Patient Matching

Jim Giglio, TTAC:

Welcome, and thank you for listening to this podcast, part of the Prescription Drug Monitoring Program Training and Technical Assistance Center, or PDMP TTAC. TTAC provides a comprehensive array of services, support, resources, and strategies to PDMPs' federal partners and other stakeholders to further the efforts and effectiveness of PDMPs in combating the misuse, abuse and diversion of prescription drugs. Our focus is to improve consistency among PDMPs, facilitate coordination between PDMPs and state and national stakeholders, increase PDMP efficiencies, measure performance and effectiveness, and promote best practices. Funding and support for TTAC is provided by the US Department of Justice Office of Justice programs, Bureau of Justice assistance, or BJA. BJA supports PDMPs through the Harold Rogers PDMP grant program. The opinions expressed in this podcast are not necessarily those of the US Department of Justice.

Patrick Knue, TTAC:

Hello, my name is Patrick Knue. I am the director of the TTAC. PDMPs are designed to facilitate the collection, analysis, and reporting of information on the prescribing, dispensing, and use of prescription drugs within a state. An overriding goal of PDMPs is to uphold both the state laws ensuring access to appropriate pharmaceutical care by citizens and the state laws deterring diversion. Health care practitioners have come to rely on PDMP data to assist them in making medical decisions on the patients they treat, assist in determining if a prescription for a controlled substance is medically warranted, and whether the patient is appropriately adhering to the prescription directions. Health care providers expect PDMP data to be timely and accurate which make patient data matching vitally important. Patient matching is an issue being tackled not only by PDMPs, but all other health care systems.

Our podcast will provide an overview of patient matching, explain the challenges and opportunities for PDMPs in this area and detail the efforts of the Office of the National Coordinator for Health Information Technology or ONC. Today, we are joined by one of the experts on patient matching, Carmen Smiley. Carmen has served as an Information Technology Specialist in ONC since 2016. She is ONC's subject matter expert in patient matching, the technical lead on electronic prescribing, and the lead or contributor to other efforts across the agency focused on leveraging health IT to address the opioid epidemic.

Thank you for taking time to talk with us today, Carmen. To set the stage for our discussion, patient matching is, at its core, the identification and linking of patient data within and across health systems to obtain a comprehensive view of that patient's health care record. PDMPs specifically and the healthcare industry in general are struggling with accurate and consistent patient matching across organizational boundaries. When you hear people discuss patient record matching, they use several terms. So, to start our conversation, for our listeners, can you briefly define 'patient matching' and 'record linkage'?

Carmen Smiley, ONC:

Great, thank you. So, the term patient matching refers to the technical processes that identify and match two or more records that represent the same individual within the same enterprise. Typically, there are lots of synonyms across several industries for patient matching, and this could be disambiguation, identity resolution, identity establishment, deduplication. There's a number of other terms that are used, but they're essentially referred to the same processes of matching disparate records. And record linkage is typically referred to the matching that occurs when data is exchanged between enterprises, but for the purposes of this discussion and for most discussions that I have on patient matching, I just include everything into one large group, because what I'm most interested in is data from its birthplace, which is typically either a pharmacy or an EHR or some other system that initially captures that demographic information all the way through its life cycle.

Patrick Knue, TTAC:

Okay, thanks. Since our focus today is on PDMPs can you explain how patient records are matched in PDMPs?

Carmen Smiley, ONC:

Matching typically occurs by using demographic information, such as a patient's first name, last name, and date of birth, but they could rely on other identifiers. And so some PDMPs I know rely on social security numbers. Some leverage the services of an EMPI to assign an identifier to the patient records that they manage. But to this day, there's still no national strategy to support unique patient identifiers, but there's lots of work being done across the industry and at ONC to help address this really important issue. That's important, because it's critical to ensure patient safety more than anything, as well as quality of care provided to patients and really to ensure that the privacy and security of their data continues to be protected. It supports data aggregation, supports data exchange, as I referred to earlier, and the integration of health records that are tied to a patient's identity.

Patrick Knue, TTAC:

Yes, patient safety and data security are very important…..but what makes patient matching unique for PDMPs?

Carmen Smiley, ONC:

So patient matching is unique for prescription drug monitoring programs, because similar to a health information exchange, PDMPs receive data from many disparate sources and therefore they have to accommodate their systems and their processes to variations, great variations, in data quality and the formats in which they're received or the standards that are used throughout the life cycle of that data. So because PDMP administrators and staff have no control over the quality of the data that they receive from pharmacy information systems or other sources, they often have to take steps to translate, normalize, or standardize the data to support accurate patient matching before their algorithm begins to classify that data.

Patrick Knue, TTAC:

Yes, there is a lot of effort by the PDMPs to normalize and standardize the data they receive. And as you know, Carmen, TTAC is working with the Prescription Monitoring Information Exchange Standards Organization on patient matching. But getting back to our conversation, are there any other challenges or issues that PDMPs face in patient matching?

Carmen Smiley, ONC:

Reliance on proprietary solutions are very, very common across the industry, because this is such a difficult and complex problem for everybody really to address across healthcare. And everybody's doing this as well as they can with the tools that are available to them. But you really want to be able to think about this from an ecosystem perspective, because that data, especially PDMP data or data related to controlled substances, moves through so many systems throughout its life cycle, and the many systems that it touches complicates this further.

