Introduction

A recent report issued by the Vera Institute of Justice paints a mixed picture regarding the state of American correctional institutions (Gibbons and Katzenbach 2006). On the one hand, rates of homicides and suicides in correctional facilities have experienced dramatic and sustained declines over the past two decades. Indeed, as Mumola (2005: 2) argues, since 1980 “inmate mortality rates have displayed dynamic changes.” For example, homicide rates in state prisons fell from 54 to 4 per 100,000 inmates between 1980 and 2002. During this same period, suicide rates were cut by more than half, falling from 34 to 16 incidents per 100,000 prisoners. The positive news has not come unalloyed, however. By all accounts, state and local correctional facilities tend to be characterized by high levels of interpersonal violence (i.e., gang violence, rape, brutalization of inmates by authorities), which endangers the welfare of both correctional officers and inmates. Additionally, Gibbons and Katzenbach (2006: 6) assert that facilities are often overcrowded and are unable to provide adequate mental health care. Coupled with the fact that the size of the incarcerated population in this country continues
to rise, it is evident that criminal justice systems face new challenges in their efforts to effectively (and humanely) manage inmates (Harrison and Beck 2005).

With increasing frequency, correctional institutions are adopting technologically-based inmate management solutions to address these ongoing problems. Interestingly, as Turner (2001: 154) indicates, many of the technologies employed in correctional settings were “adapted effectively” from other fields. Although the technologies cater to a wide variety of correctional strategies, it is important to recognize that they share a common objective; that is, to maximize the ability of officers to maintain safety and order, while protecting the lives of inmates and corrections officers. An exhaustive review of hard correctional technologies is beyond the scope of this chapter. Rather, it is designed to provide an overview of the various types of technologies currently utilized in correctional settings, and to provide some insight into the specific issues they are designed to address. The primary focus of this chapter will be on the use of technology in three general substantive areas of corrections: 1) Facility Monitoring; 2) Inmate/Officer interaction; and 3) Other hard technology applications.

**Facility Monitoring**

The monitoring of correctional facilities is of central importance in maintaining order in jails and prisons. Through the use of surveillance techniques, it is hoped that corrections officers will be able to identify and respond to inmate transgressions more readily. Traditionally, much of this work has been done by line officers observing inmates directly or remotely through the use of video cameras. While both methods are still commonly used to combat the distribution of weapons and other illicit items among
inmate population, correctional facilities have also introduced additional measures to aid in this task. The following discussion highlights a number of technologies introduced to elevate levels of safety and security in jails and prisons by enhancing the data about the inmate population that is available to officers. In particular, the technologies to be reviewed include systems designed for weapon and contraband detection, the tracking of inmates, the notification of officer duress, and perimeter security.

Weapon and Contraband Detection

Hand-held (HHMD) and Walk-through (WTMD) metal detectors are among the most frequently used Concealed Weapon and Contraband Imaging Detection Systems (CWCIDS). In part this is owing to the fact that these devices tend to be affordable, portable, and relatively easy to use (Paulter 2001). Metal detectors operate by producing a magnetic field that can identify the “presence of any electronically conducive or magnetizable material” (Paulter 2001, p. 36). Both WTMD and HHMD are used as an initial means of screening inmates and visitors to correctional facilities. Because of their portability, another benefit of HHMD is that they can also be used to locate items that have been hidden “in the yard of a correctional facility or in the quarters of an inmate” (Paulter 2001; p. 53).

Metal detectors are classified as detection-only CWCIDS. As the name suggests, metal detectors are only able to identify the presence or absence of a magnetic material. Because they are unable to offer any additional information regarding the size or the shape of the detected item, metal detectors have a higher rate of “false positives” for weapons and/or contraband. Another limitation of WTMD and HHMD is that they are...
only sensitive to the presence of metallic items, and thus cannot be used as a means of locating a wide array of illicit objects. For example, research has shown that non-metallic weapons are often fashioned from items prisoners may find or purchase from a prison store (Lincoln et al. 2006). It is clear that such items would go unnoticed by metal detectors. This is also true for illicit drugs, which according to the National Institute of Justice represent a “big problem” in jails and prisons. The presence of drugs carries with it hazards for inmates and officers, as violence may result from competition for control over drug markets (NLECTC 2002). Despite these limitations, metal detectors remain one of the most commonly used weapon and contraband detection devices in correctional facilities.

