Fact Sheet: Marijuana Effects

State of the Science

"Marijuana use has been associated with substantial adverse effects, some of which have been determined with a high level of confidence." So say leading scientists who conducted a review of research in the *New England Journal of Medicine*. Adverse effects are summarized in this table, quoted from the article:

Effects of short-term use

- Impaired short-term memory, making it difficult to learn and to retain information

- Impaired motor coordination, interfering with driving skills and increasing the risk of injuries

- Altered judgment, increasing the risk of sexual behaviors that facilitate the transmission of sexually transmitted diseases

- In high doses, paranoia and psychosis

Effects of long-term or heavy use

- Addiction (in about 9% of users overall, 17% of those who begin use in adolescence, and 25 to 50% of those who are daily users)*

- Altered brain development*

- Poor educational outcome, with increased likelihood of dropping out of school*

- Cognitive impairment, with lower IQ among those who were frequent users during adolescence*

- Diminished life satisfaction and achievement (determined on the basis of subjective and objective measures as compared with such ratings in the general population)*

- Symptoms of chronic bronchitis

- Increased risk of chronic psychosis disorders (including schizophrenia) in persons with a predisposition to such disorders

* The effect is strongly associated with initial marijuana use early in adolescence.

Quoting Key Points

Lower IQ
"The negative effect of marijuana use on the functional connectivity of the brain is particularly prominent if use starts in adolescence or young adulthood, which may help to explain the finding of an association between frequent use of marijuana from adolescence into adulthood and significant declines in IQ."

Gateway Drug
"Although these findings support the idea that marijuana is a gateway drug, other drugs, such as alcohol and nicotine, can also be categorized as gateway drugs, since they also prime the brain for a heightened response to other drugs."

Mental Illness
"Marijuana is also linked with psychoses (including those associated with schizophrenia), especially among people with a preexisting genetic vulnerability."

Quality of Life
"Heavy marijuana use has been linked to lower income, greater need for socioeconomic assistance, unemployment, criminal behavior, and lower satisfaction with life."

Impact on Driving
"In an accident culpability analysis, persons testing positive for THC (typical minimum level of detection, 1 ng per milliliter), and particularly those with higher blood levels, were 3 to 7 times as likely to be responsible for a motor-vehicle accident as persons who had not used drugs or alcohol before driving."

Impact of Higher THC Levels
"This increase in THC [from about 3% in the 1980s to 12% in 2012] content raises concerns that the consequences of marijuana use may be worse now than in the past and may account for the significant increases in emergency department visits by persons reporting marijuana use51 (Fig. 1B) and the increases in fatal motor-vehicle accidents. This increase in THC potency over time also raises questions about the current relevance of the findings in older studies on the effects of marijuana use, especially studies that assessed long term outcomes."

Policy Research Needed
"Research is needed on the ways in which government policies on marijuana affect public health outcomes. Our understanding of the effects of policy on market forces is quite limited (e.g., the allure of new tax-revenue streams from the legal sale of marijuana, pricing wars, youth targeted advertising, and the emergence of cannabis-based medicines approved by the Food and Drug Administration), as is our understanding of the interrelated variables of perceptions about use, types of use, and outcomes."

Second Hand Smoke Research Needed
"We also need information about the effects of second-hand exposure to cannabis smoke and cannabinoids."

Legal Drugs Model
". . .legal drugs (alcohol and tobacco) offer a sobering perspective, accounting for the greatest burden of disease associated with drugs not because they are more dangerous than illegal drugs but because their legal status allows for more widespread exposure."

Source: Nora D. Volkow, M.D., Ruben D. Baler, Ph.D., Wilson M. Compton, M.D., and Susan R.B. Weiss, Ph.D. "Adverse Health Effects of Marijuana Use." *The New England Journal of Medicine*, June 5, 2014, pp 2219-2227.