

ALASKA LEGISLATURE COMMITTEE FILES, 1989-1990 8672  
6310 SENATE • JUDICIARY •

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in sperm motility, and a cigarette-dose-dependent increased abnormal sperm morphology among smokers."<sup>77</sup>

"Several epidemiological studies have suggested that smoking decreases fertility in women...a 46 percent excess of infertility was found in women who smoked...Experimental studies have demonstrated alterations in luteinizing hormone release and a decreased ovulatory response in rats exposed to tobacco smoke."<sup>78</sup>

#### Effects on the Developing Fetus and Offspring

Note. It has been found that "...tobacco and marijuana smoking, and alcohol and other drug abuse frequently occur in the same women. Therefore, some of the adverse effects on fetal development attributed to maternal drinking or smoking may be due to an interaction with marijuana and other psychoactive substances. When a number of these substances are consumed together, their toxic effects on the fetus may be additive."<sup>79</sup>

Support. Several reports state that "...the risks of pregnancy loss and other adverse effects on the fetus are increased by marijuana use... significant changes consistent with retardation of fetal growth and development have been observed."<sup>80</sup> "Low maternal weight gain during pregnancy, maternal illnesses during pregnancy, and cigarette and marijuana smoking during pregnancy were consistently related to adverse fetal development. Women who used marijuana during pregnancy delivered infants with significantly smaller birth weight, body length and head circumference, as well as infants who were five times more likely to have features compatible with the fetal alcohol syndrome."<sup>81</sup> Maternal marijuana use has been

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<sup>77</sup>The Health Consequences of Smoking for Women, a report of the Surgeon General, U.S. Department of Health and Social Services, Rockville, Md., Public Health Service, 1980, pp. 236-237.

<sup>78</sup>Ibid, pp. 235-236.

<sup>79</sup>R. Hingston et al., "Effects on Fetal Development of Maternal Marijuana use during Pregnancy," 1984, cited in Drug Abuse and Drug Abuse Research, 1987, p. 80.

<sup>80</sup>Smith, Marijuana and Reproduction, p. 8.

<sup>81</sup>Ibid., pp. 16-17.

found to be the strongest independent predictor of fetal alcohol syndrome (FAS). "It was a better predictor of the FAS than alcohol use."<sup>82</sup>

At the University of California-Davis, Dr. Ethel Sassenrath, on exposing pregnant rhesus monkeys (who have a reproductive system similar to humans), to THC in doses equal to one or two marijuana cigarettes a day for humans, found significantly lower weight gains during pregnancy and 40 percent of the conceptions ending in miscarriages, fetal deaths, stillbirths, or infant deaths shortly after birth.<sup>83</sup>

Dispute. A report which does not support this finding states that "...Cannabis is teratogenic at high doses in animals."<sup>84</sup> Gross malformations in human infants due to prenatal exposure to cannabis are not yet completely proven."<sup>85</sup> "In another investigation no particular effects of maternal marijuana use upon the newborn were found except for a decrease in length and an increase in male infants delivered in the marijuana group."<sup>86</sup> "There are also reports of low birth weight, prematurity, and even a condition resembling the fetal alcohol syndrome in some children of women who smoke marijuana heavily during pregnancy. The significance of these reports is unclear because controls are lacking and other circumstances make it hard to attribute causes."<sup>87</sup>

Alcohol. "On the basis of numerous clinical and epidemiological studies, it appears that in utero alcohol exposure can result in a wide range of effects, with the full-blown FAS at one extreme and the only barely perceptible FAE [fetal alcohol effects] as the other end of the continuum is approached. Such variability may be due to differences in in utero blood alcohol exposure, daily exposure versus binge drinking, genetic

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<sup>82</sup>R. Hingston, et al., 1982 and 1985, cited in Drug Abuse and Drug Abuse Research, 1987, p. 80.

<sup>83</sup>Russell, Marijuana Today, p. 61.

<sup>84</sup>Teratogenic is producing malformed babies.

<sup>85</sup>E.L. Abel, "Effects of prenatal exposure to cannabinoids," 1985, cited in Drug Abuse and Drug Abuse Research, 1987, p. 80.

<sup>86</sup>K. Tennes et al, "Marijuana: Prenatal and Postnatal Exposure in the Human," 1985, cited in Drug Abuse and Drug Abuse Research, 1987, p. 81.

<sup>87</sup>"Marijuana," The Harvard Medical School, p. 4.

sensitivity, gestational time of exposure, interactions with other drugs, nutritional status, and so on."<sup>88</sup>

Tobacco. "Smoking is a major risk factor for low birth weight and, consequently, fetal morbidity and mortality. Tobacco smoke may influence the fetus either through alterations in maternal physiology that limit the nutrient flow to the fetus or by the transplacental passage of smoke components that have direct effect on the fetus."<sup>89</sup> "Studies have identified specific areas in which the effects of maternal smoking during pregnancy may occur. These include fetal growth, most often determined by comparing birth weights of smokers' babies with those of otherwise similar nonsmokers' babies; spontaneous abortions, fetal deaths, and neonatal deaths; pregnancy complications, including those that predispose to preterm delivery; possible effects on lactation; and long term effects on surviving children."<sup>90</sup>

- 11) Other physical reactions to marijuana include irreversible changes in the brain, sinusitis, pharyngitis, bronchitis, emphysema, increased heart rate, and decreased blood circulation.

#### Irreversible Changes in the Brain

Support. One report which supports this finding stated that "...exposure to...THC...at doses commensurate with those used by human marijuana smokers, produces permanent changes in brain function and structure of monkeys, a subhuman primate close to man."<sup>91</sup>

Dispute. The Institute of Medicine, in their summary on marijuana's effect on the brain stated that "There is no persuasive evidence that marijuana causes morphological changes in the brain...studies on users of marijuana reveal no gross changes in brain structure. Electron micrographic studies of monkey brains indicating morphologic changes are

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<sup>88</sup>Ernest L. Abel, Carrie L. Randall and Edward P. Riley, "Alcohol Consumption and Prenatal Development," in Medical and Social Aspects of Alcohol Abuse, p. 223.

<sup>89</sup>The Health Consequences of Using Smokeless Tobacco, A Report of the Advisory Committee to the Surgeon General, U.S. Department of Health and Human Services, Bethesda, Md., National Institute of Health Publication No. 86-2874, 1986, p. 178.

<sup>90</sup>The Health Consequences of Smoking for Women, p. 191.

<sup>91</sup>Heath, Marijuana and the Brain, p. 10.

methodologically flawed and cannot be used as evidence for an effect of marijuana on brain cell morphology. Clear effects on brain electrical activity in human beings and in animals have been found after drug exposure. These effects have not been demonstrated to persist in human beings after the drug has been discontinued...Current evidence has shown marijuana causes some chemical changes in [the] brain...At high doses marijuana also has been shown to affect nucleoprotein synthesis."<sup>92</sup>

Other Considerations. "There are too few reliable data presently available to permit a valid conclusion concerning marijuana use and cerebral atrophy, but the seriousness of such an effect, if it exists, should make it an important priority for further neurological study."<sup>93</sup> The 1987 NIDA report to Congress also notes the need for further research on marijuana's effects on the brain.<sup>94</sup> Dr. Heath explains two difficulties in studying the effects of marijuana on the human brain "...1) In order to see what effect, if any, pot is having on brain cells--you have to kill the subject, cut up the brain, and look at cells under a high-powered electron microscope...." and 2) even when humans die and leave their bodies to science, there is a lack of controls--no way to prove if damage is found that it came from marijuana rather than alcohol or other drugs."<sup>95</sup>

Alcohol. "Long term consumption of alcoholic beverages can lead to a number of pathologic conditions of the brain. Among them are a number of neurologic diseases,...Some of these diseases result from nutritional deficiencies, while others result from a direct neurotoxic effect of ethanol. Studies in both humans and experimental animals have demonstrated the presence of cerebral atrophy after long-term ethanol consumption and the loss of cells in certain parts of the brain, especially the hippocampus and cerebellum. Other investigations suggest that the loss of certain receptors specific for a given neurotransmitter or other biologically active substance might contribute to some of the medical complications associated with chronic ethanol usage."<sup>96</sup>

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<sup>92</sup>Marijuana and Health, p. 89.

<sup>93</sup>Russell, Marijuana Today, p. 53.

<sup>94</sup>Drug Abuse and Drug Abuse Research, 1987, pp. 84-85.

<sup>95</sup>Mann, Pot Safari, p. 23-24.

<sup>96</sup>Walter A. Hunt, "Ethanol and the Central Nervous System," in Medical and Social Aspects of Alcohol Abuse, p. 155.

Tobacco. I did not find any material relating to nicotine or tobacco caused pathologies of the brain.

#### Pulmonary Effects

Support. "Short-term use of marijuana causes bronchodilation, an alteration in ventilatory control, and a substantial increase in end-expired carbon monoxide. Long-term use produces tachyphylaxis and airflow obstruction, and potentiates [increases the effect of] tobacco in causing airway hyperreactivity. Marijuana smoking appears to have its major impact on the large airways, in contrast to tobacco smoking, which primarily affects the peripheral airways and alveolated regions. Bronchoscopic studies of the mucosa of marijuana smokers have revealed abnormalities such as loss of cilia, basal cell and goblet cell hyperplasia, squamous metaplasia, and inflammation."<sup>97</sup>

I found no information to dispute these findings.

Tobacco. Dr. C. Everett Coop, the Surgeon General, estimated "that 80 and 90 percent of chronic lung disease in the country is directly attributed to cigarette smoking..."<sup>98</sup>

Alcohol. "Chronic obstructive pulmonary disease is common among males who abuse ethanol and especially among those who smoke. Until recently chronic alcohol abuse has been a disease limited to males, most of whom also smoke; thus the finding of an association between chronic obstructive lung disease and alcohol abuse would not be particularly surprising. Other pulmonary problems are also common in alcoholics....With advanced liver disease, cyanosis, hyper-ventilation, and hypoxia due to pulmonary arteriovenous fistula are a common occurrence."<sup>99</sup>

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<sup>97</sup>Donald P. Tashkin, Henry Gong, Jr. and Suzanne E. G. Fligiel, "How the Lungs are Affected by Marijuana Smoking," The Journal of Respiratory Diseases, Vol. 8, No. 11, November 1987, p. 87.

<sup>98</sup>"The Chronology of U.S. Warning Against Cigarettes," World Health, October 1984.

<sup>99</sup>Van Thiel, "Effects of Ethanol Upon Organ Systems," in Medical and Social Aspects of Alcohol Abuse, pp. 110-111.

### Cardiovascular Effects

Support. "Marijuana appears to intensify the effects of the sympathetic nervous system on the heart, an undesirable consequence in patients with coronary artery disease and in those susceptible to arrhythmias. Many of the undesirable effects of marijuana on the cardiovascular system seem to become less severe following chronic exposure."<sup>100</sup>

Other Considerations. The Institute of Medicine summarized their findings on marijuana's effects on the cardiovascular system with the following: "The smoking of marijuana causes changes in the heart and circulation that are characteristic of stress. But there is no evidence to indicate that it exerts a permanently deleterious effect on the normal cardiovascular system...Evidence abounds that marijuana increased the work of the heart, usually by increasing heart rate, and in some persons by increasing blood pressure. This increase in workload poses a threat to patients with hypertension, cerebrovascular disease, and coronary atherosclerosis."

Alcohol. "The cardiovascular effects of alcohol are minimal but, under certain circumstances, may hasten death. ....Even lethal quantities of alcohol do not significantly impair myocardial function; the heart usually continues to contract for some time after respiratory movements have stopped."<sup>101</sup>

Tobacco. A Surgeon General's report states "It has long been known that nicotine elevates blood pressure and heart rate and may increase the onset of angina pectoris attacks. ....The effects of carbon monoxide in reducing the oxygen-carrying capacity of the blood are well known."<sup>102</sup>

- 12) Other psychological reactions to marijuana include loss of memory, anxiety, panic, paranoia, psychosis, psychological dependence, and impairment in thinking, reading comprehension, verbal and arithmetic problem solving, and perception of distance and time.

Note. See related information above, sections (a)(4) and (8).

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<sup>100</sup>Marijuana and Health, p. 72.

<sup>101</sup>Frederick G. Hofman, A Handbook on Drug and Alcohol Abuse: The Biomedical Aspects, 2nd ed. rev., New York, Oxford University Press, 1983, pp. 103-104.

<sup>102</sup>The Health Consequences of Smoking, 1981, o. 46.

Support. Dr. Ronald C. Bloodworth, Clinical Director at the Psychiatric Institute of Atlanta, reported that "...Many heavy users suffer from distorted emotional responses, disordered thinking, and loss of memory and motivation." Dr. Bloodworth also reported that there is enough evidence to confirm that psychologic dependence is common among marijuana users and that physical dependence can also occur.<sup>103</sup>

Other studies concur with Dr. Bloodworth's findings: "...cannabis intoxication...impairs judgments of distance and time, memory for recent events, ability to learn new information, and physical coordination,"<sup>104</sup> and, "...several studies have shown that marijuana intoxication impairs driving, flying and other complex skilled activities. Many elements of effective psychomotor performance are worsened by the drug because of decrements in recent memory, tracking performance, glare recovery, motor coordination, depth perception, time sense, and peripheral vision."<sup>105</sup>

"Under the influence of moderate doses of the drug, most investigators report that subjects consistently overestimate the amount of time that has elapsed. Thus, under the influence of marijuana, a given event is reported to last longer than it actually does last."<sup>106</sup>

"Marijuana's popularity notwithstanding, a surprisingly high proportion of users report reactions that they regard as unpleasant or undesirable. For example, 33 percent of regular users reported that while intoxicated they occasionally experienced such symptoms as acute panic, paranoid reaction, hallucinations, and unpleasant distortions in body image."<sup>107</sup>

Another study reported that "16 percent of regular users reported anxiety, fearfulness, confusion, dependency, or aggressive urges as a usual occurrence. Acute paranoic reactions under controlled conditions has also been reported."<sup>108</sup>

"Cannabis psychosis refers to a chronic psychotic condition (out of contact with reality) reportedly seen in heavy marijuana users, but extending

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<sup>103</sup>Jones, "On Marijuana Reconsidered," p. 4.

<sup>104</sup>Marijuana Research Findings: 1980, page 67.

<sup>105</sup>Ibid, p. 71.

<sup>106</sup>Marijuana and Health, p. 116.

<sup>107</sup>Ibid., p. 121.

<sup>108</sup>Ibid., pp. 122-123.

beyond the period of acute intoxication. Some authors have described a schizophrenia-like picture with delusions and hallucinations."<sup>109</sup>

"Although infrequent..psychiatric problems can emerge. Acute anxiety and panic states from use of the drug are known, especially in persons who have never used marijuana before. Acute paranoid states will occur at times in experienced smokers who have previously used the drug without untoward reaction."<sup>110</sup>

Other Considerations. "The pure chronic marijuana user is hard to find. .... Heavy marijuana users are typically either in a state of transition toward the use of other mind-altering substances, or are already multiple drug abusers who happen to believe that marijuana is producing the difficulties that require treatment. These concerns include panicky feelings, especially about changes in time sense, difficulties in sensing how other people are responding to the individual, or fears of losing control."<sup>111</sup>

Alcohol. "Ethanol has a most profound effect on the central nervous system. It acts as a depressant of neural function in a number of ways, an effect that is made obvious by ethanol's disruption of behavior. Apparent stimulatory effects--which include feelings of euphoria, talkativeness, and relief of tension--are observed after low doses of ethanol. Agressiveness can also be seen after ethanol consumption....With increasing doses of ethanol, there is a progressive reduction in motor coordination, including disturbances in gait, equilibrium, and reaction time. Learning, memory, and speech are impaired as well."<sup>112</sup> "More direct studies of the effect of ethanol on anxiety have not been conclusive; results seem to depend on the experimental design used."<sup>113</sup>

Tobacco. "Most drugs of abuse have, or have had, therapeutic uses. Nicotine is no exception....As an anxiety reducing drug, nicotine appears to diminish responses to stress and to enhance mood. It also reduces

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<sup>109</sup>Ibid., p. 124.

<sup>110</sup>Cohen, "Effects of Long Term Marijuana Use," p. 158.

<sup>111</sup>Drug Abuse and Drug Abuse Research, 1987, p. 86.

<sup>112</sup>Hunt, "Ethanol and The Central Nervous System," in Medical and Social Aspects of Alcohol Abuse, p. 155.

<sup>113</sup>Ibid., p. 136.

aggressive responses in experimental situations. Nicotine improves performances involving speed, reaction time, vigilance and concentration. Such effects are strongest in smokers deprived of cigarettes, but also occur when nicotine is administered to nonsmokers or when the nicotine dose of smokers is increased....Since nicotine (as tobacco) is so widely legally available, is inexpensive, and its doses are so easily regulated, it is a very convenient means of self-medication. These combined properties probably add to the abuse liability of tobacco, thus making treating tobacco dependence especially difficult.<sup>114</sup>

- 13) The use of even small amounts of marijuana by adults in the home subjects children present to a substantial health hazard.

Note. "Small amounts," "substantial" and "health hazard" are all undefined terms which make this finding extremely ambiguous and therefore, difficult to respond to.

Passive Smoking. The 1983 Surgeon General's report "cited 'very solid' evidence that 'passive smoking' poses a health problem to non-smokers, and especially to children. Those from smoking households have been shown to be more susceptible to respiratory diseases than those whose parents are non-smokers."<sup>115</sup> This finding is based on cigarette smoking. I did not have access to any current information on passive marijuana smoking.

- 14) Marijuana and tetrahydrocannabinols have been found by the United States Congress to possess a high potential for abuse.

Support. Marijuana is currently classified as a Schedule I drug (no medical usefulness, high potential for abuse) under Title 21, U.S. Code Section 812 (c)(10). "The removal of THC from Schedule I to Schedule II (medical usefulness, high potential for abuse) is underway."<sup>116</sup>

Alcohol. I did not locate a Congressional finding on alcohol's potential for abuse; however, the heading "alcoholics and alcoholism" in the U.S. Code index contains five pages of entries.

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<sup>114</sup>Drug Abuse and Drug Abuse Research, 1987, pp. 98-99.

<sup>115</sup>As quoted in "The Chronology of U.S. Warning," World Health, October 1984.

<sup>116</sup>Drug Abuse and Drug Abuse Research, 1987, p. 77.

Tobacco. "Taken together, data collected on the various psychometric instruments confirm that nicotine is psychoactive, is a euphoriant, and is appropriately categorized as a drug with potential to produce abuse or addictive behavior."<sup>117</sup> "When systematically compared to prototypic drugs of abuse, tobacco is similar on most usual, and all critical, points of comparison."<sup>118</sup>

(b) The legislature further finds that:

- 1) Patterns of marijuana use in the state have changed over the past decade.

Without defining the patterns of use and the type change, this statement is extremely ambiguous. I am unable to respond without presuming the author's meaning.

- 2) The daily use of marijuana in the state has increased to as high as four percent among the general population and as high as six percent among secondary school students.

