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Hidden Consequences: The Impact of Incarceration on Dependent Children

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Identifying At-Risk Officers:
Can It Be Done in Corrections?

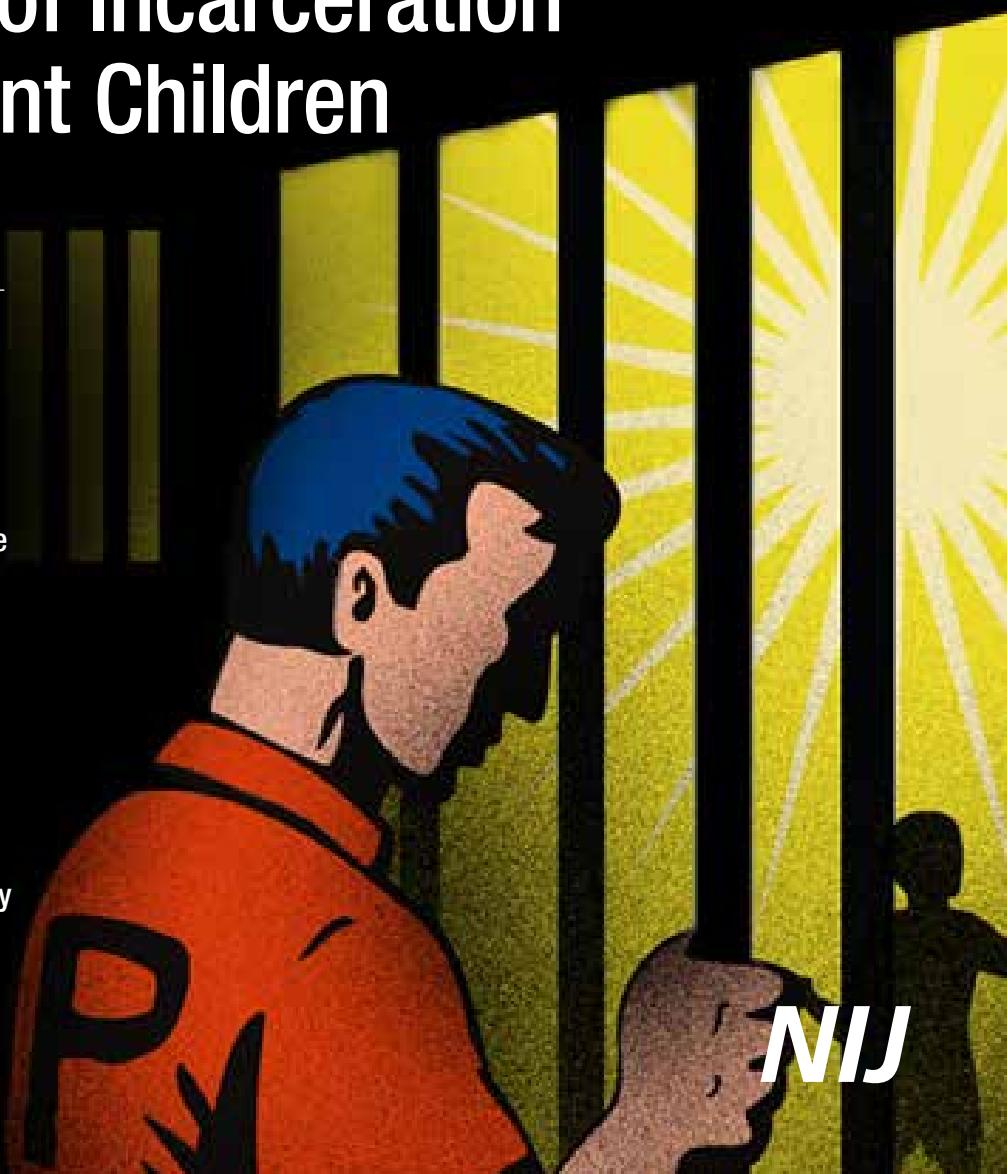
Reflections on Colorado's
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The Role of Equipment Performance
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The Importance of a Holistic
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Identifying Technology Needs and
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Howard Spivak, M.D.

Acting Director, National Institute of Justice

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DIRECTOR'S MESSAGE



As a research agency, NIJ has long recognized that no single scientific discipline can address the variety of complex issues facing our criminal justice system and the people who work to protect and improve public safety. To better show how research from across the social and behavioral sciences, forensic sciences, physical sciences, and technology can shed light on these challenges, we are taking a new approach to the *NIJ Journal*. Each issue of the *NIJ Journal* will now focus on a single theme, allowing the articles to dive into one specific topic from different scientific points of view.

This change reflects internal shifts NIJ has made over the last two years to bring our scientific staff from each discipline together to collaborate on key crime and justice priorities that confront the nation. By identifying and nurturing the links between scientific disciplines and

fostering discussion of how scientific findings can inform one another, we are strengthening our research investments as well as our ability to support the field.

This issue of the *NIJ Journal* is the first to incorporate these interdisciplinary changes. I am pleased that the directors and staff of our Office of Research and Evaluation and Office of Science and Technology have partnered to share some of the latest evidence and thinking about issues within institutional corrections. The articles in this issue show how research from the social sciences and research from the physical sciences complement one another to provide evidence-based information and guidance to improve corrections practices and promote institutional safety.

Applying a thematic focus to the *NIJ Journal* not only will allow us to examine a particular issue from all sides but also will showcase different forms of science to provide innovative, evidence-based insights that are timely and relevant for those working on the issue — whether basic science to understand the causes and impacts of a problem, applied science to inform strategies and decision-making, or evaluations and assessments of specific programs or technologies put in place to solve a problem.

It is my hope that the new thematic issues will invite not only people interested in a particular topic but also those working in related sectors to read the *NIJ Journal*. Just as different scientific disciplines can provide new insight to a specific problem, the evidence about and approaches to solving a challenge in a particular area can shed light on other challenges within the criminal justice system.

Our goal is to provide a more holistic look at a single sector or problem that can help bring new ideas and better insight to the work of policymakers and criminal justice professionals. Investing in knowledge at the intersection of scientific fields is a valuable way to develop innovative approaches to complex problems. NIJ remains committed to our interdisciplinary investments, and I encourage scientists and those working within the criminal justice system to draw upon the scientific information in this and upcoming issues of the *NIJ Journal* to inform innovative, evidence-based decision-making.

A handwritten signature in black ink, appearing to read "Howard Spivak".

Howard Spivak, M.D.
Acting Director, National Institute of Justice

LETTER FROM THE OFFICE DIRECTORS

The challenges of crime and justice are rarely one-dimensional and thus do not easily lend themselves to one-dimensional solutions. Technology is never the sole remedy, but it can usually help enhance a solution. Additionally, although social and behavioral science can answer pertinent questions, such as understanding the impact of a technology on a particular challenge, it cannot develop the technology's potential to address that challenge.

This issue of the *NIJ Journal* highlights this understanding of the multidimensional nature of crime and justice through a series of articles on corrections research. One article, "Identifying Technology Needs and Innovations to Advance Corrections," features NIJ-funded work on how technology might help address the most pressing issues confronting corrections today, such as the demographic shift among people under supervision.

A second article outlines NIJ's multidisciplinary approach to promoting the safety, health, and wellness of individuals involved with the criminal justice system. Fostering these areas within the correctional environment, however, can prove challenging. Two articles discuss research on these challenges: The first explores the impact of parental incarceration on dependent children; in the second, a principal investigator revisits her study on the health and wellness effects of administrative segregation.

Other articles in this issue explore how technology can be used to help manage individuals under supervision: radio-frequency identification tags can monitor the location of individuals in an institution, and computer-based performance management information systems (PMISs) can identify and help deal with officers who are at risk of misconduct or poor performance. PMISs are a particularly good example of why an interdisciplinary approach is needed, because they require the development of software to identify at-risk officers as well as evidence-based interventions to address that risk.

Finally, "The Role of Equipment Performance Standards in Correctional Settings" discusses the recently published NIJ performance standard for electronic monitoring systems that are used to manage individuals under community supervision and performance standards for officer safety technologies.

As Acting Director Howard Spivak explains, NIJ is embarking on more interdisciplinary work, and our offices remain committed to working together on complementary topics. We are pleased to present the first collaborative *NIJ Journal* to demonstrate our commitment to cross-NIJ efforts.



George Tillary
Director, NIJ's Office of Science
and Technology



Seri Irazola, Ph.D.
Director, NIJ's Office of Research
and Evaluation

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NIJ BULLETIN



Publications in Brief



Future of Youth Justice: A Community-Based Alternative to the Youth Prison Model

For 170 years, America's approach to youth incarceration has been built on the premise that a slightly modified version of the adult correctional model of incarceration, control, coercion, and punishment — with some programming sprinkled in — would rehabilitate young people. But is America getting what it wants and needs by incarcerating young people who get in trouble with the law? If not, is there a better way?

In a new paper co-sponsored by NIJ and the Harvard Kennedy School, authors Patrick McCarthy, Vincent Schiraldi, and Miriam Stark review recent research in developmental psychology and widespread reports of abuse. They conclude that the current youth prison model should be replaced with a continuum of community-based programs and small, homelike facilities that prioritize age-appropriate rehabilitation.

Read the paper at [NIJ.gov](#), keyword: 250142.



Building Trust and Legitimacy Within Community Corrections

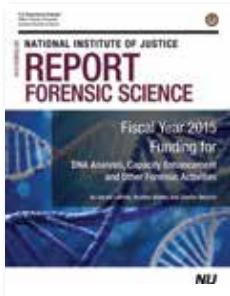
Over the past three decades, the U.S. incarceration rate has increased to historic highs, while crime rates have dropped significantly. In addition to the nearly 2.2 million people incarcerated in our nation's jails and prisons, 4.6 million people are on probation or parole at any given time.

The individuals on probation and parole are the largest part of the correctional system. Yet this aspect of corrections has been largely absent from the national conversation surrounding incarceration rates and criminal justice reform.

In a new paper co-sponsored by NIJ and the Harvard Kennedy School, Wendy Still, Barbara Broderick, and Steven Raphael discuss the need for a new model for community corrections that can improve public safety while recognizing that people on probation and parole are members of the communities in which they live and are supervised. This is one in a series of papers resulting from the Executive Session on Community Corrections, which seeks to develop new ideas surrounding criminal sanctions and the role of community organizations and agencies in supervising and working with those who have been involved in crime.

Read the paper at [NIJ.gov](#), keyword: 249946.

Learn more about the Executive Session on Community Corrections at [NIJ.gov](#), keywords: Executive Session Community Corrections.



Funding for Forensic Research and Development, DNA Analysis, Capacity Enhancement, and Other Activities

NIJ is dedicated to improving understanding of crime and justice issues through science. Since 2004, NIJ has received annual appropriations for various activities related to DNA and other aspects of forensic science. This includes support for DNA analysis and laboratory capacity enhancement and support for the forensic science research, development, and evaluation that provides knowledge and tools to improve the quality and practice of forensic science and thereby reduce crime and improve public safety.

Each year, NIJ considers how to allocate DNA and other forensic activity funds based on needs, such as increasing capacity and reducing DNA backlog; NIJ technology working group recommendations; results from studies; and strategic priorities and perspectives for each of the programs. In fiscal year (FY) 2015, NIJ continued its commitment to a strategy that couples rigorous research and development with capacity enhancement and technical assistance to serve the law enforcement and forensic science communities.

Read the FY 2015 funding summary report at [NIJ.gov](#), keyword: 249905.



News & Events



The National Sexual Assault Policy Symposium

In September 2016, NIJ hosted “Looking Ahead: The National Sexual Assault Policy Symposium” through its Forensic Technology Center of Excellence. The symposium focused on how the nation is finding solutions to the complex issues that arise in sexual assault cases and in testing sexual assault evidence.

The event, which featured medical staff, law enforcement, crime laboratories, victim advocates, prosecution, and other stakeholders, highlighted current accomplishments and shared valuable experiences from jurisdictions throughout the country. The goal was to support our nation’s policymakers and practitioners as they drive future efforts to solve sexual assault cases, provide justice to victims, and ultimately improve public health and public safety.

Watch a recording of the symposium at [NIJ.gov](#), keyword: nsaps.



Environmental Scan of Criminal Justice Responses to Justice-Involved Young Adults

In October 2016, NIJ held an informational webinar to discuss the results of its recently published “Environmental Scan of Developmentally Appropriate Criminal Justice Responses to Justice-Involved Young Adults,” which identified 51 programs and eight pieces of legislation that address the developmental needs of young adults involved in the criminal justice system. The webinar allowed NIJ to connect with others doing similar work and to plan for future meetings to discuss the research needs of those providing programming to justice-involved young adults.

Learn more about the environmental scan and watch the webinar at [NIJ.gov](#), keyword: jiya-video.



Multimedia



Violence Against American Indian and Alaska Native Women and Men

The stories of American Indian and Alaska Native women and men are as varied and nuanced as the people themselves. But a recent study finds one troubling through-line that links these stories: the experience of high rates of violence.

A new video illustrates the findings of an NIJ-supported study on the prevalence of violence against American Indian and Alaska Native women and men. Specifically, the study used a large, nationally representative sample from the National Intimate Partner and Sexual Violence Survey to provide prevalence estimates of sexual violence, physical violence by intimate partners, stalking, and psychological aggression by intimate partners over the lifetime of American Indian and Alaska Native women and men, as well as victimization estimates over the past year (based on 2010 data). It also provides estimates of interracial and intraracial victimization and briefly examines the impact of violence. The results can help raise awareness and understanding about violence against American Indian and Alaska Native women and men.

Watch the video at NIJ.gov, keyword: vana-video.

Read the full report at NIJ.gov, keyword: 249736.



Preventing Gun Violence: Understanding Law Enforcement Response and Improving Multidisciplinary Partnerships for Peace

A recent *Research for the Real World* seminar explored common police practices for responding to gun violence and the extent to which they contribute to reductions in violent incidents.

Panelists discussed the role of multidisciplinary partners, such as those from the public health sector, in reducing gun violence and promising practices for law enforcement partnerships to leverage complementary violence reduction efforts.

Watch the video at NIJ.gov, keyword: gv-webinar.



Looking at the Impact on Policing of Body-Worn Cameras

Body-worn camera technology has been at the forefront of the national discussion on policing. In a new video interview, Craig Uchida of Justice & Security Strategies, Inc., discusses the importance of using research to examine the impact of body-worn cameras. He leads an NIJ-supported project with the Los Angeles Police Department to evaluate the use of body-worn cameras to determine if they improve relationships with the community.

Watch the video at NIJ.gov, keyword: uchida-video.



