Transform your health and social program paradigm
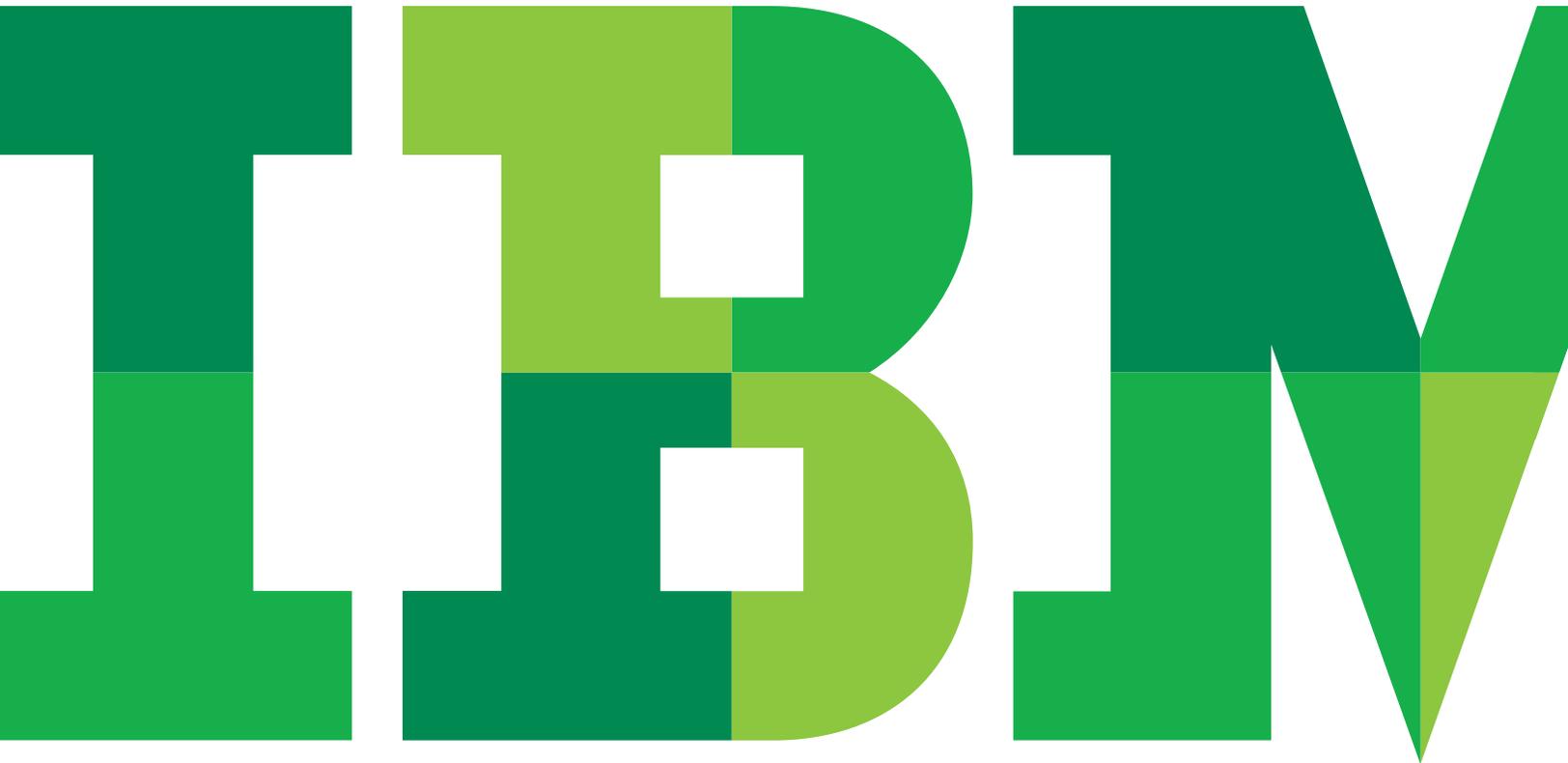
How IBM helps you coordinate care delivery by integrating your social services network

IBM

Contents

Victor's skateboard didn't have the usual zip as he arrived for school. "Good morning!" the teacher exclaimed as Victor rolled up.

"Morning," Victor muttered half-heartedly.

Curious, the teacher asked the normally energetic fifth grader, "You OK?"

Victor's sagging shoulders and bloodshot eyes mirrored his words. "I'm just tired, Mrs. Barkee. I wish I could go back to sleep."

"What's wrong?" she responded.

"I didn't sleep much last night. Grandma had to go see the doctor. She texted that she had something—said they wouldn't let her come home from the hospital."

"Mom couldn't get off work, and Dad…" His voice trailed off. "Well, you know where Dad's at."

"So, I had to take care of my little sister—she's a total pain. I made us peanut butter and jelly sandwiches for dinner."

