PRIORITY
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NEEDS INITIATIVE
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Caring for Those in Custody

Identifying High-Priority Needs to Reduce Mortality in Correctional Facilities

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Key Findings

An expert panel of prison and jail administrators, researchers, and health care professionals identified the following as high-priority needs for ensuring the health and safety of inmates in correctional facilities:

- Facilities should provide medical and mental health services at a community-level standard of care.
- Correctional facilities need to better manage organizational and cultural conflicts between security and care objectives.
- There is a need for greater capacity for medical, mental health, and substance abuse care, both within facilities during incarceration and in the community after release.
- The availability of medication-assisted therapies and drug overdose countermeasures should be expanded.
- There is a need for more-uniform adoption of best practices in suicide risk assessment and prevention.
- More and better data are required in order to develop targeted interventions to reduce mortality.
- Compliance with national standards for medical screening and care provision should be better incentivized and supported.
- There is a need for uniformity in how internal death reviews are conducted, including multidisciplinary participation.
- There is a need for more-effective discharge planning and "warm hand-offs" to community-based health providers.
- Greater electronic information sharing between and among correctional institutions and community-based health providers can improve care and reduce inmate mortality.

The health and safety of inmates in correctional facilities is generally not an issue that garners much public attention. Indeed, for most people, the knowledge that our prisons and jails are fortified against escape is sufficient; the general public has comparatively little knowledge of what goes on behind the walls, including the welfare of inmates and how incarceration can affect their health and safety. In recent years, however, national attention has been increasingly focused on this issue as the mortality rate for inmates confined in correctional facilities has been on the rise.

According to the Bureau of Justice Statistics (BJS), the number of inmates who died in U.S. correctional facilities increased each year from 2010 to 2014 (Noonan, 2016a; Noonan, 2016b). In 2014, the last year for which data are available, a total of 4,980 inmates perished, an increase of 130, or nearly 3 percent, from 2013. In state prisons, the mortality rate was 275 per 100,000 and was the highest since data collection began in 2001. Illness and disease have consistently accounted for the vast majority of all deaths: 87 percent in 2014. However, suicide in prisons increased 30 percent from 2013 to 2014 (Noonan, 2016b). In jails, the 2014 mortality rate of 140 per 100,000, primarily driven by increases in suicide, was the largest since 2007 (Noonan, 2016a).

Beyond the compilation of statistics on mortality, recent media coverage has increased public awareness on the particular—and long-standing—problem of suicide in correctional facilities. For example, in July 2015, a month prior to the August 2015 release of the BJS report *Mortality in Local Jails and State Prisons, 2000–2013*, national attention was focused on Waller County, Texas, where Sandra Bland committed suicide while detained at the local jail. The media attention that resulted from that case gave the issue of suicide in correctional facilities new exposure and salience. As the Bland case unfolded, the BJS report provided quantitative context, reporting that suicides, the leading cause of deaths in

Compared with the general population, inmates disproportionately suffer from a variety of serious conditions.

jails since 2000, had increased 14 percent between 2012 and 2013 (Noonan, Rohloff, and Ginder, 2015).

The principal tenets of institutional corrections—care, custody, and control—are well established. However, correctional health care—as a distinct area of emphasis in correctional administration—is a relatively recent development. As late as the 1970s, few correctional facilities had a system of care in place (Anno, 2001). For example, a 1972 study of jails found that 25 percent had no medical facilities whatsoever, 66 percent had first aid as the only medical care available, and 11 percent did not have a physician on call (Rold, 2008). That, however, changed with the *Estelle v. Gamble* Supreme Court decision in 1976, which affirmed federal court jurisdiction over correctional health care systems. In this case, the court ruled that inmates had a constitutional right to be free of "deliberate indifference to serious health care needs." While this standard is quite low, it did set the stage for subsequent litigation that expanded inmates' rights to care. Further, several professional organizations, including the American Medical Association, the American Public Health Association, and later, the National Commission on Correctional Health Care, have since established national standards for correctional health care (Anno, 2001).

Today, it is well established that correctional administrators are obligated to provide for the care of those in their charge; however, the enterprise still struggles to meet the scope of needs. For example, in 2001, a class action lawsuit was brought against the state of California claiming that medical care in prisons violated the Eighth Amendment. Per the terms of a settlement, correctional health care in that state was turned over to a receivership, where it would remain until medical care conditions no longer were assessed as violating inmates' constitutional rights. Federal oversight remains in place today. Further, a national study revealed that many inmates with a serious chronic illness fail to receive care while incarcerated. Using data from BJS publications,[1] Wilper et al. (2009) found that more than 20 percent of sick inmates in state prisons, almost 14 percent in federal prisons, and 68 percent of jail inmates had not seen a doctor or nurse since they were incarcerated.

Correctional administrators face significant challenges in both delivering and meeting the costs of delivering inmate care. For example, each year the members of the Association of State Correctional Administrators (ASCA, 2017a) are surveyed to determine the most critical issues facing their agencies. For the past several years, administrators have unfailingly ranked issues related to the provision and cost of inmate health care (including medical and mental health services and challenges associated with an aging population) in the top five.

Inmates are often in poor health when they enter facilities, and many suffer from preexisting illness and disease. Compared with the general population, inmates disproportionately suffer from a variety of serious conditions, such as substance abuse, mental illness, and infectious diseases. Further, inmates have higher rates of chronic medical conditions, such as hypertension, epilepsy, cancer, and diabetes, than the general population.

The conditions of confinement can compound these challenges. Many jurisdictions are burdened with older facilities that, due to their age and design, can be problematic from a health and safety perspective. For example, many of these facilities are often plagued by poor ventilation, ambient lighting, and climate control, and it can be difficult and expensive to maintain sanitary conditions. Older institutions present safety challenges, as their designs were not mindful of suicide-prevention objectives, nor do they provide adequate line of sight for officers to observe inmate behavior. Further, these facilities were frequently not planned appropriately to provide clinical services and lack basic technology infrastructure. Because most correctional systems already are operating in a highly resource constrained environment, it is difficult, if not impossible, to make the renovations required to fully address these issues.

Finally, as the inmate population has expanded, it has also aged rapidly. As a result, facilities are increasingly occupied by older individuals with serious health care needs. Nationwide, corrections agencies report that health care for older inmates

1. The analysis drew on Maruschak (2006), James and Glaze (2006), and Maruschak (2008), as well as data from the Survey of Inmates in State and Federal Correctional Facilities (BJS, 2004) and the Survey of Inmates in Local Jails (BJS, 2002).

costs between four and eight times what it does for younger inmates (Ollove, 2016). As a result, the provision of health care is a growing expenditure. For example, the portion of state prison budgets dedicated to correctional health care doubled from 10 percent in 2001 to 20 percent in 2011 (Kinsella, 2004; Pew Charitable Trusts and the MacArthur Foundation, 2014), and the aging population is one contributing factor. Despite the growing level of resources directed to health care, most facilities simply cannot meet the overwhelming demand for services.

The challenges are daunting; however, most forms of mortality in correctional facilities are predictable and therefore preventable. As part of a multiyear research effort sponsored by and supporting the National Institute of Justice (NIJ), the Priority Criminal Justice Needs Initiative has focused on identifying innovations in technology, policy, and practice that would be beneficial to the criminal justice sector. In light of increasing inmate mortality rates, this project sought to better understand the contributing factors and identify the key needs associated with improving outcomes so that the system performs as it should.

METHODOLOGY

To explore the complex issue of mortality in correctional facilities, NIJ asked the RAND Corporation and the University of Denver to assemble an expert panel of prison and jail administrators, researchers, and health care professionals. The major task was to frame a research agenda focused on both achieving a better understanding of the issues related to mortality and the development of strategies or tools to reduce the level of death among the incarcerated or recently released. To do so, we convened an expert panel of individuals with deep knowledge in corrections and correctional health care and used a structured brainstorming approach to develop a set of research needs to help the U.S. correctional system better address health issues in custody. We identified a pool of candidate panelists through review of published documents and recommendations from various organizations. We took care to identify potential panelists with experience and expertise in jails and/or prisons, as each setting is unique. Ultimately, a panel of 16 participants was convened. The list of panelists and their organizations is provided in the text box.

Prior to the workshop, panelists were provided a copy of BJS's most recent report on deaths in correctional facilities: *Mortality in Local Jails and State Prisons, 2000–2013* (Noonan,

Panel Members

Scott Allen
University of California Riverside School of Medicine

Andre Bethea
Bureau of Justice Assistance

Ayesha Delany-Brumsey
Vera Institute of Justice

Mark Farsi
Sussex County Sheriff's Department

Lindsay Hayes
National Center on Institutions and Alternatives

Calvin Johnson
Altre Solutions

Jennifer Johnson
Michigan State University

Terri McDonald
Los Angeles Sheriff's Department (retired)

Roger Mitchell
Office of the Chief Medical Examiner, District of Columbia

Margaret Noonan
Bureau of Justice Statistics

Rajeev Ramchand
RAND Corporation

Jody Rich
Brown University, Center for Prisoner Health and Human Rights

Raman Singh
Louisiana Department of Public Safety and Corrections

Emily Wang
Yale University

Kellie Wasko
Colorado Department of Corrections

Lauren Weinstock
Alpert Medical School of Brown University

Rohloff, and Ginder, 2015). This report provides national- and state-level data on the number and rate of inmate deaths across a variety of variables, including cause of death, type of facility, and state and inmate characteristics, such as age, sex, and race. Further, the report presents mortality trends over a 14-year period. To go beyond the base prevalence data on each mortality type (summarized in Figure 1), panelists were also asked to complete a pre-workshop questionnaire.

The first part of the questionnaire was structured to gather input on the five major mortality types identified in the BJS report: suicide, drug/alcohol intoxication, illness/disease, homicide, and accident. Panelists were asked to consider the challenges associated with each mortality type and then rank each type on a scale of 1 to 5, where 1 was "high" or "preventable" and 5 was "low" or "not preventable." Preventability considered interventions such as administrative controls, policy, procedure, staffing, training, current level of resources, and nature of the type of mortality.

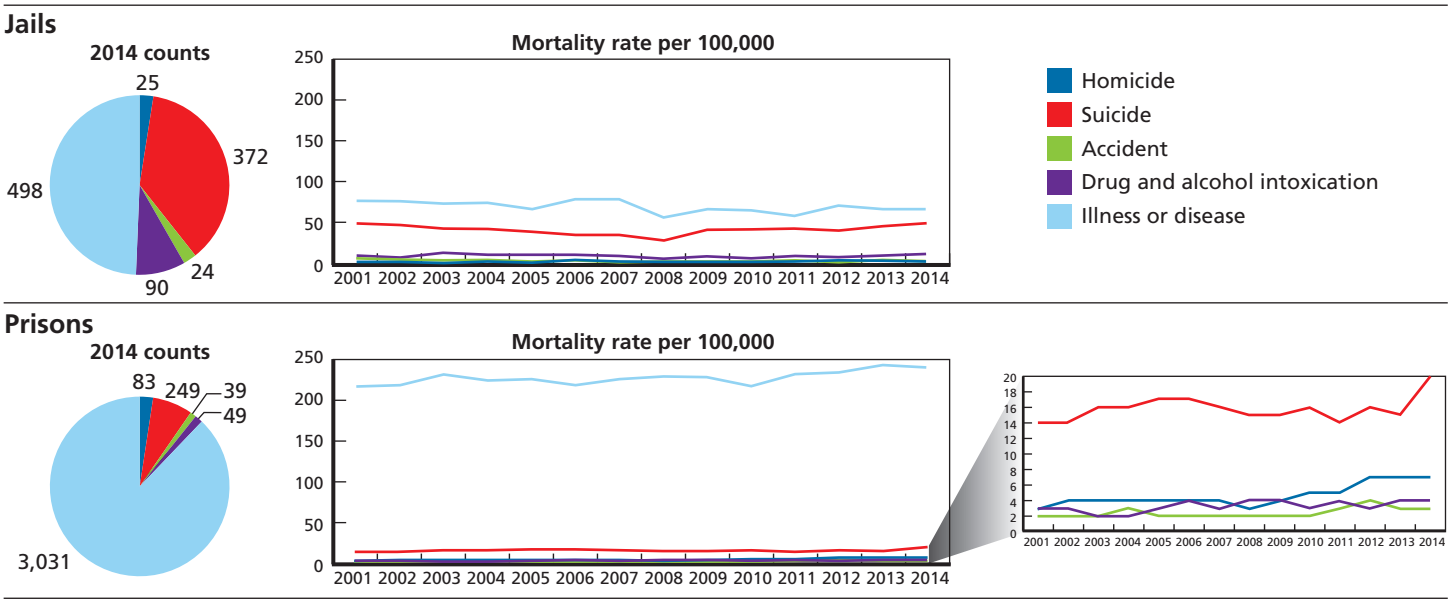
Panelists were also asked to rank each mortality type against the following measures: operational impact, cost impact, and external impact. Operational impact was defined as the immediate or near-term effects on the facility, its staff, and inmates. Cost impact referred to resources required for staffing, equipment, service providers, or litigation settlements. External impact included media, legal, political, and social implications.

The results of the pre-workshop questionnaire are presented in Table 1, in which the median rank is presented in parenthesis next to its narrative label (e.g., High, Medium, Low).

The second part of the questionnaire asked panelists to identify specific challenges or obstacles faced by corrections agencies and their health care providers with respect to the following areas:

- Challenges related to institutional architecture and conditions, including facility design, environmental issues, characteristics of cells/housing areas, cleanliness, and nutrition.
- Challenges related to correctional agency operations, including leadership, organizational processes, policies and procedures, screening and assessment, personnel management, staffing, and training.
- Challenges related to health care provider operations, including coordination with agency/facility administration, staffing, screening and assessment, treatment, and provision of care.
- Challenges related to lack of, or inadequate, technology, including information technology, medical technology, and surveillance/monitoring technology.

Figure 1. 2014 Bureau of Justice Statistics Data on Distribution of Mortality Types in Jails and State Prisons, and Long-Term Trends in Mortality Rates



SOURCE: BJS data.
NOTES: Pie charts show the number of deaths from each mode recorded in 2014 by the Bureau of Justice Statistics. Line graphs show the incidence rate for each type of mortality per 100,000 inmates. The figure does not include deaths that occurred in federal prisons (444) that are not categorized by mortality type and deaths that occurred in jails (44) or state prisons (32) for which the cause was categorized as missing/other.

Table 1. Pre-Workshop Assessment of Mortality Types

Mortality Type	Operational Impact	Cost Impact	Externam Impact	Preventability
Homicide	High (1)	High (1.5)	High (1)	Most Preventable (1)
Suicide	High (1)	High (1)	High (1)	Mid Preventable (2)
Accident	Medium-High (2)	Medium-High (2)	Medium-High (2)	Mid Preventable (2)
Drug and Alcohol Intoxication	Medium-High (2)	Medium-High (2)	Medium (3)	Mid Preventable (2)
Illness or Disease	Medium (3)	Medium-High (2)	Medium (3)	Least Preventable (3)

- Challenges related to lack of funding and/or other resources, including therapies, medication, equipment, and treatment.
- Challenges related to the continuum of care, including coordination with and availability of community-based resources.
- Challenges related to a lack of empirical data (i.e., what questions need to be explored to better inform policy and practice?).
- Other challenges.

Panelists were brought together for a two-day workshop. During the morning of the first day, project staff outlined the goals of the workshop and presented the major results from the pre-workshop questionnaire. The agenda moving forward was to address each mortality type one at a time, beginning with homicide, which was the type determined to have the highest impact and was most preventable, according to the panelists. The specific challenges identified in the second part of the questionnaire were used to inform and support the discussions.

