

Data Sharing between Jail and Community Health Systems: Missing Links and Lessons for Re-entry Success

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Abstract

Data sharing and interoperability between jail systems and community health providers are critical for successful re-entry of incarcerated individuals into the mainstream community. Using a case study approach, we present an account of interoperability efforts between jail and community health systems in the County of Orange (California, USA), including the overall infrastructure comprising of the jail management system, jail health system, and the community health system. We also describe outcomes and lessons from the Jail to Community Re-entry Program implemented in the County of Orange, along with recommendations and common data elements required for effective care transitions from custody to community

Keywords:

Interoperability; Jail Health System; Vulnerable Population

Introduction

Interoperability between jail health systems and local community health systems is a widespread problem among counties (or county equivalents) across the United States. Jail health systems provide health care services to thousands of incarcerated individuals, and are oftentimes the only source of health care for this population. Jail inmates are typically held for shorter periods of time (less than a year) before or after adjudication (Huh, 2018). It is common for jails to find themselves disconnected from the rest of the healthcare ecosystem in the community, resulting in several inmates lost to follow-up after release from custody. The lack of data sharing and interoperability are major barriers to community re-entry for inmates (Butler, 2013). Providing continuity of care and linking inmates to appropriate providers in the community demands for an efficient and meaningful way to share data between various systems. The transition from jail custody to community is critical for successful integration into the community, which includes reducing the risk of recidivism (i.e., reoffending) and subsequent re-incarceration. The goal of this work is to examine methods used by counties across the country to increase interoperability between the jail system and the community in an effort to improve coordination of care. Additionally, we present a case study of the current state of the Orange County (California) Jail Information Exchange System and their interoperability capabilities with the community.

Background

There are three systems involved in the transition process from custody to community: (1) jail management systems, (2) jail health system, and (3) community health system. The jail management system (JMS) comprises of critical data needed to operate a correctional facility such as inmate's calendar that includes court dates and medical appointments, bunking assignments, inmate's housing location, and case management notes. The jail health system (JHS) is essentially inmates' health record system needed to provide health care to the inmate population within the jail facility. It includes inmates' medication administration data, laboratory orders and results, and treatment records. Jail health record systems are electronic in few sites, but the vast majority of jail sites across the United States still use paper records in some form. Lastly, the community health system is used by external providers to coordinate care for inmates after their release from custody. In addition to health records, community health systems include the health insurance exchange (HIX) portal to purchase subsidized health insurance and ability to send secure messages among providers. Mandated by the Affordable Care Act, HIX is required for community health systems. However, this feature is still not widely available for jail facilities, furthering the gap in continuity of care for inmates reentering the community (Huh, 2018). For the remainder of the paper, we will use the acronyms JMS and JHS to refer to jail management systems and jail health system, respectively.

Interoperability between Jail Systems - Examples

Several U.S. counties have already begun addressing the interoperability issues between the three systems – JMS, JHS, and the community health system. We review and describe three examples including information on budget, key stakeholders involved, and interoperability outcomes. In Orange County (Florida, USA), the information technology (IT) project manager championed an effort to update the jail IT infrastructure and improve connectivity between the JMS and JHS. With \$9 million budget from the county budget, the project selected vendors that specialized in connectivity among correctional facilities to convert a paper-based health record system to an electronic health record (EHR) system and create an interface that will bridge communication between their JMS and JHS. This initiative led to improvements in case management where case workers could now view and anticipate inmate release date. Corrections officers were also able to verify diet requests and saw an overall decline in hospitalizations as well as improved pregnancy outcomes among inmates (Butler, 2013).

In Multnomah County (Oregon, USA), the director of integrated services and the program manager of clinical information systems championed an effort to promote connectivity between the JHS and the community health system. The county allocated \$2 million to install an EHR system in the jails, similar to the one already in place in the community health system, and to eliminate the need to physically move health records from jail site to jail site when an inmate is transferred. (Butler, 2013) The adoption of an EHR system vastly improved patient outcomes for those with severe mental illness through better care transition planning. The project also improved data sharing and coordination between the jails and the community hospitals and clinics. (Murphy & Murphy, 2014).

