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Death in Custody: A Historical Analysis*

ABSTRACT: This research delineates the historical evolution of death in custody. A retrospective, exploratory analysis of 145,425 cases from Maryland's Office of the Chief Medical Examiner, occurring from 1939 to 2004, was conducted. Two hundred and two custodial deaths were identified and subsequently examined relative to time, agency, decedent characteristics, and cause and manner of death. Results indicate that there have been substantive changes in custodial deaths over time. Cardiovascular disease was the most frequent cause of death from the 1930s to the 1970s, except for the 1940s, when syphilis and tuberculosis took precedence. Asphyxia, the predominant cause of death in the 1980s, reflected an increase in suicidal hangings. Emerging in the 1980s, drug intoxication deaths were prevalent in the 1990s and 2000s. Sudden unexplained deaths involving violent behavior, the use of multiple restraints, and drug intoxication were not identified until the 1980s, coinciding with periods of increased cocaine abuse nationally.

KEYWORDS: forensic science, forensic pathology, death in custody, excited delirium

There is considerable controversy surrounding deaths that occur in custody, especially in this era of instant media coverage and communications. Often these deaths occur suddenly and unexpectedly, worsening the tumult. These cases exhaust the resources and personnel of all branches of the medical-legal community. Law enforcement and correctional personnel, centrally involved with the death are often stigmatized, placed on suspension during the investigation of the death, and subsequently experience considerable professional pressure and personal stress. Agency reputations and community relationships may be noticeably compromised and liability issues may become a concern. Allegations of brutality and conspiracy may be launched. Further complicating the situation is the fact that there are often minimal physical findings at autopsy, accompanied by sparsely detailed case information.

The considerable volume of extant research, conducted over the past two decades, has yet to delineate a single causal factor of death in custody. However, a relatively consistent combination of factors has been identified. Recent research (1-7) suggests that the body's reaction to struggle, coupled with drug use, restraint aids, and natural disease synergistically function to increase the likelihood of sudden unexplained death. The present challenge for the medical-legal community is to identify which factors, and in what combination, may result in the death of an individual (8).

This exploratory research examines death in custody relative to period of time and agency type. The relationship between decedent characteristics, cause and manner of death, drug intoxication, and the use of restraints is also explored. An understanding of the history of death in custody may provide a conceptual foundation for subsequent, methodologically rigorous examination of the phenomenon. In addition, results may provide insight that would enhance the development of more effective intervention protocols.

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Materials and Methods

A retrospective, exploratory analysis was conducted to identify the frequency and type of deaths in custody occurring over time. A nonprobability purposive sampling method was used to select years from 1939 through 2004, which would form the primary sampling unit. Although less reliable than standard probability sampling methods, purposive sampling is economical and easily implemented (9). Given the extensive range of study years and the volume of cases, this method is considered most appropriate. For each decade (excluding the 1930s and 2000s), a minimum of four sample years were selected on the basis of their historical relevance with regard to both local and national socio-historic events. For example, years immediately prior to (1939-1940), during (1941-1945), and immediately after (1946) World War II were included for analysis. Case availability also mediated sampling unit selection, as some data were archived off-site and not readily available for analysis. All jurisdictions (23 counties and Baltimore city) within the state of Maryland were included. All deaths that occurred in custody were included for analysis employing a general definition of the phenomenon. Custodial agencies were operationalized to include law enforcement (local, metropolitan, and state), correctional (halfway house, jail, prison, and penitentiary), and mental health facilities (state and private).

Thirty-four years were selected for use as the primary sampling unit, comprising 145,425 cases that were examined via Office of the Chief Medical Examiner (OCME) microfilm, ledgers, case files, and computerized database. Cases documenting non-natural deaths (excluding shootings by police and state executions), cardiovascular deaths in young adults, altercations, and/or erratic behavior, and drug intoxications were more closely examined. A total of 202 deaths in custody were subsequently identified. The autopsy report, police report, investigative report, and medical information were subsequently reviewed for each case. Study variables include age, gender, race, physical and behavioral indicators, agency, presence and nature of restraints, toxicology results, and cause and manner of death. While relevant, data on the length of time an individual was in custody before death occurred were not consistently

available and thus, not included in this analysis. Data were entered into and subsequently analyzed using SPSS statistical software.

