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Milbank Memorial Fund

AcademyHealth

Case Studies

Three Projects Receive Inaugural State and Local Innovation Prize

Foreword

While our organizations have distinct purposes and interests, the Milbank Memorial Fund and AcademyHealth share at least one common goal—to support efforts to build and use the best evidence to improve population health.

We also share a strong interest in learning from and disseminating information about state and local health innovations that break new ground in efforts to improve the health of specific populations. While there are many components to this work, it is clear that dramatic improvements in the availability and use of data are essential, regardless of the specific intervention or population focus.

The Milbank Memorial Fund and AcademyHealth State and Local Health Innovation Prize was designed to honor public and private collaborations that use publicly available data to improve population health and to elevate recognition of the many opportunities that exist to do this important work. The winners of the inaugural prize were announced at AcademyHealth's Health Datapalooza event in April 2018.

The case studies that follow profile the three finalists, describing the challenges they faced and how they turned obstacles into opportunities for innovation and improvement.

In Chicago and Chatham County, Georgia, a public health crisis spurred action and created opportunities to introduce systems changes. In addition to operations and technology, they had to address changes in organizational culture.

Washington State wanted to get health care costs under control and deliver better care to the state's low-income elderly and disabled populations. Its predictive risk intelligence system (PRISM) team focused on integrating Medicare and Medicaid data and delivering more complete information to front-line personnel responsible for care coordination for these high-needs/high-cost populations.

Our communities face no dearth of complex population health challenges. Hard-working innovators like those honored in Chicago; Chatham County, Georgia; and Washington State show us how the smart use of data is a critical element of successful strategies. By sharing these case studies, local public and private collaborations may be inspired to replicate these initiatives or develop their own solutions. The nation's success in improving population health and transforming health care delivery will depend on efforts like theirs.

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CHICAGO'S CHILDHOOD LEAD PAINT DATA-SHARING PROJECT (winner)

Preventing lead poisoning before it starts:

This project developed a "predictive model" that combines data from multiple sectors to identify at-risk children for blood testing or homes for lead inspections. The project also developed a shared platform with pediatric providers that recommends specific actions based on lead-poisoning risk.

Problem it solves:

How to identify young children at risk of lead paint poisoning in their homes

Agencies involved:

Chicago Department of Public Health
Chicago Department of Innovation and Technology
University of Chicago Center for Data Science and Public Policy
AllianceChicago

Status:

Summer 2018 pilot program

The traditional approach to addressing lead paint exposure and poisoning in children is reactive. Whenever a child tests positive for lead, the city's public health department springs into action. They visit the child's home to conduct an assessment and, when necessary, order landlords and homeowners to eliminate the hazards.

This project takes a proactive approach by identifying children who might be at risk when they are very young. Its predictive model incorporates data from multiple sectors, such as age of housing, history of other positive lead tests on the block, poverty, and other factors, and inputs them into a model to predict the risk that the child is being exposed to lead. The unique data-based, risk-assessment tool, when accessed through a newborn's electronic health record, can alert pediatricians if their patient is at high risk of lead exposure. When the program launches this summer, those alerts, funneled to the city, will enable its lead inspectors to perform home inspections before the exposure occurs.

In 2013, city health department officials, in collaboration with data scientists at the University of Chicago, began looking for ways to deploy predictive analytics to focus its scarce resources on the city's most serious public health problems. Food safety, breast cancer screening, and lead poisoning were high on their priority list.

But it was the city's long-running struggle to end lead poisoning that proved the ideal place to start. "We wanted to prioritize and allocate inspectors for homes to prevent lead poisoning," said Raed Mansour, director of innovation, Chicago Department of Public Health, and leader of the project.

"It was a unique opportunity to integrate health care and public health and data science," said Rayid Ghani, who, fresh from leading the data team for President Barack Obama's successful 2012 reelection campaign, had just set up Data Science for Social Good, a program within the Center for Data Science and Public Policy, with a 2014 grant from the Eric & Wendy Schmidt Data Science for Social Good Summer Fellowship, funded by the Schmidt Family Foundation.

They focused on lead hazard abatement because of the wealth of data that could be channeled into a risk assessment tool. They acquired decades of lead test results from the state, which included the addresses of kids who had previously tested positive; city building and inspection records; and a wide range of census-derived demographic data and social service utilization data.