In New York City (New York, USA), a six-person development team from the state's health department along with key jail system staff such as the assistant commissioner of correctional health services led an effort to improve connectivity across the JMS, JHS, and the community health system. This project has a specific structural and policy leverage in that the agency in New York City that manages the general public healthcare also manages health care within the jails. This allowed for the jails to be incorporated into policies that involve of public health improvements. In other words, the jails are considered a part of the community and that the health of both systems are linked. This connectivity project led to several positive outcomes including access to prescription medication data going back 12 months; jail providers could view recent health information from services offered by community providers; access to consolidated behavioral health data about inmates; and interface with JMS to sync inmate housing location and calendars (Murphy & Murphy, 2014).

Methods

Using a case study approach, we present an account of interoperability efforts between jail and community health systems in the County of Orange (California, USA).

Context and Rationale for Interoperability

The mental health and substance use crisis within Orange County, California served as an impetus to change initiatives within the community and the correctional health system. The county as a whole saw a significant increase in homelessness, psychiatric hospitalizations, and increase in hospitalizations related to substance abuse. (2018 Orange County Community Indicators Report, 2018). Much of the mental health and addiction crisis in Orange County is seen within the county correctional system. For the period of May 1, 2018 to April 30, 2019, there were 43,000 individuals booked into the Orange County Jail system. Approximately 40% of the individuals incarcerated at the Orange County Jails stay only seven days or less and 70% of the individuals stay 29 days or less. Of 43,000 individuals who were incarcerated, 21% of them were diagnosed with a mental illness, 40% were diagnosed with a substance use disorder, and 10% were considered co-occurring. About 20% of all inmates at the Orange County jails are homeless. Recent trends have indicated that in any given day there are approximately 1,800 inmates receiving mental health services of some kind, making the Orange County Jail system the largest mental health provider in the county. About 5% of the jail population are considered high utilizers. High utilizers are defined as individuals who return to custody four or more times in a year. Among high utilizers, 46% of them are diagnosed with a mental illness, 85% of them are diagnosed with a substance use disorder and 42% of them are considered co-occurring. These data suggest a significant need for

improved continuity of care when leaving custody and re-entering back into the community. The lack of connection between the providers inside the jails and the providers in the community have contributed to the increase in recidivism (OC Integrated Services 2025 Vision, 2019). These limitations have served to influence policy change to include connectivity between the jail system and the community.

Systems Involved in Care Transitions from Custody to Community

An overview of the JMS, JHS, and a community health provider in Orange County is as follows:

- The JMS utilized by the Orange County Sheriff's Department serves to track inmate housing and movement. In addition to tracking housing locations, the system tracks pending court dates, sentence ending dates, and past and current charges.
- Orange County Correction Health Services utilizes TechCare® (NaphCare Inc, Alabama USA) as the JHS, which is an EHR system specifically designed to meet the needs of correctional facilities. It connects to all critical elements including the JMS, laboratory system, pharmacy, diagnostics, food services, hospitals and insurance providers (Medicaid, for example). Additionally, it allows for maintaining inmate's history of care, while also supporting charting and litigation activities. This EHR system was adopted in 2014 to replace the vast majority of the paper charting that was common practice at that time.
- The community health provider of interest to this case study is the County of Orange Behavioral Health Services Division, which provides mental health services to multiple populations within the county. They utilize an EHR system called Integrated Records Information System (IRIS) offered by Cerner Corporation (Missouri, USA). IRIS is used by both public health and behavioral health services for scheduling appointments, writing and tracking prescriptions, messaging between providers, billing, and documentation in the patient's health record. IRIS also facilitates sharing of medical, mental health, public health, and substance use disorder data between Orange County community health providers.

