USING TECHNOLOGY TO ENHANCE PRETRIAL SERVICES: CURRENT APPLICATIONS AND FUTURE POSSIBILITIES

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INTRODUCTION

The first pretrial services programs came into existence 50 years ago. The technological tools available to pretrial services staff of that period, and for many years thereafter, were a pen or pencil, paper and index cards, a land-line telephone, and a typewriter. With these tools, pretrial services staff performed their tasks of interviewing defendants, verifying information, checking criminal records, preparing reports for the court, supervising conditions of release imposed by the court, and reminding defendants of upcoming court dates.

Today, the pace of technological change is transforming the way pretrial services work is done. And that pace is accelerating at an exponential rate. Computing power has been doubling every 18 months, telecommunications capacity every 34 months, and electronic information storage capacity every 40 months.[1] One author has calculated that, when measured against the 20th Century's rate of progress, we will experience an astonishing 20,000 years of progress in technological growth in the 21st Century.[2]

To what extent are pretrial services programs making use of current technologies? How might the avalanche of technological developments projected to come our way in the next couple of decades aid the work of these programs? This document seeks to explore those questions. It begins with a review of technology to manage information and track program performance. The second section addresses each of the functions of pretrial services programs (e.g., interviewing defendants, verification, and record checks) and describes how technologies can be used to help programs in performing these functions. The third section explores factors that affect the implementation of new technologies, including the maturity of the technology at the time of implementation, the level of staff training required to use the technology, any philosophical issues that should be addressed prior to implementation, and costs. The fourth section discusses how technology affects the diffusion of knowledge about effective pretrial practices.

The focus of this document is not on specific products that are on the market currently. Such products change so quickly that doing so would quickly render the information presented here obsolete. Rather, the focus is on current and potential capabilities of the technologies. For those who are looking for information on current products, a list of some current vendors is provided in the Appendix.

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1 Martin Hilbert and Priscila Lopez, "The World's Capacity to Store, Communicate and Compute Information," *Science, 322 (2011)*.

2 Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology (New York, N.Y., Penguin Books, 2005)*.

INFORMATION MANAGEMENT TECHNOLOGY

It is often said that we are living in an "Information Age," where we now have instant access to knowledge that had long eluded us and "an ever-increasing capability of answering any question about our physical and social environment."[3]

So what are the questions about the pretrial environment that technology may help to answer? A National Institute of Corrections publication—*Measuring What Matters: Outcome and Performance Measures for the Pretrial Field*—is a good starting point for assembling those questions. The publication was developed by the Pretrial Executives Network, which comprises about a dozen directors of established pretrial services programs. It provides a list of outcome and performance measure data, along with several "mission-critical" data elements that pretrial services programs should be collecting and reporting.[4]

The outcome measure data include:

- The percentage of supervised defendants who make all court appearances.

- The percentage of supervised defendants who are not charged with a new offense while on pretrial release

- The ratio of defendants whose supervision level or detention status corresponds with their assessed risks of pretrial misconduct

- The success rate of defendants, defined as those who are not revoked for technical violations, make all their court appearances, and have no new charges while their cases are pending

- The average length of stay in jail for pretrial detainees who are eligible by statute for pretrial release.

The performance measure data include:

- The percentage of defendants eligible for release by statute or local court rule that the program assesses for release eligibility

- The percentage of time that the program follows its risk assessment criteria when recommending release or detention

- The frequency of policy-approved responses to compliance and non-compliance with court-ordered conditions

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3 Ronald G. Havelock, *Acceleration: The Forces Driving Human Progress (New York, N.Y., Prometheus Books, 2011).*

4 National Institute of Corrections, *Measuring What Matters: Outcome and Performance Measures for the Pretrial Field (Washington, D.C., U.S. Department of Justice, 2011).*

- The program's effectiveness at resolving outstanding bench warrants, arrest warrants, and capiases.

The mission-critical data include:

- The number of defendants released, by release type and condition

- The number of supervised defendants divided by the number of case managers

- The time from the non-financial release order to the start of pretrial supervision

- The length of time of pretrial supervision

- The proportion of pretrial defendants who are detained throughout the pretrial period.

There are indications that many pretrial services programs either do not currently have the information technology capability to track and report these data or have the capability but are unable to use it. For example, in a 2009 national survey of pretrial services programs:

- 60 percent were unable to report how many defendants had been excluded from consideration for pretrial release by the program the previous year

- 70 percent were unable to report how many defendants the program had recommended for non-financial conditions the previous year

- 43 percent were unable to report how many defendants they supervised the previous year

- 67 percent were unable to report on the average time a defendant was under supervision the previous year

- 62 percent were unable to report the court appearance rate

- 79 percent were unable to report the rate of defendants who were not rearrested for new charges while on pretrial release.[5]

Beyond these fundamental data elements, data are also needed to perform research to validate program practices, such as risk assessment and various supervision techniques, to identify what supervision works best for what population of defendants.

Several pretrial services programs that have recently validated their risk assessment instruments have had to manually collect the data required to conduct those studies—a labor-intensive and costly task. Other programs, even when offered data analysis and validated instrument design at no cost to them or their jurisdictions, were unable to do so because of the challenges involved in collecting the data.[6]

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5 Extrapolated from the database of the 2009 national survey of pretrial services programs. *2009 Survey of Pretrial Services Programs (Washington, D.C., Pretrial Justice Institute, 2009)*.

6 These opportunities were provided by the Pretrial Justice Institute, through grants from the Bureau of Justice Assistance.

Regarding supervision research, one report noted, "little is known about the supervision practices that are most effective for pretrial defendants in assuring court appearance and community safety pending trial. There is a dearth of research and evaluation related to effective supervision strategies and differential pretrial supervision when considering the current charge, risk of flight, and danger to the community."[7] However, learning more about what works best in supervision would require that pretrial services programs be able to provide researchers with complete and accurate databases on those individuals under supervision, which most pretrial services programs are currently unable to do.

This document takes the position that the highest technological priority for pretrial services programs should be to develop information processing capabilities that enable the tracking of outcome and performance measures and the validation of program practices. Unfortunately, several of the electronic supervision devices currently being used on populations (e.g., those described in the next section) are based on intuition, not on evidence. And applying these technologies on poorly suited populations only leads to poor outcomes and wasted resources.

Also, lacking sufficient data processing capability to put program successes and failures in perspective can expose pretrial services programs to criticism and even a limitation or removal of responsibilities when a case does go bad. This possibility may increase as programs rely on technologies in greater frequency to supervise defendants on pretrial release. As author Ronald Havelock noted in discussing the importance of having good data:

> "Much of modern science and technology as well as rational decision making in private and public affairs depends on a rudimentary understanding of statistics. When people are harmed or die of war, accident, or disease, the public generally has no sense of proportionality. The spectacular accident or act of terrorism is taken as evidence for a massive breakdown in safety or a worldwide trend toward terror affecting all people. For lack of a proper statistical frame of reference, public perceptions of the true extent of a danger or a disaster can be exaggerated out of all proportion to its true meaning. The result often is hasty decision making without rational problem solving, without consideration of what the real problem is or what the best way to approach it might be."[8]

Havelock continues by calling for cost-benefit studies as the "truly rational basis for decision making."[9] Given the new fiscal reality facing all levels of government, it is reasonable to believe that many publicly-funded programs, including pretrial services, will be subjected to cost-benefit studies. In order to participate in such studies, the data described above must be available.

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7 Marie VanNostrand, Kenneth J. Rose, and Kimberly Weibrecht, *State of the Science of Pretrial Release Recommendations and Supervision (Washington, D.C., Pretrial Justice Institute, 2011), 29.*

8 Supra note 3, 248-249.

9 Ibid.

In recent years, information system development has become easier and less costly. Such systems come in three forms: off-the-shelf products that are purchased or leased from private vendors with potential local customization, statewide systems that the county pretrial services programs share,[10] or in-house products designed, tested, and implemented by county IT staff. Each form has its advantages and disadvantages.

