

Marijuana's Contribution to Preventable Deaths in the U.S. in 1990

HIGHLIGHTS:

In 1990 there were approximately 2,120,000 deaths in the United States. Of these deaths 1,060,000 (50%) appear to be preventable.

A comparison of some 1990 preventable deaths (from pages 2 & 3):

Cause	# Deaths	Estimated Deaths Per 100,000 Users ¹
Tobacco	400,000	656
Alcohol	100,000	91
Motor Vehicles ²	25,000 ²	13 ³
Cocaine	3,526	235
Heroin/Morphine	2,806	1,403
Marijuana/Hashish	296	3
Methamphetamines/Speed	280	35
Caffeine	76	0.06

¹Deaths per 100,000 users figure is based on the number of deaths each drug or activity contributed to in 1990 divided by the number of persons taking the drug or doing activity in the past 30 days from May 5, 1997 *TIME* magazine article "Addicted" by J. Madeleine Nash.

²Without alcohol or drugs.

³Obtained by dividing the number of deaths associated with motor vehicles by the number of registered automobiles in the U.S. in 1990 as given by the U.S. Department of Commerce, *Statistical Abstract of the United States*, 1996, pp. 622.

Compiled & Published

by

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Source Data:

—J. Michael McGinnis, MD, MPP & William H. Foege, MD, MPH (1993): Actual Causes of Death in the United States, *Journal of the American Medical Association* Vol. 270, No. 18.

—United States Department of Health and Human Services, Office of Applied Studies, Substance Abuse and Mental Health Services, *SAMHSA Statistics Sourcebook*: August 1995.

—National Institute on Drug Abuse, *Annual Medical Examiner Data, 1990: Data From the Drug Abuse Warning Network (DAWN) Series 1, No. 10-B*. Washington, DC: United States Department of Health and Human Services; 1990, publication ADM 90-1717.

INTRODUCTION & METHODOLOGY

1. By the publisher:

The article "Actual Causes of Death in the United States", *Journal of the American Medical Association* ("JAMA") Vol. 270, No.18, pp. 2207-2212 by McGinnis and Foege (1993) was interesting as it included specific preventable causes of death, as opposed to general statements.

I used the deaths reported in that article as the foundation of this compilation to which was added a breakdown of the illicit drug deaths from the Substance Abuse and Mental Health Services Sourcebook, August 1995 edition, as well with its percentage of deaths. Then a subschedule for the illicit use of drug was compiled using figures from the National Institute on Drug Abuse, *Annual Medical Examiner Data*, 1990 publication.

Table 2.06a of the *Annual Medical Examiner Data* publication provided a listing of the number of mentions for each drug most frequently mentioned by medical examiners from drug related deaths in 1990. This report was based on a total of 14,081 drug mentions, and a breakdown of individual percentages was tabulated by dividing the number of respective mentions by the total.

The estimated number of deaths was then calculated taking the corresponding percentage of the 20,000 deaths attributed to illicit drug use from the McGinnis and Foege article.

2. By Drs. McGinnis & Foege (1993):

Actual Causes of Death in the United States, *JAMA* 270 (18): 2207-2212. This report was a meta-analysis¹ intended to identify and quantify the major external (non-genetic) factors that contribute to death in the United States. From the "Methods" section of the doctors' article:

"This article summarizes published reports that attributed deaths to (preventable contributors) and presents a composite approximation of the totals reported for each. Articles published between 1977 and 1993 were identified through MEDLINE searches, reference citations, and expert consultation. Government reports and compilations of vital statistics and surveillance data were also obtained. All relevant analysis were reviewed in full. Those selected for use in developing estimates were those most often cited and those for which the methodological assumptions could be identified.

The limitations in the data should be underscored both with respect to deficiencies in the primary databases and to the disparate approaches used in the studies reviewed to arrive at estimates of the contribution of a factor to a particular health outcome. In some cases, assignments were attempted through simple tallies of available information about the presence or absence of a factor in association with a given outcome. In other cases, population attributable risk calculations were used to arrive at estimates based on determinations of the relative risk for a particular health outcome of a population exposed to a specific health risk. Some of the studies presented meta-analyses of reports in the literature on a given topic. Estimates were often limited by the adequacy of information as to disease prevalence, and the nature of the relationship to other contributing risk factors for the disease.

Despite their limitations, the results of such studies provide a sense of the relative impact of various factors on health in the United States. Derivation of the numbers presented in the Table is explained (in the remaining portion of the article) in the discussion of each category. Where well-established methodologies have been developed for making the estimates, as with tobacco and alcohol, they have been used approximately as reported. For areas of greater uncertainty, such as diet and activity patterns and toxic agents, a sum of the lower boundaries of the estimates for various disease outcomes has been used. Although several of these factors are interrelated in their actions, care has been taken to avoid double counting. Given the fragility of the data base involved and the fact that the studies cited use different approaches to derive estimates, these numbers should be viewed as first approximations."

¹ A meta-analysis refers to the analysis of multiple studies using different approaches to derive estimates, ranging from actual counts to population attributable risks.

