2 (6) drostanolone;
- 3 (7) ethylestrenol;
- 4 (8) fluoxymesterone;
- 5 (9) formebulone (formebolone);
- 6 (10) mesterolone;
- 7 (11) methandienone;
- 8 (12) methandranone;
- 9 (13) methandriol;
- 10 (14) methandrostenolone;
- 11 (15) methenolone;
- 12 (16) methyltestosterone;
- 13 (17) mibolerone;
- 14 (18) nandrolone;
- 15 (19) norethandrolone;
- 16 (20) oxandrolone;
- 17 (21) oxymesterone;
- 18 (22) oxymetholone;
- 19 (23) stanolone;
- 20 (24) stanozolol;
- 21 (25) testolactone;
- 22 (26) testosterone;
- 23 (27) trenbolone."

24

25 Renumber the following bill sections accordingly.

26

27 Page 3, line 31:

28 Delete "The changes made in secs. 1 - 5 of this Act apply"

29 Insert "This Act applies"

Sen. Hollis French

From: raymond.sawyer@AKANCH.ANG.AF.MIL
Sent: Wednesday, February 09, 2005 2:37 PM
To: Sen. Hollis French
Subject: RE: 2004 Anabolic Steroid Control Act

Senator Hollis,

Please use his letter as you need. I have coached youth sports for over twenty years, and it was not until three years ago that I saw a shift in the attitude of steroid use. In the past, steroids was a taboo subject, even by those taking it. Now, I have kids coming up to me bragging of the supplements they purchased on the internet, mind you the kids are thirteen and fourteen year olds. What ever you can do to stop kids from ruining their lives you have my support. Again, thank you.

Raymond Sawyer

-----Original Message-----

From: Sen. Hollis French
[mailto:Senator_Hollis_French@legis.state.ak.us]
Sent: Wednesday, February 09, 2005 2:15 PM
To: SAWYER, RAYMOND, CIV, 176 WG, 6070
Subject: RE: 2004 Anabolic Steroid Control Act

Dear Mr. Sawyer,

Thank you for writing, and for including your son's invaluable perspective on this issue. His experience comports with what we are hearing from some athletic directors: that there is more steroid useage out there than most folks are aware of.

With your permission, I would like to include your son's letter in the materials we circulate to other legislators by way of informing them about this particular issue. Please let me know if that would be OK.

Yours,

Hollis French

-----Original Message-----

From: raymond.sawyer@AKANCH.ANG.AF.MIL
[mailto:raymond.sawyer@AKANCH.ANG.AF.MIL]
Sent: Wednesday, February 09, 2005 12:28 PM
To: Sen. Hollis French
Cc: Rep. Vic Kohring; Sen. Charlie Huggins; Sen. Lyda Green
Subject: 2004 Anabolic Steroid Control Act

Honorable Senator French,

I am forwarding a letter from my son, Shannon Keola Sawyer, in regards to your efforts of combating this "allowed" drug. Before you read his letter, please allow me to personally thank you for taking on this beast of a task.

Sincerely,

Raymond Sawyer
1204 S. Frontier Dr
Palmer, AK 99645

Senator,

My name is Shannon Sawyer, and I heard you are working on a problem I have been battling with for sometime. You see I am a very hard working athlete.

I won the 2004 Tanana Wrestling State Championship 160 lb bracket when I weighed only 148 lbs. This year I started high school football, and not only made the varsity team, but was their starting varsity linebacker.

Two years ago I entered my first bodybuilding competition at the 2003 Mr.

Alaska, and I competed in the twenty year old and under class. I placed fifth. Last year I placed third. My GPA is 3.85 (I got a B in Spanish). Last year I was class president, member of the MATSU Youth Advisory Board, and voted on as the Alaska DARE youth advisor. I just turned fifteen, and I do not use any drug, alcohol, or supplement that is identified as banned. You see I am a natural athlete.

I initially saw steroids as a way people could cheat the system, or more appropriately, how to get what took me years to accomplish in a matter of months. However, after witnessing friends and teammates go through this evil change after taking over the counter prohormone, I started to voice my concerns. The changes I witnessed included violent mood changes, hostile outburst, physical changes that included Gynecomastia (male breast), and due to my own physic I have been accused of taking this garbage. I initially went to coaches who played the "I didn't know that" game. The Athletic Advisor was the same. It wasn't until I met Mr. Bob Sanders, State Program Director, Dare Alaska, who was willing to listen. Since becoming a member last year I have talked about this problem to several members in government to include Governor Swarzenegger of California.

Steroids do enhance the strength and size of the user, but at what cost? Having a 250 pound enraged individual coming at me does not sound like a sporting event, or not one that the majority of Alaskan want to participate in. The health concerns to those who use steroids are not a concern to the user. They want to get big, strong, and they want it now. They do not see the rage, violent outburst, skin problems, enlarged breast on males, or the countless other internal problems that I am not aware of. The bottom line is, these drugs are banned, made illegal, however still out in our playgrounds (yes, reports of steroid use by elementary kids), school boys and girl locker rooms, and gyms.

Alaska now has a champion in you to help further put a damper on the flow of this poison. What ever I can do to assist in getting information out to the youth of Alaska, please let me know.

Shannon Sawyer
Palmer AK

2

February 25, 2005

AMENDMENT TO SB 70

Page 2, line 1, insert the following:

*Sec. 2. AS 11.41.120 is amended by adding a new subsection, to read:

(c) It is an affirmative defense to a prosecution under (a)(3) of this section that

(1) the defendant manufactured the controlled substance for their own personal use;

(2) the controlled substance was stolen from a locked area designed for securing valuable items or dangerous materials; and

(3) the defendant did not know or have reason to believe that the controlled substance would be taken from the locked area.

Renumber bill sections accordingly.

SENATE COMMITTEE REPORT First Committee of Referral

DATE: 1/21/05

FURTHER: Judiciary

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED
IN TO OFFICE: 2.28.05

Health, Education and Social Services Committee considered

SENATE BILL NO. 70

SB 70 CRIMES INVOLVING CONTROLLED SUBSTANCES

"An Act relating to controlled substance, regarding the crimes of manslaughter, endangering the welfare of a child, and misconduct involving a controlled substance; and providing for an effective date."

and recommends

- be replaced with _____ CS SB 70 (HES)
- adopt previous _____ CS _____
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

Senate Bill:	
<input type="checkbox"/>	Same Title
<input checked="" type="checkbox"/>	New Title
House Bill:	
<input type="checkbox"/>	Same Title
<input type="checkbox"/>	Technical Title Change
<input type="checkbox"/>	New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
CDR	2/15		X		

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
DPS	1/20			X	1
ADM	1/20			X	2
LAW	12/22			X	3

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	DO PASS	DO NOT PASS	NO REC	AMEND
<i>[Signature]</i>			✓	
<i>[Signature]</i>			✓	
CHAIR: <i>[Signature]</i>	✓			

SB

73

STATE OF ALASKA

DEPT. OF HEALTH AND SOCIAL SERVICES

OFFICE OF THE COMMISSIONER

FRANK H. MURKOWSKI, GOVERNOR

PO. BOX 110601
JUNEAU ALASKA 99811-0601
PHONE (907) 465-3030
FAX (907) 465-3068

January 24, 2004

Honorable Fred Dyson, Chairman
Senate Health, Education and
Social Services Committee
Alaska State Capitol; Rm. 121
Juneau, AK 99801

Dear Senator Dyson,


The Department of Health and Social Services respectfully requests a hearing in the Senate Health, Education, and Social Services Committee on Senate Bill 73 "An Act relating to a lease-purchase agreement for the construction, equipping, and financing of a state virology laboratory in Fairbanks, on land provided by the University of Alaska, Fairbank to be operated by the Department of Health and Social Services; relating to the issuance of certificates of participation for the laboratory; relating to the use of certain investment income for certain construction and equipment costs for the laboratory; and providing for an effective date."

This bill would authorize the construction of a public health virology laboratory to replace the existing substandard Fairbanks facility.

A copy of Governor Murkowski's transmittal letter providing additional information on the project and the associated fiscal notes should be on file with the committee.

Your favorable consideration of this request will be appreciated.

Sincerely,


Sherry Hill, Special Assistant
Office of the Commissioner

cc: Kevin Jardell, Legislative Director
Office of the Governor

Dr. Richard Mandsager Director
Division of Public Health



FRANK H. MURKOWSKI
GOVERNOR
GOVERNOR@GOV.STATE.AK.US

P.O. Box 110001
JUNEAU, ALASKA 99811-0001
(907) 465-3500
FAX (907) 465-3532
WWW.GOV.STATE.AK.US

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

January 20, 2005

The Honorable Ben Stevens
President of the Senate
Alaska State Legislature
State Capitol, Room 111
Juneau, AK 99801-1182

Dear President Stevens:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a bill relating to a lease-purchase agreement for the construction, equipping, and financing of a state virology laboratory in Fairbanks, on land provided by the University of Alaska, Fairbanks, to be operated by the Department of Health and Social Services; relating to the issuance of certificates of participation for the laboratory; and relating to the use of certain investment income for certain construction and equipment costs for the laboratory.

It is imperative that Alaska maintain the capacity for rapid and accurate virological laboratory services as a core element of our public health system. Testing for significant diseases of public health concern such as rabies, measles, mumps, rubella, Norovirus, human immunodeficiency virus (HIV), and influenza, and the threat of emerging diseases, including severe acute respiratory syndrome (SARS) and West Nile virus, requires a modern, well-equipped laboratory.

A virology laboratory has been in operation in Alaska since 1948. The existing facility has been located on the University of Alaska, Fairbanks (UAF) campus since 1967. An independent assessment by the Association of Public Health Laboratories and the Centers for Disease Control and Prevention concluded that the existing facility has severe space limitations and the physical plant itself does not provide for the necessary bio-safety containment processes and facilities necessary for virological testing. The assessment team recommended that a new virology laboratory should be built on the UAF campus, which would preserve the existing technical expertise in virology and enhance the collaboration between the UAF and the Department of Health and Social Services.

The state Public Health Laboratory, located in Anchorage and built in 1999, lacks the space and physical infrastructure to perform the services provided by

COMMITTEE COPY

The Honorable Ben Stevens

January 20, 2005

Page 2

the existing Fairbanks virology laboratory. The Anchorage facility provides testing for diseases caused by bacteria, fungi, tuberculosis, and parasites, as well as analytical chemistry services for clinical diagnostics, forensic toxicology, and bio-monitoring. The Anchorage laboratory is also the only biological-safety-level-three facility in the state and thus serves as the central analytical agency for state and federal biological and chemical terrorism response.

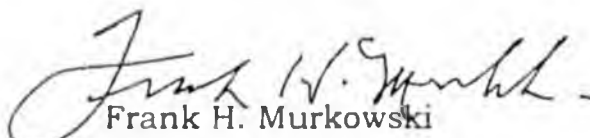
The UAF has agreed to provide land and supporting infrastructure for the new state facility under a long-term lease at no cost. Co-location of the state's virology laboratory on the Fairbanks campus would have many advantages for both academic researchers and public health practitioners. This would include providing additional biological-safety-level-three space that should fulfill the need for surge capacity and provision of basic services in the event of a natural disaster affecting the Anchorage laboratory. It also will provide opportunity for enhanced collaboration with UAF's health research program.

This bill would authorize a lease-purchase agreement under AS 36.30.085, subject to annual appropriation, to finance the new laboratory. It would authorize the state bond committee to issue certificates of participation in the aggregate principal amount of \$24,000,000 for the construction of the virology laboratory. Additionally, the bill would provide that the remaining balance and equipping costs be paid from investment income of \$200,000 earned on the proceeds of the sale of the certificates of participation. The estimated annual amount of rental obligations under the lease-purchase agreement would be \$2,375,000. The estimated total cost of construction, acquisition, and other costs of the project, would be \$24,200,000. An immediate effective date is requested in the bill.

Your support for this virology laboratory would further Alaska's commitment to provide a modern public health system.

I urge your prompt and favorable action on this measure.

Sincerely yours,


Frank H. Murkowski
Governor

Enclosure

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
Bill Version: SB 73
(S) Publish Date: 1/21/05

Revision Date/Time (Note if correction): _____ Dept. Affected: Revenue
Title: Virology Lab Lease-Purchase RDU: Revenue Programs & Services
Component: Treasury Management
Sponsor: Rules Committee
Requester: Request of the Governor Component No.: 121

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel	10.0					
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Debt Service		2,370.4	2,373.1	2,371.8	2,372.5	2,371.3
TOTAL OPERATING	10.0	2,370.4	2,373.1	2,371.8	2,372.5	2,371.3

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ()						
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	10.0	2,370.4	2,373.1	2,371.8	2,372.5	2,371.3
1005 GF/Program Receipts						
1037 GF/Mental Health						
Certificates sale proceeds	0.0					
TOTAL	10.0	2,370.4	2,373.1	2,371.8	2,372.5	2,371.3

Estimate of any current year (FY2005) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This bill authorizes sale of \$24 million in certificates of participation (in a state lease financing obligation) to finance construction of a virology laboratory on the University of Alaska Fairbanks Campus. This fiscal note and analysis contemplates 15-year level debt service, debt issuance costs of 200,000, a competitive sale, and state credit ratings remaining at current levels. The financing could take place 60 to 90 days after authorization became effective.

Financing assumptions include debt service beginning in FY07, and a 4.9% interest rate/true interest cost.

Prepared by: Deven Mitchell Phone: 465-3750
Division: Treasury Division Date/Time: 1/19/05 1:33 PM
Approved by: Jerry Burnett, Special Assistant to the Commissioner Date: 1/19/2005
Agency: Department of Revenue

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 2
 Bill Version: SB 73
 (S) Publish Date: 1/21/05
 Dept. Affected: Health & Social Services

Revision Date/Time (Note if correction):

Title: CONSTRUCTION OF A STATE PUBLIC HEALTH VIROLOGY LAB IN FAIRBANKS
 RDU: Public Health
 Component: Public Health Laboratories

Sponsor: (RLS) BY REQUEST OF THE GOVERNOR

Requester: GOVERNOR Component No. 2252

Expenditures/Revenues (Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual					200.0	200.0
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	200.0	200.0

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES (0)						
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF					200.0	200.0
1037 GF/Mental Health						
Other(Specify Type-do not abbreviate)						
Other(Specify Type-do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	200.0	200.0

Estimate of any current year (FY2005) cost: _____

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

The Department is requesting funds for construction of a new virology laboratory in Fairbanks. The project would be financed through Certificates of Participation (COPs). As a result of the project, the operational expenses of the building will increase. The Department currently pays \$150,000 annually to the University under a lease for the cost of building operational expenses. This includes all utilities, building insurance, fire and police protection, waste disposal, custodial, grounds keeping, maintenance and repair, and snow removal. This cost will increase by an estimated \$200,000 annually due to the increased size of the proposed virology laboratory. Since maintenance and repair are included in this amount, the Department will not need to include this building in the Department's overall deferred maintenance capital request when renovation and repair needs arise. The increase will take effect in FY 2010, when the new lab is expected to be completed and occupied by public health staff.

Prepared by: Janet Clarke, Assistant Commissioner Phone 465-1630
 Division: Finance and Management Services Date/Time 01/10/2005
 Approved by: Joel S. Gilbertson, Commissioner Date 01/20/2005
 Agency: Department of Health and Social Services

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 3
 Bill Version: SB 73
 (S) Publish Date: 1/21/05
 Dept. Affected: Health & Social Services

Revision Date/Time (Note if correction):

Title CONSTRUCTION OF A STATE PUBLIC HEALTH VIROLOGY LAB IN FAIRBANKS

RDU Departmental Support Services

Component Administrative Support Svcs

Sponsor (RLS) BY REQUEST OF THE GOVERNOR

Requester GOVERNOR

Component No 320

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous		2,375.0	2,375.0	2,375.0	2,375.0	2,375.0
TOTAL OPERATING	0.0	2,375.0	2,375.0	2,375.0	2,375.0	2,375.0

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES (0)						
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF		2,375.0	2,375.0	2,375.0	2,375.0	2,375.0
1037 GF/Mental Health						
Other(Specify Type-do not abbreviate)						
Other(Specify Type-do not abbreviate)						
TOTAL	0.0	2,375.0	2,375.0	2,375.0	2,375.0	2,375.0

Estimate of any current year (FY2005) cost: _____

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

X

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

The legislation identified \$24.2 million in funding for the design, construction and equipping of a state owned and operated virology laboratory in Fairbanks. The funding is comprised of \$24,000,000 in proceeds from the sale of Certificates of Participation (COP), and \$200,000 in investment earning on the COPs

Annual debt service on the \$24.2 million is estimated at \$2,375,000 using the assumptions of a 15-year term and a true interest cost of 4.09%. Debt service will begin in fiscal year 2007, with total repayment estimated at just under \$35,575,000. The interest rate listed here is an estimate based on current rates. The rate at the time of the sale of the bonds may slightly differ.