The vendor products have the advantage that the vendor has already done the hard work of system development; the disadvantages are that these systems can be very expensive (especially when adding customizations) and the quality of customer support can be uneven. Statewide systems have the advantage of sharing a common database among all pretrial services programs in the state, allowing for comparisons of activities and outcomes among the programs; however, they lock local programs into using a system that may not completely meet their needs. Systems designed in-house can be customized to local needs, and usually at less expense than a vendor's product, which is a strong advantage; however, local IT staff are often overwhelmed by requests from other agencies, and developing enhancements or reprogramming can be frustrating.

Peer production of open source software is another approach to information system development that has been used in other fields. Under this model, IT professionals from the same industry combine their knowledge and resources to develop nonproprietary software that meets the needs of the industry. Such open source software has been used in many health care settings, including hospitals and doctor and dentists offices.[11]

The problem of storage capacity has plagued the automated information systems of pretrial services programs for many years. Due to limited storage space on mainframe or client-server networks, programs would be forced to purge files, erasing important historical data. This is changing with the growth in computer storage capacity and the drop in price of storage. As author Ian Ayers notes, "We are moving toward a world without delete buttons"—allowing for the compilation of data sufficient to do trend analyses and sophisticated data mining.[12]

While having sufficient information system capability to produce the necessary data will be increasingly important, it will also be crucial to have the ability to analyze the data. For instance, many businesses have been able to mine customer-preference data in innovative ways to develop marketing strategies that are tailored to individual customers based upon their buying behavior.

Within the criminal justice system, law enforcement has led the way in analyzing data to ensure the most effective deployment of resources, through crime mapping, with impressive crime-reduction

10 An example of this can be found in Virginia, where all the pretrial services programs use the state's Pretrial and Community Corrections Case Management System (PTCC).

11 http://en.wikipedia.org/wiki/List_of_open_source_healthcare_software.

12 Ian Ayers, *Super Crunchers: Why Thinking-by-Numbers Is the New Way to Be Smart (New York, N.Y., Bantam Books, 2007), 151.*

results. Computerized mapping technology is now being expanded to other areas of criminal justice. According to a 2008 Urban Institute report, mapping "can be an important component of efforts by corrections staff, parole and probation officers, and nonprofit reentry case managers to support prisoners prior to and at the time of their release. Using maps, caseworkers can identify resources that align with an individual's needs and his or her location. By facilitating referrals to services, housing, and transportation, mapping can be an integral part of planning for the successful reintegration of former prisoners into the community."[13] Pretrial services programs could also benefit by using mapping technology for the same purposes.

Relying on statistical evidence to assess and address defendant risk continues to be controversial. With the increasing availability of data and the improved ability to analyze it, debates will continue about whether the intuition of veteran practitioners is more reliable than statistical evidence in assessing defendant risk and determining the best ways to address that risk. Many pretrial services program administrators that have implemented validated risk assessment tools in recent years have experienced such debates with key stakeholders, such as judges, prosecutors, defense attorneys, and even their own staff. Author Ian Ayers speculated that the struggle between intuition-based decision making and evidence-based decision making will ultimately be resolved in favor of using intuition to guide the search for evidence: "Intuition will be reinvented to coexist with statistical thinking. Increasingly, decision makers will switch back and forth between their intuitions and data-based decision making. Their intuitions will guide them to ask new questions of the data that non-intuitive number crunchers would miss. And databases will increasingly allow decision makers to test their intuitions—not just once, but on an ongoing basis."[14]

As information system technology advances, it will be even more important to remember the adage "garbage-in, garbage-out." Making sure that data are entered consistently and correctly will be so important because, as information systems become more sophisticated, they will be relied upon more. In some quarters, the phrase "garbage-in, garbage-out" has transformed into "garbage-in, gospel-out" to reflect the tendency of organizations to believe any data that come out of a computer, even if the inputted data are flawed. And as long as there is any human involvement in data input, there is always the chance for human error.

Advances in information system technology will make it easier to integrate pretrial services program systems with those of various criminal justice agencies, such as the courts, jails, prosecutor's offices, and law enforcement. To a large degree, integration of data across system agencies can bring desirable results. For example, system integration would enable pretrial services programs to more easily track release, rearrest, and failures to appear information—all important outcome data elements.

13 Nancy La Vigne, Brian Elderbroom, and Diana Brazell, *Charting a New Direction: Exploring the Future of Justice Mapping (Washington, D.C., Urban Institute, 2008).*

14 Supra note 12, 216.

Integration must, however, be accomplished while following established confidentiality standards. The National Association of Pretrial Services Agencies (NAPSA) Standards on Pretrial Release set forth policy guidelines for the disclosure of information contained in pretrial services program files. Those guidelines provide for disclosure to well-defined entities: to the court, prosecutor, and defense for pretrial release decision making and review of conditions; to other agencies to which a defendant has been referred; to the jail for classification purposes; to law enforcement "upon a reasonable belief that such information is necessary to assist in apprehending an individual for whom a warrant has been issued for failure to appear or for commission of a crime"; to a probation department or other criminal justice supervisory agency for use in supervision of the defendant; and to individuals or agencies designated by the defendant through a signed consent to release.[15] As the capability to integrate information systems advances, pretrial services programs should continue to follow these policy guidelines. Technologically, it is already possible to provide access to some types of information to other agencies while blocking access to other information.

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15 National Association of Pretrial Services Agencies, *NAPSA Standards on Pretrial Release (2004), Standard 3.8(b).*

TECHNOLOGY AND THE CORE TASKS OF A PRETRIAL SERVICES PROGRAM

Interviewing

The interview with defendants is one of the most important tasks for pretrial services programs. It is through the interview that the program collects much of the information that statutes and court rules require judges to consider when making pretrial release decisions. This information includes the defendant's address, community ties, employment status, and history of substance abuse and mental health issues.

For many pretrial services programs, the approach to conducting interviews is as low-tech today as it was decades ago—staff, armed with interview forms, pens, and clipboards, go to a defendant's location and conduct their interviews, recording the information on the paper interview form. Once the interviews are completed, staff return to their offices and enter all the interview information into a computer database.

This approach has at least three issues relating to efficiency and improved outcomes. First, it is a wasteful duplication of effort to record the same information twice—first on paper and then into a computer system. Second, any intervening steps in recording information raise the possibility of transcription errors. Avoiding such errors is particularly important when the interview information is included as part of the risk assessment—if the information recorded is incorrect, the assessment of risk may also be wrong. Third, staff using a paper form may neglect to ask certain questions and important information may go uncollected, but computer software can be designed to ensure that every field must have an entry before proceeding.

Many pretrial services programs (40 percent of them in a 2009 national survey[16]) have eliminated the pen-and-paper step and now enter the interview information directly into the computer system. At least three different approaches to doing this are currently in use: taking laptop computers into the interviewing area, locating desktop computers near the interviewing area, and using video technology.

The pretrial services program in Spokane County, Washington, uses the first approach: inputting interview information directly into laptop computers. Staff place their laptops on special wheeled carts, and they wheel from cell to cell in the jail to conduct their interviews. When staff return from their interviews, they upload the interview information onto a network.

The pretrial services program in Allegheny County, Pennsylvania, uses the second approach: permanently locating desktop computers in a space that is adjacent to the defendant interviewing area. The program has set up an office in the booking area of the jail that is on the other side of the wall of the men's holding area. Several windows along the common wall enable pretrial staff to interview defendants and record the information directly into the computer. Staff use laptops for female defendants, who are held in nearby cells.

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16 Supra note 5.

Philadelphia, Pennsylvania, uses the third approach: conducting the interviews using video technology. Staff are located in an office with desktop computers, and defendants are moved to an interview room in the booking area of the jail, where they are placed in front of a video camera and interviewed.

There is an added benefit to using computers to directly input interview information: If a defendant has been through the system before and was interviewed by pretrial services, that information will be immediately available to the interviewer. If, for example, the defendant says that he has lived at a current address for two years but the prior interview information shows that the defendant gave a different address six months earlier, the interviewer will be ready to resolve this discrepancy on the spot.