Matt Felix, Coordinator, State Office of Alcoholism and Drug Abuse said that the only valid studies of drug use in Alaska of which he is aware were conducted by Dr. Bernard Segal, The Center for Alcohol and Addiction Studies, University of Alaska Anchorage. In 1982-83, surveys on the patterns of drug use in communities and schools were conducted. In 1987 Dr. Segal again conducted school surveys--the comprehensive report on his findings should be completed by mid-April. None of Dr. Segal's surveys asked about the daily use of marijuana; therefore, I am unable to confirm the figures presented in this finding.

Dr. Segal's Adolescent Drug-Taking Behavior Followup Study results for Juneau and Fairbanks have been released.<sup>119</sup> Data on lifetime experiences with marijuana, alcohol and tobacco are presented below:

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<sup>117</sup>Drug Abuse and Drug Abuse Research, 1983, p. 94.

<sup>118</sup>Drug Abuse and Drug Abuse Research, 1987, p. 94.

<sup>119</sup>Bernard Segal, "Adolescent Drug-Taking Behavior Followup Study: Juneau" (October 1987) and "Fairbanks North Star Borough School District" (Preliminary Report, January 1988), mimeographed, available from School District Superintendents.

Lifetime Experiences (used one or more times)  
Grades 7-12  
Expressed as Percent of Students Surveyed

		1987	1982/83	Change
Marijuana	Juneau	53.3	51.7	+ 1.6
	Fairbanks	47.8	40.1	+ 7.7
Alcohol	Juneau	69.1	70.1	- 1.0
	Fairbanks	73.7	65.8	+ 7.9
Tobacco (smoking)	Juneau	65*	40*	+24.7
	Fairbanks	71.1	48.5	+22.6

\*approximately--presented in graph form only

Dr. Segal notes that "What is evident is that the prevalence of marijuana has been high, and that both experimental and regular use has occurred. Experimental use (1-2 times) was highest during the past month, suggesting ongoing infrequent or experimental use. In contrast to this pattern, a large number of students have used marijuana extensively. Over 30% of those having used marijuana did so 40 or more times during their lifetime, over 20 percent did so during the past year, and slightly over 5 percent reported having used marijuana forty or more times during the past month. Overall, many students have apparently tried and continue to use marijuana, following a pattern that ranges from infrequent to what may be termed 'regular' use."<sup>120</sup>

- 3) Marijuana use in the state within both the general population and among adolescents is significantly higher than in the nation as a whole.

Support. Dr. Segal said marijuana use in Alaska continues to exceed national standards; however, he said that he believes the national estimates of marijuana use are low. He explained that Alaskans may be more willing than others to acknowledge use.<sup>121</sup>

Other Considerations. Mr. Gettman of NORML notes that "anomalies in data on the supply and consumption of marijuana in the United States suggest

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<sup>120</sup>Segal, "Adolescent Drug-Taking Behavior Followup Study: Juneau," October 1987, p. 8.

<sup>121</sup>Bernard Segal, personal communication, March 16, 1988.

that far more people use marijuana than surveys have indicated in the past. It may be that in a non-criminal atmosphere such as Alaska's people are more open with surveyors concerning personal marijuana use."<sup>122</sup> He cites a National Narcotics Intelligence Consumers Committee Report which lists "marijuana consumption in the United States as being close to 10 million pounds per year....[and] supply as being approximately 30 million pounds a year."<sup>123</sup> Mr. Gettman notes the discrepancy between demand and supply as proof of underreporting of use.

Alcohol. "In 1985, the equivalent of 4.35 gallons of absolute alcohol was sold per person over age 21 in Alaska. The U.S. average rate is 2.52 gallons per person."<sup>124</sup>

Tobacco. In 1985, the incidence of tobacco smoking among adults was 33.8 percent (40.3 percent males, 27.3 percent females) in Alaska. The U.S. average was 26.5 percent (29.5 percent males, 23.8 percent females). Of the 50 states, Alaska had the highest rate of tobacco smoking.<sup>125</sup>

- 4) There is a direct relationship between the use of marijuana at home by adults and the percentage of secondary school students who experience disciplinary and academic problems in public schools; over the last three years in the Anchorage School District, of the 230 students who have been suspended from school for possession or use of marijuana, 29 percent have indicated that marijuana is used by adults in their living environment.

Senator Fischer's office advised me that this information came from Theresa Johnson, formerly with the Anchorage REACH program and currently principal at McLaughlin Youth Center. Ms. Johnson said that these figures were self disclosed by parents as part of the in-take process at REACH. She said the

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<sup>122</sup>Gettman, personal communication, March 28, 1988.

<sup>123</sup>National Narcotics Intelligence Consumers Committee, The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986, 1987, as cited by Gettman, personal communication, March 28, 1988.

<sup>124</sup>Annual Report to the Legislature 1986, Office of Alcoholism and Drug Abuse, Alaska Department of Health and Social Services, DHSS SOADA 87-1, p. 4.

<sup>125</sup>Louise Wiseman, American Lung Association, Washington, D.C., personal communication, March 28, 1988.

figures cited in the above finding were a generalization and are unsubstantiated. Ms. Johnson indicated that they were prepared in response to an informal request--she was not aware they had been incorporated into SF 52.<sup>126</sup>

Other Considerations. This finding is based on unscientifically gathered data. No baseline statistics exist on the use of marijuana by adults in the homes of the general student population. In addition, the collection of such data would be hampered by AS 14.03.110, which prohibits the administration of surveys or questionnaires, whether anonymous or not, which inquire into private family affairs unless written permission is obtained from the student's parent or guardian.

- 5) The changing patterns of marijuana use and the relationship between marijuana use by adults and adolescents have significantly compromised the state's legitimate efforts to prevent the spread of marijuana use to adolescents and protect the health of adolescents.

Support. Dr. Segal said that a modelling effect among young adults and youth is to some degree true.<sup>127</sup> "Marijuana users tend to turn others on to its use, 25 percent within two years of first use, and 29 percent within five or more years after first marijuana use."<sup>128</sup>

"Marijuana use is a problem that frequently follows a habitual pattern within the family. ...there tended to be a correlation between the amount of marijuana used by high schoolers and the rate of tranquilizer, stimulant, and barbiturate use by the parents,....marijuana use by peers is a better predictor than drug use by parents. There appears to be an additive factor since all of those with the highest use were reported by subjects whose best friends and parents were drug users."<sup>129</sup>

Other Considerations. I am unable to substantiate all aspects of this finding. "The changing patterns of marijuana use," "the relationship between marijuana use by adults and adolescents," "significantly compromise," "legitimate efforts," and "protect the health of adolescents" are ambiguous.

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<sup>126</sup>Theresa Johnson, personal communication, March 18, 1988.

<sup>127</sup>Segal, personal communication, March 16, 1988.

- (c) The legislature further finds there is a legitimate and compelling governmental interest, based on testimonial and scientific evidence, that the public health and welfare will suffer if persons' use of marijuana even in small amounts is allowed.

The information which I have gathered in responding to the findings presented in CSSB 32(HESS) is based on only a fraction of the material which has been published on marijuana, alcohol and tobacco. In response to finding (c), I am presenting a selection of comments relating to drug use and users.

A Social Problem. Dr. Segal said that an important aspect of drug use, particularly marijuana, is that use has become reasonably normative--nonusers are now the exception--and therefore, the problem should not be dealt with punitively. He added that among youth, trying marijuana one or two times may have become part of the "rites of passage." He is concerned that the stigma attached to penalties which may be imposed on a one or two time user would do greater harm than the experimental use of marijuana. He stated that marijuana use needs to be treated "as a social problem which interrelates with the justice system rather than as a criminal problem."<sup>130</sup>

Dr. Segal's 1982-83 school survey asked students their reasons for not trying drugs or for stopping drugs. He found that "Of the reasons listed,...fear of damage to one's mind is the most frequently given reason for not trying a drug. Other important reasons are fear that drugs may hurt one's body, and fear that they may cause addiction. Just over a third responding also did not try drugs because they are illegal, and because it was not important for them to try....Reasons for cessation of taking any type of drugs parallel the pattern established for not trying drugs. Fear of damage to one's mind is primary, and friend's disapproval is the least cited reason for stopping. In all, it appears that focusing on students' concerns about the potential adverse psychological and physical consequences of taking drugs may be the most influential way to direct educational/preventional efforts."<sup>131</sup>

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<sup>128</sup>H. L. Voss and R. R. Clayton, "'Turning on' other persons to drugs," 1984, cited in Drug Abuse and Drug Abuse Research, 1987, p. 78.

<sup>129</sup>National Institute on Drug Abuse, Marijuana and Youth: Clinical Observations on Motivation and Learning, Washington, D.C., U.S. Government Printing Office, DHHS(ADM) 82-1186, 1982, p. 75.

<sup>130</sup>Segal, personal communication, March 16, 1988.

**Marijuana Use.** "By age 20, the major risk for initiation to use marijuana, tobacco, and alcohol is essentially completed. Marijuana use begins to decline by age 22.5. This pattern is similar for males and females. Marijuana use is associated with greater use of other substances, with membership in networks of marijuana users, with less participation in conventional activities, with histories of psychiatric hospitalizations, with lower self perceived psychological well being, and with participation in deviant activities."<sup>132</sup>

**Gateway Drugs.** "An incredible 81% of tobacco smokers have tried marijuana, compared with 17% of non-smokers. Further, tobacco smokers are 14 times more likely to use cocaine, amphetamines, and heroin."<sup>133</sup>

**Drug Seeking Behavior.** "The misery inflicted by some of these [alcohol-related neurological] diseases may induce people to seek relief by drinking alcohol and may, thereby, contribute to the perpetuation of alcohol consumption. A consequence becomes a cause, and a self-perpetuating circle is established. ....It has been stated simplistically that to prevent these diseases people should stop drinking alcohol. In analogy, one might suggest that marital problems can be solved by abolishing marriage or traffic accidents be prevented by abolishing cars. Drug-seeking behavior is a powerful psychological force. It is not eliminated by prohibition or the distant threat of a physical disease."<sup>134</sup>

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I hope this information is useful to you. If you have any questions, please contact this agency.

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<sup>131</sup>Bernard Segal et al, Patterns of Drug Use: School Survey, Center for Alcohol and Addiction Studies, University of Alaska Anchorage, 1983, p. 138.

<sup>132</sup>D. B. Kandel, 1984, cited in Drug Abuse and Drug Abuse Research, 1987, p. 78.

<sup>133</sup>Marijuana: A Second Look at Health Hazards, The American Lung Association, No. 4836, August 1985.

<sup>134</sup>Gerhard Freund, "Neurologic Diseases Associated with Chronic Alcohol Abuse," in Medical and Social Aspects of Alcohol Abuse, 1983, p. 182.

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February 22, 1989

Senator Jan Falks  
Chairman  
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Dear Senator Falks:

As a representative of the Alaska PTA, I am contacting you with regard to SB 18, "An act relating to the recriminalization of marijuana". Please enter this testimony into the Committee's official record on this legislation.

With a current membership of 16,252, Alaska PTA is the largest educational group concerned with the health, education and juvenile justice of Alaska's youth. We want you to be aware of Alaska PTA's stand on this issue. At our 1987 convention, we unanimously passed a resolution recommending the recriminalization of marijuana. On April 28, at our 1988 convention in Anchorage, we reaffirmed the recriminalization of marijuana as a top legislative priority.

The state of Alaska currently sends a harmful and mixed message to the youth of our state by having a law which allows the use and possession of marijuana in the home. We believe that the passage of SB 18 is critical to send an anti-drug message to Alaska's youth. Further, we know that federal funds for drug abuse programs have been placed in jeopardy because of this liberal drug law. These funds are essential to Alaska's many drug and alcohol abuse programs.

We urgently request that you, as chairman of this committee, do all possible to bring SB 18 to the floor for debate and to be voted on and passed in this session.

Sincerely,

Eirita J. Magoffin  
Health/Safety Commission, Chm.

cc: Sen. Mike Szymanski  
Sen. Rick Halford  
Sen. Drue Pearce  
Sen. Pat Rodey



# Alaskans for Drug-Free Youth

Contact: Sandy Spargo  
586-2392 (b)  
586-6122 (h)  
Date : February 16, 1989

FOR IMMEDIATE RELEASE

An Affiliate Member of the National Federation of Parents for Drug-Free Youth.

DRUG ADVISOR FOR THE NATIONAL FOOTBALL LEAGUE  
TO TESTIFY FOR THE RECRIMINALIZATION OF MARIJUANA

*Dr. Forest Tennant will be in Juneau on February 21 to address the Senate Judiciary Committee on the health hazards of marijuana. The hearing pertains to Senate Bill 18, which asks for the recriminalization of marijuana. This hearing will take place at 1:30 p.m. in the Butrovich Room of the Capitol Building.*

*Dr. Tennant is well known for pioneering research on drug dependence. In 1974, he founded and currently directs Community Health Projects, Inc., a California-based non-profit corporation with over two dozen medical clinics in 14 California cities. Community Health Projects also operates a sophisticated clinical research unit in West Covina, which is dedicated to the study of neurochemical diseases and drug dependence.*

*Dr. Tennant currently serves as drug advisor for the National Football League.*

*He also serves as drug consultant for the California Department of Justice, the California Highway Patrol, the Los Angeles Dodgers, and is an Associate Professor at UCLA.*

*He has served as an expert witness in many trials, including such notables as the physicians of Howard Hughes and Elvis Presley. He has published over 150 scientific articles and books about neurochemistry and drug dependence.*

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by the legal custodian of the child to withhold treatment other than appropriate nutrition, hydration, or medication, would not constitute medical neglect or the withholding of medically indicated treatment as defined" by law.

The case of 7-month-old Lance Tyler Steinhaus, often referred to as "the Minnesota Baby Doe," has drawn considerable attention because it is viewed as the first major test of the congressionally

*Continued on page 38*

disagreement over welfare-related provisions of the reconciliation bill had bogged down the deliberations and there remained a chance that the measure would never win final congressional approval or that it could be vetoed by President Reagan.

Congressional staffers said, however, that even if legislators are unable to agree on a reconciliation bill, they probably will attach physician fee legislation to some other measure that must be approved before adjournment. These physician fee provisions might be those already worked out by the reconciliation conferees or they might be some other provision.

**INCREASES ARE NOW LARGER** than had been expected because the Labor Dept. altered some of the statistics that go into the calculation of the Medicare Economic Index (MEI). The MEI in effect determines the size of the Medicare fee increase each year and at the time Congress was designing a physician fee proposal, legislators believed the MEI would increase by 3.2% next year. Instead, when the new statistics were plugged into the MEI formula, the projected increase jumped to 7%.

*Continued on page 42*



Dennis L. Breo/AMN

**Forest Tennant, MD**

*Advice to parents: Go to church, use discipline, teach kids not to smoke.*

## NFL medical adviser fights relentlessly against drugs

He is running a little late, but then Forest Searls Tennant, MD, one of medicine's leading experts in the fight against drug abuse, is never early. His crusade against drugs has him on the road giving speeches every third day or so, and he allows exactly 33 minutes for the 30-minute drive to the airport. There is no time to waste.

This day, dressed in one of his many varieties of a gray suit with striped tie, he arrives at his storefront office in West Covina, Calif., wearing a perplexed look: "They've sent me an 18-year-old boy hooked on coke [cocaine]," he explains. "The parents are pleading with me to get the kid clean, and do you know what the kid says his major motivation is? His parents have had to promise to buy him a new \$60,000 sports car to persuade him to make the effort. Brother!

"This is the drug problem in a nutshell: People don't know how to handle leisure time, how to handle boredom. People have forgotten how to entertain them-

selves, how to talk to each other. What's left are drugs."

Dr. Tennant, 45, a straight arrow, worked his way through the U. of Kansas Medical Center by selling fine china and crystal door-to-door. Rejection was the name of the game, but he notes, "How good a salesman was I? Well, I paid my way through medical school by door-to-door selling. In fact, I still have some of that money left." He grew up on a farm near Dodge City, Kan., where during the Depression his parents survived by selling Bibles door-to-door throughout the Midwest. He recalls, "My dad told me, 'Son, forget about farming. Learn how to sell; that way you'll always have food on the table.'"

Dr. Tennant now faces the hardest sell of his life: Convincing American business executives, football players, and physicians to take a leadership role in combating what he calls the "nation's top public-health problem — the abuse of drugs."

*Continued on page 21*

## Woman charged with prenatal neglect

A woman whose 5-week-old baby died as an alleged result of her drug use,

The infant's autopsy report shows that death was the result of fetal distress syn-

cutors allege, Stewart began to experi-

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'I think that anybody who holds life in his hands — whether a pilot or a worker in a nuclear plant or a bus driver or a surgeon — should have to prove that he is free of drugs,' Dr. Tennant says.

## NFL adviser seeks widespread drug tests

Continued from page 1

Dr. Tennant came into national prominence last July when National Football League (NFL) Commissioner Pete Rozelle named him the league's official drug adviser. But his experience with drug abuse dates back to 1968 when, as a young military surgeon serving in West Germany, he was asked by his commanding colonel to investigate the Army's "hash" problem. "Hell," Dr. Tennant recalls, "at the time, I thought he was talking about potatoes."

The young physician soon learned otherwise, and upon his return in 1972 to the United States and a research position at U of California Los Angeles, he decided to do his doctoral thesis in public health administration on the question of child

diction, and, not coincidentally, his "preaching" (as he puts it) on the lecture circuit that have catapulted Dr. Tennant into the forefront of this nation's renewed war on drugs, a war now being extravagantly reported by the news media. He is also a drug consultant for the Los Angeles Dodgers, the California Dept. of Justice and the California Highway Patrol, and has testified as an expert witness in the drug-related deaths of such celebrities as Elvis Presley, Howard Hughes, and Freddie Prinze.

"Oh, it's great for the Reagans to go on national TV and say we have a problem on our hands," Dr. Tennant said. "But the real problem is this: Who's going to do the work to get all these people off drugs? In this entire country, there are only

His face grimaces and his voice growls. Returning to his seat, he leans forward and says in a conspiratorial whisper:

"You know, this is a \$40-billion business, and a lot of people don't like the kind of things I've been saying. Oh, they've threatened my life and they've offered to buy me off. They're very sophisticated, these people. Their attorneys will approach me and suggest that I use terms like 'recreational' drugs instead of 'killer' drugs. I could retire with the money I've been offered to shut up.

"But when I got into medicine, we were taught that being a doctor meant having a calling. It was intended that you should be a little bit like a preacher. And that's how I view my mission. I have a

est who will be unable to compete economically. Read my brochure about post-drug impairment syndrome, or PDIS. This is truly frightening.

"Various estimates suggest that between three and five million young Americans between 18 and 30 have PDIS, or a permanent chemical imbalance of the brain. This is a condition similar to mental retardation or Alzheimer's disease, and these young people share certain characteristics — they are unable to consistently hold a job, to maintain personal relationships, to achieve financial stability, handle stress, or to remain in one location for very long, and they have fits of temper, a bland personality, and are often anti-social. The people most likely to develop

administration on the question of child hood antecedents of addiction.

"I spent about a half-million of the public's tax dollars," he says, "to learn what common sense could have told me. The people who get addicted to hard drugs share three childhood characteristics — they started smoking before they were 15; they were never taken to church; and they were seldom spanked. So today, I tell the parents' groups I address to do three things: 'Tell your kids not to smoke, take them to church, and teach them discipline.'"