An appropriation of debt service in the language section of the annual operating or capital budget will be made to the debt service fund.

Prepared by: Janet Clarke, Assistant Commissioner

Division: Finance and Management Services

Approved by: Joel S. Gilbertson, Commissioner

Agency: Department of Health and Social Services

Phone: 465-1630

Date/Time: 01/18/2005

Date: 01/20/2005

COMMITTEE COPY

State of Alaska

Department of Health & Social Services

Frank H. Murkowski
Governor
P.O. Box 110001
Juneau, Alaska 99811-0001
FACT SHEET



Joel Gilbertson
Commissioner
907-465-3030
FAX: 907-465-3068
www.hss.state.ak.us

January 21, 2005

New Fairbanks Virology Lab to Continue Vital Testing

Details:

- The State Public Health Laboratories tested 75,086 specimens in FY04, of which 36,267 (48%) specimens were tested in the Fairbanks Virology Laboratory.
- Virology testing will cost the state \$991,000 in GF for the current fiscal year, yet provides nearly \$2 million worth of services.
- The Alaska State Virology Laboratory (ASVL) tests specimens from human and some animal sources for infectious diseases caused by viruses. Examples include rabies, influenza, SARS, West Nile Virus, Norovirus, hepatitis, HIV, measles, mumps and rubella.
- The safe and efficient operation of a State Virology Laboratory is vital to the detection, treatment and control of highly infectious and serious diseases in Alaska. Additionally, the Laboratory is a member of the Pacific Basin Respiratory Research Group and the World Health Organization (WHO) Influenza Centers of the Americas, providing vital information for the yearly make-up of the influenza vaccines.

History:

- The Fairbanks lab has been on the University of Alaska Fairbanks campus since 1967. It currently occupies 5,255 square feet in a Cold War-era building.
- An independent assessment by the Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention (CDC) noted:
 - "The physical facility at the ASVL is marginally adequate considering the importance of the virology testing being conducted. Not only are there severe space limitations, the physical plant itself is inadequate to deliver the necessary bio-safety containment processes and facilities necessary for virological testing."
- The State Public Health Laboratory in Anchorage was built in 1999 and lacks the space and physical infrastructure to absorb the services provided by the Fairbanks lab. The Anchorage facility provides testing for diseases caused by bacteria, fungi, tuberculosis and parasites, as well as analytical chemistry services for clinical diagnostics, forensic toxicology and biomonitoring. When the new Anchorage lab opened there was room for expansion, but that has been consumed by the growth in bioterrorism prevention and identification missions.

-more-

- The Anchorage laboratory is the only Biological Safety Level (BSL) 3+ facility in Alaska and thus serves as the central analytical agency for state and federal biological and chemical terrorism response.
- Routine virology functions plus changes in technology and emergence of new viral agents were always anticipated to require more space than what is available in Anchorage. Heightened concerns of environmental and food contaminants and new responsibilities associated with terrorism and homeland security have further changed requirements for the Anchorage laboratory.

FY06 Proposal:

- The Department has made a \$24.2 million capital budget request to replace the existing virology lab on the UAF campus.
- Replacement of the facility will ensure the citizens of Alaska continued, safe and high-quality virology laboratory services.
- Co-location of the Alaska State Virology Laboratory on the UAF campus will result in increased collaboration and scientific expertise of both academic researchers and public health practice. The developing human and genetics missions of UAF provide a natural fit for a state public health lab located on the same campus (this mission emphasis of UAF is new in recent years).
- Keeping two separate state labs will give the state surge capacity and redundancy in case the facility in either Fairbanks or Anchorage is damaged in an earthquake.
- Replacement in Fairbanks keeps the highly skilled workforce in place. Transfer of the functions to Anchorage would most likely mean the loss of those individuals (some of whom would be incredibly hard to replace) to research labs in UAF.

-30-

Contact: Dr. Bernd Jilly, Chief, Section of Laboratories (voice: 907-334-2109; e-mail: bernd_jilly@health.state.ak.us)

STATE OF ALASKA

DEPARTMENT of HEALTH & SOCIAL SERVICES
DIVISION of PUBLIC HEALTH

FRANK H. MURKOWSKI, GOVERNOR

OFFICE OF THE DIRECTOR
P.O. BOX 110610
JUNEAU, AK 99811-0610
PHONE: (907) 465-3090
FAX: (907) 465-4632

February 9 2005

The Honorable Fred Dyson
Alaska State Senate
State Capitol Room 121
Juneau, AK 99801-1182

Dear Senator Dyson,

Enclosed is an amendment to SB 73, related to the construction of a new state virology laboratory in Fairbanks, for consideration by the HESS Committee.

The original language of the bill states that the laboratory will be built on land provided by the University. Since the University is a land grant college and also holds title to the property, the Legislature does not have the power to direct the University as to the use of their property. This amendment makes a few minor adjustments to change references to the University providing the land, to the state leasing the land. On that issue, we have negotiated an agreement with the University for a no-cost lease should this legislation pass.

Thank you for your consideration and assistance in advancing the proposed amendment. Please contact me if you have any questions.

Sincerely,



Richard Mandsager, M.D.
Director, Division of Public Health

enclosure

2AG-1
2/4/2005
(11:11 AM)

A M E N D M E N T

OFFERED IN THE SENATE HEALTH, EDUCATION BY _____
AND SOCIAL SERVICES COMMITTEE
TO: SB 73

- 1 Page 1, lines 2 - 3:
- 2 Delete "on land provided by the University of Alaska, Fairbanks,"
- 3
- 4 Page 1, line 11:
- 5 Delete "provided"
- 6 Insert "leased from"
- 7
- 8 Page 1, line 12:
- 9 Delete "by"



PUBLIC HEALTH

**PROTECTING AND PROMOTING THE
HEALTH OF ALL ALASKANS**

SB 73: Construction of a State Public Health Virology Laboratory in Fairbanks

Presentation to the Senate HESS Committee

February 9, 2005

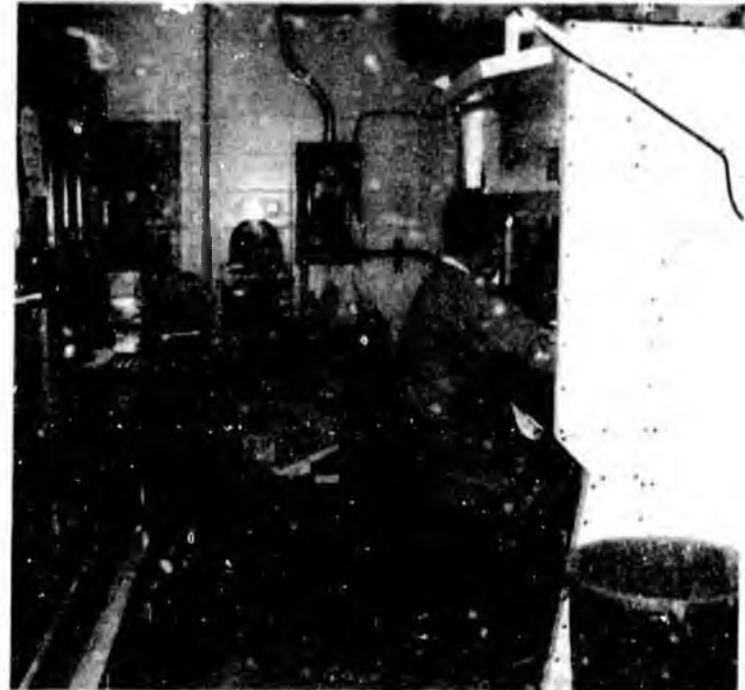
Richard Mandsager, M.D., Director

Alaska Department of Health & Social Services

Division of Public Health

The Alaska State Virology Laboratory

- Provides specialized testing services for the purpose of diagnosing human and animal viral infections, such as
 - Influenza
 - Rabies
 - Hepatitis A, B and C
 - HIV
 - SARS
 - West Nile Virus
 - Norovirus
 - Measles
 - Mumps
 - Rubella

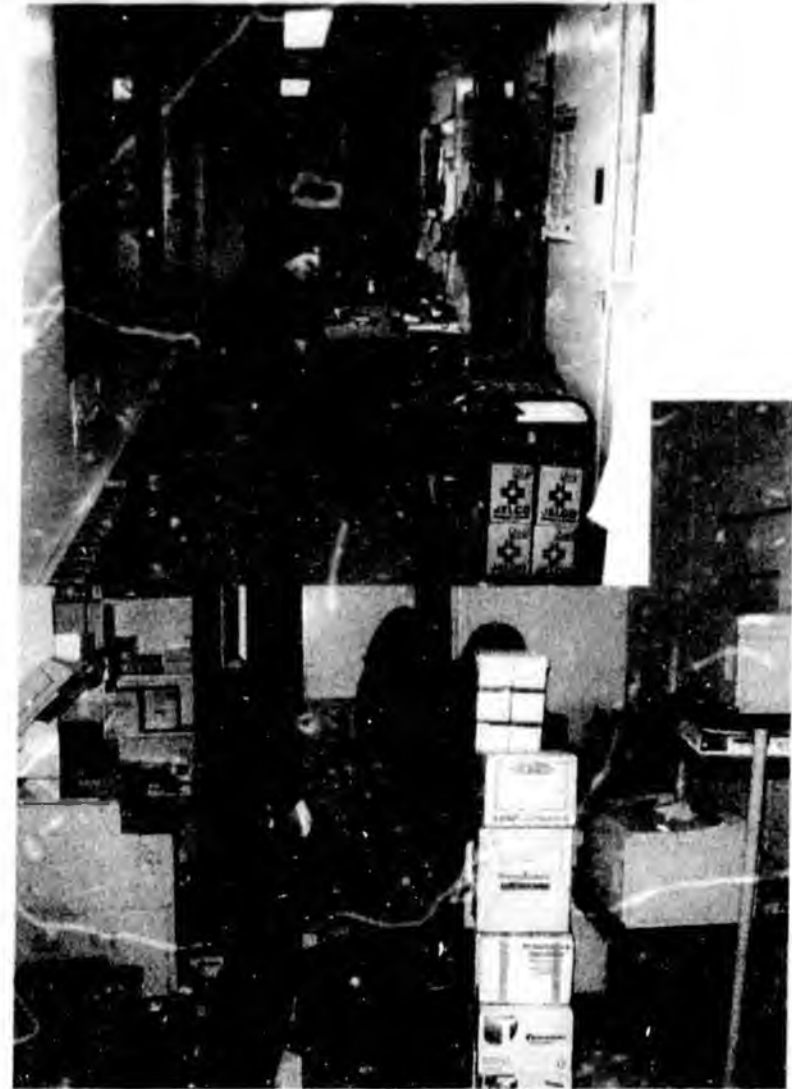


- Tested 36,267 specimens in FY 04
- FY 05 GF Budget = \$991.0

PUBLIC HEALTH
PROTECTING AND PROMOTING THE
HEALTH OF ALL ALASKANS

Current Fairbanks Virology Laboratory

- Located on UAF Campus since 1967
- 5,255 sq. ft. in Cold War-era Building
- Problem:
 - Severe space limitations
 - Inadequate lighting and ventilation
 - Fails to meet today's laboratory building and ADA accessibility standards
 - Potential for future eviction
 - “an accident waiting to happen”



Proposed Virology Laboratory Solution

- **Collaboration with UAF on a new Laboratory Facility in Fairbanks**
 - Provides critical laboratory capacity for rapid identification of known and “new” viruses
 - Provides redundant and surge capacity in the event of a terrorist attack or natural disaster
 - Retains valuable trained and experienced scientific staff resources



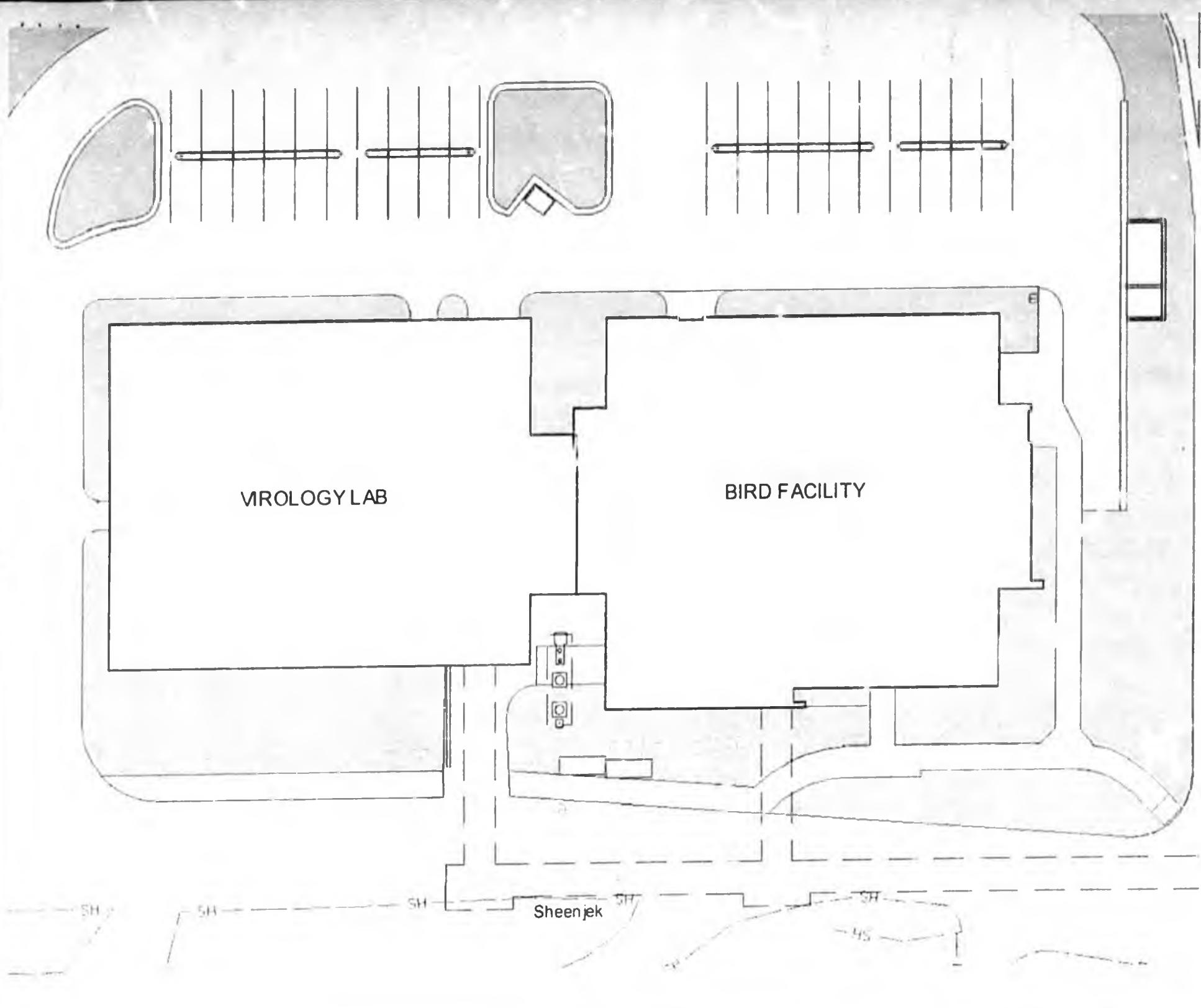
- Facilitates sharing of ideas and new knowledge between UAF Health Research Program and DHSS

SB 73: Construction of a State Public Health Virology Lab in Fairbanks

- **Cost: \$24.2 Million for**
 - Design
 - Construction
 - Equipping
- **Financing: Certificates of Participation (COFs)**
- **Annual Lease-Purchase (estimated)**
 - 15-year term
 - 4.90% interest
 - \$2,375.0/year



- **Long term land lease negotiated with UAF (no cost)**



VIROLOGY LAB

BIRD FACILITY

Sheenjok

SH

SH

SH

SH

SH

HS

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101


State Capitol
Juneau, Alaska 99801-1182
Deliveries to: 129 6th St., Rm 329

MEMORANDUM

February 10, 2005

SUBJECT: CSSB 73(HES) (Work Order No. 24-GS1117G)

TO: Senator Fred Dyson
Attn: Jason

FROM:  Theresa Bannister
Legislative Counsel

This memo accompanies the bill described above. The following is a suggestion for the bill. Since the bill has passed out of your committee, you may wish to send this memo along with the bill to the next committee of referral.

In sec. 2(b) of the bill, the use of "other costs" suggests that the preceding reference to "acquisition" means the cost of acquisition. However, the bill does not actually say that because of the way the words are arranged and used. So I suggest that the phrase, "cost of construction, acquisition, and other costs," be replaced with the phrase, "cost of construction, cost of acquisition, and other costs."

