CAMDEN COALITION

HEALTHCARE AND PUBLIC HEALTH DATA INTEGRATION DURING COVID

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The Camden Coalition, a multidisciplinary nonprofit working to improve care for people with complex health and social needs, has been addressing multiple health disparities in southern New Jersey and beyond for the past two decades.[1] Through this work, we have learned that technology, no matter how sophisticated, can go only so far. What *is* required: a judicious, collaborative, and hands-on patient- and partner-centered approach to using and integrating technology.

The Camden Coalition launched its Health Information Exchange (HIE) in 2010 to connect the siloed data of our regional health systems and improve care delivery in the city of Camden.[2] The HIE is a web-based application that links individual-level data from providers across Camden and the region to enable real-time access to a holistic picture of an individual's clinical data. Since its launch, hospital electronic medical record (EMR) systems have evolved to allow for expanded capacity to share data across hospitals, yet there are still major gaps in access for other key providers. The Camden Coalition's HIE helps remedy this gap, by enabling the same level of visibility to a broad array of health and social service providers that are

equally critical for improving wellbeing. These additional providers include federally qualified health centers, the jail's healthcare provider, skilled nursing facilities, and social service organizations such as shelters, senior living facilities, and medically indicated meal services, among others.

COVID-19 created a host of challenges, particularly for low income, urban communities like Camden City, where high rates of community transmission exacerbated existing structural issues and inequities. The pandemic shined a spotlight on the need to integrate data across institutions and sectors. The Camden Coalition and our partners recognized that the Camden Coalition HIE was uniquely positioned to help bridge this data divide and could serve as a critical support tool for front-line agencies in their efforts to support a community that saw its healthcare and social needs grow exponentially in the wake of COVID-19. Four core use cases for the HIE emerged:

1. Providing comprehensive insight into the impact of COVID-19 on our community
2. Ensuring providers had greater access to lab results
3. Enhancing contact tracer's ability to identify and engage individuals
4. Standing up cross-agency and provider workflows to support vulnerable populations

PARTNERS

As was the case in most of the country, much of the front-line response to the pandemic in New Jersey fell on county health departments, which were tasked with standing up testing and contact tracing operations, establishing safe quarantine options for individuals with unstable housing, and, eventually, deploying vaccinations. Prior to the COVID-19 pandemic, the Camden Coalition had begun preliminary discussions with the Camden County Department of Health about becoming an HIE participant, but plans had not been finalized to onboard them before the pandemic was declared a national emergency on March 13, 2020. One week later, the Camden Coalition received a call from the county requesting an immediate connection to the HIE. We granted their request and quickly finalized the necessary agreements to ensure privacy, security, and proper consenting procedures so we could start training county staff right away and also determine their reporting needs.

Other key partners during this period were our local health systems, including emergency departments, primary care and population health teams, and a local housing provider whose shelter staff utilized the HIE to coordinate care and medication management services for their most complex patients. Health systems leadership also reached out with requests to train additional users on the HIE to facilitate greater use of the evolving COVID-19 data points we were integrating into patient- and population-level reports.

LEVERAGING DATA TO ADDRESS COVID-19 NEEDS

To address the variety of COVID-19 needs articulated by the county health department and other partners, the Camden Coalition worked quickly to develop new functionality for the HIE. These expanded capabilities were done with limited additional funding (under $20,000) and capitalized on much of the existing infrastructure of the HIE.

1. **Real-time population health dashboards:** Recognizing that different stakeholders had different components of the data picture and no single entity held a comprehensive picture, the Camden HIE could provide a holistic view of our community and the impact of COVID-19. The coalition's data team constructed a data warehouse to include daily extracts of all COVID-19-related HIE data. Incorporating feedback from different stakeholders, the Camden Coalition constructed numerous Tableau dashboards to monitor COVID-19 trends, such as daily new cases, lab positivity rates, hospitalization and ICU utilization, geographic hotspots, and other relevant metrics.

2. **Expanding access to COVID-19 lab data:** While all COVID-19 test results were mandated to be shared with the state, clinicians were limited to seeing only labs their organizations had ordered. As testing sites were rapidly being established and patients were scrambling to get tested wherever possible, the Camden Coalition worked closely with providers and lab companies in our region to ensure as much lab data as possible made its way into the HIE and that the data would, then, be available to providers in user-friendly formats. To ensure the information was front and center, alerts were created in the HIE that high-

lighted the most recent lab date and result. Existing population management reports already being utilized by providers were expanded to include additional fields that indicated recent test results to avoid duplicative testing.

3. **Enhancing contact tracing efforts with additional contact information:** Recognizing that the HIE had longitudinal demographic data on a large subset of the region's population and that one of the primary barriers to contact tracing was the ability for tracers to successfully call and get through to individuals, the Camden Coalition worked closely with the county to create a contact tracer user role with tailored access to relevant information in HIE. Contact tracer users could look up an individual in the HIE and access phone number and address data across all our data contributors without the liability of seeing HIPAA-protected clinical data. Every additional phone number or address was an opportunity to re-engage someone who might have had incorrect or out-of-date contact information.

4. **Flagging vulnerable patients:** The Camden Coalition recognized that the HIE also could flag individuals at highest risk for developing a severe response to COVID-19. Using the CDC's risk criteria, the coalition constructed variables to identify these high-risk populations and incorporated them into existing provider reports. With these report additions, providers could look at their populations and prioritize patients at higher medical risk for telephonic check-ins, educational outreach, and appointments.