Communication between JHS and JMS

When an inmate enters into custody at the Orange County Jail, one of the first steps is to properly identify the inmate and match them with possible previous jail records. Every inmate is assigned a "T-number", which is used to track the inmate until they have been identified and assigned a booking number. After the inmate receives an initial health screening by the medical team, they are sent to the jail management team to be identified. Once the inmate is identified, their information along with a booking number is communicated from the JMS to JHS (TechCare). Both systems sync and communicate every ten minutes to track housing changes and movement. Although this is not real time, it does allow for an accurate picture for health care providers to track their patients. For the purposes of exchanging information about court dates and sentence ending dates, both systems sync daily in the evening hours after courts conclude. This is valuable information for case managers in both medical and mental health to strategically plan for inmate re-entry. Anticipating an inmate's date of re-entry is crucial for jail health care staff to ensure continuity of care and a warm hand-off takes place to a community provider.

Limitation to this interface include one-way communication and not having a fully electronic system. At this point, data are shared from JMS to JHS and not the other way around. Part of these reason is that JHS does not have the technical capabilities to manage the volume of data that the JHS would share. Unfortunately, this creates a missed opportunity for health care providers to electronically share important health information such as physical disabilities, medical accommodations, dietary restrictions, and medical risks. Such information is sometimes crucial for security staff to be aware of in order to maintain inmate safety. Additionally, because the communication between the two systems is not fully electronic, there are consequences to accuracy and timeliness. Both systems still utilize paper records for inmate message requests for medical treatment, sick call passes, and American Disabilities Act (ADA) accommodations. Not only does this leave more room for human error, but there is considerable delay in when this information is available to providers.

Communication between JHS and Community Health Systems

Currently, the only exchange of information between JHS (TechCare) and the community health system (IRIS) is with respect to laboratory data. Although this is important, it does not encompass the vast amount of data needed to improve continuity of care and patient outcomes. Health service encounters within the jail system are shared with IRIS, but it requires the clinicians to do dual entry of data into both systems. On the other, JHS is able to access encounter and medical history data from IRIS, but the information is limited. Currently, jail providers only have access to partial reports.

Orange County is working to eliminate some of these barriers by creating an avenue to exchange information with a diverse array of health care providers across the state. The County IT agency concluded that creating multiple interfaces to exchange health information with a variety of providers was both complex and inefficient. Orange County has entered into contract with Orange County Partnership Regional Health Information Organization (OCPHRIO) which will provide a one stop interface for multiple community and correctional providers. OCPHRIO has contract with a variety of providers across the state. If a provider has a contract with OCPHRIO, then Orange County will be able to freely exchange information with them. OCPHRIO creates interfaces for Orange County with all of these providers so the exchange becomes seamless simple and cost effective. The first pilot for this program is scheduled to launch in June of 2021.

Results

Jail to Community Re-entry Program

In 2019, Orange County Correctional Health Services implemented the jail to community re-entry program to increase offenders' success in post-release integration into the mainstream community. The objectives of the program were to: (1) improve mental health related case management system, (2) increase reentering offenders' access to community resources and government assistance programs, (3) increase connection with family and other support systems in the community, (4) utilize evidence-based interventions to address chemical dependence and criminogenic needs (e.g., programming should match to an offender's risk of reoffending and responsivity issues), (5) improve interoperability between various entities for coordinated and effective reentry system. The re-entry program uses a comprehensive and collaborative approach to provide discharge planning and re-entry services to

mental health inmates at all five jail facilities in the County of Orange (California). The collaboration includes various internal stakeholders such as Orange County Sheriff's Department and external stakeholders in the community including Behavioral Health Service Providers, Orange County Probation, Orange County Public Defender, Social Service Agency, Orange County Housing Authority and other ancillary agencies providing support and community resources.

Re-entry Outcomes within the 1st Year

The program success is measured using two sets of outcomes: the quantity of referrals being made to the community; and the number of successful linkages. A successful linkage is defined as the patient successfully making initial contact with the community provider after being released from custody. Since the start of the program, there was an obvious increase in the quantity of referral being made from the jails to the community. The quantity of referrals almost doubled for some of the providers in the community. This number took a sharp dive in the month of April 2020, likely due to the COVID-19 pandemic. At the start of pandemic, the jails drastically decreased their census by about 50% and released thousands of inmates early and went to a \$0 bail policy. The rate of linkage, the second success measure) hovered around 10-15% regardless of the quantity of referrals or the jail census.

