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An Epidemic of Intravenous Narcoticism Deaths Associated with the Resurgence of Black Tar Heroin

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ABSTRACT: In the latter part of 1985, a dramatic rise in the number of illicit narcotic (heroin) related deaths in the State of New Mexico became apparent, and this increase persisted through the majority of the following year. A careful inspection of samples of narcotics found at the scenes of death, coupled with changes in the illicit drug traffic detected by local and state law enforcement agencies, revealed that the rising death rate corresponded with the distinctively increased availability of a form of heroin that is produced in Mexico, commonly termed "black tar" heroin. An analysis of heroin deaths, comparing characteristics of cumulative deaths in the six years before the increase with those deaths associated with the apparent epidemic, revealed several significant observations. These factors, along with the distinctive physical features of black tar heroin, suggest that the rise in the narcotic abuse death rate may be related to both unfamiliarity with this type of heroin on the part of the user and the inherent difficulty of diluting nonpowdered forms of the drug to sublethal levels.

KEYWORDS: toxicology, criminalistics, heroin, death

Heroin abuse in New Mexico has been an identified problem for over 40 years. For decades, the overwhelming majority of heroin users in this part of the Southwestern United States have been of Hispanic ethnicity. In addition, the usage pattern frequently manifested cultural features, such as cultivation of the habit of heroin abuse from generation to generation within families. Also, although there is a certain distinct subset of the narcotics using population who are addicted and exhibit a daily use pattern, many of the individuals use heroin as a weekend, recreational outlet, in a manner similar to end-of-the-week alcohol binge drinking. Most of the people who abuse heroin are of lower socioeconomic groups, and while many of the intermittent users are engaged in some sort of gainful (albeit low paying) employment, the problems of prostitution, burglary, robbery, and other similar criminal activities are associated with the narcotics trade in New Mexico just as in other parts of the country.

In the latter part of 1985, it became apparent that the death rate in New Mexico from heroin abuse had taken a sudden and pronounced trend upward, and close monitoring of the subsequent year revealed that the death rate continued to be elevated, with respect to the previous six years (Fig. 1). Although the death rate had slowly increased annually since 1980,

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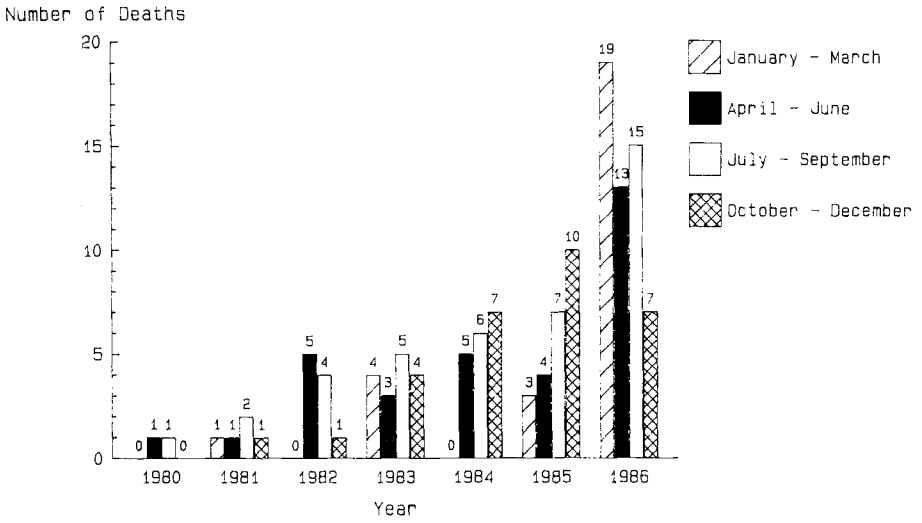

FIG. 1—*Heroin deaths in New Mexico, 1980 through 1986.*

this could be accounted for by both the gradual increase in the population of New Mexico (which in 1986 totaled 1.48 million), as well as the perception on the part of law enforcement agencies that the illicit drug trade was slowly proliferating. However, the number of deaths as a consequence of intravenous narcoticism totalled 54 for the calendar year 1986 alone, compared with 75 for the period 1980 through 1985, signifying an increase that could not be accounted for by either of the forementioned gradual processes.

