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Beyond Suicide Action Needed to Improve Self-injury Mortality Accounting

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National suicide and unintentional poisoning mortality rates have risen dramatically since 2000,^{1,2} by almost 20% and 140%, respectively. Both rate rises peak among the middle-aged population, not a historically high-risk injury group. Poisoning mortality is increasingly being driven by intoxication from pharmaceuticals, especially opioid analgesics.³ Collectively, these facts present vital challenges for clinical medicine, medicolegal death investigations, public safety, and public health. Concern about substance abuse sensitized us to a dormant issue of nonsuicide self-injury mortality and provokes our proposition that accounting of self-injury mortality must encompass more than suicide and its problematic measurement.

Suicide is seriously undercounted, a partial byproduct of sensitivity of medical examiners and coroners (ME/Cs) to legal, insurance, and religious implications of a suicide determination. However, likely rather more consequential for accounting is the need for ME/Cs to satisfy high evidentiary standards for a suicide determination, standards that can require incorporation of a constellation of corroborative elements, such as a suicide note, a history of suicide attempts and psychiatric treatment, and reliable witness testimony. Suicide is also undercounted nonrandomly by method or injury mechanism, with suicide by poison usually being more difficult for ME/Cs to ascertain than that by the other 2 leading methods,

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firearm and hanging/asphyxiation. Poisoning suicides seem highly prone to misclassification within the undetermined intent and unintentional poisoning mortality categories. Large interstate differentials in the relative distribution of fatal drug intoxications across the suicide, accident (unintentional injury), and undetermined intent manners of death likely include an artifactual component, which derives from heterogeneous case-ascertainment training, philosophy, procedures, and practices among ME/Cs.⁴ Medical examiners and coroners, respectively, use contrasting balance-of-medical-probabilities and legal-burden-of-proof approaches to suicide and other death investigations. Generally, coroners are elected, not appointed, and have less training, qualifications, and experience than medical examiners. Plausibly further impeding valid geographic and temporal suicide comparisons are the long-term decline in the autopsy rate and severe underresourcing of emergency health care and ME/C systems. Given the scale of suicide and unintentional poisoning mortality, even relatively small errors in respective case ascertainment could adversely impact suicide surveillance, research, and prevention.

Harboring negative implications for suicide accounting, resource requirements are a rarely considered aspect of postmortem policies in the United States. Burdensome caseloads stress death investigation systems, a burden exacerbated by the flagging economy and the poisoning epidemic. Differential allocation of societal expertise and resources makes suicide much more prone than its complementary intentional manner-of-death category, homicide, to undercounting. Illustrating an expertise and resource gap that implies differential quality of suicide and homicide statistics, suicide investigations normally fall outside the training and responsibility of the police. Moreover, there is no equivalent agency to the police to assist ME/C offices in ascertaining suicide cases. However, a seldom-used procedure, the psychological autopsy, could potentially inform ascertainment. Conceived in the 1950s to identify and evaluate etiologic antecedents in equivocal-intent cases, in order to help resolve their manner, this procedure combines in-depth review of medicolegal records and follow back interviews with family, friends, and acquaintances of the decedents.

Most overdose deaths of substance abusers reflect self-destructive behavior or self-harm even when not meeting the criteria for a suicide determination, namely, a deliberate intention to die as well as self-administration of the lethal drug dose or combination. Hence, our vital statistics system grossly underestimates the true toll of self-injury mortality. The default classification for nonhomicide/nonsuicide drug deaths is accident or undetermined intent. Medicolegal necessity to use these defaults may be inadvertently diminishing the importance of the well-documented need for hospital emergency departments and jails to identify and refer substance abusers to targeted treatment and other health care services, or at least to provide them with a brief intervention. The costs to screen and perform systematic and sustained interventions with substance abusers on these frontlines (as prolific sources of teachable moments among overlapping high-risk populations) would likely be much lower than the costs this group incurs for society and themselves through revolving-door health care, familial disorganization, impaired productivity, interpersonal violence, property and financial crime, police investigations, death investigations, court proceedings, and incarceration.

We contend, then, that self-injury mortality transcends known suicides. Operationalization of a broader self-injury mortality category, which includes selected nonsuicide drug-intoxication deaths in addition to suicides, would enhance injury surveillance, research, and prevention. Such operationalization is not predicated on changing current manner-of-death categorization (homicide/suicide/accident/undetermined/natural), a categorization embedded in legislation, regulation, and tradition. It could feasibly be facilitated through incorporation of certain unintentional poisoning deaths into the data domain of the National Violent Death Reporting System (NVDRS). This unique and publicly accessible database links death certificates with police, medical examiner, coroner, and crime laboratory reports. Impelled by recurring mass gun violence, President Obama plans to expand the system from 18 states to all 50. In July 2013, the US Senate Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee approved a 2014 bill that would provide \$18.5 million (an extra \$15 million over the initial provision) to enable expansion.⁵ Incorporation of certain unintentional poisoning deaths would improve the utility of the NVDRS for researchers, prevention specialists, and policy makers at a time when more than one-third more Americans are being fatally injured by drugs and other substances than by firearms.

What kind of drug intoxication deaths might qualify as nonsuicide self-injury mortality? Prime contenders are nonsuicide intoxication deaths directly attributable to self-ingestion of Schedule I drugs (no medicinal value) or Schedule II drugs where prescription drug monitoring programs validate physician shopping and pharmacy shopping or suggest nonmedical use of these pharmaceuticals through absence of a prescription. All states except Missouri have passed legislation supporting prescription drug monitoring programs, and 45 have functional programs, including the 18 NVDRS participants. Additional resourcing for ME/C offices in NVDRS states could enable them to integrate prescription drug monitoring program data into their findings and expedite the quest of the National Association of Medical Examiners and American College of Medical Toxicology to achieve more uniform and precise death certification.⁶ In turn, such outcomes would improve the analytic capacity of the NVDRS, and thus its effectiveness in informing injury surveillance, research, policy, and prevention program planning and evaluation.

A new overseas postmortem study reinforces the salience of more complete accounting of self-injury mortality to clinical medicine, the medicolegal death investigation process, public safety, and public health.⁷ This study provides direct evidence of deteriorating suicide measurement in England, which mainly implicates misclassified unintentional pharmaceutical poisonings.

Four years ago, suicide surpassed unintentional motor vehicle traffic crashes as the leading cause of injury mortality, based on categorization that blended intentionality and injury mechanism,² a combination important for surveillance and prevention. An alternative categorization, confined to mechanism, showed poisoning as the leading cause of injury mortality followed by traffic crashes. Intermittent entry of suicide and drug overdose mortality into the national consciousness is typically stimulated by mass media stories featuring celebrities, teens, active military, or military veterans. However, most people dying by suicide or nonsuicide self-administered drug overdose are not members of any of

these 4 groups. Nevertheless, irrespective of decedent characteristics, self-injury deaths psychologically traumatize family, friends, and other survivors. Considered conjointly, the burgeoning suicide and unintentional poisoning mortality rates reveal a profound and urgent need for comprehensive accounting and analysis of suicide and other fatal self-injury, and major rethinking and intensification of prevention efforts. The suggested changes to the NVDRS warrant serious consideration by decision makers and, as appropriate, subsequent evaluation of their utility in addressing these disturbing mortality trends.

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