Recently available software that converts speech to text may reduce the time needed to complete interviews. It may become possible, for instance, to ask a defendant for his address and then activate the software to convert the defendant's oral response into text, populating the address section of the interview form. In short, defendants would dictate their own pretrial reports, with the interviewer overriding responses when follow-up questioning is needed. At least one maker of this type of software claims that dictation is three times faster than typing.[17]

One issue that can slow down the interview process is when the defendant does not speak English. Many pretrial services programs have Spanish-speaking interviewers, but these persons may not always be available when needed, and many jurisdictions are seeing defendants who cannot speak either English or Spanish.

The Vera Institute of Justice initiated a project called Translating Justice, with the purpose of identifying ways that new technologies could be used to communicate with persons entering the criminal justice system who speak little or no English. In 2007, the Institute investigated a technology being tested by the U.S. Department of Defense in Iraq and Afghanistan that, at that time, was still in the developmental stage. The idea was for hand-held, two-way, real-time voice translators. A person would speak English into the device, and the device would repeat the words in the appropriate language. The person being interviewed would then respond in his or her language, and the response would be translated into English.[18]

Such devices have since been distributed to troops in Afghanistan.[19] Given how multilingual the United States is becoming, it may be reasonable to expect a mass market to develop these devices, which would make them easier and cheaper to obtain by pretrial services programs.

17 www.dragondictation.org.

18 Insha Rahman, Joe Hirsch, and Susan Shah, *Overcoming Language Barriers in the Criminal Justice System: Can Language Assistance Technology Help? (New York, N.Y., Vera Institute of Justice, 2007).*

19 http://news.thomasnet.com/companystory/Language-Translation-Devices-sent-to-U-S-soldiers-in-Afghanistan-592979 (October 3, 2011).

Verification

Some of the same technologies used for interviewing defendants can be used to interview references for verification purposes. For example, the verifier's responses can be inputted directly into the computer, and voice translation devices can be used for references who do not speak English.

Within the context of the verification function, the advent of the widespread use of cell phones provides an excellent example of how technology can aid the work of pretrial services in one way and create an obstacle in another. On the one hand, it is easier to reach references to verify interview information when they have cell phones because it is not necessary that they be at home at the time the verification call is placed. On the other hand, jail officials routinely confiscate cell phones at booking, and many defendants cannot remember the telephone numbers of friends and relatives since the numbers can be so easily stored and retrieved on a cell phone. As a result, the number of telephone numbers defendants can provide may be limited.

Several jurisdictions are attempting to address this problem. In Kentucky, for example, where the pretrial services program operates at the state level, the program has developed procedures with local jails to allow defendants to write down their telephone contact information on a piece of paper before their cell phones are confiscated. Some of the jails let the defendants hold onto the paper until their interviews with the pretrial services program, and some take the paper and forward it directly to pretrial services. The verification rate of the program rose 20 percent after these procedures were initiated.[20]

When it is not possible to reach a reference for verification, online services such as MapQuest and Google Maps can at least show whether the address provided by the defendant is real and in a residential neighborhood. In addition, there are several online people-search services, some free and some subscription-based, that may provide some information about the defendant. Great care needs to be taken, however, because the information provided by these services can be unreliable. Still, barring significant pressure from general society to curb the availability of such information online, it is likely that obtaining this information will become easier as time goes on.

Many pretrial services programs will not recommend defendants for release if the information obtained in the interview is not verified. As a result, defendants with unverified information can fall through the cracks. Technology can help by flagging these cases in the automated information system for action by program staff.

As the technology for information system development improves the ability to gather data for risk assessment validation studies, it should become increasingly clear which factors are relevant to risk (and thus should be verified before the initial appearance), and which might be relevant only to supervision efforts (and thus can wait for verification until after the defendant's release). Recent risk assessment

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20 E-mail correspondence with Tara Boh Klute, Executive Officer of Kentucky Pretrial Services (December 12, 2011).

validation studies are showing that factors relating to community ties may not be as related to risks as previously thought, so it might be less important to verify this information. Recent research is very consistent in identifying factors that are very important risk indicators, such as prior criminal history and prior history of appearance in court.[21] Information relating to these factors is verified during the record check.

Record Check

In the early days of pretrial services programs, checking criminal records was a long and arduous process, involving pouring through manual files, often at multiple locations. Even then, the records were only drawn from the local jurisdiction.

Efforts to create a national automated criminal record database began early on, but the experience has shown that achieving certain goals through technology can be complex and elusive. In 1967, the Federal Bureau of Investigation (FBI) launched the National Crime Information Center (NCIC), a computer system that sought to provide a central repository of information such as the presence of warrants from any jurisdiction in the country. NCIC also gave birth to the Interstate Identification Index (Triple I), a system for the interstate exchange of criminal history information. The system is designed for local jurisdictions to report all arrests and dispositions to a state office, which then transmits that information through NCIC to Triple I. Ideally, an authorized official in a jurisdiction (e.g., a pretrial services staff member) seeking to do a national criminal history check can access the system and within seconds receive a complete criminal history, including dispositions.

The problem is that local jurisdictions are having trouble keeping up with reporting dispositions to state offices. To help local jurisdictions develop the technology to improve arrest and disposition reporting into the Triple I, the Bureau of Justice Statistics (BJS) operates the National Criminal History Improvement Program (NCHIP).[22] Between 1995, when NCHIP began, and 2010, BJS awarded $545,044,977 to states for the improvement of criminal history reporting. Every few years, BJS releases a report showing the progress of states in reporting criminal histories. The latest report, which covers 2008, showed the following results:

- A total of 16 states, representing 25 percent of the individuals in the nation's criminal history records, reported that 80 percent or more arrests within the previous five years are matched with final dispositions.

- A total of 21 states, representing 37 percent of those in the national database, reported that 70 percent or more arrests within the previous five years have final dispositions.

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21 Kristen Bechtel, Christopher T. Lowenkamp, and Alex Holsinger, "Identifying the Predictors of Pretrial Failure," *Federal Probation, 75 (2), (September 2011).*

22 This program has purposes beyond providing complete criminal histories for use by law enforcement and courts. It is also used to identify persons who may be ineligible to purchase a firearm.

- A total of 21 states, representing 54 percent of those in the national database, reported that at least 60 percent of arrests within the previous five years have final dispositions. [23]

In short, despite the significant investment of resources to improve disposition reporting technology and at least 15 years of effort, a significant number of arrests in the Triple I system do not show final dispositions. As information systems become cheaper and easier to develop, though, there should be improvements in these reporting systems.

Risk Assessment/Recommendations/Report Preparation

Pretrial services programs have three other core tasks that are based on the information collected in the interview, verification, and records check: assessing each defendant's risks of danger to the community and failure to appear in court, using that assessment to arrive at a recommendation for the court, and preparing a report for the court. Given the time constraints that pretrial services staff are usually under, anything that can be done to reduce the time needed to complete these tasks would be beneficial.

Many pretrial services programs have programmed their information systems to automatically calculate risk assessment scores based upon the information inputted by the staff. In a 2009 survey, 40 percent of pretrial services programs nationwide reported that risk levels are automatically calculated by the information system, and 56 percent said that they had automated production of the report to the court.[24]

As noted in the Information Management Technology section above, one of the problems in risk assessment validation is collecting all the data necessary to conduct a comprehensive study—that is, looking at a full range of variables to identify those that compose the best instrument. Conducting a pretrial risk assessment validation can be a very expensive and time-consuming endeavor, but the bulk of the time and expense comes not from the analysis of the data and development of the new validated instrument, but from the collection of the data needed for the analysis. With automated information systems that capture all the data needed for analysis, it is a simple matter of providing the analyst with requested data.