If I may be of further assistance, please advise.

TLB:jad
05-03.jad

Enclosure

SENATE COMMITTEE REPORT

DATE: 1/27/05

FURTHER: Finance

DATE TURNED IN TO OFFICE: 2.9.05

Health, Education and Social Services Committee considered

SENATE BILL NO. 51

SB 51 PUBLIC ASSISTANCE PROGRAMS

"An Act relating to contracts for the provision of state public assistance to certain recipients in the state; providing for regional public assistance plans and programs in the state; relating to grants for Alaska Native family assistance programs; relating to assignment of child support by Alaska Native family assistance recipients; relating to paternity determinations and genetic testing involving recipients of assistance under Alaska Native family assistance programs; and providing for an effective date."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS _____ (_____)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

Senate Bill:
 Same Title
 New Title

House Bill:
 Same Title
 Technical Title Change
 New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
HHS	12/10	X			1
HHS	12/10	X			2
HHS	12/10	X			3
HHS	12/10	X			4

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	DO PASS	DO NOT PASS	NO REC	AMEND
Elton	✓			
Wilken			✓	
Green			✓	
Olson	✓			
Dyson CHAIR:	✓			

SB

74

FRANK H. MURKOWSKI
GOVERNOR

GOVERNOR@GOV.STATE.AK.US



STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

January 20, 2005

SB74
P.O. Box 110001
JUNEAU, ALASKA 99811-0001
(907) 465-3500
FAX (907) 465-3532
WWW.GOV.STATE.AK.US

The Honorable Ben Stevens
President of the Senate
Alaska State Legislature
State Capitol, Room 111
Juneau, AK 99801-1182

Dear President Stevens:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a bill relating to marijuana. I believe it is time for the Alaska Legislature to take a stand and debunk the myth that marijuana is a harmless recreational drug.

It is very troubling to me that our young people have access to the drug and are using it. In recent years, Alaska had the highest rate in the nation of persons over the age of 12 trying marijuana for the first time. Approximately two-thirds of these new smokers were children ages 12 - 17. This same age group of children made up over half of the state's 363 treatment admissions in 2003 for marijuana abuse. Many more go untreated each year.

The problem is particularly great for Alaska Natives. In 2003, the self-reported rate of current use for Alaska Native students in the ninth grade (age 15) was 36.96 percent, nearly three times the rate for non-Native Alaska students. For tenth graders, the rate of current use by Alaska Native students was 41.77 percent. Alaska Natives also made up approximately 35 percent of the statewide treatment admissions for marijuana abuse in 2003. The numbers of our youths trying marijuana for the first time and entering treatment foretells a dim future if nothing is done.

Although marijuana smoke contains hundreds of substances, some of them carcinogenic, the principal psychoactive ingredient is delta-9 tetrahydrocannabinol (commonly known as THC). In the 1960's and 70's, marijuana was primarily used by college students and "hippies," and the average THC content was less than one percent. But today, the average THC content in marijuana is six times that level, at 6.4 percent. Drug dealers in Alaska have turned indoor marijuana growing into a science and marijuana grown here has been found with a THC content in excess of 20 percent. Our young people thus have access to, and are using, marijuana that is a potent hallucinogenic.

In 1975, the Alaska Supreme Court studied marijuana and concluded, in *Ravin v. State*, that the scientific evidence on its effects did not justify making it a

COMMITTEE COPY

The Honorable Ben Stevens
January 20, 2005
Page 2

crime for adults to possess small amounts in private. More recently, the Alaska Supreme Court has shown an unwillingness to reconsider the latest scientific evidence on the harmful effects of marijuana. A rational evaluation of marijuana's harmful effects must occur, and the Legislature should do that -- not the courts. This bill would provide a forum for the Legislature to hear expert testimony on the effects of marijuana and to make findings that the courts can rely on in cases where marijuana is an issue.

In addition to educating the Legislature, courts, and the public about the harmful effects of marijuana, this bill would deter possession and use of marijuana by increasing criminal penalties for certain types of possession. It also would provide a fair and efficient process for determining the usable weight of live marijuana plants in criminal prosecutions.

Current law makes it a class B felony to give or sell marijuana, and schedule IVA and VA controlled substances, to someone age 18 or younger, but only if the dealer is at least three years older. Right now, if a 19-year-old gives a small amount of marijuana to a 17-year-old, it is the lowest level misdemeanor offense. When the law classifies such conduct as such a low-level offense, it provides no deterrence for young adults.

Marijuana is particularly harmful for young users, and it should be a serious crime to give or sell marijuana to someone under age 21, no matter how old the "dealer" may be. Expanding the current class B felony penalty for providing marijuana, and schedule IVA and VA controlled substances, to someone under age 21, regardless of the age difference between the user and the dealer, would allow the Superior Court to punish adults who supply our youths.

The bill also would make it a class C felony (the lowest felony level) to possess four ounces or more of marijuana, compared to current law, which reserves this felony level only for those who possess a whole pound or more. Four ounces of high-THC marijuana has a street value of up to \$2,000. Given the increase in the value and potency of marijuana, it is appropriate to apply higher penalties to possession of this amount.

The bill also would adjust misdemeanor penalties related to marijuana. The bill would make it a class A misdemeanor to possess one ounce or more of marijuana, as compared with current law, which allows misdemeanor penalties even for those who possess from a half-pound to up to one pound of marijuana. The bill would reserve the lowest misdemeanor penalties (class B misdemeanor), for possession of less than one ounce of marijuana, which is still a significant amount, both in dosage and cost.

The Honorable Ben Stevens

January 20, 2005

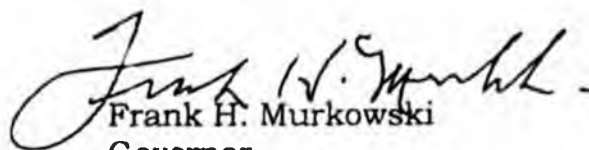
Page 3

The bill also tackles marijuana and driving, which even the Supreme Court in *Ravin* recognized as a potentially serious problem back in 1975. Unlike alcohol, there is no effective way for law enforcement officers to quickly and easily test the amount of marijuana in a person's blood, breath, or urine. Thus, the best way to deter using marijuana and driving is to prohibit it in motor vehicles. This bill would make it a class A misdemeanor for the driver of a motor vehicle to possess any amount while driving or operating a motor vehicle. This is the same level of offense as driving under the influence, although this bill does not require mandatory penalties as required for driving under the influence (DUI) offenses. The bill also would make it a class B misdemeanor if a passenger in a motor vehicle possesses any marijuana, or if the driver allows a passenger to do so.

Finally, the bill would provide a fair and efficient process for determining the usable weight of live marijuana plants. Under current statutory law, to determine the weight of marijuana from a growing plant, the law enforcement officers must harvest, dry, and process the marijuana just like a marijuana grower would. This is required for two reasons. First, the plants cannot be allowed to remain damp, or a mold will form that not only destroys the evidence, but is also dangerous to the officers handling the plants. Second, this processing is statutorily required because the plant can only be weighed after it has been "reduced to its commonly used form." (AS 11.71.080.) The obvious problem with this statute is that it forces the law enforcement officers to operate large marijuana drying and processing facilities at great expense and effort. The plants must be spread out and dried, and then the law enforcement officers must begin the laborious task of separating the less usable stalks from the leaves, buds, and flowers. Even then, there are often arguments in court about whether the law enforcement officers correctly processed the plants, or whether they left in too many stalks. This bill solves the problem by allowing the law enforcement officers to weigh the unprocessed harvested plants, and declares that one-sixth of that weight is used for determining what level of crime is involved. The one-sixth ratio was determined by experimentation of the Alaska State Troopers, and represents an average of several test batches of live marijuana plants that were dried and processed to their "commonly used form."

I urge your prompt and favorable action on this measure.

Sincerely yours,


Frank H. Murkowski
Governor

Enclosure

STATE OF ALASKA

DEPARTMENT OF LAW
OFFICE OF THE ATTORNEY GENERAL

Frank H. Murkowski, Governor

*Commercial and Fair Business Section
P.O. BOX 110300
123 4TH ST., DIMOND COURT HOUSE
JUNEAU, ALASKA 99811-0300
PHONE: (907)465-3600
FAX: (907)465-2539*

March 1, 2005

Sectional Analysis of SB 74 (Marijuana)

(Prepared by the Department of Law, March 1, 2005)

SB 74 would enlarge the class of persons to whom delivery of certain controlled substances constitutes a crime; add new types of misconduct involving certain controlled substances that constitute a crime; lower the possession threshold amounts for certain degrees of misconduct involving a controlled substance; make the possession of any amount of marijuana a crime; and change the formula for calculating the aggregate weight of marijuana plants.

Sec. 1: Section 1 sets out the purpose of the bill.

Sec. 2: Section 2 sets out the bill's findings.

Sec. 3: Section 3 makes it a crime under the statute to deliver certain controlled substances to someone under the age of 21. Under the current law, delivery to someone who is under 19 and at least three years younger constitutes a crime.

Sec. 4: Section 4 lowers the minimum amount of certain controlled substances a person must possess to constitute a crime under the statute from one pound to four ounces.

Sec. 5: Section 5 lowers the minimum amount of certain controlled substances a person must possess to constitute a crime under the statute from one pound or more to one ounce or more. It also criminalizes under the statute the act of possessing certain controlled substances while driving or operating a motor vehicle, aircraft, or motorized watercraft.

Sec. 6: Section 6 lowers the minimum amount of certain controlled substances a person must possess to constitute a crime under the statute from less than one-half pound to less than one ounce.

Section 6 also adds the following types of conduct to the list of conduct that is criminalized under the statute:

- manufacture, delivery, or possession with intent to manufacture or deliver less than one ounce of certain controlled substances;

- possession of certain controlled substances while a passenger in a motor vehicle, aircraft, or motorized watercraft;
- being the driver or operator of a motor vehicle, aircraft, or motorized watercraft and knowingly permitting a passenger to possess certain controlled substances.

Sec. 7: Section 7 changes the calculation of the aggregate weight of a marijuana plant to be a percentage of the measured weight of a plant after its roots have been removed.

Sec. 8: Section 8 sets out an immediate effective date.

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
 Bill Version: SB 74
 (S) Publish Date: 1/21/05

Revision Date/Time (Note if correction): _____ Dept. Affected: Public Safety
 Title An Act relating to marijuana use and possession, RDU Alaska State Troopers
marijuana and misconduct controlled substance Component AST Detachments
 Sponsor Rules Committee
 Requester Governor Component No. 2325

Expenditures/Revenues (Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF, Program Receipts						
1037 GF/Mental Health						
Other (Specify Type—Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

Passage of this Act will have no fiscal impact on the Department of Public Safety. The potential increase in the number of arrests for violations can be handled by available staff. Provisions of this Act will help deter marijuana use and possession overall. The Act also addresses the issue of driving under the influence of marijuana which is a serious problem. Contrary to some contention on the subject, marijuana is not a harmless recreational drug.

Prepared by: Lieutenant Todd Sharp
 Division: Alaska State Troopers
 Approved by: Commissioner William Tandeske
 Agency: Department of Public Safety

Phone 907-269-4532
 Date/Time 1/20/05 2:20 PM
 Date 1/20/2005

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 2
 Bill Version: SB 74
 (S) Publish Date: 1/21/05

Revision Date/Time (Note if correction): _____ Dept. Affected: Administration
 Title An Act relating to marijuana RDU Legal and Advocacy Services
use and possession... Component Public Defender Agency
 Sponsor Rules Committee
 Requester Governor Component No. 1631

Expenditures/Revenues (Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services	115.5	115.5	115.5	115.5	115.5	115.5
Travel	4.8	4.8	4.8	4.8	4.8	4.8
Contractual	35.9	35.9	35.9	35.9	35.9	35.9
Supplies	2.7	2.7	2.7	2.7	2.7	2.7
Equipment	6.7	0.7	0.7	0.7	0.7	0.7
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	165.6	159.6	159.6	159.6	159.6	159.6

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	165.6	159.6	159.6	159.6	159.6	159.6
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	165.6	159.6	159.6	159.6	159.6	159.6

Estimate of any current year (FY2005) cost: 0.0
 Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time	1	1	1	1	1	1
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)
 This proposed bill significantly increases the penalties for possession, use, and delivery of marijuana. It raises from a B misdemeanor to a B felony in many cases the delivery of marijuana, in any amount to someone under 21. Possession of 4 ounces or more of marijuana is raised to a C felony from a misdemeanor. It also adjusts the misdemeanor penalties related to marijuana and creates new misdemeanors for possessing marijuana while driving, permitting a passenger to possess it, or being a passenger in possession. This bill would have an impact on Agency operations. We handle 500 misdemeanor drug cases, primarily involving marijuana. At least half of these would become felonies. Felonies take more work than misdemeanors. Also more misdemeanors would be prosecuted for less amounts and vehicle related offenses. This will increase by 50% the current number of misdemeanor cases handled by the Agency. The Agency will need one full time attorney to meet this increased case and work load. The position would be in Kenai, since their numbers are increasing in this area, and almost match Anchorage.

Prepared by: Linda K. Wilson, Deputy Director Phone (907)334-4416
 Division Public Defender Agency Date/Time 1/19/05 10:32 AM
 Approved by: Micheal Tibbles, Deputy Commissioner Date 1/19/2005
 Agency Department of Administration

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 3
 Bill Version: SB 74
 (S) Publish Date: 1/21/05

Revision Date/Time (Note if correction): _____ Dept. Affected: LAW
 Title "An Act making findings relating to marijuana RDU CRIMINAL
use and possession; relating to marijuana and misconduct.." Component CDCO
 Sponsor _____
 Requester Governor Component No. _____

Expenditures/Revenues (Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: 0.0
 Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This bill creates a new statutory section making findings regarding the mental and physical health risks, illegality and dangers of marijuana use. The bill makes changes to AS 11.71.030, .040, .050, and .060 concerning the crime of misconduct involving a controlled substance by adding additional offenses and significantly decreasing the amount of marijuana in possession that would constitute a violation. All of the conduct prohibited in this bill is already a crime in Alaska, although recent decisions by the appellate courts have made it difficult to investigate and prosecute some of these offenses. We do not expect the policies of police agencies to change significantly in response to this bill, and therefore we do not expect a workload increase above and beyond what was experienced before the courts made prosecution more difficult. Anticipated fiscal impact is zero.

Prepared by: Kathryn Daughetee, Director Phone 465-3673
 Division: Administrative Services Division Date/Time 1/14/05 11:19 AM
 Approved by: Kathryn Daughetee for Gregg D. Renkes, Attorney General Date 1/14/2005
 Agency: Department of Law

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 4
 Bill Version: SB 74
 (S) Publish Date: 1/21/05
 Dept. Affected: Health & Social Services
 RDU Juvenile Justice
 Component Probation Services

Revision Date/Time (Note if correction):

Title RELATING TO MARIJUANA USE AND POSSESSION

Sponsor (RLS) BY REQUEST OF THE GOVERNOR

Requester GOVERNOR

Component No. 2134

Expenditures/Revenues

(Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: _____

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This bill is not anticipated to have a significant impact on Division of Juvenile Justice staff workloads and therefore no fiscal impact.

Prepared by: Patty Ware
 Division Juvenile Justice
 Approved by: Joel S. Gilbertson, Commissioner
 Agency Department of Health and Social Services

Phone 465-2112
 Date/Time 01/20/2005
 Date 01/20/2005

STATE OF ALASKA

DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

Frank H. Murkowski, Governor

P.O. BOX 110300
DIMOND COURT HOUSE, 6TH FLOOR
JUNEAU, ALASKA 99811-0300
PHONE: (907)465-3600
FAX: (907)465-6735

March 4, 2005

VIA HAND DELIVERY

The Honorable Sen. Fred Dyson
Chair, Senate Health, Education, and Social
Services Committee
State Capitol, Room 121
Juneau, AK 99801-1182

The Honorable Sen. Ralph Seekins
Chair, Senate Judiciary Committee
State Capitol, Room 125
Juneau, AK 99801-1182

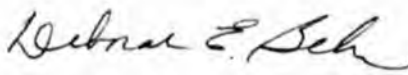
Re: Scheduling SB 74(Marijuana)

Dear Chairmen:

The Department of Law respectfully requests that SB 74 (Marijuana) be scheduled for a joint hearing at your earliest convenience. A sectional analysis, copy of the bill, and fiscal notes are attached.

