



Title:

Laboratory Information Management System

Category:

Enterprise IT Management Initiatives

State:

Pennsylvania

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Executive Summary

The Pennsylvania Justice Network (JNET) is the Commonwealth's primary criminal justice and public safety information broker, providing an integrated on-line web portal to authorized law enforcement and public safety users. JNET recently partnered with the National Criminal Justice Association (NCJA), the Pennsylvania Chiefs of Police Association (PCPA) and the Cumberland County, PA District Attorney's Office to provide a standard, secure web service that provides laboratory status updates and dispositions from the Laboratory Information Management System (LIMS) to any submitting agency's records management system (RMS).

The accurate and efficient handling of evidence by law enforcement through the criminal justice process is necessary to the successful prosecution of suspects. Specifically, Pennsylvania law requires that chemical tests of blood or urine be performed at licensed and approved clinical laboratories using approved testing methods and equipment. In Cumberland County, the District Attorney Office's Bureau of Justice Services Division (BJSD) provides the necessary forensic lab services to law enforcement entities within the county by testing suspected controlled substances, via blood and urine samples. Regardless of where the specimen is taken, the officer relies on the results of the BJSD's forensic lab to determine the charges to file against a suspect.

In 2016, the BJSD implemented LIMS which utilizes a 2D barcode to track evidence from the police agency's RMS to LIMS. While the county LIMS provides many benefits to the lab and the police agencies, there remained a gap in service. Because of the lack of an interface between the two systems, manual processes were utilized to notify an officer when lab results were completed. Through a partnership with the BJSD, JNET implemented a web service to bridge the electronic information exchange gap noted above that enables information sharing across agencies and functional disciplines. JNET did so by leveraging the components of the Global Standards Package, which includes the Global Reference Architecture and the National Information Exchange Model to build and implement:

1. A standard, secure web service that will provide laboratory status updates and dispositions from the Cumberland County Laboratory Information Management System (LIMS) to the submitting agency's Records Management System (RMS); and
2. A standard query service that will provide the District Attorney's Office with the ability to query the Cumberland County LIMS for evidence updates.

The implementation of the above-referenced web services significantly reduces processing time and the labor-intensive work performed by law enforcement officers, prosecutors and administrative staff so their time can be used more effectively in the pursuit of public safety. Additionally, the electronic tracking and the interaction between systems elevates the integrity of evidence handling and reduces any potential breaches.

Concept

In the modern criminal justice paradigm, the efficient prosecution and disposition of cases is of the utmost importance. The sheer volume of arrests that need to be arraigned, evaluated for prosecution or alternative disposition and potentially held for trial necessitates that all parties within the criminal justice decision-making process seamlessly share information throughout the lifecycle of a case.

The handling of evidence, especially chemical tests of blood and urine, are extremely critical when it comes to oversight and tracking and the subsequent filing of charges. In Cumberland County, regardless of where an officer has blood or urine samples taken, it is ultimately the Cumberland County District Attorney Office's BJSD that provides the necessary forensic lab services to law enforcement entities by testing suspected controlled substances, blood and urine samples. The results of these tests are significant in determining a candidate's appropriateness for diversionary programs including Alternative Disposition Rehabilitation (ARD), Drug Court or Intermediate Punishment.

Prior to the implementation of the LIMS services, evidence was tracked manually for each case; often leading to significant delays as results were misfiled, lost or simply unavailable. These mistakes are extremely costly as they create major delays in the court schedule directly impacting police, prosecutors, probation, public defenders and private attorneys.

The situation created an opportunity to develop a more efficient and reliable evidence tracking system, include an interface to make the solution accessible and usable by all Pennsylvania law enforcement and do so using national standards to provide a best practice and reusable solution. By automating the submission, results and status of evidence handled by the BJSD, timely and accurate decisions can be made in supporting the 200 criminal cases handled during each of the counties 9 court terms.

Significance

In 2011, the Department of Justice, Bureau of Justice Statistics estimated that local law enforcement agencies made over 1.2 million arrests nationwide for driving under the influence (DUI) of alcohol; that equals 1 out of every 10 arrests for all crimes in the United States. The Commonwealth of Pennsylvania, which has over 12 million residents spread over 2,100 municipalities and 67 different counties, reports that in 2013, there were 47,594 offenses for DUI, which is the third highest offense captured in the state. On average each day, 33 alcohol-related traffic crashes occurred in Pennsylvania, with 24 persons injured during these crashes and 1.1 persons killed. During the same year, Cumberland County reported 6,447 total offenses; of those, 17 percent, or 1 in 6 arrests were for DUI. This was the single largest reported offense in the county.

DUI offenses require a significant amount of manual and administrative work by law enforcement. These manual practices can inundate officers and consequently impact law enforcement's assessment, determination and charging processes. Today, the Commonwealth relies heavily on the results of forensic laboratories to provide blood and urine test results to law enforcement for an officer to determine whether or not there is sufficient evidence to file charges against individuals alleged to have committed a crime, including driving under the influence of drugs or alcohol. Currently, blood and urine samples are delivered to the Cumberland County District Attorney's Office BJSJ for analysis. After the sample is analyzed, the officer must return to the laboratory to pick up the lab results and then return to the office to enter the information into the agency's RMS since the LIMS and police RMS do not interface with one another.