After making numerous adjustments in the weight given various data points, they created a composite risk score. They brought in AllianceChicago, a network of federally qualified health centers (FQHCs) that seeks to bring advanced health information technology to clinics serving vulnerable communities, to help develop the software that would enable clinicians providing prenatal and pediatric care to access that risk score at the point of care and immediately send alerts to the City of Chicago when it surpassed a certain level.

"Lead screening is very effective, but the problem is it only detects lead already present in the blood after children have been exposed," said Nivedita Mohanty, MD, chief research officer and director of evidence-based practice at AllianceChicago. "The beauty of this project is it develops our capacity to determine the level of risk and limit lead exposure before the kids are screened."

Lead Poisoning in Chicago

Despite decades of progress in lowering childhood lead exposure, more than half a million American kids still have unacceptably high blood lead levels, putting them at risk of attention deficit and hyperactivity disorders and permanent intelligence impairment. No lead level in young children is considered safe.

Chicago's aggressive screening program turns up about 2,000 children each year with blood lead levels above 5 micrograms per deciliter, the Centers for Disease Control and Prevention's current "level of concern." Most live in impoverished neighborhoods on the city's West and South sides, where the paint on walls and woodwork of deteriorated apartments and homes often predates the 1978 ban on lead-based paints. In the hardest hit neighborhoods, as many as 10% of children have elevated blood lead levels, compared to 3.5% citywide.

After building a prototype with funding from the Robert Wood Johnson Foundation, the city tested the tool by scoring some homes and conducting inspections based on the results. "The accuracy of what we predicted was borne out," said Joe Walsh, a scientist at Data Science for Social Good. "A lot of those houses had the lead hazards that we expected."

Another key element for the program was building an application program interface (API) so the tool could be accessed by city-approved health care facilities' electronic medical records (EMRs). "We were concerned about interoperability," Mansour said. "We figured the easiest [way] was to build one standard API, and the different institutions and EMR vendors could code to that standard."

The rollout this summer will involve just four FQHCs. Alerts will trigger a two-step inspection process. First, licensed public health lead inspectors will visit the targeted homes for a visual inspection. If they see potential lead hazards, they will complete a lead inspection and develop an abatement plan.

The slow rollout is necessary because "you don't want the unintended consequence of not being able to fulfill inspection requests," Mansour said. "We're aware of the capacity of the department to provide the preventive service to clinicians and families."

The project is prepared to shift gears depending on the early results. How the tool is situated in the EMR may get tweaked if too many physicians forget to access the system. The risk score algorithm will be adjusted if its predictive powers are off based on feedback from the inspections.

"This is a pilot for us," said Allison Arwady, MD, the chief medical officer at the Chicago Department of Public Health. "I'm sure the clinics will make some changes. But if it's successful, we'll roll it out to other health care systems."

CHATHAM COUNTY, GEORGIA, INMATES PROJECT

Building a continuity of care system for Chatham County Jail inmates:
This project closed the medical information gap and improved patient safety and health outcomes for those within the county's jail and those transitioning back into the county's population.

Problem it solves:
How to improve health outcomes for some of the county's most vulnerable communities

Agencies involved:
Chatham County Safety Net Planning Council, Inc.
Chatham County Commission
County Manager's Office, Chatham County
Chatham County Sheriff's Department
Curtis V. Cooper Primary Health Care, Inc.
Georgia Regional Academic Community Health Information Exchange

Status:
Up and running since 2016

While Savannah, in Chatham County, is best known for its stately mansions and antebellum charm, its low-wage, tourism-dependent economy leaves about a quarter of its population in poverty. The crime and murder rates are high. Racial tension is never far below the surface.

About 18,000 people move through the county jail annually, with a daily jailhouse census of more than 1,600, giving Chatham County and its 290,000 residents one of the highest incarceration rates in Georgia, a state ranked ninth among all states in incarceration rates.

An estimated 20% of inmates, many of whom can't afford bail and are awaiting trial, have behavioral health issues. A significant portion of middle-aged detainees, often picked up on alcohol-related charges, suffer from chronic conditions like chronic obstructive pulmonary disease, diabetes, and congestive heart failure.

"If we could provide continuity of care for this population, it could, in the long run, reduce homelessness and chronic health issues for our lower-income population," said Lisa Hayes, project leader and executive director of the Chatham County Safety Net Planning Council, a partnership that represents the major hospitals and federally qualified health centers (FQHCs) in the area.