Developing statewide tools is one direction that pretrial risk assessment has been going. All, or at least a majority, of pretrial services programs in a state would use the same tool—a tool that has been validated in multiple counties within the state, to include urban, suburban, and rural areas. Statewide risk assessments are already in place in Virginia, Kentucky, and Ohio. Work is currently being done on multiple-county instruments for Florida, Colorado, and Michigan. In order to continually test the validity of a particular multicounty instrument, all jurisdictions using it must be able to capture and report the same data.

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23 Dennis A. DeBacco and Owen M. Greenspan, *Survey of State Criminal History Information Systems, 2008 (Washington, D.C., Bureau of Justice Statistics, October 2009).*

24 Supra note 5.

The capability for information systems to routinely collect this information is available, and has been for many years. The challenge for pretrial services programs without that capability is find the resources to bring their information systems up-to-date and make them ready for future enhancements.

Court Date Reminders

Both the American Bar Association and NAPSA, in their pretrial release standards, call on pretrial services programs to put in place mechanisms to remind defendants of their upcoming court dates.[25] Throughout the years, many pretrial services programs have been reminding defendants of court dates either by mail or by telephone. A survey of pretrial services programs done in 1989, for example, found that 64 percent provided mail or telephone reminder notices.[26] A 2001 survey found that 69 percent were either calling defendants before their court appearances or sending defendants reminder notices by mail.[27]

Still, about one-third of programs were not providing reminder notices. This may be due to limited resources (setting up a manual reminder procedure can be labor intensive) and the lack of empirical evidence that such reminder practices are effective. However, studies are beginning to shed light on the impact that can be expected from implementing court date reminder procedures.

In 2005, Jefferson County, Colorado, implemented a pilot project to call defendants in advance of their court dates and test its impact on reducing the failure to appear (FTA) rate. That project involved hiring an individual to make the calls. A study of the project found that the FTA rate fell from its baseline of 21 percent to 13 percent if the caller was able to speak with a responsible adult in the household other than the defendant or leave a voice mail, and to 8 percent when the caller was able to speak with the defendant.[28]

Around the same time the Jefferson County pilot project was underway, officials in Multnomah County, Oregon, invested $40,000 in a pilot project that established the Court Appearance Notification System. This project was unique in that it involved an automated system to call to defendants and remind them of their court dates. The county ran this project for six months and then conducted an in-house evaluation to determine if it was a cost-effective way to reduce FTAs. That evaluation found that the FTA rate was 16 percent for those individuals who were successfully reached by phone, compared to a 29 percent FTA rate from a period the year before the pilot started. The evaluation also calculated the costs of an FTA to the criminal justice system and concluded that the automated system saved $14.21

25 *ABA Standards for Criminal Justice: Pretrial Release, Third Edition (Washington, D.C., American Bar Association, 2007), Standard 10-1.10(xi); NAPSA Standards on Pretrial Release, Third Edition (Washington, D.C., National Association of Pretrial Services Agencies, 2004), Standard 3.5(vi).*

26 Kristen L. Segebarth, *Pretrial Services and Practices in the 1990s (Washington, D.C., National Association of Pretrial Services Agencies, 1991).*

27 John Clark and D. Alan Henry, *Pretrial Services Programming at the Start of the 21st Century: A Survey of Pretrial Services* Programs (Washington, D.C., U.S. Department of Justice, Bureau of Justice Assistance, 2003).

28 *Jefferson County, Colorado Court Date Notification Program: FTA Pilot Project Summary (November 2005).*

for every $1 spent.[29] A follow-up evaluation using Fiscal Year 2007 data found that the automated system was reducing FTA rates by 31 percent, and while the cost of operating the system had risen to $56,000 due to its expansion, it was saving the county an annual net of $1.55 million.[30]

The Jefferson County and Multnomah County studies raise the question of whether using a manual approach, where a live caller can personally speak with the defendant or a member of the defendant's household, yields lower FTA rates than using available technology to implement an automated system. And, if so, what are the cost implications of one approach compared to the other? The drop in the Jefferson County FTA rate was more dramatic than that in Multnomah County, but these are only two sites. More research is needed in this area.

A third study sought to test not only the impact of reminders versus no reminders, but also of the content of the reminder notices. Researchers in Nebraska established four study groups. A control group received no reminder notices, while the remaining three groups received postcard reminders, mailed to their residences four days before their scheduled court dates. The first of these three groups received a postcard that simply noted the date, time, and location of the court appearance; the second received the same information plus a description of the penalties for failing to appear; and the third group received the court date information and a description of the penalties for not appearing, but they also received a positive message about having the opportunity to speak on their own behalf in court. Researchers hypothesized that this last group would have the lowest FTA rate, based on other research showing that positive messaging achieves better results. The results did not turn out quite this way, though. While all three groups who received a notice had significantly lower FTA rates than the control group, there was no difference in FTA rates between those who received the positive message and those who did not.[31]

This study also looked at the role race and ethnicity played in identifying which court date reminder message worked best for defendants. It found that all three groups examined—Whites, Blacks, and Hispanics—had lower FTA rates than their counterparts who received no notice or only the simple notice of date, time, and location. It also found that Hispanics responded to the positive message of being able to speak on their own behalf in court. This finding suggests that it may be worth exploring other characteristics beyond race and ethnicity that may be useful in identifying which type of message works best for which defendants. For example, does one type of message work better for defendants who score higher on a risk assessment instrument than those who score as the lowest risk? For those who are in one age group versus another? For those who have no prior history of failure to appear versus those who do? For those who are employed versus unemployed?

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29 Matt Nice, *Court Appearance Notification System: Process and Outcome Evaluation (Portland, O.R., Multnomah County Budget Office, March 2006).*

30 Matt O'Keefe, *Court Appearance Notification System: 2007 Analysis Highlights (Portland, O.R., Multnomah County Local Public Safety Coordinating Council, June 2007).*

31 Mitchel N. Herian and Brian H. Bornstein, "Reducing Failure to Appear in Nebraska: A Field Study," *The Nebraska Lawyer (September 2010).*

There is no reason to doubt that automated court date reminder systems technology could customize sent messages with any number of different characteristics. This would allow for individually tailored messages that are designed to have the biggest impact on each defendant.

In addition to traditional telephone calls and sending letters or postcards to defendants reminding them of their court dates, the technology is also available to send electronic messages via e-mail or text messaging. These methods have the advantage of being cheaper than telephone calls or post-cards.

While more research is needed to determine the costs and benefits of the various methods of delivering court date reminders and on the content of messages that are conveyed, it is clear that the technology is available to implement an automated calling system and that this technology has been around for several years. Some currently available products can also provide voice verification—to ensure that the person receiving a telephoned court date reminder is indeed the defendant, thus removing any doubt about whether the defendant received the message.

Given the current state of automated telephoning technology and the research showing the benefits of court date reminders, it is surprising that the percentage of programs providing court date reminders has actually fallen. In the 2009 survey, only 54 percent of programs reported providing telephone or mail reminder notices.[32]

Supervision of Release Conditions

According to the NAPSA Standards on Pretrial Release, pretrial services programs "should establish appropriate policies and procedures to enable the effective supervision of defendants who are released prior to trial under conditions set by the court. The agency or program should: (i) monitor the compliance of released defendants with assigned release conditions; (ii) promptly inform the court of facts concerning compliance or noncompliance that may warrant modification of release conditions and of any arrest of a person released pending trial; (iii) recommend modifications of release conditions, consistent with court policy, when appropriate; (iv) maintain a record of the defendant's compliance with conditions of release; (v) assist defendants released prior to trial in securing employment and in obtaining any necessary medical services, drug or mental health treatment, legal services, or other social services that would increase the chances of successful compliance with conditions of pretrial release."[33]

Conditions of non-financial release fall into four categories:

- *Status quo* conditions require that the defendants maintain their residence, school, or employment status.

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32 Supra note 5.

33 National Association of Pretrial Services Agencies, supra note 25, Standard 3.5.

- *Problem-oriented* conditions address specific defendant problems that affect future court appearance or rearrest. Release is conditioned on a defendant, for example, enrolling in substance abuse monitoring or treatment, vocational or educational training, counseling, or social services program.