An approach to detecting drugs that research has shown to be effective is a process known as Ion Mobility Spectrometer (IMS) scanning (Wright and Butler 2001). What makes the IMS systems unique is that they are able to detect drugs, even when only traces of the substances are present. Indeed, IMS systems are primarily employed in mailrooms, as this is the manner by which many illicit drugs enter jails and prisons. Empirical findings demonstrate that IMS devices had a high success rate for detecting cocaine (90%), and a somewhat lower rate for marijuana detection (24%) (Butler 2002). Further, IMS systems outperformed other techniques of drug-detection, such as x-raying or spraying mail with chemicals that change color in the presence of drugs. Beyond their use in mailrooms, the possibility also exits that IMS technology, and particularly hand-held IMS systems, could be used by officers to locate drugs that have found their way into correctional facilities. Similar to HHMD, hand-held IMS devices may also be a valuable resource in finding illicit substances hidden by inmates in their cells or other
locations to which they have access. These strengths, coupled with its moderate pricing, have contributed to IMS becoming “one of the most widely used techniques for the trace detection of illicit drugs and other contraband materials” in jails and prisons (Parmeter et al. 2000).

The backscatter x-ray is another contraband detection technique that is being utilized in the field of corrections. Similar to conventional x-ray machines, the use of the backscatter methods require inmates to be scanned and the resulting images to be reviewed by officers. The advantage of the backscatter x-rays is that they are able to detect contraband that is either metallic or non-metallic in nature. That is, unlike the detection systems described above, backscatter x-rays are able to detect a wider range of unauthorized material that is hidden on individual inmates. While it has been argued that the versatility of the backscatter x-ray systems have made them the “cornerstone” of contraband detection in jails and prisons, they have also been sharply criticized by those concerned with inmate rights (Cothran 2001). Specifically, Paulter et al. (2001, p. 43-44) acknowledge that because the x-ray images contain detailed anatomical information, many assert that they violate the inmate’s right to privacy, even if the data are never displayed. Moreover, the process of x-ray scanning exposes inmates to radiation, which many believe may have a detrimental impact on the health of inmates. At the time of this writing, neither of these issues has been resolved in the legal system, but they are discussed here because they may have implications for the future use of backscatter x-ray detection systems in correctional institutions.
Remote Monitoring of Inmates

Monitoring the whereabouts of prisoners as they move throughout a jail or prison presents a nearly constant challenge for corrections officers. As Miles and Cohn (2006) assert, many correctional institutions continue to use rudimentary tools to track the movement of prisoners, and thus, are generally unable to obtain precise locational information about inmates. The authors more clearly discuss how inmates are typically monitored as well as a number of potential consequences associated with these techniques in the following passage:

Monitoring [the movement of prisoners] requires corrections officers to accurately identify individual prisoners by sight as they pass through security posts. It also requires frequent telephone and radio communications between officers at two or more security posts, paper passes authorizing inmates’ movements, and dry-erase or clip boards with handwritten records to note when prisoners left one area and entered another. Despite the best precautions and well-thought-out practices, mistakes can be made, officers’ attention can be diverted, and late-arriving inmates not noticed or searched for promptly. Late-arriving, out-of-place prisoners can cause problems in correctional settings…[they] may be engaging in illegal activities. Assaults and even murders have been committed by inmates as they moved from one part of a prison or jail to another (Miles and Cohn 2006).

Recognizing the liabilities associated with conventional systems of inmate tracking, correctional facilities have begun adopting more technologically advanced monitoring programs.

