Improving Children's Lives Through the Power of Data

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Medicaid is the most heavily used health care insurance program for low-income citizens in the United States, with a current enrollment of about 75 million people. Run together by individual states and the federal government, federal Medicaid spending grew to around $672 billion in 2020 and is projected to grow into the trillions by 2028. States also spend a sizeable share of their budgets on the program—for example, it makes up 33.5 percent of California's. To help level the cost curve, states continue to look for ways to create efficiencies in their programs.

One opportunity to improve is to help states with their data management. Many states do not have metrics like key performance indicators (KPIs) in place to track how well their enrollees are doing—so they often have little visibility into the actions they could take that would reduce costs and improve lives.

This lack of metrics also means that states cannot track whether enrollees are using preventative programs, taking their prescribed medications, or visiting the costly emergency room for minor illnesses. Therefore states have fewer levers to pull in order to prescribe health or social services programs that would make enrollees healthier and reduce spending. Instead, states often resort to having to continue increasing budgets year after year—not ideal and not sustainable.

One solution to help level the cost curve is for states to have more insight into what their enrollees are doing, and to make health-improving recommendations that reduce spending. To do this, states need access to a wide array of datasets across a number of different agencies and a robust data analytics platform to be able to handle the large scale of data, along with a robust analytics platform to make data-driven decisions.

Teradata Vantage™ is the proven analytics platform that can handle and use data in helpful and remarkable ways. Not only can states get insights into cost drivers, but they can also better the lives of the millions who use Medicaid—including those most vulnerable in society: children. Here, we'll look at two states that have implemented a Teradata-based solution and achieved dramatically positive results.

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State 1: Helping Child Protective Services

In this example, the state's Child Protective Services (CPS) receives fifty-five thousand (55,000) annual intake calls reporting child abuse. Each call must be vetted, with the primary caretaker investigated and a recommendation made for the child. The old process presented multiple opportunities for streamlining. (Figure 1)

Improving the Process
Teradata delivered a solution that made the process significantly more efficient, taking it from hours to minutes —freeing up more time for caseworkers and making critical child-safety decisions quickly.

Leveraging the strength of Teradata's Vantage solution, Teradata consolidated all six of the disparate databases into a single data repository and:

- Identified all required fields existing within each database that may play a role in providing accurate search results for the queries run

- Created a record-check function to leverage the data across all six databases at once

- Replicated the user interface (UI) of the original system so caseworkers could be quickly onboarded

- Built advanced analytic search models based on attributes—so correct data can be found even if exact terms aren't used

Now when an intake call comes in, the process takes a few minutes instead of hours.

Expanding the Scope
Phase Two of the project will expand the scope to help CPS with all services, not just intake calls. Teradata will start socializing all data repositories into a single relational data warehouse so institutional reporting, ad-hoc queries, and dashboards can be realized. Case workers will be able to find whatever information they need easily.

When afflictions are caught early and the proper interventions are put into place, data and analytics don't just save money—they save people's lives.

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State 2: A 360-Degree Wellness View

Teradata helped this state adopt a new data and analytics platform to create a statewide care management tool that integrated behavioral and physical health with other human services data for all ages of Medicaid beneficiaries. Prior to this, the behavioral and physical health data systems were disconnected, resulting in gaps in care.

   After the state implemented this successful data and analytics plan, they looked for other ways to use these datasets. They saw that 95 percent of the state's foster children are enrolled in Medicaid—a perfect opportunity to help the 13,000 foster children in their care.

In a few seconds, Teradata Vantage finds:
- Physician visits and prescriptions, including preventative and dental visits