- *Contact* conditions require defendants to report by telephone or in person regularly to pretrial services or other entity.

- *Restrictive* conditions limit defendants' associations, movements, or actions. These include conditions to remain in the jurisdiction, avoid contact with the complainant, curfews, and stay away orders from certain areas, such as those where drug sales are common.

Technology has played little, if any, role in supervising status quo conditions. For the problem-oriented conditions, telecommunications and information systems certainly can make for more efficient communication between treatment providers and pretrial services staff about defendant compliance.

Technology can play a large role in the supervision of contact conditions. When the defendant is required to check in by telephone, a system could use the same technology that is used to remind defendants of upcoming court dates through automated calls and to verify the identity of the defendant through voice recognition. These systems record a defendant's voice when they call in and can be programmed to deliver customized information, such as the date of the defendant's next court appearance or the need to contact the case manager to discuss an issue related to compliance. These systems can also send an alert to pretrial services staff when the defendant failed to report.

But it is with the fourth category—restrictive conditions—that technology has been most focused. For instance, technology has been use to detect alcohol or drug use by defendants out on pretrial release, to monitor house arrest or curfew conditions through electronic monitoring, and to monitor the movement of defendants in the community through the use of global positioning system (GPS) technology.

Over the past few decades, significant concerns have been raised about the growth of technology—that is, just because it becomes technologically *possible* to do something does not necessarily mean that it *should* be done. One common side effect of technologies applied in criminal justice settings is loss of privacy in the actions and movements of those being monitored. Courts have long held that those individuals being monitored by the criminal justice system have lower expectations of privacy than the general public, but limits become less easy to define when new technologies are introduced. For example, as this document is being written, the United States Supreme Court is considering a case to determine whether police need a warrant to attach a GPS device to a person's vehicle and track that person's movements.[34] The decision will hinge on the implications of this new technology on the Fourth Amendment. In another case, U.S. District Judge Nicholas Garaufis denied law enforcement requests for location data from cellphone towers, saying that courts should "begin

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34 United States v. Jones, No. 10-1259.

to address whether revolutionary changes in technology require changes to existing Fourth Amendment doctrine."[35]

Such legal concerns are certainly relevant to the pretrial population, which is supposed to be subjected to the least possible restrictive measures to reasonably ensure the goals of community safety and appearance in court. [36] These matters should be the primary consideration when considering how technology can help programs supervise defendants on pretrial release.

Electronic Supervision

Electronic supervision technologies have been defined in the post-conviction literature as "an array of processes using various electronic tools to acquire information on offender behavior."[37] These tools include electronic monitoring, remote continuous alcohol testing, ignition interlock, reporting kiosks, identity verification systems, and "others to detect offenders' compliance with restrictions or to track their locations."[38]

Electronic Monitoring

The two most prevalent types of electronic monitoring technologies in place currently are radio frequency (RF) and GPS devices. The RF devices can be either passive or active systems. Passive systems periodically check on monitored individuals to ensure they are where they are supposed to be; active systems continuously emit a signal to a monitoring center and alert the supervising authority of any incidents of individuals straying beyond a defined zone.

When first introduced, RF devices required an electronic connection through a land-line telephone. This grew problematic with the move away from land-line phones to wireless cell phones. In response, the electronic monitoring industry has developed technology that allows for a connection through cell phones using a cellular modem at the subject's home.

Electronic RF monitoring devices are often used for surveillance of house arrest and curfew conditions. In these situations, the main components of this technology include a tamper-resistant bracelet and a stationary device installed in the subject's home. If the subject moves a specified distance from the stationary device, an alert is recorded.

Another use of RF technology is to verify if the subject is at a required location at a certain time of day, such as at work or at a treatment appointment. With the appropriate RF device, an officer can drive by the required location and use a hand-held receiver, which will then communicates with the system's transmitter to verify that the subject is where he or she is supposed to be.

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35 Adam Liptak, "Court Case Asks if 'Big Brother' is Spelled GPS," *New York Times (10 September 2011)*.

36 American Bar Association, supra note 25, Standard 10-1.2.

37 Matthew DeMichele and Brian Payne, *Offender Supervision with Electronic Monitoring Technology: Community Corrections Resource (Second Edition) (Washington, D.C., Bureau of Justice Assistance, 2009), 17*.

38 Ibid.

While RF devices are limited to confirming whether a person is at the specified location within the specified timeframe, GPS devices can track the movements of a person in the community using satellites and a network of ground stations.

The equipment components of GPS include a receiver, a tamper-resistant bracelet, and a charging unit. The receiver records the location of a subject within a predefined parameter at intervals ranging from once every second to once every 10 minutes; the tamper-resistant bracelet is worn on the ankle and uses RF technology to verify where the bracelet is in relation to the receiver. Several GPS products currently available combine the receiver and the transmitter into one bracelet, making it impossible for the subject to stray from the receiver without first physically cutting off the ankle bracelet.

GPS systems can also be set up as passive or active. Passive GPS systems track the movement of the subject throughout the day and transmit the data at a specified time each day. Active systems provide continuous reporting, with alerts sounded in real time.

The introduction of GPS technology opened substantially more possibilities in electronic monitoring. It became possible to set up exclusion zones, areas where subjects were prohibited from entering. It also became possible to set up proximity zones, areas that move with victims and help protect them. By providing victims with an electronic device, they can receive an alert anytime the subject enters the proximity zone. While this may not provide absolute protection, it does provide the victim some time to react.

A 2007 review of GPS technology in use at that time identified several problems with the technology. These included frequent signal loses, frequent equipment failures, limited battery life, and frequent "nuisance alerts," such as can occur when a subject is inside a building and the GPS signal is blocked. The review also identified several possible vulnerabilities to relying on GPS to monitor persons, including loss of GPS satellite service, loss of cellular or land-line telephone service, loss of electricity, vendor software problems, and loss of data.[39]

Notwithstanding the kinks in the development of electronic monitoring technology, the use of these devices has been rising sharply. In 1986, 95 offenders throughout the country were subjected to electronic monitoring. By 2008, the figure exceeded 100,000 defendants and offenders.[40] One factor contributing to the growing use of electronic monitoring is the enactment of laws requiring electronic monitoring in certain circumstances. For example, in 2006 Congress passed the Adam Walsh Act,[41] which mandates that federal courts impose electronic monitoring as a condition of pretrial release for federal defendants charged with specified offenses involving victims who are minors.

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39 Tracy M. L. Brown, Steven A. McCabe, and Charles Wellford, *Global Positioning System (GPS) Technology for Community Supervision: Lessons Learned (Washington, D.C., National Institute of Justice, 2007).*

40 Supra note 37.

41 Enacted as 42 U.S.C. § 16911 et seq.

With jurisdictions looking for alternatives to costly incarceration, it is likely that the use of electronic monitoring in the criminal justice system, including at the pretrial stage, will grow. More research is needed to identify which specific populations are most appropriate for electronic monitoring supervision, but existing studies show that such supervision can be effective. For example, a study published in 2010 looked at electronic monitoring of Florida offenders and found that the practice reduced the likelihood of failure under community supervision by 31 percent compared to other forms of supervision. Moreover, those on GPS electronic monitoring had six percent fewer failures than those on RF electronic monitoring.[42]

Remote Continuous Alcohol Testing

Pretrial services programs long have had the capability to conduct breathalyzer tests on defendants during check-in appointments. Such an approach is extremely limited in that it can only detect alcohol use occurring shortly before the appointment, leaving plenty of time outside appointments for a defendant to consume alcohol.

Combining the breathalyzer with telecommunications technology enables breathalyzer tests to be conducted from remote locations. Through this enhanced technology and telephone lines, defendants can submit a breath test from their homes at fixed or random times and transmit the results plus a visual picture of him or her using the breathalyzer to verify identity. This innovation has certainly increased the opportunities for checking defendants' use of alcohol, but it is still limited by the timing of the random checks.