One such technique is the tracking of inmates using Radio Frequency Identification (RFID) devices. As of 2005, RFID systems were already being implemented in a number of states with large inmate populations (California, Illinois, Michigan, and Ohio) (NLECTC 2005). RFID systems are wireless, and inmates wear small transmitters (typically bracelets) which communicate “real time” data regarding prisoner location to a central information center. In addition the continual counting of all
inmates, which ensures that all persons are accounted for, the RFID system also notifies officers if inmates enter restricted areas of a jail or prison, or if attempts are made to disable or destroy the transmitter. Because the information transmitted via RFID is saved to electronic databases, these data may also be used for administrative purposes to help cut down on institutional costs. For example, rather than having to be compiled manually, it is possible to use RFID databases to gather information about inmates’ “medicine and meal distribution [and] adherence to time schedules” (NLECTC 2005, p. 2).

A number of more elaborate monitoring procedures exist, although they have yet to be introduced into correctional institutions on a large scale. Biometric and smart card monitoring systems are two such technologies that have characteristics that make them particularly attractive for use in the field of corrections. Biometrics, broadly defined, refers to “the automated recognition of a person based on unique physiological or behavioral characteristics, such as fingerprints, speech, face, retina, iris and hand geometry” (Seymour et al. 2001, p. 75). According to a survey conducted by the National Institute of Justice, hand geometry and fingerprint detections devices are the most frequently used biometric devices in correctional facilities (NLECTC 2000). Because such characteristics are thought to be unique for every individual, biometric identification provides a reliable means of identification. Essentially, the use of biometric devices in correctional institutions is attractive because they closely regulate the movement of inmates throughout facilities.

In jails and prisons with operational biometric systems, not only are inmates prevented from entering unauthorized portions of the institution, but the systems can also
be configured to monitor the movement of inmates. If, for example, a prisoner exceeds the allotted time to travel between points, guards will be notified automatically. Corrections officers will also be alerted to attempts made by inmates to gain access to unauthorized locations or if inmates try to escape by posing as a visitor or staff member (NLECTC 2000). As Seymour et al. (2001: 76) contend, the value of using biometric technology in jails and prisons is that “discrepancies are automated, therefore, unauthorized movements will be far easier to detect and validation of inmate locations will be faster and less staff-intensive.” Because such measures will help to increase efficiency in diagnosing and responding to problems, they will contribute to increased levels of facility safety and security.

A second emerging correctional technology is the use of credit card-sized devices called smart cards. Smart cards are identification cards that contain the inmate’s photograph and that are integrated with a circuit chip that stores pertinent information about each prisoner. Similar to the biometric readers, smart card identification systems can be used for the purposes of controlling inmate access and closely tracking their movements. In addition, the smart cards carried by inmates can be linked to other institutional record systems, which can save institutions both time and money. It is possible that other administrative information can be stored on the smart cards (i.e., personal account balance, phone privileges, medication history), allowing the inmates to use them to fulfill a number of routine tasks (Pilant 1988; Seymour et al. 2001). One advantage that smart cards have over biometric identification techniques is that their use does not require the same extensive computing infrastructure. Specifically, because smart card systems do not require identification readers to be linked to a centralized
database, a “time-consuming search of the entire database” is not necessary each time the system is engaged (Seymour et al. 2001, p. 75). To be sure, smart card systems have their own set of limitations, including how to limit the trading and/or destroying of cards by inmates, but their flexibility suggests that smart card monitoring systems may be more readily incorporated into correctional institutions.

**Notification of Officer Duress**

The threat of attack is one that correctional officers confront on a daily basis. The number of attacks on staff within jails and prisons is high and will continue to climb as the incarcerated population continues to grow. According to Stephan and Karberg (2003: 9), between 1995 and 2000 the annual number of inmate assaults on staff in federal and state institutions rose by approximately 27% (from 14,200 to 18,000). Although the annual rates of inmate assaults on staff members have remained fairly stable, the sheer increase in the number of attacks points out the need for facilities to employ the most effective systems to help ensure the safety of the correctional officers.