Back in 1972, he also started a methadone clinic to treat heroin addicts, but UCLA soon moved him off its tony campus at Westwood. "Heroin addicts are not particularly pleasant people," Dr. Tennant says, "and UCLA didn't want them on campus."

The young physician rented space in a building in West Covina, Calif. (one hour from Los Angeles and 30 minutes from Ontario, which has a major airport), and resumed his work with heroin addicts. Today, he owns the building, which serves as headquarters of Community Health Projects Inc., a non-profit organization of 26 clinics in 15 California communities.

The network provides general medical care, but specializes in treating substance abuse. Many of the patients are hard-core addicts, dead-end cases who have reached the end of the road by the time they run into Dr. Tennant and his teachings. "We probably treat 2,000 addicts a week," he says, "and the caseload turns over several times during the year. I'd say that over the past 10 years we've treated 50,000 addicts."

IT IS THIS CLINICAL experience, plus his research into the biochemistry of ad-

In this entire country, there are only about a half-dozen physicians like me who were in the field back in the 1940s and have stayed in it throughout. The nation's physicians, including the team physicians in the NFL, need a crash course in diagnosing and treating drug abuse. We have very few experts on preventing drug abuse.

"Right now, the charge is being led by the parents. My hope is that corporate America will take up the challenge next. And as for athletes, well, the NFL is actually a shining example. Pete Rozelle and the NFL are out in front of American business and American medicine in trying to come to grips with the problem.

"I'll tell you why Americans are finally getting mad about the drug problem. In the 1960s and 1970s, there was no cocaine problem and the active ingredient in marijuana — tetrahydrocannabinol (THC) — was only 1% or 2%. Beginning about 1980, we began to see high-potency marijuana with THC as high as 5-10-15%. And parents and employers began for the first time to see young people with real impairments.

"By 1980, I thought that we had the drug problem under control. I was beginning to dismantle some of my methadone clinics for the treatment of heroin addiction, and we were making great strides in treating alcoholism. Then along came cocaine and the stronger marijuana. People will tolerate a certain amount of drug abuse, just like they'll tolerate a certain amount of smog or a certain amount of cost for medical care. But apparently, when our addiction rate climbs above 5% and reaches 8% and starts inching toward 10%, people will get mad."

THE PHYSICIAN PACES the room as he talks and stabs the air to make his points.

calling

"I stay on the move. You'll notice that I park my car in back and come in the back way. No sense in taking any chances. Tomorrow, I give a speech up in San Francisco to a parents group and I'll stay in a different hotel than where the meeting is being held. And I've told them I'll need guards. Anytime you say something bad about marijuana in California, you need security. That's because marijuana is the leading cash crop in Northern California, and a lot of people are making a bundle. This new high-potency marijuana that is crippling our kids is being grown right in our own backyard — Northern California and the Sun Belt states like Georgia and Mississippi. The pushers don't like what I'm saying. About three years ago in San Diego, they broke into my hotel room at night, but I escaped out the back door." He chuckles. "I've been too fast for them.

"Crime cannot flourish unless it has the support of society," Dr. Tennant continues, "and the drug industry has bought people off, everybody from politicians to the police to the bureaucrats who run the government agencies. In fact, when you see the market being flooded with all these new cheap products, things like black to heroin and crack and designer drugs [synthetic compounds] you have to wonder who's behind it. There's no one brain behind it all, and there's a variety of motives — some do it for the money, some because they figure if they don't take the money, somebody else will, and some for malignant reasons. Personally, I think that there's a foreign power behind it, maybe Russia, maybe the Third World.

"FORGET FOOTBALL. The real danger is that America is raising a generation of chemical cripples — our best and bright-

PDIS are those who abuse illegal drugs before they are 15, and the drugs are usually high-potency marijuana, plus at least one other illegal drug like cocaine, phenylclidine (PCP), amphetamines, LSD, or one of the synthetic designer drugs. This problem has just surfaced in the last five years, and I have to wonder what's behind it."

Now, this is Southern California, but certainly, he is asked, "You're not suggesting that a foreign power may be behind America's new drug problem?" He says he is.

"The kind of drug abuse we're seeing in this country is a greater threat to America than any form of terrorism. S.c.e. I know Russia has their own problem with alcoholism, but that may make them feel like they need something new to get the edge on us. I think that there may be a foreign power involved in causing our drug problem, but I won't say which I have too many guards as it is."

The physician adds, "I don't know how we'll ever get at the drug problem in the ghetto and in the schools, but I'm hopeful that we can make a beginning in the workplace. Business — and football is just another business — is going to have to say: 'If you want a job, you have to be clean and you have to prove it.' This means regular mandatory urine tests, because there is no other guarantee that a person is truly off drugs. Business cannot be concerned with civil liberties on this issue, because the business of business is making profit, and they're going to have to accept the court challenges to get the druggies off the job. I've supervised drug testing for blue collar industries where the drug rate is about 50%. I'm talking about Big Auto and Big Oil, and you can't compete with that rate of drug abuse."

Continued on next page

# Drug test call issued to corporate U.S.

Continued from preceding page

Dr. Tennant has a typically busy 15-hour day in front of him, including driving this evening to Los Angeles for a meeting with the brass of the LA Dodgers. The next day he will rise early to return to LA to testify on AIDS and intravenous drug abuse ("Perhaps the greatest threat to our national health; the IV drug user may be the person who brings AIDS into the heterosexual population.") and from there fly to San Francisco for a speech. Today he also has some patients to see.

NEVERTHELESS, today's lunch will be extravagantly long — the regular 1½-hour weekly luncheon meeting of the Rotary Club. Dr. Tennant, a former mayor and current councilman of West Covina, does not like to miss his Rotary meetings, which begin with the Pledge of Allegiance and the singing of "God Bless America." Today's speaker, a California assemblyman, tells the group of community leaders that the nation's leading problem is the crisis in liability insurance. Afterwards in his brown Cadillac Eldorado (equipped with a phone), Dr. Tennant sips on a soft drink ("my vice is drinking all these terrible sugarless, caffeineless soda pops") and lays out the agenda he would follow if he were the U.S. "drug czar":

"Oh, we know how to stop the drug problem. First, spray the domestic marijuana crops and cut off foreign aid to the nations supplying cocaine, marijuana, and heroin. Then, persuade business to begin pre-employment screenings for drugs and upon reasonable cause to examine current employees, too. The motto of business has got to be: 'Be clean and prove it!' We know how to solve the problem, but it will never happen. There's just too much money involved.

"As for me, I'm still trying to sell people. But if selling fails, well, then it's time to call out the steamroller. I think that anybody who holds life in his hands — whether a pilot or a worker in a nuclear plant or a bus driver or a surgeon — should have to prove that he is free of

and then setting up shop in the locker room to discuss the effects of drug abuse.

Dr. Tennant explains: "Recognizing drug abuse is as simple as looking into someone's eyes. A player under the influence will show eye changes in one or more of five areas — pupil size will either constrict or dilate; the pupil will not react to light; the eyes will be unable to converge (strabismus); the eyes will be unable to track (nystagmus); and the corneal reflex will be slowed.

"Take marijuana, which I think is the leading cause of industrial accidents and ruined athletic careers. The marijuana user gets a high for maybe two or three hours, but metabolites of the drug are fat soluble and stay in the body's tissues for five to eight days, and traces can be found in the urine up to 30 days after use.

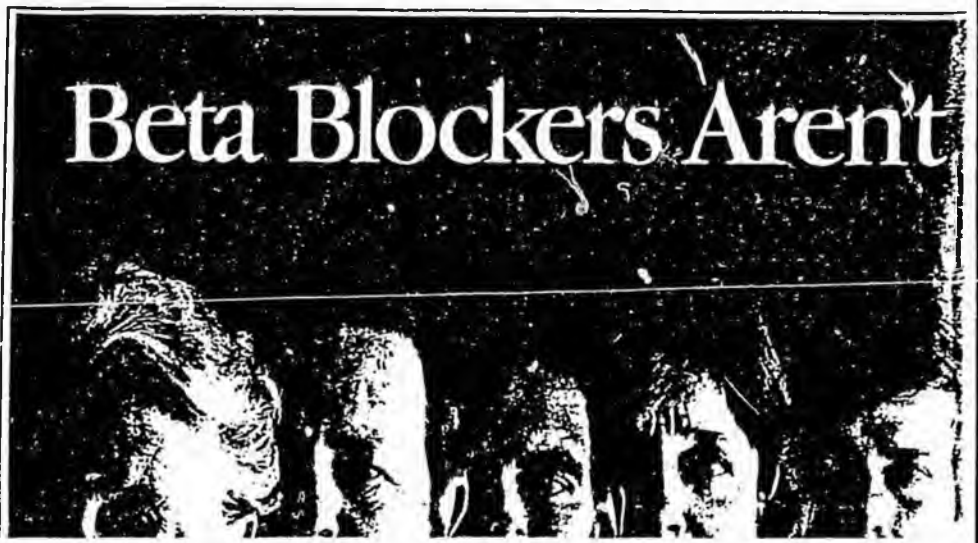
A person who has been using marijuana will have pupils that do not respond to light — all you need is a flashlight to shine into his eyes to find out; his corneal reflexes will be shot — you can stick a swab of cotton in his eye and he will not blink it out, and his eyes will be unable to either converge or track — the eye muscles will actually vibrate and bounce, and that's why we used to call it the 'barbiturate bounce.'

"Now, if a player smokes a joint on Monday night, his eyes will still show some of these changes the next Tuesday or Wednesday. Now, imagine an end trying to catch a sideline pass, a maneuver that may require the eye to change pupil size 50 times or more while the ball is in the air, and trying to do this while his pupil is not reacting properly and his eyes

are also having trouble tracking. You going to have a dropped ball.

"The same thing happens on the road and that's why marijuana is the fear cause of industrial accidents. I happen know that many of our accidents involving autos, buses, oil rigs, planes, and roads involve marijuana. Pilots who have been tested on marijuana cannot hours later maneuver successfully on simulator.

"To check the eyes, all the physician needs is a little education and a pupometer. The normal adult pupil is 2.0 to 6.5 millimeters, depending upon light. Under the influence of narcotics like heroin, the pupil will abnormally constrict; under the influence of stimulants like amphetamines and cocaine, the pupil will abnormally dilate. All the physician has to do to test is place the pupometer next to the player's eyes. And a key indicator for the presence of all ill-



## Beta Blockers Aren't

should have to prove that he is free of drugs. And the day is coming when the public will be so mad that it will insist upon urine tests. Yes, I believe that some hospital boards will begin to require that their surgeons submit to drug tests. When human lives are at stake, a little totalitarianism is not such a bad thing.

"As for football, it is important because athletes are important role models. The drug rate in the entertainment industry is probably 25%, but people do not look upon entertainers and politicians as role models the same way they do athletes. The football commissioner has to be given unilateral authority to run the drug-testing program, and an arbitrator will rule on this key issue by the end of October. I'd say it's 50/50 whether we'll win or not.

"If the arbitrator supports the commissioner's position, we're prepared to put into place a plan that calls for at least two unscheduled mandatory urine tests. Beyond that, we'll eventually move to game-day tests for performance-enhancing drugs like amphetamines, and we'll try to figure out a way to test for steroids. If we lose, well, we'll still have our educational effort and our right to test with probable cause. And the issue will come up again in next year's collective-bargaining negotiations. And we have a fallback position this year on the NFL drug issue, too, but I can't discuss it now."

BACK AT his clinic, Dr. Tennant drops in to see his wife, Miriam, who runs "Veract Inc.," the educational arm of Community Health Projects Inc. At Dr. Tennant oversees the promotion of the various educational brochures, booklets, and videos developed by Dr. Tennant, all reflecting his ongoing clinical work and research. One video, "Don't Drop the Ball, Again," features Dr. Tennant, football under his arm, walking across the gridiron

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## New concepts in science of fight against drugs

In leading the war against drugs, Dr. Tennant is rewriting the vocabulary of the field. His two new key concepts are "biologic dependence," explaining the plasma life of a drug and its relation to addiction; and "negative feedback systems," explaining how addiction develops. He elaborates:

• **Biologic dependence.** "We use a strictly medical definition of drug addiction. A person is addicted if he always has traces of the drug or its metabolites in his system and if he replenishes at about the end of the plasma life of the drug. This kind of biologic dependence is usually both physical and psychological.

"The person addicted to drugs will always keep a high enough concentration of the drug in his blood to saturate receptor sites in key target areas of the brain.

When the blood concentration drops and target areas become unsaturated, the addict either replenishes or goes into withdrawal.

"The total or partial conversion of some drugs of abuse to metabolites, or secondary drugs, may be the most important part of their effects. For example, heroin changes to morphine in blood after two or three minutes, has a plasma life of four to six hours, and is found in the urine as morphine; cocaine changes to benzoylecgonine in blood, stays in the plasma for three to five hours, and is found in urine in this form. The THC in marijuana is active for only about two hours, producing euphoria, but its metabolites, 11-hydroxyl THC and carboxy THC, are fat-soluble, non-euphoric, and stay in plasma for five to eight days, being

found in urine for up to 30 days; and nicotine is active for only 20 to 40 minutes, but its metabolite, cotinine, lasts about 18 hours, which explains why a nicotine addict can sleep all night and not need a cigarette. The plasma life of amphetamines is about four to six hours and of PCP about 12 to 36 hours. Plasma life explains why and when people reuse their illegal drugs."

• **Negative feedback systems.** "Drugs of abuse produce negative feedback, which leads to tolerance and dependence and which promotes relapse. Negative feedback is the phenomenon of taking into the body a chemical substance that mimics a naturally produced substance, causing the body to stop producing the natural substance.

"THE NATURAL SUBSTANCES are

neurotransmitters, which carry electrical impulses between the neurons, or brain cells; and neurohormones, the chemicals made in a gland, usually the pituitary gland, and sent out by the brain to act on the central nervous system and other glands to maintain equilibrium in the body. The neurohormones are responsible for relief of pain and stress and for mental stability.

"Some neurotransmitters implicated in drug dependence are dopamine, acetylcholine, serotonin, norepinephrine, and gamma amino butyric acid [GABA]. Some important neurohormones implicated in drug dependence are the endorphins, the adrenal stimulating [adrenocorticotropic] hormone [ACTH], prolactin, follicle-stimulating [ovary, testicle] hormone [FSH], and vasopressin.

"It is not precisely known which natural neurotransmitters and neurohormones are affected by drugs of abuse, but we have some clues. It appears that amphetamines affect dopamine and possibly norepinephrine; that heroin affects endorphins, ACTH, and FSH; that cocaine affects norepinephrine, dopamine, and serotonin; that marijuana affects norepinephrine, endorphins, FSH, and luteinizing hormone [LH]; that PCP possibly affects dopamine, endorphins, and serotonin; and that nicotine possibly affects acetylcholine. We are not certain about how alcohol and caffeine may affect certain natural substances.

"What is happening is this: The drugs of abuse mimic the body's natural chemicals, deplete these natural chemicals, and then the person becomes addicted and must take drugs to substitute for the depleted natural chemicals. Part of the problem is probably genetic, because any individual may be born with either a deficiency or an excess of either brain receptors or neurotransmitters at the receptor site. Thus, there are six possible abnormal genetic patterns that may be present at birth for any of the hundreds of natural body chemicals.

"This theory of negative feedback may explain many puzzles, including why some persons develop tremendous toler-

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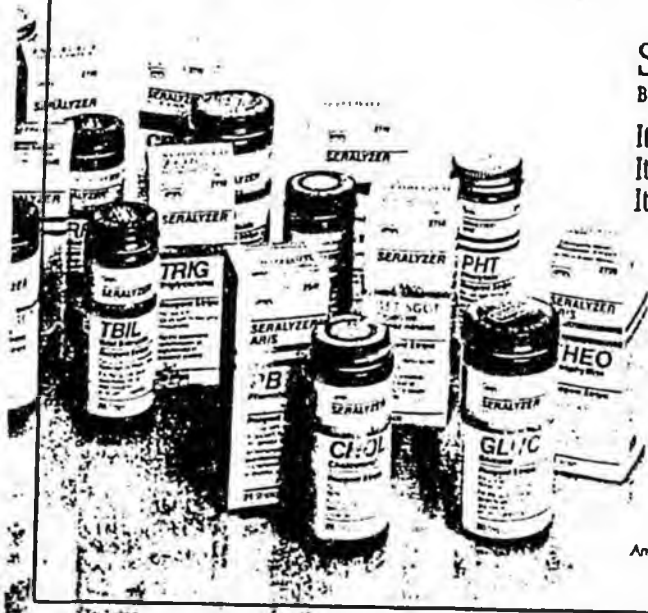
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some persons develop tremendous tolerance to high dosages of drugs that would kill other people (the drug simply substitutes for deficient transmitters), urine testing is essential (the person with neurotransmitter deficiency will try to substitute an external drug sooner or later), and early identification and prevention of chronic drug use is so essential (an individual with a neurotransmitter deficiency may never want to be drug free)."

## Drug testing

Continued from preceding page  
Francisco the next afternoon, but he will try to slip in some time at home with his wife. "He keeps the place disgustingly neat," she observes. Though the couple have trouble catching up with each other, they recently celebrated their 20th wedding anniversary. Like her husband, Mrs. Tennant is no stranger to long term commitments. Among other things, her car is a vintage Chevrolet Monte Carlo Super Sport red convertible, which she had before she met her husband.

Dr. Tennant will definitely begin the next morning with a run ("I don't jog, I run, as fast as I can. When I was in high school, I did a mile in four minutes 20 seconds, but, hell, in Kansas there was nothing to do but chase jackrabbits.") Fit and trim at 45, he looks forward to visiting with the Dodgers and such former greats as pitching star Sandy Kousser (in for the team's annual winter meeting), but he notes, "You know I've never been to a professional football game and I've never sat still for an entire baseball game. I'm just too jumpy."

He is off. The old salesman still has a few more doors on which to knock.  
—Dennis L. Broc

FEB 08 1989

# FISCAL NOTE

**REQUEST:**

Revision Date: \_\_\_\_\_  
Title: "An Act relating to marijuana;  
and providing for an effective date."  
Sponsor: Fischer, et. al.  
Requestor: \_\_\_\_\_

Agency Affected: Health & Social Services  
BRU: Alcohol and Drug Abuse Services  
Components: Administration

**EXPENDITURES/REVENUES: (Thousands of Dollars)**

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
<b>TOTAL OPERATING</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CAPITAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>REVENUE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**FUNDING: (Thousands of Dollars)**

GENERAL FUND	0	0	0	0	0	0
FEDERAL FUNDS						
OTHER						
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**POSITIONS:**

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS : (Attach a separate page if necessary)

Prepared by: <sup>for</sup> Matthew C. Felix Phone: 586-6201  
Division: Office of Alcoholism and Drug Abuse Date: 2/2/89  
Approved by Commissioner: Myra M. Munson Date: 2/1/89  
Agency: Health & Social Services

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

BILL NO: SB 18

DATE: February 2, 1989

TITLE: "An Act relating to marijuana; and providing for an effective date."

