Justice and Health CONNECT
A national resource for justice and health data sharing

Technology Makes Information Sharing Possible: advice from Paul Wormeli on how jurisdictions can use technology to improve the capacity to share information between justice and health agencies

*This summary is based on a conversation between David Cloud, program associate with Justice and Health Connect at the Vera Institute of Justice and Paul Wormeli, executive director emeritus of the **Integrated Justice Information Systems** (IJIS) **Institute**. Mr. Wormeli has had a long career in law enforcement and justice technology. He was the first national director of Project Search, a consortium of states interested in using advanced technology in criminal justice, after which he was appointed by the president as the Deputy Administrator of the Law Enforcement Assistance Administration in the U.S. Department of Justice. Prior to his tenure at IJIS, Mr. Wormeli served as chairman of the Integrated Justice Information Systems Industry Working Group (IWG), a consortium of more than 100 companies that was formed in 1999 at the request of the U.S. Department of Justice to help improve information sharing in the justice and public safety field and was the precursor to the IJIS Institute. Recently, as chairman of the NIEM Communications and Outreach Committee and the Executive Steering Committee of the Justice Training and Technical Assistance Committee, a consortium of service providers created by the U.S. Department of Justice to help facilitate the implementation of new ways to share information, Mr. Wormeli has provided training to hundreds of practitioners engaged in information sharing.*

David Cloud: At what point did you realize the importance of health and justice systems talking to each other and was there a particular issue that made you realize that information sharing was a good idea to advance?

Paul Wormeli: I think the need to share information across disciplines has been pretty obvious for many years. I remember back in the early days of Project SEARCH we were already talking about building capacity for information sharing across multiple disciplines. At the time we were talking about the different agencies and disciplines within the criminal justice system, but many people argued that information sharing was also appropriate between justice *and* non-justice agencies. As we developed the idea of standards based information sharing in the last 10 to15 years, it has become clearer that information sharing is the crux and cornerstone of improving the service of government across multiple disciplines. Once you accept that that's the case, you naturally start to understand that justice and health agencies have to share information. They do business with each other, and, if we're going to do it better, we have to have more information sharing.

Over the years, interest in information sharing has grown, and as we start thinking about doing a better job with services like offender reentry, it becomes obvious that justice and health information sharing can play an important role to support both health and justice agencies do a better job caring for their populations and ultimately lower recidivsm.

DC: We are trying to get a sense of how information technology has changed the capacity of health, public health, and criminal justice agencies to collaborate. More specifically have you seen information technology improve the capacity of these agencies to collaborate to address the overrepresentation of people with substance use and mental health disorders in the justice system?

PW: I think that as the leadership in Washington has become more enlightened and realized that substance abuse is more a sickness that needs to be dealt with by the health system than a crime that should be dealt with by the justice system, the concept of sharing information between justice and health practitioners has become very important. Recent developments in information technology that allow this type of information sharing have helped promote justice and health collaboration as a practical solution to the overrepresentation of substance use and mental health disorders in the justice system. One of the best examples of progress that has been made is the work that we've been engaged in at the IJIS Institute to help states exchange information on prescription drug fraud and abuse. This work really serves the dual purpose of helping investigators investigate crimes where fraud and abuse are involved and helping substance use providers identify situations where people need help. It has also enabled both law enforcement officials and service providers to determine the extent to which prescription drugs are being overused and creating a problem for someone and what the proper response should be.

DC: What are the biggest or most common technological challenges for justice and health information sharing and what can be done to overcome these challenges?

PW: I have to preface my answer by telling you my very strongly held belief that the problems of information sharing between justice and health are not problems of technology as much as they're problems of cultural differences. The will to share is more of a challenge than the means to share. I've said many times that technology reaches its full potential when it becomes invisible, when it is developed enough to work automatically and people are used to the idea that they can use it to inform their decision making and improve their practices. But there are technical challenges to getting to that point.