Due to the size of the panel, and anticipated differences in the types of challenges faced, panelists were split into two breakout groups (prisons and jails) to discuss issues and identify corresponding needs. From this discussion, the moderating team identified individual needs—a term we use for a specific requirement, tied to either solving a problem or taking advantage of an opportunity for better performance in the justice system. The panel produced an initial set of 121 needs (prisons = 64, jails = 57), each related to the overall goal of reducing mortality among incarcerated or newly released individuals.

To provide structure to this large set of identified needs, we used a variant of the Delphi Method (RAND Corporation, 2017), an approach in which members of the group provide rankings and written comments on the needs individually, then discuss the results as a group, and then have the opportunity to individually re-rank the needs in light of the group discussion. The process is designed to take advantage of individual expertise while also engaging the panel as a group and limiting the potential for one or a few group members' views to dominate those of others. As a result, the ranking process seeks a level of consensus (via the intermediate discussion) while preserving the ability of individuals to express dissenting views.

In the first round of individual ranking, we asked the panel members to rank each need based on its expected benefit (how important they thought it would be if the need was met) and two measures of the probability of success of actually meeting the need. We multiplied those ratings to produce an expected value score, and used that score to group the needs into top, medium, and low tiers.

During the second step of the process, the group discussed the results of the individual rankings, focusing on cases where there was significant disagreement among panel members. Afterward, the members were given the opportunity to adjust their individual scores based what they heard during the group discussion. These second round results raised or lowered the expected value scores from the first round (weighted by the number of participants who had rated each need, since not all did so for each need) and, in some cases, changed the ranking tier where the need was assigned. A more detailed discussion of the methodology is available in the appendix to this report.

This process produced a list of needs from each of the working groups, broken into groups from high to low priority. In the final analysis, some needs were closely related, including needs identified by both groups. We combined the closely related needs while retaining the highest assigned tier of any of their component needs.[2] This consolidation resulted in a total of 81 needs across the two groups.

2. For example, if a need from the jail group that was ranked in Tier 1 was combined with a need from the prison group that was ranked in Tier 2, the combined need would be listed in Tier 1.

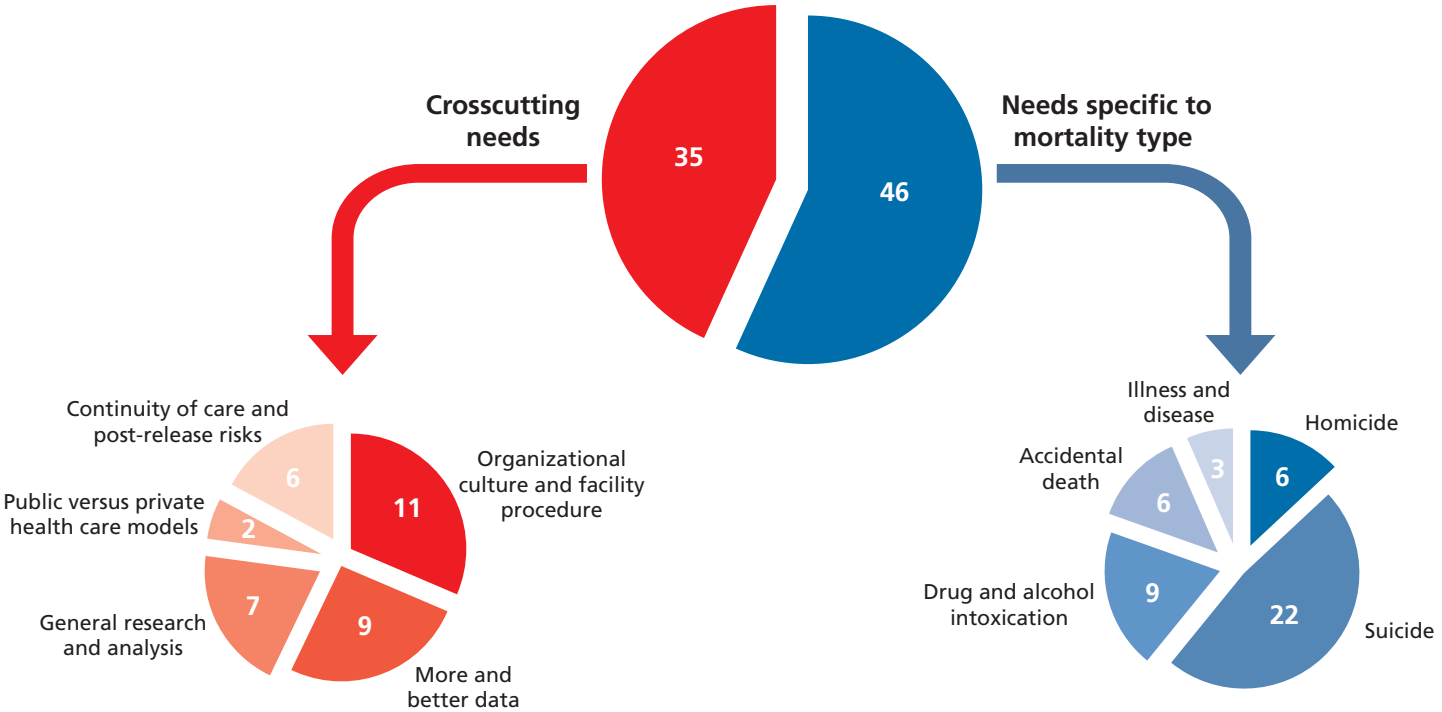
We acknowledge that the needs identified and the priorities assigned to them are—as with all subjective assessments involving a limited number of participants—reflective of the views of members of the panel. Though we sought to include a broadly representative group of panelists, it is likely that a different group would produce somewhat different results. For example, one of the major recommendations called for expansion of the use of medication-assisted therapies and drug overdose countermeasures. These needs reflect the national opioid epidemic but also perhaps somewhat of a bias, in that several panelists were from the Northeast, an area of the country that has experienced significant increases in opioid overdose deaths in recent years. It is certainly possible that panelists from other geographic areas would have emphasized other needs. Nonetheless, the methodology employed, which systematically examined the full range of problems, issues, and opportunities related to mortality in correctional facilities, yielded an informative and useful perspective of the current requirements of the field.

ASSEMBLING A RESEARCH AGENDA TO REDUCE MORTALITY IN CORRECTIONS

The final list of 81 needs fell across a wide range of issues and concerns. Reflecting the structure and approach taken in the workshop discussion, a majority of the needs (46 of 81) were specific to the five individual sources of mortality. However, in the course of the discussions of each mortality type, a significant number of needs were identified that were generally applicable and might contribute to reducing mortality in general. We grouped these needs into a crosscutting category, which contained 35 of the 81 total needs (Figure 2).

In each of these overarching groupings, the identified needs were split into five subgroups—the mortality types that were used to structure the workshop for that category, and five thematic groupings for the crosscutting needs. The following sections will discuss the needs that fell into each of the groups in turn, beginning with the mortality-specific needs and then turning to the crosscutting needs.

Figure 2. Overall Breakdown of Needs Identified by the Panel (Prisons and Jails)



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Needs Specific to Mortality Types

Across the five types of mortality that were examined by the panel, the number of needs identified regarding each varied considerably. Needs focused on suicide prevention dominated the category, accounting for nearly half of the mortality-type-specific needs. The remaining half was more evenly split among the remaining sources of mortality, with slightly more needs identified regarding drug and alcohol intoxication than average and slightly less related to illness and disease. The split of needs identified for the different mortality types was quite similar for jails and prisons (where needs relevant to both are counted in each breakdown), though the fraction of needs related to suicide and homicide was somewhat higher for jails than prisons and the fraction of needs related to accidental death and drug and alcohol intoxication was somewhat lower (Figure 3). The following sections present each of the needs identified for each mortality type in turn.

Homicide

BJS's Deaths in Custody Reporting Program (DCRP) defines homicides in correctional facilities as including intentional death caused by another inmate, unintentional death incidental to the staff use of force, and death resulting from assaults that actually occurred prior to incarceration (Noonan, Rohloff and Ginder, 2015). BJS reported a total of 108 homicides in correctional facilities in 2014; however, reliable figures on the breakdown of homicide by type are not available.

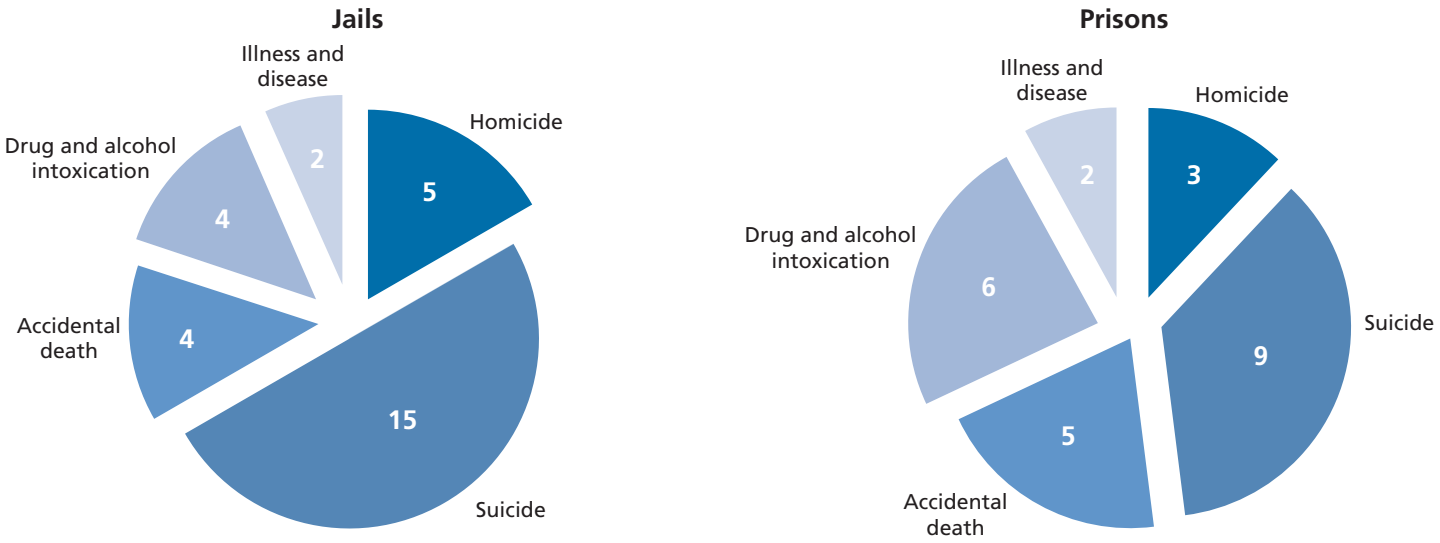
In state prisons, the homicide rate was 7 per 100,000, with 83 homicides accounting for 2.4 percent of all deaths in correctional facilities (Noonan, 2016b). Although the rate has been increasing slightly in recent years, it is important to note the overall trend over a longer time period has been significantly downward. For example, in 1980, the rate was 54 per 100,000 but has since dropped sharply, even as the overall correctional population has expanded significantly (Mumola, 2005).

In contrast, the homicide rate in jails has been relatively stable over the past several decades: Rates have fluctuated from a low of 2 per 100,000 in 2003 to a high of 5 per 100,000 in 2006, returning to 2 per 100,000 in 2008. In 2014, the rate was 3 per 100,000, and the 25 total homicides that year accounted for slightly more than 2 percent of all deaths in jails (Noonan, 2016a).

Acknowledging differences in how homicide is defined and calculated for the inmate population vs. the community, the rate of occurrence in correctional facilities is comparable to that found in the general population. For example, in 2015 the murder rate in the United States was 4.9 per 100,000—lower than in prisons but slightly higher than the rate in jails. Considering the characteristics of the inmate population, one might expect the homicide rate to be much greater in correctional facilities, but this is not the case.

The long-term progress in reducing homicide in correctional facilities since 1980 may be due to a number of changes in technology and practice since that time, including the successful deployment of such security measures as video camera

Figure 3. Breakdown of Mortality-Type-Specific Needs Identified for Jails and Prisons



NOTE: Some needs apply to both jails and prisons, and therefore appear in both pie charts.

systems and contraband detection technologies; proven correctional practices, such as the use of assessment and classification tools and the segregation of vulnerable and violent inmates; and gathering and exploiting intelligence—all of which can contribute to mitigating risk of violence.

In the pre-workshop questionnaire, panelists identified homicide as the single most preventable mortality type. In discussions about the issues and challenges associated with this type of mortality, several needs emerged, listed in Table 2. In spite of the view that homicides were preventable, the needs identified were ranked in the second and third tiers overall by the panel participants.

Panelists noted that the low incidence of homicide ironically presents challenges for administrators striving to better understand this phenomenon so they can develop strategies to further reduce risk. Researchers have identified some factors linked to higher levels of violence and disorder that may contribute to elevated risk of homicide in correctional facilities. These include overcrowded conditions, inadequate number and/or training of staff, lack of access to programming, ineffective classification practices, poor management practices, inadequate facility design, and the population characteristics within the institution, such as the number of mentally ill and/or violent inmates, their age, and their racial composition (Byrne, Taxman, and Hummer, 2005). Further, many argue that gangs and their control of the contraband market, including drugs and, more recently, cell phones, are responsible for most institutional violence (Ingraham and Wellford, 1983). However, because homicide remains such a relatively rare event, it is difficult to predict exactly which inmates are more prone to this extreme form of violence and under what circumstances these acts will occur (Austin, 2003). To overcome some of these challenges, panelists called for evaluation of the key factors commonly used in objective classification instruments to determine whether they have predictive value for violence. Further, analyses are needed to assess whether and how individual inmate and housing unit characteristics can be incorporated into housing assignments in order to minimize violence.

Although it is relatively uncommon, inmates do, on occasion, die of complications from injuries sustained prior to incarceration. To mitigate this risk, participants articulated the need for more-consistent and -comprehensive screening at intake. For example, at admission, an estimated 85 percent of prison inmates and 82 percent of jail inmates reported that they were questioned by staff about their health or medical history. However, only approximately two-thirds of prison inmates and half of jail inmates reported being assessed for illness, injury, or intoxication (Maruschak, Berzofsky, and Unangst, 2015). As a preventative measure, panelists argued for more-effective medical screening practices to identify "hidden" issues that require attention and monitoring. Panelists also noted that improvements to screening could be made through simple changes in the language used by staff. For example, rather than being asked about previous surgeries, inmates should be asked whether they have been shot or stabbed, as this will provide more-relevant information.

Staff use of force, as an unintentional contributor to inmate death, was also discussed. For example, when less-lethal devices, such as stun devices and beanbag rounds, are improperly deployed, the health and safety of inmates may be unnecessarily compromised. This is also true of restraint tactics and tools such as restraint chairs. Physical restraint can result

Table 2. Needs Identified Related to Homicide

Tier	Need	Prisons or Jails
2	• The factors used in inmate classification instruments to assign housing areas need to be evaluated to determine their effectiveness in predicting violence.	Prisons
	• To prevent deaths in custody that result from injuries sustained prior to incarceration, there is a need for more-effective medical screening practices at intake.	Prisons and jails
	• More-effective staff training is needed on the proper deployment of restraints and less-lethal devices in order to prevent deaths associated with use of force.	Jails
3	• There is a lack of empirical data on homicide in correctional facilities. Research is needed to better understand the drivers and solutions to violence which can inform interventions.	Prisons and jails
	• To reduce the risk of death due to excited delirium, there is a need for better policy, procedure, and training to ensure coordinated response between custody and medical staff.	Jails
	• Violence prediction tools are needed in the correctional setting to identify individual risk factors.	Jails

in inmate death due to a variety of causes, such as asphyxiation, aspiration, and cardiac arrest (Schoenly, 2014). Panelists determined that more-effective training and strict adherence to sound policy and procedures that guide the use of these tools and tactics would reduce the risk of inmate death incidental to staff use of force.