CONTACT: Gayle A. Horetski  
Deputy Commissioner  
465-4322

DEPARTMENT OF PUBLIC SAFETY

This bill makes possession of any amount of marijuana (less than one-half pound) in any place a class B misdemeanor offense. A class B misdemeanor carries a maximum penalty of 90 days in jail and a \$1,000 fine.

The limited resources and staffing level of the Alaska State Troopers drug enforcement units requires that these officers concentrate their enforcement efforts on drug suppliers and dealers, leaving little time to actively pursue those who merely possess small amounts of marijuana. Suppliers and dealers usually have substantial amounts of marijuana which are destined for sale in small amounts to individuals. It is more efficient to seize substantial amounts of the drug at its source than to seize small amounts from individuals.

Since possession of any amount of marijuana in public, on a school ground, by a minor, or while operating a motor vehicle is presently a crime, the trooper on routine patrol or working traffic enforcement has the power to arrest and charge when confronted with these situations.

Although passage of this legislation may well deter some people from possessing small amounts of marijuana in their homes (because it would be illegal), the enforcement efforts of the Alaska State Troopers would not change much from its present focus on suppliers and dealers. Passage of this legislation would bring Alaska's marijuana laws in line with federal laws and those in other states. Because of the Alaska Supreme Court's decision in Ravin v. State, 537 P. 2d 494 (1975), the new penalty provisions contained in this bill will almost certainly be subject to constitutional challenge, probably resulting in protracted litigation.

The Department of Public Safety is neutral on this legislation.

  
Arthur English  
Commissioner

STATE OF ALASKA  
1989 LEGISLATIVE SESSION

BILL VERSION: SB 18  
PUBLISH DATE: \_\_\_\_\_

FISCAL NOTE

REQUEST:

Revision Date: \_\_\_\_\_  
Title: Relating to marijuana

Agency Affected: Public Safety  
BRU: Alaska State Troopers

Sponsor: Senator Fischer  
Requestor: Senator Fischer

Component: Detachments, C.I.B.  
and V.P.S.O.

EXPENDITURES/REVENUES: (Thousands of Dollars) (Inflation not included)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-

CAPITAL	-0-	-0-	-0-	-0-	-0-	-0-
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REVENUE	-0-	-0-	-0-	-0-	-0-	-0-
---------	-----	-----	-----	-----	-----	-----

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	-0-	-0-	-0-	-0-	-0-
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: (Attach a separate page if necessary)

It is anticipated that the majority of new criminal cases under this bill would arise from situations where a State Trooper contacts a person on another matter, and the use or possession of marijuana is discovered during the contact. For this reason, we believe the fiscal impact of these additional cases can be absorbed within existing resources.

Prepared by: Francis C. Allan  
Division: Alaska State Troopers

Phone: 269-5691  
Date: 2/1/89

Approved by Commissioner: Arthur English  
Agency: Department of Public Safety

Date: 2/1/89

FISCAL NOTE FEB 07 1989

REQUEST:

Revision Date: \_\_\_\_\_  
Title: "An Act relating to marijuana..."

Agency Affected: Department of Administration  
BRU: Public Defender Agency

Sponsor: Fischer, Faiks, Kelly, Jones,  
Requestor: Sturculewski, Pearce  
and Binkley

Components: Third and Fourth Judicial  
Districts

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES		141.2	146.8	152.7	158.9	165.2
TRAVEL		-0-	-0-	-0-	-0-	-0-
CONTRACTUAL		27.5	10.4	10.8	11.2	11.6
SUPPLIES		2.0	2.1	2.2	2.3	2.4
EQUIPMENT		3.0	-0-	-0-	-0-	-0-
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	173.7	159.3	165.7	172.3	179.2
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	173.7	159.3	165.7	172.3	179.2
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	173.7	159.3	165.7	172.3	179.2

POSITIONS:

FULL-TIME	-0-	2.0	2.0	2.0	2.0	2.0
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

(See attached)

Prepared by: John B. Salem, Acting Public Defender  
Division: Public Defender Agency

Phone: 279-7541  
Date: 2/3/89

Approved by Commissioner: John Andrews  
Agency: Department of Administration

Date: 2/6/89

Distrib: (by preparer):  
Legislative Finance  
Legislative Sponsor  
Requestor  
Office of Management and Budget  
Impacted Agency(ies)

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

This "marijuana bill" essentially eliminates the protected use of small amounts of marijuana in the home by individual citizens as enunciated by the Alaska Supreme Court in Ravin v. State in 1975. This bill reinstates the prosecution of marijuana possession in any amount possessed at any location. It would likely result in a significant number of new cases for the Department of Law, the Public Defender Agency and the Office of Public Advocacy. The Department of Law has submitted a fiscal note requesting 2.5 new attorney positions. The Public Defender Agency feels it would need an Attorney III in Anchorage and an Attorney III in Fairbanks for a total of 173.7 to respond adequately to these prosecutions. It should be noted that at the early stages of enactment of this bill there will be substantial litigation over its constitutionality, which will necessarily include the use of expert witnesses at substantial expense.

## BUDGET ANALYSIS

100	Attorney III - Anchorage	66.4	
	Attorney III - Fairbanks	74.8	141.2
200	Travel		-0-
300	Contractual - Space, phone, etc.	10.0	
	Litigation, one time	17.5	27.5
400	Supplies - Law Library, office, etc.		2.0
500	Equipment - One time		<u>3.0</u>
		TOTAL	173.7

Position Title Attorney III		No. of Positions 1	Range/Step 22/A	Barg. Unit PX	
Time Status PFT	Staff Months 12	Location Anchorage		Election District 92	
Type of Expenditure		Justification			
		<p>This bill would result in a significant increase in criminal prosecutions as it would apply to any amount of marijuana in any location. The Public Defender Agency is requesting an Attorney III for Anchorage plus an additional 17.5 (one time) in contractual to litigate the constitutionality of this bill.</p>			
Amount					
1	2				3
Salary	49,140				
Benefits	17,306				
Premium Pay					
Other					
Total Personal Services					66,446
Travel					-0-
Contractual					22,500
Commodities					1,000
Equipment					1,500
Other					
Total Cost					91,446
Funding Source for Total Cost					
Federal Receipts	1002				
G. F. Match	1003				
General Fund	1004	91,446			
GF Program Receipts	1005				
Other					

**Request For  
New Position**

Agency Department of Administration  
 BRU Public Defender Agency  
 Component Third Judicial District

Page 3 of 4  
 Revised Date

**FY 90**

Position Title <u>Attorney III</u>			No. of Positions <u>1</u>	Range/Step <u>22/A</u>	Barg. Unit <u>PX</u>
Time Status <u>PFT</u>	Staff Months <u>12</u>		Location <u>Fairbanks</u>		Election District <u>94</u>
Type of Expenditure			Amount		
<u>1</u>	<u>2</u>	<u>3</u>			
Salary	<u>56,244</u>				
Benefits	<u>18,601</u>				
Premium Pay					
Other					
Total Personal Services			<u>74,845</u>		
Travel			<u>-0-</u>		
Contractual			<u>5,000</u>		
Commodities			<u>1,000</u>		
Equipment			<u>1,500</u>		
Other					
Total Cost			<u>82,345</u>		
Funding Source for Total Cost					
Federal Receipts	<u>1002</u>				
G. F. Match	<u>1003</u>				
General Fund	<u>1004</u>		<u>82,345</u>		
GF Program Receipts	<u>1005</u>				
Other					
Justification					
<p>This bill would result in a significant increase in criminal prosecutions as it would apply to any amount of marijuana in any location. The Public Defender Agency is requesting an Attorney III for Fairbanks to respond to the anticipated increased caseload.</p>					

**Request For  
New Position**

Agency Department of Administration  
 BRU Public Defender Agency  
 Component Fourth Judicial District

Page 4 of 4  
 Revised Date

**FY 90**

FISCAL NOTE

FEB 02 1989

REQUEST:

Revision Date: \_\_\_\_\_  
Title: "An Act relating to marijuana; and providing for an effective date."  
Sponsor: Sen. Fischer  
Requestor: Sen. Fischer

Agency Affected: Department of Law  
BRU: Prosecution

Components: Third Dist., Fourth Dist., Crim. Justice Litigation, Crim. Appeals.

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES		167.4	172.4	177.6	182.9	188.4
TRAVEL		5.4	5.6	5.8	6.0	6.2
CONTRACTUAL		67.7	44.0	11.7	12.1	12.5
SUPPLIES		12.6	9.3	9.6	9.9	10.2
EQUIPMENT		6.0	-0-	-0-	-0-	-0-
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	259.1	231.3	204.7	210.9	217.3

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	259.1	231.3	204.7	210.9	217.3
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME	-0-	2	2	2	2	2
PART-TIME		1	1	1	1	1
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

Please see the attached analysis.

*Richard I. Pegues*

Prepared by: Richard I. Pegues, Director

Phone: 465-3672

Division: Administrative Services Division

Date: February 1, 1989

Approved by Commissioner: Richard I. Pegues / FOR / Grace Berg Schaible, Atty. Gen.

Date: February 1, 1989

Agency: Department of Law

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

FISCAL NOTE

FEB 02 1989

REQUEST:

Revision Date: \_\_\_\_\_  
Title: "An Act relating to marijuana; and providing for an effective date."  
Sponsor: Sen. Fischer  
Requestor: Sen. Fischer

Agency Affected: Department of Law  
BRU: Prosecution

Components: Third Dist., Fourth Dist., Crim. Justice Litigation, Crim. Appeals.

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES		167.4	172.4	177.6	182.9	188.4
TRAVEL		5.4	5.6	5.8	6.0	6.2
CONTRACTUAL		67.7	64.0	11.7	12.1	12.5
SUPPLIES		12.6	9.3	9.6	9.9	10.2
EQUIPMENT		6.0	-0-	-0-	-0-	-0-
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	259.1	231.3	204.7	210.9	217.3

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	259.1	231.3	204.7	210.9	217.3
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME	-0-	2	2	2	2	2
PART-TIME		1	1	1	1	1
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

Please see the attached analysis.

*Richard I. Pegues*

Prepared by: Richard I. Pegues, Director

Phone: 465-3672

Division: Administrative Services Division

Date: February 1, 1989

Approved by Commissioner: Richard I. Pegues / FOR /  
Grace Berg Schaible, Atty. Gen.

Date: February 1, 1989

Agency: Department of Law

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

Senate Bill 18 is a blanket provision which would make possession or use of less than one-half pound of marijuana by anyone a class B misdemeanor. Some of the conduct which this bill would cover (such as use or display of any amount in a public place, possession of any amount while operating a motor vehicle, or possession of more than four ounces of marijuana anywhere) is a class B misdemeanor under existing law. See AS 11.71.060. Some of the conduct which this bill would make a crime (such as delivery of less than one-half ounce or possession of less than one ounce in public) is classified under current law as a "violation", punishable by a fine. See AS 11.71.070. The penalties under current law for other conduct such as delivery of one-half ounce or more, delivery to a minor, or possession of any amount on school grounds would not be altered. Penalties under existing law for these offenses range from an A misdemeanor to B felony level. See AS 11.71.030, .040, and .050.

The passage of SB 18 would have fiscal impact on the Department of Law in three general areas: (1) the cost of defending the new law against constitutional challenge; (2) the cost of processing the resulting additional criminal cases; and (3) the cost of educating the public about the new law. These three areas are discussed separately below. However, recriminalization of the personal possession of marijuana, currently allowed under Ravin, will involve defendants who are middle class people who can be expected to vigorously resist having a criminal record and vigorously resist the misdemeanor penalties provided for in the bill.

## 1. Defending the New Law

In 1975 the Alaska Supreme Court in the case of Ravin v. State, 537 P.2d 497 (Alaska 1975), ruled that under Art. I, Sec. 22 of the Alaska Constitution the state could not prohibit possession of marijuana by adults in their own homes for personal use. The court held that the state had not demonstrated the existence of a legitimate state interest which was strong enough to justify the regulation of this conduct.

Since passage of SB 18 would make it a crime for an adult to possess any amount of marijuana anywhere, including in his or her own home, the constitutionality of the new law is certain to be challenged. An appellate court will have to decide whether the state has proved that there is a "compelling state interest" in the prohibition of the use of marijuana which is sufficient to outweigh an individual's right to privacy under the state constitution. It is extremely important, therefore, that the legislature's consideration of this bill include extensive public hearings, debate on the social policy merits of the proposal, and the collection of the results of the most recent scientific, medical, and pharmacological studies regarding the physical, emotional, and social effects of marijuana usage.

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SR 18

In addition to the necessary legislative hearings, evidentiary hearings at the trial court level can be expected when a challenge to the new law is filed. Challenges to the new law will most likely arise in the context of a defendant's pretrial motion to dismiss a criminal prosecution. When responding to such a defense motion, the prosecutor would, in essence, have to convince a court to reverse the ruling in the Ravin case. In order to demonstrate that the result in Ravin is no longer correct, the prosecutor would have to present convincing, scientifically accurate, evidence that the effects of marijuana usage are so injurious to a person's mental and physical health as to justify the legislative decision to totally prohibit use of marijuana by anyone at any time (as opposed to use by minors or use by a person who is operating a motor vehicle--both of which are already prohibited under current law).

The presentation of this convincing evidence will require the prosecution to present expert testimony from authorities who have conducted recent research in this area. Out-of-state witnesses in medical and scientific fields charge a fee for their services. These fees will vary from individual to individual, but are expected to average at least \$150 per hour. This would include services for consultation, witness preparation and actual testimony. Costs will be incurred for expert witness transportation, food and lodging, and other incidental expenses. Additionally, there will be some costs for preparation of exhibits and written reports. To the extent possible, the Department of Law would attempt to present written testimony in situations where it is not feasible to fly a person to Alaska to testify in person. We estimate that a minimum of six expert witnesses will be required to attempt to successfully defend the new law at the trial court level.

Hearings at the trial court level can reasonably be expected to take several days. A substantial commitment of attorney time will be required for scientific and legal research in preparation for the hearings, actual court time, legal briefing, and the preparation of proposed findings of fact. Since prosecutions under the new law will occur statewide, defense challenges may be raised at the same time in different parts of the state. The extensive hearings described above may have to be held in more than one judicial district in the state.

Regardless of which side prevails at the trial court level, the lower court ruling would almost certainly be followed by an appeal. At a minimum, such an appeal (or appeals) would require additional legal research, a thorough review of the record, the drafting of briefs, and oral argument before the appellate court and the Supreme Court.

## 2. New Criminal Cases

Although some of the conduct included within the scope of SB 18 is already against the law, much behavior which is now classified

## CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

as a "violation" or which is not now an offense of any sort will become a misdemeanor crime. It is difficult to accurately predict in advance the impact which the passage of SB 18 will have on the criminal justice system.

In the past, some law enforcement officers who work primarily in the drug enforcement area indicated that the new law could potentially result in "thousands" of new misdemeanor cases a year. The police now doubt this but, nonetheless, a large number of the new cases would arise from situations where law enforcement officers now commonly discover small amounts of marijuana (as when an officer responds to a domestic disturbance call and sees some marijuana plants in a person's home, or when a person is arrested for a minor offense and a routine search for weapons reveals some marijuana cigarettes in the person's pocket, for example). Incidents of this sort occur frequently now, but do not generally result in any criminal prosecution for the marijuana possession. Many of these cases are likely to be referred for criminal prosecution if SB 18 becomes law, police officers will not ignore evidence of wrongdoing that is in plain view. Many of these defendants are middle-class people who can be expected to vigorously resist having a criminal record. Class B misdemeanors, as opposed to the violations, entitle a defendant to a jury trial and court-appointed counsel.

Prosecutors generally predict a lesser number of new potential criminal cases under SB 18 than the "thousands" that were once predicted. Once the public becomes aware of the new law, some people are likely to become more careful about not allowing marijuana or smoking paraphernalia to be exposed in plain view in their homes, for example. Judging from the number of minor marijuana offenses prosecuted prior to the Ravin decision in 1975, prosecutors still expect a "few hundred" new criminal cases a year.

Cases which are accepted for prosecution will require attorney time both at trial and in preparation for trial (i.e., preparation of search warrants, response to defense motions, evaluation of results of laboratory analysis, pretrial witness preparation, etc.). To handle screening of the expected case referrals, and to prosecute the additional cases, the criminal division will require the addition of at least two Attorney III positions in Anchorage. It is anticipated that a half-time attorney will also be needed in the Fairbanks District Attorney's office.

This fiscal note reflects the fact that the pretrial diversion program was entirely eliminated in FY 88. Anticipating that more than fifty percent of defendants would qualify for diversion, we must prepare for a gross increase in the number of cases that will go to trial.

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

## 3. Public Education

In order to inform the public of the changes in the law, the Department of Law will develop and disseminate public notices explaining the new law. These notices will include newspaper ads and brochures, and will be modeled upon the public education notices which were distributed statewide in connection with the new drug law in 1982 and the new DWI and drinking age laws in 1983. Based upon experience with these earlier notices, approximately \$25,000 will be needed to cover the costs of writing, layout, typesetting, publication, and distribution.

In addition to the costs explained above, it is anticipated that the passage of this bill will result in increased costs to other components of the criminal justice system, including law enforcement, the courts, the public defender agency, the Office of Public Advocacy, and corrections.

CONTINUATION of FISCAL NOTE ANALYSIS  
SB 18

For Bill/Resolution No. \_\_\_\_\_

Fiscal Analysis

1. Defending the New Law

Criminal Appeals & Special Prosecution Component/Prosc. - BRU

<u>Object</u>	<u>Total</u>
Contractual Services -	
Professional fees scientific experts 120 hrs. X \$150 =	\$18,000
Experts' staff support, preparation of exhibits, written testimony 50 hrs. X \$60 =	3,000
Experts' travel to attend hearings and offer testimony 6 trips X 4 days X \$80 = \$1,920 subsistence 6 trips X \$1,500 = \$9,000 travel	1,920 9,000
	<u>\$31,920</u>

This amount will be required for both FY 90 and FY 91, to cover both trials and appeals.