Actual Causes of Preventable Deaths in the United States, 1990¹

<u>Cause of Death</u>	<u>Number of Deaths</u>	<u>% OF TOTAL Preventable Deaths</u>
1. Tobacco	400,000	37.7
2. Diet/Activity Patterns (physical inactivity, obesity)	300,000	28.3
3. Alcohol	100,000	9.4
4. Toxic Agents (occupational hazards, environmental pollutants, contaminants of food and water supplies, and components of commercial products)	90,000	8.5
5. Microbial Agents (unassociated with HIV infection, nor due to use of tobacco, alcohol or drugs)	60,000	5.7
6. Firearms (homicides, suicides, accidental deaths)	35,000	3.3
7. Sexual Behavior (sexually transmitted disease, cervical cancer, abortions)	30,000	2.8
8. Motor Vehicles (passengers and pedestrians-unassociated with alcohol/drugs)	25,000	2.4
9. Illicit Use of Drugs (use of both legal and illegal drugs including overdoses, drug related HIV infection, drug associated automobile injuries, and hepatitis infections)	20,000 ²	1.9
A. Cocaine	3526	.33
B. Alcohol-in-combination	3272	.31
C. Heroin/Morphine ³	2806	.26
D. Codeine	968	.09
E. Diazepam (Valium)	714	.07
F. Methadone	598	.06
G. Amitriptyline	558	.05
H. Nortriptyline	464	.04
I. D-Propoxyphene	366	.03
J. Diphenhydramine	318	.03
K. Acetaminophen	296	.03
L. Marijuana/Hashish ⁴	296	.03
M. Methamphetamine/Speed	280	.03
N. Remaining 57 drugs most frequently mentioned ⁵	5316	.52
Total	<u>1,060,000</u>	<u>100.0</u>

¹ Data was drawn from selected sources published between 1977 and 1993 and a table quantifying the contributions of each of the leading factors was compiled using actual counts, generally accepted estimates, and correcting to avoid double counting. In the circumstance of uncertainty, a conservative approach was taken. A recompilation of these statistics from U.S. Department of Health and Human Services, Office of Applied Studies, Substance Abuse and Mental Health Services, *SAMHSA Statistics Sourcebook*: August 1995, Vol. 9 was also referenced.

² Figures for sub-scheduling of drugs were taken from National Institute on Drug Abuse, *Annual Medical Examiner Data, 1990: Data From the Drug Abuse Warning Network (DAWN) Series 1, No. 10-B*. Washington, DC: US Dept. of Health and Human Services; 1990. US Dept of Health and Human Services publication ADM 90-1717. Numbers of deaths resulting from each drug were calculated using the number of mentions of each drug divided by the total number of drug mentions. Percentages were then taken from the 20,000 subtotal resulting from illicit use of drugs of the previous reports.

³ Includes opiates not specified as to type.

⁴ As both marijuana and hashish are derived from the cannabis plant and have tetrahydrocannabinol (THC) as their psychoactive ingredient, they were probably treated as a single drug. On June 17, 1997, the Office of Applied Studies of SAMHSA said there have been no recorded deaths from an overdose of marijuana.

⁵ N. 57 Additional drugs most frequently mentioned which led to 279 or less deaths (drugs with less than 10 mentions are excluded).

Drug Name	Number of Deaths	% of Total	Drug Name	Number of Deaths	% of Total
1. Lidocaine	222	.020	30. Mesoridazine	38	.0036
2. Desipramine	204	.019	31. Carisoprodol	36	.0034
3. Doxepin	204	.019	32. Ethchlorvynol	36	.0034
4. Unspec Benzodiazepine	196	.019	33. Oxycodone	36	.0034
5. PCP/PCP Combination	182	.017	34. Trazodone	36	.0034
6. Phenobarbital	180	.017	35. Lithium Carbonate	34	.0032
7. Amphetamine	158	.015	36. Oxazepam	34	.0032
8. Aspirin	158	.015	37. Triazolam	32	.0030
9. Chlordiazepoxide	150	.014	38. Amobarbital	32	.0030
10. Fluoxetine	146	.014	39. Dextromethorphan	32	.0030
11. Imipramine	128	.012	40. Benztropine	30	.0029
12. Alprozolam	106	.010	41. Pentobarbital	30	.0029
13. Hydantoin	92	.0087	42. Amoxapine	28	.0027
14. Quinine	90	.0086	43. Haloperidol	28	.0027
15. Thioridazine	90	.0086	44. Hydroxyzine	26	.0025
16. Secobarbital	88	.0084	45. Phenylpropanolamine	26	.0025
17. Flurazepam	86	.0082	46. Cyclobenzaprine	26	.0025
18. Butalbital	80	.0076	47. Ephedrine	26	.0025
19. Caffeine	76	.0072	48. Promethazine	22	.0021
20. Meprobamate	74	.0070	49. Pseudophedrine	22	.0021
21. Hydrocodone	64	.0061	50. Lorazepam	22	.0021
22. Doxylamine Succinate	62	.0059	51. Hydromorphone	20	.0019
23. Temazepam	60	.0057	52. Propanolol HCL	20	.0019
24. Chlorpheniramine	58	.0055	53. Ibuprofen	18	.0017
25. Chlorpromazine	56	.0053	54. Digoxin	17	.0016
26. Meperidine HCL	50	.0048	55. Oxymorphones	17	.0016
27. Theophylline	48	.0046	56. Pyrimethamine	16	.0015
28. Carbamazepine	44	.0042	57. Alcohol Substitutes	14	.0013
29. Glutethimide	44	.0042			

Steven C. Markoff is a Santa Monica, California businessman interested in US Drug Policy.

This report is one of a series that looks at various facts related to our nation's drug policy.

Other reports include:

- #1 "State-By-State Marijuana Laws (As of December 31, 1996)"
- #2 "Addictiveness of Marijuana vs. Five Commonly Used Drugs"
- #4 "Some of The Drugs America Takes"

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