Suicide

Suicide is a significant and complex public health problem in the United States. Indeed, the suicide rate in the general population is 13 per 100,000—the highest level reported in 30 years (Tavernise, 2016). This type of mortality presents unique challenges, in part because there is no single explanation of why individuals take their own lives. Social, psychological, cultural, and other factors can contribute to suicidal behavior, which is often impulsive. Further, social stigma often prevents individuals from seeking assistance, which negatively affects preventability (World Health Organization, 2007).

While this trend in the general population is disturbing, incarcerated individuals are at even greater risk of suicide. Though the direct causes of suicide, regardless of setting, are not well understood, there are a variety of correlates and factors that may place incarcerated individuals at greater risk. Clearly, gender plays a role: The Centers for Disease Control and Prevention (CDC) reports that males commit suicide at nearly four times the rate of females (CDC, 2015), and the vast majority of inmates are male (Carson, 2015; Minton and Zeng, 2015). Further, several of the risk factors commonly associated with suicide in the general population are disproportionally represented in the inmate population. These include a history of mental illness, substance abuse, and prior suicidal behavior. BJS estimates that 56 percent of state inmates, 45 percent of federal inmates, and 64 percent of jail inmates suffer from a diagnosable mental illness (James and Glaze, 2006). Comorbidity of substance abuse and mental illness among the incarcerated population is very high and more often the rule rather than the exception. Inmates with mental illness are more likely to have substance abuse disorders and vice versa. For example, among inmates with serious mental illness, more than 70 percent have a co-occurring substance abuse disorder, far higher than the 25 percent rate among the general population (Macmadu and Rich, 2015).

Other factors may be related to the incarceration experience itself. For example, the psychological impact of arrest and confinement, symptoms associated with withdrawal from substances, the prospect of a lengthy prison term, and the common stresses of institutional life can often exceed an inmate's ability to cope (World Health Organization, 2007).

In 2014, a total of 621 inmates took their own lives (Noonan, 2016a, 2016b); however, there are major differences in suicide rates in state prisons as compared with jails. In prisons, suicides account for 5.7 percent of all deaths and occur at a rate of 20 per 100,000. Although the number of suicides in state prisons has increased by 30 percent from 2013 to 2014, it is important to note that the current rate is down considerably from 34 per 100,000 recorded in 1980 (Mumola, 2005).

Suicide in jails, however, is much more prevalent, and it has been the leading cause of death in that setting every year since 2000. Suicides currently account for over 35 percent of all jail deaths (Noonan, 2016a). The suicide rate in jails is 50 per 100,000, which is nearly four times that of the general population. Long- and short-term trends, however, reveal two very different stories. The current suicide rate is significantly lower than the 129 per 100,000 rate reported in 1983 (Mumola, 2005). This long-term drop has been attributed to a number of factors, including increased awareness of the issue, court-imposed mandates requiring screening for suicide risk, and national standards requiring comprehensive suicide-prevention programs (Hanson, 2010). However, in the short term, there was a 13 percent increase between 2013 and 2014 (Noonan, 2016a).

Experts have offered a number of theories to explain the greater prevalence of suicide in jails compared with prison environments. Unlike prison inmates, those entering jails are typically facing an immediate crisis situation. Individuals, particularly those who have never been in legal trouble before, suddenly find themselves confined, with all sense of normalcy gone. Individuals may experience embarrassment over the alleged charge, anxiety about the possibility of a job loss, a break in contact with their loved ones, and uncertainly as to how long they will be detained (Hayes, 2010). Further, jail staff typically have scant, if any, information about the inmate's mental health history and little time to perform an assessment (Kaste, 2015). Finally, many facilities have limited capacity to deliver mental health services.

While acknowledging the great strides that have been made in reducing suicide over the longer term, panelists determined that further progress is achievable in a variety of areas (see Table 3), particularly in light of the recent spike in jail suicides, and the panel ranked suicide in the mid-range in terms of preventability. Most needs fell within the following

Table 3. Needs Identified Related to Suicide

Tier	Need	Prisons or Jails
1	• Evidence-based suicide-prevention strategies, including the use of risk assessment instruments validated in the correctional environment, are not uniformly implemented across the country. There is a need to assess the extent of implementation, identify barriers, and develop strategies to incentivize and support implementation.	Prisons (2) and jails (1)
	• Because suicide risk is dynamic rather than static, processes are needed to support rescreening at regular intervals and after key events in the inmate's life.	Jails
	• Suicide risk assessment is not always reliable. There is a need to promulgate best practices, specifically related to the use of skilled screeners in private environments more conducive to sensitive discussion.	Jails
	• With respect to mental health services, there is a wide discrepancy between the community level of care and that which is provided in correctional facilities. There is a need for cost-benefit analyses of providing community-level care in correctional facilities.	Jails
	• Many facilities suffer from a shortage of mental health treatment providers. There is a need for creative funding solutions or other incentives to support the required capacity.	Jails
2	• Inmates in restrictive housing may be at increased risk of suicide due, in part, to the effects of isolation. There is a need to explore the potential costs and benefits of permitting these inmates daily time out of their cell/unit.	Prisons
	• Corrections staff are vulnerable to stress, burnout, and desensitization, which can negatively impact inmate health—for example, affecting the ability to recognize and respond to indications of a suicidal inmate. Strategies and interventions are needed to maintain staff health and sensitivity to signs of suicidal behavior.	Prisons and jails
	• Prison suicide is rarer and less studied than jail suicide. Effective prevention strategies require a better understanding of the drivers or triggers of prison suicide attempts and completions so that interventions can be designed.	Prisons
	• Critical medical information is often not shared due to system interoperability issues or misconceptions about data privacy restrictions. To remove these hurdles, a functioning interdisciplinary quality improvement team is needed to bridge mental health, medical, and custody components within and between facilities.	Prisons
	• Because suicide attempts in prison are relatively rare, there is a need for better approaches for staff to maintain vigilance and attentiveness in prevention efforts.	Prisons
	• The use of cameras and video recordings should be expanded as a tool to monitor staff compliance with suicide watch procedures, as well as response.	Jails
	• Interventions in response to inmates identified at risk of suicide are often viewed as punitive by the inmates, which leads to underreporting. Strategies are needed to encourage honest reporting and minimize overreactive and overrestrictive interventions.	Jails
	• Double-bunking may be a protective factor in the prevention of suicide, but there are security and availability issues. There is a need for cost-benefit analyses and guidance on when it is appropriate to use double-bunking as a prevention tool.	Jails
	• There is a need to incentivize the construction or retrofitting of cells in accordance with what is known about inmate suicide and its prevention.	Jails
	• There is a need to assess the utility and practicality of "cut-down" tools to intervene before a suicide attempt is successful.	Jails

Table 3. Needs Identified Related to Suicide—Continued

Tier	Need	Prisons or Jails
3	• Systems are required to periodically evaluate a facility's suicide risk screening tools to determine whether they maintain predictive validity and are being applied appropriately.	Jails
	• An "us vs. them" culture often exists between staff and inmates in many facilities. There is a need to investigate the relationship between correctional officer social work orientation and/or exposure to specialized or social work training and inmate stress levels and mental health outcomes.	Jails
	• Because suicide attempts are often impulsive, there is a need to develop and validate tools to screen for this potential behavior in the correctional environment.	Jails
	• Suicide monitoring is staff-intensive. There is a need to explore technology solutions as force multipliers in this effort.	Prisons
	• Because suicides in prison are relatively uncommon, research and evaluation approaches are needed to justify investments in prevention strategies, particularly in large agencies.	Prisons
	• There is a need for research to examine the key characteristics and cultural and protective factors that exist in institutions that have relatively fewer suicides.	Prisons
	• Information gathered about an individual's suicide risk and mental illness from previous jail stays is important in the assessment of current risk. This nonsensitive patient information needs to be captured and made accessible through jail management systems.	Jails

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

themes: more-effective risk assessment tools and better implementation of these tools, suicide-prevention practices, human capital issues, support for the implementation of best practices, and technology/equipment.

Panelists articulated that greater emphasis should be placed on the identification of risk in the first place, and the need for promulgation of best practices in suicide risk assessment rose to the top tier. Panelists discussed the need for uniform application of suicide risk assessment tools validated in the correctional setting; however, they reinforced the importance of applying these tools with fidelity. Noting that the quality of these assessments is affected by a variety of factors, panelists stressed that assessments should be conducted by trained/skilled screeners. Further, screening should take place in a private area, away from other staff and inmates, to facilitate open communication.

Panelists also asserted that some of the key characteristics of suicide victims in jails have changed over time and that correctional facilities need to adjust their prevention strategies accordingly. For example, identifying suicide risk within the first 24 hours of confinement has long been considered critically important; a 1986 survey revealed that 51 percent of all jail suicides occurred during this timeframe (Hayes, 1989). A follow-up study, conducted 20 years later, reported dramatic changes in this metric, finding that only 23 percent of suicides occur during the first day (Hayes, 2010). Acknowledging the fact that risk is dynamic rather than static, panelists identified a top-tier need for better processes to support rescreening of inmates both at regular intervals and after key events in the individual's life.

A variety of needs related to correctional facility operations fell into the second tier of needs. Panelists noted that inmate perception of suicide-prevention measures in response to identified risk often negatively impact self-reporting. For example, in many facilities, inmates who admit to suicidal thoughts may be assigned to an observation cell, where they are stripped and their clothing replaced with a suicide-prevention smock. These inmates may be provided only finger-foods to eat and have their visits and telephone calls postponed. While facilities are well intentioned in their suicide-prevention efforts, inmates often view these measures as overly harsh and punitive. Inmates, therefore, may be less likely to disclose pertinent information to a screener if doing so can lead to negative outcomes. Noting that facilities often emphasize prevention over risk identification, panelists called for more-balanced approaches that remove disincentives for honest reporting.

Other needs spoke to inmate housing and isolation as risk factors for suicide. Restrictive housing has been linked to

suicidal behavior. For example, over 38 percent of victims of jail suicide were in isolation or segregation at the time of death (Hayes, 2010). Panelists identified the need to explore the benefits of permitting inmates in restrictive housing a period of time out of their cells each day to increase hope and reduce suicide risk. A second need was related to the practice of "double-bunking," that is, assigning two inmates per cell, as a suicide-prevention measure. Panelists argued that this approach may be a protective factor in some cases but may introduce further risk in others. To expand the body of knowledge, participants called for the development of best practices, such as training inmates as peer counselors, and cost-benefit analyses to help facility administrators determine whether and how to implement such an approach.

A number of needs were identified that relate directly to human capital. The need for increased mental health treatment capacity rose to the top tier. As discussed above, the majority of inmates suffer from mental illness, which inevitably strains a facility's ability to provide adequate services. A complicating factor is that many jurisdictions are experiencing difficulty recruiting and retaining mental health staff. For example, fewer than half of the Nebraska Department of Correctional Services' 23 psychologist positions are filled (Hammel, 2016). In Cook County, Illinois, eight of 25 psychiatrist and psychologist positions are vacant, but, more importantly, experts note, even if the jails were staffed at budgeted levels it would still be inadequate given the number of inmates requiring services (Trotter, 2015). Panelists deemed it critical that correctional facilities maintain adequate mental health staffing and called for creative funding solutions and incentives to attract and retain qualified personnel. An associated requirement, also in the top tier, called for cost-benefit analyses that seek to quantify the value of providing community-level mental health care in correctional facilities. The term *community-level* refers to the standard of care provided to non-incarcerated individuals via public health care systems. Investments in this area may not only reduce mortality in facilities but also pay dividends in other areas, such as reduced recidivism.

Beyond the call for adequate mental health staffing, panelists also identified needs related to the role of the correctional officer in suicide-prevention efforts. Panelists noted the characteristics of burnout, which can include exhaustion, cynicism, detachment, and ineffectiveness, can negatively impact an officer's ability to recognize and respond to indications of a suicidal inmate. Indeed, it is estimated that 37 percent of officers experience job stress and burnout (Finney et al., 2013). Panelists called for better strategies and interventions to maintain staff mental health in general and sensitivity to indicators of suicidal intention in particular. Further, as suicide in prison is relatively rare, panelists suggested that more-effective approaches to maintaining staff vigilance in prevention efforts are required.

Acknowledging the difficulties of sharing information between and within facilities regarding previous suicide attempts by inmates, panelists called for greater use of multidisciplinary teams consisting of mental health, medical, and custody staff. Strong, collaborative teams can overcome obstacles created by disparate databases or misconceptions about data privacy regulations and can support better outcomes.

Given that prison suicide is far less prevalent than jail suicide, panelists called for further research. While risk factors are generally known, a greater understanding of the drivers or precursors to suicide in the prison setting are needed so that facility administrators can developed targeted interventions.

During the discussion, panelists expressed frustration that, while national standards call for a comprehensive suicide-prevention program in correctional facilities, these evidence-based strategies are not uniformly implemented across the country. The problem, according to the panelists, is not a lack of awareness but instead of resources. To better understand and address this deficiency, panelists argued for research to quantify the extent of comprehensive suicide-prevention program implementation and which components are most challenging for facilities; to identify the barriers or obstacles; and to develop strategies to better support or incentivize adoption. For example, while the elements of suicide-resistant cell design are well established, meeting these requirements can mean inordinate construction or retrofit costs, which may make compliance unattainable for some facilities. Panelists recommended the exploration of incentives or other strategies to support these best practices as a way to reduce inmate suicide.

Finally, panelists identified two needs related to technology and equipment. The first need called for an examination of "cut-down" tools designed to rescue an inmate in the event of a suicide attempt by hanging. There are a variety of tools available, and many facilities secure these tools in a central location within a unit, rather than permitting officers to carry them. Panelists called for an assessment of the functional utility of these tools, as well as the identification of best practices regarding officer access to the tools. Panelists also recommended that facilities expand use of video cameras with recording capabilities to monitor staff compliance with suicide-watch procedures.

Drug and Alcohol Intoxication

As a result of aggressive enforcement and strict sentencing approaches to drug crime, U.S. correctional facilities host large numbers of individuals with a history of substance abuse. The National Center on Addiction and Substance Abuse reports that 65 percent of prison and jail inmates meet the medical criteria for alcohol or other drug abuse and addiction. An additional 20 percent of inmates were determined to be "substance-involved," meaning they were under the influence of a substance at the time of their offense, they stole money to buy drugs, and/or they violated drug or alcohol laws (Califano, 2010). Substance abuse is disproportionately represented in incarcerated individuals, as only 9 percent of the general population has a substance abuse disorder (Peters, Wexler, and Lurigio, 2015).

Considering the large percentage of substance-abusing individuals in U.S. prisons and jails, it is not surprising that the drug trade is a major part of institutional life. Indeed, when these individuals enter a correctional facility, their desire or addiction-driven need for drugs comes along with them.

While substance abuse can play a role in each of the other major mortality types (homicide, suicide, accidental death, and illness/disease), it is most directly associated with overdose, also referred to as intoxication, as a cause of death. BJS reports that a total of 139 in-custody deaths were attributed to drug and alcohol intoxication in 2014—a 54 percent increase over the previous two years (Noonan, 2016a, 2016b). The recent spike is likely a reflection of the national opioid epidemic occurring in the general population. Indeed, more people died in the United States from drug overdose in 2014 than in any previous year, and opioids were involved in 61 percent of the cases. The overall rate of opioid overdose has increased a staggering 200 percent since 2000 (Rudd et al., 2016).

Within correctional facilities, intoxication-related deaths are significantly more common in jails, where the mortality rate was 12 per 100,000, than in state prisons, which reported a rate of 4 per 100,000 (Noonan, 2016a, 2016b).