Hayes, who had previously worked with the Atlanta-based Task Force for Global Health, came to Savannah four years ago to coordinate safety net care in the region. She started by integrating the countywide health information exchange (HIE) into the larger and better-funded Georgia Regional Academic Community Regional Health Information Exchange (GRAChIE), which now has over 2.5 million people in its database.

When the sheriff's department initiated a search to replace Brentwood, Tennessee-based Corizon as its jailhouse medical provider, Hayes jumped in to insist that any new contract include installing an electronic medical record (EMR) system that was interoperable with GRAChIE. The medical staff can now access every detainee's medical history in real time. She also pushed for accountability metrics that would show that the new jail health provider was using the system to conduct health screenings that queried GRAChIE. Now the health vendor staff query the GRAChIE database each time a person is jailed, even if only overnight.

"If we could provide continuity of care for this population, it could, in the long run, reduce homelessness and chronic health issues for our lower-income population," said Lisa Hayes, project leader and executive director of the Chatham County Safety Net Planning Council.

One of the local FQHCs in her network, Curtis V. Cooper Primary Health Care, whose clientele included many people occasionally detained in the jail, smoothed the way by dramatically lowering the cost of the new system. Instead of purchasing its own EMR, the county jail obtained a low-cost license from the FQHC, which had a newly installed EMR that included a jail module.

The system went live in late 2016, but not without overcoming some initial glitches unique to its patient population. "We had to deal with how we verified a person's identity," said Hayes. "What we found is that aliases are used both at the hospital and at the jail. We had to utilize fingerprints and the first name associated with the fingerprints as our identity. It needed to happen first before an HIE query and before we moved on to health screening."

Now that it's up and running, the jail-HIE connection is helping providers on both sides of the jailhouse door. "When inmates are released, if they have an emergency and arrive at the ER, we can see what medications they were taking while in jail," said Tara Cramer, executive director of GRAChIE. "It gives the clinician insight into what may be going wrong with this person."

The impact on continuity of care for former jail inmates is evident through patient crossover data with local safety net health providers. Crossover data shows how many patients are shared in common with other GRAChIE members. In April 2018, reports showed that 8,693 former detainees, or nearly half of the yearly jail census (48.3%), were queried at

the point of care at Memorial Health University Medical Center, the region's indigent care hospital that has been connected to the HIE since 2015.

HIE patient data is cumulative and crossover numbers increase over time. As more information becomes available in the HIE, doctors have a clearer picture of a patient's medical history and are able to improve coordinated patient care, reduce duplicative treatments, and avoid costly mistakes.

The new system has "been a big help," said Chatham County Sheriff John Wilcher, who joined the department in 1974. "You have people come into jail who have this ailment or that ailment, or saying I'm taking this or that." Now, he says, "medical can take care of them accordingly."

WASHINGTON STATE PRISM PROJECT

Drawing from multiple data sets to coordinate care for dual eligibles:

Using Medicaid and Medicare claims data to direct and inform its health home program allows Washington State to target high-cost beneficiaries, improve their health status, and save money.

Problem it solves:

Medicaid agencies rarely use their scarce resources to coordinate care for high-cost, dual-eligible beneficiaries since their medical bills are paid by Medicare. Medicare has not traditionally paid for Medicare savings generated by Medicaid coordination efforts.

Agencies involved:

Centers for Medicare and Medicaid Services (CMS)
Washington State's Department of Social and Health Services

Status:

Up and running since 2013

Sometimes a helping hand is what people need to get their lives back on track.

Some Washington State low-income residents eligible for both Medicare and Medicaid got that helping hand after being enrolled in the state's care coordination program, which provides one-on-one coaching and support for high-cost beneficiaries. Begun as a limited pilot Medicaid-only project in the late 2000s, the state expanded health homes statewide five years ago to include Medicare patients under the CMS financial alignment demonstration project.

"I was going to the emergency room three or four times a week for little things," one dual-eligible beneficiary told program reviewers. "Since I started working with [my care coordinator], I've been to the ER once in two years."

"My blood sugars were super high," recalled another. "She gave me some suggestions. And with the other classes that I took, I've reached my goals."