Results

Results indicate that natural deaths in custody predominate during the earlier decades (Fig. 1). Cardiovascular disease was the most frequent cause of these deaths from the 1930s through the 1970s, except for the 1940s when the complications of syphilis and tuberculosis took precedence. Constituting at least one-fifth of all deaths from the 1950s through the 1970s, suicide was the predominant manner of custody death in the 1980s. Hangings were the most predominant cause of death in the 1980s, accounting for 43.8% of cases. Undetermined manner emerged during the 1980s and became the dominant classification beginning in the 1990s and continuing subsequently. Most of the undetermined cases were drug intoxication deaths, primarily involving cocaine (36%), and narcotics (31%). Accidents were the second least frequent manner of death, accounting for <10% of cases since 1980. Asphyxiation and head injuries were the main causes of accidental deaths, regardless of decade. Homicides were the least frequently occurring manner

of death over the 65-year period, comprising only 5% of the total number of deaths.

Relatively older (>45 years old) African American males were the predominant demographic group in the earlier decades, specifically characterized by natural disease (Table 1). Caucasian males were the predominant group in the decades with considerable asphyxiation rates (i.e., >20%). Relatively younger (<40 years old) African American males were the predominant demographic group in more recent decades characterized by drug intoxication.

Figure 2 shows that there was a substantive change in deaths occurring in custody. Cases exemplifying the various factors commonly associated with sudden unexpected death in custody did not emerge until the 1980s. From the 1980s onward, decedents were relatively younger and the deaths were more likely to be deemed undetermined and involve drug intoxication and/or the use of restraints. Virtually all sudden unexpected death cases included violent and/or erratic behavior, the use of multiple restraints, and a component of drug intoxication. The one exception involved a case of cardiac arrhythmia during agitation and restraint with meningoencephalitis documented as a contributing factor.

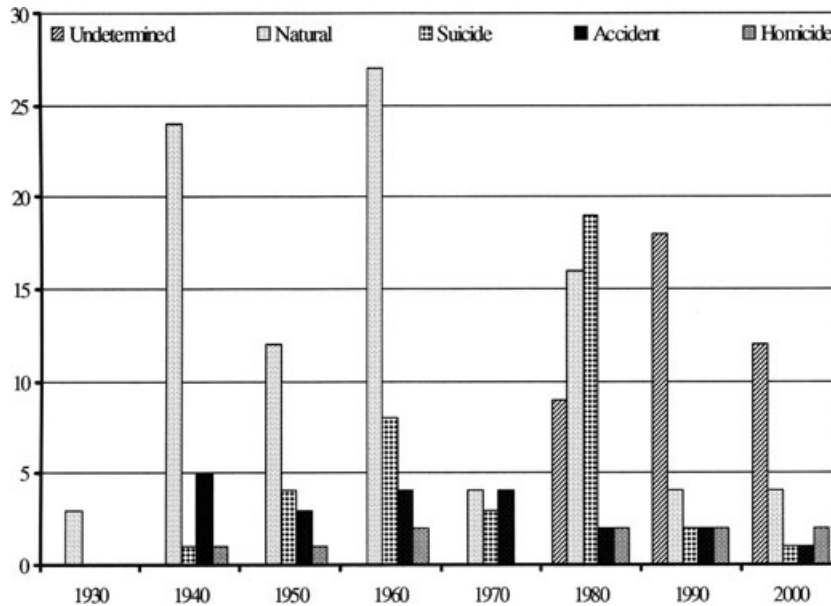


FIG. 1—Manners of death per decade.