Technology is now available, in combination with electronic monitoring, to allow for continuous monitoring of defendants' alcohol use from remote locations, with real-time reporting of violations. With this technology, an alcohol sensor is attached to the electronic monitoring device. The sensor can pick up very low concentrations of alcohol secreted through the skin and determine how much alcohol has been consumed. Positive results are instantaneously reported.

The first of these products to hit the market was Secure Continuous Remote Alcohol Monitor (SCRAM), with other companies introducing products based on similar technology. The technology has been challenged in court at least twice, with the argument that it is not a valid indicator of alcohol use. In both cases, the courts (one state supreme court and one intermediate appellate court) have affirmed trial court findings that the SCRAM technology is an accurate test of alcohol use.[43]

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42 William Bales, et al., *A Quantitative and Qualitative Assessment of Electronic Monitoring (Washington, D.C., National Institute of Justice, 2010).*

43 *South Dakota v. Lemler, 774 N.W.2d 272 (Supreme Court of South Dakota, 2009); Moog v. Indiana, 918 N.E.2d 750 (Court of Appeals of Indiana, 2009).*

Ignition Interlock

When an ignition interlock device is installed on a car—by court order after a charge or conviction for driving while intoxicated—the driver must blow into the device and pass the breathalyzer test before the car will start. The National Highway Traffic Safety Administration maintains a list of federally-approved ignition interlock devices.

Almost all states have laws permitting judges to order the installation of an ignition interlock device on cars of persons convicted of drunk driving. There is no indication that these devices are currently used extensively as a condition of pretrial release. In a 2009 survey of pretrial services programs, only one reported using these devices.[44]

Reporting Kiosks

Kiosks can replace in-person reporting requirements for certain lower- to-moderate-risk defendants who need a regular reporting requirement but not necessarily face-to-face contact with pretrial supervision officers. This can free up those officers to focus scarce resources on higher-risk populations. Kiosks are ATM-like machines that allow persons under supervision of the criminal justice system to report in from remote locations. They are often placed in easily accessible areas and can operate outside normal business hours, allowing supervisees who work to fulfill their employment commitments.

Many of the kiosks contain biometric technology, such as thumbprints, to confirm the identity of the person. The person logs in and is then prompted to enter information such as any changes in status since the last report (e.g., address, employment, or marital status) or any contact with police. This saves officer time, since they no longer have to enter this same information into the program's database.

If the person fails to report as required, the kiosk can automatically send a message to the supervising officer and a letter to the person reminding him or her of the reporting obligation. The kiosk can also deliver other messages to the person, such as reminders to report for a drug test.

Experience has shown that implementing a kiosk-based reporting system can be challenging. In 2008, the District of Columbia's Court Supervision and Offender Services Agency (CSOSA) began a pilot kiosk reporting program for low-risk probationers and parolees. The agency experienced significant problems in integrating the kiosk software with the agency's information system. Agency staff also found that maintaining the kiosk equipment and ensuring data integrity required an ongoing commitment of resources and attention.[45]

Early research on outcomes obtained through the use of kiosks suggests, however, that the prospect of implementation problems must be balanced against the positive outcomes that can be expected.

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44 Supra note 5.

45 Jesse Jannetta and Robin Halberstadt, *Kiosk Supervision for the District of Columbia (Washington, D.C., The Urban Institute, 2011)*.

In 2007, a study was done for the New York City Probation Department, which has 70 percent of its clients (those assessed as lower risks) reporting to a kiosk for check-in.[46] The study found that the two-year rearrest rate for low-risk probationers who were assigned kiosk reporting fell from 31 percent to 28 percent. More importantly, the two-year rearrest rate for higher-risk probationers—who received more attention from probation officers due to reduced caseloads—fell from 52 percent to 47 percent. Based on these findings, the authors of the study concluded that "automated reporting, as a low-intensity sanction for low-risk probationers, can be viewed as a well-reasoned and innovative approach to probation supervision."[47]

Identity Verification

When defendants report for supervision appointments, such as drug or alcohol tests, it is important that their identities be verified. The traditional method of verifying the identity of an individual has been picture IDs. This type of ID, however, can be easily forged or falsified.

Biometric technology allows for positive identification based on a person's unique physiological characteristics. For decades, law enforcement has relied upon fingerprints as the biometric to identify persons upon arrest, but pretrial services programs are not able to use this technology to verify identity for supervision purposes. However, newer technologies may be available to pretrial services programs, including face, iris, and voice recognition.

Face recognition technology takes advantage of the fact that every face has approximately 80 different landmarks, called nodal points. These include such features as distance between the eyes, width of the nose, depth of the eye sockets, shape of the cheekbones, and length of the jaw line. Newer facial recognition software can capture a 3D image of the subject. Once the image is in the database, an algorithm is run to compare new images to the original one to verify a match.[48]

The irises of an individual's eye contain patterns that are unique to each individual. Iris recognition is an automated method of identifying those patterns. Similar to facial recognition technology, an individual's identify can be verified instantaneously once an iris is scanned in a database.[49]

Speaker recognition technology follows the same principles. Each individual has a unique voiceprint and learned behavioral vocal patterns (such as voice pitch), and once a voice is recorded it is a simple matter to verify an individual's identity by matching voice samples.[50] As mentioned above, this tech-

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46 Supra note 37.

47 James A. Wilson, Wendy Naro, and James F. Austin, *Innovations in Probation: Assessing New York City's Automated Reporting System (Washington, D.C., The JFA Institute, 2007), 16.*

48 Kevin Bosnor and Ryan Johnson, *How Facial Recognition Systems Work,* http://electronics.howstuffworks.com/gadgets/high-tech-gadgets/facial-recognition.htm.

49 http://en.wikipedia.org/wiki/Iris_recognition.

50 http://en.wikipedia.org/wiki/Speaker_recognition.

nology is currently being used in conjunction with automated calling systems to verify identity. It is also used in conjunction with remote alcohol testing to verify that the correct person is submitting the remote breathalyzer test.

Other Considerations

What other electronic supervision technologies might the future hold? Work being done in England may offer some clues. That work seeks to integrate closed-circuit television systems with facial recognition software. Such a technology might then be able to establish the identity of individuals prohibited from certain locations. The research for this technology even includes mounting cameras in small unmanned aircrafts to fly over, for example, a soccer stadium to identify those in the crowd.[51] Since surveillance cameras are already located at many locations throughout society, it is not difficult to foresee expansive use of such technology to make sure that persons, such as those with pretrial release conditions, are not in prohibited areas.

Other technological advances will likely include the shrinking of tracking devices. What today are bulky electronic monitoring devices worn on the ankle may tomorrow be computer chips implanted just beneath the skin that "can be read in a manner similar to a bar code on a cereal box."[52]

Pretrial services program staff have a crucial role to play in assuring that these technological devices, both current and future, are used in appropriate ways for appropriate populations—that is, in a way consistent with the principle of release on the least restrictive conditions reasonably necessary to assure public safety and court appearance.

The American Probation and Parole Association (APPA) recommends that probation officers conduct a thorough and objective organizational needs assessment before implementing any new electronic supervision technology. The assessment should focus on identifying the purpose of the technology and developing a clear path for achieving that purpose.[53] This is sound advice for pretrial services programs as well. APPA also recommends selecting a vendor with great care. "Of the 16 electronic monitoring equipment manufacturers listed in the spring 1989 issue of *The Journal of Offender Monitoring*, only five continued in operation and only two had significant market shares by the spring of 2000."[54]

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51 Supra note 37.