In an attempt to delineate factors that could account for the alarming increase in illicit narcotics deaths, all of the illicit narcotics abuse deaths in the State of New Mexico for the cumulative first six years of the decade were compared with those that occurred only in 1986. On the basis of sex, the percentage of female deaths had increased in 1986, to 13% of the total, from 8% in the previous six years. However, the clear majority of deaths occurred in males (Fig. 2). Inspection of the ethnic parameters revealed a distinct Hispanic preponderance in both men and women, with virtually no significant change in percentage distributions between the two time periods (Table 1). The most distinctive difference between the two populations was apparent in the breakdown of ages at which death from intravenous narcoticism occurred; a definite shift towards older age groups was demonstrated in the 1986 deaths, with a concomitant decrease in deaths in younger age groups (Fig. 3). The peak incidence of death for the 1986 population segment was in the 31- to 35-year age group, as

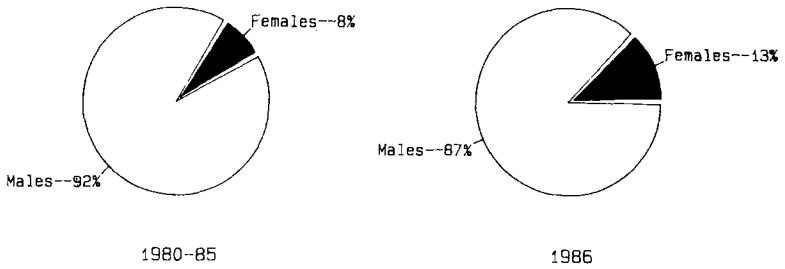

FIG. 2—*Percentage distributions of male and female narcotics abuse deaths, 1980 through 1985 (males = 69, females = 6) compared with 1986 (males = 47, females = 7).*

TABLE 1—*Narcotics related deaths by population groups.*

Year	Hispanic	Anglo	Black
	MALE		
1980-1985	48 (70%)	21 (30%)	0
1986	34 (72%)	12 (26%)	1 (2%)
	FEMALE		
1980-1985	4 (67%)	2 (33%)	0
1986	4 (57%)	3 (43%)	0

compared with a peak in the 26- to 30-year age block from 1980 through 1985. In addition, deaths in older individuals, even up to and greater than 50 years of age, were increased, whereas there were comparatively few deaths in the age group of less than 20 years.

After discussion with law enforcement agencies in Albuquerque and other parts of New Mexico, it was determined that the distinct rise in narcotics deaths temporally correlated with a relatively sudden increased availability of a type of heroin commonly known as "black tar."[2] Although black tar heroin had been encountered sporadically in the Southwest for many years, it had not been commonly and regularly obtainable until this time. Small specimens of this heroin had been found on or associated with the bodies of several of the dead individuals during scene investigations carried out by the Office of the Medical Investigator, though the significance of these discoveries had not been immediately clear. During the evolution of the narcotics death "epidemic," black tar heroin had become virtually the only type of opium derived illicit narcotic available in New Mexico.

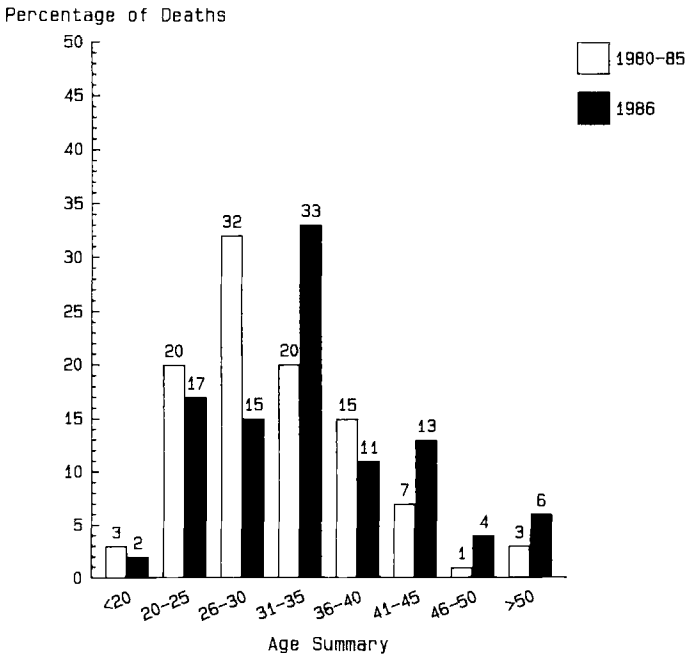

FIG. 3—*Age at death for heroin related fatalities, 1980 through 1985 (75 heroin deaths) compared with 1986 (54 heroin deaths).*