Recent Research Findings



Compendium of Research on Children Exposed to Violence

Being exposed to violence, whether directly or as a bystander, can have far-reaching, negative consequences for children. NIJ works to increase evidence-based knowledge and ultimately inform the development and enhancement of strategies to reduce the impact of violence on children and youth. NIJ's research agenda takes a broad, public health approach to violence and victimization and emphasizes the significant negative effects of exposure to violence, as well as the positive outcomes associated with the disruption of violence. The *Compendium of Research on Children Exposed to Violence (CEV) 2010-2015* provides a complete list, including abstracts, of NIJ-funded research projects on children exposed to violence.

Download the compendium at NIJ.gov, keyword: 249940.



Documenting and Explaining the 2015 Homicide Rise: Research Directions

The debate over the size, scope, and causes of the homicide increase in 2015 has been largely free of systematic evidence. In a new white paper commissioned by NIJ, Richard Rosenfeld documents the 2015 homicide increase in 56 large U.S. cities, finding that the increase was "real and nearly unprecedented." He examines three possible explanations for the rise: the expansion of urban drug markets fueled by the heroin epidemic, declining imprisonment rates, and a "Ferguson effect" resulting from widely publicized incidents of police use of deadly force against minority citizens. Rosenfeld concludes with a call for more frequent and timely release of crime information to address crime problems as they arise.

Read the white paper at NIJ.gov, keyword: 249895.



The Role of Technology in Improving K-12 School Safety

The goal of NIJ's Comprehensive School Safety Initiative is to improve the safety of our nation's schools and students through rigorous research that produces practical knowledge. The Initiative works to accomplish this goal through partnerships among educators, researchers, and other stakeholders, such as law enforcement and behavioral and mental health professionals.

The RAND Corporation, with funding from the Initiative, recently published a report on school safety technologies as one approach to prevent and respond to school violence. In "The Role of Technology in Improving K-12 School Safety," the authors summarize existing research on school violence; categorize school safety technologies and describe the available research about them; present six case studies of innovative technologies used in schools; summarize experts' views of technologies and safety problems, based on interviews; and present experts' rankings of technology needs to improve school safety, produced during two daylong panels.

Learn more about the Comprehensive School Safety Initiative and download the RAND report at NIJ.gov, keywords: safe schools.



New NIJ.gov Pages



Data Analysis to Improve Community Supervision

GPS-based electronic monitoring systems are widely used to track the locations of people under community supervision. These systems produce a wealth of data, some of it relevant but much of it not. That data glut can overwhelm supervising officers. Data analytic software can increase monitoring efficiency by winnowing and organizing the data so that officers receive only relevant information when they need it. The software can also increase monitoring effectiveness, providing insights into an individual's habits, social networks, and potential future actions.

Despite the potential for data analytic software to improve community supervision, a new study undertaken for NIJ found that agencies that use these systems do not always factor the analytic capabilities of the firms that they contract with, nor of their products, into procurement decisions. A new NIJ.gov article discusses how information contained in the study may benefit agencies considering implementing such systems.

Read the article at NIJ.gov, keyword: 250313.



Market Survey of Offender Tracking Technology

A new NIJ.gov article presents information from an NIJ-funded study that may help law enforcement and corrections administrators who are tasked with implementing electronic monitoring programs make procurement decisions. The study, "Market Survey of Location-Based Offender Tracking Technologies, Version 1.1," compares product details, functionality, and warranty information for 13 commercially available systems and provides information on training and assistance and on system performance and security. It assesses the potential for using advanced analytics to enhance the capabilities of such systems and summarizes the analytics capabilities of commercially available software.

Read the article at NIJ.gov, keyword: 250314.



Service Specification for Transferring Offender Tracking Data

A new NIJ.gov article discusses how community corrections and law enforcement agencies that use electronic monitoring devices to track the movements of people on probation, parole, or house arrest often face a dilemma when it comes to negotiating new contracts. Switching vendors may save an agency money or give it access to innovative technology. However, the agency is likely to lose access to valuable historical information on demographics, locations, violations, and alerts, because vendors store data in a proprietary manner. The new Offender Tracking Record Transfer Service Specification, Version 1.0 (NCJ 249814), developed with NIJ funding and approved by the Global Standards Council, takes a step toward resolving this dilemma by defining the manner of electronic transmission of information from one computer system to another.

Read the article at NIJ.gov, keyword: 250312.



Sharing Data to Improve Science



Data Resources Program

Secondary data analysis allows researchers to build on existing findings, replicate results, and conduct new analyses. Through NIJ's Data Resources Program, data collected as part of NIJ research are archived in the National Archive of Criminal Justice Data and made available to support new research aimed at reproducing original findings, replicating results, and testing new hypotheses.

- Learn about NIJ's Data Resources Program at NIJ.gov, keyword: DRP.

Recent data sets updated or added to the National Archive include the following:

- A Behavioral Study of the Radicalization Trajectories of American "Homegrown" Al Qaeda-Inspired Terrorist Offenders, 2001-2015
- Analysis of Current Cold-Case Investigation Practices and Factors Associated with Successful Outcomes, 2008-2009
- Bullying, Sexual, and Dating Violence Trajectories From Early to Late Adolescence in the Midwestern United States, 2007-2013
- Case Processing in the New York County District Attorney's Office, 2010-2011
- Cross-Border Multi-Jurisdictional Task Force Evaluation, San Diego and Imperial Counties, California, 2007-2012
- Delivery and Evaluation of the 2012 International Association of Forensic Nurses (IAFN) National Blended Sexual Assault Forensic Examiner (SAFE) Training
- Evaluating the Elder Abuse Forensic Center Model in Los Angeles County, California, 2007-2009
- Impact of Foreclosures on Neighborhood Crime in Five Cities in the United States, 2002-2011
- Investigating the Impact of In-Car Communication on Law Enforcement Officer Patrol Performance in an Advanced Driving Simulator in Mississippi, 2011
- Multi-State Study of Meeting Domestic Violence Survivors' Needs Through Non-Residential Services and Supports, 2010

Learn about accessing and using research data from NIJ studies at NIJ.gov, keywords: using data resources.



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HIDDEN CONSEQUENCES: THE IMPACT OF INCARCERATION ON DEPENDENT CHILDREN

BY ERIC MARTIN

Children of incarcerated parents face profound and complex threats to their emotional, physical, educational, and financial well-being.

Family members of incarcerated individuals are often referred to as “hidden victims”—victims of the criminal justice system who are neither acknowledged nor given a platform to be heard. These hidden victims receive little personal support and do not benefit from the systemic societal mechanisms generally available to direct crime victims, despite their prevalence and their similarities to direct crime victims.¹

Children whose parents are involved in the criminal justice system, in particular, face a host of challenges and difficulties: psychological strain, antisocial behavior, suspension or expulsion from school, economic hardship, and criminal activity. It is difficult to predict how a child will fare when a parent is intermittently or continually incarcerated, and research findings on these children’s risk factors are mixed.

However, research suggests that the strength or weakness of the parent-child bond and the quality of the child and family’s social support system play significant roles in the child’s ability to overcome challenges and succeed in life.² Therefore, it is critical that correctional practitioners develop strong partnerships with law enforcement, public schools, and child welfare agencies to understand the unique

dynamics of the family in question and try to ensure a safety net for the child and successful re-entry for the incarcerated parent.

This article summarizes the range of risk factors facing children of incarcerated parents. It also cautions against universal policy solutions that seek to address these risk factors but do not take into account the child’s unique needs, the child’s relationship with the incarcerated parent, and alternative support systems.

Scope of the Problem

The massive increase in incarceration in the United States has been well publicized. In the 1970s, there were around 340,000 Americans incarcerated; today, there are approximately 2.3 million.³ One consequence of this dramatic increase is that more mothers and fathers with dependent children are in prison. Since the war on drugs began in the 1980s, for example, the rate of children with incarcerated mothers has increased 100 percent, and the rate of those with incarcerated fathers has increased more than 75 percent.⁴

Current estimates of the number of children with incarcerated parents vary. One report found that the

One statistic indicates that children of incarcerated parents are, on average, six times more likely to become incarcerated themselves.

number of children who have experienced parental incarceration at least once in their childhood may range from 1.7 million to 2.7 million.⁵ If this estimate is on target, that means 11 percent of all children may be at risk.⁶ The rate of parenthood among those incarcerated is roughly the same as the rate in the general population: 50 percent to 75 percent of incarcerated individuals report having a minor child.⁷

Relying as we often do on a few statistics to describe a national phenomenon, we can easily be misled to believe that all segments of the population equally share the burden of parental incarceration. A closer examination of the numbers, however, reveals that communities of color are more at risk: Data from 2007 (the most recent data available) show that African-American children and Hispanic children were 7.5 times more likely and 2.3 times more likely, respectively, than white children to have an incarcerated parent.⁸ Also, 40 percent of all incarcerated parents were African-American fathers.⁹ The burden of parental incarceration on these communities has changed over time. For example, about 15 percent of African-American children born in the 1970s had a parent who was incarcerated. Twenty years later, the rate had nearly doubled to 28 percent.¹⁰

Unfortunately, parental incarceration is only one of a series of separations and stressful situations facing children whose parent is involved in the criminal justice system. If we consider the full continuum of the criminal justice process — arrest, pre-trial detention, conviction, jail, probation, imprisonment, and parole — the number of children affected is significantly larger. For example, if we include parents who have been arrested, the estimate of affected children rises to 10 million.¹¹ Although research to date has focused more on children with incarcerated parents than on children

with parents in other phases of the system, the two groups may share many of the same risk factors and needs. Policymakers and practitioners must understand these characteristics to develop effective systemic responses.

Parental Incarceration and Child Risk Factors

Although each case is unique and each child responds differently, research has established that a parent's incarceration poses several threats to a child's emotional, physical, educational, and financial well-being.

Child criminal involvement

There is particular concern that a parent's imprisonment will lead to a cycle of intergenerational criminal behavior. One statistic indicates that children of incarcerated parents are, on average, six times more likely to become incarcerated themselves.¹² But risk factors rarely present themselves across all children, and these behaviors are difficult to understand or predict. One study, for example, found that children of incarcerated mothers had much higher rates of incarceration — and even earlier and more frequent arrests — than children of incarcerated fathers.¹³ Although we need more research on this relationship, this differential may speak to the likelihood that the mother, on average, is a primary support for the child.¹⁴

Psychological problems and antisocial behavior

Research on depression and aggression among children of incarcerated parents has been mixed and highly differentiated by gender, age, race, and family situation. One study, for example, found that African-American children and children who have both a mother and a father incarcerated exhibited significant increases in depression.¹⁵

Another study found that, for the most part, parental incarceration was not associated with a change in childhood aggression — but the findings were decidedly mixed. Twenty percent of sampled children did see an increase in aggression; boys who tended

to be aggressive before a parent's incarceration were most at risk for a trajectory of increased aggression. Interestingly, there were some decreases in aggression: About 8 percent of the children saw a return to a stable home upon parental incarceration if their father had lived in the home prior to incarceration and had drug and alcohol issues.¹⁶

The most common consequence of parental incarceration appears to fall under the umbrella of antisocial behavior, which describes any number of behaviors that go against social norms, including criminal acts and persistent dishonesty.¹⁷ One meta-analysis of 40 studies on children of incarcerated parents found that antisocial behaviors were present more consistently than any other factors, including mental health issues and drug use.¹⁸ A separate study built on those findings by examining the presence of multiple adverse childhood experiences a child may face, including incarceration. The study found that exposure to multiple adverse childhood experiences throughout development may put children at risk for severe depression and other issues that persist into adulthood, including substance abuse, sexually transmitted diseases, and suicide attempts.¹⁹ Antisocial behavior resulting from parental incarceration may limit a child's resilience in the face of other negative experiences, which could then compound the effects of exposure to other issues.

Educational attainment

Research has frequently found an association between children's low educational attainment and parental incarceration. But once again, the findings to date are confounding and indicate that more research needs to be done to provide a clear picture of this dynamic.

For example, one study found that parental incarceration was strongly associated with externalizing behavioral problems. The researcher failed to see a corresponding decrease in educational outcomes and other social attainment factors but assumed this was due to the limited follow-up window of data. Interestingly, the researcher did acknowledge

that some children were able to develop resilience and deal with their externalizing behavior problems before suffering negative educational outcomes.²⁰ But a separate study found that children of incarcerated parents are significantly more likely to be suspended and expelled from school.²¹ More research needs to be conducted to isolate the impact of parental incarceration on educational attainment from that of other risk factors.

Economic well-being

The overwhelming majority of children with incarcerated parents have restricted economic resources available for their support. One study found that the family's income was 22 percent lower during the incarceration period and 15 percent lower after the parent's re-entry.²² (Note that this reduction of income and earning potential does not describe how limited the earning potential may have been before incarceration.) But here, too, the impact can be nuanced: Another study found that a mother's incarceration was associated with greater economic detriment, especially if the father did not live with the family. This economic loss might be exacerbated if the child lives with a caregiver who is already responsible for other dependents or with a grandparent who lives on retirement income.²³ A third study found that children of incarcerated parents systemically faced a host of disadvantages, such as monetary hardship; were less likely to live in a two-parent home; and were less likely to have stable housing.²⁴

Parent-child attachment and contact while incarcerated

If the parent is a strong support in the child's life, the interruption of the child-parent relationship will lead to or exacerbate many of the issues or risk factors already discussed.²⁵ Conversely, in some cases a child might benefit from the removal of a parent who presented problems for the child.²⁶ Any attempt to facilitate contact between the incarcerated parent and child should consider the quality of the relationship the child had with the parent before incarceration. Visits while the parent is in the facility seem to do little to build a relationship if there was not one prior to incarceration.

Research shows that visits by family and loved ones reduce recidivism among incarcerated individuals²⁷ and that strong family support is one of the biggest factors in a successful re-entry experience.²⁸ But when it comes to a child's visits, the results are once again mixed. One study reviewed the literature and found that when the parent and child have a positive relationship, visits encourage attachment and promote a positive relationship after release. When the parent and child had no relationship prior to incarceration, however, visits do not seem to be enough to promote a positive relationship.²⁹

NIJ-funded research examined the impact visits have on the child. Researchers found that when the child had a prior positive relationship with the parent, the child tended to benefit psychologically from a visit. But when there was no prior relationship with the parent, the child actually exhibited many of the externalizing behaviors discussed above, as reported by their caregivers. A positive parent-child relationship had to exist before incarceration for the incarcerated parent and child to benefit from the visit.³⁰

More research is needed to tease out when, for whom, and in what circumstances parent-child visitation should be encouraged. Although the quality of the pre-incarceration parent-child relationship is critical, further research may show that visits may be beneficial — or detrimental — at certain ages and stages of childhood development. Also, particular factors surrounding the parental incarceration, such as whether the child witnessed the parent's arrest, could worsen the impact.³¹ The effect of parental incarceration on a child is complex and may be hard to predict, except that there is risk that the child will be substantially and negatively affected.