5. **Cross-agency workflow development**: As partners realized the need to stand up new multiagency interventions, a common data platform became necessary to facilitate these workflows. One such intervention deployed in Camden and other communities across the country were quarantine hotels, which provided access to temporary housing for individuals without stable housing to prevent further exposures in the community. These interventions needed to launch quickly with limited time and resources to build out the data systems to support them. The HIE, with its ability to quickly stand up data collection and workflow tools across partners, helped fill the gap.

The housing nonprofit and county managed the administration, intake, and onsite support to hotel residents, while Camden Coalition staff provided care coordination. The Camden Coalition team worked closely with partner agencies to quickly understand and map out the workflow—from referral to intake and all the way through care coordination and exiting of the program—and translate it to provide all the information necessary at each step of the process. We then converted the workflow into a set of forms and documentation steps, and took a minimum viable product (MVP) approach to turn around a prototype we could share with our partners for their input. With the MVP developed, we were able to demo the key functionality to partners and solicit rapid feedback critical to refining the tool. We continued to co-design all the forms with partners to ensure critical information moved with the patient throughout each step of the process to alleviate the patient's need to repeat information about their situation to multiple providers and to allow providers to more efficiently communicate with one another.

CHALLENGES AND RESPONSES

From a data perspective, the foremost challenge to the COVID-19 response was that neither the state and county health departments nor our social service providers had sufficient preexisting data and analytics support. Given the unprecedented nature of the pandemic, everyone—from the state and county health departments to our local health systems and social service providers—was scrambling to move quickly, and with limited, and sometimes conflicting, guidance. These conditions produced a somewhat chaotic environment that made it difficult at times to step back and think about opportunities to use data innovatively and more holistically rather than just focus on the immediate crisis at hand. As a result, there was a general lack of bandwidth by partners, and getting momentum on determining how the HIE could support the work was sometimes a challenge.

There also was an onslaught of opportunistic technology companies pitching their solutions as the silver bullet to combat the pandemic as they eyed emergency funding allocations as a new gold rush. Even though the HIE was already funded and the coalition was not seeking additional funds to support the work, there was a general perception that we were just one of a plethora of vendors trying to sell new products which, at times, seemed to stymie the work.

Compounding this was a lack of clarity over who had the decision making authority to make data and technology decisions. While we scrambled to expand the HIE's lab data to the extent we could, we recognized a direct connection with the State's Communicable Disease Reporting and Surveillance System (CDRSS) would provide us the most comprehensive lab picture possible to our provider community. After multiple conversations with the state, we were unable to gain traction with establishing an interface between the HIE and the CDRSS system. We also were unable to secure permission to obtain data extracts from the CDRSS that, while not directly feeding into the HIE, would complement our dashboarding and population health efforts.

To counter these challenges, the Camden Coalition tried to anticipate the needs of its partners and move forward with building out new functionality regardless of whether there was clarity around funding and/or statewide consensus on whether to move forward with using the HIE for a given use case. This meant that time was invested developing tools that were not, ultimately, needed in certain cases, but it also meant that as partners solidified their needs for the HIE, we were ready to support them as rapidly as possible. In the long term, we anticipate working with the county to build their data and analytics capacity, and offer similar support to surrounding counties in South Jersey.

RESULTS

In the urgency of responding quickly to the pandemic and to understand the potential for the HIE to support our partners, the Camden Coalition was able to leverage the HIE for a variety of new purposes and onboard the Camden County Health Department in a short period of time. Some of the tools and functionality developed had immediate benefit and impact—the population dashboards allowed us to establish additional, better located testing sites; the contact tracing role within the HIE allowed county staff to have more accurate outreach information; the multiagency care coordination and workflow tool for the quarantine hotel was critical for standing up a brand new, time-limited program that served one of the city's most vulnerable populations.

Other tools we developed did not provide as much utility. We were not successful in activating the provider community to use the clinical and social vulnerability flags, as providers were primarily focused on treading

water in a radically new landscape. However, our internal teams used this variable as a prioritization strategy when conducting outreach to schedule vaccination appointments for Camden residents at a pop-up FEMA vaccination site in February and March 2021.

The longer-term implications of these collaborations were that the Camden Coalition was able to further reinforce the HIE as a critical and nimble resource within our community. We were able to onboard the county health department and showcase the HIE's ability to serve as a uniquely situated, inexpensive, cross-sector, cross-agency tool, which has helped initiate conversation about broader uses for the HIE to support non-COVID-19 programming and to create a more robust ecosystem of care in our region. The efforts to quickly build a variety of new functionality and collaborate across agencies strengthened our muscles for how the HIE can react and adapt to future needs as they emerge

REFLECTIONS

The collaborative, data-driven efforts of the Camden Coalition and its partners to leverage the HIE to respond to the COVID-19 crises showcases the value of ongoing investments in community data infrastructure. With very limited additional funds, the Camden Coalition was able to quickly stand up a variety of new functionalities that supported the diverse needs of our partners. This would not have been possible without many years of prior investment in the underlying data and analytics infrastructure and strong preexisting partnerships on the ground.

Given the need to react quickly to the crisis, our early efforts focused on rapid-cycle development of functions that were urgently needed. As we continue to tackle the ongoing challenges of COVID-19, the early work we did with the county and a local housing nonprofit created an opportunity to more systematically build a cross-sector data capacity in our region that we are already expanding today, and to develop ways to more effectively respond to subsequent challenges.

NOTES

1. See Camden Health website, https://camdenhealth.org/about/.
2. See Camden Health, https://camdenhealth.org/connecting-data/hie/.