Drugs present a major contraband challenge in correctional facilities, and administrators typically try to address this issue by stopping supply and reducing demand. Drugs can enter a facility in a variety of ways, including via inmates, visitors, staff, contractors, incoming mail and packages, and, in some cases, being deposited over secure perimeters. An assortment of tools and strategies are employed to interdict illegal substances and detect inmate drug use. Intelligence gathering, contraband detection systems, mail scanning devices, regular and random searches, drug detection canines, and urinalysis tests are some of the most common techniques leveraged.

In spite of these ongoing efforts, there is often a ready supply of drugs within correctional facilities. To illustrate this point, consider that in 2014 a quarter of California's prison population was tested, and nearly 23 percent of tests were positive for one or more drugs (Associated Press, 2014). The Secretary of the California Department of Corrections and Rehabilitation at the time is on record saying that drug use in prison was so common that counties routinely test probationers arriving directly from state institutions. He estimated that, in San Diego County, one out of five inmates are "high coming out of prison" (St. John, 2015). The problem of drug use in prison is certainly not unique to any single jurisdiction. The Ohio prison system, for example, reported a 41 percent increase in positive drug tests over a recent two-year period (Ludlow, 2015). The last available national data on drug testing in jails revealed that over 10 percent of tests were positive (Wilson, 2000).

The availability of drugs behind the walls is, in large part, a testament to the strong demand. While in-custody treatment can help reduce demand, available treatment resources are inadequate for the level of need. According to the National Center on Addiction and Substance Abuse (2010), of the 1.5 million inmates with substance abuse disorders in 2006, only 11.2 percent received any type of professional treatment. Further, of those who do receive treatment, few receive evidence-based services, such as pharmacological treatments—also known as medication-assisted treatments.

In the pre-workshop questionnaire, panelists ranked drug and alcohol intoxication in the mid-range in terms of preventability. Panelists discussed a variety of issues and challenges related to substance abuse and addiction as a driver of inmate mortality and identified several key junctures where opportunities exist to reduce mortality. (See Table 4.)

Within correctional facilities, intoxication-related deaths are significantly more common in jails.

Table 4. Needs Identified Related to Drug and Alcohol Intoxication

Tier	Need	Prisons or Jails
1	• To help prevent inmate death due to drug overdose, staff need greater access to countermeasures, such as naloxone, as well as supporting policies, procedures, and standards to guide their use.	Prisons (1) and jails (2)
	• Corrections agencies need to expand the use of medication-assisted treatment, a proven intervention in community-level care, in support of desistance from drugs.	Jails
2	• There is a need to explore the utility of inmate peer counseling programs to reduce the risk of drug overdose.	Prisons
	• Inmates often are booked into jail under the influence of drugs and/or alcohol. To provide the best possible care, there is a need for improved intake practices that nurture open communication regarding current level of intoxication, without fear of reprisals.	Jails
	• To reduce the risk of death resulting from complications associated with detoxification, facilities need to build this medical capacity and reexamine appropriate thresholds for emergency room referrals.	Jails
3	• Lack of resources makes contraband interdiction extremely difficult. There is a need to develop analytical approaches to fully document the costs of the drug trade, drug use, and overdose events to better justify future funding requests and investments.	Prisons
	• Research is needed to improve understanding of how facility characteristics (e.g., staffing, resources) affect the ability to interdict drugs, identify substance abusers, and intervene effectively.	Prisons
	• To reduce the potential for staff involvement in drug smuggling, a greater level of professionalism is required through higher educational qualifications and commensurate compensation.	Prisons
	• The use of synthetic drugs in correctional facilities is rising. There is a need for affordable technology to test for inmate use of these rapidly evolving substances.	Prisons

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

The first opportunity is during intake into a correctional facility, particularly in jails, where inmates are less removed—as compared with prison—from their normal substance use behaviors. Indeed, inmates may arrive under the influence of drugs or alcohol and/or addicted to these substances. Others may have been on a methadone maintenance program before their arrest.

Panelists argued that improved intake practices can result in better health outcomes and reduce the risk of mortality. They stressed the importance of making inmates feel comfortable to report their current intoxication status without fear of punishment. In medical emergencies, it is critical that staff have accurate and timely information. A system that nurtures more-open communication facilitates this information sharing and permits staff to respond to such situations more quickly and effectively and may save lives.

Panelists noted that inmates entering facilities addicted to heroin or on methadone maintenance are typically forced to detoxify without the benefit of medication. Historically, correctional facilities have been resistant to providing medication-assisted treatment for opioid addiction, preferring drug-free detoxification (McKenzie et al., 2009). Detoxification, particularly from methadone, can be excruciating, but more importantly it can be life-threatening in cases where medications and adequate medical attention are not available. It should be noted that while the panel ultimately chose to focus on drug use, in particular opioids, detoxification from alcohol without the benefit of medication can be equally painful, and complications associated with withdrawal can cause death. Panelists supported expanded use of medication-assisted treatment, such as methadone, to ease the pain and suffering associated with opioid withdrawal and to support safe detoxification.

A related issue pertains to facility policies and procedures. Panelists argued for lowered thresholds for emergency department referrals in detoxification cases. For example, heroin withdrawal is generally not considered life-threatening when medications and proper medical monitoring are available. That said, recent media reports have highlighted a series of withdrawal-related deaths, and, given the nation's heroin crisis, some experts are concerned about the ability of correctional

facilities, particularly smaller jails, to safely detoxify inmates (Dale, 2016). In light of the increasing risk, general opposition to using medication-assisted treatment, and varying medical capacities among facilities, panelists stressed that facilities should expand the use of emergency room referrals or, at a minimum, lower the threshold for increased medical attention within the facility.

The second major opportunity relates to ongoing support for substance-abusing inmates beyond initial detoxification. As a top-tier need, panelists called for greater utilization of medication-assisted treatment as a tool to promote inmate desistance from drug use and better prepare inmates to reenter the community upon release. Medication-assisted treatment is the standard of care in the community and an evidence-based practice in health care, but, as discussed, it is underutilized in correctional facilities. Indeed, less than 40 facilities in the country currently provide this treatment (Vestal, 2016). Panelists argued that the success that some correctional systems have had with this approach suggests that its potential benefit outweighs its risks. For example, New York City jails have been using medication-assisted treatment for almost three decades, and research has demonstrated that among those incarcerated for six months or less, those who continued methadone maintenance while in custody were more likely to obtain follow-up drug treatment upon release than those who went through tapered methadone withdrawal (Rich et al., 2015). Use of this intervention is also being adopted elsewhere: Connecticut recently became the first state to introduce methadone in all correctional facilities, and Rhode Island now provides all three Federal Drug Administration–approved interventions (methadone, buprenorphine, and naltrexone) to opioid-dependent inmates (Ferguson, 2017).

A third opportunity discussed by panelists pertains to the prevention of drug overdose. Given that drugs do infiltrate correctional facilities, the risk of overdose is always present. As a top-tier need, panelists argued that correctional staff require greater access to countermeasures, such as naloxone, which can reverse the effects of opioid overdose and greatly increase the chances of survival. Of note, this recommendation is in direct alignment with a position statement by the National Commission on Correctional Health Care, which describes naloxone as a life-saving drug that can be safely used by trained nonmedical personnel (National Commission on Correctional Health Care, 2015). A related, tier-two need called for investigation into the efficacy of inmate peer-to-peer counseling programs as a way to reduce overdoses.

Accidental Death

In 2014, a total of 63 inmate deaths were classified as accidents. In jails, this mortality type rate was 4 per 100,000, and in state prisons the rate was 3 per 100,000 (Noonan, 2016a, 2016b).

Despite the relatively low incidence of this type of mortality, the panelists ranked accidental death in the mid-range for preventability and therefore an area with opportunities for improvement. Though detailed data on the nature of accidental deaths were not available, panelists discussed some of the more common situations based on their experience. A group of needs related specifically to reducing risk of this mortality type fell into the second tier (see Table 5).

Inmate transportation was identified as one activity typically associated with accidental death. Prison and jail systems routinely transport inmates for a variety of purposes, including court appearances, work details, medical visits, and transfers between facilities. For example, perhaps no correctional system transports more inmates than Texas, which not only has the largest state prison population (Carson, 2015) but also covers a vast geographic area. The combination of these factors requires a massive fleet of Texas Department of Criminal Justice (TDCJ) vehicles, which log more than 4.7 million miles while transporting close to 580,000 inmates per year (TDCJ, no date). Considering these staggering metrics, it is not surprising that fatal accidents do occasionally occur. Such was the case in 2015 when a TDCJ prison bus skidded off an icy highway and down an embankment before colliding with a passing freight train. Eight inmates and two officers died in the incident (Carter, 2015).

While vehicular accidents cannot be prevented entirely, panelists noted several ways in which the risks could be reduced. For example, there is a need to better leverage existing and emerging safety technologies in facility transport vehicles, such as advanced airbags, lane departure sensors, and forward collision warning sensors. Other mechanisms, such as speed limiters, GPS route monitoring, seat belt usage sensors, and SMS (texting) blocking, can help support staff compliance with operational policy.

Drug use among inmates can be linked directly or indirectly to each and every mortality type, and accidental death is no exception. It is not uncommon for an inmate to perish in an attempt to smuggle drugs into an institution. Inmates are known to secret drug-filled balloons or other vessels in their body cavities to avoid detection. These vessels can rupture before they are passed, causing the drugs to rush into the inmate's bloodstream, resulting in accidental overdose.

Table 5. Needs Identified Related to Accidental Death

Tier	Need	Prisons or Jails
2	• The elderly inmate population is growing rapidly. These individuals are more prone to accidental death from injuries resulting from falls. There is a need for best practices for injury prevention and strategies to assure these practices are followed.	Prisons
	• Injured, infirmed, or intoxicated inmates are more vulnerable to accidental death due to their condition. Policies, procedures, and training are needed to ensure that staff screen for these situations, remain aware of the unique risks involved, and are prepared to respond quickly and appropriately to an incident.	Prisons and jails
	• Inmate workers sometimes face safety risks associated with work assignments within the facility and in the community. Standards of protection similar to what the Occupational Safety and Health Administration (OSHA) provides in traditional workplace settings are needed to address and mitigate these risks.	Prisons (3) and jails (2)
	• Transport vehicle accidents are preventable. There is a need to more effectively leverage existing and emerging safety technology such as speed governors, GPS fleet tracking, or texting blockers.	Jails
	• To detect drugs hidden within the body, more affordable, advanced contraband detection systems supported by sound policy, procedures, and standards are needed.	Prisons (3) and jails (2)
	• Better mechanisms are needed to assure that inmates are assigned work assignments appropriate to their age and physical condition.	Prisons

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

To address this concern, panelists called for greater access to advanced scanning technology to detect drugs hidden within the body, along with corresponding policies and procedures to support its use. Greater access to this technology would also help prevent other substance abuse–related mortality, specifically overdose via ingestion, as more drugs would be detected before they can enter the facility. While this technology currently exists and has been successfully deployed in several facilities across the country, broader use is hampered by cost and legal issues. With a price tag of up to $250,000, body-scanning devices are beyond the reach of many facilities (Dolan, 2016). Further, current technology emits low doses of radiation to detect foreign objects in the body. The use of these devices for nonmedical use—such as a search—is prohibited in some states (Balsamo, 2016).

Panelists also identified the need for the development and dissemination of best practices in the prevention of inmate injuries that could result in accidental death. Of particular concern is the rapidly growing elderly inmate population, who are more susceptible to falls than their younger counterparts. Elderly inmates face a variety of geriatric symptoms, such as dementia and other disabilities, some of which may impair function and mobility. Though a small number of agencies have designated entire prisons or housing units to the aged, the vast majority of facilities were simply not designed for this purpose. As a result, the elderly routinely face challenges presented by stairs, uneven terrain, and inadequate availability of lower bunks, exposing them to risk of accidental injuries that can result in death (Abner, 2006).

During the panel discussion, it was noted that special circumstances created by injury, infirmity, or intoxication require increased sensitivity and attentiveness by staff. Panelists cited the example of an inmate who had his jaw wired shut to treat injuries sustained during a fight. The jaw wiring, which was necessary to stabilize the fracture, may also inadvertently pose a hazard in the event the inmate vomited or choked on food. Staff need to monitor unique situations such as these more vigilantly. Panelists provided this illustration not as a criticism of the dental procedure but as an example of the need for better policies, procedures, and training to increase situational awareness and appropriate response by staff in order to reduce the risk of death.

Finally, panelists called for greater protections for inmate workers. Inmates often work with heavy machinery in correctional industries, in agricultural programs, or on road crews, and, as a result, their safety may be at increased risk. To mitigate these risks, the panel argued that standards for worker safety, similar to those that the Occupational Safety and Health Administration (OSHA) promulgates for the general popula-

tion, should be established and adhered to with respect to the inmate population. Further, panelists asserted that the risk of injury and mortality can be reduced with better mechanisms and structure to assure that inmates are assigned appropriate work assignments relative to their age and overall condition.

Illness and Disease

The vast majority of deaths in correctional facilities are related to illness or disease; however, this type of mortality was deemed least preventable by panelists. BJS reports that, in 2014, more than 3,500 inmates perished in this manner (Noonan, 2016a, 2016b). Illness and disease accounted for 87 percent of all deaths in state prisons, a mortality rate of 240 per 100,000. In jails, this mortality type accounted for 47 percent of all deaths, which translates to a rate of 66 per 100,000. Overall, heart disease, cancer, liver disease, and respiratory disease are among the most prevalent causes of death within this mortality type. Heart disease was responsible for the most deaths in jails (23 percent), whereas cancer was the most common cause in prisons (30 percent).

Several factors contribute to the prevalence of mortality due to illness and disease. The inmate population is largely drawn from the most disadvantaged segments of society, with significant health care needs but limited access to regular care (Anno, 2001). As a result, many inmates arrive at correctional facilities in poor health with conditions that were previously undiagnosed. Once incarcerated, the conditions of confinement often have a negative impact on health. Stress associated with institutional life, overcrowding, inadequate access to exercise, improper diet, exposure to infectious diseases, and poor sanitation and ventilation can all contribute to mortality. Finally, while inmates have a constitutional right to health care, the access to and the quality of the care in correctional facilities are variable (Binswanger, Redmond, et al., 2012). Insufficient resources play a key role here. Some facilities tend to focus on those medical conditions that have immediate and broad impact within the facility, such as HIV and tuberculosis, but also have the potential to spill over into the general population. As a result, treatment of other chronic conditions, such as diabetes and heart or kidney problems, may drop in priority (Firger, 2016).

With few exceptions, nearly all chronic health conditions are more prevalent among inmates than the general population. For example, the rate of HIV among prison inmates is more than five times higher than among the general population (CDC, 2017). Hepatitis C affects 17 percent of inmates, compared with 1 percent of the general population (Varan et al., 2014). Further, inmates are 31 percent more likely to have asthma, 55 percent more likely to have diabetes, and 90 percent more likely to have suffered a heart attack than the general population. Overall, approximately 40 percent of inmates have at least one chronic condition, an illness rate far higher than the general population (Maruschak, Berzofsky, and Unangst, 2015).

An exacerbating factor in this type of mortality is the rapid aging of the inmate population. While the overall prison population has been decreasing slightly in recent years, older inmates represent the fastest-growing segment. The number of state inmates age 55 and older increased 400 percent between 1993 and 2013 (Carson and Sabol, 2016). Today, approximately 16 percent of the national prison population is age 50 and older, and it is projected that by 2030, one-third of all inmates will be age 55 and older (American Civil Liberties Union, 2012). Mandatory sentences and lengthy prison terms (particularly life terms) account for some of this growth. For example, the number of inmates serving life sentences has quadrupled since 1984; as of 2012, one in nine inmates was serving a life sentence (Nellis, 2013). Of those, approximately one-third are serving life without parole and will therefore die while incarcerated, barring a commutation of sentence.