Discussion

The re-entry program identified three reasons for the failure to achieve successful linkages: lack of in-reach services, inability to provide for a warm hand-off, and inability to exchange valuable and relevant health data. In-reach services involves the community provider to enter the jail and make contact with the inmate prior to their release. This goes a long way to engage the inmate in services and begin building rapport and trust with their new service provider. This is also an opportunity for the inmate to become familiar with the program that will be taking over their care in the community. Inmates often lack faith in the system's ability to be empathetic or offer meaningful help.

A warm hand-off constitutes facilitating direct transportation of the inmate from the jail facility to their community provider on the day of their release. This ensures that the inmate makes that initial contact with the community provider and allows for a transition from incarceration to treatment. It was noted that programs that offer in-reach services along with a warm hand-off at release have a significantly higher success rate of linkage. Given that many of the inmates housed in the jail systems are homeless or at high risk of homelessness, they often lack the funds or the resources to provide themselves with basic transportation. Additionally, individuals suffering from mental illness and/or substance use disorders often experience symptoms such as fatigue, poor concentration, poor impulse control, intense cravings for substance use, visual or auditory hallucinations, and mood fluctuations. These symptoms add an extra layer of challenges when keeping up with medical and mental health appointments after release.

The third and most critical barrier is data sharing between jail and community systems. Community providers often do not have access to health data from clinical staff in the jails and vice versa, creating a huge gap in continuity of care. Essentially, jail providers are forced to gather information about patient's history sometimes based solely on previous jail records or patient self-reports. In some cases, inmates spend an extended amount of time in custody and leave the jails with a significant amount of health data. When re-entering the community, providers are unable to continue that care or communicate with

their providers from the jails. This has led to issues including patients being referred to inappropriate levels of care, poor coordination from jail to community, and lapses in treatment from community to jail and jail to community. These issues are critical because inmates who do not have access to care in the community are significantly at higher risk of recidivating than those who are active in care.

In addition to challenges with the referral process and continuity of care, the lack of data sharing has created barriers with retrieving outcome data. The re-entry program requires outcome data for reporting and evaluation purposes. Currently, inmate information are manually entered onto a spread sheet to track releases and referrals. A monthly list of inmates release is produced and sent to the corresponding community providers. The corresponding community providers manually identify which inmate successfully linked to their programs and which ones did not. This list is then sent back to re-entry program and manually entered onto another tracking spread sheet. Because of the lack of interoperability between the re-entry program and the community providers, there is extensive room for human error and missing data.

The County of Orange Health Care Agency has placed a strong emphasis on interoperability with a variety of entities within the community to improve patient outcomes. Much of this comes from the 2009 HITECH Act and the 21st Century Cures Act to promote to meaningful exchange of health information. It is part of the initiative of Orange County to be in line with the standard of meaningful use and interoperability set by the HITECH act of 2009. The Electronic Health Record (EHR) Incentive Program administered by the Centers for Medicare and Medicaid Services (CMS) provides financial compensation for the "Meaningful Use" of certified EHR technology to achieve health and efficiency goals. Meaningful Use provisions of the Health Information Technology for Economic and Clinical Health Act were enacted as part of the American Recovery and Reinvestment Act of 2009. Currently Orange County is recognized by HIMSS as a stage 6 entity (HITECH Act, 2009).

Conclusions

There are several considerations that counties should consider when tackling the challenge of reentry. Regardless of how many resources and services are in the community awaiting to serve the incarcerated population, it is all negated if communication and coordination between the community and the jail system does not occur. A robust health information exchange program is essential to providing adequate continuity of care and proper care coordination. In order for a county to implement a data exchange program between the community and the correctional facilities there needs to be champions who believe in the need for interoperability and advocate for jail integration with the community. These individuals possess influence and utilize it to drive policy and resources in the direction needed.