TABLE 1—Custody deaths by decade.

	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s
Total	3 (1.5)	31 (15.3)	20 (9.9)	41 (20.3)	11 (5.4)	48 (28.8)	28 (13.9)	20 (9.9)
Race								
Caucasian	1 (33.3)	13 (41.9)	11 (55.0)	27 (65.9)	8 (72.7)	25 (52.1)	4 (14.3)	7 (35.0)
African American	2 (66.7)	16 (51.6)	9 (45.0)	14 (34.1)	3 (27.3)	22 (45.8)	23 (82.1)	12 (60.0)
Other	0	2 (6.5)	0	0	0	1 (2.1)	1 (3.6)	1 (5.0)
Gender								
Male	2 (66.7)	26 (83.9)	18 (90.0)	34 (82.9)	7 (63.6)	41 (85.4)	25 (89.3)	20 (100.0)
Female	1 (33.3)	5 (16.1)	2 (10.0)	7 (17.1)	4 (36.4)	7 (14.6)	3 (10.7)	0
Mean age	51.7	46.2	46.8	46.4	48.8	35.2	36.7	38.8
Manner of death								
Natural	3 (100.0)	24 (77.4)	12 (60.0)	27 (65.9)	4 (36.4)	16 (33.3)	4 (14.3)	4 (20.0)
Accidental	0	5 (16.1)	3 (15.0)	4 (9.8)	4 (36.4)	2 (4.2)	2 (7.1)	1 (5.0)
Suicide	0	1 (3.2)	4 (20.0)	8 (19.5)	3 (27.3)	19 (39.6)	2 (7.1)	1 (5.0)
Homicide	0	1 (3.2)	1 (5.0)	2 (4.9)	0	2 (4.2)	2 (7.1)	2 (10.0)
Undetermined	0	0	0	0	0	9 (18.8)	18 (64.3)	12 (60.0)

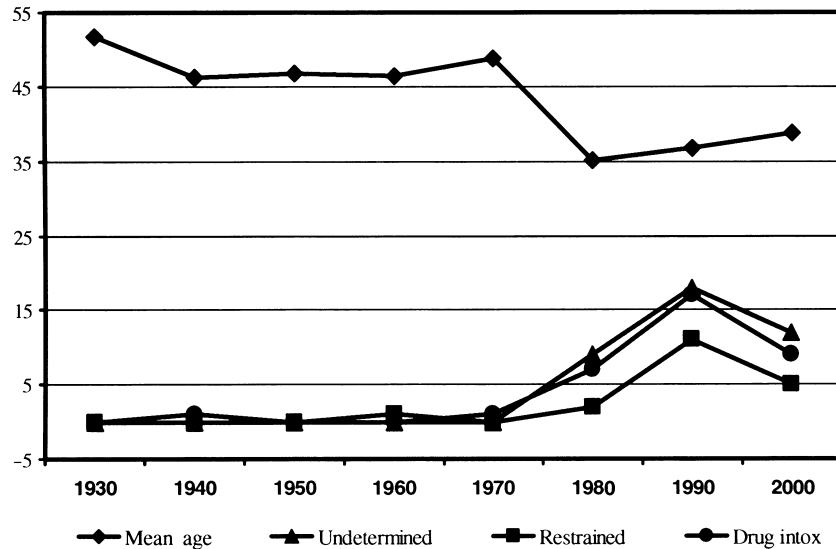


FIG. 2—Factors associated with sudden unexplained death by decade.