Just as is the case for the general population, elderly inmates face significant medical challenges associated with aging. These individuals are about three times more likely to have a chronic condition or infectious disease than younger inmates (Maruschak, Berzofsky, and Unangst, 2015). These conditions, of course, require more care, including costly medications, which can have serious budgetary implications. Not surprisingly, state prison inmates age 55 and older accounted for the majority (59 percent) of deaths in 2014 (Noonan, 2016b).

The single top-tier need in this category called for increased medical capacity in correctional facilities (see Table 6). Panelists noted that mortality could be reduced if facilities were better equipped to detect acute chronic conditions, such as extremely elevated blood pressure, and respond with adequate care. Panelists described this as an intermediate level of care that falls somewhere between the basic infirmary and a hospital setting.

Two other needs fell into the second tier. While many facilities have developed initiatives focused on the prevention of illness and disease, including smoking-cessation programs

Table 6. Needs Identified Related to Illness and Disease

Tier	Need	Prisons or Jails
1	• To better serve the health care needs of inmates, facilities need greater capacity both to detect acute chronic conditions and to respond with an intermediate level of care.	Prisons (3) and jails (1)
2	• Because illness and disease are the least preventable type of mortality, better approaches are needed to characterize medical conditions in a way that will guide more-effective and -efficient interventions and set realistic expectations for their outcomes.	Prisons
	• There is a need to assess the adequacy of policy, practice, and standards regarding illness- and disease-prevention programs to improve health outcomes.	Jails

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

and specialized diets and educational programs, little is known about the effectiveness of these measures. Panelists identified the need for research to assess the adequacy of policy, practice, and standards regarding these preventative measures and their impact on health outcomes. Another need spoke to the challenges presented by inmates with chronic medical conditions. Panelists argued for better approaches to determining what types of deaths are realistically preventable given a variety of circumstances, such as the diagnosis and the timing relative to the remaining length of sentence. For example, the case of a terminal cancer diagnosis at intake should be classified differently than the case of hypertension diagnosed in the middle of a long sentence. An assessment of preventability would serve to guide facilities as they develop interventions, as well as provide a framework for measuring the quality of care they are providing. In such a framework, the outcome of mortality (or avoidance) could be better tied to whether death was realistically preventable.

Crosscutting Needs

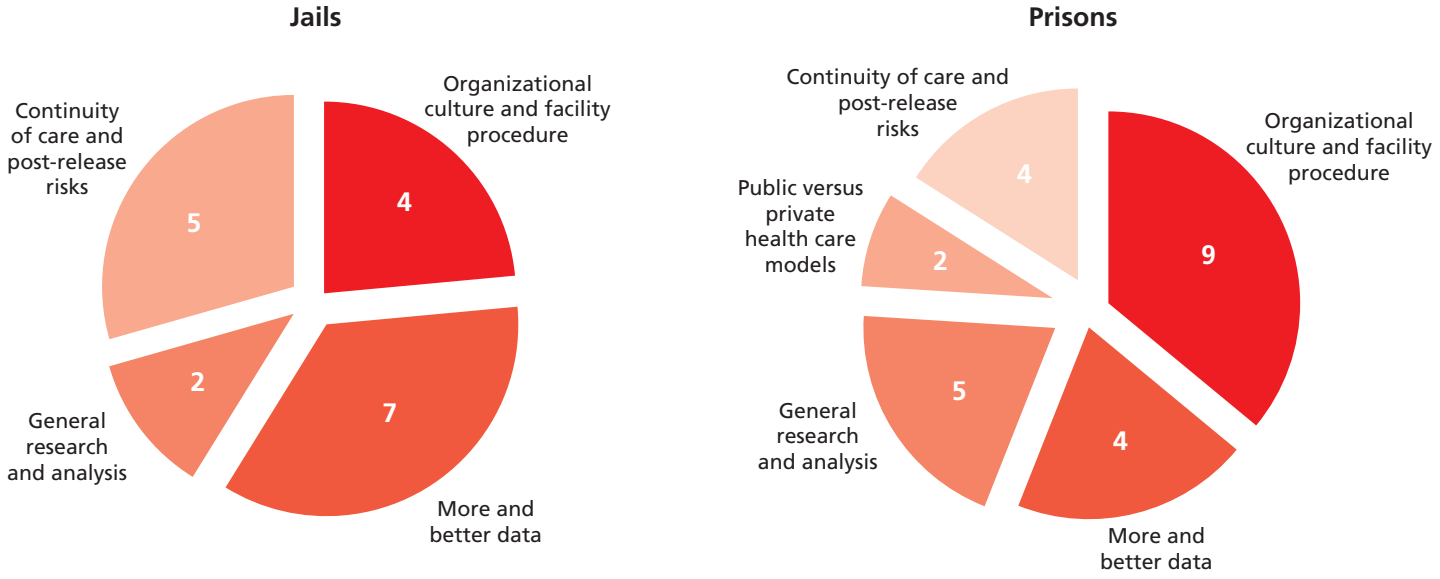
While many of the needs identified by the panelists related to specific mortality types, a number of higher-level themes emerged that reflect overarching organizational or systemic issues. As above, there are some differences (Figure 4) between the relevance of the different categories of needs for jail versus prison environments (for example, health care delivery model issues were called out only for prisons, where delivering care to a population over the long term is a requirement). A discussion of those themes and needs follows.

Organizational Culture and Facility Procedural Issues. The challenges faced by correctional facilities are complex, as several core objectives are not only diverse but sometimes are in conflict. This may be most clearly evident in the tension between a facility's security demands and its requirement to provide quality health care. Anno (2001) states the purpose of medicine is to diagnose, comfort, and cure, while the primary purpose of correctional facilities is to punish through confinement. Historically, while a key aspect of correctional management involves maintaining inmate health and safety, these functions may come into conflict with security goals (Anno, 2001). Facilities must overcome these conflicts in order to accomplish all of their objectives. During the discussion, panelists identified a number of needs designed to improve the culture and operation of facilities with respect to the provision of care and improved outcomes (Table 7).

Three needs in this area rose to the top tier. Panelists supported organizational structures that designate authority and autonomy to medical officials. Noting the hierarchical, rank-based nature of most agencies/facilities, panelists identified the need for medical officials to be positioned as part of the leadership team. This sends the strong message that inmate health and safety is valued by the organization and that medical issues will be given sufficient weight and balanced with, rather than being viewed as secondary to, security concerns.

Panelists suggested that the internal inmate death review process provides a unique opportunity for better collaboration between medical and security staff, which can help break down cultural barriers. Multidisciplinary involvement should be encouraged in these reviews in order to bring different perspectives together to examine the circumstances leading up to the

Figure 4. Breakdown of Crosscutting Needs Identified for Jails and Prisons



NOTE: Some needs apply to both jails and prisons, and therefore appear in both pie charts.

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incident, identify where systems failed, and develop strategies for improvement. When applied as a process-improvement approach, as opposed to blaming, mechanisms such as this could help overcome existing cultural biases, which discourage staff from expressing opinions unrelated to their functional area.

The final top-tier need called for collaborative approaches to work through the inevitable conflicts between security and medical priorities. These "disconnects" are evident on a daily basis. For example, panelists cited the example that inmates commonly miss medical appointments simply because correctional officers were not available to provide an escort. In other cases, a security incident may require that the entire facility be put on lockdown status, impeding inmate access to care, which is particularly concerning for those with chronic conditions. Panelists asserted that facilities need to be open to reexamining traditional ways of doing business and consider alternative models that create reasonable exceptions in certain medical situations. For example, a related tier-two need called for exploration of strategies that allow inmates with chronic conditions to keep their medication on their person. In this way, inmates would be better invested in their own treatment, and their access to medications would not be affected by a lockdown situation. It was stressed, however, that any model should be evaluated to determine impact on both health care outcomes and security outcomes before full implementation. Panelists also called for the development of decisionmaking tools that would assist correctional officers in the supervision of chronic care inmates to ensure that medical needs are tended to and not obscured by security requirements. Another final, related, second-tier need argued for formal cross-training or a system of role rotations between custody and health care staff as a means of increasing sensitivities and fostering collaboration between the two functional areas.

Panelists also discussed how changes in correctional operations and procedures could improve mortality outcomes. For example, panelists noted that the manner in which institutional death reviews are conducted in the country is inconsistent. The field would benefit from the development and dissemination of best practices, including the principles of sentinel event analysis and the use of external peer reviewers. These approaches, it was argued, would lead to a better understanding of the underlying causes of individual deaths and the identification of more-effective interventions to mitigate future risk.

Two needs pertained to the processes available to inmates to request care. Panelists discussed deficiencies with systems in place that allow inmates to make a formal request, file a grievance, or express a medical need. Commonly referred to as "kites," these written communications are a critical way for inmates to self-advocate for services. Panelists noted that, for a variety of reasons, facilities are not always as responsive to these requests as they should be. They also reported that,

Table 7. Crosscutting Needs Identified Related to Organizational Culture and Facility Procedural Issues

Tier	Need	Prisons or Jails
1	• To help ensure that health care issues receive the appropriate level of attention within an agency or facility, organizational structures should designate authority and autonomy to medical officials.	Prisons
	• The inherent conflicts between security and medical objectives can make it challenging to deliver quality health care on a day-to-day basis. There is a need for collaborative approaches to overcome these obstacles.	Prisons
	• The prevailing correctional culture tends to encourage security and medical staff to focus only on their individual areas, which inhibits innovative approaches to reduce mortality. Strategies are needed that promote greater cooperation and collaboration in processes such as death reviews.	Prisons
2	• Institutional death reviews are not conducted consistently across facilities. There is a need for the development and promulgation of best practices, including the principles of sentinel event analysis and external or independent involvement.	Prisons and jails
	• The time required to respond to medical emergencies is affected by a variety of factors. These factors can play a role in whether an incident becomes a fatality. There is a need for more-effective analysis of practices and available resources to identify opportunities to reduce response times.	Jails
	• Better mechanisms are needed to allow inmates greater opportunities to self-advocate for unmet needs or grievances in a productive manner.	Jails
	• From the inmate perspective, there may be real or perceived barriers that inhibit access to medical care. There is a need to explore strategies and approaches that remove these obstacles.	Prisons and jails
	• To break down cultural barriers between security and medical staff and improve outcomes, facilities should implement a system of role rotations or formalized cross-training.	Prisons
	• Communication gaps between facilities and local hospitals can result in unnecessarily lengthy hospital stays for inmates. Better strategies to improve collaboration are required so hospitals understand and take into consideration the medical/monitoring capabilities of the facility when they make release determinations.	Prisons
	• To the extent possible, inmates should be invested in their treatment plan. There is a need to explore strategies that foster this objective without compromising security goals.	Prisons
	• There is a need to develop decisionmaking tools to assist staff in the management of chronic care inmates.	Prisons

in some cases, inmates will self-harm if they feel as though their legitimate requests are not honored. Panelists argued that more-effective mechanisms are needed to create and reinforce a culture of responsiveness to inmate needs. Such measures would improve general health outcomes but should also reduce inmate use of self-harm as a manipulative tool. A related need addressed the perception that some inmates are reluctant to request medical attention. This may be influenced by policy and procedure or by inmate or facility culture, and panelists called for the development of strategies to better understand and address these barriers, whether real or perceived.

Further, panelists noted that the policies and procedures within a facility can have a significant impact on how quickly medical care can reach an injured or ill inmate. For example, panelists noted that a facility's security practices must be reviewed to ensure that they do not conflict with the need for immediate response in emergency situations. There was concern on the panel that some facilities may still be operating under dated correctional practices, which dictate that if an officer comes upon a suicide, he may only open the cell door when a supervisor arrives and not touch anything so as to avoid disturbing a crime scene. Practices such as these by internal first responders may inadvertently increase the likelihood of mortality in certain situations.

Whether an incident involving injuries ultimately results in a death can be influenced by other factors, including the facility's medical capabilities and distance to an external hospital. Better approaches are needed to measure the extent to which these factors contribute to mortality.

Finally, panelists noted that there is often a lack of effective communication and collaboration between facilities and local, community-based hospitals. These gaps can result in an unnecessarily prolonged hospital stay for inmates. For example, an inmate could be safely released several days earlier than a

private citizen in similar circumstances because the inmate can be better monitored within a correctional facility. Better case management systems are required to ensure that the facility communicates the medical and monitoring capabilities available so that the hospital can make a better-informed release decision.

More and Better Data. As panelists discussed the challenges related to inmate mortality and potential solutions, the theme of more and better data emerged again and again. To adequately address any problem, it first must be understood as well as possible. Therefore, it is necessary to gather and analyze relevant data on underlying issues and contributing factors that can inform the development of targeted interventions. Panelists noted several challenges associated with deficiencies in inmate mortality statistics and identified the general need for more accurate, granular, and timely data (see Table 8). These data are required primarily at the agency/facility level, which, of course, feeds the national-level data.

One need in this area was ranked in the top tier. Panelists discussed the importance of more data on "near-misses," defined as incidents that did not result in death but easily could have. Facilities generally do not gather nearly as much information on near-misses as they do for mortalities, and panelists asserted that more-thorough investigation and more-granular data can greatly improve outcomes. This is particularly true with respect to those mortality types that are relatively uncommon, such as homicide, accidental death, and prison suicide. Given the relative low number of these deaths, more detailed information would be of great value to facilities as they try to understand underlying causes and strategize approaches to mitigate future risk.

A related, tier-two need called for changes in data collection at the agency/facility level. In line with the above referenced need, panelists argued that gathering more-granular, yet standardized, incident report data on both mortality and "near-misses" is required. Standardized reporting structures would allow for better comparison across facilities and jurisdictions, while improved granularity is needed to develop meaningful mitigation strategies.

Recognizing that data collection can be a cumbersome task for correctional staff, panelists identified a supporting need calling for the development of tools and approaches that can automate or streamline the process to the extent possible.

Several other needs fell into the second tier of rankings. Panelists called for greater standardization and uniformity in how deaths are investigated and reported, which will allow for more valid comparison of statistics across jurisdictions. While the BJS Death in Custody Reporting Program data are useful to understanding the prevalence of inmate mortality by type as well as the trends, it is important to note that the accuracy of data reported is subject to a number of limitations.

The necessarily narrow definition of "death in a correctional facility" can allow for skewed data in some special circumstances. For example, an inmate may die in a correctional facility as a direct result of injuries sustained before the individual entered the facility. Conversely, another inmate may suffer a serious injury in a facility but die later in a community hospital. Due to variations in how facilities report, the former case will likely be counted in the inmate mortality statistics, while the latter case may not. Further, in some cases, there may be hesitancy to report a death in a certain way, such as a suicide, for fear of litigation (Daniel, 2006). Other complicating factors include general inconsistency across jurisdictions in terms of the situations in which death investigations are required, and which official, such as medical examiner or coroner, certifies the cause of death and how this is recorded, particularly in cases where multiple factors were involved.

To address some of these issues, panelists called for major changes in how death investigations are conducted in the United States. Currently, states employ either a coroner system, a medical examiner system, or some combination of the two (CDC, 2016). Panelists argued that a shift to a national medical examiner system is needed. Two major advantages of the medical examiner system are typically offered. First, medical examiner systems provide better quality death investigations and forensic pathology services. Second, these systems are independent from population size, county budget variations, and local politics (Fierro, 2003).

Other, related, needs spoke to the need for consistency and standardization of death-in-custody reporting. For example, panelists called for medical examiner review of all deaths and a modification in the standard death certificate to include a checkbox to note a death in custody. These changes would all support more-uniform mortality data, which are essential when comparing jurisdictions, and also provide more granularity, which supports the development of intervention strategies.

Panelists recognized the importance of national data in helping policymakers understand trends and develop strategic interventions. BJS, as the primary source of national criminal justice data, is responsible for producing statistical reports; however, due to budget limitations, the release of reports has been described as "infrequent and irregular" (Krajicek, 2014).