52 Ibid.

53 Ibid.

54 Ibid.

Drug Testing

The first drug testing technology applied to criminal justice populations was the nalline test. This test, which was developed in the mid-1950s, involved injecting a synthetic opiate called nalline into subjects. If the subjects' pupils constricted, this was evidence that they were under the influence of opiates. The test had to be administered by a physician.[55]

The first recorded application of urinalysis to test for drug use in the criminal justice system was in the mid-1960s, with the California Civil Addict Program. This program offered an alternative to a jail or prison sentence to those who participated in a drug testing and treatment program. In 1972, the U.S. Department of Justice established the Treatment Alternatives to Street Crime (TASC) Program, through which arrestees would undergo a urine drug test. By the time that federal funding for TASC ended in 1982, it was operating in 130 jurisdictions in 39 states. The technology used by both the California Civil Addict Program and TASC to test urine specimens for drugs was Thin Layer Chromatography (TLC). This test was labor intensive and could only be conducted by highly trained technicians in laboratory settings, meaning that it was expensive to administer and the results were not readily available.[56]

In 1977, the first onsite drug testing laboratory was established in a criminal justice agency—the West Texas Regional Adult Probation Department—using a new testing technology called the Enzyme Multiple Immunoassay Technique (EMIT). This technology allowed, for the first time, staff with limited technical training to conduct the tests using machines called analyzers.[57] Specimens are loaded into the analyzer and the results are available within minutes.

In the 1980s, the District of Columbia Pretrial Services Agency became the first pretrial services program to take advantage of the EMIT technology to establish an on-site urine testing facility. The program began testing all defendants before the initial appearance in court, with the test results incorporated into the report to the court. It also started testing defendants on pretrial release on a regular basis when ordered by the court. While the District of Columbia remains the only jurisdiction that tests all defendants before initial court appearance, the 2009 survey of pretrial services programs found that 84 percent use drug testing to some degree to supervise conditions of release.[58]

A number of different analyzers are available for onsite testing, with features designed for various needs. For example, some are designed for high-volume testing and others are designed for more rapid reporting of results in lower-volume environments.

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55 Virginia S. Lewis, et al., "Nalline and Urine Tests in Narcotics Detection: A Critical Overview," *The International Journal of Addictions, 8(1), (1973), 163-171.*

56 *An Assessment of the Use of Drug Testing in the Criminal Justice System (Lexington, K.Y., American Probation and Parole Association and Pretrial Services Resource Center, 1992).*

57 Frank Lozito, "Operating a Urine Screening Program in a Probation Department," *Drug Abuse Testing: Successful Models for Treatment and Control in Correctional Programs (Lanham, M.D., American Correctional Association, 1981), 8-10.*

58 Supra note 5.

The technology to test urine specimens for drug use with immunoassay techniques (such as EMIT) has evolved beyond analyzer-based testing to also include hand-held devices. Several of these hand-held devices are the size and shape of a credit card, while others are similar to typical urine collection cups found in any doctor's office but with an embedded testing strip. These devices can test for a full screen of drugs, including cocaine, opiates, amphetamines, benzodiazepines, methadone, phencyclidine, oxycodone, and marijuana. Studies conducted on these devices found that they are just as effective in detecting drug use as analyzers.[59]

There are several advantages of hand-held devices over analyzer-based systems. First, since they require no machinery to calibrate and operate, they can be used by staff with very little training. Second, these devices do not need to be refrigerated before use, as is the case with the chemical reagents used in analyzer-based testing. Third, using hand-held devices simplifies the chain of custody of a urine specimen since there is only one step in the testing process, compared to multiple steps for analyzer-based testing. Finally, the results are available within seconds.[60]

A limitation of using urine to test for drug use—through either analyzers or hand-helds—is that drugs can be detected in urine for only about 48 to 72 hours after use. As a result, it may be possible for a defendant to work around a test that is administered once or even twice a week. Additionally, urine testing requires the defendant to report to the location where the specimen is to be collected. A common problem for pretrial services programs is that many defendants fail to report when instructed. They may fail to report because they know they will test positive, or because it is too onerous to report to the testing facility on a regular basis (e.g., due to employment obligations or transportation issues). If urine testing technology had matched the development of alcohol testing technology—that is, testing done remotely and on a continuous basis—the two problems of limited detection times and high rates of failure to appear could be addressed.

Privacy issues also complicate testing for drug use through urine due to the intrusiveness involved in collecting specimens. To prevent the very real risk of cheating, staff must directly observe the defendant submitting the specimen. This involves a close examination of the defendant's genitalia, an embarrassing ritual for both the defendant and the staff person.

There is one technology that addresses all of these issues. This technology uses perspiration instead of urine as the specimen to be tested. The SweatPatch™ is an adhesive patch that is attached to the skin, usually the upper arm. It contains an absorption pad that collects nonvolatile components of sweat, including drugs of abuse. Unlike urine testing, this approach provides for the continuous monitoring of drug use, enables defendants to make less frequent visits to the pretrial services program, and

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59 Alan H.B. Wu, et al., "Evaluation of the Triage System for Emergency Drugs-of-Abuse Testing in Urine," *Journal of Analytical Toxicology 17 (July/August 1993); "Validity of the EZ-SCREEN Cannabinoid Test," Journal of Analytical Toxicology 17 (September 1993).*

60 D. Alan Henry and John Clark, *Pretrial Drug Testing: An Overview of Issues and Practices (Washington, D.C.: U.S. Department of Justice, Bureau of Justice Assistance, 1999).*

removes the need for intrusive inspections of private body parts. The defendant would report to the office and have the patch applied by staff and then return on a designated date within two weeks to have the patch removed. The patch is tamper evident, meaning that any effort by the defendant to remove the patch is easily detected during the removal process. Once removed, the patch is sent to a lab in Kansas, where it is tested for the presence of marijuana, cocaine, opiates, amphetamine, and PCP that was consumed at any point during the 2-week period. The results of the test are then transmitted back to the program. There is a turnaround time of several days between the time that the patch was removed and the results are received.

The SweatPatch™ is used in the federal system, but it has not caught on in state and local pretrial services programs. One reason is the turnaround time in getting results. Another is that it is more expensive than urine testing. Finally, serious issues have been raised about the reliability of the test, with research showing that the patch can be subject to contamination, which would lead to false positive results.[61] The problem of contamination is reflected in court rulings on the admissibility of evidence obtained through the patch. At least two U.S. Courts of Appeal have found the SweatPatch™ to be a "generally reliable" indicator of whether an individual under supervision with the patch has used drugs, but "[t]here may well be certain instances where offenders offer compelling reasons to believe that positive test results from sweat patches are erroneous. District courts should make such determinations on a case-by-case basis."[62]

Drug use can also be detected through analysis of hair samples. While the technology to do this has been around since 1977, this technique has not been used in the criminal justice system for several reasons. The test is very expensive and can only be performed by highly skilled lab technicians. Moreover, research has shown that the test is subject to contamination—for example, the metabolite of a drug can be absorbed into the hair when a subject is present in a room where a drug is being smoked. Finally, since drug use is detected as the hair grows, subjects could easily beat the test with frequent haircuts.[63]

One technology currently being explored is similar to the SweatPatch™ in that it involves the secretion of drugs or their metabolites through perspiration. However, instead of using a patch, the test would be performed using the subject's fingerprint as the sample. The fingerprint is then coated with a solution containing antibodies, with the solution changing color when the antibodies bind with the molecules of a drug or drug metabolite.[64] As this technique is so new, no reliable information is available on detection times or possible sources of contamination.

61 Melissa Long and David A. Kidwell, *Improving the PharmChem SweatPatch: Reducing False Positives from Environmental Contamination and Increasing Drug Detection (Washington, D.C., U.S. Department of Justice, 2002).*

62 *United States v. Meyer, 483 F.3d 865 (8*th Cir. 2007). See also *United States v. Gatewood, 370 F.3d 1055 (10*th Cir. 2004).

63 Supra note 60.

64 Ellen Mizio, *Advances in Forensic Toxicology,* www.ncstl.org/evident/july-2011-advances-in-technology.

One issue of great concern regarding drug testing, and with drug law enforcement in general, is keeping up with advances in the development of designer drugs, such as the so-called "synthetic marijuana." Many of these designer drugs are created by altering the molecular structure of existing drugs sufficiently so that the resulting chemical substances are not illegal under existing laws. Even when they are classified as illegal, the development of tests to detect them lags.[65]

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65 Ibid.