With regard to type of agency, correctional institutions predominate over the decades, except in the 1970s when mental health institutions were the main agency involved with death in custody cases. Overall, 53% of the 202 deaths occurred in correctional custody. (Table 2) Chi-square analysis indicates that there are statistically significant differences in the manner of death by agency type ($\chi^2 = 24.00$; $p = 0.002$). One-third of law enforcement deaths were undetermined, compared with only 2% of deaths that occurred in mental health facilities. Natural deaths comprised 58% of the deaths in mental health facilities and 49% of the deaths in correctional facilities, compared with 33% in law enforcement custody. Furthermore, variations were observed in the cause of death by agency type (Table 3). Nearly one-third of law enforcement deaths were attributable to drug intoxication, compared with 15% of deaths that occurred in correctional agencies and only 5% of deaths that took place in mental health facilities. Almost one-third of deaths in mental health facilities were from cardiovascular causes, compared with 20% of deaths in correctional agencies and 13% of deaths in law enforcement agencies.

Statistically significant associations between the decedents' gender, race, and age by agency type were also identified. Results indicate that relative to females, males are significantly more likely to die in

correctional facilities ($\chi^2 = 23.855$; $p = 0.0001$). Of the 173 male decedents, 58% ($n = 100$) died in correctional facilities, whereas 61% ($n = 17$) of the 28 women died in mental health facilities. Relative to African Americans, Caucasians were significantly more likely to die in the custody of mental health agencies ($\chi^2 = 28.184$; $p = 0.0001$). Of those who died in the custody of mental health agencies, over 75% were Caucasian, whereas African Americans comprised only 21% of this group. In contrast, 62% of those who died in correctional agencies were African American. With regard to law enforcement deaths, decedent race was equally divided between African American (50%) and Caucasian (50%) groups. Finally, analysis of variance indicates that there is a statistically significant difference in the mean age of decedents across agency types ($F = 8.340$; $p = 0.0001$). Specifically, individuals who died in mental health facilities ($M = 49.2$) were, on average, 10 years older than persons who died in correctional facilities ($M = 39.2$).

Discussion

Results of this unique historical examination of deaths in custody indicate that the phenomenon is very rare. Relative to the primary sampling unit (i.e., 145,425 cases), only one of every 720 cases sampled met the inclusion criteria for death in custody.

Results also show considerable qualitative changes in the manners and causes of death, and in the characteristics of persons who died, over a 65-year period. Deaths from undetermined causes did not emerge until the 1980s, and then constituted a majority of deaths in custody cases from the 1990s onward. Most of these cases involved drug intoxication, most frequently implicating cocaine and narcotics, respectively. Results further show an increase in drug deaths in recent years commensurate with the prevalence and popularity of cocaine use in the criminal-justice involved population in both Baltimore and the U.S. (10,11). The relatively high percentage of cases involving narcotic intoxication may reflect the disproportionate use of heroin prevalent among Baltimore residents, especially individuals involved with the criminal justice system (12–14).

Commensurate with research (15) which suggests that chronic stimulant abusers who die from excited delirium are relatively younger, these results show that since the 1980s decedents have been approximately 10 years younger than they were in the previous decades. Moreover, these deaths have involved not only more

TABLE 2—Custody deaths by agency type.

	Correctional agencies	Law enforcement agencies	Mental health agencies
Total	107 (53.0)	52 (25.7)	43 (21.3)
Race			
Caucasian	37 (34.6)	26 (50.0)	33 (76.7)
African American	66 (61.7)	26 (50.0)	9 (20.9)
Other	4 (3.7)	0	1 (2.3)
Gender			
Male	100 (93.5)	47 (90.4)	26 (60.5)
Female	7 (6.5)	5 (9.6)	17 (39.5)
Mean age	39.2	40.9	49.2
Manner of death			
Natural	52 (48.6)	17 (32.7)	25 (58.1)
Accidental	7 (6.5)	7 (13.5)	7 (16.3)
Suicide	22 (20.6)	7 (13.5)	9 (20.9)
Homicide	5 (4.7)	4 (7.7)	1 (2.3)
Undetermined	21 (19.6)	17 (32.7)	1 (2.3)

TABLE 3—Cause of death by agency type.