Jails and prisons are equipped with alarm systems that can be triggered by officers at times when they are under duress. Such mechanisms, generally known as officer duress notification devices, are classified into one of three broad categories: 1) Panic-button alarms; 2) Identification alarms; and 3) Identification/Location alarms (SPAWAR 2003; Baker et al. 2004). The characteristics of each type of alarm system currently in operation will be discussed below, including some of their limitations. Following this review will be a description of new directions in the development of duress systems with specific attention paid to their incorporation of new technology.
Panic-button alarms are the simplest type of duress notification system. The panic-button alarms are devices carried by officers that, when activated, send a distress signal to a central command center. The panic-button alarm systems are able to provide information about the location of the troubled officer(s); however, they are unable to identify which officer initiated the alarm. The effectiveness of panic-button alarms is also limited by the fact that it is possible for the button to be inaccessible during times of emergency. For example, if a guard is incapacitated by inmates (i.e., taken captive, knocked unconscious), they will be unable to send a call for help. Still, according to an evaluation of duress systems funded by the United States Department of Justice, panic-button alarms “are simple and effective for many types of emergencies” (SPAWAR 2003, p. 4).

Identification alarms are typically small wireless transmitters worn by guards and staff members. As the name implies, identification alarms are able to identify the officer who activates the alarm when they encounter a duress situation. In addition to being able to identify officers in trouble, another advantage of the identification alarms is this technology is scaleable, meaning that correctional facilities do not have to introduce this system to the entire institution as once, but rather they can increase the size of the coverage area as necessary. Identification alarm systems share with panic-button alarms the limitation that in extreme situations, officers may be rendered incapable of registering a call for help. Another shortcoming of identification alarms is that the systems do not have the capacity to locate or track the officer or staff member in trouble. If an officer activates the alarm and then moves to another location (either voluntarily or
involuntarily), finding that officer may be complicated by the fact that those movements will go undetected by identification alarm systems.

The third type of officer duress system combines the strengths of the two aforementioned notification techniques. Specifically, once activated, identification/location alarms are able to identify the officer in need, locate the area from which the call originated, and track any movements of the transmitter. Such elaborate duress notification systems may help to reduce the numbers of deaths and severe injuries sustained by correctional officers because they will allow for officers in close proximity to converge on the problem area more quickly (SPAWAR 2003). As with any technologically sophisticated program, correctional facilities will incur large costs to purchase and to integrate identification/location alarms into existing systems. Despite the clear advantages to comprehensive identification/location systems, it is likely that the cost of acquiring them will be too steep for many facilities.

According to the review conducted by SPAWAR (2003), duress notification systems that will be more widely available in the years to come are likely to capitalize on several emerging technologies. For instance, Global Positioning Systems (GPS), which determine precise geographic location by transmitting information to satellites, may be utilized to locate and track the position of officers under duress. Currently, GPS systems are best-suited for use in outdoor settings, which precludes their use inside prisons and jails. Once this issue is resolved, however, GPS-based duress systems may be a more viable alternative for jails and prisons with smaller operating budgets because they would not require the same heavy acquisition costs.
Notification and tracking systems that transmit radio frequencies may have a more immediate impact on the development of enhanced guard and staff security systems. As described above, due to its versatility and ability to communicate in both indoor and outdoor environments, duress notification systems based on radio frequency identification (RFID) may be forthcoming. Devices that communicate via ultra wideband (UWB) ranges represent another technological advance with the prospect of being adapted for use in duress systems. UWB devices can be used for identification and tracking purposes. Part of what sets UWB technologies apart from other monitoring techniques is that they can be programmed, or “coded,” to operate using very specific frequencies, thus increasing the likelihood that the system will be activated by only legitimate distress calls (SPAWAR 2003).