Sincerely,

SCOTT J. NORDSTRAND
ACTING ATTORNEY GENERAL

By: 
David Marquez
Deputy Attorney General

Cc: w/attachments
Leg.office
Dave Marquez

Gayle Keller

From: Barks [barks@acsalaska.net]
Sent: Monday, March 28, 2005 1:51 PM
To: Sen. Ben Stevens; Sen. Bert Stedman; Sen. Bettye Davis; Sen. Con Bunde; Sen. Donny Olson; Sen. Fred Dyson; Sen. Gary Stevens; Sen. Gary Wilken; Sen. Gene Therriault; Sen. Gretchen Guess; Sen. Hollis French; Sen. John Cowuery; Sen. Johnny Ellis; Sen. Kim Elton; Sen. Lyda Green; Sen. Lyman Hoffman; Sen. Tom Wagoner
Subject: Some information on Marijuana , please read in the ENTIRETY

Some information on Marijuana , please read in the ENTIRETY

Some information about Marijuana , please read before you vote , on the 4 ozs of marijuana issue .

I ask how much alcohol is consumed during an average legislative session by everyone that is involved in the session " including the governor mansion ? [I hear that one security guard down there was fired for even mentioning the amount of booze that our good legislative branch , including help , friends and lobbyist consumed during a legislative session .]

[Referring to included test]

If the same " like test " were applied to people that consumed alcohol in the same degree that the marijuana was consumed in these test , what would the results be ?

Not everyone that smokes a little marijuana goes off the deep end , also not everyone that drinks a little alcohol goes off the deep end ,

At the present time up to 4 ozs of marijuana is legal , if kept in the home . Also cases and cases of alcohol can be legally kept in the home .

So if keeping up to 4 ozs of marijuana is going to be made illegal , then keeping or using alcohol should be made illegal " . Keep the playing field level . Don't be hypocrites

If you vote to change law on marijuana then you should consider voting to make alcohol illegal .

As far as marijuana affecting children in the home , it probably pales , compared to alcohol .

But how would this state get along without the tax on alcohol sales , but that is a different subject , for a different time .

I neither use , or allow in my home , alcohol or marijuana , but I dislike hypocrites , " Like some of those on the hill "

Ora Whittle
barks@acsalaska.net
907-488-2767
P.O. Box 10260
Fairbanks , Alaska 99710

Original page:

<http://my.webmd.com/content/Article/100/105717.htm>

Marijuana's Effects Linger in the Brain Blood Flow to Brain Altered Weeks After Smoking Pot By Jennifer Warner

WebMD Medical News Reviewed By Brunilda Nazario, MD
on Monday, February 07, 2005

Feb. 7, 2005 - The effects of marijuana in the brain may linger long after the last joint goes out.

A new study shows that blood flow to the brain in people who smoked marijuana remained altered up to a month after they last smoked pot.

Researchers say the findings may help explain the problems with memory and thinking found in previous studies of chronic marijuana users.

Marijuana's Effects on the Brain

In the study, which appears in the Feb. 8 issue of Neurology, researchers studied the blood flow in brain arteries of 54 marijuana users and 18 nonusers.

The marijuana users volunteered to participate in an inpatient program and abstained from marijuana use for a month.

Blood flow in the brain was analyzed at the beginning of the study and at the end of the month for the marijuana users.

Researchers found blood flow was significantly higher in marijuana users than in nonusers, both at the beginning and at the end of the study.

However, the marijuana users also had higher scores on the pulsatility index (PI), which is a measure of resistance to blood flow.

Researchers say the level of resistance to blood flow among light and moderate marijuana users improved over the course of the abstinence month. But there was no improvement among heavy marijuana users.

This resistance is thought to be caused by the narrowing of blood vessels that happens when the body's own ability to regulate the circulatory system becomes impaired.

"The marijuana users had PI values that were somewhat higher than those of people with chronic high blood pressure and diabetes," says researcher Ronald Herning, PhD, of the National Institute on Drug Abuse in Baltimore, Md., in a news release. "However, their values were lower than those of people with dementia. This suggests that marijuana use leads to abnormalities in the small blood vessels in the brain, because similar PI values have been seen in other diseases that affect the small blood vessels."

Light marijuana users smoked two to 15 joints per week, moderate users smoked 17 to 70 joints per week, and heavy users smoked 78 to 350 joints per week.

SOURCES: Herning, R. Neurology, Feb. 8, 2005; vol 64: pp 488-493. News release, American Academy of Neurology.

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[PAGE TWO]

Original page:

<http://my.webmd.com/content/Article/70/80972.htm>

This article is from the WebMD

Medical News Archive

Heavy Marijuana Use Doesn't Damage Brain Analysis of Studies Finds

Little Effect From Long-Term Use

By Sid Kirchheimer

WebMD Medical News Reviewed By Michael Smith, MD

on Tuesday, July 01, 2003

July 1, 2003 -- Long-term and even daily marijuana use doesn't appear to cause permanent brain damage, adding to evidence that it can be a safe and effective treatment for a wide range of diseases, say researchers.

The researchers found only a "very small" impairment in memory and learning among long-term marijuana users. Otherwise, scores on thinking tests were similar to those who don't smoke marijuana, according to a new analysis of 15 previous studies.

In those studies, some 700 regular marijuana users were compared with 484 non-users on various aspects of brain function -- including reaction time, language and motor skills, reasoning ability, memory, and the ability to learn new information.

Surprising Finding

"We were somewhat surprised by our finding, especially since there's been a controversy for some years on whether long-term cannabis use causes brain damage," says lead researcher and psychiatrist Igor Grant, MD.

"I suppose we expected to see some differences in people who were heavy users, but in fact the differences were very minimal."

The marijuana users in those 15 studies -- which lasted between three months to more than 13 years -- had smoked marijuana several times a week or month or daily. Still, researchers say impairments were less than what is typically found from using alcohol or other drugs.

"All study participants were adults," says Grant, professor of psychiatry and director of the Center for Medicinal Cannabis Research Center at the University of California, San Diego School of Medicine.

"However, there might be a different set of circumstances to a 12-year-old whose nervous system is still developing."

10 States OK Marijuana Use

Grant's analysis, published in the July issue of the Journal of the International Neuropsychological Society, comes as many states consider laws allowing marijuana to be used to treat certain medical conditions. Earlier this year, Maryland became the 10th state to allow marijuana use to relieve pain and other symptoms of AIDS, multiple sclerosis, cancer, glaucoma, and other conditions -- joining Alaska, Arizona, California, Colorado, Hawaii, Maine, Nevada, Oregon, and Washington.

Medicinal marijuana is available by prescription in the Netherlands and a new marijuana drug is expected to be released in Great Britain later this year. In the U.S. and elsewhere, Marinol, a drug that is a synthetic form of marijuana and contains its active ingredient, THC, is available by prescription to treat loss of appetite associated with weight loss in AIDS patients.

Grant says he did the analysis to help determine long-term toxicity from long-term and frequent marijuana use. His center is currently conducting 11 studies to determine its safety and efficacy in treating several diseases.

"This finding enables us to see a marginal level of safety, if those studies prove that cannabis can be effective," Grant tells WebMD. "If we barely find this effect in long-term heavy users, then we are unlikely to see deleterious side effects in individuals who receive cannabis for a short time in a medical setting, which would be safer than what is practiced by street users."

Grant's findings come as no surprise to Tod Mikuriya, MD, former director of non-classified marijuana research for the National Institute of Mental Health Center for Narcotics and Drug Abuse Studies and author of The Marijuana Medical Handbook: A Guide to Therapeutic Use. He is currently president of the California Cannabis Medical Group, which has treated some 20,000 patients with medicinal marijuana and Marinol.

'Highly Effective Medicine'

"I just re-published a paper of the first survey for marijuana toxicity done in 1863 by the British government in India that was the most exhaustive medical study of its time in regards to possible difficulties and toxicity of cannabis. And it reached the same conclusion as Grant," Mikuriya tells WebMD.

"This is merely confirming what was known over 100 years ago, as well as what was learned by various government findings doing similar research -- marijuana is not toxic, but it is a highly effective medicine."

In fact, marijuana was available as a medicinal treatment in the U.S. until the 1930s.

Lester Grinspoon, MD, a retired Harvard Medical School psychiatrist who studied medicinal marijuana use since the 1960s and wrote two books on the topic, says that while Grant's finding provides more evidence on its safety, "it's nothing that those of us who have been studying this haven't known for a very long time.

"Marijuana is a remarkably safe and non-toxic drug that can effectively treat about 30 different conditions," he tells WebMD. "I predict it will become the aspirin of the 21st century, as more people recognize this."

SOURCES: The Journal of the International Neuropsychological Society, July 2003. Igor Grant, MD, professor of psychiatry, University of California, San Diego School of Medicine; director, UCSD Center for Medicinal Cannabis Research Center. Tod Mikuriya, MD, president, the California Cannabis Research Medical Group, Oakland; former director of non-classified marijuana research, the National Institute of Mental Health Center for Narcotics and Drug Abuse Studies. Lester Grinspoon, MD, professor emeritus of psychiatry, Harvard Medical School, Boston; author, Marijuana: The Forbidden Medicine and Marijuana Reconsidered.

[PAGE THREE]

Original page:

http://my.webmd.com/content/Article/24/2950_883.htm

This article is from the WebMD

Medical News Archive

Long-Term Pot Smokers Risk Brain Damage

By Jeanie Lerche Davis

WebMD Medical News Reviewed By Michael Smith, MD

March 5, 2002 -- Call it what you want -- pot, marijuana, wacky tobacky. But there's strong evidence that long-term, heavy smoking of cannabis can cause serious memory and attention impairments.

A study published in the March 6 issue of The Journal of the American Medical Association is the first to look at long-term, entrenched cannabis users who were seeking treatment for their habit -- largely because they were having trouble functioning in everyday life. Previous research looking at this issue has shown altered brain function and thinking among cannabis users -- even in the unintoxicated state.

This study -- the first to look at marijuana's long-lasting effects -- compares brain function in people who smoked marijuana long-term (an average of 24 years) with short-term users (10 years average) and people who did not use the drug.

It confirms what many have suspected: "that long-term heavy cannabis users show impairments in memory and attention that endure beyond the period of intoxication and worsen with increasing years of regular cannabis use," researcher Nadia Solowij, PhD, writes in the study. Solowij is a psychologist in the National Drug and Alcohol Research Centre at the University of South Wales, Sydney, and the University of Wollongong, Australia.

Solowij's study focused on 102 people who used cannabis nearly every day, 65 of whom were in a marijuana treatment program. After giving them a series of nine tests, researchers found that long-term users performed "significantly less well" than short-term users and nonusers.

Cannabis users made more errors on the tests and were significantly less able to recall newly learned words. They also had more difficulty performing increasingly complex tasks. Both long-term and short-term users performed poorly in estimating time intervals.

Overall, long-term users had widespread memory difficulties with learning, retention, and retrieval skills, according to Solowij. Shorter-term cannabis users are not impaired to an extent that would interfere with memory and thinking abilities in daily life, she writes.

These results do not indicate a severe memory problem but could nevertheless mean an impairment in memory and thinking that could impact functioning in daily life, she says. The impairments develop gradually and probably become evident on tests after one or two decades of use.

Her research suggests that people using other substances -- in addition to marijuana -- would have greater impairments. However, "the risk to most medical cannabis users is likely to be small, as long as they are not maintained at high doses for many years," she writes.



Alaska State Legislature

RECEIVED
MAR 31 2005
Social Services

Please enter into the record my testimony to the SENATE HEALTH EDUCATION & SOCIAL SERVICES
Committee name

Committee on SB 74, dated 3-24-05
Bill/Subject

First I would like to state that I am in no way an advocate for the use of marijuana. I am sincerely concerned with the health and social wellbeing of our people as am I with our constitutional rights.

As I understand Senate Bill # 74 the desire is to create a "Legislative Record", based on evidence and testimony to that which is so harmful to the public that it warrants repealing, to some degree, our constitutional right to privacy.

I could not be more strongly opposed to this action, based on the criteria set forth. If you examine what causes harm to our society, our health and contributes to criminal behavior, then compare marijuana to alcohol and tobacco the statistical evidence is staggering.

Over the past thirty years, deaths contributed to tobacco and alcohol when compared to marijuana exceeds ten million to one, not to mention health costs to survivors and their quality of life. When considering criminal behavior attributed to alcohol, such as domestic violence, and automobile deaths and injuries the statistical evidence is much the same, its overwhelming. Marijuana does not even appear on the same map.

So if you open this door to "Legislative Record" you should be prepared to hear the indisputable evidence of that which is exceedingly more harmful. Perhaps a better solution would be to place alcohol and tobacco under the same laws governing marijuana. It would surely limit the public's exposure to harm in a variety of ways, and you would not be sending the pot user to "Criminal College", while allowing the drunken drivers three chances to kill someone.

James V. Julian

Signed: _____

Testifier

Representing (Optional)

PO Box 520128

Address

892-6201

Phone number

Shafer Commission, 1972

(National Commission on Marihuana and Drug Abuse),
Commissioned by President Richard M. Nixon

- Commission members included 4 MD's, 2 PhD's, 1 theologian, and 5 elected officials
- 26 staff professionals, including additional MD's and PhD's, assisted the commission
- 49 support staff, analysts, and researchers were involved
- More than 1 year was spent in its investigations and preparation of its report

National Research Council
of the National Academy of Science, 1982
“An Analysis of Marijuana Policy”

- 4 years of effort
- Included a review of the 1972 National Commission on Marijuana and Drug Abuse report
- Conclusion: “On balance, we believe that a policy of partial prohibition is clearly preferable to a policy of complete prohibition.”

Institute of Medicine, 1999

“Marijuana and Medicine: Assessing the Science Base”

- Division of Neuroscience and Behavioral Health, IOM
- Took testimony from hundreds of doctors, scientists, treatment professionals, and many others
- Worked from 1997 to 1999
- Conclusions included:
 - “Compared to most other drugs...dependence among marijuana users is relatively rare.”
 - “There is no conclusive evidence that marijuana causes cancer in humans, including cancers usually related to tobacco use”
 - “It does not appear to be a gateway drug”
 - “Earlier studies purporting to show structural changes in the brains of heavy marijuana users have not been replicated with more sophisticated techniques.”

Report of the National Commission on Ganja, Jamaica, 2001

- “nine months of consultation and reflection,
- “visits to every parish and hearings amounting to 3776 pages of transcriptions”
- “The Commission is persuaded that the criminalisation of thousands of people for simple possession for consumption does more harm to the society than could be done by the use of ganja itself.”

Advisory Council on the Misuse of Drugs, Great Britain, 2002

“The Classification of Cannabis under the Misuse of Drugs Act 1971”

- “...based on a detailed scrutiny of the relevant scientific literature, including four reviews commissioned by the Department of Health in 1998, as well as an update commissioned by the Home Office and completed in November 2001”
- “The Council ... recommends the reclassification of all cannabis preparations to Class C [least harmful].”

House of Commons Home Affairs Committee, 2002

“The government’s drugs policy: Is it working?”

- “We have taken oral evidence from 45 witnesses over a total of 11 evidence sessions.”
- “...more than 200 people and organisations...provided written submissions...”
- “We support, therefore, the Home Secretary's proposal to reclassify cannabis from Class B to Class C.”

Report of the Canadian Senate Special Committee on Illegal Drugs, 2002

“Cannabis: Position for Canadian Public Policy”

- “product of a team effort over a period of 2 years”
- The Parliamentary Research Branch synthesized and analyzed literature on legal studies and socio-criminological studies. In all, the Committee received 23 reports.
- Heard testimony from expert sociologists and lawyers, psychologists and physicians, police officers and criminologists
- The Committee held more than 40 days of public hearings...more than 100 persons from all backgrounds.

Even the most recent commission reports echo the findings of many earlier commissions, including the LaGuardia Commission in 1944, and going back to the British Indian Hemp Drugs Commission in 1894.

The independent reports have been astonishingly consistent for well over a century:

“...continued criminalization of cannabis remains unjustified based on scientific data on the danger it poses.”

--Final Report of the Canadian Senate Special Committee, 2002

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: SB 74
 () Publish Date: _____

Revision Date/Time (Note if correction): _____ Dept. Affected: _____
 Title Crimes Involving Marijuana/Other Drugs BRU Alaska Court System
 Component Trial Courts
 Sponsor Senate Rules
 Requester Governor Component No. 768

Expenditures/Revenues (Thousands of Dollars)

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

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL

Estimate of any current year (FY2005) cost: 0.0
 Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

Senate Bill 74 decreases from one pound to four ounces the amount of marijuana sufficient to constitute a felony offense for possession under AS 11.71.040. Under current law, possession of less than one pound of marijuana is a misdemeanor. Additionally, the bill creates new offenses related to marijuana possession in a vehicle and raises the penalties for certain delivery offenses. An increase in the number of felony filings impacts the court system because felony cases must go to a grand jury, the felony trial rate is much higher than the misdemeanor trial rate and, because those convicted of felony crimes are subject to supervised probation by the Department of Corrections, the court will see more petitions to revoke probation. Although these changes will impact the court system, the extent of that impact is too speculative to support a fiscal note at this time. However, if that impact proves to be significant the court system may return to the legislature with a request for additional funding.