Policy Implications

Many children of incarcerated parents face profound adversity — as do other children facing many of the same risk factors the children experienced prior to parental incarceration. But the research shows that some children develop resilience despite the risks if they have a strong social support system.³² Through visits, letter writing, and other forms of contact, an

incarcerated parent can play an important positive role in a child's sphere of support. In some circumstances, however, continued contact may have little value and even be detrimental to the child. Continued research will help policymakers and corrections practitioners better understand these complex and competing issues and make critical policy and program decisions to help children have positive life outcomes and avoid the criminal justice system.

Correctional facilities

The research shows that, in general, children whose parents are incarcerated are at higher risk for increased antisocial behaviors and psychological problems, such as depression. Whether this translates into decreased educational attainment, involvement with the criminal justice system, and other negative outcomes seems to depend on the child's resilience and his or her social support network.

The biggest predictor is the strength of the parent-child relationship. For example, if the parent lived with the child, provided social and financial support, and developed a strong parent-child bond, the long-term negative effects of parental incarceration may be mitigated if the child receives support throughout the incarceration period and is afforded opportunities to maintain contact with the parent. Correctional facilities can support the relationship by providing the child with easy access to and visitation with the parent in a child-friendly environment.

Making policy recommendations is particularly difficult, however, in cases where the parent's presence was not supportive or productive for the child or where the parent was not present at all. For example, a program evaluation of a video message service showed that a correctional facility parenting class had little impact on the quality of the parents' messages; the children largely responded to the messages based on the relationship before incarceration.³³ Thus, the prior parent-child relationship seems to be critical in determining the impact of contact from the parent. This limits the degree to which correctional officials can positively intervene to promote a relationship between a parent and a child.

Given this, correctional practitioners need to understand the relationship between the incarcerated parent and child prior to incarceration, to the extent possible, since contact between the two will likely benefit or harm one or both of them depending on the quality of their initial relationship.

Other service providers

Although a correctional facility's capacity to improve relationships and assist with the child's welfare may be limited, other service providers and partners may be able to intervene. For example, if schools were notified of the parent's arrest or incarceration, then they could address negative behaviors before they result in negative outcomes. Furthermore, as one researcher pointed out, many law enforcement agencies do not have protocols for handling a child present at an arrest.³⁴

Law enforcement and child welfare practitioners are often involved with the child before the correctional system is involved with the parent, so enhanced and streamlined communication between the various government entities could maximize the potential to provide the child whatever support is available. For example, NIJ-funded research on crossover youth cited the "one family, one judge" model, which combines cases in child welfare and juvenile justice to provide a streamlined and consistent approach to services for the child and family.³⁵ If law enforcement, child welfare, educational, and correctional practitioners can share information on the child and family experiencing parental incarceration, then it would be more likely that the child would benefit from early intervention if he or she appears to be at risk for sustained deprivation, loss of educational attainment, or criminal activity. Such a partnership would also benefit correctional practitioners and re-entry managers, who would have better information on the child's situation and prior relationship with the incarcerated parent, which seems to be critical for the child's welfare.

Given these considerations, it appears that enhancing communication between corrections practitioners and other service providers is a good way to ensure a safety net for the child and facilitate a successful re-entry for the incarcerated parent.

About the Author

Eric Martin is a social science analyst in NIJ's Office of Research and Evaluation.

For More Information

Read an *NIJ Journal* article, "Does Parental Incarceration Increase a Child's Risk for Foster Care Placement?" at NIJ.gov, keyword: 215457.

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NCJ 250349

NIJ CORRECTIONS AWARDS



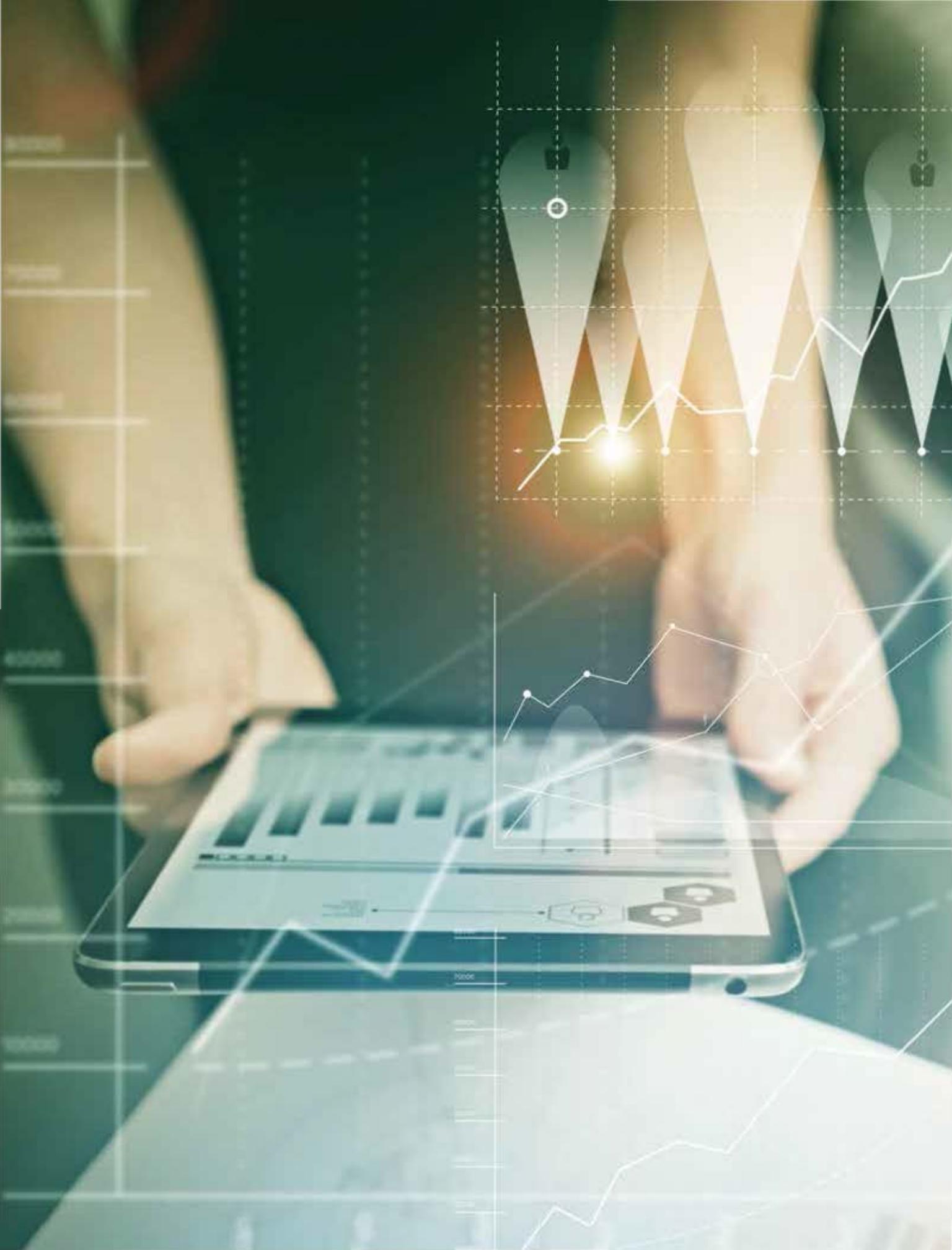
Although the corrections system is one of the least visible components of the criminal justice system, its reach is vast, and its implications for community health and public safety are significant. In the United States, the adult correctional system supervises nearly 6.7 million people, including 4.6 million individuals supervised in our nation's communities.¹

NIJ is committed to empirically exploring issues affecting justice-involved individuals engaged in institutional and community corrections. In fiscal year 2016, NIJ made 11 awards for research related to corrections. Research topics include the use of restrictive housing, the well-being of correctional employees, the impact of parental incarceration on children, and the intergenerational consequences of incarceration. The research funded by NIJ will help strengthen our knowledge base and enhance criminal justice and correctional practices.

Read more at NIJ.gov, keyword: corrections-2016.

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IDENTIFYING AT-RISK OFFICERS: CAN IT BE DONE IN CORRECTIONS?

BY JACK HARNE

A collaboration between researchers and a corrections agency shows both the promise and the challenges of conducting research in the real world.

In 1981, the U.S. Commission on Civil Rights recommended that all police departments create early warning systems — also known as early intervention systems — to identify officers who are at risk or who may pose a risk to others.¹ Although the main motivation for the recommendation was to protect the public, these systems also protect officers' well-being by addressing the underlying causes of misconduct (e.g., stress related to family or financial concerns).

Some departments have gone a step further, adopting a performance management information system (PMIS) that addresses potential issues with performance and conduct. A PMIS performs three critical functions. First, it identifies any officers who may be at risk for poor performance or misconduct. Second, it provides the opportunity for counseling, training, or other interventions to assist the officer. Finally, it monitors the officer's behavior and performance to gauge the success of the interventions. The earlier an at-risk officer is identified, the better the chance of a successful outcome.

A PMIS uses mathematical algorithms to identify at-risk officers. These algorithms consider a number of possible indicators of performance or conduct issues, such as absenteeism, complaints from the public, excessive use-of-force incident reports, and number of arrests or citations written. Research suggests that the factors monitored and the thresholds for flagging problem officers vary among departments.

There are few evaluations of the effectiveness of PMISs, and the findings have been mixed. Some studies have found reductions in at least some outcomes. Others have found that effects could not be attributed to the implementation of a PMIS.

Law enforcement agencies use early intervention systems widely; corrections agencies have yet to do so. The RAND Corporation partnered with a sheriff's office in Florida to examine the application of a PMIS to a corrections agency environment. The sheriff's office comprised both law enforcement and corrections roles, allowing the researchers to compare the two and apply what law enforcement already knows about PMISs to corrections.

The first phase of the NIJ-supported project was to identify potential indicators for misconduct. Researchers compared officers who had been disciplined — including officers who had been terminated, demoted, sent "last chance" letters, suspended for five or more days, or suspended for less than five days but for a criminal offense or who had resigned while facing potential criminal charges — with matched officers who had not been disciplined.

Law enforcement agencies widely use early intervention systems to identify officers who are at risk or who may pose a risk to others. Corrections agencies have yet to do so.

The second phase was to design a deployable PMIS that:

- Considered indicators that the agency could feasibly collect and analyze quarterly.
- Was used routinely with reasonable effort.
- Identified as many officers with performance issues and as few nonproblem officers as possible.

Data Challenges

The real-world constraints of process and data, however, complicated the research effort.

The researchers drew archived information from four electronic sources (internal affairs records, command counseling forms, training records, and insurance claims records) and one paper source (human resources records). These data sources were designed for management, not research, so the researchers often had to analyze and clean the data before they could use it. For example, they had to resolve what appeared to be contradictions between data sets but often turned out to be differences in how the data were recorded. The researchers also had to condense or clean data sets that contained superfluous categories or irrelevant data (e.g., in insurance claims records) and code narrative data (e.g., descriptions in internal affairs records) to facilitate analysis. These steps required a significant amount of additional time and resources, which led to a considerably longer timeline for the research project than initially planned.

The researchers' decision to limit their analysis to data that the agency had already collected was also important. In theory, this would make the PMIS more practical and reduce the costs of implementation

and use. However, using only available data led to an important constraint: The researchers did not search for indicators outside of the existing data sets that might be even better predictors of correction officers' future behavior, such as use of discriminatory language toward inmates or how often officers drew their weapons. If the researchers had identified these kinds of indicators and included them in the PMIS, the agency, in turn, would have to collect the new data on an ongoing basis, increasing implementation costs and barriers to use. Although the trade-off between near-term practicality and broader exploration is not unique to this project and can be a challenge for all research performed in an operational context, it shaped the prototype PMIS.

The Results

The researchers identified the following potential indicators for corrections staff:

- Internal affairs incidents related to dishonesty, unprovoked physical violence, use of sick leave, lack of promptness, or carelessness.
- The rate at which a deputy receives human resource performance reviews identifying a need for improvement.
- The rate at which a deputy completes trainings.

The researchers tested several analytic approaches to determine which had the best predictive performance within the study's sample of officers. They found that a logistic regression model with input factors identified through backwards selection performed best, and they used that approach as the basis for the prototype corrections PMIS.

The next step was to test the PMIS and determine how accurate it was at flagging the officers who had been disciplined (and not flagging officers in the comparison group). The researchers found that the model detected 67 percent of the disciplined officers in the sample group. The PMIS also produced a 15 percent false positive rate (i.e., 15 percent of the control group officers who were not disciplined were flagged).

Next Steps

Researchers from the Johns Hopkins University Applied Physics Laboratory (APL) are now evaluating the prototype PMIS. APL hosts the NIJ-supported National Criminal Justice Technology Research, Test and Evaluation Center.

"We're focusing on seeing how predictive the model actually is with more recent data before we recommend how they [the sheriff's office that RAND collaborated with] might actually implement it," said Rebecca Rhodes, one of the APL researchers assigned to the evaluation.

The research team will first replicate RAND's findings using 2007-2013 data from the sheriff's office and then attempt to validate those findings with more recent data. They will determine whether the model makes accurate predictions while limiting the false positive rate. Any such system should avoid flagging officers who do not need intervention, said Rhodes.

"That's always an issue when you have a predictive model, trying to maximize your true positives, which are people who truly would benefit from intervention, and minimize the number of false positives, which would be people who don't really need any intervention or training," she said.

The APL team expects to complete their assessment in 2017.

About the Author

Jack Harne is a physical scientist in NIJ's Office of Science and Technology.

For More Information

Read the final research paper from the RAND project at <http://policing.oxfordjournals.org/content/early/2016/08/08/police.paw028>.

This article discusses the following grants:

- "Development and Implementation of PMIS for a Jail Environment," grant number 2011-IJ-CX-K052.
 - "Establishing a National Criminal Justice Technology Research, Test and Evaluation Center," grant number 2013-MU-CX-K111.
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NCJ 250344



REFLECTIONS ON COLORADO'S ADMINISTRATIVE SEGREGATION STUDY

BY MAUREEN O'KEEFE

One researcher who specializes in corrections discusses the study's strengths and limitations, the impassioned response to its findings, and areas for further research.