Jail health systems, jail management systems and community health systems need to communicate seamlessly with one another to make the process work. Each system plays a vital role in the management of inmate health care and will need to exchange vital information to make transitions effective. Jail management systems should be sharing accurate court dates, release dates, active criminal charges, and housing locations so inmates can be properly case managed and tracked while housed in the system. The community health system and the jail health system should have bidirectional data sharing. Inmates sometimes frequently transition to and from the

community and jail systems. Therefore, both the community and the jail would be providing the individual care throughout the year. Common clinical data elements include psychosocial history, medical and medication history, diagnosis codes, a summary of care from the current provider, assessment of care needs, medication data (active prescriptions), history of care in the community and at the jail facilities, lab and imaging results, inmate signed letters, requests, consents, and grievances, and documented transition plans. In addition, patient outcomes in relation to the transition process should be shared between the jail system and the community. The best way to measure success and shortcomings is to examine patient outcomes. Did the inmate receive adequate continuity of care? Did the inmate link to the appropriate care provider in the community? Did the inmate increase or decrease recidivism? These evaluation questions could be used to make program decisions and improve services.

Policy reflecting the interests of interoperability is key because it drives much needed resources to programs that jail integration to occur. These projects are expensive and require personnel. Stakeholders in the community are essential to bridging the gap with the jail systems. Additionally, relationship between the jails and key community stakeholders are pertinent in tackling such large endeavors. Cooperation and coordination between the entities involved lay the groundwork for long term success. Lastly, the data being exchanged needs to be meaningful. The data should derive to provide continuity of care when transitioning to a new system or provider and inform the providers to assist in accurate and effective care coordination. Important features for meaningful use within the jail EHR systems include electronic prescribing, meaningful use performance tracking, providing clinical summaries, and providing patients with the ability to view online, download, or transmit health information.

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References

- [1] 2018 Orange County Community Indicators Report. (2018, April 2). Retrieved December 16, 2020, from <https://www.ocbc.org/wp-content/uploads/2020/09/2018-Community-Indicators.pdf>
- [2] Butler, Ben. (2013). Jails and Health Information Technology: A Framework for Creating Connectivity. Retrieved November 13, 2020, from <https://nicic.gov/jails-and-health-information-technology-framework-creating-connectivity>
- [3] Butler B. (2014). Health information exchange between jails and their communities: a bridge that is needed under healthcare reform. *Perspectives in health information management*, 11(Winter), 1b.
- [4] Corrections Specific EHR System and Hosted Solutions • TechCare EHR. (2020, June 19). Retrieved December 09, 2020, from <https://www.techcareehr.com/>
- [5] HITECH Act (2009) 42 USC 139w-4(0)(2)
- [6] Huh, K., Boucher, A., McGaffey, F., McKillop, M., & Schiff, M. (2018). Jails: Inadvertent Health Care Providers. Retrieved January 14, 2021 from <https://www.pewtrusts.org/>

/media/assets/2018/01/sfh_jails_inadvertent_health_care_providers.pdf

- [7] Martelle, M., Farber, B., Stazesky, R., Dickey, N., Parsons, A., & Venters, H. (2015). Meaningful Use of an Electronic Health Record in the New York City Jail System. *American journal of public health*, 105(9), 1752–1754. <https://doi.org/10.2105/AJPH.2015.302796>
- [8] Mental Health Services Act (2018, February 4). Retrieved December 16, 2020, from <https://www.sccgov.org/sites/bhd/Services/SP/Documents/2018/sp-mhsa-components-presentation-handout-02-14-18.pdf>
- [9] Murphy, B. & Murphy, J. (2014, March 01). The Impact of Policies Promoting Health Information Technology on Health Care Delivery In Jails And Local Communities: Health Affairs Journal. Retrieved November 13, 2020, from <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2013.1125>
- [10] OC Integrated Services 2025 Vision. (2019, October 22). Retrieved December 16, 2020, from <https://voiceofoc.org/wp-content/uploads/2019/10/OC-Integrated-Services-plan.pdf>

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