Prepared by: Douglas Wooliver, Administrative Attorney Phone 463-4750
 Division Alaska Court System Date/Time 3/30/05 9.51 AM
 Approved by: Doug Wooliver for Stephanie Cole, Administrative Director Date 3/30/2005
 Agency Alaska Court System

SENATE COMMITTEE REPORT First Committee of Referral

DATE: 1/21/05

FURTHER: Judiciary
Finance

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED
IN TO OFFICE: 4.1.05

Health, Education and Social Services Committee considered

SENATE BILL NO. 74

SB 74 CRIMES INVOLVING MARIJUANA

"An Act making findings relating to marijuana use and possession; relating to marijuana and misconduct involving a controlled substance; and providing an effective date."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS _____ (_____)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

Senate Bill:

- Same Title
- New Title

House Bill:

- Same Title
- Technical Title Change
- New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
ACS	3/30		X		

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
DPS				X	1
ADM		X			2
LAW	1/14			X	3
HSS	1/20			X	4

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	Do PASS	Do NOT PASS	No REC	AMEND
<i>[Signature]</i>	✓			
<i>[Signature]</i>		✓		
<i>[Signature]</i>			✓	
CHAIR: <i>[Signature]</i>	✓			

STATE OF ALASKA, SENATE BILL No 74 - "An Act making findings relating to the use and possession..."

EXPERT WITNESS STATEMENT:

PROFESSOR LESLIE LARS IVERSEN, PhD, FRS, University of Oxford, England

Professor Leslie Iversen. PhD, FRS Brief Curriculum Vitae:

Visiting Professor of Pharmacology, University of Oxford 1999-

Director of the Wolfson Centre for Research on Age Related diseases at Kings College London (1999-2004).

Director of the Neuroscience Research Centre for Merck & Co Inc in the UK (1983-1995)

Director of the Medical Research Council Neurochemical Pharmacology Unit in Cambridge, England (1970-1983)

Well known for his research on how drugs interact with chemical messengers in the nervous system and has published more than 300 scientific papers on this topic. Fellow of the Royal Society of London, and Foreign Associate Member of the US National Academy of Sciences.

Acted as Scientific Advisor to the UK House of Lords Select Committee on Science & Technology review of Cannabis (1998-2000)

Author of "The Science of Marijuana" Oxford University Press, 2000

Member of the UK Government "Advisory Council on the Misuse of Drugs"

Member of the UK Royal College of Physicians Working Party on medicinal cannabis 2004-2005.

Statement:

As a scientist with expert knowledge of the medical and scientific literature on cannabis (marijuana) I feel that the statements in Senate Bill No 74 give an inaccurate picture of the scientific data about marijuana. I wish to make the following comments:

Increased potency of modern marijuana:

It is frequently stated that modern-day marijuana is 10-20-times more potent than that available in the 1960's or 1970's. But the available evidence does not support this conclusion. Scientists at the University of Mississippi Potency Monitoring project in the USA have been measuring the THC content of marijuana seizures since the 1970's. They have reported an increase of approximately 3-fold in the potency of herbal marijuana in the past 3 decades, and this is still by far the most widely used product. The European Monitoring Centre for Drugs and Drug Addiction published an overview of cannabis potency in Europe in July 2004, and reached similar

conclusions in Europe. Some samples originating from Cannabis plants grown under optimal conditions indoors may contain as much as 15-20% THC but these remain relatively rare and account for only a minority of marijuana use.

Addictive nature of marijuana:

It is recognized that some frequent heavy users of marijuana can become psychologically dependent on the drug, but few scientists would rate this in the same category of addictiveness as heroin, cocaine or amphetamines. Unlike heroin addiction, dependence on marijuana affects a minority of regular users (approximately 10%) and most dependent marijuana users are able to quit. I would rate marijuana as more similar to alcohol than to heroin in addictive potential.

Association of marijuana use with domestic violence:

This is an unusual allegation; in most instances intoxication with marijuana is not associated with violent aggressive behavior – although this may occur in rare examples. The abuse of alcohol is far more likely to be a cause of public and domestic violence.

Marijuana contains more than 400 different chemicals:

All plant derived foods or drugs contain complex mixtures of chemicals. Tomato juice, for example, contains more than 400 different chemicals – but this does not make it harmful. The leaves and flowers of the Cannabis plant (marijuana) contain more than 70 complex organic chemicals known as cannabinoids. But of these only one –delta-9-tetrahydrocannabinol (THC) - is capable of activating the cannabinoid receptor in human brain. The other cannabinoids have no known pharmacological activities and are generally regarded as harmless.

Marijuana impairs higher brain functions:

Marijuana temporarily impairs memory and other aspects of cognitive brain function, but this is no different from any other intoxicant drug – for example, alcohol. There is no evidence that marijuana use leads to significant long term damage to the brain.

Marijuana smoke is carcinogenic:

Marijuana smoke contains a similar mixture chemicals to that found in tobacco smoke, including some known carcinogens. Although a single marijuana joint delivers more tar to the lungs than a tobacco cigarette it is very difficult to see how someone smoking several marijuana joints a week could be thought to equate to a cigarette smoker consuming a full pack each day. The arithmetic simply does not add up. Furthermore, although there is a hypothetical risk of lung cancer from marijuana smoke, there is no evidence for such a relationship in fact.

Summary and Conclusions:

Marijuana contains an intoxicant drug (THC) that has modest dependence liability; the smoke can irritate the lungs and there is a potential risk, as yet unproven, of lung cancer. Nevertheless, I conclude that the medical risks associated the marijuana use do not equate to those of "harder" drugs such as heroin, cocaine or amphetamines. In my view marijuana is a relatively safe drug, and its use does less medical/social harm than alcohol or tobacco.

References:

Iversen,L (2000)"The Science of Marijuana", *Oxford University Press*, New York

Iversen L (2003) Cannabis and the Brain, *Brain*, 126: 1252-1260 .

Iversen L (2004) Long term effects of exposure to cannabis. *Current Opinon in Pharmacology*, 5: 69-72

Leslie Iversen
Oxford
March 18th, 2005

390,000 Americans die from tobacco each year, 108,000 from prescription drugs and 80,000 from alcohol. If you or Frank Murkowski or President Bush or the Partnership for a Drug Free America really believe making felons of substance users is the way to go, why haven't you gone after substances in proportion to the damage they do and the number of people they kill?

- I'll tell you why.
- a) prohibition doesn't work and never has
 - b) prohibition tramples people's rights
 - c) the drug corporations wouldn't allow you to

This wet noodle legislation against cannabis isn't about public health at all, it's about market share. It's with us because the corporations who make drugs, alcohol and tobacco stand to lose hundreds of millions dollars if cannabis were legalized and they know it. This is why they got together to form and fund the

"Partnership for a Drug Free America."

**Anheuser-Bush
Joseph Seagrams and Sons
Coors Brewing Co
Hiram Walker
Stroh Brewing
Brown and Williamson
RJ Reynolds
Phillip Morris
Johnson and Johnson
DuPont
Proctor & Gamble
Bristol Myer Squibb
Hoffman-LaRouche
Sterling Drug Company etc.**

This is the crew that provided the rich financial soil for the Partnership that was a player in the criminalization of cannabis in Alaska in 1990. And they got tax write offs for doing it. In addition to funding the Partnership they spend millions on both political parties each year in PAC money, soft money, bundled money and executive family donations. For Alaskans, watching these bloated drug pushers squeeze into our state politics is like watching a rhinoceros squeeze into panty hose. They are so out of touch they think no one can see. They have bought influence at the highest levels of government.

George Bush senior was on the board of directors of pharmaceutical giant Eli Lilly from 1977-1979. The Bush family has stock holdings in Eli Lilly and when we listen to GW Bush's Homeland Security Advisor, Sidney Taurel, we are listening to the CEO of Eli Lilly. So when David Murray of the White House's Office on National Drug Control Policy testifies to the Alaska Legislature that marijuana is "a dirty, dirty drug" you must take that testimony with a large grain of salt. "Drug control" is exactly what his handlers are after. If you go to "opensecrets.org" and look at the money that made Frank Murkowski the man he is today you will find that the corporate drug pushers have been very generous with Frank.

Alaska is especially worrisome to the drug companies because even after all the money they've spent here, our state has the highest percentage of pro-cannabis voters. Pot got more votes more than the governor did and they want to keep the heat turned up.



I urge you to take the long view. Cannabis will be legalized eventually for textiles, paper and petroleum substitutes. If you really want to do something for public health I have three suggestions:

First: Detox your political parties from corporate PAC money. If a billionaire puts an arm around your organizations' shoulder and tries to slip you a little something, "Just say, No."

Second: You have to walk the walk yourselves. To have people who drink and smoke in this building claiming to take the high road on health is ridiculous.

Third and last: If you are going to mandate something, do what works, mandate healthy alternatives to drugs.

- a) mandate ½ hour of physical exercise per day for every kid in every school in Alaska. AND FUND IT!
- b) mandate fixing the roofs of the gymnasiums and fund exercise equipment and gym teachers.
- c) mandate healthy lunch programs like we had when we were kids.
- d) mandate funding for recreational opportunities like swimming pools running tracks, hiking trails, ski programs, somatics and tai chi.

That's real health care. Mandate that and Alaskans 50 years from now will look back on this legislature and say, "Those people made us a better state."

D. Nelson 3/30/05
p. 1 of 3

Senator Fred Dyson
Chair Person, Senate HESS Committee
State Capitol
Room 121
Juneau, Alaska, 99801

Senator Fred Dyson;

I am enclosing in this package, accompanying this letter, and the 16 items listed below, as a follow-up to your invitation to submit materials for consideration in the hearings regarding Senate Bill 74 and the (questionable) recriminalization of all amounts of marijuana in Alaska, in contradiction to the Ravin Decision of 1975..

Materials listed are typically described in their entries as to whether they are in the form of an entire book, an excerpt from a larger document, or merely an abstract from a professional journal.

The items are further listed in alphabetical order, according to title, with the exceptions of items # 15 and 16, and are listed with the source of the item (if applicable) the date of publication or copyright, the pertinent page numbers (if applicable), and the names of the author(s).

The items are to be added to the formal record of and for the Senate Health Education and Social Services hearings for SB 74, for the purposes of creating a more complete discussion of credible professional materials.

The materials consist of:

- 1.) 'Cannabis 1988. Old Drug, New Dangers. The Potency Question' Tod H. Mikuriya, M.D. & Michael R. Aldrich, PH.D. Journal of Psychoactive Drugs, Vol. 20(1), January-March 1988.
- 2.) 'Cannabis Use and Cognitive Decline in Persons Under 65 Years of Age' Constantine G. Lyketsos, Elizabeth Garrett, Kung-Yee Liang, and James C. Anthony, Johns-Hopkins hospital. Baltimore Maryland. American Journal of Epidemiology 1999; 149: 794-800
- 3.) 'CASA's House of Cards; How a Recent Analysis of Drug-Related Crime Gets it All Wrong' David Fratello. The Drug Policy Letter. #28, Winter 1996. Copies of pps.22-23.
- 4.) 'Chronic Cannabis Use in the Compassionate Investigational New Drug Program: An Examination of Benefits and Adverse Effects of Legal Clinical Cannabis' Ethan Russo, et al. Journal of Cannabis Therapeutics, Vol. 2(1) 2002 pps. 3-57.
- 5.) 'The Good and the Bad Effects of (-) trans-delta-9-tetrahydrocannabinol (delta-9 THC) on Humans' E.A. Carlini. Dept of Psychobiology, Federal University of Sao Paulo, Paulista School of Medicine. Brazil. Toxicon 44 (2004) pps. 461-467

D. Nelson
3/30/05
p. 2 of 3

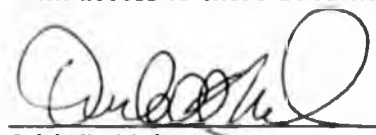
- 6.) 'Long-Term Effects of Exposure to Cannabis' Leslie Iverson. Current Opinion in Pharmacology 2005, 5:69-72
- 7.) 'Marijuana and Actual Driving Performance' US Dept. of Transportation. DOT HS 808 078 Final Report. November 1993. Complete document @ 133 pps.
- 8.) 'Marijuana and Depression' by B.F. Green & C. Ritter. Dept. of Sociology, Ohio State University-Columbus. Abstract only. Journal of Health and Social Behavior, 2000 March; 41 (1): 40-49
- 9.) 'Marijuana and Medicine: Assessing the Science Base' Janet E. Joy, Stanley J. Watson, Jr., and John A. Benson, Jr. Editors. Institute of Medicine, National Institute of Health. March 17, 1999. Report from NIH/IOM consisting of 14 pages, and stating that there is no evidence of a causal relationship between cannabis use and other illicit drug use.
- 10.) 'Marijuana Has Moderate Effect On Driving' The Drug Policy Letter, #24, Fall, 1994. copies of pps 29 & 35
- 11.) 'Marijuana Myths, Marijuana Facts' Lynn Zimmer, Ph.D. and John P. Morgan, M.D. (Complete book) Approximately 243 pps.
- 12.) 'The Merck Manual' Seventeenth Edition, Centennial Edition, copyright 1999. Copies of pps. 1579, and 1590-1591 relating to cannabis/marijuana.
- 13.) 'Psychoactive Substance Use and the Risk of Motor Vehicle Accidents' K.L.L. Movig, et al. Accident Analysis and Prevention 36, (2004) copies of pps. 631-636.
- 14.) 'Relation of Pre-Employment Drug Testing Result to Employment Status: A One-Year Follow-Up' David Charles Parish, M.D., MPH. Dept. of Internal Medicine. Mercer University School of Medicine. Journal of General Internal Medicine, Vol. 4 (January/February) 1989. copies of pps. 44-47.
- 15.) The Economic Implications of Marijuana Legalization in Alaska. Prepared for Alaskans for Rights and Revenues, by Scott W. Bates, Principal Investigator, Boreal Economic Analysis and Research, Fairbanks, Alaska, Fall 2004. Document includes insight into more accurate costs of cannabis prohibition preceding the court's reaffirmation of the Ravin Decision of 1975, and with fewer felonies than would ultimately be prosecuted under SB 74's increased penalties, meaning that the costs of enforcement and corrections will rise above those costs recognized in the study, by at least 200%..

D. Nelson
3/30/05
p. 3 of 3

16.) Web address to the Canadian Parliament's Senate Committee Report on Illicit Drugs (Cannabis) Fall of 2002, by Senator Pierre Claude Nolin, recommending legalized taxed and regulated sales of cannabis for those aged 16 and older, and with the report being completed after nearly two years of expert witness testimony and documentation, reviewed by experts in their fields, working in conjunction with the previously referenced Parliamentary Senate Committee;

http://www.parl.gc.ca/common/Committee_SenHome.asp?Language=E&Parl=37&Ses=1&comm_id=85

I am submitting the previously listed 16 items to Alaska State Senator Fred Dyson, Senate Health, Education, and Social Services Committee Chair, via express mail, on March 30th, 2005, in consideration of the pending hearing for SB 74 scheduled for April 1st, 2005 at 1:30 P.M., with the intention, and for the purpose, that these documents be placed as evidence into the official record of the hearings regarding SB 74, concerning the (legally questionable) recriminalization of cannabis in Alaska in the homes of adults over the age of 19, and that Senate HESS Committee members and others be provided with access to these documents.



Dirk R. Nelson

March 30th 2005

Date

Sworn before me this 30th day of March, 2005..

On the 30 of MARCH 2005, MR. DIRK NELSON, known to me, signed above document. ~~WALTER~~ ~~WALK~~



William H Ackiss
District
Ester AT 99725



Cannabis 1988

Old Drug, New Dangers

The Potency Question

TOD H. MIKURIYA, M.D.* & MICHAEL R. ALDRICH, PH.D.**

The story of the new, allegedly stronger and more dangerous marijuana was rebirthed in January 1986 by the late Sidney Cohen, M.D., Professor of Psychiatry at UCLA: "... material ten or more times potent than the product smoked ten years ago is being used, and the intoxicated state is more intense and lasts longer." In addition, Cohen (1986) asserted that "the amount of THC [tetrahydrocannabinol] in confiscated street samples averaged 4.1 percent THC during 1984. The sinsemilla varieties were about 7 percent with some samples reaching 14 percent. . . . all marijuana research to date has been done on 1 or 2 percent THC material and we may be underestimating present day smoking practices."