Perimeter Security

In the strictest sense, perimeter security measures are a means of monitoring prisoners. However, they have a slightly different objective from many of the techniques described above. Specifically, whereas the biometric, RFID, and smart card systems are concerned with inmate access, or keeping inmates from entering particular areas, the primary goal of perimeter security techniques is to keep inmates from leaving facility grounds. Because the risk of escape is low relative to attacks on corrections staff or attempts to smuggle contraband, the technologies used for the purposes of perimeter security are somewhat less sophisticated than many of the devices used for other purposes. Nevertheless, advances in technology have influenced efforts to ensure that detained individuals remain in corrective custody.
One method undertaken by jails and prisons to enhance perimeter security is the installation of additional video cameras accompanied by an increase in the amount of external lighting (Horn 2000). With the cameras and lighting structures mounted in plain view, inmates are aware of the increased surveillance, which may help to thwart escape attempts. The relatively low cost to acquire and maintain video surveillance systems certainly adds to their attractiveness. It is worth mentioning that the increased use of video surveillance, both within correctional facilities and for the purposes of perimeter security, also helps to serve some of the broader objectives of correctional institutions. Namely, the use of video surveillance is cited as an effective way to help reduce levels of violence (perpetrated by inmates and guards) in jails and prisons. As the Commission on Safety and Abuse in America’s Prisons argues, “the ability of a correctional facility to protect prisoners and staff from physical harm is a fundamental measure of the success or failure of that institution—day to day within the walls, and over time as men and women carry their prison experience home to their families and neighborhoods” (Gibbons and Katzenbach 2006, p. 23). Moreover, video surveillance is recognized as a necessary precursor to the realization of this goal.

The creation of sensor fences, the process of adding weight and intrusion detectors to the fences surrounding jails and prisons, is one of the more technologically advanced perimeter security devices. Sensor fences were developed by the Institute of Emerging Defense Technologies (IEDT), an organization that is committed to maximizing the use of technology in correctional settings (Mazzara et al. 2003). This monitoring technique works by essentially “converting the entire fence into a detector, similar to a spider web,” which is linked to a computer that is able to detect when
attempts are made to climb over or cut through the fence (Mazzara et al. 2003, p. 1).
Interestingly, the sensor fences are able to differentiate between actual ingress and/or egress efforts and shifting in the fences caused by naturally occurring phenomena (i.e., wind, rain, wildlife sitting on the fence) with surprising accuracy. Although this technology is under active development, Mazzara et al. (2003: 2) argue that the “low cost, low maintenance, and low false-alarm rate” are likely to lead to the wide-scale adoption of this technology.

Inmate/Officer Interaction

The daily contact between inmates and correctional staff members can range from respectful to contentious, unremarkable to extremely dangerous. Due to the increasing diversity among the inmate population, the job of corrections officers can be complicated by an inability to communicate effectively with prisoners (Harrison and Beck 2006; see also NLECTC 2003). More importantly, the daily experience of guards working inside the walls of a correctional facility is characterized by an element of unpredictability. Although they will be called on to settle any instances of unrest that occur within jails and prisons, corrections officers are generally not kept apprized of when such disturbances will take place. Faced with uncertain and dangerous circumstances, responding with an appropriate use of force is an added challenge. With increasing frequency, correctional institutions have looked to technology to ease some of the difficulties experienced by corrections officers.
Language Translation Devices

To overcome language barriers, a number of new devices are being developed that may allow officers to communicate with inmates in their native languages without the presence of human translators. Currently, the language assistance technologies are more commonly used by police officers, although their adaptation for corrections settings is undergoing. One such device, the Voice Response Translator (VRT), operates by translating key phrases spoken into the machine by an officer into one of 50 different languages (NLECTC 2003). The VRT is not a dynamic language translator, meaning that it cannot be used for the purposes of carrying on a direct conversation with an inmate. Rather, the VRT stores thousands of pre-recorded phrases in the various languages, which can be used to obtain “basic information” during the questioning of non-English-speaking inmates (NLECTC 2003, p. 1).