The practice of incarcerating inmates in long-term segregation is an emotionally charged topic. Human rights advocates oppose it, particularly for inmates with mental illness, while corrections personnel deem it necessary for the safe operation of their facilities. The practice has been criticized as being psychologically damaging, excessively harsh and inhumane (i.e., lack of programs and services, minimal control over environment, limited access to the outdoors), prone to abuses by staff, and lacking in adequate step-down programs for those releasing to the streets. Media coverage and litigation have fueled the debate, while advocates and researchers have called attention to the lack of quality research, including the lack of evidence supporting its effectiveness in reducing prison violence.

A research team in Colorado sought to fill a gap in the research and advance the empirical dialogue around segregation. With support from NIJ, researchers (including the author), academics, prison officials, and human rights advocates conducted a longitudinal study of the psychological effects of solitary confinement, particularly for inmates diagnosed with a mental illness. We had hoped that empirical evidence would help develop some common ground — but instead our findings seemed to divide the sides even further.

The Colorado Study

The conditions of long-term segregated confinement are as varied as the names by which it is called — supermax, solitary confinement, security housing unit, and restrictive housing.

At the time of the study (2007-2010), long-term segregation in Colorado was known as administrative segregation (AS). Colorado inmates were placed in AS for one serious violation or a series of lesser violations and were confined to single cells approximately 23 hours a day for an indeterminate period of time (two years on average). Inmates participated in cognitive behavioral programs and a quality-of-life level system that rewarded positive behavior with increased privileges, such as in-cell televisions and more family visits.

At the start of the study, 5 percent of Colorado's 21,807 prison inmates were in AS. The prevalence of mental illness among these AS inmates was high, as it was across the nation.

Our research team approached 302 male AS inmates in the Colorado state correctional system to participate in the study; 270 consented.¹ We divided the AS inmates into two groups: those with mental illness and those

with no mental illness. For comparison, we included two groups of inmates in general population prisons: those with mental illness and those with no mental illness. The general population inmates were all at risk of being put in AS, but they were either placed in a diversion program or returned to a higher-security general population prison after an AS classification hearing.² Our research team added a third comparison group to further explore inmates with mental illness. The final group consisted of inmates housed in a special needs prison because their mental illness and corresponding behavioral problems exceeded the management capacity of general population prisons.³

A research assistant administered a battery of paper-and-pencil tests to the inmates at approximately three-month intervals over the course of a year.⁴ The tests measured depression and hopelessness, anxiety, psychosis, withdrawal and alienation, hostility and anger control, somatization, hypersensitivity, and cognitive impairment. Clinicians and correctional officers also completed rating forms on psychological functioning and behavior, and we examined mental health crisis reports and prison logs of behavioral data and out-of-cell activities. However, we found it challenging to interpret the collateral data for a number of reasons, including missing data, so in the end we relied primarily on the inmates' self-reported data.

The Results...

We had hypothesized that inmates in segregation would experience greater psychological deterioration over time than comparison inmates in general population prisons. Our study found that the AS inmates had elevated psychological and cognitive symptoms when compared to normative adult samples. However, there were elevations among the comparison groups, too, suggesting that high degrees of psychological disturbances are not unique to the AS environment. The group of inmates without a serious mental illness in general population prisons was mostly similar to the normative group.

In examining change over time, we found initial improvement in psychological well-being across all groups, with rapid improvement at the start and smaller changes over the remainder of the study. Contrary to

another of our hypotheses, we found that inmates in AS with mental illness did not deteriorate more rapidly and extremely than those without mental illness.

Finally, although AS inmates in the study had traits believed to be associated with long-term segregation, we could not attribute these features to AS confinement, because they were present at the time of placement and also occurred in the comparison groups.

...and the Unanticipated Controversy

We were surprised by the results, but we were even more stunned by the response from the field.

The misrepresentation of factual information about the study was particularly worrisome. For instance, some critics argued that we did not share how many inmates were excluded because of language barriers or reading level;⁵ however, we present those figures (only 2 percent of the population) and discuss them as a study limitation in the final report. Other critics claimed that an overrepresentation of study participants with a high school diploma or equivalent occurred because of this exclusion;⁶ however, our statistical analyses in the report show that participants' education levels were representative of inmates who had had an AS hearing. Several also disagreed about how long inmates were in segregation before their initial testing session, even though figures in the report show an average of 30 days.⁷

Two critics claimed that we were purposely deceptive about the validity of the assessments, citing as "irrefutable evidence" an example of a deceased inmate who did not endorse any suicidal intent items on his most recent test.⁸ However, the inmate in question did not commit suicide, so failing to endorse suicide items should not be perceived as a conflict with his cause of death.

One critic conceived the "Alysha effect" to describe a supposed phenomenon in which inmates would favorably distort their responses because they were gathered by the research assistant, who "is apparently an attractive young woman, talking with inmates who had virtually no contact with any such young attractive

women.⁹ The base premise is untrue: Inmates endorsed negative symptoms, and there are often women, including young and attractive ones, working in prisons as correctional officers, mental health clinicians, teachers, and administrators. Another critic asserted that the research assistant's undergraduate degree rendered the test results unreliable,¹⁰ but there is no reason to believe the assistant was incapable of developing rapport, handing out self-report tests, and scanning tests for random responding patterns.

Some critics take issue with the study's use of self-report paper-and-pencil tests, claiming that these measures are satisfactory for university students and outpatient clients but not for inmates.¹¹ Some also argue that inmates, fearing reprisal, would not reveal psychological dysfunction on these types of tests. However, our study participants revealed significantly greater psychological discomfort than did normative community samples. Furthermore, reliability and validity measurements for our participants were strong, indicating consistent responses within and between tests. The notion that clinical interviews are more valid is faulty. Interviews rely on self-reporting, as does any study of an individual's internal experiences, and are more prone to experimenter bias.

Several have argued that research on the 19th century penal system, the experiences of prisoners of war, KGB interrogation practices, polar exploration, and sensory deprivation contribute more to our understanding of the harmful effects of segregation than empirical research on actual inmates.¹² However, those studies address conditions that bear little resemblance to modern-day segregation. For instance, prisoners of war or those interrogated by the KGB experienced torture, had no contact with the outside world, were denied basic food and medical care, and feared imminent death — all tremendous stresses not shared by today's inmates in segregation. These critics appear to not recognize that inmates involved in litigation are not a representative sample and that their interviews may provide a distorted picture, especially when not accompanied by careful review of their mental health history before segregation. Two researchers further criticized the exclusion of inmates who refused to participate,

If we as scientists choose which studies to believe and which to ignore on the basis of personal preconceptions rather than scientific merit, how much easier will it be for practitioners to do the same, leading them to reject future scientific advances in psychology and criminal justice?

but that limit applies to all human subjects research bound by today's ethical standards.¹³

So why do people react to this study in such extreme ways? Our hypotheses had face validity,¹⁴ which can explain why the results surprised many people — including our research team. Researchers and critics have expressed a fear that "the Colorado study will be used to justify the warehousing of large numbers of mentally ill prisoners in solitary confinement."¹⁵ Those who devote their professional lives to the belief that solitary confinement harms mental health may consider the study a personal affront. One researcher noted that "people feel very strongly about this issue. It appears as though some researchers are so entrenched in their beliefs that when presented with evidence that counters their point of view, they resort to making every attempt at belittling its worth."¹⁶

Regardless of the reason, if we as scientists choose which studies to believe and which to ignore on the basis of personal preconceptions rather than scientific merit, how much easier will it be for practitioners to do the same, leading them to reject future scientific advances in psychology and criminal justice?

The Benefit of Hindsight

This commentary is not meant to suggest that the Colorado study was perfect or that it was the only

research needed to answer the questions about psychological harm resulting from AS. Nor does this article mean to suggest that our research team rejects all criticisms and alternative explanations. The critiques addressed thus far are the least compelling; there are others that can help shape our understanding of reasonable and important limitations, provide alternative explanations for the outcomes, and explain why the Colorado results might not generalize to other corrections agencies. It is interesting to consider some of these additional critiques and what we might do differently — or the same — if we conducted such a study today.

For example, having three external experts who served alongside prison management on the advisory board was extremely helpful: The experts shared a national perspective and were actively engaged with the study design, project implementation, troubleshooting, analyses, and interpretation of the results. There were mixed biases within the research team and advisory board; however, this created a lively but respectful atmosphere, one in which team members had a heightened sensitivity to opposing viewpoints that helped ensure the study's robustness.

We used a repeated-measures design to examine whether and how inmates' psychological symptoms changed over time. Including comparison groups allowed us to explore whether these changes differed by mental status (mental illness vs. no mental illness) or conditions of confinement (AS vs. general population and AS vs. special needs prison). The more the comparison inmates resembled the AS inmates, the better our understanding of how inmates respond to different environments. Some have criticized our team for conducting baseline psychological assessments after inmates had been placed in AS; others have noted that the groups did not remain pure (that is, AS inmates might have been released from segregation, and general population inmates might later have been placed in short- or long-term segregation). However, no better group selection was feasible without the benefit of random assignment.

We selected objective assessments to help reduce experimenter bias. We sought assessments that

measured the psychological symptoms reported among segregated inmates in prior research; were reliable and valid, but not lengthy or difficult to read; and had minimal interaction requirements, so they could be administered in noncontact settings. As discussed earlier, clinical interviews do not circumvent the self-report issue, and they present the potential for experimenter bias, but they could also add depth and context to the data. Future research may benefit from interviewing inmates at the beginning and end of the study to learn more about their mental health history and treatment needs, probe their perceptions about confinement conditions, and compare their verbal responses to their written ones. However, to mitigate concerns about the interviewer influencing responses, such research would need to use highly structured and recorded interviews and stringent coding criteria.

Our collateral data sources have also been criticized, with some noting that correctional officers and clinicians put minimal effort into completing their rating forms.¹⁷ In the end, we found that their data contributed little to the study. A better approach would have been either to make a stronger effort to obtain these data or to use our resources to collect other valuable data; for example, we could have reviewed inmates' mental health records more thoroughly. Such a review might have yielded a better understanding of inmates' prior treatment history, including crisis events; the recommended level of mental health care; diagnostic history; and any difficulties related to adjustment to prison. An in-depth review of mental health records also might have provided better insight into the differences between AS inmates with mental illness and inmates with mental illness in a special needs prison, although it is not certain that the records would be detailed enough for such a determination.

We also collected mental health crisis data. Clinicians routinely record any unscheduled appointment requiring immediate intervention as a "crisis" contact. The study's criteria for counting crises related to self-harm and psychotic symptoms were overly inclusive. For instance, if the clinician referenced past hallucinations or delusions, we coded the event as a psychotic symptom even if the inmate denied it and the clinician did not observe it during the current event. Our team has

been criticized for not interpreting these data as evidence of psychological harm. About twice as many inmates with mental illness in a special needs prison had crisis events compared with AS inmates with mental illness, even though the two groups were roughly the same size. If we had interpreted the data by the number of crises or the number of inmates experiencing a crisis, we might have concluded that a special needs prison setting is psychologically harmful to inmates — potentially twice as harmful as AS, which may be an unfair conclusion.

There were concerns about pre-study incident rates after discovering that one inmate with numerous crises had a long history of self-harming behavior and psychiatric care before the study began. Because of these data limitations, we feel that the study would have been strengthened if we had adopted more stringent criteria for including crisis events, conducted a mental health record review to examine crisis and treatment history, and compared crisis events against self-reported data.

Advancing the Science

The Colorado study was neither the perfect study nor the only study of the psychologically damaging effects of segregation. But it was carefully designed and scientifically rigorous — and it has stimulated a renewed interest in research, which is starkly needed.

In a meta-analytic review, researchers rejected an astounding 91 percent of studies on segregation for not meeting the threshold of inclusion: direct studies of inmates confined in AS that use comparison groups, an outcome measure written in English, and enough data to calculate an effect size.¹⁸ The criticism that the Colorado study did not look at inmate experiences throughout and beyond incarceration, including the social context of segregation units, should be taken as a call for further research.¹⁹ One study cannot resolve all of the questions or even definitively answer a single question on its own; we need to broaden the scope of research and expand the jurisdictions in which it is conducted.

Our research team and advisory board do not agree that our findings are contrary to previous research. A large body of prior research involved case studies, demonstration projects, and cross-sectional studies,

all of which use designs that preclude conclusions about causality — that is, whether segregation causes psychological harm. When we apply an alternative conclusion to these studies — that segregation is disproportionately used with inmates with mental illness — our findings are no longer at odds. Furthermore, a recent meta-analysis found small to moderate adverse psychological effects resulting from AS that were no greater in magnitude than the overall effects of incarceration.²⁰ These findings are consistent with our Colorado results.

Finding elevated psychological symptoms among AS inmates — both those with diagnosed mental illness and those without — was as disturbing as detrimental effects would have been. Regardless of whether those symptoms existed prior to incarceration, resulted from incarceration, or were caused by segregation, isolation is not an effective treatment approach. Inmates in psychological distress are better served in a therapeutic environment where they can receive proper care and treatment. A significant but overlooked finding in the Colorado study was that inmates with mental illness who received treatment in a special needs facility fared no better than those held in segregation. In fact, they disclosed the highest rates of mental disturbances at the outset of the study and showed no better improvement than their counterparts in segregation or the general population. The field needs to move beyond studies that measure the degree of harm inflicted to studies that improve our understanding of safe and effective psychiatric treatment and humane conditions of confinement for difficult-to-manage inmates with mental illness.

Critics worried, justifiably, that corrections agencies would use the Colorado study to rationalize and possibly expand the use of segregation. We did not intend to address whether segregation is an appropriate confinement option, particularly for people with serious and persistent mental illness, nor should our study be seen as an endorsement of prolonged indefinite segregation. No corrections system has successfully used the study to promote segregation. In fact, since we completed the study, the American Psychiatric Association and the National Commission on Correctional Health Care have

released position statements advocating restricted use of prolonged segregation with certain inmates,²¹ and the Association of State Correctional Administrators established guiding principles for correctional systems on the operation of restrictive housing.²² The U.S. Department of Justice also published recommendations on the use of restrictive housing.²³

Researchers have offered explanations for why we did not find systematic psychological deterioration among inmates confined to AS. Some speculate that certain inmates do better in segregation, such as those seeking decreased social stimulation or those engaged in a self-imposed protective custody.²⁴ Others contend that "when negative effects occur in AS, it is primarily due to how inmates are treated by correctional staff and managed in general by prison administrators."²⁵ And still others say that several mediating factors might affect prisoners' segregation experiences, including the physical conditions of confinement, level and form of contact with the outside world, in-cell provisions, access to programs and activities, medical and mental health treatment, staff-inmate relationships, and the ethos and atmosphere in the prison.²⁶

If it is true that segregation conditions are typically harsher than Colorado's, we advise against generalizing our findings to other systems. It may be that prison in general is psychologically harmful. We desperately need more research to understand whether, under what conditions, and for whom long-term segregation causes psychological harm and — equally important — how to better manage those few inmates who pose a serious risk of harm to staff and other inmates.