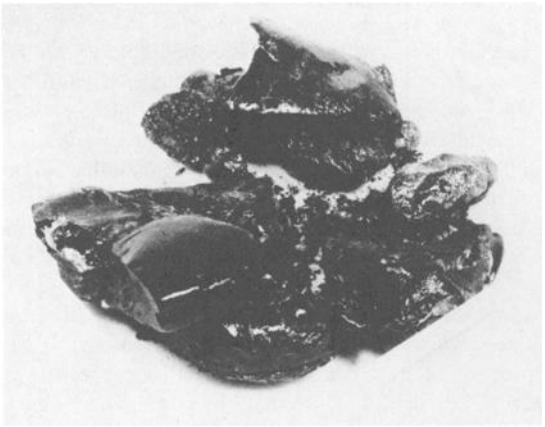

FIG. 4—*Typical appearance of black tar heroin. This sample exhibits obsidian-like qualities; the smooth surfaces reflect the contours of plastic bags in which the heroin was placed as it hardened.*

Black tar heroin is so termed on the basis of its physical characteristics. Samples of this material are most often black to very dark brown, thick, gummy, and tar-like in consistency (Fig. 4), as opposed to the brown powder form ("Mexican Brown") which had been predominant in the Southwest for decades, or the pure white powder heroin that originates in Asia via laboratories in France [*1,2*]. Occasionally, the black tar is so hard as to appear obsidian-like, or may also have a dark gold to brown coloration. The peculiar appearance of this heroin has spawned a variety of other English and Spanish nicknames which reflect these physical qualities (Table 2).

Black tar heroin originates from opium which is cultured in the mountainous regions of Northern Mexico, in the states of Durango, Sinaloa, and Sonora; some is also grown in Guerrero, which is southwest of Mexico City [*3*]. The thick, tarry consistency reflects the manner in which the purified morphine base is acetylated and subsequently crudely purified. The usual steps in manufacturing heroin consist of treatment with acetic anhydride to precipitate the heroin base, followed by steps to purify the product further, as well as eliminate the associated organic resins through solvent extraction and mixture with agents such as activated charcoal [*4*]. Some of these steps are apparently omitted in the crude processing techniques used by the Mexican growers, resulting in the black, gummy physical form. Other less efficient solvent agents may be substituted for the usual acetone, such as kerosene. This manner of processing also imparts other characteristics to the product, such as an acrid, acetic odor, from which derives another street name of black tar heroin, "chiva"

TABLE 2—*Sampling of English and Spanish street names for black tar heroin, the majority of which refer to the physical characteristics of the drug* [3].

Black gum	*gomero* (rubbery)
Brown tar	gum
Bugger	gumball
Candy	Mexican mud
Carga (load)	peanut butter
Chapapote (tar)	rerock
Chiclosa (gum)	tar
Dogfood	tootsie roll

(which is Spanish for "goat"). After processing, the drug is then smuggled into major Southwestern U.S. cities, predominantly Albuquerque, San Antonio, and San Diego.[2]

Despite the crude manner in which the raw opium is converted to heroin, the concentration of the drug is surprisingly high. Analyses in the Drug Enforcement Agency laboratories have revealed purity varying from 40 to 80%, but occasional samples may be as high as 93% [3]. Analysis of samples from New Mexico have revealed similar results, underscoring the fact that the appearance truly belies the actual potency. Small amounts of black tar heroin are most often sold as small pieces, contained within a twist of clear plastic wrap (Fig. 5). Occasional merchants of the drug may include a small dollop of diluent material, for customer convenience.