While the use of VRTs is able to overcome many of the challenges associated with communicating with inmates not proficient in English, they are limited in that their use does not permit in-depth questioning of detainees. However, devices imbedded with language translation software have been created to promote a more fluid exchange between participants. One such product, called CopTrans, is a two-way translation mechanism that allows individuals to speak directly to one another. The development of the software used in CopTrans devices has focused extensively on translating between English and Spanish. Recognizing the need for more versatile translators, the creators of the software are in the process of designing programs that are capable of communicating in several additional languages (NLECTC 2003).
There is also the need for corrections staff to be able to review material written by and to inmates to ensure the content is consistent with institution mandates. Similarly, any documents that need to be read and signed by prisoners will also have to be made available to them in their native languages. One software product that has been designed for just such tasks is called SYSTRAN (NLECTC 2003). A strength of SYSTRAN is that its conversion algorithm takes into consideration the grammatical structure of the target language, providing a more authentic translation. Further, SYSTRAN may be a particularly attractive tool for use in diverse correctional settings, as it is able to translate content into 36 different languages. A limitation of SYSTRAN is that it is only able to work with electronic files. In other words, SYSTRAN can only translate documents saved in a digitally editable format (i.e., webpage, text file, etc.). Despite these positive attributes, it is clear that developers will need to devise a systematic method of converting paper copies into digital documents before such software can be used to review the large amount of non-digital communication (i.e., mail) processed by correctional facilities. More generally, while the technological advances in language translation will not replace the need for human interpreters, they do provide valuable tools for corrections officers.

Less-Than Lethal Force

Over a decade ago, the National Institute of Justice convened a conference to discuss the role that technology would play in all aspects of criminal justice in the 21st century (Travis 1995). At that conference, which brought together leading academics and practitioners in the field, calls were made for the increased use of weapons that promote
“the compliance of an offender or control an incident without the substantial risk of permanent injury or death to the subject(s)” (Travis 1995, p. 7). Departments of corrections around the country responded to this suggestion, and over the past decade, have adopted a variety of less-than lethal (LTL) weapon technologies. Three LTL mechanisms commonly used in jails and prisons will be discussed in more detail below; namely, oleoresin capsicum (pepper spray), diversionary (flash-bang) devices, and impact munitions.

Oleoresin capsicum (OC), or pepper spray, is designed to help subdue unruly inmates by temporarily incapacitating them. In fact, Chan et al. (2001) contend that while pepper spray has been used in by law enforcement in the United States for thirty years, the caustic effects of exposure to pepper extract have been used for centuries in other cultures. Pepper spray operates by irritating “the skin, eyes, and mucous membranes of the upper respiratory tract,” rendering the individual on which it is used incapable of physically resisting officers (Chan et al. 2001, p. 1). Further, research has shown that the use of pepper spray to be linked to reductions in assaults on law enforcement personnel (NIJ 2003).

Yet, there is concern that pepper spray may have negative health consequences for inmates, or may even be fatal. Although there have been a number of instances where individuals died after being exposed to pepper spray, medical examiners have been unable to find conclusive evidence that OC was the cause of death (Chan et al. 2001; NIJ 2003). Indeed, in all but a two of the deaths reviewed, preconditions such as drug use and/or diseases were cited as the causes of death. In the two cases where pepper spray was found to be a contributing factor, both of the victims suffered from asthma. Despite
these unforeseen complications, research supports the continued use of pepper spray because “solid scientific evidence” confirms its value as a safe and effective LTL method of restraint (Chan et al. 2001, p. 7).