The most significant challenge we face is the basic vocabulary and standards used by different agencies and their data systems. I think this is particularly true as we talk about justice and health information sharing. The health field has a whole proliferation of standards governing all kinds of things and this will only increase with further development of electronic health records (EHRs). The justice field has been slower to develop standards but has developed the National Information Exchange Model (NIEM) and the idea of Global Reference Architecture (GRA). Having standards that operate between the systems is what's really important in order for computers to understand each other without needing an intervention. One example of this is defining the word case, which means something totally different in the health world than in the justice world – in the health world a case has to do with services provided to a patient, but in the justice world a case has to do with apprehension and adjudication. We have to come to grips with the differences in meaning and have ways to translate terms at the data level, so that we don't need humans to interpret all of the data shared between the systems.

The other challenge, which is more of a real technical interoperability issue, is developing connectivity of the networks. The networks that have been built tend to be siloed—either just for justice or just for health. We must find some way to enable these networks to interact. The internet, of course, is a great leveler for interaction, and we do have well-established internet standards like IP addresses and nodes, but the protocols and concepts of how to exchange data are different between health and justice.

DC: What is the range of technological solutions that you know jurisdictions are using, and what assistance is out there for smaller to midsize jurisdictions that are very interested in information sharing but have extremely limited technological capacity?

PW: Many smaller jurisdictions are unable to build the kind of technology that is needed to support their own work let alone information sharing. This is a problem because they need to participate in information sharing just like the larger agencies. Cloud computing is currently the only real option for these jurisdictions to exchange information, and I think that over the next couple of years there will be an explosion of people using this option. In house systems are incredibly expensive to develop, require additional information technology staff, and, once they are built, are difficult to expand or change. Cloud computing, on the other hand, is flexible, expandable, and you pay as you go with no upfront investment and only for what you use.

Cloud computing is the idea of using remote technology servers that can be located anywhere and accessed via the internet. With the cloud computing structure, you can create a virtual server in either a public or private cloud and you can increase and decrease your capacity as necessary. If you needed to, you could increase the capacity of your server to 10 or 100 times your current capacity in minutes, and you don't have to go out and buy new servers—they're already there. Cloud computing services are also incredibly affordable. Companies offering cloud computing charge mere pennies per hour of services. For example, Amazon sells archival storage space at the cost of 1 penny per month per gigabyte or one can buy an Amazon server for about 10 cents an hour. Lastly, cloud computing servers are very secure, reliable and are backed up all over the world, alleviating the common concern that, if data is stored electronically, it could be wiped out in the event that the servers crash.

As jurisdictions increasingly utilize cloud computing services for their data management and exchange needs, software companies will need to connect with the companies offering cloud computing to develop integrated solutions that provide the software these agencies need to implement case management. Fortunately, this is just starting to happen right now.

DC: Are you aware of any smaller jurisdictions already taking advantage of this or starting to implement this?

PW: We have identified a small but growing number of public safety agencies that have started to use cloud computing. The Maryland State Police Department is an example of a larger agency that has moved to cloud computing for their record management systems and there are a lot of other examples of smaller agencies that have done that.

DC: Can you tell us a little bit about the National Information Exchange Model (NIEM) and give us an example of a jurisdiction that has used NIEM to facilitate information sharing between justice and health systems?

PW: NIEM is probably the most advanced and mature standard for cross-domain information sharing. Existing standards in the health field and in the justice field are designed for internal use only and don't focus on the idea of cross domain information sharing. On the other hand, NIEM, despite originating in the justice realm, was designed as a standard for language, a standard of structure of how cross-system messages are created; and a methodology for how to build specifications for interdisciplinary information sharing with the goal of standardizing vocabulary and messaging enough that any two systems could easily share information.

Almost every state in the country utilizes NIEM in some way, but the state of Virginia has one of the most exciting applications of NIEM. Virginia just enacted a legal requirement that NIEM be used as the basis for all of the cross domain information sharing including justice and health data exchange, and they really believe that by standardizing the vocabulary and the messaging that data management systems use, linkage across domains will be made possible. There have been a whole lot of case studies published on NIEM.gov. You should go to that website and search for case studies. You'll find about 20 different pretty good descriptions.

DC: Have the health agencies been receptive to the idea of using NIEM, even though it emerged from the justice system? Have there been reservations?

PW: There have definitely been reservations, and I wouldn't say that they have been receptive. There's skepticism about whether or not NIEM will help improve the provision of healthcare because it came out of the justice world and there's a certain distrust that's native between public health and public safety as is endemic to government agencies no matter who they are. There are also those people who are skeptical because they think that those who built NIEM don't understand the health domain and its problems.