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

Fiscal Analysis - (cont'd)

2. New Criminal Cases

Third Judicial District - Anchorage

	Atty III (PFT)	Atty III (PFT)	<u>Total</u>
Personal Services	65.2	65.2	130.4
Travel - Witness travel subsistence, atty. travel	1.8	1.8	3.6
Contractual Services			
office commo. equip. repairs	2.4	2.4	4.8
copy - postage	1.2	1.2	<u>2.4</u>
			7.2
Commodities - Ongoing			
office consumables	1.8	1.8	3.6
Law library	1.2	1.2	2.4
Commodities - one time			
New position materials	1.2	1.2	<u>2.4</u>
			8.4
Equipment - one time			
New position equipment	2.0	2.0	4.0
	<hr style="width: 50px; margin: 0 auto;"/>	<hr style="width: 50px; margin: 0 auto;"/>	<hr style="width: 50px; margin: 0 auto;"/>
	76.8	76.8	153.6

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

Fiscal Analysis - (cont'd)

Fourth Judicial District - Fairbanks

	Atty. III <u>(PPT)</u>	<u>Total</u>
Personal Services	37.0	37.0
Travel - Witness travel subsistence, Atty. travel	1.8	1.8
Contractual Services		
office commo., equip. repair	2.4	2.4
copy - postage	1.2	<u>1.2</u>
		3.6
Commodities - Ongoing		
office consumables	1.8	1.8
Law library	1.2	1.2
Commodities - one time		
New position materials	1.2	<u>1.2</u>
		4.2
Equipment - one time		
New position equipment	2.0	2.0
		<hr style="width: 10%; margin: 0 auto;"/> 48.6

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

Fiscal Analysis - (cont'd)

3. Public Education

Criminal Justice Litigation Component/Prosc. BRU

<u>Object</u>	<u>Total</u>
Contractual Services - one time writing, layout, typesetting, publication and distribution of public notices and information brochures describing the changes in the law.	25.0
	25.0

Summary of Expenses (All Components)

	<u>Defending the new law</u>	<u>New Criminal Cases</u>	<u>Public Education</u>	<u>Total</u>
Personal Services		167.4		167.4
Travel		5.4		5.4
Contractual	31.9	10.8	25.0	67.7
Commodities		12.6		12.6
Equipment		6.0		6.0
	31.9	202.2	25.0	259.1

Costs beyond FY 90 include a 3 per cent inflation factor, less one-time items. The costs for defending the new law will occur in both FY 90 and FY 91 and they will be eliminated thereafter.

Position Title Attorney III		No. of Positions 2	Range/Step 22A	Barg. Unit PX
Time Status PFT	Staff Months 24	Location EBA - Anchorage		Election District 8
Type of Expenditure		Justification		
1	2	3		
Salary	98,280	<p>These two full-time attorney positions are required at Anchorage to handle the influx of new cases that will result when marijuana violations, or any use of marijuana, which is not now a violation, become misdemeanor offenses. Prosecutors expect that at least a few hundred such offenses will occur each year as a result of the enactment of this bill. These positions will be responsible for prosecuting those new cases that are brought in the Third Judicial District and handling appellate briefs and appeals hearings. Because these new cases will be classed as misdemeanor offenses, allocation of the positions to the Attorney III level is appropriate.</p>		
Benefits	32,126			
Premium Pay				
Other				
<b>Total Personal Services</b>	<b>130,406</b>			
Travel	3,600			
Contractual	7,200			
Commodities	8,400			
Equipment	4,000			
Other				
<b>Total Cost</b>	<b>153,606</b>			
Funding Source for Total Cost				
Federal Receipts	1002			
G. F. Match	1003			
General Fund	1004	153,606		
I-A Receipts	1006			
CIP Receipts	1061			
Other				

**Request For  
New Position**

Agency Department of Law  
 BRU Prosecution  
 Component Third Judicial District

Page 1 of 2  
 Revised Date

**FY 90**

Position Title <b>Attorney III</b>		No. of Positions 1	Range/Step 22A	Barg. Unit PX
Time Status PPT	Staff Months 12	Location JBA - Fairbanks		Election District 16
		Justification		
Type of Expenditure		Amount		
1	2	3		
Salary	28,122			
Benefits	8,886			
Premium Pay				
Other				
Total Personal Services		37,008		
Travel		1,800		
Contractual		3,600		
Commodities		4,200		
Equipment		2,000		
Other				
Total Cost		48,608		
Funding Source for Total Cost				
Federal Receipts	1002			
G. P. Match	1003			
General Fund	1004	48,608		
I-A Receipts	1006			
CIP Receipts	1061			
Other				

This permanent part-time position at Fairbanks is required to handle the influx of new cases that will result when marijuana violations, or any use of marijuana, which is not now a violation, become misdemeanor offenses. Prosecutors expect that at least a few hundred offenses will occur each year as a result of the enactment of this bill. This position will be responsible for prosecuting those new cases that are brought in the Fourth Judicial District. Because these new cases will be classed as misdemeanor offenses, allocation of the position to the Attorney III level is appropriate.

**Request For  
New Position**

Agency Department of Law  
 BRU Prosecution  
 Component Third Judicial District

Page 2 of 2  
 Revised Date

**FY 90**

**FISCAL NOTE**

**FEB 02 1989**

**REQUEST:**

Revision Date: 1/31/89  
Title: "An Act relating to marijuana;..."  
Sponsor: Fischer, Faiks, et. al.  
Requestor: Senate Judiciary

Agency Affected: Administration  
BRU: Office of Public Advocacy  
Components: \_\_\_\_\_

**EXPENDITURES/REVENUES: (Thousands of Dollars)**

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES	-0-	99.3	103.3	107.4	111.7	115.2
TRAVEL		0	0	0	0	0
CONTRACTUAL		60.0	62.4	64.9	67.5	70.2
SUPPLIES		2.0	2.8	2.9	3.0	3.1
EQUIPMENT		11.0	0	0	0	0
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
<b>TOTAL OPERATING</b>	<b>-0-</b>	<b>172.3</b>	<b>168.5</b>	<b>175.2</b>	<b>182.2</b>	<b>189.5</b>

CAPITAL						
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REVENUE						
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**FUNDING: (Thousands of Dollars)**

GENERAL FUND	-0-	172.3	168.5	175.2	182.2	189.5
FEDERAL FUNDS						
OTHER						
<b>TOTAL</b>	<b>-0-</b>	<b>172.3</b>	<b>168.5</b>	<b>175.2</b>	<b>182.2</b>	<b>189.5</b>

**POSITIONS:**

FULL-TIME	-0-	2.0	2.0	2.0	2.0	2.0
PART-TIME						
TEMPORARY						

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

See Attached

Prepared by: Brant McGee  
Division: Office of Public Advocacy

Phone: 274-1684  
Date: 1/31/89

Approved by Commissioner: John Andrews  
Agency: Department of Administration

Date: 2/1/89

**Distribution (by preparer):**

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

# CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. SB 18

This bill will recriminalize the use or possession of marijuana at any location and would result in a significant increase in the number of prosecutions for such offenses.

The Department of Law has requested 2.5 attorneys in Anchorage and Fairbanks in order to enforce this statute. The constitutionality of the statute, which appears to directly conflict with the Supreme Court's 1975 holding in Raven v. State, will undoubtedly be tested in extensive trial and appellate court proceedings.

The Office of Public Advocacy requests one new Attorney III position for Anchorage -- where the greatest number of prosecutions is likely to arise -- and \$60,000 in contractual funds to pay for representation in other areas and for expert witness fees necessary for trial proceedings.

## Personal Services

### Anchorage

Attorney III  
Salary & Benefits = \$66,457 \$ 66.5

Legal Secretary I  
Salary & Benefits = \$32,833 32.8

Subtotal Personal Services \$ 99.3

## Contractual

Contract attorneys in rural areas  
and expert witnesses 60.0

## Supplies

Stationary and library supplies  
for two new positions 2.0

## Equipment

Office furniture and equipment for one  
professional position at \$3,635 and one  
secretary position at \$7,369 = \$11,004 11.0

TOTAL: \$172.3

Position Title <b>Attorney III</b>		No. of Positions <b>1</b>	Range/Step <b>- 22/A</b>	Barg. Unit <b>X</b>
Time Status <b>PFT</b>	Staff Months <b>12</b>	Location <b>EBA-Anchorage</b>		Election District <b>8</b>
Type of Expenditure		Justification		
1	2	The Anchorage OPA office presently has 3 attorney positions devoted to criminal defense. These attorneys are also handling several major cases outside the Anchorage area as staff coverage and travel is more cost effective than contracting major cases to private attorneys in rural areas. Current caseloads indicate that these three attorneys cannot absorb the additional cases which would result from this legislation. It is necessary that an additional attorney be added to the Anchorage staff to cover the resultant increased caseload.		
Salary	49,140			
Benefits	17,317			
Premium Pay				
Other				
Total Personal Services		<b>66,457</b>		
Travel				
Contractual				
Commodities				
Equipment				
Other				
Total Cost		<b>66,457</b>		
Funding Source for Total Cost				
Federal Receipts	1002			
G. F. Match	1003			
General Fund	1004	<b>66,457</b>		
GF Program Receipts	1005			
Other				

Agency Administration  
Office of Public Advocacy

Page 3 of 4  
Revised Date

FY

Position Title <b>Legal Secretary I</b>		No. of Positions <b>1</b>	Range/Step <b>10/A</b>	Barg. Unit <b>G</b>
Time Status <b>PFT</b>	Staff Months <b>12</b>	Location <b>EBA-Anchorage</b>		Election District <b>8</b>
Justification				
The Anchorage OPA office presently has 3 legal secretary positions providing clerical support to 12 professional positions, 2 VISTA volunteers, and the VGAL program. The addition of an attorney with a full caseload necessitates the addition of a legal secretary. The increased clerical workload created by an additional attorney position cannot be absorbed by the current clerical staff.				
Type of Expenditure		Amount		
<b>1</b>	<b>2</b>	<b>3</b>		
Salary	<b>22,020</b>			
Benefits	<b>10,813</b>			
Premium Pay				
Other				
<b>Total Personal Services</b>		<b>32,833</b>		
Travel				
Contractual				
Commodities				
Equipment				
Other				
<b>Total Cost</b>		<b>32,833</b>		
Funding Source for Total Cost				
Federal Receipts	1002			
G. F. Match	1003			
General Fund	1004	<b>32,833</b>		
GF Program Receipts	1005			
Other				

**Request For  
New Position**

Agency Administration  
 BRU Office of Public Advocacy  
 Component \_\_\_\_\_

Page 4 of 4  
 Revised Date \_\_\_\_\_

**FY 90**

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OFFICE OF THE CLERK OF THE SENATE  
WASHINGTON, D.C.

MEMORANDUM

TO: THE CLERK OF THE SENATE

FROM: [Illegible]

SUBJECT: [Illegible]

DATE: [Illegible]

RE: [Illegible]

[Illegible]

[Illegible]

[Illegible]

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6-0800A  
Chenoweth  
2/9/89

1 IN THE SENATE

BY THE JUDICIARY COMMITTEE

2 SENATE JOINT RESOLUTION NO.

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 SIXTEENTH LEGISLATURE - FIRST SESSION

5 Proposing an amendment to the Constitu-  
6 tion of the State of Alaska providing  
7 that an individual's right of privacy  
8 does not extend to the unlawful posses-  
9 sion or use of controlled substances.

10 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

11 \* Section 1. Article I, sec. 22, Constitution of the State of Alaska,  
12 is amended to read:

13 SECTION 22. RIGHT OF PRIVACY. The right of the people to pri-  
14 vacy is recognized and shall not be infringed. The legislature shall  
15 implement this section. The right of privacy does not extend to the  
16 unlawful possession or use of controlled substances as defined in the  
17 criminal law of the state.

18 \* Sec. 2. The amendment proposed by this resolution shall be placed  
19 before the voters of the state at the next general election in conformity  
20 with art. XIII, sec. 1, Constitution of the State of Alaska, and the elec-  
21 tion laws of the state.

Original sponsors: Fischer, Faiks,  
Kelly, et al.

1 IN THE SENATE

BY THE JUDICIARY COMMITTEE

2 CS FOR SENATE BILL NO. 18 (Judiciary)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 SIXTEENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making the possession of less than eight  
7 ounces of marijuana a class B misdemeanor and making  
8 specific findings that constitute a legitimate and  
9 compelling state interest to prohibit the possession  
10 of less than eight ounces of marijuana; and providing  
11 for an effective date."

12 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

13 \* Section 1. FINDINGS. The legislature finds that marijuana use is a  
14 health problem for the reasons set out in this section. Many of the rea-  
15 sons are based on new information obtained since 1975. Each of the follow-  
16 ing constitutes a legitimate and compelling state interest:

17 (1) Marijuana and other cannabis preparations contain more than  
18 420 different compounds, including 60 cannabinoids that have mind-altering  
19 properties.

20 (2) Marijuana induces biochemical alterations in the central  
21 nervous system that result in the five characteristics that identify addic-  
22 tive, dependence producing drugs: primary pleasurable reward, reversible  
23 neuropsychological impairment, abstinence syndrome, tolerance, and self-  
24 administration.

25 (3) The breakdown products or metabolites of marijuana are fat  
26 and lipid soluble and may remain in the body for extended time periods.

27 (4) The tetrahydrocannabinol (THC) content of street samples of  
28 marijuana generally has increased in potency from approximately one to two  
29 percent in marijuana obtainable 10 years ago to as high or higher than 5 to

1 10 percent in marijuana obtainable in 1989.

2 (5) Recent research has yielded findings that demonstrate that  
3 marijuana may have a detrimental effect on

4 (A) respiratory and cardiovascular systems, in that

5 (i) sinusitis, pharyngitis, bronchitis, and emphysema  
6 may be associated with chronic marijuana use;

7 (ii) habitual marijuana smoking may produce precancer-  
8 ous change in the lung;

9 (iii) during a marijuana "high," the user may experience  
10 tachycardia as the heart rate increases to as much as 130 - 150  
11 beats a minute;

12 (B) reproductive systems, in that

13 (i) marijuana affects the network of glands and hor-  
14 mones that are involved in reproduction;

15 (ii) a pregnant woman who uses marijuana takes an  
16 increased risk that the chemical compounds in the marijuana will  
17 pass across the placenta to the developing fetus;

18 (C) the brain, in that

19 (i) THC may accumulate in brain cell membranes;

20 (ii) marijuana and its metabolites may alter neuro-  
21 chemicals and their receptor sites;

22 (iii) use of marijuana may impair visual tracking and  
23 depth perception and may reduce coordination, reaction time, and  
24 vigilance, making it dangerous to drive, fly, or operate machin-  
25 ery;

26 (iv) chronic marijuana use, particularly by adoles-  
27 cents, may interfere with reading comprehension, verbal and  
28 mathematical problem solving, perception of time and distance,  
29 short term memory, and the ability to concentrate, and reduce

1 motivation;

2 (v) the psychological effects of marijuana use may  
3 include anxiety, panic, paranoia, psychosis, illusions, and  
4 hallucinations, and some studies link marijuana to schizophrenia;  
5 and

6 (D) the body's immune system, in that marijuana use

7 (i) may depress the immune system and alter the funda-  
8 mental cellular defenses against disease; and

9 (ii) may reduce the chromosomes in T-lymphocyte cells.

10 (6) There is a common perception by youth and others that the  
11 current Alaska Statutes "legalize" marijuana, and this misperception has a  
12 social effect that is detrimental to the public health and welfare in that  
13 it encourages drug use.

14 \* Sec. 2. AS 11.71.060(a) is amended to read:

15 (a) Except as authorized in AS 17.30, a person commits the crime  
16 of misconduct involving a controlled substance in the sixth degree if  
17 the person

18 (1) uses or displays any amount of a schedule VIA con-  
19 trolled substance;

20 (2) [OR] possesses one or more preparations, compounds,  
21 mixtures, or substances of an aggregate weight of less than one-half  
22 pound [ONE OUNCE OR MORE] containing a schedule VIA controlled sub-  
23 stance [ON A PUBLIC STREET OR SIDEWALK OR ON THE PREMISES OF A PUBLIC  
24 CARRIER OR BUSINESS ESTABLISHMENT OR IN ANY OTHER PUBLIC PLACE]; or

25 (3) [(2) KNOWINGLY POSSESSES ANY AMOUNT OF A SCHEDULE VIA  
26 CONTROLLED SUBSTANCE WITHIN THE IMMEDIATE CONTROL OF THAT PERSON WHILE  
27 OPERATING A PROPELLED VEHICLE;

28 (3) BEING UNDER 19 YEARS OF AGE, POSSESSES ONE OR MORE  
29 PREPARATIONS, COMPOUNDS, MIXTURES, OR SUBSTANCES OF AN AGGREGATE

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WEIGHT OF LESS THAN FOUR OUNCES CONTAINING A SCHEDULE VIA CONTROLLED  
SUBSTANCE;

(4) POSSESSES ONE OR MORE PREPARATIONS, COMPOUNDS, MIX-  
TURES, OR SUBSTANCES OF AN AGGREGATE WEIGHT OF FOUR OUNCES OR MORE  
CONTAINING A SCHEDULE VIA CONTROLLED SUBSTANCE; OR

(5)] refuses entry into a premises for an inspection au-  
thorized under AS 17.30.

\* Sec. 3. AS 12.45.155(a) is amended to read:

(a) In a prosecution under AS 11.71.010 - 11.71.060 [AS 11.-  
71.010 - 11.71.070], a complete copy of an official laboratory report  
from the Department of Public Safety or a laboratory operated by  
another law enforcement agency is prima facie evidence of the content,  
identity, and weight of a controlled substance. The report must be  
signed by the person performing the analysis and must state that the  
substance which is the basis of the alleged offense has been weighed  
and analyzed. In the report, the author shall state with specificity  
findings as to the content, weight, and identity of the substance.

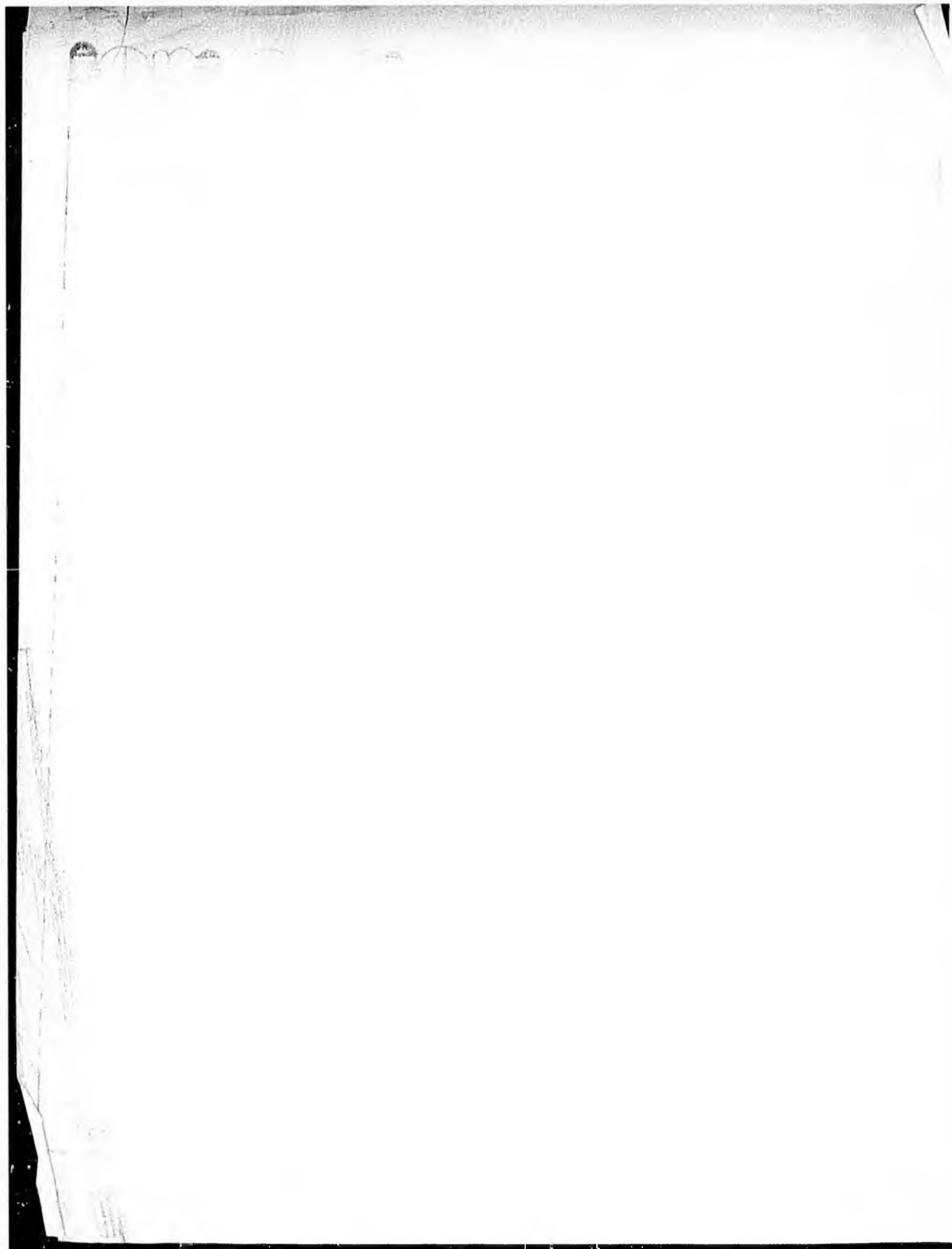
\* Sec. 4. AS 17.30.080(b) is amended to read:

(b) A person who violates (a) of this section, or who otherwise  
manufactures, distributes, dispenses, or conducts research with a  
controlled substance in the state without fully complying with 21  
U.S.C. 811 - 830 (Controlled Substances Act), and regulations adopted  
under those sections, is guilty of misconduct involving a controlled  
substance under AS 11.71.010 - 11.71.060 [AS 11.71.010 - 11.71.070] in  
the degree appropriate to the circumstances as described in those  
sections.