FACTORS AFFECTING THE IMPLEMENTATION OF NEW TECHNOLOGIES

Several factors can affect the implementation of new technologies. One is simply keeping up with the latest technological developments. With changes in technology occurring so rapidly—and the pace of those changes growing exponentially—it can be very difficult to learn what new technologies are available, let alone how to best apply those technologies to existing needs. The danger of implementing new technology before careful consideration of how it will be used is that it may be applied to inappropriate populations. For instance, research has shown that placing release conditions on low-risk defendants—those who would need no special conditions to return to court and avoid rearrest—actually increases the likelihood of failure.[66]

A second factor is the maturity and stability of the technology. Have bugs in the technology been identified and resolved? If the technology is for monitoring conditions of release (e.g., refrain from drug or alcohol abuse, stay within or away from certain areas, etc.), has it been accepted by the courts as providing sufficient evidence of noncompliance? When there are consequences to defendants for failing to comply with release conditions—as determined by a technological device—the technology's proven reliability is vital.

The level of staff training required to implement the technology is a third factor. What is the learning curve for staff to use the new technology? Who provides the training? What are the costs? Is certification required? If so, how is certification obtained, and how much does it cost to get staff certified?

As stated earlier, technologies also raise ethical issues about whether it is appropriate to do what the technology allows. For example, when low-cost, in-house drug testing technology became available, leading to the spread of drug testing in pretrial services programs, there was significant debate in the field about which, if any, defendants should be tested and how the test results should be used. NAPSA sought to address these debates by issuing guidelines on pretrial drug testing.[67] The same careful examination of ethical issues should accompany the introduction of any new technology to supervise restrictive conditions of release.

A final factor is money. How much does the new technology cost to purchase or lease, operate, and maintain? Can those costs be met? To the extent that new technologies enable pretrial services programs to conduct their work more efficiently or produce savings in other parts of the criminal justice system, overall costs may be reduced in the long run. The problem, though, is with the way government funding works; any additional money applied to an effort, including the introduction of a new technology, is expected to produce immediate cost savings.

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66 Marie VanNostrand and Gena Keebler, *Pretrial Risk Assessment in the Federal Court (Washington, D.C., U.S. Department of Justice, Office of the Federal Detention Trustee, 2009).*

67 *NAPRA Guidelines for Pretrial Release and Diversion: Drug Testing (Washington, D.C., National Association of Pretrial Services Agencies, 1995).*

When drug and alcohol testing and electronic monitoring technologies came into use in pretrial services, many jurisdictions passed the costs of using those technologies on to the defendants being supervised. The charging of fees can be problematic, however. For example, one recent study found that the courts had to waive the fees for 39 percent of offenders ordered into electronic monitoring because of their clear inability to pay, and about half of those who were ordered to pay were behind in their payments.[68]

Notwithstanding the problems defendants have in paying fees, it is still worth considering the appropriateness of such actions in the pretrial services field. Born out of frustrations over high taxes, the idea of charging user fees has spread throughout the public sector, including the criminal justice system. User fees have been cast as a fairness issue—those who use government services that do not directly benefit everyone should pay for those services themselves. This argument may be reasonable when the fees are for activities such as entrance to public parks. When probationers and parolees are charged supervision fees, they are paying for something that they did not choose to use (at least not in the same way that one might choose to use a public park), but they have been convicted of a crime and the fees can be viewed as part of their sentence. Assessing supervision fees on pretrial defendants, however, is a different matter because they have not yet been convicted and are legally presumed innocent.

In addition to the fairness question, any discussion of assessing fees for pretrial supervision should also address the following question: What would be the cost to the taxpayer if these supervision services were not provided at all?

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68 Supra note 42.

TECHNOLOGY TO INFORM THE FIELD

When discussing the use of technology to enhance pretrial services, one aspect that must be considered is the greater ease with which knowledge about best and promising practices is diffused, accessed, and used by pretrial practitioners. In general society, information on any number of topics can be easily found through Google or Wikipedia or other like sources. But until very recently, information about the latest developments and research relevant to pretrial services was available only through *The Pretrial Reporter,* a paper newsletter published by the Pretrial Justice Institute (PJI) every other month, and NAPSA's annual conference.

In recent years, technologies have been used to build a PJI helpdesk and a web site[69] that contains a large electronic library of materials on a wide range of topics of relevance to pretrial services programming and pretrial justice issues. PJI also releases a twice-monthly e-blast announcing latest developments in the pretrial field and presents regular webinars for pretrial services staff and key stakeholder groups.

Of course, the easy access to materials is of little value if the materials are not put to use. Both the PJI web site and the NAPSA web site[70] create a platform for a virtual marketplace of ideas and solutions for improving pretrial justice. They may also serve as vehicles for greater peer-to-peer collaborations.

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69 www.pretrial.org.

70 www.napsa.org.

CONCLUSION

Pretrial services programs should expect the following from technologies:

1. To enable staff to more *efficiently* do the tasks that they currently do.

2. To enable staff to more *effectively* do the tasks that they currently do.

3. To enable the expansion of practices and services to begin performing tasks that had previously been beyond the program's ability to perform.

4. To enable staff to track inputs and outputs and measure the impact and outcomes of their work.

In sum, technologies should be used as a tool to produce better outputs and outcomes, lower costs, or both. Moreover, they should be used in accordance with the core principles of pretrial services of maximizing pretrial release while using the least restrictive conditions reasonably necessary to assure public safety and court appearance.

As noted earlier, the place to start is with an information system that can (1) identify the most appropriate uses of technology to the most appropriate populations and then (2) measure whether those technologies are making a difference in the outputs and outcomes of the program.

APPENDIX

(This Appendix contains a list of private vendors. This Appendix is not a complete list of available vendors, nor does a vendor's appearance on this list constitute an endorsement by BJA, which makes no representations whatsoever as to the capabilities, qualifications and/or aptitudes of the vendors appearing therein.)

List of vendors:

Information Systems

Loryx Systems
650-872-5000
www.loryxsystems.com

New Dawn Technologies
435-713-2100
www.newdawn.com

Scotia Consulting Inc.
818-956-8490
www.scotiaconsulting.com

Automated Calling Systems

AnyTrax
800-359-4208
www.anytrax.com

iSECUREtrac
866-537-0022
www.isecuretrac.com

OffenderLink
312-258-1000 x 322
www.fieldware.com/
OffenderLink/

Electronic Monitoring

3M Electronic Monitoring
www.solutions.3m.com

BI Incorporated
800-241-2911
www.bi.com

G4S Justice Services LLC
800-589-6003 x2516
www.g4s.com/us

iSECUREtrac
866-537-0022
www.isecuretrac.com

OmniLink
678-624-5900
www.omnilink.com

Premier Integrity Solutions
800-256-7141
www.premierintegrity.com

Satellite Tracking of People, LLC
866-525-8824
www.stopllc.com

Remote Breath Alcohol Tests

3M Electronic Monitoring
www.solutions.3m.com

iSECUREtrac
866-537-0022
www.isecuretrac.com

Remote Continuous Alcohol Monitoring

BI Incorporated
800-241-2911
www.bi.com

G4S Justice Services LLC
800-589-6003 x2516
www.g4s.com/us

Premier Integrity Solutions
800-256-7141
www.premierintegrity.com

Identity Verification

AnyTrax
800-359-4208
www.anytrax.com

BI Incorporated
800-241-2911
www.bi.com

G4S Justice Services LLC
800-589-6003 x2516
www.g4s.com/us

Drug Testing

Craig Medical Distribution Inc.
760-598-7170
www.craigmedical.com/
drugtests.htm

DrugCheck
507-526-3951
www.drugcheck.com

Noble Medical
877-836-5713
www.noblemedical.com

PharmChem, Inc.
817-590-0571
www.pharmchem.com

Premier Integrity Solutions
800-256-7141
www.premierintegrity.com

Redwood Toxicology
Laboratory
877-444-0049
www.redwoodtoxicology.com

Siemens Health Care
Diagnostics
888-588-3916
www.medical.siemens.com

XLAR
800-801-8378
www.xlar.com