And data integrity is sometimes threatened anytime that translations or transformations are happening, even if they are for the purposes of patient matching, if that data, there's no history or provenance of the changes that were done over time or by whom or where. So there's currently a lack of consistency and any industry consensus on standards implementation or some of the minimum demographic data sets that are required for exchange. There's lots of variation in the algorithms that are applied across the ecosystem, and some of the differences between let's say an EHR, an electronic health record, and a PDMP or between a pharmacy system or any other intermediaries may also differ. And all of these differences affect the integrity of that data.

It makes it really difficult for us to be able to match the data from all of these systems to each other or to a singular patient identity, which is really our ultimate goal. Sometimes some disparate regulatory requirements and development efforts also between states also compound the further complexity of the issue. But our hope is that through consensus efforts and collaboration across the industry, we can help work together to develop some consensus to support accurate matching across the entire ecosystem, no matter where the data lays or whose responsibility it is to maintain the integrity of that data. And I think that also really touches on our ultimate goal of shared accountability for data quality. And I cannot really overemphasize the importance of data quality on accurate matching and therefore the interoperability of controlled substance data.

Patrick Knue, TTAC:

I think everyone will agree that data quality is very important. Carmen, could you go into a little more detail about what happens with inaccurate patient matching?

Carmen Smiley, ONC:

Some of the consequences of inaccurate patient matching, I would say, would be more than anything is patient safety, because you could have a patient record in front of you that doesn't contain all of the information that it should. Perhaps there's some other controlled substances that are not part of the patient record because you haven't received them for various reasons. When patient matching is not successful, it limits exchange, and so you're unable to create that longitudinal record that would most inform care.

So it leads to incomplete medication histories that PDMPs are managing every day. That could lead to inaccurate public health reporting or public health analytics. It could even lead to inaccurate risk assessment of individual patients or inaccurate stratification that is done for any sort of risk scoring or any other clinical decision support that's intended to help providers. But because patient matching is such a challenge and you may or may not have all of the data that they need to make those informed decisions, we're limited in our ability to do this as completely and as accurately as we would like.

Patrick Knue, TTAC:

Okay, as you said, there are challenges to matching patient data as completely and accurately as we would like, but what **can** be done to improve patient matching for PDMPs and the healthcare industry?

Carmen Smiley, ONC:

Some of the ways that I think that we can improve patient matching for PDMPs are like other systems across the healthcare industry or even industries beyond healthcare is that it's one of those areas that really most benefits from the development and implementation of open and interoperable standards. And that standardization of the data not only helps disparate systems speak to each other, so to speak, if they're still both even speaking the same language, but it also helps in improving the quality of that data that we're all working so hard to exchange.

I also think that additional cross-industry collaboration, whether it's between PDMPs and pharmacies or other associated systems that are connected to PDMPs, I think that is definitely welcome. EHR vendors and PMPs and pharmacies. The list goes on. I think additional collaboration is definitely welcome. And just to be able to open up those lines of communications on best practices that each has learned over the years and attempting to approach this challenge independently from each other, but often we don't hear about some of those best practices or some of the efforts that are happening across the industry because of this lack of communication.

I think a focus on data quality also would really, really help and that shared accountability of the quality of the data, as I mentioned earlier. Some form of governance is really needed and to really support improving data quality from the point of capture throughout its life cycle so that we can really be able to take the most advantage of the data that we receive and that we rely on. And because of the complex nature of PDMP solutions and networks, I even think an ecosystem approach is needed.

Patrick Knue, TTAC:

Yes, I agree……ONC has been very active on this with PDMPs and healthcare entities. In many instances, ONC has been leading the discussions and efforts on these issues.. Could you tell our listeners what do you see is ONC's continued role to help with patient matching?

Carmen Smiley, ONC:

ONC, we are guests, I think, in this space. We really appreciated all of the opportunities that we received to work with PDMP administrators and pharmacy systems and EHR vendors, everybody that's been a part of this exchange of controlled substance data. We've continued to work with our federal partners, CDC and CMS and others, to do whatever it is that we can to help support further integration and interoperability. And we do a number of other efforts that are just focused on patient matching. We've been working on a congressional report on the matter that was a requirement out of, I believe, the 21st Century Cures Act. We provide lots of technical assistance to standards development organizations, like PMIX and others just to help advance the standards and work towards further alignment to support accurate matching.

Sometimes that's also mapping standards to singular standards, something like HL7 FHIR that is open and interoperable and we believe is really pointing to the future of healthy team. And hope to, of course, collaboration with other partners, such as TTAC, on communications and any other efforts to help raise awareness of the challenges that everybody's facing in patient matching and how we can help each other overcome some of those challenges.

And lastly, we've just kicked off a project called Project USA, where we're working with standards development organizations across the industry, including those that are involved in PDMP work. And we're hoping to develop a healthcare specific unified specification to represent patient address, and we're partnering with the US Postal Service on this. We're starting with US Postal Service Publication 28, and we're further constraining and expanding that to be used across the industry, whether it is supporting clinical or claims data or for any other purposes, just to help support the accuracy of the data and the standardization, because the ultimate goal is that we're all doing this the same way and that one could argue that that's more important than precisely how we do it.

Patrick Knue, TTAC:

Great, Thank you, Carmen for sharing your knowledge and expertise on patient matching during this podcast. Patient matching is obviously a very complex issue and TTAC believes that the PDMPs are fortunate to have you and ONC as our partners…..so, thank you for explaining it to our listeners.

Carmen Smiley, ONC:

I really appreciate your time today, and thank you so much for inviting me to the discussion.

Patrick Knue, TTAC:

This concludes our podcast. To our listeners, thank you for your time listening today. Please let us know if you have any questions on this topic or any PDMP related topic. You can get TTAC's contact information by visiting our website at pdmpassist.org.