Cause of death	Total cases	Correctional agencies	Law enforcement agencies	Mental health agencies
Total cases		107 (53.0)	52 (25.7)	43 (21.3)
Asphyxia	44 (21.8)			
Asphyxiation	42 (20.8)	28 (26.2)	7 (13.5)	7 (16.3)
Aspiration	2 (1.0)	0	0	2 (4.7)
Cardiovascular	43 (21.3)			
ASCVD	21 (10.4)	12 (11.2)	2 (3.8)	7 (16.3)
Cardiac arrhythmia	10 (5.0)	4 (3.7)	3 (5.8)	3 (7.0)
HCVD	2 (1.0)	2 (1.9)	0	0
Coronary occlusion	2 (1.0)	1 (0.9)	1 (1.9)	0
Cardiac failure	2 (1.0)	1 (0.9)	0	1 (2.3)
Thrombosis	2 (1.0)	0	0	2 (4.7)
Cardiac dilatation	1 (0.5)	1 (0.9)	0	0
Myocarditis	1 (0.5)	1 (0.9)	0	0
HASCVD	1 (0.5)	0	1 (1.9)	0
Congestive heart failure	1 (0.5)	0	0	1 (2.3)
Drug intoxication	34 (16.8)			
Cocaine	15 (7.4)	2 (1.9)	13 (25.0)	0
Narcotic	12 (5.9)	10 (9.3)	2 (3.8)	0
Multiple drug	5 (2.5)	3 (2.8)	1 (1.9)	1 (2.3)
Amitriptyline	1 (0.5)	1 (0.9)	0	0
Nortriptyline	1 (0.5)	0	0	1 (2.3)
Respiratory	23 (11.4)			
Pneumonia	12 (5.9)	5 (4.7)	3 (5.8)	4 (9.3)
Tuberculosis	5 (2.5)	2 (1.9)	2 (3.8)	1 (2.3)
Asthma	3 (1.5)	3 (2.8)	0	0
Bronchitis	1 (0.5)	0	1 (1.9)	0
Emphysema	1 (0.5)	1 (0.9)	0	0
Lung cancer	1 (0.5)	1 (0.9)	0	0
Central nervous system	19 (9.4)			
Seizure disorder	6 (3.0)	3 (2.8)	0	3 (7.0)
Epilepsy	5 (2.5)	4 (3.7)	1 (1.9)	0
Cerebral vascular accident	5 (2.5)	4 (3.7)	0	1 (2.3)
Subarachnoid hemorrhage	2 (1.0)	0	2 (3.8)	0
Aneurysm	1 (0.5)	0	1 (1.9)	0
Injury	15 (7.4)			
Subdural	9 (4.4)	5 (4.7)	4 (7.7)	0
Craniocerebral	2 (1.0)	0	0	2 (4.7)
Skull fracture	1 (0.5)	0	1 (1.9)	0
Spinal	1 (0.5)	0	0	1 (2.3)
Neck	1 (0.5)	0	0	1 (2.3)
Multiple	1 (0.5)	1 (0.9)	0	0
Chronic substance use	5 (2.5)			
Alcoholism	5 (2.5)	2 (1.9)	3 (5.8)	0
Infectious disease	4 (2.0)			
Syphilis	2 (1.0)	1 (0.9)	1 (1.9)	0
Meningitis	1 (0.5)	0	0	1 (2.3)
AIDS	1 (0.5)	1 (0.9)	0	0
Hepatobiliary	4 (2.0)			
Fatty liver	2 (1.0)	1 (0.9)	0	1 (2.3)
Cirrhosis	2 (1.0)	1 (0.9)	1 (1.9)	0
Gastrointestinal	3 (1.5)			
Peritonitis	2 (1.0)	0	1 (1.9)	1 (2.3)
Hemorrhage	1 (0.5)	0	1 (1.9)	0
Genitourinary	2 (1.0)			
Prostate cancer	1 (0.5)	1 (0.9)	0	0
Chronic nephritis	1 (0.5)	1 (0.9)	0	0
Other	6 (3.0)			
Cancer (not specified)	1 (0.5)	1 (0.9)	0	0
Drowning	1 (0.5)	0	0	1 (2.3)
Arsenic poisoning	1 (0.5)	1 (0.9)	0	0
Salicylate poisoning	1 (0.5)	0	0	1 (2.3)
Anaphylaxis	1 (0.5)	1 (0.9)	0	0
Undetermined	1 (0.5)	1 (0.9)	0	0