- Physical and behavioral health problems
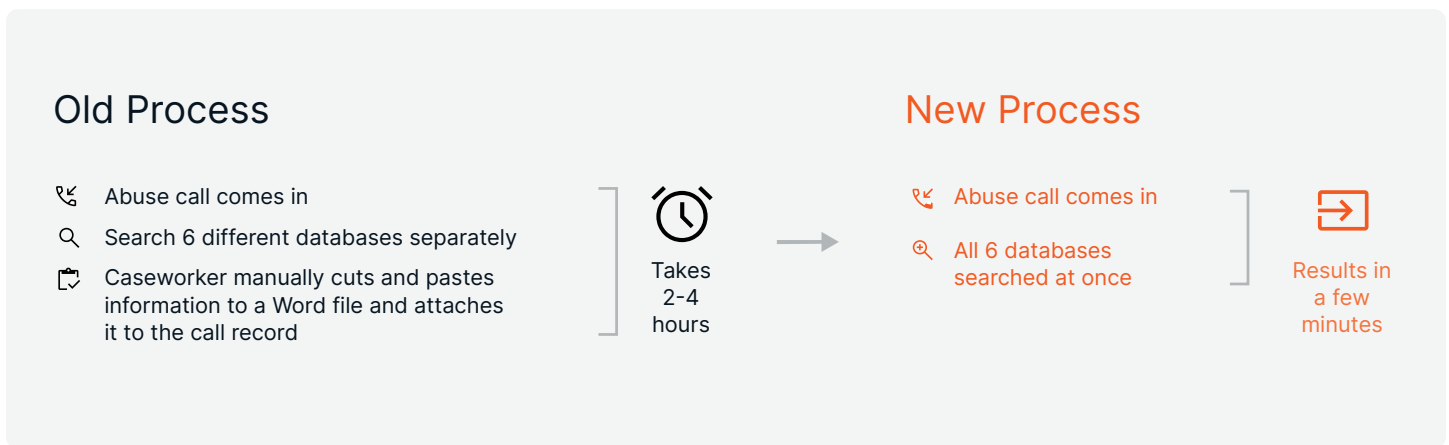
- Gaps in care

Helping Foster Children
In the past, social workers and medical professionals who worked with foster children could usually only see one medical issue at a time, with the unintentional result being that symptoms tended to get treated piecemeal, instead of addressed holistically.

Examples include:
- Treating conditions by symptom without consideration being given to other diseases—for example, people with behavioral illnesses have higher incidence of heart disease, asthma, obesity, and diabetes

- Inability to track dental appointments, resulting in lack of dental care—leading to cavities that adversely affect a child's ability to chew, which in turn affects nutrition, as well as potential heart disease in adulthood

- Lack of preventative well-child care, with children receiving care at the emergency room or urgent care for conditions that could have been treated by a primary care doctor

Teradata created algorithms that pulled together all this useful information and made it possible for doctors and caseworkers to make a complete health care plan.

Old Process

- Abuse call comes in
- Search 6 different databases separately
- Caseworker manually cuts and pastes information to a Word file and attaches it to the call record

Takes 2-4 hours

New Process

- Abuse call comes in
- All 6 databases searched at once

Results in a few minutes

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How Else Can Health Data be Used?

Like State 2, other states are finding that once they get Medicaid data, it can be used to identify, treat, and prevent a number of different problems. When additional datasets are added—such as from education, food assistance programs, geospatial data, and juvenile justice—it becomes even more powerful.

Detecting Signs of Lead Poisoning

Another area where data can help improve children's lives is through detection of lead poisoning. Lead poisoning is still a modern worldwide health problem, with old lead pipes leeching into water system, old lead-based paint flaking off and being ingested, or environmental contamination caused by things like the manufacture of lead-acid batteries for cars, or even recycling activities. Lead poisoning may trigger a number of symptoms, all of which can be attributed to other causes:

- Colic in babies

- Gastrointestinal problems

- Learning disabilities

- Hyperactivity or irritability

- Insomnia, memory loss, or headaches

- Growth delays

Unless a healthcare provider suspects that lead is the culprit, they'll only treat the symptoms, not the underlying cause. For example, if a child has hyperactivity and a learning disability due to lead poisoning, therapy and medications may be prescribed—but without addressing the cause, the child will not progress much.

  The things that cause lead poisoning disproportionately affect poorer people—who are also those using Medicaid. Lead poisoning-related afflictions are costly and extend into adulthood. When lead poisoning continues, even at small levels, it leads to more health problems, including kidney failure, hypertension, and reproductive issues. But lead poisoning can be addressed with data and analytics. Akin to the example of State 2, once all the Medicaid data is in the system, an algorithm can:

- Alert caseworkers when doctors' offices report symptoms that resemble lead poisoning

- Include siblings in the lead poisoning investigation

- Use geospatial data to determine the lead poisoning cause, comparing where the children live and to maps of old lead pipe placement or older housing that has lead paint; or pinpointing environmental causes

- Make recommendations that could include tearing out old pipes or moving children

Lead poisoning costs over the life of one cohort (1-to-2-year-olds in the Medicaid system):