About the Author

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Author's Note

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For More Information

Read the full report from the Colorado study at NIJ.gov, keyword: 232973.

Learn more about NIJ's research on restrictive housing at NIJ.gov, keywords: restrictive housing.

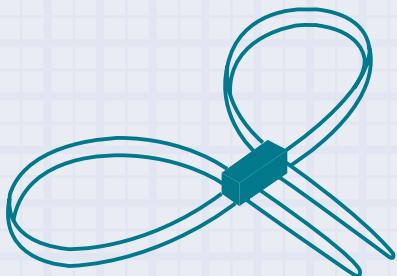
This article discusses the following grant:

- "NIJ FY06 ORE Crime and Justice Research," grant number 2006-IJ-CX-0015.
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Notes

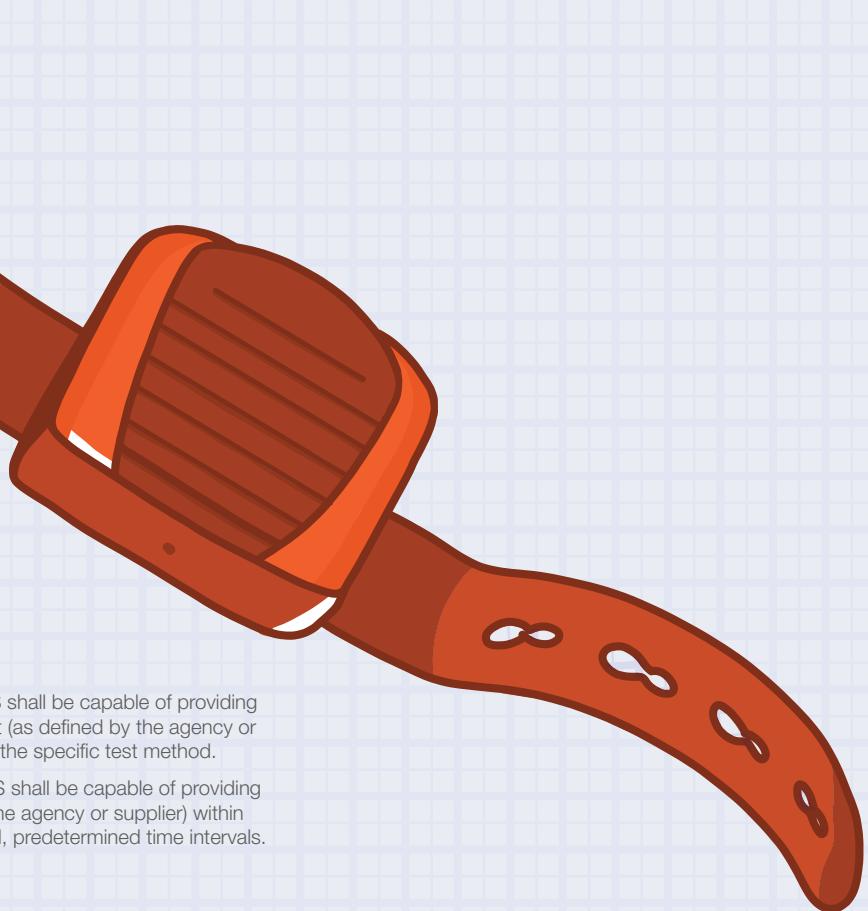
1. Subjects included men only due to low numbers of women in AS. Researchers excluded inmates from the study if they had too little time remaining on their sentence (26 percent) and for illiteracy or language barriers (2 percent). Twenty-three subjects later withdrew their consent, but we used data collected to that point. Inmates were compensated \$10 per test session, subject to \$3-\$8 restitution fines and debt collection by the corrections agency.
2. All classifications regarding inmates' mental status and housing assignments were the result of routine prison operations; our research team grouped subjects according to the agency's procedures.
3. We did a series of comparisons to determine whether AS subjects represented the eligible pool on demographic, criminal history, institutional behavior, and risk/needs variables. Results indicated that AS participants were similar to the eligible pool on nearly all comparisons.

4. Of the 270 subjects who consented and completed the initial battery, 258 completed the second test session, 251 completed the third, 243 completed the fourth, and 236 completed the fifth. Some inmates who missed a test session may not have missed subsequent sessions.
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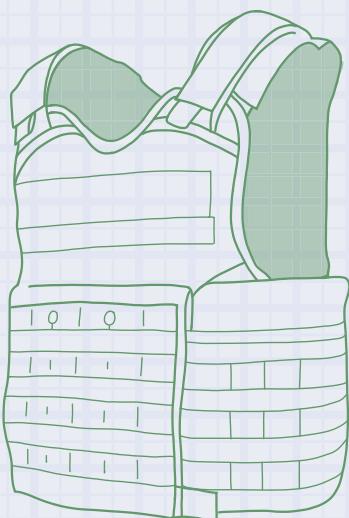
Locking mechanism requirements for restraint models:

- Type 1 restraints shall incorporate a locking mechanism that is intended for single use.
- Type 2 restraints shall incorporate a locking mechanism that is actuated according to supplier instructions and released with a standard key.
- Type 3 restraints shall incorporate a double-locking mechanism that is actuated according to supplier instructions and released with a standard key.
- Type 4 restraints shall incorporate a double-locking mechanism that is actuated according to supplier instructions and released with a nonstandard key.



The offender tracking system (OTS) shall provide alerts as follows:

- The OTS shall record alerts at the data center, and this information shall be available to the agency.
- The OTS shall have the ability to provide alerts through a portable communication modality (e.g., cell phones, PDAs, pagers, tablets, laptops).
- Unless otherwise stated in the test method, an active tracking OTS shall be capable of providing alerts to the agency within 4 minutes of the occurrence of an event (as defined by the agency or supplier) under the communications environment described within the specific test method.
- Unless otherwise stated in the test method, a passive tracking OTS shall be capable of providing alerts to the agency of the occurrence of an event (as defined by the agency or supplier) within 15 minutes of uploading/transmission of the data at the prescribed, predetermined time intervals.



Pass-fail criteria for stab drop tests:

- The body armor shall not allow a knife blade or spike penetration greater than 7 mm (0.28 in) from any fair strike for $E1$ strike energies at impact angles of incidence of 0° and 45° .
- The body armor shall not allow a knife blade or spike penetration greater than 20 mm (0.79 in) from any fair strike for $E2$ strike energies at impact angles of incidence of 0° .
- If a penetration of greater than 7 mm (0.28 in) occurs from a strike whose energy is less than $E1$, but the strike would otherwise be considered a fair hit (sec. 3.12) except for the strike energy, then the armor fails the stab resistance drop test.
- A strike delivered under more stringent conditions that produces an acceptable penetration shall be considered a fair hit. The “more stringent conditions” are specifically limited to strikes that are too close to the edge of the armor, are too close to a prior strike, have a strike energy too high, or any combination of the preceding three conditions.

THE ROLE OF EQUIPMENT PERFORMANCE STANDARDS IN CORRECTIONAL SETTINGS

BY JACK HARNE AND MARK GREENE

To help improve criminal justice policy and practice, NIJ develops performance standards for the unique equipment used by corrections agencies.

Why are equipment performance standards important to corrections agencies? Standards and the conformity assessment programs that test products to those standards' requirements provide agencies and officers with confidence in product performance.

Take offender tracking systems (OTSs), stab-resistant body armor, and restraints, for example. NIJ has published standards defining minimum performance requirements for these products and the test methods used to assess their performance. NIJ also works to establish conformity assessment programs that define the requirements and methods needed to ensure that equipment meets the standards. Together, the standards and compliance testing warrant a certain level of quality in those products and give agencies the ability to compare different types of products against a common set of benchmarks. (See sidebar, "NIJ's Standards and Testing Program.")

Developing an OTS Standard

At the end of 2013, adult correctional systems supervised nearly 7 million people; close to 70

percent — more than 4.7 million people — were on probation or parole.¹

At least 46 states and the District of Columbia have statutes that allow agencies to use electronic monitoring to supervise individuals on probation or parole.² Agencies use OTSs to get time-stamped information on supervisees' whereabouts. OTSs are complex: They involve technology that fixes a person's location in space and time, software that processes and analyzes that spatiotemporal data, and communications technology that transmits the relevant information to the supervising agency.

Most OTS tracking components consist of a single element that is strapped to the ankle, commonly referred to as an "ankle monitor" or "ankle bracelet." Most models use signals from Global Positioning System (GPS) satellites to determine location and then transmit that information to a monitoring center via cellular communications networks.³ When GPS is not available, ancillary technologies such as cellular-based location data, inertial sensors, and wireless positioning help determine a person's location.

Some OTSs have multielement tracking components. A transmitter or receiver strapped to a person's ankle or wrist shares data with a second element, which may be on or near the individual and which communicates location information to a monitoring center.

In 2006, the NIJ-sponsored Community Corrections Technology Working Group, made up of expert corrections officers, noted that the field lacked both national consensus performance requirements for OTSs and a conformity assessment regime to identify models that met those requirements. The group placed a high priority on the need for a performance standard for OTSs.

In 2009, NIJ convened a committee of expert practitioners from eight local, regional, state, and federal agencies across the United States, along with engineers, testing specialists, and other experts, to develop an OTS standard. Key stakeholder organizations, including the American Probation and Parole Association, the American Jail Association, and the American Correctional Association, reviewed the draft standard. In July 2016, after two public comment periods and validation testing by an independent test laboratory, the Institute published NIJ Standard 1004.00, *Criminal Justice Offender Tracking System Standard*.

Minimum Performance Requirements

Although most OTS models use GPS, the new standard does not require the use of specific technologies. NIJ standards specify performance requirements, not design requirements, so manufacturers are free to innovate.

The OTS standard addresses mandatory performance areas, such as:

- The accuracy with which an OTS can locate individuals both indoors and outdoors.
- The speed with which an OTS can send a person's most recent location to the supervising agency.

- The speed with which an OTS can notify an agency of tampering, a loss of GPS or cellular communication, or a violation of a defined geographic zone.

Another mandatory performance requirement — and one that was important to the practitioners involved in the standard's development — involves the ability of the OTS data analysis software to create zones. Zones are defined geographic areas typically intended to restrict the supervised individual's movement during specific periods; when the individual crosses the area boundaries, the agency is notified. The standard requires that OTS software be able to configure zones in the shapes of circles, rectangles, and arbitrary-shaped polygons (i.e., freeform zones, because restricted areas often need to be irregularly shaped), including zones within zones. The standard further requires that the software be able to generate zone templates and create and store at least 50 zones per template.

The standard also includes optional performance requirements for the ability to detect attempts to circumvent the tracking component by using metallic shielding, cellular interference/jamming, or GPS interference/jamming. The optional requirements represent a compromise. Not all OTSs offer these capabilities; making them optional allows more vendors to participate, driving the overall cost to agencies down. At the same time, manufacturers are incentivized to incorporate these capabilities to differentiate their product from others.

The U.S. Government Accountability Office (GAO) assessed the draft standard, comparing 10 performance areas in the standard with nine agencies' procurement requirements and policy documents. The GAO found that the standard's requirements were at least as rigorous as the agencies' requirements in 81 percent of cases (31 percent were cases in which the standard had a requirement that the agency did not have) and less rigorous in 6 percent of cases. The GAO was not able to make a determination on the comparative rigor of requirements in 13 percent of the cases.⁴

Test Methods

Creating an OTS standard was a novel undertaking and required the development of new testing methods. Figure 1 shows one new test method for determining a system's capability to detect attempts to circumvent the tracking component by using metallic shielding, cellular interference/jamming, or GPS interference/jamming.

The standard also includes ergonomic, safety, and environmental tests. For example, if the OTS devices require emergency removal, the standard provides a test method that uses emergency medical system shears, as defined by 21 CFR 880.6820 (FDA), Medical disposable scissors.

Conformity Assessment Program

NIJ is actively pursuing the implementation of a conformity assessment program to test OTS models to the standard. When it released the standard, NIJ also released a *Federal Register* notice inviting conformity assessment groups — such as laboratories, certification bodies, and inspection bodies — interested in conformity assessment activities to review the standard and provide expressions of interest.⁵

One of the challenges in implementing a conformity assessment program for OTSs, however, is the use of refurbished equipment. Agencies often receive refurbished equipment as part of their service agreements. Conformity assessment of refurbished equipment adds another layer of complexity in terms of quality control.

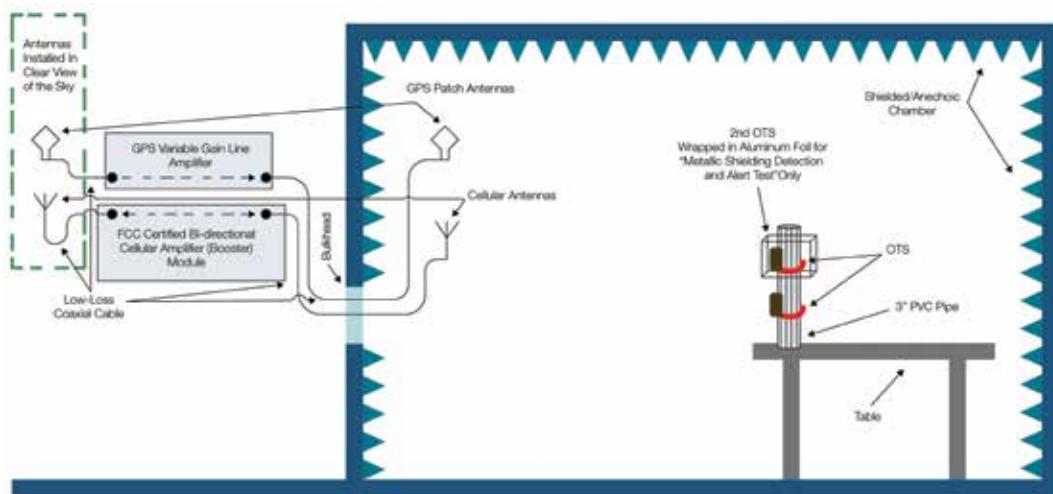
Until a conformity assessment program is established, agencies can still use the standard's requirements to inform purchasing. The GAO report noted, "By setting minimum requirements for a range of commonly identified offender tracking system needs, the standard could help agencies more thoroughly consider and develop contractual requirements and help ensure their needs will be met."⁶

Sharing Data

As it developed the OTS standard, NIJ also identified a need for a specification that allows data sharing between OTSs.