cases of drug intoxication, but also an increased use of restraints. The increased use of restraints may be attributable to an increase in agitated, paranoid and/or combative individuals being taken into

police custody (6,15,16): individuals for whom restraints were required. The psychopharmacologic violence associated with cocaine abuse, especially crack cocaine, is well documented in the medical (6,7,16) and criminological literature (10,17).

Study results, specifically the lack of sudden unexpected deaths in custody in the decades prior to 1980, may be an artifact of the study sampling method, case documentation, medical-legal philosophy, and/or agency protocols. First, the nonprobability purposive sampling strategy, used to identify the primary sampling unit, may have introduced bias. While methodologically appropriate and economic in terms of time and expense, this method is typically less representative than standard probability samples. As such, results may not be representative of the study population, but rather a reflection of the sampling unit (9).

Second, changes in toxicologic protocols and advancements in testing may have increased the identification of various types of drug intoxication deaths. In addition, medical-legal philosophies regarding cause and manner of death have changed, not only with an increase in detailed case documentation, but also with a shift in procedures and training of medical examiners who have a heightened awareness of these cases in recent decades. During the 1980s it became the policy of the State of Maryland OCME to classify drug abuse deaths as undetermined, thus explaining the prevalence of this manner of death with increased drug deaths. Prior to that time drug abuse deaths were generally deemed natural as addiction was considered a "natural disease process" and drug related-death was considered the final stage in the progression of the disease.

Finally, it is likely that agency protocols (i.e., law enforcement, corrections, and mental health) may have influenced the number and types of deaths occurring in custody. However, it is not methodologically possible to examine the effect of agency protocols on the nature and frequency of such deaths. First, many agencies were closed or merged with others during the 65-year study period. Second, there is typically a time lag between the adoption of a written policy and its implementation. Moreover, assessing the extent of adherence by agency personnel to specific protocols at any given time, let alone over time, is virtually impossible: personnel vary considerably with regard to their learning of, and willingness to implement, new regulations.

Alternatively, it is possible that study results support the observation that sudden unexpected death in custody is a relatively recent phenomenon driven in part by the increased abuse of stimulants, as is suggested by the literature (6,15). In addition, recent advances in forensic training could have resulted in an increased awareness of these types of deaths in recent decades. More detailed case documentation in law enforcement and medical examiner arenas has, and will continue to afford greater discernment in forming an opinion as to the cause and manner of death.

Aside from natural disease, drug intoxication, violent and/or aberrant behavior, and the use of restraints, no other factors emerged in association with sudden unexplained death in custody. It is unknown if this finding reflects the insufficient documentation of relevant case information or the lack of additional factors contributing to the phenomenon. More extensive, rigorous study of death in custody is recommended to more precisely address this issue.

Subsequent historical research should include a continuation of sampling to minimize bias and strengthen the validity of study results. Further conceptual specification is also required to fully understand the range of deaths that occur in the different types of custodial agencies. Our research indicates that causes and manners of death and decedent characteristics are substantively different across agency types. Deaths in mental health facilities tend to involve relatively older, white females whereas deaths in

correctional facilities are more likely to include relatively younger, black males. However, there are similarities across agencies as well. Cases involving agitation/excited delirium, for example, were documented in law enforcement and correctional custody. Additional specification would allow for improved theoretical/conceptual uniformity and better methodological and analytic precision. Most importantly, future research should include living populations, allowing for the systematic comparison of the two groups and the statistical computation of mortality probabilities.

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