

DRUG INDUCED DEATHS IN PUERTO RICO 1990-2000: EVIDENCE OF A PUBLIC HEALTH EMERGENCY

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INTRODUCTION

A growing number of studies from the U.S. and other countries have found important recent increases in drug induced deaths, including accidental drug overdose¹⁻³. The experience of the population of Puerto Rico with drug induced deaths, however, has remained unexamined. This study analyzed trends in drug induced deaths occurring in Puerto Rico between 1990 and 2000.

METHODS

Data was obtained from the Demographic Registry of the Puerto Rico Department of Health. The CDC criteria for classifying death causes as drug induced was used. Table 1 lists the ICD9 and ICD10 death codes used in the CDC definition of drug induced causes. From the death certificate database, all records with a first cause of death matching the CDC list and occurring between 1990 and 2000 were extracted. Information extracted included date of death, first three causes of death, age at death, gender, and municipality of residence. Per capita rates were calculated for each year and each gender and five-year age groups. The U.S. 2000 Census data was used to standardized the rates to the the U.S. 2000 population to allow comparisons with overall US rates. Causes of deaths were grouped into five major causes: 1) Accidental poisoning or overdose, 2) intentional self-poisoning or suicide, 3) undetermined poisoning, 4) drug use disorders, and 5) assault with drugs.

Figure 1. Drug induced death rates in Puerto Rico more than doubled from 6.2 in 1990 (218 deaths) to 13.2 (452 deaths) in the year 2000. During the same period, rates in the US increased 87% from 3.8 in 1990 to 7.4 in 2000. The relative risk of drug induced deaths in Puerto Rico compared to the US was 1.63 in 1990 and increased to 1.85 by the year 2000. The largest increases in deaths were registered during 1992 and 1993 (34.6% annually). Rates continued to increase from 1994 to 2000 at an average annual percentage of 5.5%.



Figures 2 and 3. Mean age and gender distribution did not show a particular trend throughout the period, remaining stable with some fluctuations. Inspection of the age and gender specific rates, however, revealed rate increases of 100% or more among males 15-19 and 40-59 years old and among females 35-39, 45-49 and 65 years old or more.

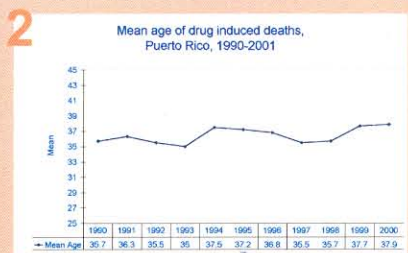


Table 1. CDC death codes included in definition of drug induced deaths⁴

Cause Groups	ICD9	ICD10
Accidental poisoning (overdose)	E85	X40-X49
Intentional self-poisoning (suicide)	E95	X60-X64
Poisoning (undetermined whether accidental or purposively)	E98	Y10-Y14
Drug use disorders	292, 304, 305	F11-F19
Assault (homicide) by drugs	E96	X85

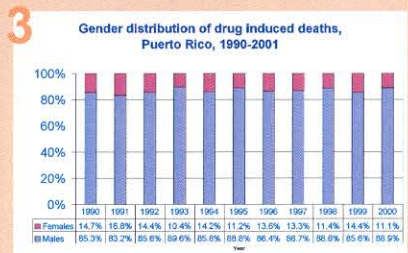
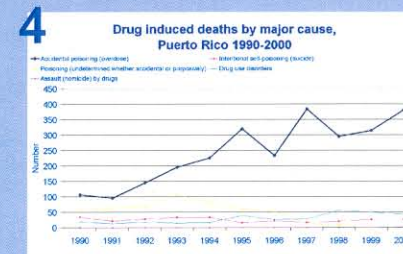
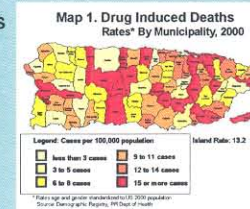


Figure 4. Overdose was the only major cause to exhibit a consistently increasing trend. Drug overdose deaths increased approximately 20% each year from 1992 to 2000. From approximately 100 overdose deaths per year during 1990-91, the number of fatal drug overdoses has grown fourfold to approximately 400 during 2000. Deaths due to drug use disorders also showed some increase around 1995, from an average of 16 deaths per year in the period 1990-94 to an average of 40 deaths per year in the period 1995-2000. Undetermined poisoning showed a decreasing trend from approximately 60 cases in 1990-91 to about three deaths a year from 1998 to 2000. This decreasing trend suggests a gradual classification shift towards avoiding the undetermined category. Nonetheless, the downward shift in the number of deaths classified as undetermined poisoning cannot account for the marked upward shift in overdose deaths.



Map 1. The map shows the drug induced death rates by municipality. As expected, municipalities around the highly urbanized San Juan metro area, and those linking San Juan with Ponce in the south coast, showed high death rates. However, the cluster of municipalities with high rates around the central mountainous area (Utua, Jayuya, Ciales) are not usually considered an area of high intensity drug abuse problems.



CONCLUSIONS

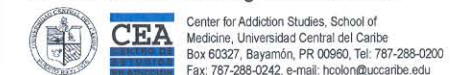
The results of this study show that drug overdose deaths in Puerto Rico have consistently increased since the early 1990s and continue to do so. The current rate of drug induced deaths in Puerto Rico is almost twice as high as the national average. There is an urgent need for increased awareness and education among drug users concerning the risks of overdose, particularly its relationship with rapid fluctuations in drug purity. Up to date surveillance linked to expanded drug treatment and emergency room programs are urgently required to curb the increasing trend of drug induced deaths.

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