OTSs generate vast amounts of data. One challenge occurs when an agency ends its contractual relationship with one OTS vendor and moves to another. Ideally, the agency would be able to automatically transfer data from the previous provider

Figure 1. Test Configuration for Loss of Location Test/Communications Loss Alert Test



Based on Section 6.21 of NIJ Standard 1004.00,
Criminal Justice Offender Tracking System Standard.

NIJ's Standards and Testing Program

Through its Standards and Testing Program, NIJ fosters the development and implementation of standards and associated conformity assessment programs for the unique equipment that criminal justice agencies use.

NIJ identifies the need for new or improved standards or conformity assessment programs by systematically engaging criminal justice practitioners in discussions about their work. This process helps identify shortfalls in practitioners' capabilities that might be addressed by technology. Developing a new technology might be one way to address a shortfall. Developing a performance standard for a technology or an improved conformity assessment program might be another way.

When required, NIJ develops and implements standards and conformity assessment programs. Whenever practical, it adopts existing standards or adapts them to the needs of the criminal justice community. To the extent possible, NIJ supports public and private organizations' development of standards and conformity assessment programs to speed their introduction into practice. NIJ scientists and engineers often participate in projects with other standards development organizations. For example, an NIJ engineer is currently leading the National Fire Protection Association's (NFPA's) development of NFPA 1986, *Standard on Respiratory Protection Equipment for Technical and Tactical Operations*.¹

Standards Development

NIJ develops standards through a consensus process. Committees composed of corrections officers and other criminal justice practitioners, scientists, test laboratory personnel, and conformity assessment experts write the standards. Major relevant stakeholder organizations, such as the American Correctional Association, the American Probation and Parole Association, the American Jail Association, and the Association of State Correctional Administrators, review the standards. NIJ also seeks manufacturers' input, mainly through workshops and public comment periods.

There are two major purposes for developing standards this way. First, NIJ believes that the people who will use the equipment are best suited to understand what it should be able to do. For example, a committee that included representatives from both the Ohio Department of Rehabilitation and Correction and the Colorado Department of Corrections developed NIJ Standard 1001.00, *Criminal Justice Restraints*, which addresses new technologies and four different types of restraints. Second, this process helps ensure that there is a community consensus about the requirements.

NIJ is not a regulatory agency, so its performance standards are voluntary. Neither manufacturers nor criminal justice agencies need to adopt these standards. However, there are reasons for both to do so. Manufacturers are incentivized to meet the standards' performance requirements, because they reflect the consumers' requirements. On the purchasing side, the standards give public safety agencies the ability to compare different types of equipment against a common set of benchmarks.

Standards can also raise the bar for equipment performance by promoting market-driven competition. Each manufacturer will seek to differentiate its product from similar products by improving its performance, leading to the introduction of safer, more effective products.

Compliance Testing

NIJ's oldest compliance testing program — testing body armor to the then–National Institute of Law Enforcement and Criminal Justice Standard 0101.01, *Ballistic Resistance of Police Body Armor* — was established in 1978. Currently, NIJ directly supports compliance testing programs for two types of equipment: body armor and autoloading pistols.

NIJ actively engages with private-sector organizations to expand the number of conformity assessment programs addressing criminal justice products. For example, the Safety Equipment Institute now tests the protective ensembles used by public safety bomb squads to NIJ Standard 0117.01, *Public Safety Bomb Suit Standard*.

Note

1. "NFPA 1986: Standard on Respiratory Protection Equipment for Technical and Tactical Operations," *National Fire Protection Association*, accessed December 5, 2016, <http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=1986&tab=about>.

to the new provider's system. This would allow the agency to retain important historical data and would help streamline the re-enrollment process. Having a specification for data sharing would also lay the foundation for automated information sharing across jurisdictions and vendor software platforms, which would enhance public safety.

To help make data exchange between OTSs possible, NIJ funded the development of a Global Reference Architecture Service Specification Package (SSP), which details the models and technical components for transferring tracking information between systems. The Global Standards Council adopted the SSP as the "Offender Tracking Record Transfer Service Specification, Version 1.0." Access it at <https://www.it.ojp.gov/GIST/186/Offender-Tracking-Record-Transfer-Service-Specification--Version-1-0>.

Standards for Stab-Resistant Body Armor and Restraints

NIJ has developed additional standards relevant to the corrections community. In 2000, the Institute published NIJ Standard 0115.00, *Stab Resistance of Personal Body Armor*, which was modeled on the

U.K.'s Police Scientific Development Branch (PSDB) Stab Resistant Body Armor Test Procedure (1999). The PSDB standard — and, consequently, the NIJ standard — defined protection requirements for manufactured, as opposed to improvised, threats (e.g., knives) that are used to stab rather than slash.

The result is that the stab-resistant armor worn by corrections officers working exclusively in a controlled facility may be overdesigned for the threats that those officers are most likely to encounter. Additionally, armor designed for stab protection may not be optimal for protection against a slash attack.

NIJ has convened a committee to revise the standard. Proposed revisions include defining two protection classes — manufactured weapons and improvised weapons — and testing against both stab and slash attacks. Other proposed changes include incorporating the *Personal Protective Equipment (PPE) for Blunt Trauma Standard* (CAN/CSA-Z617-06 [R2011])⁷ and the *Standard Practice for Measurement of Body Armor Wearers* (ASTM E2902-12).⁸ Also under consideration are cleaning and decontamination requirements for fecal matter and bodily fluids and test protocols for the bust area of body armor for women.

To support the revision, NIJ funded a study to develop new test models characterizing (1) the improvised weapons that law enforcement and corrections agencies are most likely to face and (2) the dynamics of slash and stab attacks with those weapons. Researchers from Wayne State University, in collaboration with Biokinetics, collected and identified more than 1,300 weapons confiscated by law enforcement and corrections agencies in 20 states. Their report, *Characterization of Weapons Used in Stab/Slash Attacks*, is available at NIJ.gov, keyword: 249550.

NIJ also recently replaced NIJ Standard 0307.01, *NIJ Standard for Metallic Handcuffs*, which was last revised in 1982, with NIJ Standard 1001.00, *Criminal Justice Restraints*. In large part, the new standard responds to the introduction of nonmetallic restraints, such as zip tie restraints, that necessitated new performance requirements and test methods.

The new standard addresses four types of restraints. Types 1 and 2 are intended for temporary control when the person is under direct supervision. Type 1 restraints are intended to be single use, while type 2 restraints are intended to be reusable for a limited number of uses. Types 3 and 4 are intended for control when the person is not under direct observation but is supervised continuously. Type 4 restraints are more tamper resistant than type 3 restraints.

NIJ is currently working with conformity assessment bodies to develop minimum requirements for the certification of restraints described in the new standard.

About the Authors

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For More Information

Learn more about NIJ's Standards and Testing Program at NIJ.gov, keywords: standards testing.

Read the full OTS standard (NIJ Standard 1004.00, *Criminal Justice Offender Tracking System Standard*) at NIJ.gov, keyword: 249810.

Learn more about the criminal justice restraints standard at NIJ.gov, keyword: standards.

Notes

1. Lauren E. Glaze and Danielle Kaeble, *Correctional Populations in the United States, 2013*, Bureau of Justice Statistics, December 2014, NCJ 248479, <https://www.bjs.gov/content/pub/pdf/cpus13.pdf>.
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8. "ASTM E2902 - 12: Standard Practice for Measurement of Body Armor Wearers," *ASTM International*, accessed December 5, 2016, <https://www.astm.org/Standards/E2902.htm>.

RESTRICTIVE HOUSING IN THE U.S.: ISSUES, CHALLENGES, AND FUTURE DIRECTIONS



Restrictive housing — often referred to as administrative segregation or solitary confinement — is a common practice in corrections and is one of the more extreme measures of confinement available to prison and jail officials. In 2015, as many as 100,000 people in U.S. prisons and jails spent time in restrictive housing. Although this practice is widely used, its long-term effects and effectiveness are relatively unknown.

To address this knowledge gap, NIJ produced a volume of research that represents the most comprehensive review to date of emerging issues and concerns surrounding restrictive housing. Topics include the roles that gangs, violence, and mental health play in the management of people in restrictive housing. The volume lays the groundwork for other applied research, and it will assist with the coordination of research and evaluation efforts sponsored by NIJ and partnering agencies.

Read the volume at [NIJ.gov](#), keyword: 250315.

See a related *NIJ Journal* article, “Reflections on Colorado’s Administrative Segregation Study,” on page 22.



THE IMPORTANCE OF A HOLISTIC SAFETY, HEALTH, AND WELLNESS RESEARCH PROGRAM

BY CARA ALTIMUS, WILLIAM FORD, BRETT CHAPMAN, AND GEORGE TILLERY

Over the next five years, NIJ will address safety, health, and wellness questions through interdisciplinary research and strategic partnerships.

The criminal justice system directly touches millions of people in our country every year — corrections staff, people who spend brief stints in community jails, people who spend years in federal and state prisons, and people under supervision in the community. It indirectly touches millions more, including the families, friends, and acquaintances of those involved in the system.

At the end of 2013, nearly 7 million people were under the supervision of adult correctional systems.¹ And more than 400,000 corrections officers work in federal and state prisons and the nation's jails.² Maintaining the safety, health, and wellness of all people involved in the justice system, be it through employment or supervision, is paramount. But it can prove extremely challenging.

To help address the issue, in July 2016 NIJ released a strategic plan outlining major research areas it intends to pursue over the next five years to promote safety, health, and wellness across the criminal justice system.

The plan, written by NIJ's science staff, defines "safety" as "the condition of being secure or unlikely to cause risk or injury to an individual," a definition similar to that developed by the Occupational Safety

and Health Administration.³ NIJ adopted the World Health Organization's definition of "health": "the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."⁴ The Centers for Disease Control and Prevention definition of "well-being" also informed NIJ's definition: "Well-being integrates mental health and physical health resulting in more holistic approaches to disease prevention and health promotion."⁵

These definitions highlight the connection between a person's physical and mental well-being, a relationship often discussed in the medical field. A population study in Canada, for example, noted that approximately one in 20 people in the general population had been diagnosed with depression. The study found that the number rose when back pain was present: Approximately one in five adults with chronic back pain was diagnosed with major depression.⁶ This link between physical and mental is critical in an occupational setting, because an event that could cause injury increases the likelihood of other physical and mental ailments. The medical field has also found that people's mental well-being affects their ability to recover physically.⁷

Research within health systems has also uncovered a correlation between medical staff well-being and patient outcomes.⁸ There is a similar relationship in the criminal justice realm. In a corrections setting, for example, evidence points to a link between the health and well-being of staff and inmates.⁹ A corrections officer who is experiencing high levels of stress may struggle to recognize or prioritize inmates' safety and health needs. Conversely, managing an incarcerated population with high rates of mental illness increases the stress levels of the corrections staff, affecting the entire social support network.

A Holistic Approach

Historically, NIJ's research on safety, health, and wellness has been split between safety on the one hand and health and wellness on the other. It has also been narrowly focused: NIJ's safety research has focused primarily on improving safety equipment, such as body armor and less-lethal technology, while its health and wellness research has focused on improving officer performance through stress management, stress reduction, wellness programs, and changing work shifts. (See sidebar, "The Correction and Law Enforcement Family Support Program.") NIJ's efforts have not explored how the safety, health, and wellness of those involved in the system affect their families, friends, and acquaintances — and vice versa.

Moving forward, NIJ is broadening its focus to address the most important safety, health, and wellness issues facing people involved with the criminal justice system.

The Institute will support cross-cutting research to both promote improved safety, health, and wellness for those in the system and reduce any deleterious effects on the health and wellness of families, friends, and acquaintances. Specific topics will include:

- Improving safety and reducing mortality within corrections.
- Identifying occupational and organization activities that lead to increased physical and mental health risks.
- Reducing stress, trauma, and suicide.
- Studying the impact of incarceration on families.

The strategic plan does not focus on a specific population because issues of health are based on individual physiology and transcend organizational distinctions.

Many of these research areas cross scientific disciplines, so collaboration will be critical. NIJ will support research that includes partnerships between researchers and practitioners and scientific partnerships between disparate fields, such as engineering and social science or neuroscience and occupational health. The Institute will also collaborate with other federal research agencies to expand the number of federal agencies involved in relevant research, eliminate redundant federal investments, better target federal research investments, and better use federal research infrastructure.

The Correction and Law Enforcement Family Support Program

NIJ has a long history of supporting programs and research to address safety, health, and wellness in the criminal justice system. One example is the Correction and Law Enforcement Family Support (CLEFS) program, which sought to identify and understand the stressors confronting law enforcement officers at work and at home and develop innovative approaches to prevent and treat the negative effects of stress. The CLEFS program resulted in a variety of stress reduction programs. In 1998, it expanded to address stress among correctional officers.

NIJ believes that by supporting highly collaborative research, we will promote better and more comprehensive solutions to the challenging safety, health, and wellness problems facing the criminal justice system.

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For More Information

Learn more about NIJ's safety, health, and wellness strategic plan at NIJ.gov, keywords: safety health wellness.

Notes

1. Lauren E. Glaze and Danielle Kaeble, *Correctional Populations in the United States, 2013*, Washington, D.C.: U.S. Department of Justice, Bureau of Justice Statistics, December 2014, NCJ 248479, <https://www.bjs.gov/content/pub/pdf/cpus13.pdf>.
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3. See the OSH Act of 1970, section 5, https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=OSHACT&p_id=3359.
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NCJ 250345

```
modifier_ob.modifiers.new("MIRROR")
    select to mirror_ob
    mirror_object = mirror_ob

    "MIRROR_X":
        e_x = True
        e_y = False
        e_z = False
    = "MIRROR_Y":
        e_x = False
        e_y = True
        e_z = False
    = "MIRROR_Z":
        e_x = False
        e_y = False
        e_z = True

    the end -add back the deselected
    1
t=1
.objects.active = modifier_ob
+ str(modifier_ob)) # modifier
lect = 0
t.selected_objects[0]
[one.name].select = 1

select exactly two objects,
CLASSES --
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tor):
    to the selected object"""
    r_mirror_X"
```

_object is not None

IDENTIFYING TECHNOLOGY NEEDS AND INNOVATIONS TO ADVANCE CORRECTIONS

BY JACK HARNE

NIJ and a team led by the RAND Corporation are examining how technology could help corrections agencies relieve staff and facility limitations and improve training, policies, and practices.