Olivia Sideman: Do you have any suggestions for how to help skeptics overcome their fears about NIEM and similar information sharing systems?

PW: Just like any other fear that you want to dissipate, you need to build familiarity. You need to get practitioners to look at NIEM.gov, read the case studies or talk to their peers. Begrudgingly, they'll come to realize that using NIEM to develop information sharing will save time and money. Pennsylvania is probably one of the jurisdictions with the most advanced application of NIEM, and they'll tell you that they saved 75 percent of the time and money usually needed to build 4000 nodes in the justice world, which talk to each other seamlessly today. It's a wonderful tool and people love it.

NIEM created a committee on training, outreach and communications because they realized that NIEM is a complicated tool that takes some time to learn. I was the first chair of the NIEM training, outreach and communications committee. As the chair, I traveled around giving lectures and executive briefings on NIEM to different organizations. In my experience, anybody who cares about improving government is going to listen. I put the onus on them from the outset

by telling them that if they care about their work and have a passion for improving the quality of justice and health in America, they will at least give NIEM a chance and see whether or not they can use it. The best thing about NIEM is that it is free and can be downloaded from NIEM.gov. From the NIEM.gov site, anyone can download the data model, all the schemas and 300 different IEPDs that are already built can be used at no cost.

I've been in this field for over 40 years, and I've never seen a process that results in more common understanding than the NIEM methodology. If you get people in a room working with someone who knows what NIEM can do and get a discussion started on what information they want to share, you'll find that they begin to work together in ways they previously would never have thought possible. I've seen it over and over again.

DC: Moving away from NIEM, can you give us an example of how technology is being used to navigate through some of the privacy concerns?

PW: There is a lot of work that is being done in this area right now. IBM and a number of other technology experts have done a great deal of work developing technology to anonymize data, which will hide the identity of the person whose personal information is being shared across domains with the capability that identifiers can be restored when there is an established need to identify this person. We just finished a study with Brandeis University, which will utilize principles of anonymization in order to allow for the development of a multi-state, central repository for prescription drug abuse data. A couple of years ago, we did a facilitated seminar with about 45 prominent privacy advocates from the ACLU and other well-known civil rights organizations, experienced practitioners, and technology experts, including the top privacy gurus from IBM, Microsoft and Oracle, and we challenged them to figure out how technology can implement privacy policy. During this conference, the experts developed the principle of using strong audits to ensure that data can't be used to do general fishing expeditions by building the function so that searches that aren't case specific are not allowed. This will alleviate a common concern that I hear about whether access to this kind of data leads to general fishing expeditions by law enforcement. In my experience from conversations with the ACLU and other civil rights experts, there is a general acceptance that law enforcement needs to be able to share data for criminal justice purposes but concern that data will be used for people with no predicate criminal justice involvement.

Another major advancement in information technology that is a critical step forward is the creation of the concept of federated identity and privilege management, where computer systems can be taught to establish trust between them on the basis of MOU's or other agreements so that participating agencies can assure each other that the users who will see data are authenticated and that the distribution of data to such users is restricted by the privileges to see data that have been defined for each user on the basis of their assigned role. The Global Information Sharing Advisory Committee to the Attorney General actually created and has piloted a specification in which this technology can be used to create the environment that will permit interagency information sharing on a whole new level. The Federal CIO council has drafted a similar specification that acknowledges the importance of creating these assurances so that true cross-domain information sharing can be a natural phenomenon.

DC: What is your vision for the future of justice and health information sharing? How can information technology improve how these different agencies think about the missions of public health and public safety?

PW: My vision is for a time when both public safety and public health agencies understand each other's information needs and collaborate to exchange data in a timely and accurate way that improves their ability to carry out their missions efficiently and effectively. I want to see practitioners' attitudes change, so they see themselves as stewards of information rather than owners of information, and recognize their obligation to provide access to the information they hold so it can be used to improve service provision and inform decision-making. In order for this to happen, the culture has to change, so that practitioners are eager to make data available and transparent to those who need it. When this happens, I am confident that we will have arrived at a state where information sharing will just naturally happen.