\* Sec. 5. AS 11.71.070 is repealed.

\* Sec. 6. This Act takes effect immediately under AS 01.10.070(c).

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ORIGINAL



# News . . .

## from Senator Jan Faiks

Contact: Cheryl Frasca  
465-4523

### For Immediate Release

Recriminalization of marijuana will be discussed by the Senate Judiciary Committee at a meeting this Saturday, February 25th, in Anchorage announced committee chairman Sen. Jan Faiks (R-Anchorage).

"An ever increasing number of Alaskans are concerned about rampant drug use" Faiks explained. "The Judiciary Committee is asking Alaskans to come forward to discuss their concerns so the committee can prepare legislation which will withstand judicial challenge" she continued.

"Alaska is the only state where possession of marijuana by an adult in the home is completely legal" explained Faiks. "Senate Bill 18, the bill under committee consideration, would change the law so possession of any amount, anywhere would be against the law".

In 1975 the Alaska Supreme Court handed down its decision in Ravin v. State. In that decision, the court stated that the right to privacy in the home provided in the state constitution prevailed over the government's interest in preventing marijuana possession and use by adults in the home. This resulted in the current law which allows adults to possess up to four ounces of marijuana in their home.

"The record from the Judiciary Committee hearings will be important in establishing why the Legislature is justified in recriminalizing marijuana" explained Faiks. "The reasons for the Legislature's actions, as expressed in the bill's 'legislative findings' section, must be sufficient to show a close and substantial relationship between the intrusion on an individual's right to privacy and the government's interest in preventing marijuana use by adults in the home. The 'legislative findings' in the bill must be justified by evidence the committee collects, or the bill will not meet the test established in the Ravin case" Faiks continued.

Saturday's hearing will go from 10 a.m. to noon and reconvene from 1:30 p.m. to 4 p.m. in the Anchorage Legislative Information Office at 3111 C Street.

####

#### *During Session*

Post Office Box V, Juneau, 99811 • (907)465-4523

#### *Out of Session*

3111 C Street, Anchorage, 99503 • (907)561-7610

News From the  
**Senate Judiciary  
Committee**

**Recriminalization of Marijuana  
Legislative Hearing**

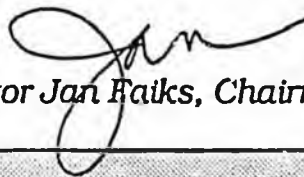
**Saturday, February 25th  
10:00 a.m.**

**Anchorage Legislative Information Office  
3111 C Street**

Dear Interested Alaskan:

Legislation is currently under consideration by the Senate Judiciary Committee which will recriminalize marijuana. Because of your interest and unique perspective on the issue, I invite you to join the Senate Judiciary Committee for public testimony and comment on this important legislation. The hearing will begin at 10 a.m.; break at noon; return at 1:30 p.m. and continue until 4 p.m.

Sincerely,



*Senator Jan Faiks, Chairman*

**Background**

In 1975, the Alaska supreme court handed down its decision in Ravin v. State. In that decision, the court stated that the state constitution's right to privacy created a right to privacy in the home which prevailed over an inadequate compelling governmental interest in preventing marijuana possession and use by adults in the home.

In response to this decision, the Legislature revised the state's marijuana laws. At the present time, this is the status of the law:

- Possession of 8 ounces or more

of marijuana anywhere, including the home, is a class A misdemeanor;

- Possession of between 4 and 8 ounces of marijuana anywhere, including the home, is a class B misdemeanor;
- Possession of between 1 and 4 ounces of marijuana in a public place is a class B misdemeanor;
- Possession of any amount of marijuana within a propelled vehicle is a class B misdemeanor;
- Possession of less than 1 ounce in a public place is a violation;
- Possession less than 4 ounces in the home is legal.

The purpose of Senate Bill 18 is to make all the separate rules governing possession of less than 8 ounces uniform, and the state that possession of less than 8 ounces of marijuana anywhere is a class B misdemeanor (maximum penalty 90 days/\$1000 fine).

#### **Legislative Findings**

The most important part of the bill is the findings section, section 1. These are the legislative justifications for re-criminalization. They must be sufficient to show a close and substantial relationship between the intrusion on the right to privacy, and a legitimate governmental interest in preventing marijuana use by adults in the home. The findings must be justified by evidence the committee collects, or this

bill will not meet the Ravin test.

#### **Committee Record**

The Senate Judiciary Committee invites testimony from concerned Alaskans. The public record established by this, and other committee hearings, will be extremely important in crafting legislation which will withstand judicial challenge. I hope you will be able to attend. If you are unable to join the committee on the 25th, and would still like to comment, letters and written testimony received will be incorporated as part of the Committee's official record on the legislation.

### **Senate Judiciary Committee**

Post Office Box V

Juneau, Alaska 99811

permit separate sentences; the two offenses violate the same societal interest, namely the regulation of the availability of harmful drugs. *Alley v. State*, Ct. App. Op. No. 498 (File No. A-368), 704 P.2d 233 (1985).

**Convictions and sentences for misconduct involving cocaine affirmed.** — See *Adams v. State*, Ct. App. Op. No. 525 (File No. A-450), 706 P.2d 1183 (1985).

**Sentence excessive.** — Sentence for one count of misconduct involving a controlled substance under AS 11.71.040(a)(3)(A) and five counts under AS 11.71.030(a)(1) totaling eight years with four years suspended was excessive; the court of appeals remanded for resentencing not to exceed six years with two years suspended where the defendant had a favorable criminal record, a good em-

ployment history, and was a good prospect for rehabilitation. The court of appeals also believed that the presumptive sentences established by the revised criminal code for the defendant's most serious offense should constitute a ceiling on his sentence. *Rivas v. State*, Ct. App. Op. No. 539 (File No. A-671), 706 P.2d 1202 (1985).

**Sentence for possession of cocaine upheld.** — See *Smith v. State*, Ct. App. Op. No. 757 (File No. A-2021), P.2d (1987).

**Cited in** *Hodsdon v. State*, Ct. App. Op. No. 467 (File No. A-241), 698 P.2d 1224 (1985); *Pooley v. State*, Ct. App. Op. No. 505 (File No. A-310), 705 P.2d 1293 (1985); *Webb v. State*, Sup. Ct. Op. No. 3338 (File No. S-1714), P.2d (1988).

**Sec. 11.71.050. Misconduct involving a controlled substance in the fifth degree.** (a) Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fifth degree if the person

(1) manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of one-half ounce or more containing a schedule VIA controlled substance;

(2) manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one-half ounce containing a schedule VIA controlled substance, for remuneration;

(3) possesses

(A) less than 25 tablets, ampules, or syrettes containing a schedule IIIA or IVA controlled substance;

(B) one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than three grams containing a schedule IIIA or IVA controlled substance;

(C) less than 50 tablets, ampules, or syrettes containing a schedule VA controlled substance;

(D) one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than six grams containing a schedule VA controlled substance; or

(E) one or more preparations, compounds, mixtures, or substances of an aggregate weight of one-half pound or more containing a schedule VIA controlled substance; or

(4) fails to make, keep, or furnish any record, notification, order form, statement, invoice, or information required under AS 17.30.

(b) Misconduct involving a controlled substance in the fifth degree is a class A misdemeanor. (§ 2 ch 45 SLA 1982; am § 10 ch 14 SLA 1986)

**Effect of amendments.** — The 1986 amendment deleted "or AS 17.35" following "AS 17.30" in the introductory language of subsection (a).

#### NOTES TO DECISIONS

**Required marijuana content.** — In order to be charged with misconduct involving a controlled substance involving marijuana, a person must be in possession of a substance that contains its seeds, leaves, buds or flowers; merely possessing stalks, fibers or sterilized seeds would not be enough. *Gibson v. State*, Ct. App. Op. No. 621 (File No. A-917), 719 P.2d 687 (1986).

**Aggregate weight.** — In order to be convicted of misconduct involving a controlled substance, defendant need only to have delivered a combination of ingredi-

ents that included marijuana; it is the total weight of the entire substance delivered that determines the degree of the offense. *Gibson v. State*, Ct. App. Op. No. 621 (File No. A-917), 719 P.2d 687 (1986).

The weight of marijuana should be determined absent stalks, fiber and sterilized seeds. *Gibson v. State*, Ct. App. Op. No. 621 (File No. A-917), 719 P.2d 687 (1986).

Cited in *Jones v. State*, Ct. App. Op. No. 651 (File No. A-1513), 727 P.2d 6 (1986).

**Sec. 11.71.060. Misconduct involving a controlled substance in the sixth degree.** (a) Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the sixth degree if the person

(1) uses or displays any amount of a schedule VIA controlled substance or possesses one or more preparations, compounds, mixtures, or substances of an aggregate weight of one ounce or more containing a schedule VIA controlled substance on a public street or sidewalk or on the premises of a public carrier or business establishment or in any other public place;

(2) knowingly possesses any amount of a schedule VIA controlled substance within the immediate control of that person while operating a propelled vehicle;

(3) being under 19 years of age, possesses one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than four ounces containing a schedule VIA controlled substance;

(4) possesses one or more preparations, compounds, mixtures, or substances of an aggregate weight of four ounces or more containing a schedule VIA controlled substance; or

(5) refuses entry into a premises for an inspection authorized under AS 17.30.

(b) Misconduct involving a controlled substance in the sixth degree is a class B misdemeanor. (§ 2 ch 45 SLA 1982; am § 11 ch 146 SLA 1986)

**Effect of amendments.** — The 1986 amendment deleted "or AS 17.35" following "AS 17.30" in the introductory language of subsection (a).

**Sec. 11.71.070. Misconduct involving a controlled substance in the seventh degree.** (a) Except as authorized in AS 17.30, a person commits the offense of misconduct involving a controlled substance in the seventh degree if the person

(1) manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one-half ounce of a schedule VIA controlled substance; or

(2) possesses one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one ounce containing a schedule VIA controlled substance on a public street or sidewalk or on the premises of a public carrier or business establishment or in any other public place.

(b) Misconduct involving a controlled substance in the seventh degree is a violation and is punishable as authorized in AS 12.55, except that if a fine is imposed it shall not be more than \$100. (§ 2 ch 45 SLA 1982; am § 12 ch 146 SLA 1986)

**Effect of amendments.** — The 1986 amendment deleted "or AS 17.35" following "AS 17.30" in the introductory language of subsection (a).

**Sec. 11.71.080. Aggregate weight of live marijuana plants.**

NOTES TO DECISIONS

**Applicability of definition.** — The definition in this section did not apply where the marijuana was already dried and processed. *Gibson v. State*, Ct. App. Op. No. 621 (File No. A-917), 719 P.2d 687 (1986).

Article 2. Standards and Schedules.

<p><b>Section</b> 120. Authority to schedule controlled substances</p>	<p><b>Section</b> 160. Schedule IIIA 180. Schedule VA</p>
--	---

**Sec. 11.71.120. Authority to schedule controlled substances.**

(a) If, after considering the factors set out in (c) of this section, the committee decides to recommend that a substance should be added to, deleted from, or rescheduled in a schedule of controlled substances under AS 11.71.140 — 11.71.190, the governor shall introduce legislation in accordance with the recommendation of the committee.

(b) If a substance is added as a controlled substance under federal law, the governor shall introduce legislation in accordance with the federal law.

(c) In advising the governor of the need to add, delete, or reschedule a substance under AS 11.71.110(1), the committee shall assess the

Under Criminal Rule 45(b), a person charged with a felony, a misdemeanor or a violation shall be tried within 120 days. Service of a traffic infraction citation has been found to trigger Criminal Rule 45, and to bar prosecutions for subsequent charges based on the same incident filed after more than 120 days.<sup>145</sup>

The United States Constitution, in the Fourth Amendment, provides that: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause..." The Fourth Amendment applies, and, unless the case is exceptional, search warrants must be obtained, in all contexts: criminal, civil and quasi-criminal.<sup>146</sup>

#### Committee Findings and Conclusions

##### Findings:

Finding Number One: The abusive use of alcohol interferes in a serious manner with the health, safety, rights and privileges of Alaskans, and with the public welfare.

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<sup>145</sup>Koch v. State, 653 P.2d 664 (Alaska App. 1982).

<sup>146</sup>Camara v. Municipal Court, 387 U.S. 523 (1967); Marshall v. Barlow's Inc., 436 U.S. 307 (1978).

Finding Number Two: The public health and welfare will, in fact, suffer if the abusive use of alcohol is not controlled.

Finding Number Three: The prohibition of alcohol in rural Alaska villages is an effective tool for controlling the abusive use of alcohol.

Finding Number Four: Serious crimes, and a wide variety of other social problems, could be prevented if the possession of alcohol were prohibited.

Finding Number Five: There is a strong and unmistakable correlation between alcohol consumption and poor health, fetal damage, death, suicide, crime, family violence, family stability, and child abuse.

Finding Number Six: The level of dangerous alcohol-related behavior is directly tied to the level of alcohol consumption, and the level of alcohol consumption is directly tied to both the cost and availability of alcohol. A law prohibiting possession would limit the availability of alcohol, and would increase the cost of illicitly-available liquor.

Finding Number Seven: The dangers resulting from alcohol abuse are particularly acute in rural Alaska because the communities are small, isolated, without adequate law enforcement, without adequate health care facilities, and populated by people who are closely related and interdependent.

Finding Number Eight: The most damaging type of abusive alcohol-related behavior is that which affects innocent victims, such as children and elders. Children are particularly vulnerable, and as a result of parental alcohol abuse, suffer from a broad range of serious problems.

Finding Number Nine: The abusive use of alcohol perpetuates an escalating pattern of crime and violence from generation to generation.

Finding Number Ten: The most serious harm to the innocent victims of alcohol abuse takes place in private homes and behind closed doors. In communities that have chosen to ban the sale and importation of alcohol, and that have significant alcohol-related social problems, most drinking takes place in private homes.

Finding Number Eleven: The economic cost of alcohol abuse is high and can not be afforded by either the state or rural communities.

Finding Number Twelve: A significant number of rural Alaska communities want, and would use, the authority to ban possession of alcohol. These communities have had a long-standing belief that alcohol should be completely banned, and this belief is based on a lengthy history of alcohol prohibition in rural villages.

Finding Number Thirteen: The policy decision to ban possession of alcohol is one that must be made by local government. If local authorities are precluded from making such a decision, self-government efforts are undermined,

respect for the state legal system is lost, and the public welfare is damaged.

Finding Number Fourteen: Although Alaska law permits communities to ban the sale and importation of alcoholic beverages, the present law is unenforceable because the possession of alcoholic beverages, including homebrew, is permitted.

Finding Number Fifteen: Despite the serious impact that the abusive use of alcohol has on the public health, safety and welfare, possession of alcohol in violation of a ban is not a serious offense and does not connote criminality. Penalties for violating a ban on alcohol should be limited to civil fines and confiscation of the liquor. Criminal procedures should be used to enforce the civil penalties since the ban on alcohol is for the protection of the public. "Possession of alcohol in violation of a local option law" is a quasi-criminal infraction.

Finding Number Sixteen: A fine of \$1000 is not of such a magnitude that it indicates criminality in either urban or rural Alaska communities.

Finding Number Seventeen: "Possession of alcohol in violation of a local option law" is an infraction, and is not an "offense" for purposes of constitutional double jeopardy considerations.

Finding Number Eighteen: A determination of whether "possession of alcohol in violation of a local option law"

is a violation under Criminal Rule 45(b) should be left to the judiciary.

Finding Number Nineteen: The entire Committee Report to the Legislature, which is entitled "A Search for Control: The Effect of Alcohol on Public Rights and Private Wrongs" is adopted by the Committee and, in its entirety, represents a complete recitation of the Findings of the Joint Special Committee on Local Option Laws.

Conclusions:

[The alcohol problem] is more serious than any war that's going on in the world. Wars have purpose ...but alcohol that abuses young children and all that kind of thing, it is totally no good to nobody.

Neil Charlie, Minto elder

The severity of Alaska's problems with alcohol cannot be overemphasized, or exaggerated. Alcohol-induced tragedies have become a reality of daily life across the entire state, and have repeatedly forced Alaskans to recognize the fragility and vulnerability of human existence. Every possible tool must be available for use in combatting the threat posed by alcohol.

Since Alaska communities are extremely diverse, the tools available to fight alcohol abuse must be equally varied. Approaches to controlling alcohol that are effective in urban areas are unlikely to work in the rural villages of the state. Similarly, alcohol control mechanisms that help stop the disintegration of homogenous and isolated villages, would be completely out of place in a complex

urban community. Laws must be flexible enough to provide solutions to the problems faced in all communities.

Villagers have repeatedly told the Committee that they want the power to completely prohibit alcohol. The broad range of problems that are associated with alcohol abuse, as set forth more fully in the Findings of Fact, legally and morally justify legislative action that grants villages that power. Therefore, the recommendation of the Committee is that the local option law be amended and that communities be granted the power to ban possession of alcohol.

evidentiary record. Instead, the court found as a "matter of common knowledge that lack of restraint in this field is almost invariably damaging to the community."<sup>106</sup>

#### Privacy Issues

Article I, Section 22 of the Alaska Constitution states, "The right of the people to privacy is recognized and shall not be infringed." This explicit constitutional right grants greater protection to individual privacy interests than the federal Constitution. In 1975, the Alaska Supreme Court relied on the privacy provision of the state constitution in ruling that adults could not be prohibited from possessing marijuana in their own homes for personal use.<sup>107</sup> The court found that the state had not demonstrated the existence of any legitimate state interest in regulating such conduct strong enough to justify breaching the privacy of an individual's home.<sup>108</sup>

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<sup>106</sup> Id.