The United States has one of the highest incarceration rates in the world: Nearly one out of every 100 adults is in prison or jail, and one out of every 50 adults is on probation or parole.¹

The corrections field faces significant challenges. For one, the demographics of those incarcerated have changed in recent years. Today, the U.S. prison population is aging and includes both a greater proportion of women and more individuals with mental health conditions and disabilities.² All of these demographic changes strain agencies' ability to deliver services and facilities. The number of people under supervision is also increasing, and community corrections agencies are struggling to provide the level of supervision and immediacy needed to help them successfully re-enter the community. Compounding this is a shift in probation caseloads: Officers who once dealt with relatively low-risk individuals who posed little threat to public safety and had few criminogenic needs now manage higher-risk people who pose a greater threat and may require additional services and increased supervision. Finally, recruiting, training, and retaining corrections staff with the appropriate skills remains extremely difficult. (See sidebar, "Reducing Mortality in Correctional Facilities," on page 48).

Technology has the potential to help address these challenges, at least in part. For example, mobile

device apps might allow officers to better supervise individuals on parole or probation and enable those under supervision to better access services and programs. Telepresence technology, such as telemedicine and video visitation, could improve health care delivery and increase educational and visitation opportunities for people under supervision. (See sidebar, "Expediting Pretrial Release Hearings," on page 46).

NIJ and a team led by the RAND Corporation are collaborating to identify these types of technology needs and innovative solutions for law enforcement, courts, and corrections agencies, as part of the RAND Priority Criminal Justice Needs Initiative. RAND's research team includes RTI International, the University of Denver, and the Police Executive Research Forum. Together, these groups are holistically examining how technology could help not only mitigate staff or facility limitations but also improve training and organizational policies and practices.

The team's approach involves a mixed-method process. The team begins with an extensive literature review on current and emerging challenges in law enforcement, courts, and corrections and on potential solutions to those challenges. It looks at various sources, including existing literature and analysis, research partners' studies, media reports, publications, conference presentations, and surveys and statistical data. Next, the team engages in structured brainstorming with

How NIJ Is Advancing Technology in Corrections

The core activity of the Priority Criminal Justice Needs Initiative is eliciting actionable findings. For NIJ, this means identifying needs with enough specificity to inform the Institute's research agenda and includes not only examining current technology needs but also determining future needs.

As is clear in the RAND Corporation's report (discussed in the main article), contraband in correctional facilities is a significant concern: It negatively affects an agency's ability to provide a safe environment, maintain inmate wellness, and prevent criminal activity. Some of the most common types of contraband are improvised weapons, drugs and narcotics, cell phones and smartphones, and tobacco.

In 2015, informed by the report, NIJ solicited proposals for research on identifying the interdiction modalities agencies use to keep contraband out of correctional facilities and what is known about their efficacy. NIJ saw this research as a first step toward gaining a more complete understanding of the contraband issue within correctional facilities and addressing the problem.

The Urban Institute, in collaboration with the American Correctional Association and the Fortune Society, submitted the winning proposal. The three-year effort will use a mixed-methods approach. The project team will hold focus groups with correctional administrators and formerly incarcerated individuals to help finalize key data measures for a national survey and in-depth case studies.

Based on a stratified sample from 600 to 800 U.S. correctional facilities, the survey will generate national estimates of the prevalence of contraband and use of different interdiction modalities. In-depth case studies in up to nine facilities will supplement the survey data. The case studies will include a comprehensive review of contraband policies, administrative data, and semistructured interviews with correctional staff. The case studies will help shed light on the motivations for adopting certain contraband interdiction modalities, implementation challenges, and the efficacy of interdiction modalities.

The research team expects to complete the project by December 2018.



Examples of contraband items seized inside Ohio prisons. Photo credit: (c) Correctional Institution Inspection Committee

practitioners to further elaborate on challenges and potential solutions. Then, through structured, small-group discussions that use RAND's Delphi method,³ the team prioritizes the needs and potential solutions.

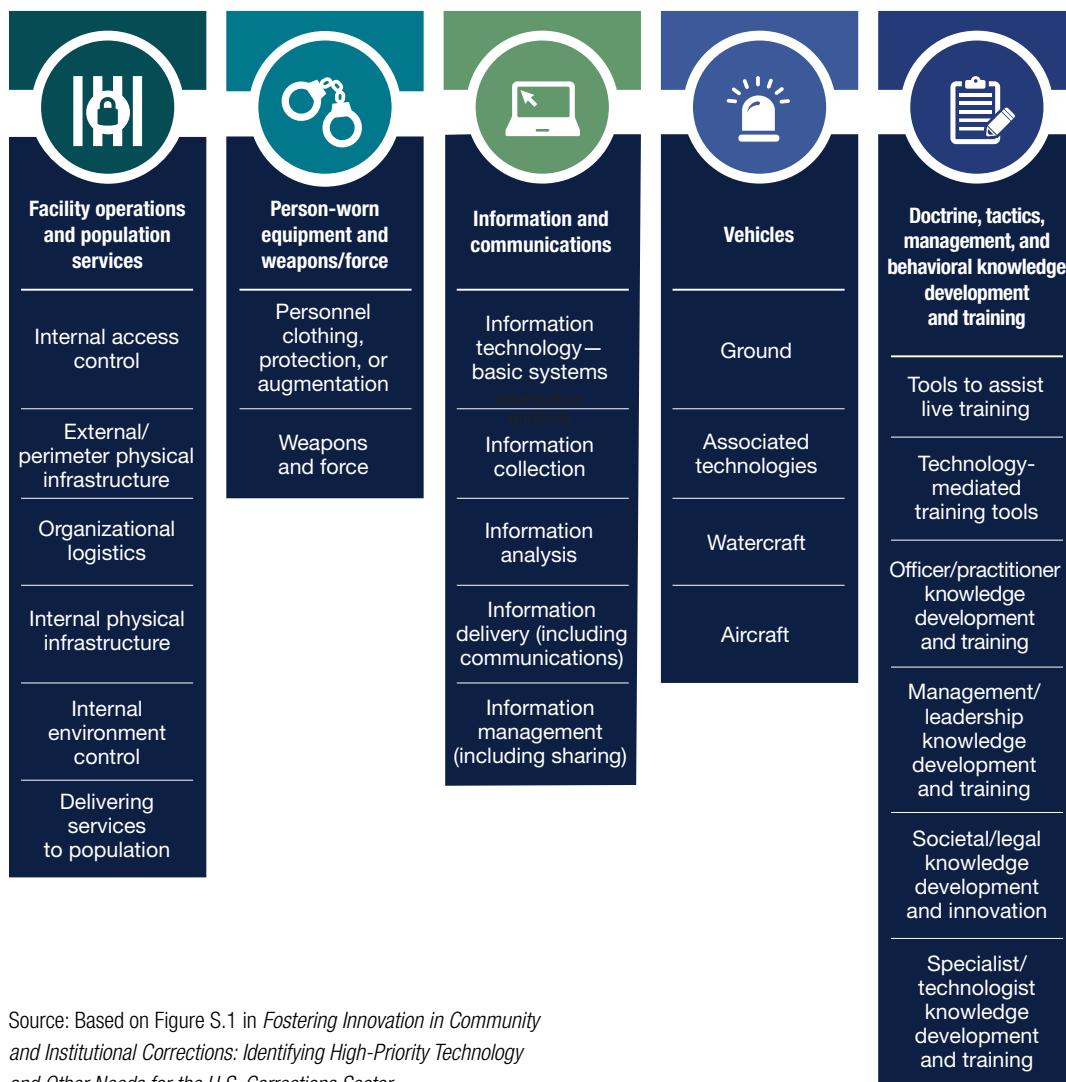
Researchers, advocacy organizations, manufacturers, and other stakeholders participate in the discussions. But the practitioner is the foundation. Practitioners, such as corrections officers, provide unique insights into how technology can address crime and justice challenges, insights developed from years of dealing with those challenges every day. The team is currently

developing a web-based platform that will allow a broader community of practitioners to participate in identifying and prioritizing solutions.

Identifying Corrections Technology Needs

In 2015, RAND published *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector*. This report presents findings and recommendations from the team's initial literature review of challenges and opportunities in

Figure 1. Main Categories and Subcategories of the Criminal Justice Technology Taxonomy



Source: Based on Figure S.1 in *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector*.

Expediting Pretrial Release Hearings

NIJ is exploring the use of video technology in pretrial release hearings. The purpose is to identify protocols that improve practices and maximize return on investment, using videoconferencing to expedite pretrial release hearings for defendants who are being held in jail awaiting trial.

Key considerations include:

- Conducting videoconferences between courtrooms and jails.
- Meeting the needs of defendants, victims, witnesses, jails, and courts.
- Supporting court processes in jail settings, including access to counsel and court interpreters.
- Promoting cost-efficient outcomes, including transportation, prisoner security, and pretrial release.

For more information, including a Phase 1 report, visit NIJ.gov, keyword: videoconferencing.

the corrections sector. The report also details how a 25-member expert panel prioritized the needs and potential opportunities.⁴

Panel members were divided into two working groups: one for community corrections and one for institutional corrections. Each group worked through a structured needs-generation process that included two sets of facilitated discussions. The first set identified problems and opportunities for corrections, and the second framed the needs that would contribute to addressing each problem.

The panel identified more than 200 needs, then systematically ranked and prioritized them based on each member's assessment of whether the need contributed to accomplishing eight policy goals:

- Facilitating positive behavioral change.
- Protecting the rights of victims/restitution.
- Holding offenders accountable.
- Protecting the public.
- Saving money or time.
- Improving correctional competencies.
- Improving officer and detainee health.
- Reducing officer and detainee injuries.

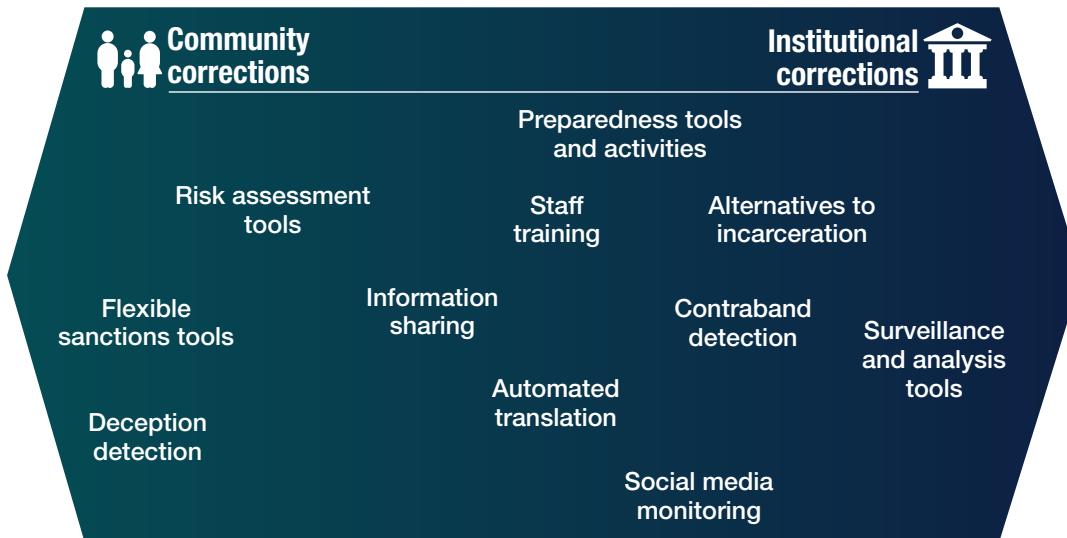
The resulting set of needs provides a menu of innovative options for addressing key problems or capitalizing on emerging opportunities in corrections.

High-Priority Needs

To help frame the discussion, RAND divided corrections technology and practices into five main categories and multiple subcategories (see Figure 1 on page 45).

The panel identified 19 high-priority needs for community corrections and 29 for institutional corrections. All of the community corrections needs fall within two categories:

- *Information and Communications:* These include risk assessment and data collection tools (e.g., tools to effectively detect deception) for both criminal justice-involved individuals and staff. They also include information sharing and data-systems interoperability, informed in part by the need for practitioners and treatment providers to be able to access records for supervision and service delivery.
- *Doctrine, Tactics, Management, and Behavioral Knowledge Development and Training:* These are related to preparing for natural disasters, guiding the application of risk assessment tools,

Figure 2. Priorities for Innovation for Corrections

Source: Based on Figure S.2 in *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector*.

and developing resources to help officers deal with higher-risk individuals under community supervision. They also include training and resources to help officers better deal with individuals under supervision who have mental health conditions and for selecting and calibrating sanctions for individuals who violate the terms of their sentences.

The 29 institutional corrections needs fall into three categories:

- *Facility Operations and Population Services:* This includes the use of telepresence technologies for both visitation, to reduce the introduction of contraband into a facility, and medical treatment, to reduce the need to transport inmates out of secure facilities.
- *Information and Communications:* These include tracking contacts between detainees and employees and improving surveillance systems to help address contraband.
- *Doctrine, Tactics, Management, and Behavioral Knowledge Development and Training:* These are related to contraband brought into facilities by staff, staff training on how to address mental health issues of justice-involved individuals, and the jail

space management issues resulting from justice reinvestment. (See sidebar, “How NIJ Is Advancing Technology in Corrections,” on page 44).

Common Needs

The report’s authors examined common needs across institutional and community corrections and found that the top-tier needs identified by both working groups included improved risk assessment, emergency preparedness, and training to help staff better manage individuals with mental health issues. (See sidebar, “Corrections Innovations Needs Tool,” on page 49.)

The authors also listed the lower-tier needs from one working group that were described as top-tier needs by the other group:

- Alternative ways to deliver training (virtually or by video, without practitioners having to leave their day-to-day roles).
- Speech-to-speech and text-to-speech translation tools.
- Social media monitoring.
- Alternatives to incarceration, including managing certain inmate groups (e.g., the elderly) in nonsecure settings.

Reducing Mortality in Correctional Facilities

According to the Bureau of Justice Statistics, mortality rates in local jails and state prisons have been rising. In 2013, there were 3,479 deaths (including suicides) in prisons — the highest number since data collection began in 2001.¹

As part of its ongoing corrections work under the Priority Criminal Justice Needs Initiative, the RAND Corporation convened a panel of 16 corrections officials, researchers, and federal partners at its Washington, D.C., office on May 16-17, 2016. The group discussed the challenge of reducing fatalities among staff and detainees from a variety of causes, including homicide, suicide, and death from alcohol or drugs.

