Connecticut Information Sharing Hub
The Power of Cross-Slio Data-Sharing to Drive Value and Save Money

Category: Data Management, Analytics & Visualization
State: Connecticut
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Executive Summary

Headline: Cross-Silo Data-Sharing Saved Over $170m

Connecticut – like all states – faces an enduring
challenge: How can we best serve and improve the
lives of our citizens while reducing costs? The roots of
this challenge are multi-faceted and persistent, but in
recent years, there's been recognition that one
solution may lie in the power of data. To put it simply,
we have the information to help us more effectively
and efficiently meet the needs of our citizens, now we
just need to put it to use.

Understanding the value of cross-silo data sharing is
the first step, but the blockers are substantial and include everything from policy to culture.
We've partnered with Pulselight, a technology-driven solution, to break down these barriers,
facilitate cross-agency data-sharing among 5 state agencies and ultimately deliver measurable
benefits for the state of Connecticut.

- Over three years, Pulselight data sharing has resulted in:
    o Over $170 million in cost savings
    o Over $17 million in recoveries from program integrity reviews
    o Over $44 million in judgements or settlements secured the the Office of the
      Attorney General
    o The initiation of over 120 investigations by the provider investigation unit within
      program integrity office

- Importantly, this data-sharing has made agencies more efficient and capable in serving
  Connecticut's residents. Examples include:
    o Department of Developmental Services (DDS) has increased ability to detect
      unreported and under-reported incidents and to algorithmically rank incidents and
      clients based on the risk of abuse and/or neglect
    o Department of Consumer Protection (DCP) can better detect and investigate
      suspicious prescribers of opiods and pharmacies, as well as to help understand the
      need for new state policies and to track the outcomes of new rules
    o Department of Social Services (DSS) teams can move through complaints faster by
      taking names and immediately checking relationships and conflicts in Pulselight. This
      allows less time spent on the more tedious tasks, and more time spent on
      investigations and analysis

- Finally, data-sharing of this nature supports a 365 degree view of the whole person, a whole
  family, and a whole problem, allowing us to truly putting the health and well-being of
 Connecticut citizens first.

Concept

Headline: Data-Sharing for One Discrete Challenge Illuminated Unanticipated Opportunity

The vision of the **Connecticut Information Sharing Hub** stemmed from a desire to enhance the integrity of the State's Medicaid Program. More specifically, In 2013, the Connecticut Legislature gave the State's Office of Policy and Management a mandate: Save money across agencies by finding improper payments for the services the state provides. A particular focus of the mandate was one of the state's largest expense items –the ~$7 billion-dollar state Medicaid program. The motivation was to reduce cost while maintaining quality for the swiftly growing program. This mandate was the trigger that determined the focus of what would eventually become the **Connecticut Information Sharing Hub** – a multi-year project to link related agencies together into an information-sharing hub.

The Business Problem: Planting the seed

There were three distinct problems the state faced in making progress on this mandate. (1) The responsibility of Program Integrity – which can include provider education, overpayment recoveries, audits, criminal
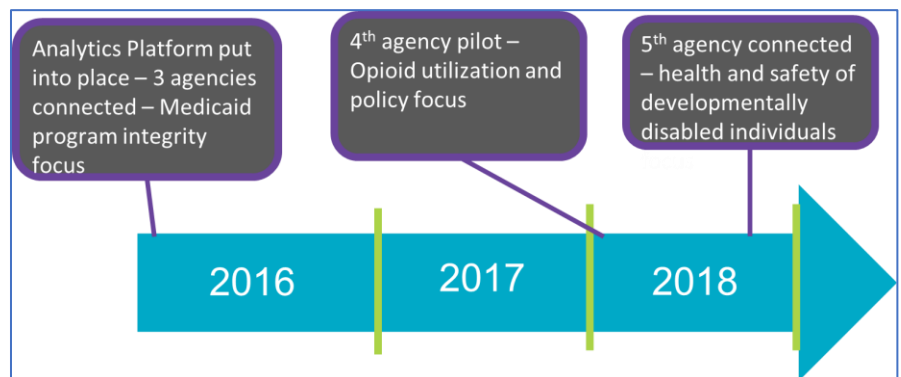
investigations, civil actions and policy analysis – fell across multiple CT agencies: primarily the Department of Social Services (DSS), the Office of the Attorney General (OAG), and the Medicaid Fraud Control Unit (MFCU). Solving this problem would require agencies to work together at various points of an integrity action, to safely leverage a single set of data (Medicaid claims and enrollment) while balancing unique institutional knowledge, goals and skillsets. (2) The only way these agencies could access and utilize the Medicaid data – which is the heart of their actions – was via a data warehouse and highly specialized query tools. To use these tools effectively, a user needed not only to have the technical skill to construct and run ad hoc queries, but also to have an intimate understanding of the underlying data structure and format. These requirements severely limited *who* could perform the analysis, resulting in a substantial bottleneck on the speed and accuracy of progress. Finally, (3) because results and analyses could not be shared easily or comfortably across each agency, there was substantial duplication of efforts. These combined problems created an environment that made it difficult to honor the legislative mandate.