<sup>107</sup> Ravin v. State, 537 P.2d 497 (Alaska 1975). A common misconception about the Ravin decision is that the court found a constitutional right to possess marijuana. This contention was specifically rejected by the court, which clearly concluded "that there is not a fundamental constitutional right to possess or ingest marijuana in Alaska." Id. at 502. The challenger to the existing local option law in Harrison v. State, 687 P.2d 332, 338 (Alaska App. 1984), conceded that an absolute right to consume alcohol does not exist in Alaska.

<sup>108</sup> In so ruling, the court noted that the "effects of marijuana on the individual are not serious enough to  
(Footnote Continued)

In its ruling, the court emphasized that privacy in the home is a fundamental right under both the federal and Alaska constitutions. However, the court was equally emphatic that privacy is not an absolute right. The right to privacy

must yield when it interferes in a serious manner with the health, safety, rights and privileges of others or with the public welfare. No one has an absolute right to do things in the privacy of his own home which will affect himself or others adversely.<sup>109</sup>

Therefore, an analysis of whether a statutory provision violates constitutional privacy protections must consider whether the state has demonstrated a sufficient public welfare justification for the statute and whether there is a "close and substantial relationship" between the statute and protection of the public welfare.<sup>110</sup> If such a relationship is not shown in cases where fundamental rights are involved, statutory prohibitions will be found unconstitutional:

The privacy of the individual's home cannot be breached absent a persuasive showing of a close and substantial relationship of the intrusion to a legitimate governmental interest...The state must demonstrate a need based on proof that the public health or welfare will in fact suffer if the controls are not applied.<sup>111</sup>

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(Footnote Continued)  
justify widespread concern, as least as compared with the far more dangerous effects of alcohol, barbituates and amphetamines." (Emphasis added) 537 P 2d. at 50<sup>a</sup>-510.

<sup>109</sup>Id. at 504.

<sup>110</sup>Id.

<sup>111</sup>Id. at 511.

In State v. Erickson,<sup>112</sup> the court applied the Ravin standard to a claim that the statutory prohibition against cocaine possession and use in the home violated the right to privacy. After an extensive discussion of the effects of cocaine, the court determined that cocaine presents a "substantial potential for harm" to the public welfare.<sup>113</sup> This was "a sufficient showing of societal risk" to legitimize prohibiting that which would be constitutionally protected in the absence of such a showing.<sup>114</sup> Therefore, the court ruled that criminalizing the personal use and possession of cocaine, by adults in their homes, does not impermissibly infringe on the individual's right to privacy.

In considering a challenge to that portion of the local option law which allows communities to ban importation of alcohol, the court in Harrison v. State,<sup>115</sup> began its analysis by ruling that there is no fundamental right to possess or consume alcohol in Alaska. However, the court pointed out that the privacy amendment to the state constitution "shields the ingestion of food, beverages or

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<sup>112</sup>574 P.2d 1 (1978).

<sup>113</sup>Id. at 22. As part of its evidentiary summary, the court acknowledged factual support for the contention that "cocaine is probably less dangerous than alcohol, barbiturates or amphetamines."

<sup>114</sup>State v. Erickson, 574 P.2d at 22 n. 144.

<sup>115</sup>687 P.2d 332, 338 (Alaska App. 1984).

other substances."<sup>116</sup> As a result of the determination that these activities are constitutionally protected, their regulation must be justified as a legitimate health and welfare measure. Since a law banning importation is strongly related to consumption of alcohol in the home, the Harrison court evaluated whether the ban on importation violates state constitutional privacy protections. The court emphasized that because the importation law indirectly regulates consumption of alcohol in the home, the state "bears a heavy burden of justifying the regulation as a legitimate health and welfare measure."<sup>117</sup>

After referring to undisputed evidence that "unmistakably established a correlation between alcohol consumption and poor health, death, family violence, child abuse, and crime,"<sup>118</sup> the Court of Appeals held that the state had met its burden of justifying the local option law as a health and welfare measure. In so ruling, the court made specific reference to previous rulings of the Alaska Supreme Court that had expressly recognized "the deleterious effects of consuming alcoholic beverages" and that had expressly found that alcohol is more dangerous than either

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<sup>116</sup>Id.

<sup>117</sup>State v. Harrison, 687 P.2d at 338.

<sup>118</sup>Id.

marijuana or cocaine.<sup>119</sup> The Court of Appeals upheld the law by concluding that "enactment of Alaska's local option law bears a close and substantial relationship to the legitimate legislative goal of protecting the public health and welfare by curbing the level of alcohol abuse in our state."<sup>120</sup>

#### Possession by Consumption

In 1972, the Legislature passed the Uniform Alcoholism and Intoxication Treatment Act.<sup>121</sup> The Uniform Act included a declaration of state policy relating to persons abusing alcohol:

It is the policy of the state that alcoholics and intoxicated persons should not be criminally prosecuted for their consumption of alcoholic beverages and that they should be afforded a

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<sup>119</sup>Id. at 338-39.

<sup>120</sup>Id. at 339. The court rejected Harrison's assertion that the local option law is not substantially related to a legitimate state purpose because the moderate consumption of alcoholic beverages may be medically beneficial:

While moderate use of alcoholic beverages may be beneficial, the evidence showing the harmful effects of consumption is undisputed. The legislature, after considering the severe social costs of alcohol abuse, concluded that all communities should have the option of controlling the level of local distribution and availability. Even though decreased restrictions on the availability of alcoholic beverages may, as Harrison argues, increase the proportion of moderate consumers to alcohol abusers, broadened access to alcoholic beverages will undoubtedly increase the absolute number of alcohol abusers. The threat posed to society by widespread alcohol abuse is enormous.






<sup>121</sup>A.S. 47.37.010 et seq.

DEPRESSANTS  
PSYCHEDELICS  
STIMULANTS

DRUG TYPE	NAME	ORIGIN	AVERAGE AMOUNT TAKEN
ALCOHOL	Beer Distilled spirits Wine	Grain Grain Fruit	12 ounces 1½ ounces 3 ounces
BARBITURATES	Chloral hydrate Doriden Nembutal Phenobarbital Seconal	Synthetic	500 milligrams 400 milligrams 400 milligrams 50-100 milligrams 50-100 milligrams
NARCOTICS	Codeine Demerol Heroin Morphine Morphine Opium Painex	Opium poppy Synthetic Opium poppy Synthetic Opium poppy Opium poppy Synthetic	1-2 grains 50-100 milligrams Varies 5-10 milligrams 10 grains Varies 15-20 grains
TRANQUILIZERS	Librium Miltown/Equanil Thorazine	Synthetic	5-25 milligrams 300-400 milligrams 5-25 milligrams
CANNABIS	Hashish Marijuana THC	Cannabis plant Cannabis plant Synthetic	Varies
HALLUCINOGENS	DMT LSD Mescaline Nutmeg Psilocybin Scopolamine STP	Synthetic Synthetic Cactus Nutmeg tree Psilocybe mushroom Henbane plant/synthetic Synthetic	Varies 150-200 micrograms 350 milligrams ¼ ounce 25 milligrams .5 milligrams 5 milligrams
AMPHETAMINES	Benzedrin Dexedrin Methedrin Preudin	Synthetic	25 milligrams
ANTIDEPRESSANTS	Elavil Ritalin Tofranil	Synthetic	10-25 milligrams
CAFFEINE	Coffee Cola No-Doz Tea	Coffee bean Kola nut Synthetic Tea leaves	1-2 cups 10 ounces 5 milligrams 1-2 cups
COCAINE			Varies
NICOTINE	Cigarettes Cigars Pipes Snuff	Tobacco leaves	Varies



The facts and determinations presented here are based on expert observation of real-life drug use by human beings in nonlaboratory settings. Drug types are listed alphabetically. Within each of the three major categories, color intensity suggests the degree of danger to the health of the individual user (assuming short-term use of average amounts and considering risk of addiction). The darkest shade indicates the greatest danger. Drug effects vary widely, depending on the quantity consumed, its purity, the presence of other drugs in the user's system and—most important—his personality and the setting in which he takes the drug. Data provided by Dr. Joel...

HOW TAKEN	SHORT-TERM EFFECTS OF AVERAGE AMOUNT		SHORT-TERM EFFECTS OF LARGE AMOUNT	RISK		
	DESCRIPTION	DURATION		HABITUATION (psychological)		
Swallowed		Relaxation, breakdown of inhibitions, euphoria, depression, decreased alertness	2-4 hours	Stupor, nausea, unconsciousness, hangover, death		
Swallowed		Relaxation, euphoria, decreased alertness, drowsiness, impaired coordination, sleep	4-8 hours	Slurred speech, stupor, hangover, death		
Swallowed/injected Sniffed/injected Swallowed/injected Injected Inhaled/swallowed Swallowed		Relaxation, relief of pain and anxiety, decreased alertness, euphoria, hallucinations	2-4 hours	Slurred speech, death		
Swallowed		Relief of anxiety and tension, suppression of hallucinations and aggression, sleep	12-24 hours	Drowsiness, blurred vision, dizziness, slurred speech, allergic reaction, stupor	Moderate	
Inhaled/swallowed Inhaled/swallowed Swallowed/injected		Relaxation, breakdown of inhibitions, alteration of perceptions, euphoria, increased appetite	2-4 hours	Panic, stupor	Moderate	
Inhaled Swallowed/injected Swallowed Swallowed/sniffed Swallowed Swallowed Swallowed		Perceptual changes—especially visual, increased energy, hallucinations, panic	1/2 hour 10-12 hours 12-14 hours Varies 6-8 hours Varies 12-14 hours	Anxiety, hallucinations, psychosis, exhaustion, tremors, vomiting, panic	Low	
Swallowed/injected			Increased alertness, excitation, euphoria, decreased appetite	1-3 hours	Restlessness, rapid breathing, irritability, hypertension, insomnia, weight loss	
Swallowed/injected			Relief of anxiety and depression, temporary impotence	12-24 hours	Nausea, hypertension, weight loss, insomnia	Low
Swallowed		Increased alertness	2-4 hours	Restlessness, insomnia, upset stomach		
Sniffed/injected		Feeling of self-confidence and power, intense exhilaration	4 hours	Anxiety, depression, nausea		
Inhaled Inhaled Inhaled Sniffed		Relaxation, constriction of blood vessels	1/4-2 hours	Headache, loss of appetite, nausea		

**RESTRICTIONS AND PENALTIES:** Alcohol, caffeine and nicotine are not legally considered drugs, though some restrictions apply. Sale of alcohol is banned in scattered localities; Federal laws restrict advertisement of cigarettes and distilled spirits and manufacture of alcoholic beverages; state and local restrictions govern the sale of alcohol and nicotine products to minors. Possession and sale of inhalants are generally unrestricted, though amyl nitrite and nitrous oxide require prescriptions. Possession

OF DEPENDENCE

LONG-TERM EFFECTS  
(continued excessive use)

MEDICAL  
USES

ADDICTION  
(physical)

TOLERANCE  
(increasing  
amounts  
needed for  
same effect)

Moderate

Obesity, impotence, psychosis, ulcers, malnutrition, liver and brain damage, delirium tremens, death

None

Excessive sleepiness, confusion, irritability, severe withdrawal sickness

For insomnia, tension and epileptic seizures

None

Possibly

Lethargy, constipation, weight loss, temporary sterility and impotence, withdrawal sickness

For cough  
Painkiller  
None in U.S.  
Withdrawal uses heroin  
Painkiller  
For diarrhea  
Painkiller

Moderate  
Moderate  
None

No

Destruction of blood cells, jaundice, coma, death

For tension, anxiety, psychosis; alcoholism

None

No

Fatigue, psychosis

For tension, depression, headache, poor appetite

None

Increased delusions and panic, psychosis

(LSD and psilocybin have been tested for treatment of alcoholism, drug addiction, mental illness and migraine)

None

Insomnia, excitability, skin disorders, malnutrition, delusions, hallucinations, psychosis

For obesity, depression, excessive fatigue, narcolepsy, children's behavior disorders

None

No

Stupor, coma, convulsions, congestive heart failure, damage to liver and white blood cells, death

For anxiety or over-sedation, children's behavior disorders

None

Restlessness, irritability, insomnia, stomach disorders

For oversedation and headache

None

Impaired breathing, heart and lung disease, cancer, death

None (used as insecticide)



of barbiturates, tranquilizers, amphetamines, antidepressants and some narcotics is legal only if prescribed. Among narcotics, there is no lawful use of opium or heroin; though opium powder is a component of certain prescription drugs. All hallucinogens except nutmeg are similarly illegal, as are cocaine and all Cannabis drugs. Maximum Federal penalties for possession of illegal drugs: first offense—one year in prison and \$5,000 fine; subsequent offenses—two years and \$10,000; much harsher penalties apply to sale. However, most drug convictions are made under state laws, which vary widely and arbitrarily and are often stricter than the Federal laws.

# Effects of Maternal Drinking and Marijuana Use on Fetal Growth and Development

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**ABSTRACT.** A study of 1,690 mother/child pairs at Boston City Hospital was conducted to assess the impact of maternal alcohol consumption on fetal development when confounding variables were controlled. Level of maternal drinking prior to pregnancy was associated with shorter duration of gestation. Lower maternal weight change, history of maternal illnesses, cigarette smoking, and marijuana use, however, were more consistently related to adverse fetal growth and development. New findings in this study include a negative association between maternal marijuana use during pregnancy and fetal growth. Also when confounding variables were controlled, women who used marijuana during pregnancy were five times more likely to deliver infants with features considered compatible with the fetal alcohol syndrome. *Pediatrics* 70:539-546, 1982; *maternal drinking, marijuana use, fetal development, maternal habits, fetal growth.*

Clinical studies in pregnant women have identified detrimental effects of alcoholism on their infants, and a pattern of growth and congenital abnormalities has been designated as the "fetal alcohol syndrome."<sup>1-3</sup> Studies that compared women who are abstinent or who drink rarely with women who are moderate or heavy drinkers have reported that maternal alcohol consumption at various levels is associated with lower birth weight infants,<sup>4-9</sup> an increase in spontaneous abortions and miscarriages,<sup>10,11</sup> premature infants,<sup>5,12</sup> and an increased risk that an infant will have morphologic and neurologic abnormalities.<sup>2,5,11</sup> The lowest reported amount of maternal drinking that has been associ-

ated with fetal risk is an average of 1 oz of absolute alcohol consumed per day during<sup>10,11</sup> or prior to pregnancy.<sup>13</sup>

However, some studies have reported no relation between level of maternal alcohol consumption and lower birth weight infants,<sup>14,15</sup> prematurity<sup>8,9,15</sup> or likelihood of congenital abnormality.<sup>4,14,15</sup> Nor have all the studies cited above controlled for numerous possible confounding factors that may contribute to adverse fetal development.<sup>16-19</sup> Most,<sup>4-8</sup> but not all,<sup>15</sup> studies that attempted to account analytically for confounding variables have found that level of maternal drinking is associated with lower birth weight, but only one prospective study that systematically collected data on drinking, has reported an increase in congenital and neurologic abnormalities among infants born to alcoholic women independent of smoking.<sup>8</sup>

This report presents the findings of a study designed to test whether maternal alcohol consumption at various levels prior to and during pregnancy is associated with several aspects of adverse fetal development when possible confounding variables are controlled. It is important to identify whether alcohol consumption or other interrelated maternal behaviors are more predictive of adverse fetal development.

## METHODS

A complete description of the study design and eligibility criteria has been published.<sup>20</sup> Of 3,222 mother/child pairs eligible for this study at Boston City Hospital from February 1977 through October 1979, 2,514 (78%) newborns received a physical examination including detailed neurologic, morphologic, and growth assessment by one of four study pediatricians, 75% before the third day of life. With the exception of one infant, these examinations

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were conducted without prior awareness of maternal drinking history or other interview data.

Any infant exhibiting three or more minor malformations or one or more major malformations was rated as having congenital abnormality (Table 1). Gestational age at birth was calculated using the Dubowitz score.<sup>21</sup> Criteria developed by the Fetal Alcohol Study Group of the Research Society on Alcoholism were used to diagnose fetal alcohol syndrome.<sup>22</sup> Because the reported incidence of the syndrome is rare (between 1 and 2 per 1,000 live births<sup>3</sup>) criteria developed by Hanson et al<sup>13</sup> were also used to classify whether or not infants had features compatible with the fetal alcohol syndrome (CFAS). Each infant was rated according to the following criteria: (1) small size for gestational age (weight, or length, or both less than third percentile); (2) microcephaly (head circumference less than the third percentile); (3) short palpebral fissures (palpebral fissure width less than 1.8 cm in infants  $\geq$ 36 weeks' gestational age); and (4) multiple dysmorphic features (two or more significant dysmorphic features judged by clinical observation) including: broad low nasal bridge, epicanthic folds,

long philtrum, small nails, limitation of joint movement, large hemangiomas, altered palmar crease patterns, cardiac murmurs, and ear anomalies. Infants were classified as having features compatible with the fetal alcohol syndrome if they were rated abnormal on at least two of four criteria. One of the two had to be either short palpebral fissures or multiple dysmorphic features.

Of the mothers whose babies were examined, 1,690 (67%) received a 30- to 40-minute structured interview in the hospital by one of five English- or Spanish-speaking women. Information was collected on a variety of variables thought to influence fetal development. The remaining mothers were not interviewed for various reasons: 1% of the mothers were too ill to be contacted by our interviewers; 7% did not speak either English or Spanish; 14% refused to be interviewed; and the remaining 11% were not contacted by our interviewers. Most of these were admitted late in the week and discharged on the weekend before they could be interviewed. Of the 708 eligible women whose babies were not examined, 235 were interviewed.

Infants and mothers for whom we had only par-

TABLE 1. Congenital Abnormalities Observed in Boston City Hospital Study

Major abnormalities	Anteverted nostrils
Cleft palate	Abnormal philtrum
Hypospadias	Neck
Imperforate anus	Short
Vertebral anomalies	Excessive skin folds
Cardiac abnormalities	Chest
Chromosomal abnormality	Accessory nipple
Tuberous sclerosis	Wide-spaced nipples
Stenotic/atretic ear canals	Abdomen
Minor	Inguinal hernia
Head	Genitourinary/anal
Large fontanel plus metopic sutures or third fontanel	Sacral dimple
Small fontanel plus metopic sutures or third fontanel	Sacral hair
Large fontanel plus widely spaced sutures	Lumbosacral sinus
Micrognathia	Hydrocele
Ears	Large clitoris
Abnormal shape	Small penis
Low-set ears	Extremities
Posterior slant $>10^\circ$	Hypoplastic finger or toenails
Ear tags	Clinodactyly
Ear pits	Syndactyly
Mouth	Increased space, toes 1 + 2
Prominent lateral bridge	Extra digits
Highly arched palate	Metatarsus adductus
Tongue enlargement	Toe overlap
Carp-shaped mouth	Malpositioned toes
Eyes	Club feet
Epicanthic folds	Rocker-bottom feet
Slanted eyes	Skin
Wide-spaced eyes	Café-au-lait spots
Nose	Hypopigmented spots
Prominent bridge	Hemangioma
	Lipoma
	Hyperpigmented spots

tial data did not significantly differ from those for whom we collected both maternal and infant data, except that mothers whose babies were not examined were less likely than those whose babies were examined to have received prenatal care (93% vs 97%).