The average potency of marijuana samples seized by the Drug Enforcement Administration (DEA) increased from 0.5 percent THC in 1974 to 3.5 percent in 1985-1986, with sinsemilla (seedless marijuana) at 6.5 to 12 percent, announced Dr. Richard Hawks of NIDA later that year (Kerr 1986: 1). "Parents who experimented in their youth are not aware that the potency is much higher," added Donald M. Delzer, Chairman of the National Federation of Parents for Drug Free Youth (Kerr 1986: 18).

"Now perceived as a hard drug, marijuana has increased 1,400 percent in potency since 1970," proclaimed the flyer of a national conference on marijuana (Henry Ohlhoff Outpatient Programs 1986). Drug abuse treatment professionals soon elaborated on the outcry. Tennant (1986) asserted that the drug of the 1970's contained one to three percent THC, while that of the 1980's contained

five to 15 percent. Furthermore, the brain registers the difference exponentially, so the difference between one percent and 10 percent THC was not nine percent, but more like 900 percent (Garcia 1986: 3). Smith (1987) stated that Cohen "taught us that marijuana was a lot more dangerous than we originally thought, particularly with the use of more potent preparations by young people." Inaba (1987) added that "this new, stronger marijuana has a more disruptive effect on brain chemistry and body physiology than we had imagined previously," and mentioned heretofore undescribed side effects among athletes: "Baseball players who get beamed a lot admit to smoking marijuana. It impairs their ability to follow the ball."

In a column for drug abuse counselors, Meyers (1987) advised "supportive therapy" for the effects of the "new" marijuana, which were described as "depersonalization, disorientation, derealization, changes in perception, and alterations in body image . . . acute brain syndromes with temporary clouding of mental processes . . . a change of time sense—where minutes seem like hours—slowed thinking, and feared perception of brain damage." Schick Shadel Health Services drug abuse treatment clinics (Unsigned 1987) now advertise that "marijuana has increased THC content from one percent THC in 1975 to six to fourteen percent THC in 1985 due to hybridization techniques. . . . For those who have become addicted to marijuana, whether it was years ago, or recently, treatment is necessary—even more critical today."

Despite the respectability of these authorities, none of these alarming claims are new, and neither is the potency issue. There are several claims intertwined: (1) that the marijuana available today is much stronger than that available previously, particularly since the early 1970's; (2) that

*Psychiatrist and Substance Abuse Therapist, 41 Tunnel Road, Berkeley, California 94705.

**Curator, Fitz Hugh Ludlow Memorial Library, San Francisco, California.

the effects of this so-called new marijuana are different from effects known earlier; and (3) that all previous marijuana research has been done with weak material and is therefore irrelevant. Before leaping on the bandwagon, one should examine the validity of these assertions.

HISTORICAL PERSPECTIVE

Extremely potent marijuana has been described for 150 years by Western scientists and (with the possible exception of the bearball syndrome) so have the effects of the *new marijuana*. There has been a great deal of research on high-potency cannabis in many countries.

In the paper that introduced cannabis to Western medicine, O'Shaughnessy (1839) discussed the widespread social and medical uses of ganja (sinsemilla) in India and noted symptoms of "delirium which the incautious use of the Hemp preparations often occasions, especially among young men first commencing the practice." Cannabis tinctures soon appeared in Europe and America (Robertson 1847; Savory 1843) and Fitz Hugh Ludlow (1857) described florid psychedelic trips after their oral ingestion, including all the symptoms mentioned by Meyers (1987). The Ohio State Medical Society (McMeens 1860) reviewed some 15 years of clinical experience with the drug and acknowledged the intense but physiologically benign mental effects caused by high doses or idiosyncratic sensitivity.

Wood (1869) reported the subjective effects of a uncture made from North American marijuana, experiencing a distortion in time sense, convulsions and memory loss, but no adverse aftereffects. He reported considerable success with it in the treatment of severe neuralgia. However, 15 years later Wood and Smith (1884) commented on the variable potency of cannabis and outlined appropriate treatment for overdoses in medical practice.

Early investigators (McMeens 1860; Bell 1857) attributed this variability to "defective pharmaceutical processes" employed in foreign countries, and recommended that extracts prepared at home would be preferable. However, extreme variations in locally manufactured preparations were soon recognized in the Dispensary of the United States (Wood & Bache 1868: 379-382). A practical bioassay technique was gradually perfected starting from the systematic observations of Hare (1887), followed by Evans (1894) and Marshall (1898), to compensate for batch-to-batch potency variations.

Pragmatically, the solution to the overdose/potency problem in both the United States (Wood & Bache 1868: 382) and England was to titrate the dose. In London, a patient who signed a letter to the editors of *Lancet*, W.W. (1890) reported a typical case: W.W. had inadvertently been given an overdose of cannabis for treatment of neuralgia by his doctor and had suffered perceptual distortion,

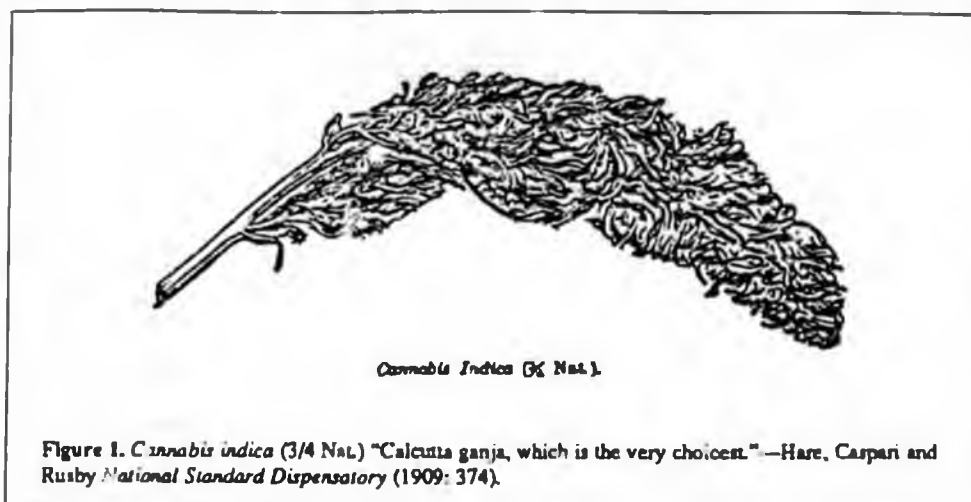
agitation, mood swings, and fear of death. Sir J. Russell Reynolds, M.D., F.R.S., physician to Queen Victoria's household, responded with a recommendation based on 30 years of experience with the drug (Reynolds 1890), stating "that Indian hemp, when pure and administered carefully, is one of the most valuable medicines we possess. . . . a minimum dose should be given to begin with, and . . . the dose should be very gradually and cautiously increased."

During the nineteenth century, social and scientific research on marijuana, as well as tinctures, were conducted with much stronger material than is available on the illicit market today. For example, the Indian Hemp Drugs Commission of 1893-1894 investigated the social, religious and medical uses of *bhang* (marijuana), *ganja* (sinsemilla) and *charas* (hashish). The potencies of varieties from different parts of the subcontinent were evaluated by government chemists and botanists (Evans 1894; Hooper 1894), using the "acknowledged superiority" of Bengal *ganja* as the standard. The Commission found that the moderate use of even highly potent marijuana caused no significant physical, mental or moral damage (Kaplan 1969; Mikuriya 1968).

In the 1890's, at the peak of medical interest in the drug, British chemists (Wood, Spivey & Easterfield 1899) isolated an impure active principle, cannabinol, using a "red oil" distilled from Indian cannabis as a starting point, which was considered to be the active ingredient until the 1930's (Work, Bergel & Todd 1939; Cann 1931). In 1909, Marshall demonstrated that oxidation during storage was the primary cause of the drug's variable potency. With this advance the pharmaceutical industry shifted its attention to the production of standard extracts that could be used to assay medicinal compounds (Colson 1920). Because it had long been known that *ganja* and *charas* produced the most reliable extracts (Wallich 1883; Robertson 1847), in practical terms this meant the European and American producers had to learn how to grow *ganja*.

Sinsemilla cultivation by the Indian technique of culling male plants from the fields before female plants could set seeds—the very process to which recent researchers attribute the potency of the *new marijuana*—was exhaustively described by the British government in India (Kaplan 1969: 59-84; Prain 1893; Kerr 1877). In an effort to promote Bengali *ganja*, the British Raj imposed an export duty on inferior Bombay *ganja* at the turn of the century, and pharmacognosists in Europe and the U.S. began learning sinsemilla cultivation (Mair 1900).

Holmes (1900) discussed the potencies of Calcutta and Bombay *ganja* and recommended that the former be used for pharmaceutical preparations, either by home cultivation of *ganja* according to the Bengal methods he outlined (Holmes 1902a) or by extracting it immediately in Bengal and shipping it in tightly closed containers (Holmes 1902b). Comparing the potency of cannabis from Uganda,



France and India, Holmes (1905) urged that only Indian sinsemilla preparations be admitted to the *British Pharmacopoeia*.

Likewise, Whineray (1909) and Hooper (1908) described ganja cultivation and manufacture, pointing out that cannabis grown in North America by the Indian methods could be as fully potent as Indian hemp. The *National Standard Dispensatory* of 1909, which included medicines from the pharmacopoeias of the U.S., Britain and Germany, gave the details of sinsemilla cultivation and featured a drawing of a perfect Calcutta ganja flower top (see Figure 1) as an example to be emulated by Western cultivators (Hare, Caspari & Rusby 1909: 374).

In the U.S., Hamilton and his colleagues (Hamilton 1918; Hamilton 1915; Hamilton, Lescossier & Perkins 1913; Houghton & Hamilton 1908) demonstrated that if care was exercised in cultivating and processing the plant for extraction, American-grown ganja and its extracts were as reliable as those from India and would not deteriorate significantly if stored properly. Information on cultivation of extremely potent seedless marijuana was thus widely disseminated to Western pharmaceutical producers during the first two decades of the twentieth century.

The U.S. government ignored these sinsemilla cultivation techniques at the first federal marijuana farm established in 1904 on the Potomac Flats (where the Pentagon now sits) in Washington, D.C. (Silver 1979: 262-263), and as a result the 10-foot marijuana plants grown there and elsewhere in America proved to be much less potent than good samples of Indian hemp (Eckler & Miller 1912). However, private pharmaceutical firms were more successful. The Eli Lilly and Parke-Davis companies ran a cooperative venture at Parkedale (Parke-Davis's farm near Rochester, Michigan) from 1913 until 1938 to develop cannabis extracts for medical use, at first from *Cannabis indica*, but later standardized on a highly potent strain they

developed that they called *Cannabis Americana* (Wheeler 1968). Pharmaceutical companies were marketing cannabis extracts that were uniformly effective at 10 mg dose levels (Parke-Davis & Company 1930: 82) 11 years before its official removal from medicinal availability.

In 1941, cannabis was removed from the *United States Pharmacopoeia (USP)* at the behest of the Federal Bureau of Narcotics, which suddenly claimed that marijuana had no medical uses (Mikuriya 1973: xx). Yet even the removal of cannabis from the *USP* did not end scientific and social research on highly potent forms of cannabis, ranging from the red-dirt marijuana of the Midwest to the red oil of the laboratories. Adams, Pease and Clark (1940) described improved procedures for preparing purified red oil from Minnesota wild hemp, and comparison of the potencies of Minnesota marijuana and red oil was of significant interest to Loewe, pharmacological director of the LaGuardia Committee (Mayor's Committee on Marijuana 1944: 186ff). Red oil concentrates were used along with marijuana in the LaGuardia Committee's experiments on prisoners, under Loewe's personal direction (Mayor's Committee on Marijuana 1944: 32); for a subjective account see Mezzrow and Wolfe (1946: 317ff). In the 1940's, Adams and Loewe in the U.S. and Todd in England isolated other cannabinoids, including THC, which Adams (1940) postulated as the active principle.

Such isolates were the mainstay of marijuana research during the 1940's and 1950's. A potent marijuana oil created as a truth drug for interrogation purposes by the Office of Strategic Services during World War II (Lee & Shlain 1985: 3-5) was the forerunner of later clandestine experiments conducted by the CIA and the Department of Defense at the Edgewood Arsenal in Maryland from the 1950's to the 1970's (Mikuriya 1973: xxii). Experiments with the designer drug synhexyl, a potent analog of Δ^9 -THC, were conducted from the 1940's (Adams et al. 1941)

TABLE I
COMPARATIVE RANGE OF PERCENT THC IN CALIFORNIA CANNABIS SAMPLES, 1973-1974*

Origin	No.	Range of Δ^9 -THC (%)	Remarks
Marijuana	76	0.1 - 9.5	Available in California
Mexican	5	1.1 - 3.3	0.2% - 4.3% cannabidiol
Acapulco Gold	3	2.7 - 4.2	Distinct cannabichromene
Colombian	11	0.9 - 6.9	0.0% - 6.9% cannabidiol
Panama Red	2	4.0 - 5.7	One sample 1971
Thai Sticks	9	2.4 - 9.5	Imported sinsemilla
Big Sur	2	2.7 - 2.9	Domestic sinsemilla
Maui Wowie	5	5.4 - 6.9	Domestic sinsemilla
Unidentified	41	0.1 - 7.8	Many U.S. grown
Hashish	21	0.4 - 14.2	Available in California
Lebanese	2	1.9 - 3.7	4.9% - 10.6% cannabidiol
Moroccan Kif	2	5.2	2.4% - 2.9% cannabidiol
Afghani Primo	4	1.7 - 5.9	4.2% - 7.8% cannabidiol
Kashmiri	3	6.6 - 14.2	2.4% - 4.9% cannabidiol
Pakistani	2	0.4 - 2.3	1.4% - 1.8% cannabidiol
Nepalese	3	3.4 - 11.5	One sample 1971
Unidentified	5	0.8 - 5.9	1.1% - 14.2% cannabidiol
Hash Oils	42	0.2 - 50.0	Available in California
Nepalese	3	3.4 - 10.2	
Unidentified	39	0.2 - 50.0	

*Samples submitted to PharmChem Laboratories (August 1973-August 1974), with one Panama Red sample and one Nepalese hashish sample (1971). Chromatographs examined by Aldrich (1974).

until the mid-1970's (Lemberger 1976; Pars & Razdan 1976), but were abandoned before its potential was fully explored.

In the 1960's, the identification of pure Δ^9 -THC as the active principle in cannabis (Gaoni & Mechoulam 1964) made it possible to assay the relative potencies of cannabinoids directly in human subjects (Isbell et al. 1967). Although Weil, Zinberg and Nelsen (1968) demonstrated the safety of human marijuana research, much of the U.S. research of the 1970's was conducted with low-potency marijuana because the government would not approve human research with high-potency strains. Indeed, in one early study (Jones & Stone 1970), a THC concentrate was removed from Mexican marijuana and then redistributed back into the bulk marijuana to return its potency to 0.9 percent THC. Outside the U.S., these strictures did not apply: The fact that cannabidiol interferes with the effects of Δ^9 -THC was discovered in Brazil, using both purified cannabinoids on humans (Karniol et al. 1974).

The 1960's and 1970's saw a worldwide flowering of

cannabis research, including its social, psychological, chemical, botanical and legal aspects as well as covering an enormous range of potencies and dosages. Major botanical work involved potency questions: observing phenotypes at the University of Mississippi (Fettermann et al. 1971) and in Canada (Small 1979); establishing a lectotype for *Cannabis sativa* L. (Stearn 1974); distinguishing *C. sativa* from *C. indica* and *C. ruderalis* (Schultes et al. 1974); and cultivation techniques for increased THC production (Clarke 1981; Frank & Rosenthal 1978).

Thus the claim by Cohen (1986) that "all marijuana research to date has been done on 1 or 2 percent THC material" is not accurate for the 1970's or for any other decade going back to 1839. It ignores much of the laboratory research in the U.S. that was summarized by Cohen himself (Cohen & Stillman 1976), Hollister (1986) and the National Academy of Sciences (1982), and all of the social research on high-potency marijuana in Jamaica (Rubin & Comitas 1975; Bowman & Pihl 1973), Costa Rica (Carter & Doughty 1976), Greece (Fink et al. 1976) and Africa

(DuToit 1980). It is difficult to think of any country in which the claim is true.

RECENT ESTIMATES OF POTENCY

Since the advent of quantitative analysis technology, there has been sporadic reportage of the percentage of Δ^9 -THC and other cannabinoids in natural and semisynthetic cannabis products. Notwithstanding the psychophysical effects of other cannabinoids, the amount of THC present in a marijuana sample is believed to determine the drug's potency (National Commission on Marihuana and Drug Abuse 1972: 50), and potency is usually expressed in percent THC by weight. The results of quantitative analyses performed on street samples of marijuana have been published since the late 1960's. These results are generally higher than the alleged 0.5 percent THC content of marijuana cited for the early 1970's.