Connecting more agencies to solve more problems: Watching the seed sprout

As planning for the progressed, however, OPM realized there were *many* healthcare-related agencies that could benefit in one way or another from the information housed within the Medicaid claims and enrollment data sets. In other words, the project, if done right, presented

the opportunity to create effciencies and solve problems outside the scope of the mandate but that would provide real meaning and value for citizens and employees.

Thus, the vision of this project became to *set up a technology framework by which multiple State healthcare-related agencies could safely and responsibly share data and information in a way that serves different business needs*. OPM took on the task of envisioning and bringing to life a way that the Connecticut could leverage its data – across every agency. This ultimately led to a solution for a broader need: A technological solution to serve as a "traffic cop" for the sharing of data– a centralized entity at the intersection of these connected agencies to make sure the right information, in the right form, went to into the right hands and to facilitate and share the resulting analyses.

In 2016, Pulselight was engaged to make its analytic platform and Program Integrity tools available to DSS, OAG and MFCU through a single web-based application. By the end of 2018, another State agency was using the Pulselight application and leveraging Medicaid data for a separate and distinct business need – and a third agency had just committed.

The Right Partner: Solution Architecture

Pulselight, an Austin, Texas, company, provided the technology for this project. Their innovative solution includes three elements: 1) a secure, cloud-based, hosted infrastructure; 2) a platform for modeling and analytics, including predictive algorithms, and 3) a web-based application that State users access to quickly and easily find relevant information and answers.

The Pulselight licensing arrangement was crafted in a way that became critical to later success of the project, as it allowed for flexible expansion to new agencies, new data sources and additional business needs. This flexibility is key, as analytic capabilities designed for one connected agency become instantly available to all connected agencies, creating exponential benefit and bringing significant economies of scale to the project.

The Pulselight Analytic Platform houses appropriate data from all connected agencies, but its primary data sources are Medicaid claims and enrollment. It renders useful information from that data and shares it across agencies in appropriate ways. What determines appropriate? Policy and law primarily, but also State decision makers, who determine which agencies should be able to see what information – and in what *form*. It is important to understand that the Platform does not make decisions about the flow or form of information – it follows rules established at the point of its conception, or along the way as new agencies are connected to it. And importantly these rules can be changed –to become more restrictive or permissive--as laws require.

The Platform creates information from data using what can be referred to as an Analytic Pipeline. This is a virtual pathway which extends from where data is stored to an information Access Point. Along its way up the Pipeline, data is transformed into information using data models and algorithms. Tools and functionalities further up the Pipeline make this information

interactive and useful to regular human beings of almost any technical skill level. Finally, at the top of the Pipeline, users can leverage these tools and functionalities through an access point, which in the case of the Pulselight analytic software is a web-based application. The Analytic Pipeline is different for every agency connected to the Platform. This is because the rules and methods by which one agency can share information with any other agency can vary – and can change as other agencies are connected to the Platform. For this project, each agency has been added to the Platform thoughtfully and organically, from both a privacy and appropriateness perspective, what information could be shared amongst other agencies and how.

Significance

*Whole Health Person and Whole Health Family*

In healthcare, there are various agencies that touch a single Connecticut citizen. If today, an agency sees only one slice of data about this person – their own – imagine the power if that same agency could see multiple slices of information about the person – or if multiple agencies could see all the slices. To see an example of this, let's focus on four healthcare-related agencies and a single individual. We will call this person John Doe.
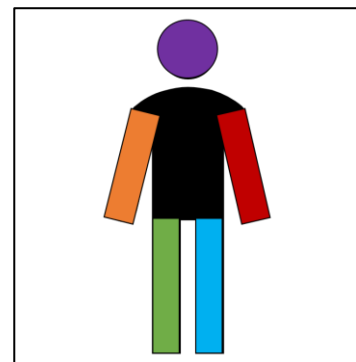
- John Doe has been on Medicaid for many years, and by looking at his past opioid drug utilization with the **Medicaid Agency**, we can see that he has a history of opioid abuse – high potency, overlapping opioid prescriptions from multiple prescribers.
- The **Developmental Services Agency** knows that John has a developmentally disabled child living in his home.
- A look at the Prescription Drug Monitoring Program (PDMP) data, housed by the **Department of Consumer Protection**, shows us that John has very recently begun paying cash for some of his opioid prescription fills.

A key observation when looking at the points above is that they are pieces of *information*, not chunks of data on servers. These pieces of information can still be separated by silos, just like the data underlying them. But once those silos are overcome, and the information above is combined, it illuminates what could be called a "whole picture" of John Doe's health situation. This whole picture allows the State to make better decisions, take more informed actions and produce better outcomes. In Connecticut, we call this concept the "Whole Health Person."