Table 8. Crosscutting Needs Identified Related to Data

Tier	Need	Prisons or Jails
1	• Because some types of mortality are relatively rare, more-granular data on "near-misses" should be collected and analyzed. These data are critically important to better understanding incidents and developing prevention strategies.	Prisons
2	• Inmate access to care is a challenge in correctional facilities. Metrics need to be developed to measure access to care for process improvement purposes and also for comparison against community-level standards.	Prisons
	• Incident report data should be more standardized for comparison purposes and granular enough to be useful in developing interventions.	Jails
	• More granularity in BJS mortality reporting is needed (e.g., conviction status of those deaths in jail settings, breakdown of accidental death).	Jails
	• There is a need for more-regularly-updated national-level data on mental health issues and substance use in jail facilities than can currently be produced by BJS.	Jails
	• Data collection can be a cumbersome, time-intensive process. There is a need for tools and approaches that support the data collection process without adding burdens to facility staff.	Prisons and jails
	• Death investigations are conducted in an inconsistent manner, which results in irregularities in cause of death reporting. There is a need for standards requiring medical examiner review and reporting of deaths.	Prisons (3) and jails (2)
	• The time required to respond to medical emergencies is affected by a variety of factors. These factors can play a role in whether an incident becomes a fatality. There is a need for better data collection and more-effective analysis of practices and available resources to identify opportunities to reduce response times.	Jails
	• There is a need for concerted effort to establish common definitions for self-harm incidents and to gather and publish data on their prevalence.	Jails

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

Panelists argued that national data on key issues related to inmate mortality, specifically mental health and substance use in jails, must be regularly updated and available. Further, there is a need for greater granularity of the data, as more-detailed information allows officials to develop targeted interventions. For example, in the future, mortality data for jail inmates should be broken down by status, that is, pretrial vs. convicted.

Panelists agreed that inmates should receive the community-level standard of care but noted that meeting this threshold can be challenging. As a first step toward this goal, better metrics and mechanisms are needed for facilities to measure the actual quality of care provided. Metrics should include access to care and process elements, such as the time elapsed between inmate request for care and delivery, the time involved for specific consultations, and the time required to receive test results. These measures would support internal process improvement efforts and would also allow for more direct comparison of the quality of care provided vs. community standards.

Finally, panelists discussed the issue of self-harm as it relates to inmate mortality, and a number of data-related needs fell into the second tier of rankings. Self-harm, as distinguished from completed suicide, is prevalent in correctional settings (Kaba et al., 2014), and while the majority of self-harm cases do not immediately result in death, this behavior has been identified as a risk factor for suicidal ideation (Tripoldi and Bender, 2007) and therefore important in risk management.

Panelists called for better data regarding these incidents as a key step toward improving outcomes. While there is a need for national reporting of self-harm incidents, one fundamental challenge is the lack of standards or definitions for terms. In contrast to *suicide*, the meaning of *self-harm* is less clear. For example, depending on factors such as the perceived intentions of the inmate or the potential lethality of the behavior, incidents may be labeled self-harm, self-mutilation, nonsuicidal self-injury, self-injurious behavior, attempted suicide, etc. (Ireland, 2000). Panelists argued that standard definitions that are

consistently applied for reporting purposes are a much-needed first step.

General Research and Analyses. During the workshop, panelists identified several areas where further research would be instrumental to the reduction of mortality in correctional facilities. Some needs involved basic research, while others called for cost-benefit analyses and other evaluation approaches to both inform correctional decisionmakers and to arm them as they make requests for additional funding. (See Table 9.)

Rising to the top tier was a need related to existing standards for correctional health care. A number of organizations, including the National Commission on Correctional Health Care and the American Correctional Association, set standards and offer accreditation to facilities for health care services. That said, there is wide variation across the country in terms of compliance with these standards; some estimate that only 17 percent of facilities achieve accreditation (Cloud, 2014). While the panelists believe that standards are important, they argued that more should be done to demonstrate that compliance leads to positive outcomes. The panelists called for research to, first, accurately assess the level of compliance with these standards and, further, measure whether adherence is, in fact, linked to better outcomes. Assuming that this relationship exists, panelists identified the need for more support for facilities that wish to achieve accreditation in the form of financial incentives, technical assistance, and training.

While statistics on mortality rates can be useful, panelists discussed the need for thorough examination of those facilities that historically have low levels of preventable death in an effort to identify what they are doing right. Citing the "Positive Deviance" approach (McNeil, 2010), panelists recognized that it is likely that there are facilities whose behaviors and strategies are somehow leading to better mortality outcomes. If these characteristics could be isolated and identified, it may be possible to replicate these positive results.

A related need called for the development and promulgation of best practices for successful partnerships between academic researchers and correctional administrators as it was recognized that research projects in agencies or facilities can be challenging. Finally, panelists noted that, while the delivery of quality health care is a constitutional obligation, some institutional cultures do not place a high value on this objective. In an effort to overcome these challenges, panelists called for more-strategic cost-benefit analysis approaches that quantify the impact of improved health care on facility operations as opposed to the inmate population. When investments

Table 9. Crosscutting Needs Identified Related to Research and Analyses

Tier	Need	Prisons or Jails
1	• National standards governing medical screening are not being universally adopted and used by facilities. Research is needed to assess the level of compliance with these standards and to quantify the impact that compliance has on morbidity and mortality. Further, financial and other support is required for facilities that wish to meet these standards.	Jails
2	• Statistics on mortality provide only part of the picture. There is a need to thoroughly study those facilities with low levels of preventable mortality in an effort to better understand the key factors associated with positive outcomes.	Prisons
	• Some correctional cultures do not place a high value on inmate health and safety. Strategic level cost-benefit analyses that quantify the return on investment associated with the provision of high-quality care are needed to drive change.	Prisons
	• Correctional facilities are often reluctant to participate in research studies, for a variety of reasons. Best practices are needed to guide successful academic-practitioner partnerships.	Prisons
3	• Medical co-payments are a reality in many facilities. Research is needed to study the effects of this practice on the overall cost of medical services, inmate access to care/utilization of services, and medical outcomes.	Jails
	• The quality of health care varies considerably among correctional facilities. To better understand the pertinent issues, research is needed to identify the organizational characteristics that are consistent in high-performing facilities.	Prisons
	• Most facilities lack resources for technology innovations that can improve inmate access to care and overall health outcomes. Cost-benefit approaches are needed to make the fiscal argument justifying investments in technology.	Prisons

in health care can be linked to reduced overall facility costs in areas such as overtime or transportation, panelists believed, cultural resistance may begin to wane.

Public Versus Private Health Care Models. Correctional health care is typically provided in one of three ways: self-operated by the jurisdiction, private contracted services, or academic medical centers. In some cases, jurisdictions use a mixed model, whereby they contract out for only select services (Anno, 2001). Facilities typically engage in partnerships with private health care providers in an effort to lower costs, improve accountability, and allow administrators to focus on the core aspects of correctional management (Galik and Gilroy, 2014). Indeed, 24 states now contract with providers to deliver all health care services to their inmates, which has contributed to the growth of privatized correctional health care into a $1.9 billion market (Galik and Gilroy, 2014).

During the panel discussions, the increasing use of private health care providers was raised and two related needs were identified (Table 10). From the panelists' perspective, no particular model is inherently superior, as they each have relative advantages. To provide correctional administrators with the information necessary to make better decisions for their facilities, panelists articulated the need for approaches that support fair and accurate comparison of process and outcome metrics. Unfortunately, fundamental measures of quality of care in a correctional setting, as opposed to a community setting, are lacking. If these measures can be identified, analyses may then be conducted to effectively determine which model, or combination of models, produces the best outcomes. A second need called for the development and promulgation of model contracts that would assist agencies in laying the foundation for successful partnerships with private medical providers, resulting in improved outcomes.

Continuity of Care and Post-Release Risks. Though the panel was directed to focus primarily on the issues related to mortality occurring *within* correctional facilities, almost every inmate will be released at some point. Therefore, the panel also discussed the needs related to continuity of care and lowering post-release mortality (Table 11). Just as inmates are at higher risk of mortality than the general population, so too are former inmates. Indeed, one study suggests that for every year spent in prison, overall life expectancy decreases by two years (Patterson, 2013).

As justice-involved individuals with significant health care needs move back and forth from the community to jails and/or prisons and eventually back to the community, each change in status provides an opportunity for a "warm hand-off." Ideally, as a transition occurs, a link should be established between the sending and receiving provider or organization. Pertinent medical information about the individual and his or her needs should also be shared so that care is not disrupted. Unfortunately, largely because these community-based and correctional systems are fragmented and underfunded, these seamless transitions are largely theoretical. Breaks in continuity of care, regardless of where they occur, adversely impact health outcomes; however, the transitional period immediately following release has been identified as particularly risky. This time can be stressful for individuals, as they try to reconnect with their families and communities, look for employment, and attempt to secure housing. Tending to their health care needs can often take a backseat to these other pressing concerns (Macmadu and Rich, 2015). Further, some inmates may not know where to go to access care in the community.

One study examining post-release mortality among individuals released from the Washington Department of Corrections found that, overall, former inmates died at a rate nearly 3.5 times higher than the general population. Drilling down, the greatest risk was found to be within the first two weeks after release (12.7 times higher), with drug overdose being the leading cause. Other risks included suicide, homicide, and cardiovascular disease (Binswanger, Stern, et al., 2007).

A more recent study of individuals released from New York City jails found similarly higher risks (Lim et al., 2012). Those released were two times more likely to die from drug-related causes or homicide than those who had not been incarcerated. As in the Washington study, there was elevated risk during

Table 10. Crosscutting Needs Identified Related to Public Versus Private Health Care Models

Tier	Need	Prisons or Jails
2	• It is difficult to perform a fair and impartial comparison of the quality of private vs. public health care services in correctional facilities. Better metrics are required to support this type of analysis.	Prisons
	• Given the role of private entities in providing health care services in correctional facilities, model contracts are required that provide a framework for successful partnership where the needs of the agency, contractor, and inmates are met.	Prisons

Table 11. Crosscutting Needs Identified Related to Continuity of Care and Post-Release Risks

Tier	Need	Prisons or Jails
1	• There is a lack of coordination between providers of health care services in facilities and those in the general community. This has a negative impact on the health care of individuals, particularly those who are frequently incarcerated for relatively short periods of time. There is a need to incentivize partnerships between providers to improve health care outcomes.	Jails
	• As individuals move from jails to prisons, pertinent health care information is not consistently shared. Systems, standards, and methodologies are needed to facilitate health care information exchange between correctional entities. Education is also needed to clarify common misinterpretations of HIPAA regulations.	Prisons (2) and jails (1)
2	• Justice-involved individuals may intermittently be treated by facility health care providers and those in the community. To achieve better outcomes, there is a need for improved tools and methodologies that link all health care provider databases within a jurisdiction.	Prisons and jails
	• As substance abusing inmates are prepared for release from correctional facilities, there is a need to link them with public health systems, which are better equipped to provide relapse prevention services to include medication-assisted treatment.	Prisons and jails
	• Mentally ill inmates, in particular, are at increased risk of suicide after they are released from facilities. Better discharge planning and linkages with community based mental health services can provide a "warm hand-off," which is critical to reducing post-release mortality.	Jails
	• Inmates need better pre-release education on increased risk of overdose if they resume their previous drug use patterns upon return to the community.	Prisons

NOTE: Where comparable needs from the jails and prisons groups were combined and the original needs were assigned to different tiers in the two working groups, the tiers are shown in parenthesis in the right column of the table and the combined need is assigned to the higher of the two tiers.

the first two weeks after release. During this period, the risk of drug-related death was eight times greater, and the risk of homicide was five times greater than for those who had not been incarcerated. Perhaps more disturbing are reports that nearly half of the more than 700 inmates released from the Montgomery County, Ohio, jail since 2013 have since died from drug overdoses (Frolik, 2016).

These findings suggest the need for better coordination of facility- and community-based interventions and services. The panel identified a variety of needs to address the challenges associated with successful transition between facilities and the community from a health and safety perspective.

The top-tier needs in this area spoke to issues of continuity of care in two different contexts. Panelists identified the need for improved infrastructure, standards, and processes to support health care information sharing between jails and prisons. Too often, pertinent information, such as previous suicide attempts, does not follow the inmate in the transfer. This can needlessly hamper the facility's ability to provide quality care. Panelists also noted that facility staff need better education on data privacy regulations, as there are common misunderstandings about what can and cannot be shared in the correctional context. Whether done out of fear of potentially violating the Health Insurance Portability and Accountability Act (HIPAA) or reticence to share clinical information with nonmedical staff, this approach can be detrimental to inmate health and safety. Panelists also argued for the need to incentivize strong partnerships between community-based health care providers and those within correctional facilities. Because both actually serve the same inmates/patients, albeit in different settings, they should be working in closer collaboration. Panelists noted that some jurisdictions, such as New York City, address the continuity-of-care dilemma by extending their public health care provider's scope to include correctional facilities. In this way, the same organization is responsible for an individual's care during and after incarceration.

Acknowledging both the insidious nature of the opioid epidemic in the United States and the vulnerability of addicts to overdose upon release, panelists identified the following tier-two needs. First, as part of the pre-release process, facilities should develop better relapse-prevention mechanisms to more effectively educate substance-abusing individuals about the dangers of resuming use of the same quantities of drugs they used before incarceration. For example, during the period of

The consequence of periods during which criminal justice policy drove strict enforcement and long sentences has been the confinement of greater numbers of unhealthy individuals for longer periods of time.

an inmate's incarceration, the potency of street drugs typically increases, while the inmate's tolerance naturally decreases with the limited availability of drugs. These factors, can contribute to increased risk of overdose in the period immediately following release (Binswanger, Redmond, et al., 2012). Second, panelists articulated the need to more effectively link inmates with sources of substance abuse treatment and, in particular, sources of medication-assisted therapies, such as methadone and buprenorphine, before they are released.

Panelists also noted that mentally ill inmates may be at increased risk of suicide after release. They asserted that better discharge planning that provides these inmates with a warm hand-off to community-based mental health services providers would reduce mortality. A final tier-two need called for information technology approaches that securely link all medical and mental health provider databases within a jurisdiction in order to better track the records of justice-involved individuals who are apt to be served by various entities as they flow between the community and correctional facilities.

CONCLUSIONS

Maintaining the health and safety of inmates—and ultimately reducing their mortality—in correctional facilities is a complex and challenging objective, albeit one that should be core to the correctional mission. Many inmates enter facilities in poor health. They disproportionately suffer from mental illness, disease, and addiction; many are prone to violence. The conditions of confinement can be detrimental to overall health and safety in a variety of ways and can exacerbate certain preexisting conditions. The consequence of periods during which criminal justice policy drove strict enforcement and long sentences has been the confinement of greater numbers of unhealthy individuals for longer periods of time. As these inmates age, the financial burden on facilities to maintain their care is rapidly increasing. While there is great variance in the quality of care provided by facilities across the country, in general, these factors, combined with resource constraints at all levels of government, make it difficult for most facilities to maintain appropriate standards of care.

Despite the challenges, correctional administrators have a constitutional obligation to care for the inmate population. Ultimately, most forms of mortality within correctional facilities are preventable, to varying degrees, with the proper interventions.

The panel identified a wide range of needs that could help reduce mortality rates. Driven by the structure of the panel discussion, the majority of needs (46 of 81) addressed one of the five specific mortality types. The remaining 35 needs were determined to be crosscutting and likely to contribute to an overall reduction in mortality regardless of the direct cause.