Lerner and Zeffert (1968) described the development of quantitative analysis for the determination of THC content, and noted much variation among samples of marijuana, hashish, and red oil (still being used experimentally in the 1960's). The THC content of confiscated Mexican marijuana was 0.8 to 1.4 percent, hashish averaged eight percent and red oil 31 percent in 1968.

Quantitative analyses of street samples of marijuana and hashish conducted by Canadian laboratories in 1971 for the Commission of Inquiry into the Non-Medical Use of Drugs (1972: 28-29) showed a range of 0.02 to 3.46 percent THC (median=0.93%) for marijuana, with hashish ranging from 1.0 to 14.3 percent THC (median=4.82%). Samples seized in police raids were less potent: marijuana was 0.05 to 1.65 percent THC (median=0.21%), while hashish was 0.0 to 8.6 percent THC (median=1.3%). The reported difference between confiscated police seizures and street samples submitted to laboratories for analysis may be due to the voluntary samples being submitted precisely because of their extraordinary potency, or that storage conditions in police evidence lockers are hardly optimal for potency stability.

This has a bearing on the potency question because the low potency cited by both Cohen (1986) and Hawks (see Kerr 1986) referred to samples confiscated by the DEA. It has been known since the early days of its isolation (Wollner et al. 1942) that THC oxidizes to cannabinol rapidly in samples stored at room temperature (24°C). Lerner (1963) reported that the concentration of THC in marijuana decreased at a rate of three to five percent under normal room conditions, and Razdan (1970) reported a rate of 10 percent per month. The influence of temperature, light and age on potency was addressed by Starks (1977: 13-15). The low-baseline percentage of THC reported for the early 1970's may be due to this deterioration in confis-

cated, stored samples. In any case, the low baseline makes the difference in the THC content of later-reported samples appear much greater than it may have been in actuality, assuming that the marijuana smoked by consumers was fresher than stored police seizures.

For a short while in the early 1970's, PharmChem Laboratories in Palo Alto, California, tested and reported the percent of the THC content in anonymously submitted marijuana samples. For 1973, PharmChem reported an average THC content of 1.62 percent in marijuana, compared with hashish at 4.6 percent and hash oil (a refined extract of hashish) at 13.5 percent (Ratcliffe 1974).

In 1974, the DEA published guidelines that no longer allowed laboratories to provide quantitative results directly to the sample donors. This, in effect, restricted public access to analysis information to whatever government officials wished to reveal. However, nonspecific summaries of THC percentage ranges were allowed to be published (Unsigned 1974).

The results of an independent examination of gas-liquid chromatographs of street samples of marijuana from California that were submitted to PharmChem during 1973 and 1974 are shown in Table I. Seeded varieties ranged in THC from an average of 2.2 percent (Mexican) to 4.9 percent (Panama Red), while sinsemilla averaged 2.8 percent for Big Sur "Holy Weed" to above six percent for Thai Sticks and Hawaiian "Maui Wowie." This would appear to be a much more representative sample of the types of marijuana available in California in 1973-1974 than the half-percent grade cited by Cohen (1986) and Hawks (see Kerr 1986), or the one to three percent grade cited by Tennant (1986).

A retrospective summary of street-drug analysis trends from 1969 through 1975 published by PharmChem (Terry 1977) confirms the fact that quite potent forms of cannabis were available on the illicit U.S. market by 1975: "Early quantitative work showed a range of 1.0-2.5 percent THC for average marijuana. In 1975, the range was 1.0-2.5 percent; samples in the range of 5.0-10.0 percent were not uncommon, and some contained as much as 14.0 percent THC. . . . Hash oil (concentrated from hash, usually amber or red in color) and grass oil (from marijuana, dark green or black in color) . . . vary greatly in potency, some samples [containing] up to 40 percent THC." Abundant information on the comparative potencies of cannabis grown in the U.S. and other countries in the mid-1970's was summarized by Starks (1977: 41-87).

In the spring of another election year, 1980, Cohen and DuPont launched a similar campaign, stating that confiscated marijuana in 1975 contained only 0.4 percent THC, while in 1979 the average was four percent, a tenfold increase (Brody 1980: C1). This data conflicts directly with that published by PharmChem for 1975 street samples

TABLE II
CONCENTRATIONS OF Δ^9 -THC IN DIFFERENT VARIATIONS OF MARIJUANA*

Type	Percent Δ^9 -THC by Weight	Normalized Averages (%) ^b
Nepal ^c	2.81	
Mexico ^c	1.68	1.00
Pakistan ^c	1.30	
Colombia ^c		3.00 - 3.50
India ^c		
Grown above 2,000 meters	0.46	
Grown below 2,000 meters	1.39	
Jamaica (ganja) ^d	2.80 (mean)	
United States ^e	0.35	
Sinsemilla ^f		
Fiber	0.21	
Intermediate	3.58	
Drug	6.28	3.00 - 11.00
Hashish		
United Nations standard ^g	2.22(7.40) ^h	1.90
NIDA ⁱ		
Cigarette 1	0.84	
Cigarette 2	1.86 (2.8) ^j	
Crude marijuana extract ^k	20.00	
Illicit hashish oil ^l	10.00 - 30.00 (up to 60) ^m	20.00
Research harvests ⁿ	0.90 - 2.80	

*National Academy of Sciences (1982: 16); ^cJones (1980); ^bBraenden (1972); ^dTurner (1974); ^eTurner (1980); ^fTurner (1981); ^gTurner et al. (1979); ^hRosenkrantz (1981); ⁱMarshman, Popham & Yawney (1976).

(Perry 1977) and that shown in Table I. Perhaps one should be thankful that, according to these estimates, marijuana potency *dropped* from four percent THC in 1979 to 3.5 percent THC in 1986 (Kerr 1986).

The most recent comparison of cannabis potencies was compiled from published sources from 1972 through 1981 by the National Academy of Sciences (1982: 16), and is summarized in Table II. It again demonstrates the great range of products available legally (i.e., NIDA samples) and illegally during that decade, and may in fact underestimate some potencies. For example, the 2.8 percent THC content cited for Jamaican *ganja* (Marshman, Popham & Yawney 1976) is slightly lower than the mean 2.96 percent THC material studied by Rubin and Comitas in 1970 through 1972 (Unsigned 1973), and significantly lower than the four to eight percent THC Jamaican *ganja* cited by

the National Commission on Marihuana and Drug Abuse (1972: 50).

The government "research harvests" in Table II (Rosenkrantz 1981) are considerably less potent than the sinsemilla samples that averaged three to 11 percent THC (Turner 1981, 1980). Perhaps this is because cultivators at the government marijuana farm at the University of Mississippi, like their predecessors in 1904, never learned proper sinsemilla cultivation (Turner et al. 1979), while illicit cultivators in California and Hawaii were making it standard for the industry (Frank & Rosenthal 1978: 258-259). If so, this alone could explain the wide discrepancies between the potency of marijuana reported by government sources and that actually being grown in the U.S. during the 1970's and 1980's.

SELF-ADJUSTMENT OF DOSE

An important consideration in regard to the potency issue is autotitration, the adjustment of dose by the individual user to obtain optimal effects and avoid unpleasant ones. As noted above, cautious titration of dose was standard practice when cannabis preparations were used in medicine. Smoking marijuana, customary in present social use of the drug, requires knowledge of when to stop in order to avoid symptoms of overdose. The smoked route gives rapid feedback to the user with regard to levels of effect because the drug goes directly to the brain from the lungs, unimpeded by the gut or the liver.

Researchers for the Mayor's Committee on Marijuana (1944: 13) were among the first to notice that experienced marijuana smokers in the "tea-pads" of Harlem routinely practiced autotitration. The confirmed user, they noted, "appears to be quite conscious of the quantity he requires to reach the effect called 'high.' Once the desired effect is obtained he cannot be persuaded to consume more. He knows when he has had enough . . . and is ever-conscious of preventing himself from becoming 'too high.'" Similarly the Commission of Inquiry into the Non-Medical Use of Drugs (1972: 48) observed that "great variations in potency are usually accommodated by the experienced user through a 'titration' of dose (intake is reduced or stopped when the smoker reaches the preferred level of intoxication)." For U.S. users, the National Commission on Marijuana and Drug Abuse (1972: 166) commented: ". . . whatever the potency of the drug used, individuals tend to smoke only the amount necessary to achieve the desired effect."

SUMMARY AND CONCLUSIONS

Observation of the real world of social marijuana use, where autotitration is the norm, renders the scare tactics of the *new marijuana* proponents not only inaccurate but irrelevant. There is much published evidence about the availability of highly potent varieties of cannabis from the nineteenth century through the present day. The effects attributed to the *new marijuana* are the same ones debated

for centuries in many different cultures. The assertion that "all marijuana research to date has been done on 1 or 2 percent THC material" (Cohen 1968) ignores several thousand years of human experience with the drug. The old medical cannabis extracts were stronger than most of the forms now available, though the potency of illicit hash oils by the mid-1970's was approaching the level of medicinal preparations available before their removal from the *USP*.

While it may be true that sinsemilla is more widely available than 10 or 15 years ago, its potency has not changed significantly from the 2.4 to 9.5 percent THC materials available in 1973-1974 (see Table I), or the five to 14 percent sinsemilla of 1975 (Perry 1977). The range of potencies available then (marijuana at 0.1% to 7.8% THC, averaging 2.0% to 5.0% THC by 1975) was approximately the same as that reported now. With such a range, the evidence simply cannot support the argument by Cohen (1986) that marijuana is "ten or more times more potent than the product smoked ten years ago." And to say that marijuana potency has increased 1,400 percent since any date in history is patent nonsense.

It is not legitimate to imply that *average* low potencies represent the *full range* of potencies available in reality. Neither is it valid to cite the *low end of the range then* as a baseline to compare with the *high end of the range now*. The claimed baseline for THC content in the early 1970's would appear to be too low, probably because confiscated, stored police samples were utilized; and this low baseline makes the claimed difference in potency appear to be greater than it has been in reality.

In sum, the *new marijuana* is not new and neither is the hyperbole surrounding this issue. The implications of the new disinformation campaign are serious. Many people, particularly the experienced users of the 1960's and their children, will once again shrug off the warnings of drug experts and not heed more reasonable admonishments about more dangerous drugs. This is not only abusive to those who look to science, the medical profession, and government for intelligent leadership, but will sully the reputations of drug educators who wittingly cry wolf, and will inevitably diminish the credibility of drug abuse treatment professionals who pass on such flawed reports.

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Cannabis Use and Cognitive Decline in Persons under 65 Years of Age. Constantine G. Lyketsov, Elizabeth Garrett, Kung-Yee Liang, and James C. Anthony (Osler 320, The Johns Hopkins Hospital, 600 North Wolfe Street, Baltimore, MD 21287-5371)

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The purpose of this study was to investigate possible adverse effects of cannabis use on cognitive decline after 12 years in persons under age 65 years. This was a follow-up study of a probability sample of the adult household residents of East Baltimore. The analyses included 1,318 participants in the Baltimore, Maryland, portion of the Epidemiologic Catchment Area study who completed the Mini-Mental State (MMSE) examination during three study waves in 1981, 1982, and 1993-1996. Individual MMSE score differences between waves 2 and 3 were calculated for each study participant. After 12 years, study participants' scores declined a mean of 1.20 points on the MMSE (standard deviation 1.90), with 66% having scores that declined by at least one point. Significant numbers of scores declined by three points or more (15% of participants in the 18--29 age group). There were no significant differences in cognitive decline between heavy users, light users, and nonusers of cannabis. There were also no male-female differences in cognitive decline in relation to cannabis use. The authors conclude that over long time periods, in persons under age 65 years, cognitive decline occurs in all age groups. This decline is closely associated with aging and educational level but does not appear to be associated with cannabis use.



ORIGINAL CONTRIBUTIONS

Cannabis Use and Cognitive Decline in Persons under 65 Years of Age

Constantine G. Lyketsos,^{1,3} Elizabeth Garrett,⁴ Kung-Yee Liang,⁴ and James C. Anthony^{2,3}

The purpose of this study was to investigate possible adverse effects of cannabis use on cognitive decline after 12 years in persons under age 65 years. This was a follow-up study of a probability sample of the adult household residents of East Baltimore. The analyses included 1,318 participants in the Baltimore, Maryland, portion of the Epidemiologic Catchment Area study who completed the Mini-Mental State Examination (MMSE) during three study waves in 1981, 1982, and 1993–1996. Individual MMSE score differences between waves 2 and 3 were calculated for each study participant. After 12 years, study participants' scores declined a mean of 1.20 points on the MMSE (standard deviation 1.90), with 66% having scores that declined by at least one point. Significant numbers of scores declined by three points or more (15% of participants in the 18–29 age group). There were no significant differences in cognitive decline between heavy users, light users, and nonusers of cannabis. There were also no male-female differences in cognitive decline in relation to cannabis use. The authors conclude that over long time periods, in persons under age 65 years, cognitive decline occurs in all age groups. This decline is closely associated with aging and educational level but does not appear to be associated with cannabis use. *Am J Epidemiol* 1999;149:794–800.

aging; cannabis; cognition; dementia

Cognitive capacity has multiple determinants, including genetic makeup, nutritional status, health status, formal education, and age-related developmental processes. This capacity generally reaches its peak in early adulthood and then declines later in life (1). Cognitive decline is a significant public health problem, given its association with impaired functioning and increased mortality (1) and its close link to dementia (2–4). Dementia is defined as the occurrence of measurable, global cognitive decline sufficient to impair functioning (5). The prevalence and incidence of dementia, now one of the most common and serious diseases of the elderly, is rapidly increasing as the world population ages (6, 7).

Epidemiologic studies of dementia and of cognitive decline have typically investigated individuals over the age of 60 years. The expected prevalence of dementia in

these age groups is 2 percent or higher (6, 7), and prevalence might be as high as 48 percent in those over age 85 (6, 7). In late life, dementing processes hamper the study of cognitive decline as a phenomenon distinct from dementia. Additionally, recent research suggests (8) and scientific consensus concurs (9) that dementia is best understood as the result of cumulative effects on the brain from diseases (e.g., Alzheimer's disease or cerebrovascular disease) and other exposures (e.g., alcohol or tobacco use), all occurring against background, possibly lifelong, declines in cognition associated with aging itself. However, epidemiologic knowledge regarding cognitive decline in persons younger than age 65 is very limited. Indeed, we could find only one published epidemiologic study of cognitive decline in younger persons: the Seattle Longitudinal Study (10).

The Seattle Longitudinal Study followed a series of community-based cohorts of individuals enrolled in a health maintenance organization. Sample sizes for individual cohorts were between 500 and 997. Participants were assessed according to a large number of tests of intelligence and cognitive capacity. The main findings were that individual cognitive abilities do not change much before age 60, with the exception of verbal fluency. Because of attrition, the Seattle Longitudinal Study did not have sufficient sample sizes to detect small cognitive declines in younger age groups. Furthermore, very few individual participants were followed for spans of more than 5 years.

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Abbreviation: MMSE, Mini-Mental State Examination.

¹Neuropsychiatry and Memory Group, Department of Psychiatry and Behavioral Sciences, School of Medicine, The Johns Hopkins University, Baltimore, MD.

²Department of Mental Hygiene, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD.

³Department of Epidemiology, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD.

⁴Department of Biostatistics, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD.

Reprint requests to Dr. C. G. Lyketsos, Osler 320, The Johns Hopkins Hospital, 600 North Wolfe Street, Baltimore, MD 21287-5371.

The major correlate of cognitive decline is increasing age (10–14). Higher educational level (14) and higher functioning (13) are associated with less cognitive decline. Being female or encountering stressful life events is not associated with cognitive decline (11, 13). Risk factors for dementia include age, prior cognitive impairment, stroke, high blood pressure, heart disease, diabetes mellitus, alcohol consumption, and depression (15–28). The use of nicotine via smoking has also been associated with a lower risk for dementia, although this finding is controversial (29). Being female has not been associated with the incidence of dementia (15, 17). Two recent studies (30, 31) have reported that lesser educational attainment is a risk factor for dementia. However, this finding has not been supported universally (17, 32, 33).

The relation between cognitive functioning or cognitive decline and use of cannabis (marijuana) has received limited attention in epidemiologic studies. Two cognitive effects of cannabis must be distinguished: acute effects, those associated with intoxication, and residual effects, which persist after the drug has left the central nervous system (34). The latter effects might be short term or long term. Cross-sectional studies, either experimentally administering cannabis or comparing users with nonusers, support the existence of short term residual effects of cannabis use on attention, ability to perform psychomotor tasks, and short term memory (34, 35). These effects are more severe in women (36) and in heavy users of cannabis as compared with light users (37).