When we look at the "Whole Health" picture for John Doe, we see that he has a history of Opioid Use Disorder. We see that he may be relapsing after a recent workplace injury. And, perhaps most importantly, we see that he has a disabled child who could be impacted. Because we see this whole picture, we have a better sense of the actions we should take – whether its outreach with treatment options, outreach to his prescribers about his risk factors or health
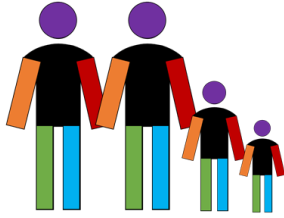
and welfare checks for the child. We see these as critical actions – but if each agency had been left with their own small slices of information, these actions might not have appeared necessary. And these informed actions increase the possibility of better outcomes. John Doe could enter treatment and recover. He could raise his child in a healthy and safe environment. And there is a potential cost savings to the State. A recent Pulselight analysis of Connecticut Medicaid showed that individuals diagnosed with Opioid Use Disorder cost the Medicaid Program on average twice as much in subsequent years. By recognizing risk factors through the Whole Health view of a person, multiple State agencies can save money and, in turn, better help all citizens.

The Whole Health concept does not have to stop with the individual. As we saw in the example above, shared information helped illuminate the "Whole Health Family" (John Doe and his child). Sharing information to render the whole picture extends to healthcare providers, where agencies can uncover inappropriate billing behavior or poor quality of care, by seeing what a provider is doing across multiple programs.

Impact

In Connecticut, we have connected the Pulselight technology to agencies who share common goals and have common needs, and our vision is to continue this "needs based" expansion. Today, there are over 100 State users, across six agencies, logging into the Pulselight application. These users have various business needs that are supported by the Platform, including payment audits, investigations, referrals, integrity reviews, complaints, at-risk identification, quality monitoring and licensure compliance. The Pulselight secure infrastructure now hosts 40TB of data, with 70 billion records, representing almost $60 Billion dollars in paid healthcare transactions, covering over 2 million Connecticut lives and almost 150,000 providers. This information becomes richer over time, as data is updated monthly and when new data sources are added.

Program Integrity

DSS, OAG and MFCU use Pulselight daily in their mission to uncover fraud, waste and abuse committed by Medicaid providers. From 2016 to 2018, Pulselight supported over $17 million in recoveries from program integrity reviews, over 120 investigations, and millions in damages from False Claims Act judgments and settlements.

From an operational perspective, Pulselight has shortened workflows and compressed the time and resources needed to accomplish tasks. For example, at DSS, staff members are required to identify *inpatient overlap conflicts* for a target provider before referring that provider for civil or criminal investigation. Inpatient overlap conflicts are occurrences where providers bill outpatient services for a Medicaid member, while it can be shown that the member was inpatient in a facility on the date of service – and therefore could not, or should not, have

received those services. Prior to the Pulselight Platform, this task required a multi-hour, manual query process – per provider – that could only be performed by a select few technical staff members. Once this was identified as a common task, it was built into the Platform as an analytical construct that allows users to identify these conflicts instantly, and across the entire population of providers at once. This and hundreds of other examples allow less time to be spent on the more tedious tasks, and more time spent on investigations and analysis.

Perhaps most importantly, the Pulselight Platform facilitates cooperation amongst these agencies. While each agency existed and worked before in essentially a vacuum, they are now encouraged to share information and work together throughout the life of a program integrity action.

Department of Consumer Protection/Drug Control Division and the Opioid Epidemic

In May of 2018, Connecticut launched a pilot project where the Department of Consumer Protection, Drug Control Division (DCD) would begin using the Pulselight platform and application. The DCD oversees all laws and regulations concerning the distribution of drugs within Connecticut, all pharmacy inspections, and conducts investigations for improper prescribing, diversion and misuse of controlled substances. This agency is key in the fight against the opioid epidemic, and therefore Pulselight developed a comprehensive suite of analytic tools designed to help better measure and understand opioid utilization, use disorder and overdose in the Medicaid population. This undertaking proved that a new agency could benefit from the data and analytic constructs of the currently connected agencies – and that new capabilities designed for the new agency could, in turn, instantly become available and useful to the others. In short, a new agency being added to the **Connecticut Information Sharing Hub** exponentially benefitted all connected agencies.

Protecting those with Developmental Disabilities

At the end of 2018, the Department of Developmental Services (DDS) became part of the **Connecticut Information Sharing Hub**. The mission of this agency is quite different, the health and welfare of developmentally disabled citizens, but the benefit it can derive from Medicaid data and the Pulselight Platform is enormous. DDS will use Pulselight to identify "critical incidents" in Medicaid claims – instances of injury, illness or death – that will help improve care and combat abuse and neglect for the citizens under their purview. DDS will also be able to audit reports coming in from caregivers and group homes to ensure that when bad things happen, the people who are mandated to report it, do so.

Once the analytic capabilities are in place surrounding the identification of critical incidents, other agencies can be "plugged in" to immediately begin benefitting from this, to detect potential abuse and neglect in, say, nursing home residents or foster children.