There are a variety of ways to think about how to further prioritize these needs. One approach would be to place higher value on those needs that address the most common causes of death, or perhaps those that relate to the most-preventable mortality types. To recap, when the figures for jails and prisons are combined, illness and disease were responsible for more than 80 percent of deaths, followed by suicide, at just over 11 percent. The remaining mortality types each accounted for less than 3 percent of deaths. When our panelists were asked to rank each mortality type based on their perception of preventability, homicide was deemed most preventable, while illness/disease was perceived least preventable. Suicide, drug and alcohol intoxication, and accidents were all ranked in the mid-range of preventability (see Table 12).

Table 12. Pre-Workshop Assessment of Mortality Types

Mortality Type	Preventability	Prevalence	Needs	Top-Tier Needs
Homicide	Most Preventable	Least Prevalence	6	0
Suicide	Mid Preventable	Mid Prevalence	22	5
Accident	Mid Preventable	Least Prevalence	6	0
Drug and Alcohol Intoxication	Mid Preventable	Least Prevalence	9	2
Illness or Disease	Least Preventable	Most Prevalence	3	1

When these metrics (prevalence and preventability) are examined with the additional filter of the raw number of needs generated and the number of needs rising to the top tier, some interesting patterns begin to emerge. Again, while illness and disease account for the vast majority of all deaths in correctional facilities, our panelists perceived this to be the least preventable type of mortality. Perhaps not surprisingly, there were only three needs attached to this mortality type. For the more event-based mortality types, there was somewhat of a better, but not perfect, correlation between preventability, prevalence, and the number of needs identified. For example, suicide, which generated the largest number of needs (22), is second only to illness and disease in terms of prevalence. While suicide was ranked in the mid-range of preventability—second to homicide—it was also highly ranked with respect to operational, cost, and external impact. Given that suicide has long been recognized as a major challenge in jails and has been the subject of significant media attention, it is not surprising that a large number of needs were generated in this area or that several rose to the top tier.

A better approach might be to focus on the highest-ranking needs, regardless of whether they were tied to a specific mortality type or were more crosscutting. Indeed, one could argue that the overarching needs that speak to systemic issues warrant more weight, as they likely impact the foundational issues at play. Further, almost half of the overall and top-tier needs came from the crosscutting categories. One issue that was repeated in several ways was the need for more-uniform and more-granular data on mortality. Panelists mentioned that, due to inconsistent reporting or lack of specificity in reporting, it was sometimes difficult to score the expected benefit of some mortality-specific needs. This was most apparent in the homicide category, as the number of deaths by specific cause (inmate on inmate violence, results of injuries sustained prior to incarceration, or incidental to staff use of force) was unknown. Without information about the prevalence of mortality associated with staff use of force, for example, panelists found it more challenging to estimate the impact of related needs. As a result, prioritization based on reported prevalence of mortality type may be less than ideal.

Looking across all categories, a total of 15 needs were ranked in the top tier. The assignment was based on the panelists' scoring of each need on measures of value, feasibility, and potential impact on the problem. The following themes emerged:

- **Supporting Evidence-Based Practices and National Standards.** At various times during the workshop, the panel discussed the importance of best practices and established standards with respect to general health care and, in particular, suicide prevention. Reflecting the panel's view that the use of these benchmarks is uneven across the country, four top-tier needs emerged within this theme. Overall, there is a need to more effectively promulgate best practices as they evolve. Related, research-based needs sought to better understand current levels of adherence to standards and best practices, reasons for or barriers to implementation, and the identification of strategies to incentivize wider adoption.
- **Improving Capacity to Provide Medical and Mental Health Care.** Three of the top-tier needs related to deficiencies in capacity. As correctional facilities operate in a resource-challenged environment, the needs of the inmate population are often not fully met. Acknowledging that the population has substantial mental health needs, which contributes to a higher risk of suicide, the panel called for the resources required to provide a community-level of care in correctional facilities. This includes strategies that provide incentives for mental health professionals to work in the correctional environment. On the medical side, the panel argued that increased capacity to detect acute chronic conditions and provide an intermediate level of

care on-site would positively impact mortality, particularly in facilities located in remote areas.

- **Improving Organizational Culture and Operations.** The importance of strong collaboration between security and medical staff within correctional facilities was emphasized, as evidenced by the three top-tier needs in this area. This theme includes positioning medical authorities at leadership levels of the organization so that health care objectives are given adequate weight. Other needs include the development of strategies to overcome inherent conflicts between security and health care objectives that have a negative impact on care delivery. Further, there is a need to break existing cultural barriers that prevent staff from providing positive input outside of their functional areas. Facilities can benefit from the use of cross-disciplinary teams and other collaborative approaches that generate innovative solutions to reduce mortality.
- **Strengthening Coordination and Continuity of Care.** Two of the top-tier needs focused on the shortfalls associated with the fragmented nature of the public and correctional health systems. Individuals with long-term involvement with the justice system routinely flow from the community to jail to prison and back to the community. To improve health outcomes, there is a need for stronger partnerships between the various organizations that provide care. Included in this theme are needs for systems, standards, and methodologies to facilitate information sharing of pertinent health data between correctional entities.
- **Leveraging Pharmacological Advances.** Reflecting the impact of the national opioid epidemic, two of the top-tier needs called for expansion in the use of pharmacological approaches to treat substance abusing inmates in correctional facilities. Because these inmates are at increased risk of death due to their drug use behaviors, facilities should make medication-assisted treatment available to inmates and provide staff with greater access to drug-overdose countermeasures.
- **Strengthening Analysis and the Use of Data.** One final top-tier need fell into this theme: Beyond the desire for increased granularity in mortality statistics mentioned in other needs, the panel argued that better data collection and analyses of "near-misses" are required.

While the panelists outlined a large number of specific, individual needs as they deliberated on the different categories of inmate mortality, they also touched on a number of foundational areas that must be addressed if transformational change is to be achieved. Further, they argued that the issue of mortality within correctional facilities, while important, cannot be completely isolated from the larger landscape, which includes access to care in the community before and after incarceration.

A lack of knowledge and focus among the general public about the details of what goes on within the correctional system means that issues such as the health care needs of incarcerated individuals can have a difficult time competing for funding and political attention. However, since the vast majority of individuals who spend time in correctional facilities will be released into the community after they serve their sentences, their illnesses, diseases, and addictions will return to the community along with them if they are not detected and effectively treated while incarcerated. While the expenditures needed to do so may not be popular, the reduction of inmate mortality and improvement of health outcomes require a significant influx of funding so that health and safety objectives can be achieved. Better education is needed to raise public awareness about the value of investments in correctional health care, which—beyond serving to meet constitutional obligations regarding the treatment of prisoners while they are in custody—also will pay dividends in the future, when healthier individuals return to their communities upon release.

Within the correctional environment, major shifts are required in two areas. The first pertains to resources. Due in large part to the sheer volume of need and limited treatment

The health care needs of incarcerated individuals can have a difficult time competing for funding and political attention.

The reduction of inmate mortality and improvement of health outcomes require a significant influx of funding.

capacity, correctional administrators find themselves unable to meet the health and safety demands of the inmate population. For example, health care costs are soaring, and it can be difficult to attract and retain quality clinicians to work in a correctional environment. Insufficient resources force many facilities to take the short view, focusing on treatment while largely ignoring the detection and prevention of illness and disease, even though such investments may be more cost-effective in the long run.

Resources aside, the results of the panel discussion suggest that organizational culture issues can be just as daunting and must be addressed. Ultimately, members of our panel argued that preventable deaths represent a system failure and that custody and medical staff must work collaboratively to identify and mitigate risks on an ongoing basis. Despite the fact that most facilities were not designed for a health care mission and are clinically understaffed and underfunded, the provision of health care needs to be recognized as a core correctional competency. Effective correctional leadership is key in establishing a culture that effectively balances a facility's security requirements with inmate health and safety needs. Inherent conflicts in these competing objectives need to be reconciled so that traditional operating practices do not impede care delivery. Leaders must instill in their staff the message that everyone is responsible for the health and safety of the inmate population.

Finally, the panel argued that capacity for mental health and substance abuse services in the community must be greatly expanded. Further, systemic changes are required to facilitate warm hand-offs between facilities and community-based providers. As discussed, inmates disproportionately exhibit the co-morbidity of mental illness and substance abuse, and they are at high risk of death in the initial period after release. However, effective access to care is an obstacle. Many communities lack an adequate infrastructure of treatment providers to serve the general population, much less former inmates. In communities with sufficient capacity, poor discharge planning and inadequate linkages to services can hinder continuity of care. In either case, the inmate's chances of successful reentry are negatively affected. Investments in community-based treatment for justice-involved individuals can reap many benefits. These models have proven to be both clinically effective and cost-effective from an overall health care cost perspective. Further, the provision of services post-release, or before an individual becomes justice-involved, for that matter, can reduce criminality, which ultimately has a positive impact on health outcomes overall and mortality in correctional facilities.

The majority of the needs identified in this report are not new. Indeed, several needs closely mirror previous recommendations made by national correctional health care organizations. This would seem to imply a level of consensus on at least a subset of the requirements to improve correctional health outcomes and reduce inmate mortality. Like many other issues, the gap appears to be a matter of prioritization. This prioritization must occur at the societal level, through the dedication of adequate resources in both institutions and communities, and at the corrections sector level, through organizational change that raises the care objective to equal standing with custody and control objectives. That said, the needs identified here represent a strong and diverse agenda that can serve as a foundation for transformational change, given the social and political will to pursue this direction.

APPENDIX: CORRECTIONS MORTALITY DETAILED METHODOLOGY

This appendix presents additional detail on the panel process, needs identification, and prioritization carried out to develop the research agenda presented in the main report.

Pre-Workshop Activities

To prepare for the workshop, panelists were provided with materials in advance. The read-ahead document is discussed in the main report. In addition, the panelists were asked to fill out a questionnaire assessing the impact, preventability, and challenges associated with minimizing the different mortality types. The results of the ranking portion of the questionnaire are summarized in Figure A.1.

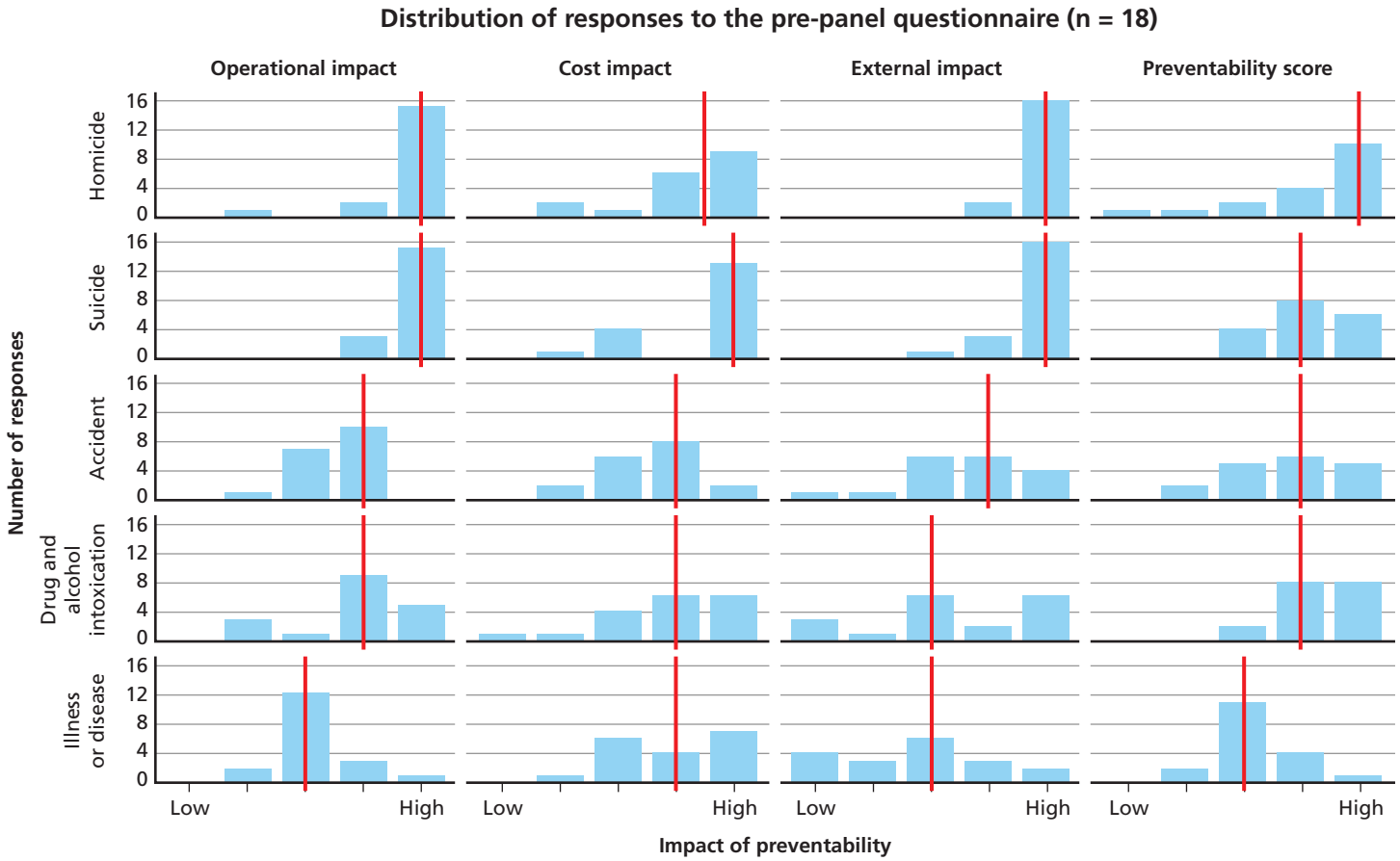
Eighteen total responses were received, which represented all of the panelists. (Two panelists who were scheduled to attend could not participate, but their responses were preserved in the pre-panel questionnaire results.) The vertical red lines in the figure indicate the median response. For most rankings, the panelists' responses were widely distributed across the spectrum of impact or preventability. For homicide and suicide, the panelists generally agreed that the impacts were high and that mortality incidents were mostly preventable. The categories of accidents, drug and alcohol intoxication, and illness or disease had a much wider spread in the response from the panelists. The median response indicates that the panelists felt that accidents and drug and alcohol intoxication are roughly as preventable as suicides and that far less can be done to prevent illness or disease.

The complete pre-workshop questionnaire can be found at the end of this appendix. The workshop agenda is presented in Table A.1.

Prioritization of Needs

As discussed in the main report (Russo et al., 2017), the panel divided into two groups to discuss correctional mortality issues with regard to two specific contexts: jails and prisons. The dis-

Figure A.1. Panel Assessment of Mortality Types



NOTE: The vertical lines in the figure denote the median for each response category.

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Table A.1. Workshop Agenda

Day 1	
8:30	Introduction and Overview (National Institute of Justice/RAND)
9:15	Introduction of Panel Members
9:45	Break Out Groups (Prisons and Jails): Identify High Priority Challenges Related to Inmate Mortality
12:00	Lunch
1:00	Break Out Groups: Identify High Priority Challenges Related to Inmate Mortality
5:00	Adjourn

Day 2	
8:30	Break Out Groups: Identify Potential Solutions to Challenges (continued)
9:30	Full Group Discussion of Cross-Sector Challenges and Solutions
10:30	Priority Ranking Exercise—Round 1
11:30	Group Discussion
12:15	Lunch
1:15	Priority Ranking Exercise—Round 2
2:15	Group Discussion
3:00	Administrative Issues
3:15	Adjourn

cussion was organized around the information gathered prior to the panel, namely the BJS statistics on the relative frequency of each mortality type and the participants' responses to the pre-workshop questionnaire.