The program was not just a success for CMS and the state, which earned half of the $67 million Medicare estimates it saved through the program, but it confirmed the value of the state's pioneering foray into using data drawn from both agencies to identify the most expensive patients who would benefit most from care coordination. It has paid off not just in lower costs, but in better health.

"Without the intervention side, the technology is a toy, not a tool," said David Mancuso, the director of research at Washington's Department of Social and Health Services, the department that led the initiative. "Many states are doing health homes. We happen to do health homes using predictive modeling. It allows us to target our not-very-expensive care management system at people who are in the top 5% of the Medicaid risk pool."

Washington began developing its predictive risk intelligence system (PRISM) in 2007 to identify the small minority of Medicaid patients who accounted for most of the program's costs. The idea was to provide them with aggressive care coordination and individual coaching, a strategy that has proven successful in reducing unnecessary ER visits, improving medication adherence, and helping people improve their overall health status.

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PRISM's architects initially relied on state Medicaid medical, mental health, and long-term services and support records, which had to be drawn from multiple health information technology systems. It was the only data available to them.

However, Medicaid beneficiaries who were also eligible for Medicare—largely low-income elderly and the disabled, often housed in nursing or group homes—represented a special problem. The state didn't have their medical records and wouldn't benefit anyway if it spent scarce care-coordination dollars on keeping them out of the hospital or away from physician offices. Those bills were paid by the federal government.

"They excluded dually eligible beneficiaries when it was first conceived because of the financial misalignment," said Tim Engelhardt, director of CMS's Medicare-Medicaid Coordination office. "This misalignment of financial incentives has always been a constraint to innovation in the field."

Washington's validated PRISM model made it easy to arrive at a solution. Why not give the state all CMS's Medicare claims data and allow it to share in any Medicare savings that resulted from better coordination of care for dual-eligible beneficiaries? The state joined CMS's financial alignment initiative.

While 22 states and the District of Columbia are experimenting with Medicaid health home programs, only 11 are participating in the shared savings/financial alignment initiative. And "only Washington has combined them into one powerful intervention," Engelhardt said.

The power comes from PRISM's ability to incorporate the CMS data on a timely basis. The federal agency sends Medicare's hospital, physician, and pharmacy claims data on a daily basis. The state then incorporates the data into PRISM weekly.

The merged data proved eye-opening for state officials. "A lot of our high-risk folks are seeing tons of different providers with many prescriptions," Mancuso said, noting that that's crucial information for a provider seeing that patient for the first time.

When the system flags a person with multiple ER visits, "it identifies those conditions that might be preventable," Mancuso said. "It's a key reason why the health home program has been effective."

Washington has also been innovative in deciding who gets access to the system. Care coordination often winds up referring people for housing assistance, food pantry support, or behavioral health services. "In the last three years, we have identified classes of workers in our social service delivery systems who perform health care functions and are now legally authorized to access protected health information," Mancuso said.

There are now over 1,400 authorized users across the state. They include insurers handling the state's Medicaid managed care program; long-term care agencies; care coordinators involved in the health home program; and social workers in community and state social service agencies. PRISM's website recorded over one million page views in the past year, Mancuso said.

Other states have expressed interest in replicating the PRISM model, in part because it cost so little to build. Mancuso's team has done presentations about the system in dozens of states. Washington spent about $500,000 to develop the first iteration of the program, with the current expanded version costing just $800,000 a year to operate.

"We didn't have to invest millions up front," Mancuso said. "If we went the commercial route, you'd be talking about a multi-million-dollar contract."

PRISM is user-friendly. "For care coordinators in the field, access to PRISM data gives the right amount of client history," said MaryAnne Lindeblad, Medicaid director in Washington. "Care coordinators use the data to help develop and work towards client-centered goals and to increase clients' activation in their own health care. Using information in PRISM, care coordinators can find the best approach to engaging clients and showing them ways to avoid costly care at the ER or in the nursing facility."

About the Milbank Memorial Fund

The Milbank Memorial Fund is an endowed operating foundation that works to improve the health of populations by connecting leaders and decision makers with the best available evidence and experience. Founded in 1905, the Fund engages in nonpartisan analysis, collaboration, and communication on significant issues in health policy. It does this work by publishing high-quality, evidence-based reports, books, and *The Milbank Quarterly,* a peer-reviewed journal of population health and health policy; convening state health policy decision makers on issues they identify as important to population health; and building communities of health policymakers to enhance their effectiveness.

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