To our knowledge, no study with published results has investigated the long term effects of cannabis use on cognition in an epidemiologic sample. According to Pope et al. (34), study designs best suited to addressing this issue are naturalistic comparisons, in large epidemiologic samples, of heavy users, light users, and nonusers of cannabis. These studies must also account for the concurrent use of alcohol and other drugs, both illicit and legal (e.g., nicotine). In addition, such studies must adjust for other factors known to influence cognition over time, such as age and education, and must investigate possible interactions between the cognitive effects of cannabis use and gender (being female).

We recently reported findings from a 13-year follow-up of 1,488 persons of all ages who had participated in the Baltimore, Maryland, portion of the Epidemiologic Catchment Area study (38). The Mini-Mental State Examination (MMSE) (39), a widely used quantitative measure of cognition, was administered to participants during wave 1 (1981) and during two follow-up waves in 1982 and 1993–1996. The design of the study allowed us to examine cognitive decline between

waves 2 and 3 in a large epidemiologic sample. We found that cognitive decline occurred in all age groups. Age, education, and minority status were all significantly associated with greater cognitive decline.

In this follow-up paper, we focus our investigation on persons under age 65 years. To our knowledge, this is the first population study that has investigated cognitive decline in this age group, in which the prevalence of dementia is very low. This permits better study of cognitive decline as a phenomenon distinct from dementia, as well as its associated risk factors. We had two goals: 1) to further delineate the epidemiology of age-specific cognitive decline in persons under 65 and 2) to investigate any long term association between cognitive decline and use of cannabis using a design similar to the one proposed by Pope et al. (34).

MATERIALS AND METHODS

Baltimore Epidemiologic Catchment Area follow-up

The Epidemiologic Catchment Area program has been described in detail elsewhere (40, 41). The Baltimore arm of this five-site study first entered the field in 1981, when the first wave of in-person assessments was completed. A second wave of assessment (including wave 2 administration of the MMSE) was conducted 1 year later, in 1982. The Baltimore Epidemiologic Catchment Area target population consisted of the adult household residents of eastern Baltimore City, an area with 175,211 inhabitants. During wave 1, 4,238 individuals were designated for interview by probability sampling methods, and 3,481 (82 percent) completed interviews. Of these persons, 2,695 completed interviews during wave 2.

In 1993, all 3,481 initial participants were targeted for tracing and interviewing. A total of 848 participants were found to have died; the remaining 2,633 were presumed to be alive, but 415 of them could not be successfully traced. Of the 2,218 persons located, 298 refused to participate, and 1,920 completed interviews. Of these, 1,488 had completed the MMSE during all three waves, approximately 11.5 years after wave 2. All study participants signed informed consent statements approved by the Institutional Review Board of the Johns Hopkins University School of Hygiene and Public Health.

Participants

In these analyses, we included only those participants who were under age 65 at wave 1 and who completed the MMSE during all three study waves ($n = 1,318$).

Measurement of cognitive decline. For each participant, an MMSE score difference was calculated by subtracting the wave 3 (1993–1996) MMSE score from the wave 2 (1982) MMSE score. The mean time interval between the points at which these MMSEs were administered was 11.6 years (standard error 0.01 years). The median interval was 11.5 years, the 25th percentile was 11.3 years, and the 75th percentile was 11.9 years. Change in MMSE score between waves 2 and 3 was the primary dependent variable in the analyses.

Classification of participants according to use of cannabis. Participants were separated into five groups based on their self-reported drug use during all three waves of the study. Group 1 (nonusers) were those who reported in all three waves that they had never used cannabis in any form ($n = 806$ (61 percent)). Group 2 (light users) were participants who had used cannabis but had never used it daily or more often for over 2 weeks ($n = 235$ (18 percent)). Group 3 were light users who reported use of any \leq one illicit substance in any study wave ($n = 131$ (10 percent)). Group 4 (heavy users) reported during at least one study wave that they had used cannabis daily or more often for over 2 weeks ($n = 137$ (10 percent)). Group 5 were heavy users of cannabis who reported use of other illicit drugs as well ($n = 8$ (1 percent)). Information on cannabis use was missing for one participant.

Classification of participants according to use of alcohol or tobacco. On the basis of the highest alcohol intake reported for the past month during any of the three study waves, participants were placed into three groups: never drinkers ($n = 67$ (5 percent)), light-to-moderate drinkers ($n = 778$ (59 percent)), and heavy drinkers, defined as those who had had more than four drinks on any one day during the past month ($n = 473$ (36 percent)). With respect to smoking, three groups were defined on the basis of self-report during any of the three waves: never smokers ($n = 347$ (26 percent)); occasional smokers ($n = 573$ (44 percent)); heavy smokers, defined as those who smoked 20–39 cigarettes per day (or the equivalent in cigars or pipefuls of tobacco) ($n = 310$ (24 percent)); and very heavy smokers, those who smoked two or more packs of cigarettes per day (or the equivalent) ($n = 85$ (6 percent)). Information on smoking was missing for three participants.

Other variables associated with cognitive decline used as covariates. Information on other variables associated with cognitive decline was recorded at wave 1. Gender was indicated as male or female. Age was grouped as follows: 18–30, 31–40, 41–50, 51–60, and 61–64 years. Minority status was indicated as

African-American or Hispanic versus other ethnicity (non-Hispanic white). Five educational subgroups were developed: 0–8 years, 9–11 years, 12 years or General Equivalency Diploma, 13–15 years, and ≥ 16 years, in conformance with common educational landmarks (grade school, some high school, completed high school or the equivalent, some college, and completed college). It is possible that some study participants, especially those in younger age groups at wave 1, completed their education after wave 1 and were thus misclassified.

Analyses

Mean MMSE score changes between waves 2 and 3 (with 95 percent confidence intervals) are reported in the tables for the entire cohort and for subgroups by age. The proportions of individuals who evidenced any increase, no change, a one-point decline, a two-point decline, a three-point decline, or a four-point or greater decline are also reported by age group. Mean change in MMSE score (with its 95 percent confidence interval) by level of cannabis use was estimated for men and women separately. The relation between level of cannabis use and MMSE score change between waves 2 and 3 was examined in a series of linear regression models with MMSE score change as the dependent variable and cannabis use as the independent variable, with or without inclusion of the other covariates. For both univariate and multiple regression models, the association of cannabis use with change in MMSE score is reported in the form of regression coefficients (with 95 percent confidence intervals). Subgroups were entered into regression models individually as "dummy" variables to allow direct comparisons of regression coefficients using one of the subgroups as the reference category.

To validate the findings from the linear regression models, we also constructed a series of proportional odds logit models (42) relating diseases or substance use to MMSE score change. These were bivariate or multivariate "analogs" to the linear models. The dependent variable was "change in MMSE score," grouped as follows: any increase, no change, a one-point decline, a two-point decline, a three-point decline, or a four-point or greater decline. Findings from these models were similar to those obtained from the linear models. For simplicity, we report only findings from the linear models.

RESULTS

Table 1 provides a description of the study cohort at wave 1 with regard to sociodemographic variables. It also shows mean MMSE scores at each study wave.

TABLE 1. Sociodemographic characteristics of the Baltimore Epidemiologic Catchment Area study cohort at wave 1 (n = 1,318) and mean MMSE* scores at waves 1-3

Variable	No.	%
Age (years)		
18-30	545	41
31-40	319	24
41-50	179	14
51-60	185	14
61-64	90	7
Gender		
Male	488	37
Female	830	63
Race		
Minority (African-American or Hispanic)	490	37
Nonminority (other)	828	63
Education (years)		
0-8	161	12
9-11	280	21
12/GED*	541	41
13-15	211	16
≥16	125	10
Mean MMSE score		
Wave 1 (1981)	28.65 (1.90)†	
Wave 2 (1982)	28.65 (1.81)	
Wave 3 (1993-1996)	27.46 (2.23)	

* MMSE, Mini-Mental State Examination; GED, General Equivalency Diploma.

† Numbers in parentheses, standard deviation.

Cognitive decline between waves 2 and 3

Table 2 shows the mean change in MMSE score between waves 2 and 3 for every age group. It also shows the proportions of participants in each age group with specific changes in MMSE score, as described above. Persons in all age groups had mean

declines greater than zero, with two thirds declining in score by at least one point. The mean decline and the proportion of persons with declining scores increased steadily with age, as expected. It is noteworthy that in every age group there was a notable proportion of participants whose score declined three points or more—a change of a magnitude that merits clinical attention (43, 44). These estimated declines must be considered in the context of MMSE measurement error, the MMSE ceiling effect, and normal variation in MMSE scores over time (see Discussion).

Association between cannabis use and score decline

Table 3 displays estimated mean changes in MMSE score according to level of cannabis use for men and women separately. Women who were nonusers of cannabis had scores that declined more than those of men who were nonusers. However, within male-female groups, there were no evident differences in score decline by cannabis use for either men or women.

Table 4 displays results from the linear regression models with MMSE change between waves 2 and 3 used as the dependent variable. The numbers shown in the table are regression coefficients estimating the relative change in MMSE score for a given group of cannabis users relative to nonusers. Model 1 included only cannabis use as the covariate. Model 2 included only cannabis use and use of alcohol and tobacco. Model 3 included cannabis use plus age, gender, education, minority status, alcohol use, and tobacco use. Model 4 included cannabis use plus all of the variables from models 2 and 3. Both light and heavy users of cannabis evidenced *less* cognitive decline than nonusers, although this finding was not statistically significant at

TABLE 2. Mean change in Mini-Mental State Examination (MMSE) score from wave 2 (1982) to wave 3 (1993-1996) and proportions of participants evidencing specific MMSE score changes, by age group, Baltimore Epidemiologic Catchment Area study follow-up

Age group (years)	Change in MMSE score		Score change group											
			Any score increase		No change in score		Decline of 1 point		Decline of 2 points		Decline of 3 points		Decline of ≥4 points	
	Mean change	95% CI*	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
18-30 (n = 545)	-0.98	-0.83 to -1.13	73	13	122	22	179	33	93	17	47	9	31	6
31-40 (n = 319)	-1.08	-0.89 to -1.27	43	13	59	19	107	34	60	19	29	9	21	7
41-50 (n = 179)	-1.25	-0.92 to -1.58	35	20	30	17	39	22	37	21	17	10	21	12
51-60 (n = 185)	-1.52	-1.20 to -1.84	29	16	23	16	48	26	27	15	21	11	31	17
61-64 (n = 90)	-2.12	-1.52 to -2.72	13	14	10	11	18	20	20	22	7	8	22	24
All ages (n = 1,318)	-1.20	-1.10 to -1.30	193	15	250	19	391	30	237	18	121	9	126	10

* CI, confidence interval.

TABLE 3. Mean change in Mini-Mental State Examination (MMSE) score between wave 2 (1982) and wave 3 (1993-1996) in men and women, by level of cannabis use, Baltimore Epidemiologic Catchment Area study follow-up

Gender and level of cannabis use	No.	Mean score change in MMSE	95% CI*
Men			
Nonusers	251	-1.00	-0.73 to -1.27
Light users	104	-1.03	-0.67 to -1.39
Light users plus use of drugs	48	-1.06	-0.57 to -1.55
Heavy users	82	-0.84	-0.46 to -1.22
Heavy users plus use of drugs	3	-0.33	+5.93 to -6.59
Women			
Nonusers	555	-1.46	-1.29 to -1.63
Light users	131	-1.04	-0.71 to -1.37
Light users plus use of drugs	83	-1.07	-0.77 to -1.37
Heavy users	55	-1.15	-0.47 to -1.83
Heavy users plus use of drugs	5	-0.60	+3.09 to -4.29

* CI, confidence interval.

the conventional level of $p < 0.05$ (model 1). After adjustment for the other variables in models 2-4, there was no association between cannabis use and cognitive decline.

DISCUSSION

Cognitive decline is an age-related phenomenon that affects persons of all ages, including those under age 30 years. It becomes more pronounced with increasing age and is most evident in persons over age 59. A significant

proportion (>15 percent) of persons in all population age groups evidence declines that approach clinical significance. We offer two interpretations of this finding. One is that cognitive decline might be an inevitable phenomenon of aging, perhaps modified by genetic makeup, education, nutrition, disease, and environmental exposure. Another is that the declines are the result of slowly progressive neurodegenerative diseases (such as Alzheimer's disease) which might be lifelong in evolution but do not lead to clinical symptoms until much later in life (8). While these two lines of reasoning are not mutually exclusive, the relation between age and cognitive decline across all age groups reported here lends greater support to the former.

To our knowledge, this was the first long term prospective study in the United States that had a community sample large enough to investigate the relation between cannabis use and cognitive decline in persons under age 65 years. Other studies have found short term residual effects of cannabis use on memory and cognition (34, 35) that are more severe among women (36) and heavy users (37). However, our data suggest that over the long term cannabis use is not associated with greater declines in cognition among men, women, or heavy users. The study design we used included several of the features proposed by Pope et al. (34) as critical to addressing the long term effects of cannabis on cognition: naturalistic follow-up, a large sample size, a population basis, comparison of light cannabis use with heavy use, and the construction of models accounting for the effects of gender and use of illicit drugs, alcohol, and tobacco. Therefore, these results would seem to provide strong evidence of the absence of a long term residual effect of cannabis use on cognition.

TABLE 4. Regression coefficients (β) indicating relative differences in Mini-Mental State Examination (MMSE) score change between wave 2 (1982) and wave 3 (1993-1996), by level of cannabis use, in four regression models, Baltimore Epidemiologic Catchment Area study follow-up†

Level of cannabis use	Model 1 (cannabis use)		Model 2 (cannabis use plus use of alcohol and tobacco)		Model 3 (cannabis use plus age, gender, minority status, and education)		Model 4 (cannabis use plus age, gender, minority status, education, and use of alcohol and tobacco)	
	β	SE‡	β	SE	β	SE	β	SE
Nonusers§								
Light users	0.28*	0.15	0.22	0.15	-0.001	0.16	-0.02	0.17
Light users plus use of drugs	0.25	0.19	0.17	0.19	-0.07	0.19	-0.10	0.19
Heavy users	0.35*	0.18	0.27	0.19	0.08	0.20	0.05	0.20
Heavy users plus use of drugs	0.81	0.71	0.66	0.71	0.79	0.70	0.69	0.70

* $p < 0.10$.

† Positive numbers indicate MMSE score increases relative to the reference group; negative numbers indicate relative decreases in MMSE score.

‡ SE, standard error.

§ Reference group.

Notable limitations of this study include loss to follow-up and mortality. Cognitive functioning at baseline was a predictor of both mortality and loss to follow-up in the Epidemiologic Catchment Area study (40). Additionally, it is possible that some cannabis users in the study may have used cannabis on the day the MMSE was administered. Given the acute effects on cannabis on cognition (34), this would have tended to reduce their MMSE score on that day. This may have adversely affected accurate measurement of MMSE score changes over time.

Given that a lower level of cognitive functioning was associated with greater cognitive decline, these estimates of decline may be underestimates. The assessment of cannabis use was based on self-reports and was not confirmed with biologic measures or controlled in an experimental setting. This may have led to underestimation of cannabis use in persons with poor memory.

Another important limitation of the study is that the MMSE is not a very sensitive measure of cognitive decline, even though it specifically tests memory and attention. Thus, small or subtle effects of cannabis use on cognition or psychomotor speed may have been missed. The MMSE is not intended for the purpose for which it was used in this study, and it contains some items that assess neurologic function as well as cognition. Additionally, MMSE item analysis was not performed in this study. Given the MMSE's ease of use and widespread application, it was the most practical instrument available for brief assessment of cognitive functioning at the time the multisite Epidemiologic Catchment Area study was planned in the late 1970s. Also, given its limited sensitivity, declines noted on the MMSE are probably underestimates of true declines.

Other limitations of the MMSE include the fact that small errors, such as forgetting the present day's date, may be due to measurement error and not to true decline. Measurement error on the MMSE might be caused by a variety of factors, including the ambient environment in which the test is taken, the respondent's mood or emotional state, the respondent's adequacy of sleep the night before, the time of day at which the test is given, and other factors. However, such errors ought to be random and not systematic (equally distributed between study waves), so the effect on mean estimates should "average out" across the population and across waves of assessment.

MMSE scores in this study exhibited a ceiling effect, given that most participants scored in the 27-30 range during wave 1. However, the ceiling effect was limited to a minority of participants, those who scored 30 points at baseline, since most declines were small.

Finally, the small but tangible beneficial "practice effect" of repeated testing on MMSE score would tend to lead to higher, not lower, MMSE scores at follow-up.

We conclude that cognitive decline occurs across all age groups, with a significant proportion of persons of all ages showing declines near clinically significant levels after 12 years. Such decline is not associated with cannabis use in either men or women. A better understanding of predictors of cognitive decline in persons under age 65 years might lead to interventions designed to slow or arrest such decline. This in turn might reduce the incidence of dementia at older ages.

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