To develop and prioritize a list of technology and policy areas that are likely to benefit from research and development investments, we followed a process that has been used in previous research (see, for example, Jackson et al. [2016] and references therein). The panelists discussed and refined issues and problems in each category and also identified potential needs (e.g., solutions) that could address each issue/problem. Once each group had compiled and refined its list of issues and needs, those issues and needs were converted into a web-based survey (using the Qualtrics service). Subsequently, each panelist was then asked to individually assess each issue and its associated need with respect to three dimensions. Each of the following dimensions was assessed on a 1–9 scale, with 1 representing "low" and 9 representing "high":

- **Importance or payoff:** How much of an impact would solving this problem have on reducing mortality? In an attempt to "anchor" each participant's expectations of how large a payoff could be, we instructed them to consider a high score (e.g., 9) as having a 20–30 percent (or more) improvement on outcomes.
- **Technical feasibility:** Are there technical barriers? If so, how hard would it be to get beyond them?
- **Operational feasibility:** Are there operational or deployment barriers (including cost)? If so, how hard would it be to get beyond them?

For both feasibility dimensions, a score of 9 represented a high likelihood of success (>90 percent) and a 1 represented a low likelihood of success (<10 percent) in the panelist's opinion. Panelists also had the opportunity to provide comments to justify or support their choices.

When the first round of assessment was completed, the panel's responses and comments were anonymously collected and summarized into a single report. The report contained a "kernel density" distribution figure and a summary of the panel's comments for each issue and need. Figure A.2 is an example of one of the issue-need summaries from the prisons group. This report was then used to facilitate discussion among the panelists about areas of relative disagreement. During the discussion of the results from round 1, panelists were given a second, clean web-based survey and asked to provide a second round of responses while keeping the group's collective response and any discussion in mind.

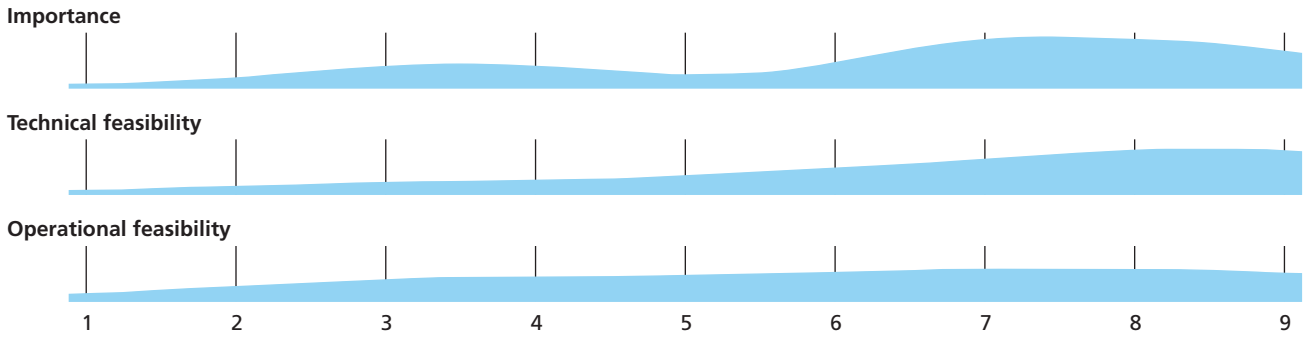
Following the discussion of the round 1 responses, the panelists were asked to review and finalize their responses, which became round 2. Following the approach used for previous Delphi panels, the round 2 responses were summarized, normalized, combined, edited for clarity, and clustered into three tiers using the median expected value (EV) from the summarization step (see Appendix D of Jackson et al. [2016]).

One difference from the previous approach involved the approach to clustering. As with previous approaches, we initially used a spherical clustering algorithm to cluster the results (in particular, the "ward.D" hierarchical clustering algorithm from the "stats" library in the R statistical package, version 3.3.0). Using this method, the proportion of needs in each tier

Figure A.2. Example Round 1 Delphi Summary Question from the Prisons Breakout Group

Issue: Deaths can occur in the prison environment as a result of events that occurred before incarceration (e.g., complications from being shot before incarceration) that aren't homicides in the environment.

Need: Need for more complete collection of information from inmates at incarceration as part of taking medical history to inform both their care and understanding of the overall scope of the problem.



Comments:

- This a low cost investment which provides the biggest bang for the buck.
- Depending on documented health histories to provide detailed insight regarding trigger or germinal causes of chronic problems might be expecting too much from health providers.
- This boils down to better screening at intake and speaking the language of the inmate, e.g., asking about a personal history of being shot or stabbed rather than asking about prior surgeries.

RAND *RR1967-A.2*

was dramatically different between the jails and prisons groups. Figure A.3 illustrates the problem.

Without further intervention, combining the results by tier would have significantly reduced the relative importance of the higher-ranked needs coming from the jails group. To address this, we chose tier cutoffs by visual inspection of the expected value score distribution, as shown in histograms. Figure A.4 shows the expected value distributions for both groups as well as a color code to indicate the final tiers that were chosen by visual inspection. A comparison of the algorithmically selected EV cutoffs and the manually selected cutoffs is provided in Table A.2.

Figure A.3. Comparison of the Number of Needs in Each Tier When Clustered Using the Algorithm and by Hand

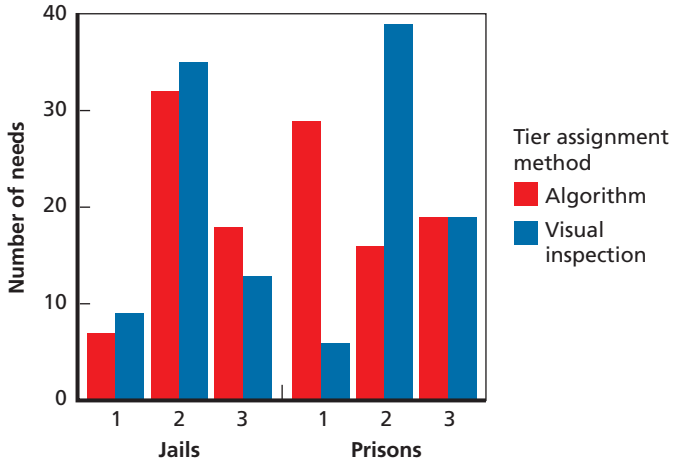


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Figure A.4. Histograms Showing the Distribution and Clustering of the Individual Needs Following Round 2 Delphi Rating

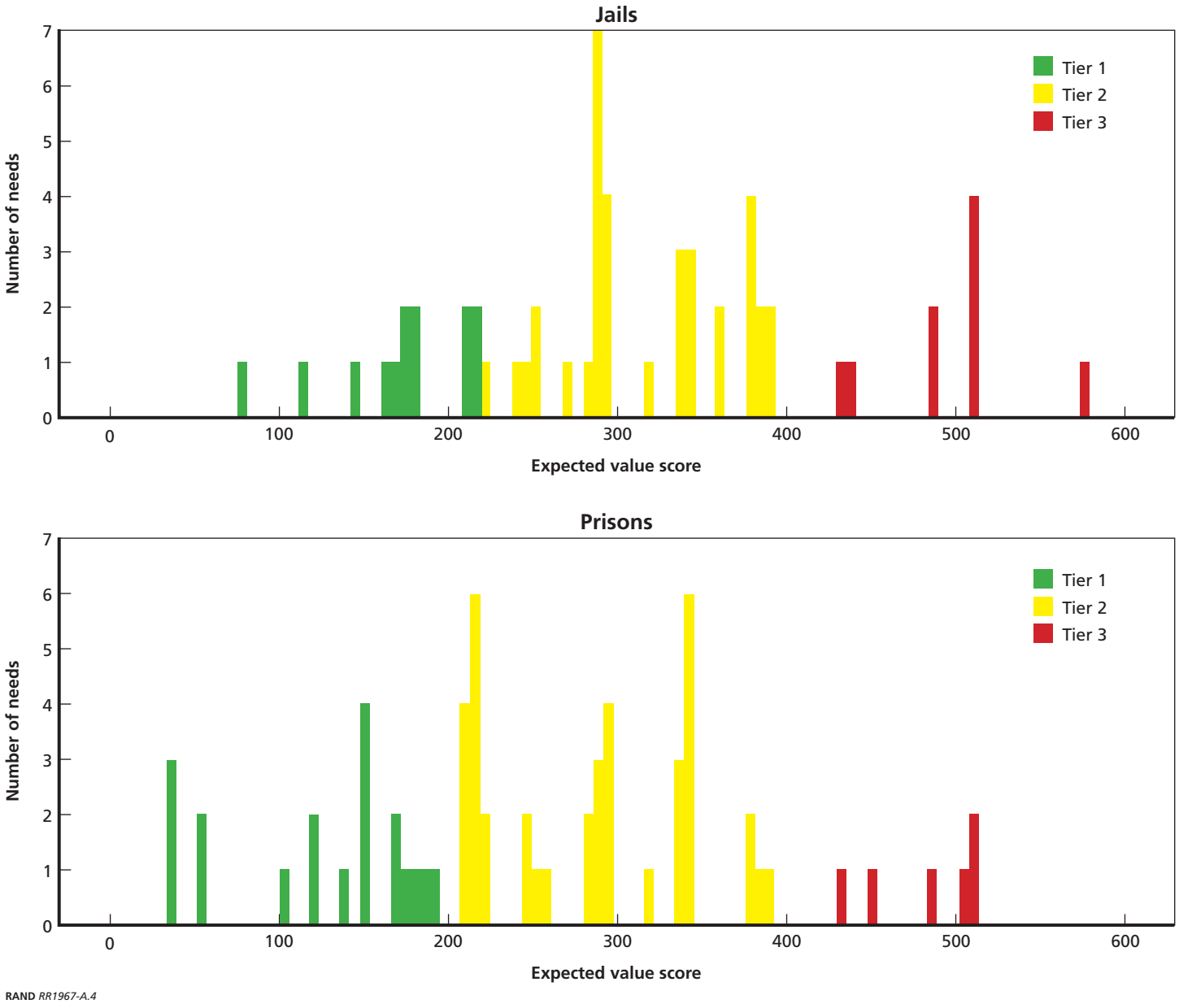

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Table A.2. Comparison of the Expected Value Cutoffs Chosen by the Algorithm and by Visual Inspection

Group	EV Cutoff	Algorithm	Visual Inspection
Jails	Tier 1–2	464	405
	Tier 2–3	261	220
Prisons	Tier 1–2	268	405
	Tier 2–3	201	200

Reducing Mortality in Correctional Facilities Advisory Panel Pre-Meeting Questionnaire

The purpose of this advisory panel is to provide the National Institute of Justice (NIJ) with expert input regarding the challenges and needs associated with reducing inmate mortality rates. NIJ will use this data to help develop and prioritize a research agenda in this area. The Bureau of Justice Statistics reports that for the third consecutive year, the number of inmate deaths in state prisons and local jails increased. In 2013, a total of 4,446 inmates died, which represents the highest number since 2007. Suicide was the leading cause of death in jails, as it has been every year since 2000; however, the rate of suicide has increased 12 percent since 2009. Between 2012 and 2013, the decreasing number of illness-related deaths has been offset by increases in deaths due to unnatural causes, particularly suicide and intoxication, which increased 23 percent over this period. State inmate deaths increased 4 percent in 2013, 90 percent of which were due to illness. Combined, cancer and heart disease accounted for about half of all illness-related deaths. Deaths due to liver disease increased 16 percent between 2012 and 2013, and intoxication-related deaths increased 69 percent over the same period. Overall, 57 percent of inmates who died in prison were over age 55.[i] In preparation for the meeting next month, we ask that you to consider the following types of in-custody deaths and the challenges associated with each. Please complete Part I of this questionnaire with your assessment of each mortality type based on your experience, referencing the definitions provided. In Part II, we ask that you identify the most significant challenges or obstacles (not solutions) in each area. Your feedback will be used to organize and prioritize discussion.

[i] Noonan, M., H. Rohloff, and S. Ginder, *Mortality in Local Jails and State Prisons, 2000–2013*, Washington, D.C.: Bureau of Justice Statistics, NCJ 248756 August, 2015.

Part I

Please rank the various impacts of each mortality type from 1 to 5. You are not limited to one numerical score per column (e.g., multiple mortality types may receive the same score).

Operational Impact. This includes negative effects upon or disruption of day-to-day operations, staff/inmate morale, or other. Please rank the operational impact of each mortality type from 1 to 5.

	1 (high)	2	3	4	5 (low)
Suicide	o	o	o	o	o
Drug and Alcohol Intoxication	o	o	o	o	o
Illness and Disease	o	o	o	o	o
Homicide	o	o	o	o	o
Accident	o	o	o	o	o

Cost Impact. This includes costs directly related to preventing mortality and/or treating morbidity, indirect opportunity costs impacting other aspects of the correctional mission, liability/litigation, or societal costs - not actual dollar amounts. Please rank the cost impact of each mortality type from 1 to 5.

	1 (high)	2	3	4	5 (low)
Suicide	o	o	o	o	o
Drug and Alcohol Intoxication	o	o	o	o	o
Illness and Disease	o	o	o	o	o
Homicide	o	o	o	o	o
Accident	o	o	o	o	o

External Impact. Including media, legal, political, community, inmate advocate, or inmate family repercussions. Please rank the external impact of each mortality type from 1 to 5.

	1 (high)	2	3	4	5 (low)
Suicide	o	o	o	o	o
Drug and Alcohol Intoxication	o	o	o	o	o
Illness and Disease	o	o	o	o	o
Homicide	o	o	o	o	o
Accident	o	o	o	o	o

Preventability Score. The extent to which the mortality type could be reduced or eliminated by changes in administrative control, policy, procedure, practice, staffing, technology, or staff training based on current level of resources. Please rank the preventability of each mortality type from 1 to 5.

	1 (high)	2	3	4	5 (low)
Suicide	o	o	o	o	o
Drug and Alcohol Intoxication	o	o	o	o	o
Illness and Disease	o	o	o	o	o
Homicide	o	o	o	o	o
Accident	o	o	o	o	o

Part II

With respect to reducing inmate mortality, what specific challenges or obstacles are faced by corrections agencies and health care providers in each of the following areas?

- Challenges related to institutional architecture and conditions, including facility design, environmental issues, characteristics of cells/housing areas, cleanliness, and nutrition.
- Challenges related to correctional agency operations, including leadership, organizational processes, policies and procedures, screening and assessment, personnel management, staffing, and training.
- Challenges related to health care provider operations, including, coordination with agency/facility administration, staffing, screening and assessment, treatment, and provision of care.
- Challenges related to lack of, or inadequate, technology, including information technology, medical technology, and surveillance/monitoring technology.
- Challenges related to lack of funding and/or other resources, including therapies, medication, equipment, and treatment.
- Challenges related to the continuum of care, including coordination with or availability of community-based resources.
- Challenges related to a lack of empirical data (i.e., what questions need to be explored to better inform policy and practice?).
- Other challenges.

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Questions or comments about this report should be sent to the project leader, Brian A. Jackson at Brian_Jackson@rand.org. For more information about the Justice Policy Program, see www.rand.org/jie/justice-policy or contact the director at justice@rand.org.

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About This Report

On behalf of the U.S. Department of Justice, National Institute of Justice (NIJ), the RAND Corporation, in partnership with the Police Executive Research Forum (PERF), RTI International, and the University of Denver, is carrying out a research effort to assess and prioritize technology and related needs across the criminal justice community. This initiative is a component of the National Law Enforcement and Corrections Technology Center (NLECTC) System and is intended to support innovation within the criminal justice enterprise. For more information about the NLECTC Priority Criminal Justice Needs Initiative, see www.rand.org/jie/justice-policy/projects/priority-criminal-justice-needs.

This report is one product of that effort. It presents the results of an expert panel focused on identifying and prioritizing ways to reduce mortality occurring in correctional facilities. This report and the results it presents should be of interest to planners from corrections agencies, research and operational criminal justice agencies at the federal level, private-sector technology providers, and policymakers active in the criminal justice field.

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