Through the implementation of a web service interface that can automate the sharing of lab results, all parties, including the county (i.e., the Court, District Attorney's, Public Defenders, Probation), municipal police and the defendant's themselves save processing time and reduce costs. By expediting the judicial process, cases are resolved more quickly which results in timely referrals to treatment and saves significant money for the taxpayers.

In 2014, the JNET applied for and received a \$250,000 grant award from the U.S. Department of Justice (DOJ), Office of Justice Programs (OJP), Bureau of Justice Assistance (BJA). This award was in conjunction with a combined \$480,000 Paul Coverdell National Forensic Science Improvement and Edward Byrne Justice Assistance Grant (Byrne JAG) Funding award issued by the Pennsylvania Commission on Crime and Delinquency (PCCD) to the PCPA to develop a new laboratory management system, leverage web services and improve the sharing of information about blood evidence between the county's forensics lab and its criminal justice agency partners. This justice to health information exchange solution will advance the fair and expeditious administration of DUIs in Cumberland County.

During the course of implementation, JNET developed three Global Standards Packages (GSP) web services (laboratory evidence submission, query, and results) that will increase the number of total document exchanges facilitated between police agencies and the laboratory not only in Cumberland County, but also in other jurisdictions in Pennsylvania and other states. JNET also used National Information Exchange Model data definitions and developed a Global Service Specification Package (SSP) with input from the Cumberland County District Attorney's Office.

JNET also developed strong privacy and security policies that govern web services, controlling the flow of information between the Records Management System/Evidence Management System and the LIMS. These are resources that can contribute to the Global Privacy Technology Framework and be leveraged by practitioners across the country.

During the project, JNET partnered with the National Criminal Justice Association's Center for Justice Planning (NCJP) to gather performance information, document efficiencies, recommend policies and ensure evidence-based practices were developed and implemented. NCJP also gathered information about challenges and lessons learned and measures of change that

indicate this initiative will improve information quality and accuracy, eliminate redundant data entry, increase efficiency and save time and money.

Impact

DUI prosecutions in Cumberland County have doubled since 2011. The impact on the business processes supporting the disposition and processing of those cases has been significant to both the county and the municipalities. Rising volumes equates to increased time and money. The goal of the JNET LIMS service is to drive down the costs of this process by making the sharing of evidence-related information more timely and accurate.

The implementation of the JNET LIMS services will directly impact 19 municipal police departments in Cumberland County as well as the BJSJ. Ancillary benefits, such as scheduling efficiencies, will benefit the court, prosecution, probation, public defenders and defendants themselves.

As with any process, manual intervention increases both the chance for error and the time it takes to complete the task. With the implementation of the JNET LIMS service, there is very little opportunity for errors pertaining to the sample. The service eliminates the need to re-enter data into multiple systems as was done in the past. The chain of custody, which can make or break a case that goes to court, is vastly improved through the LIMS and JNET web service as the evidence is tracked electronically through system-to-system interfaces.

Through the analysis of metrics and measurements developed through on-site analysis by the NCJA, it is estimated each of the 19 police departments participating in the JNET LIMS services project will save an average of 100 man-hours per year. This equates to \$259,000 in annual savings across the 19 participating police departments in Cumberland County.

From a laboratory perspective, this project will automate three significant and time consuming processes: the manual submission of evidence information into the LIMS, responding to inquiries from law enforcement for the status of results and posting evidence results.

Based on an average of 1,376 submissions to the lab per year:

- Data entry into the LIMS system (10 minutes per submission): \$5,779
- Responding to requests for updates (4 minutes per request): \$1,014
- Posting testing results (6 minutes per submission): \$3,528

Total annual savings directly experienced by the BJSJ laboratory: \$10,321

Previous processes reviewed during this project showed the amount of time from when a police department collects blood or urine until the time they receive the testing results took several weeks. The implemented solution provides the ability for blood or urine results to be returned to the officer in only three to five days. This allows the officer to file charges timelier and

reduces the entire length from criminal offense to disposition. It cannot be understated, particularly with the rise of treatment courts and similar diversionary programs, that it is critical to expedite court processes in order to introduce defendants to the critical treatment services they need to reduce recidivism. By making the front end of the criminal justice process faster, we can make treatment decisions faster.

Also, in the past, officers would have to enter information into two or sometimes three different systems. Furthermore, the systems themselves offered little or no quality control – resulting in evidence results fraught with typographical and other errors. This redundant data entry not only opens the door for error, but also takes away the amount of time officers can be policing rather than completing or correcting administrative issues. Anything that can be done to increase the amount of time spent policing, rather than entering or correcting data, ultimately increases public safety.

It is safe to say that the extra hours officers spend on the street protecting the public rather than in the office completing evidence submissions is by far the most important impact of this project.

While the scope of this specific project was limited to Cumberland County, Pennsylvania, the application is practical in virtually any setting. And, of course, the range of police time and cost savings will likely vary from county to county and agency to agency based on existing and maturity of existing business processes. Additionally, with the partnership of the PCPA and JNET, the JNET LIMS service is completely owned and provided without vendor support. This means that this solution can be provided to any county or agency within the Commonwealth at no additional costs.