As with virtually any illicit drug, potency is nearly impossible to estimate without quantitative analysis techniques, which are unavailable to the purchaser. The only usual way to test the drug is for the user to actually inject a sample and measure the subsequent effect. A powder form of the drug is easily diluted or "cut" by adding increments of another powder, such as lactose or other inactive soluble substances [1]. However, cutting a piece of black tar heroin is somewhat analagous to attempting dilution of a piece of semihardened chewing gum, or even a small relatively poorly soluble rock-like fragment. Thus, it is clear that an individual who underestimates the potency of a sample of black tar heroin he or she had purchased, and who also has difficulties in effectively diluting the drug, may inadvertently inject a greater quantity than can be tolerated, resulting in a true physiologic overdose.

As previously delineated, the parameters that were examined with regards to individuals who died of intravenous narcoticism in New Mexico revealed that the deaths exhibited a trend towards older, predominantly Hispanic males. The majority of these had been heroin users for many years, evinced by police records and autopsy findings indicative of chronic intravenous drug abuse. Nearly all of these fatalities had very high (greater than 100 μg/mL) concentrations of opiates in the blood, detected as morphine. A few deaths occurred as a consequence of hypoxic encephalopathy with subsequent acute pneumonia, indicating that the individuals had survived a few hours after injecting a sublethal yet toxic dose of heroin. Additionally, there were no instances of the so-called acute idiosyncratic reaction, which results in an apparent almost instantaneous death. (Quinine, thought to be a possible cause

[2]O. Medrano, Albuquerque Police Department Narcotics Investigations, personal communications, 1985-1986.

FIG. 5—*Samples of black tar heroin, packaged in twists of clear plastic wrap, as they are sold to the user.*

of this effect, is rarely used as a diluent in the Southwest.) Analyses of both postmortem body fluids and samples of heroin failed to reveal evidence of any other drugs, although the rumor had been propagated by local heroin users that the deaths had been caused by narcotics adulterated with barbiturates. In light of these findings, the most probable reason to account for a rise in the narcotics associated death rate was that of unfamiliarity with the physical form and high potency of black tar heroin, combined with the difficulty in diluting the drug to a sublethal concentration. Finally, intermittent, nondaily heroin users do not develop as great a physiologic tolerance as do those who are heavily addicted to opiates, and an older population with irregular usage patterns who are accustomed to a relatively weak, easily diluted form of the drug would be particularly susceptible to inadvertent overdosage with black tar heroin.

Conclusion

The border between the United States and Mexico is long and in many areas consists only of a symbolic, easily breached fence. Comprehensive surveillance of the entirety of this border is virtually impossible, and this, coupled with the incessant tide of both legal and illegal immigrants who journey northward, makes drug smuggling a relatively easy, and certainly lucrative, occupation. These economic realities seem to have provided the impetus for a distinct resurgence of a type of heroin known most commonly as "black tar," because of its black, densely gummy characteristics. Black tar is manufactured with very crude techniques, skipping apparently unnecessary (and costly) purification and bleaching steps; nonetheless, the end product is deceptively concentrated. The gummy or rock-like physical features of black tar heroin render it more difficult to dilute than the previously predominant Mexican brown powder form, and this unfamiliarity, coupled with high potency, appears to be the most probable underlying cause for a series of heroin fatalities within New Mexico. It is quite likely that, with time, black tar heroin will spread to areas outside of the Southwestern United States, and it is a distinct possibility that a sudden increase in the narcotics abuse related death rate in other parts of the country may herald the arrival of black tar heroin to such locales.

Author's Addendum

In the first nine months of 1987, the Office of the Medical Investigator for the State of New Mexico recorded 39 deaths from intravenous administration of black tar heroin. By the end of 1987, this total may possibly reach the number of heroin related deaths that accumulated in 1986. Of the deaths through the third quarter of 1987, 34 (87%) were male and 5 (13%) were female. Thirty-one of the deaths occurred in Hispanic individuals (79%), with the remaining eight deaths being in the Anglo population group. These statistics bear a distinct similarity to those represented in heroin deaths from 1986 and confirm the continuing and serious problems associated with narcotic abuse in New Mexico.

Acknowledgments

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