Among the 1,690 women interviewed whose babies were examined, 328 English-speaking women also received a shorter interview at registration for prenatal care at the Boston City Hospital's Women's Clinic. This permits a reliability check on maternal data collected after delivery with data collected prior to delivery.

#### Characteristics of the 1,690 Mother/Child Pairs

**Infants.** Means and standard deviations for birth weight, length, head circumference, and palpebral fissure width of the 1,690 infants were  $3,228 \pm 535$  gm,  $49.0 \pm 2.5$  cm,  $34.4 \pm 1.5$  cm, and  $19.1 \pm 1.7$  mm, respectively. Nine percent of the infants were delivered at 37 weeks of gestation or less. One infant exhibited the full fetal alcohol syndrome. Congenital abnormality was observed in 2% of infants ( $N = 38$ ) and 2% ( $N = 36$ ) exhibited CFAS features.

**Mothers.** The 1,690 mothers reflect the young, low-income population served by Boston City Hospital (Table 2).

Respondents were asked what they ate on a typical day during pregnancy and responses were categorized according to meals and basic food group servings per day. One fifth of the women ate less than three meals daily. Mean weight of mothers prior to pregnancy was 134 lb, and mean weight gain during pregnancy was 30 lb. Three percent of the mothers lost weight and 17% gained more than 40 lb. A history of at least one of the following illnesses was reported by 20% of the respondents: hypertension, diabetes, tuberculosis, pulmonary disorders, venereal disease, or emotional disorders; 18% experienced acute illnesses during pregnancy eg, toxemia, viral disease, anemia, cystitis, *Trichomonas* infection, and gonorrhea.

Questions were also asked about the frequency and quantity of wine, beer, and liquor consumption prior to and during each trimester of pregnancy. We followed the assumption of previous research<sup>23</sup> that unless respondents specified otherwise, a drink meant either 12 oz of beer, 4 oz of wine, or 1.5 oz of liquor, each of which has approximately the same amount of alcohol. Prior to pregnancy 6% of the mothers drank two or more drinks daily and 2.8% drank that much during at least one trimester of pregnancy. During that trimester, the mean daily consumption of the group of women who drank two or more drinks was 6.0 drinks.

TABLE 2. Selected Characteristics of Mothers Interviewed at Boston City Hospital after Delivery, February 1977 to October 1979 ( $N = 1,690$ )

Age <18 yr	12%
Black	59%
Hispanic	22%
White/other	19%
Family income <\$500/mo	88%
Education <8th grade	15%
Primiparous	32%
No prenatal care	3%
Average daily consumption of drinks during pregnancy	
0	65%
0.01-0.99	28%
1.00-1.99	5%
2.00+	3%
Coffee (cups/wk during pregnancy)	
0	58%
0-6.99	24%
7-13.99	9%
14-20.99	5%
21+	5%
Meals/day during pregnancy	
1	2%
2	18%
3	80%
Use of vitamin and iron supplements	90%
Cigarette smoking during pregnancy	
Never	58%
<1/2 pack daily	16%
1/2-1 pack daily	12%
>1 pack daily	14%
Frequency of marijuana use during pregnancy	
Never	86%
<Once/mo	3%
Once/mo but < once/wk	3%
1-2 times/wk	6%
3 + times/wk	2%
Psychoactive drug use ever	
Heroin	2%
Amphetamines	7%
LSD	3%
Sedatives/barbiturates	9%
Psychoactive drug use during pregnancy	1%

#### Data Analysis

Many of the variables that might affect fetal development are highly interrelated. Variables significantly related to maternal drinking are shown in Table 3. To assess their relative impact, multiple regression analyses were conducted with infant birth weight, length, head circumference, and gestational age at birth as separate outcome variables. Separate logistic regressions were also conducted to differentiate from the rest of the mothers, those whose infants had either congenital abnormalities or CFAS features.

Because growth measures are highly influenced by gestational age at birth and because the relations

**TABLE 3.** Characteristics of Mothers Whose Babies Were Examined at Boston City Hospital, February 1977 to October 1979, According to Alcoholic Drinks Consumed During Pregnancy\*

	Av Drinks/Day			
	0 (N = 1,056)	0-.95 (N = 452)	1.00-1.99 (N = 77)	2.00+ (N = 45)
Cigarette smoking, 1 or more packs daily	14%	17%	12%	44%
Drug use ever				
Marijuana	30%	46%	58%	73%
LSD	1%	4%	5%	18%
Amphetamines	4%	10%	15%	22%
Sedatives	3%	5%	12%	15%
Heroin	1%	2%	13%	27%
Drug use during pregnancy				
Marijuana	9%	21%	25%	44%
Either sedatives, LSD, tranquilizers or heroin	0.4%	2%	3%	7%
Previous miscarriage or abortions	27%	33%	36%	56%
Age <21	38%	30%	39%	22%
3 or more previous pregnancies	13%	14%	28%	42%
Father drank 2+ drinks daily	3%	8%	12%	17%

\* Total of 1,690 mothers, 60 not included here.

between length of gestation and the growth measurements are curvilinear, the log of gestational age at birth was considered an independent variable in the growth regressions. Other independent variables were: maternal drinking prior to pregnancy and during pregnancy (average drinks per day), maternal cigarette smoking during pregnancy (packs per day), use of any psychoactive drugs (never, prior to pregnancy only, prior to and during pregnancy), coffee consumption during pregnancy (cups per week), marijuana use (never, prior to pregnancy only, prior to and during pregnancy), consumption of vitamin supplements during pregnancy, maternal height and weight prior to pregnancy, weight change during pregnancy, number of previous miscarriages and abortions, maternal age, race, education, nutrition during pregnancy, roentgenograms during pregnancy, frequency of father's drinking, sex of the child, serious maternal risks during pregnancy (accidents, toxemia, or epilepsy), number of maternal illnesses prior to pregnancy, and other acute illnesses during pregnancy.

Analyses were repeated using frequency of drinking, usual quantity of consumption on days respondents drank, and average daily volume of beer, wine, and liquor as separate drinking variables. Regardless of which was used, the pattern of results was similar.

## RESULTS

### Fetal Growth

Gestational age at birth accounted for the largest portion of the variance: in birth weight, 29%, in

birth length, 22%, and in head circumference, 29%. In addition to gestational age, eight other variables had independent associations with at least one growth ( $P < .01$ ) measure: younger maternal age, lower weight prior to pregnancy, lower weight gain during pregnancy, whether a mother was black, whether the infant was male, history of maternal illnesses, maternal cigarette smoking, and maternal marijuana use. All were associated with decreased growth. The results for each growth variable were similar.

The birth weight and gestational age analyses are shown in Table 4.  $\beta$ -Coefficients indicate the relative importance of the independent variables. These suggest that the impact of length of gestation on birth weight is at least twice that of any other variable. Maternal weight and weight change during pregnancy each in turn had nearly three times the impact of either smoking or marijuana use.

The independent impact of marijuana use on fetal growth has not been reported previously. Inspection of the unstandardized regression coefficients indicates that women who used marijuana during pregnancy delivered infants who averaged 105 gm smaller than babies of nonusers ( $P < .01$ ). Babies of women who used marijuana less than three times per week during pregnancy (12% of the sample) were 95 gm smaller ( $P < .01$ ) and babies of women who used marijuana three or more times per week (2% of the sample) were 139 gm smaller ( $P < .01$ ) than those of mothers who never smoked. In comparison, women who smoked one or more packs of cigarettes per day during pregnancy delivered babies 83 gm smaller ( $P < .01$ ) than those who

TABLE 4. Multiple Regression Analyses on Birth Weight and Gestational Age Using Data from Hospital Interviews\*

Dependent Variable	Independent Variables†	Increase in R <sup>2</sup>	β Coefficient
Birth weight	Gestational age	.29	.474
	Age at pregnancy	.03	.111
	Weight change during pregnancy	.03	.194
	Weight prior to pregnancy	.02	.187
	Black/not black	.02	.141
	Cigarettes/day	.01	-.058
	Infant sex	.008	.086
	Marijuana use	.003	-.069
	(N = 1343, R = .65, R <sup>2</sup> = .43)*		
Gestational age	Weight change during pregnancy	.02	.163
	Weight prior to pregnancy	.02	.128
	History of maternal illnesses	.01	-.086
	Infant sex	.004	.064
	Iron supplement consumption	.004	.058
	Father's drinking	.003	.072
	Average daily drinks prior to pregnancy	.005	-.073
	(N = 1365, R = .29, R <sup>2</sup> = .08)		

\* Whenever data were missing on any variable entered into regression, that mother/child pair was excluded from analysis. Infants not included in regression did not differ significantly in birth weight, length, or head circumference. However, those not included had shorter gestational ages ( $P = .06$ ). Women not included reported heavier drinking prior to and during pregnancy, were more likely to smoke cigarettes, and were more likely to report illness in their medical history ( $P < .05$ ).

† Variables significant at  $P < .05$ .

did not smoke cigarettes.

Frequency of marijuana use during each trimester was so highly interrelated ( $r = .7$  to  $.8$ ) that we were unable to identify the period during pregnancy when marijuana use was having an impact.

Whether mothers received no prenatal care ( $N = 44$ ), used hashish ( $N = 4$ ), or took prescription medications during pregnancy ( $N = 63$ ), and whether the father ever used psychoactive drugs ( $N = 119$ ) were not entered in the initial regressions because missing responses would have reduced the sample by nearly 100 women. Regression analyses that accounted for these variables yielded similar results, except that use of prescription drugs during pregnancy was also significantly associated with smaller infants.

#### Gestational Age

Maternal weight prior to pregnancy, weight change during pregnancy, and history of maternal illnesses accounted for the most variance in gestational age at birth (Table 4). Although level of maternal drinking did not influence infant size, maternal drinking prior to pregnancy was significantly related to shorter gestation.

#### Congenital Abnormality

Of the 1,380 infants in the logistic regression analysis, 34 had been rated as abnormal. Based on

logistic regression estimates when potential confounding variables were controlled, women who gained less than 5 lb during pregnancy were 1.9 times more likely (1.0 to 3.3 is the 95% confidence interval) to deliver infants with abnormalities than women who exhibited the mean weight gain in the sample ( $P < .01$ ). Although not statistically significant, women who had three or more illnesses prior to pregnancy were four times more likely (0.9 to 17.1) to deliver infants with abnormalities than women with no illnesses ( $P < .06$ ). The relative risk for women who drank two or more drinks daily during pregnancy compared with nondrinkers was 1.5 (0.4 to 6.1) and not significant.

#### Features Compatible with Fetal Alcohol Syndrome

Of the 1,384 infants in the logistic regression analysis 31 had features compatible with the fetal alcohol syndrome. Women who smoked marijuana during pregnancy were five times more likely than nonusers (2.0 to 12.7) to deliver a child with CFAS features ( $P < .001$ ). Women who gained less than 5 lb during pregnancy were 2.6 times (1.4 to 4.6) more likely to deliver a CFAS child than women who exhibited the mean weight gain in the sample ( $P < .001$ ). The relative risk for women who were exposed to roentgenograms was 2.8 (1.1 to 6.1) compared with women who were not exposed ( $P <$

.02). In contrast the relative risk for women who averaged two or more drinks daily compared with nondrinkers was 0.6 (0.1 to 3.1) and not significant.

#### Women Interviewed in Hospital and Prenatal Clinic

We were concerned that the inconsistent relations between level of maternal drinking and adverse fetal outcomes may have resulted from drinking being systematically under-reported in the hospital after delivery because women may have known that their child was small or abnormal. Women identified as being drinkers in the Boston City Hospital prenatal clinic were systematically advised prior to delivery not to drink because a relationship between maternal drinking and small infant size at birth had been identified in previous research at this prenatal clinic.<sup>18</sup> Among the 328 women interviewed both in the prenatal clinic prior to delivery and in the hospital after delivery, 9.2% reported in the prenatal clinic interview that they "usually" drank two or more drinks daily. Based on the hospital interview, 8.2% of the 328 reported averaging two or more drinks daily prior to pregnancy; 3.8% of the 328 women reported two or more drinks daily during pregnancy.

To test whether timing of the interview affected relationships between drinking and fetal outcome we ran regression analyses on infant growth data and gestational age of the 328 infants. First, we used hospital interview reports of average daily consumption of drinks prior to pregnancy and during pregnancy and then substituted the prenatal clinic drinking data. Hospital responses on other maternal variables were used. In this subset of 328 mothers, regardless of whether hospital or prenatal drinking data were used, maternal marijuana and drinking each related to smaller infant size. The results were so similar that we doubt the lower levels of drinking reported in the hospital interview masked relationships between drinking and adverse fetal growth.

When the interview data on women interviewed in both sites were compared, 15% of women in the prenatal clinic interview reported marijuana use during pregnancy compared with 18% among the same women in the hospital interview. Of the 72 women who reported use in either place, only 36 reported use in both interviews. Some of the marijuana use reported in the hospital interview may have occurred after the prenatal interview.

Regression analyses examining fetal growth outcomes and length of gestation were also run, first using marijuana data from the hospital and then substituting that with marijuana data obtained in the prenatal clinic. Whereas marijuana use during pregnancy as reported in the hospital was related

to smaller infant size but not length of gestation, maternal marijuana use reported in the prenatal clinic was not related to infant size but was weakly associated with shorter length of gestation ( $P = .07$ ). Thus, although the relationships were not identical, regardless of whether marijuana use was measured prior to or following delivery, it was associated with some aspect of fetal risk.

#### DISCUSSION

In the overall sample from the Boston City Hospital when potential confounding variables were considered, level of maternal drinking prior to pregnancy was significantly related to shorter gestation—an important risk—but neither level of drinking prior to pregnancy nor during pregnancy was significantly related to infant growth measures, congenital abnormality, or features compatible with the fetal alcohol syndrome. Although the small number of heavy drinkers in our study does not permit us to exclude that drinking pattern as a contributor to infants' having features compatible with fetal alcohol syndrome, our results raise the possibility that other maternal habits are more common and also may be more predictive of infants' exhibiting these features.

For example, compared with nonusers, women who used marijuana during pregnancy delivered smaller infants as well as infants who were nearly five times more likely to have features considered compatible with the fetal alcohol syndrome. This potentially detrimental impact of maternal marijuana use has not previously been reported in humans. In a study of 291 mothers Fried<sup>24</sup> observed a nonsignificant univariate association between maternal marijuana use and smaller infant birth weight and a significant association with infant nervous system abnormalities. Detrimental effects of marijuana on fetal development of mice,<sup>25</sup> rats,<sup>26</sup> rabbits,<sup>27</sup> and monkeys<sup>28</sup> have been reported. Abel<sup>29</sup> has reviewed the methodologic strengths and limitations of these studies.

Several aspects of our study should be considered in interpreting these results. First, because chronic heavy drinking was infrequently reported in our sample, we can reach no conclusion about the adverse effects of heavy drinking. Second, our results should be generalized cautiously inasmuch as only 67% of women whose babies were examined were interviewed. Mothers who were interviewed may have differed from those not interviewed, even though infants in the two groups were similar by our measures.

Third, although women were not counseled against using marijuana during pregnancy, marijuana use is illegal and we cannot be certain use

was fully reported. However, the reported levels of marijuana use at any time among 16 to 19 year olds in our sample were similar to reported levels that we observed in a statewide, anonymous, random digit dialing telephone survey among 480 women aged 16 to 19 years in Massachusetts in 1979.<sup>10</sup>

Fourth, it is not possible to determine the strength and exact composition of the marijuana used, or whether herbicides or paraquat may have been contained in the marijuana.

Fifth, of all the measures used in the study, we recognize that our nutritional assessments were particularly crude. Because women were interviewed after at least one day of hospitalization, we asked them to report their usual eating habits during pregnancy, not their diet of the previous 24 hours. Diet recall over the pregnancy period should be accepted with considerable caution. Sixth, we only accounted for 8% of the variance in gestational age of birth. We did not examine placentas for infection nor perform cultures for genital *Mycoplasma* during prenatal care. This information might contribute to the explained variance for gestational age and might have changed the independent effect of the variables that we found to be significant.

Nonetheless, many of our results are consistent with previous research. For example, by far the most important factors predicting infant size at delivery were gestational age of the child, followed by maternal weight prior to pregnancy and weight change during pregnancy. Maternal race, age at pregnancy, illnesses during pregnancy, cigarette smoking, and marijuana use also have a significant impact.

## IMPLICATIONS

Our findings that maternal marijuana use during pregnancy was associated with smaller infant size at birth and features considered compatible with the fetal alcohol syndrome underline the need for further exploration into teratogenicity in offspring of women using that substance during pregnancy. Nevertheless, although this study attempted to account analytically for numerous potential variables that may have confounded the observed relationships, at this point we must caution against the firm conclusion that marijuana use causes fetal growth retardation. Maternal behaviors such as drinking, smoking, marijuana use, and psychoactive drug use are difficult to measure reliably, are interrelated, and may well be related to as yet unexplored maternal or paternal factors that also influence fetal development. Assessing many of the minor congenital anomalies and "fetal alcohol features" also requires subtle clinical distinctions.

Studies on fetal development that have consid-

ered only a single variable or a few variables may have attributed greater influence to the variables studied than may actually be warranted. For example, had we examined cigarette smoking and birth weight without consideration of confounding variables, we could have concluded that women who smoked at least one pack per day during pregnancy (N = 177) delivered babies whose mean birth weight is 194 gm less than that of babies whose mothers never smoked ( $P < .0001$ ). Controlling for confounding variables, the actual impact was 83 gm ( $P < .01$ ). Similarly, marijuana use during pregnancy (N = 181) examined in isolation was associated with infants who were 300 gm lighter than infants of nonusers ( $P < .001$ ). Controlling for confounding variables reduced the difference to 105 gm ( $P < .01$ ). Women who drank two or more alcoholic drinks per day during pregnancy (N = 30) had babies that were 228 gm lighter when confounding variables were not considered ( $P < .04$ ). When confounding variables were considered, the difference was 51 gm and not significant.

The results underline the difficulty in isolating and proclaiming single factors as the cause of abnormal fetal development. Whereas there is a need to warn people about specific agents that may retard or adversely influence fetal development, studies that attempt to identify specific agents should place their results in this multivariate context. In this study the quantitative impact of each behavior was relatively minor, whereas the impact of a lifestyle that combines smoking, drinking, marijuana use, etc, is more marked. Studies that identify specific agents as risk factors for growth failure without examination of a host of confounding variables may best be regarded as identifying factors that are symptomatic of a higher risk pregnancy, rather than a definite cause of pregnancy risk.

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# CANNABIS and Health Hazards

PROCEEDINGS OF AN ARA/WHO  
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