$237,234,494.06
in California

$55,869,875.97
in Georgia

$71,766,245.97
in Wisconsin

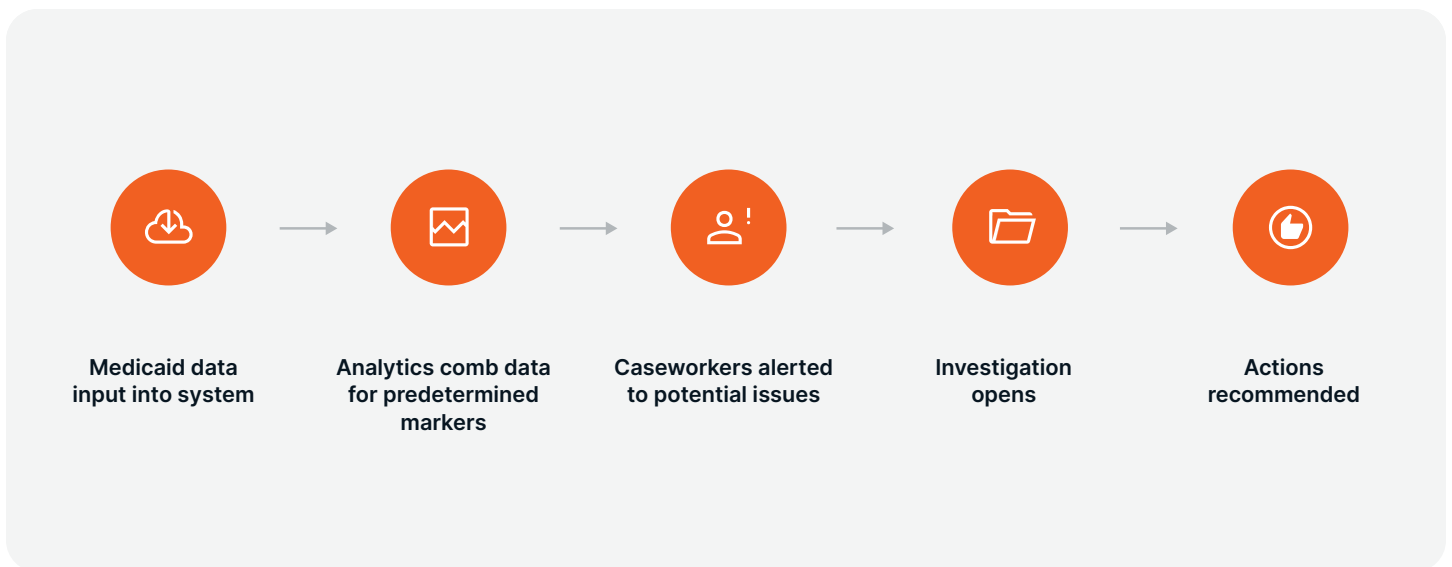teradata.

Identifying At-Risk Children

The Medicaid data can be used in many other child-helping applications that save money exponentially over time. For example, youth who commit crimes may end up enmeshed with the criminal justice system for years, costing millions of dollars.

Youths who are at risk for juvenile crimes typically show preliminary signs that they're in danger. When educational data is combined with Medicaid, Vantage algorithms can identify at-risk youth with markers such as school attendance or grade drops—sending in interventions to identify if the youth is being abused or needs other behavioral or medical programs.

Similarly, Medicaid data could also be used to identify potential teen parents. Right now, Medicaid pays substantially more in care for teen mothers than for adult mothers—more than 2/3 of teen pregnancies are Medicaid-covered. For females, factors like sexual abuse, having a mother or sister who was a teen mother, grade drops, and poverty are all risk factors to an unwanted teen pregnancy.

Currently, the Centers for Disease Control and Prevention (CDC) uses a survey called the Youth Risk Behavior Surveillance System (YRBSS) to determine what health behaviors teens are engaging in, such as unprotected sex. But the data they collect doesn't identify specific teens who need help—it only identifies local trends. Instead, with Medicaid information plus information from schools and food assistance programs, data can automatically find these at-risk teens and give them additional social support so the cycle of teen pregnancy stops—and so their children don't have to use Medicaid, too.

Modernizing a data and analytics platform pays off within a year or so, as it did for the two states discussed here. And modernizing the public sector's data fabric is necessary both for fiscal success and citizen health. When afflictions are caught early and the proper interventions are put into place, data and analytics don't just save money—they save people's lives. That's the power of data and analytics.

| Medicaid data input into system | → | Analytics comb data for predetermined markers | → | Caseworkers alerted to potential issues | → | Investigation opens | → | Actions recommended |

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