Former NIJ Director Nancy Rodriguez attended the first day of the workshop and spoke with the group about the importance of the Priority Criminal Justice Needs Initiative. She stressed NIJ's commitment to corrections in the Institute's ongoing evaluation of its strategic plan.

RAND expects to release its report from the workshop in 2017.

Note

1. Margaret E. Noonan, Harley Rohloff, and Scott Ginder, *Mortality in Local Jails and State Prisons, 2000–2013 — Statistical Tables*, Washington, D.C.: U.S. Department of Justice, Bureau of Justice Statistics, August 4, 2015, NCJ 248756, <http://www.bjs.gov/index.cfm?ty=pb&detail&id=5341>.

- Handheld technologies to detect electronic devices and weapons at a distance.
- Information-sharing technologies.

After examining the common needs across institutional and community corrections, the report's authors proposed several priorities for innovation in corrections (see Figure 2 on page 47). They also proposed the following five-step agenda for corrections in the United States:

- Develop and improve technology. Corrections needs new technology to meet its specialized needs.
- Adapt technology to corrections. Although some existing technologies can meet corrections needs, tools must address the complexities, sensitivities, and legal concerns of community and institutional settings.
- Perform research and analysis. Some needs identified by both working groups require new knowledge to guide practice.

- Validate tools. There is a clear call to demonstrate that existing tools actually do what they say they do.
- Change organizations' policies and practices. Policymakers and decision-makers can build incentives into grants and other mechanisms to shape behavior, but outside forces can only facilitate — not execute — new innovations.

Technology innovation is not always about the development of new technology. It can also involve improving existing technology, adapting technology from other sectors, or even simply adopting existing technology more broadly or using it more effectively. This innovation agenda represents a starting point for developing a research agenda to transform corrections. Rooted in present problems and current opportunities, the agenda represents a snapshot in time, one that should be revisited both as technology and society change and as it becomes possible to elaborate on and expand the agenda.

Corrections Innovations Needs Tool

To give readers interactive access to the data behind the panel's prioritization, RAND launched the corrections innovations needs tool online. The tool presents the needs identified in the report and allows users to reprioritize them based on their own experiences and assessment of a need's contribution to accomplishing the eight policy goals. The tool also allows users to:

- View the relationship among and the priority of specific problems, issues, or technology areas.
- Generate data that can identify which of the innovation options are most valuable to them, based on their policy preferences.
- Get information that can be a launch point to investigate new tools, practices, and technologies.

Access the tool at <http://www.rand.org/jie/justice-policy/projects/priority-criminal-justice-needs-needs-tool.html>.

About the Author

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For More Information

Learn more about the Priority Criminal Justice Needs Initiative at <http://www.rand.org/jie/justice-policy/projects/priority-criminal-justice-needs.html>.

Read the full report, *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector*, at NIJ.gov, keyword: 248580.

This article discusses the following grant:

- "Identifying the Highest Priority Criminal Justice Technology Needs," grant number 2013-MU-CX-K003.

Notes

1. Brian A. Jackson et al., *Fostering Innovation in Community and Institutional Corrections: Identifying High-Priority Technology and Other Needs for the U.S. Corrections Sector* (Santa Monica, CA: RAND Corporation, 2005), xi, <https://www.ncjrs.gov/pdffiles1/nij/grants/248580.pdf>.
2. Ibid., 9-12.
3. RAND developed the Delphi method in the 1950s in support of its work for the military, forecasting the impact of technology change on warfare in terms of challenges and opportunities. The Delphi method is a structured approach to elicit consensus from a small group of experts on a given subject. As applied in the Priority Criminal Justice Needs Initiative, the method involves a series of facilitated discussions among the experts based on the findings of the literature review. Data on individual participants' views, rather than group consensus, are captured. Statistical techniques are used to characterize the distribution of views, cluster different subsets of views, and assess uncertainty. At the end of a discussion, the individuals in the group independently and anonymously rank challenges and solutions; they are then given the group consensus for discussion and invited to revise their initial rankings.
4. When identifying and selecting the members of the panel, RAND sought to build a panel with representation from various geographic locations, agency sizes, and levels of technical expertise to provide a deep and broad knowledge base.

NCJ 250347



RFID



HARNESSING THE POWER OF TECHNOLOGY IN INSTITUTIONAL CORRECTIONS

BY NANCY LA VIGNE

One researcher reflects on the challenges and opportunities associated with implementing and evaluating criminal justice technologies.

As criminologists, we are typically well trained in evaluation methodology but less so in the issues and nuances associated with technology deployment. When we evaluate criminal justice technology, we must understand both the capacity of the technology and how people use it. Focusing on one at the expense of the other can render the entire evaluation effort futile.

We learned that lesson the hard way during an NIJ-funded evaluation of the use of radio frequency identification device (RFID) technology to reduce sexual assaults and inmate infractions in a women's prison.¹ Although our evaluation revealed much about the promise of RFID technology for monitoring, tracking, and investigating inmates, it was seen largely as a failure, because the implementation of the technology was fraught with problems. (Read more about the evaluation at NIJ.gov, keyword: 229196.)

Social science publications often favor studies that yield statistically significant findings in the expected direction. But we can arguably learn much more from failure than from success, and these lessons can help improve both technology deployment and evaluation methodologies.

This article offers some lessons learned from our evaluation about the challenges and opportunities associated with deploying criminal justice

technologies in the manner most likely to yield their intended impact. Doing so requires:

- Developing a clear understanding of how you envision that the technology will work — the *logic* behind its implementation and use.
- Educating users about implementation and training requirements to ensure cultural buy-in and full deployment — the *fidelity* piece.
- Engaging in early and ongoing assessment to identify and correct implementation problems and challenges and learn how they relate to intended impact — the *feedback loop*.

Although the contextual example for this article is implementing RFID technology in a women's prison, the implications for policy, practice, and evaluation can apply to a wide array of criminal justice technologies in a variety of field settings.

RFID in Correctional Settings

RFIDs have a tag or "chip" that uses wireless data communication to transmit information to electronic sensors, allowing users to locate and track tagged objects with a unique identifier.²

RFID technology was first used during World War II to identify whether approaching planes were friend or foe. Today, commercial groups commonly use it

When we evaluate criminal justice technology, we must understand both the capacity of the technology and how people use it. Focusing on one at the expense of the other can render the entire evaluation effort futile.

to track merchandise from warehouse to distribution to point of sale.³ RFID technology is also found in access control and payment systems, such as building access keycards, transit payment cards, and highway electronic toll collection systems.

Most RFIDs are “passive,” meaning that the chips can be read only when in close proximity to a sensor. For example, community corrections agencies use passive RFIDs to electronically monitor those on home detention.

“Active” RFIDs have a battery-operated device integrated with the chip, enabling the tagged item to both receive signals and transmit data back to the sensor in near real time. Active RFIDs have three components:

- A chip embedded in a bracelet, which is often worn on the ankle.
- A series of data extension units, which read and transmit data from the chips.
- Computer software that can document the location and identity of those wearing the bracelets.⁴

Institutional correctional settings have been using active RFIDs for at least a decade⁵ for things as basic as perimeter control, as well as more sophisticated applications, such as issuing alerts when two rival gang members are in close proximity. RFIDs can aid housing unit “counts,” identify whether inmates are in the proper

locations (e.g., classroom, yard, housing unit) according to their schedules, and even monitor inmates’ eating habits.⁶ The technology can also serve as a valuable investigative tool, generating historical data on an inmate’s location and the time of his or her movements.

The Northeast Pre-Release Center (NEPRC), a women’s prison in Cleveland, Ohio, that was the setting of our NIJ-funded evaluation from 2005 through 2007, intended to use RFIDs in all of these ways. Unfortunately, the implementation of the technology was filled with problems. Service was interrupted for several months, staff received minimal training, bracelets were used inconsistently (at one point, 25 percent of inmates did not have bracelets), and NEPRC restricted software use to perimeter control. The prison never employed the technology’s most powerful feature: tailored, inmate-specific exclusionary zones.⁷

Understanding the Logic

One early flaw in NEPRC’s deployment of RFID technology was the absence of a well-articulated logic model. Quite simply, a logic model asks the question, “How is the technology supposed to work?” Answering that question thoroughly will increase the odds that users deploy the technology as intended. In the case of NEPRC, this would have entailed conversations with all staff members about the nature, frequency, and context of their most challenging threats to safety and security. These conversations should have taken place well before NEPRC deployed the RFIDs and should have included detailed discussions of the technology’s capabilities and training and operational requirements.

Table 1 presents one example of a simplistic RFID logic model, which can help identify the main uses of the RFIDs. It also helps underscore the critical role of human interaction with the technology. For example, even if a prison sets appropriate exclusionary zones and equips 100 percent of its inmates with RFID bracelets, the technology is unlikely to have an impact if officers do not respond to system alerts that are generated when inmates are out of place or in close proximity to prohibited people.

Monitoring Fidelity

Engaging users in this thinking early on not only engenders buy-in but also helps guide the development of performance measures. Performance measures can help document whether the technology was implemented as intended. Indeed, implementation fidelity is the cornerstone of effective technology deployment. Institutions must train their officers on how to properly use the technology and must routinely monitor and hold them accountable.

From a researcher's perspective, accurate documentation of the technology's use is a necessity. In the case of the NEPRC RFID evaluation, the prison — unbeknownst to us, the researchers — had never fully implemented the technology's exclusionary zone features, which, theoretically, would yield the greatest deterrent effect. Moreover, halfway into the deployment period, we learned that the system was inoperable and that, as a result, officers had stopped equipping new inmates with bracelets.

That these incidents occurred and took several months for us to discover represents a failure on the part of all involved parties. The prison should have been monitoring and documenting the technology's

usage weekly, if not daily. And we should have requested that documentation throughout the course of our evaluation.

Ongoing Assessment

Ongoing assessment and impact evaluation are also critical. The former allows for midcourse corrections and relies on the types of fidelity metrics described above. The latter can help guide decisions about continued financial investment in the technology and possible expansion to other facilities.

We have established the value of partnering with a local researcher prior to deploying the technology. When doing so, corrections administrators would benefit from securing an agreement that the researcher is willing to embrace an "action research" approach rather than the more traditional evaluation methodology. Traditionally, researchers erect a firm firewall and do not report back implementation or impact findings until they have concluded their evaluation. Action research, by contrast, involves ongoing analytic support and engagement.

Some purists frown upon action research, saying the approach creates a Hawthorne effect of sorts, whereby the researcher's activities affect the nature of the

Table 1. RFID Logic Model

Inputs	Outputs	Outcomes	Impacts
Software: Program perimeter areas and exclusionary zones	Alerts issued when inmates are out of place	Greater inmate compliance with rules	Reduced escapes, enhanced safety
Hardware: Sensor installment and ankle bracelets	Ankle bracelets on inmates	Increased perception that infractions and violations of facility policy will be detected	Reduced misconduct
Training: Staff responses to alerts	Swift response to alerts	Increased identification of misconduct	Reduced misconduct
Training: Use of RFID data for investigations	New source of evidence to investigate infractions and misconduct	Increased apprehension of inmates, faster case resolution	Reduced misconduct, reduced incidence of false allegations

intervention. However, researchers with a practical bent are increasingly embracing action research. Corrections leaders should demand this time-honored approach when deciding to team with evaluation partners.

Corrections officials would also benefit from including a cost-benefit component in their evaluation partnerships. This component can provide crucial data to help inform decisions about ongoing investment, expansion, and sustainability.

Summing It Up

Shortly after the release of our final RFID evaluation report, I found myself in the conference room of a corrections agency in a nearby jurisdiction. The director objected to our finding that the technology had no impact when implemented at its most basic capacity, as was the case at NEPRC, and he launched into a tirade about our so-called “substandard” evaluation. I learned later that his agency had just committed considerable resources to implementing its own RFID system, and he felt that our evaluation threatened the wisdom of that investment.

He is not alone. Far too often, we draw erroneous conclusions about the effectiveness of criminal justice technologies based on evaluations that yield no impact. But in this case — and arguably in many like it — the failure is not in the technology itself but in the deployment. As Thomas Edison once famously observed, “Just because something doesn’t do what you planned it to do doesn’t mean it’s useless.”

When deploying technology, corrections agencies should gather staff input, train and engage all users, and routinely monitor and document usage. Evaluation partners can help collect data and provide that all-important feedback loop, which can lead to midcourse corrections aimed at enhancing implementation fidelity. Following this approach will prevent false assumptions and increase the odds that the technology will yield its intended impact.

About the Author

Nancy La Vigne is the director of the Justice Policy Center at the Urban Institute.

For More Information

Read the final RFID evaluation report, *Evaluating the Use of Radio Frequency Identification Device (RFID) Technology to Prevent and Investigate Sexual Assaults in a Correctional Setting*, at NIJ.gov, keyword: 229196.

This article discusses the following grant:

- “Evaluating the Use of Radio Frequency Identification Devices to Prevent and Investigate Sexual Assaults in Correctional Settings,” grant number 2007-RP-BX-0001.
-

Notes

1. Nancy G. La Vigne, Robin Halberstadt, and Barbara Parthasarathy, “Evaluating the Use of Radio Frequency Identification Device (RFID) Technology to Prevent and Investigate Sexual Assaults in a Correctional Setting,” Final report to the National Institute of Justice, grant number 2007-RP-BX-0001, December 2009, NCJ 229196, <https://www.ncjrs.gov/pdffiles1/nij/grants/229196.pdf>.
2. National Law Enforcement and Corrections Technology Center, *Technology Primer: Radio Frequency Identification* (Washington, DC: U.S. Department of Justice, National Institute of Justice, 2005).
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4. Nancy G. La Vigne, “Evaluability Assessment of Radio Frequency Identification Device (RFID) Use in Correctional Settings,” Final report to the National Institute of Justice, 2006, <https://www.ncjrs.gov/pdffiles1/nij/radio-frequency-identification.pdf>.

5. Ibid.; Laura J. Hickman, Lois M. Davis, Edward Wells, and Mel Eisman, "Tracking Inmates and Locating Staff with Active Radio-Frequency Identification (RFID): Early Lessons Learned in One U.S. Correctional Facility," Final report to the National Institute of Justice, grant number 2005-IJ-CX-K062, June 2010, NCJ 230781, <https://www.ncjrs.gov/pdffiles1/nij/grants/230781.pdf>.
6. La Vigne, "Evaluability Assessment of Radio Frequency Identification Device (RFID) Use in Correctional Settings."
7. Robin L. Halberstadt and Nancy G. La Vigne, "Evaluating the Use of Radio Frequency Identification Device (RFID) Technology to Prevent and Investigate Sexual Assaults in a Correctional Setting," *The Prison Journal* 91 (2011): 227-249.

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