The National Institute of Justice has also provided partial funding for the development of a LTL weapon referred to as the flash-bang round. The flash-bang round is a device that when detonated, produces an extremely loud burst and overwhelmingly bright explosion. The combination of effects, designed to disorient and terrify the target, carry with them no long-term negative consequences. In the short-term, however, the experience is likely to cause the unruly or combative inmate(s) to become “less aggressive, or retreat in full flight” (Lewis 2003, p. 1). Similar to pepper spray, flash-bang rounds can be deployed at close range to gain control over an individual who fails to yield to officer instructions. It is also possible to detonate these rounds from a distance, which is particularly useful when corrections officers need to disperse groups of inmates. This long-range capability also benefits staff members by allowing them to restore order in the facility while maintaining a safe distance from potentially dangerous situations. That is, the flash-bang rounds represent an effective means of reducing unnecessary fatalities, while making the job of the officers easier and safer (Lewis 2003, p. 2).

Impact munitions are an array of LTL projectiles that are also used in jail and prison settings to minimize the number of inmate deaths. Many of these munitions are fired from guns (i.e, bean bags, plastic or rubber bullets), but they dispense a blunt-trauma that is certainly painful, but far less injurious than conventional ammunition. Because impact munitions are designed for use with conventional firearms, they are particularly useful for the purposes of crowd control. However, unlike the other methods
of LTL force, such as those described previously, the use of impact munitions carries a higher likelihood of serious injury or death. In their study of the impacts of LTL munitions, Hubbs and Klinger (2004) reveal the conditions under which fatalities resulted from the use of impact munitions. More specifically, the data indicate that when the rounds are fired at close proximity, or when individuals are fired upon multiple times, there is an elevated risk that they will sustain severe internal injuries that may be fatal. The authors recognize the continued need to seek mechanisms that will lower the number of deaths resulting from the use of impact munitions even further. However, because the “likelihood of death from being shot by impact munitions is extremely low,” Hubbs and Klinger (2004: 22) conclude that these devices remain a relatively safe and effective tool for use in all aspects of law enforcement.

Other Hard Technology Applications

Nowhere is the increased reliance on technology in the field of corrections more evident than in the systems designed to control inmates defined as high-risk, or those who require careful management. Although this group of inmates represents a relatively small portion of the total incarcerated population (between 10-15%), they warrant special treatment because they are violent, disruptive, or fail to abide by prison rules (Austin and McGinnis 2004). Moreover, as Austin and McGinnis (2004: 3) suggest, the differential treatment of high-risk inmates has practical implications because “a disproportionate amount of staff and agency resources must be allocated to them to maintain prisoner safety and institutional security.” The current trend in handling this group of high-risk inmates, approximately 20,000 inmates nationally, has been to remove them from the
general prison population and to place them in ultra-secure housing units (Mears 2005). Inmates confined to the super maximum-security, or supermax, settings are very restricted in their contact with others, as they remain isolated in their cells for up to twenty-three hours each day.

Despite the long periods of isolation, the confinement experiences in supermax prisons are uniquely different from traditional methods of segregating inmates (i.e., solitary confinement). As Pettigrew (2002: 194) argues, “advanced technology distinguishes supermax prisons from their conventional counterparts and allows for the isolation of prisoners…[in ways that were] previously impossible.” Namely, a key objective in the design of supermax facilities is to minimize the need for interpersonal contact between inmates and corrections officers. For example, cells are constructed with audio and video monitoring devices, meaning that officers have the ability to observe prisoners and to issue commands remotely. Similarly, because inmates are required to eat in their cells, guards do not escort them to and from the dining facilities. Person-to-person contact is further limited by the fact that meetings between the inmates and persons outside of the institution (i.e., lawyers, family, friends) are conducted via closed-circuit television (Pettigrew 2002).

In principle, the removal of inmates prone to commit acts of violence against corrections staff or fellow inmates is thought to yield positive results for correctional facilities. Based on a survey of state prison wardens, Mears (2005: 47) concludes that supermax prisons “hold considerable promise for improving many dimensions of correctional management, especially in the areas of creating greater order, safety, and control.” Yet in practice, these encouraging findings do not come without cost. Critics of
supermax prisons argue that the extreme social isolation inmates in these units are forced
to endure is inhumane and perhaps unconstitutional (Toch 2005; see also Pettigrew
2002). Toch (2005) argues that the lack of human interaction is likely to damage inmates
psychologically. The words of the inmates themselves may provide some insight into the
levels of despair that accompanies a lack of human contact. In a recent *New York Times*
article, an inmate currently confined in a supermax prison in California underscores his
struggles with isolation by saying that he would “cut off his right arm to be able to hold
his mother” (Liptak 2006). Further, Toch (2005: 383) contends that the depravation
experienced in supermax prisons “impairs the mental health of prisoners…[making]
v Violent men more dangerous.” While the courts will ultimately decide if supermax
prisons represent a cruel and unusual form of punishment, it is interesting to note that
critics of this confinement strategy charge that they perpetuate the very behavior they are
trying to control.

**Issues To Consider**

In the preceding review, the role that technology plays in three key areas of
corrections was discussed in detail. Generally, the extant literature presents the
technologies used in jails and prisons in a positive light and confirms their effectiveness.
In addition, it is evident from this research that the field of corrections relies heavily on
technology and practitioners endorse the continued use of technologically innovative
solutions to help maintain order and safety within correctional institutions. These are
certainly important objectives, and ones that cannot be realized without the aid of
technology. Still, if we turn a more critical eye to these results, they may provide us with
a slightly different impression.
One topic that was discussed only indirectly was the fact that the companies developing many of the devices described above stand to profit from the adoption of their product(s). It stands to reason, then, that these companies have a vested interest in presenting their products in the most favorable light possible. Further, because government agencies often partner with these companies, this may further complicate the ability to objectively evaluate a given technology. For example, each year the Office of Law Enforcement Technology Commercialization (OLETC) and the National Institute of Justice stage a mock prison riot in Moundsville, West Virginia. At this event, newly developed proprietary technologies are showcased and officers are able to use them in “real world” scenarios. Therefore, as a co-sponsor of the mock riot, the NIJ is perhaps indirectly advocating the use of certain items before their effectiveness has been independently validated by an uninterested party.

A more pragmatic concern has to do with the cost associated with the use technology, both in terms of acquisition and staff training. With the size of the incarcerated population increasing and jail and prison budgets shrinking, the ability to effectively manage prisoners has never been more difficult. One challenge that the field of corrections faces is how to strike a balance between the amount of resources dedicated to inmate control (i.e., technological upgrades) compared to that devoted to the treatment (i.e., mental health services, programming) of inmates. Although both are fundamentally important components of the correctional process, unfortunately, these factors are inversely related. In other words, the more resources that are earmarked for the former, the less the latter receives.
Therefore, the issue at hand is not simply whether technology should continue to play an important role in correctional institutions. The weight of the evidence clearly documents that correctional officers and inmates both enjoy the benefits of technological innovations. Rather, the more pressing concern is how much should be invested in technologically-based initiatives. Although the balance of control versus treatment is likely to vary across institutions, everywhere this decision must be made with careful consideration. To be sure, technology will continue to advance at an exponential rate, but it will be critical not to let the desire for technological solutions outpace the need to treat individuals under the care and supervision of America’s correctional systems.
REFERENCES


http://www.ncjrs.gov/pdffiles1/nij/02_04.pdf

http://www.ncjrs.gov/pdffiles1/nij/199048.pdf


http://www.prisoncommission.org/pdfs/Confronting_Confinement.pdf


http://www.ojp.usdoj.gov/bjs/pub/pdf/pjim05.pdf


http://www.ncjrs.gov/pdffiles1/nij/02_03.pdf


http://www.ojp.usdoj.gov/niu/journals/253/tracking.html


http://www.ojp.usdoj.gov/niu/pubs-sum/195739.htm


http://www.justnet.org/techbeat/summer2002/CheckMailSum02.pdf

http://www.nlectc.org/techbeat/fall2003/NothlostFall03.pdf


http://www.ncjrs.gov/pdffiles1/nij/08_01.pdf