"After we ate, she kept running around saying 'You're not the boss of me.' I couldn't go to sleep until she did. So, I'm just tired and hungry."

Everyone knows a Victor

For most social service agencies, this is an all-too-common story. Despite the fact citizens who have received services from multiple programs outnumber those who received services from only one program by nearly 50 percent,[1] many still slip through the social services safety net.

Sometimes the only consequence is a young boy who struggles to stay awake in class. Other times, the consequences are more severe—a child who doesn't make it to school at all, one who is injured and requires medical treatment or, as the County of Los Angeles discovered, even one whose injuries prove fatal.[2]

No matter the outcome, some things are consistent. First, the lack of insight increases the health and safety risks to the very people social service agencies are created to serve. Second, the failure to understand a client's complete situation ultimately raises the overall cost of services.

Sometimes that higher cost is due to replicated services. Other times, it's because the consequences of clients falling through the social safety net costs more to correct than to prevent.

For example, providing a vaccination costs much less than treating the resulting disease. And this preventive care doesn't consider the indirect cost savings due to the vaccinated individual's productivity and quality of life.

Yet these programmatic inefficiencies are rarely a reflection on social services staff. More often than not, they're a reflection on the systems the staff use—and how difficult it is for staff to collect, process and see a client's complete situation.
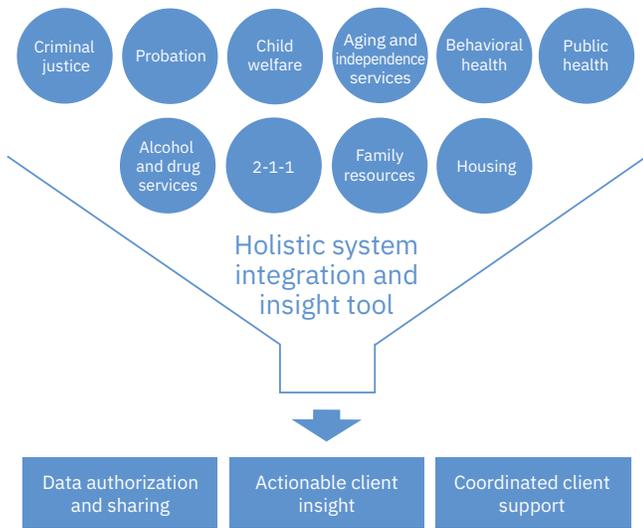
Figure 1: Example of social systems and their holistic system insights

Our social services challenge

Most cities and regions contain numerous information systems, each designed to serve one or two specific social programs. And each system is usually operated by a different agency.

These systems are also typically created and operated through separate funding channels. So, each system must comply with channel-specific funding and regulatory requirements.

As a result, a region ends up with a mix of home-grown systems and commercial-off-the-shelf (COTS) products. This collection of systems stores data in multiple relational databases and generates reports in numerous formats.

In addition, these systems vary in size, complexity, technology used, operational flexibility, age and planned replacement.

More importantly, they have diverse architectures—so they represent customers and service flows in very different ways.

This collection of systems, each with different funding sources, regulatory requirements and technological foundations, creates a double challenge. First, regions must conquer the technological obstacles to allow data sharing—all while accommodating the regulatory and policy requirements that protect that data.

Then, once the information is viewable as a cohesive, holistic picture, the caseworkers must have automated tools to process that picture to extract actionable insights for a particular client and that client's case. Only then can they take steps to reduce the health and safety risks for their most vulnerable citizens—like Victor and his family.

And, as Figure 2 shows, the majority of the cost factors are affected by elements that only actionable insights on a holistic client view can address. When caseworkers have that view and those insights, they can begin to truly address the total cost of a client's care—and ultimately, that helps reduce the region's total health and social program spend.
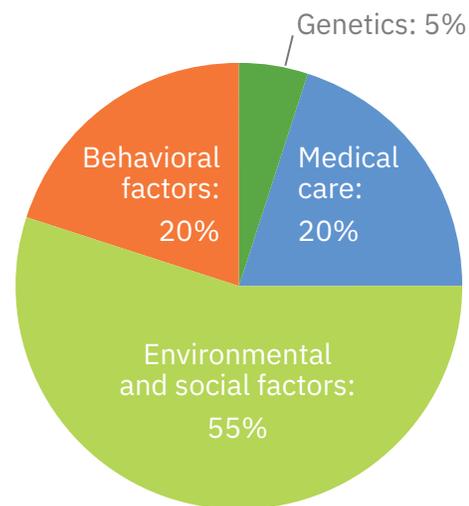

Figure 2: Determinants for total cost of care[3]

The promise of a better future

Unfortunately, even creating a brand-new, from scratch system today won't give caseworkers the holistic view they need. Evolving agency expectations, funding sources and the associated regulatory demands eventually create disconnects between a regional system's capabilities and the region's service requirements.

But a new approach that promises to overcome these obstacles is being pioneered.

The goal was to develop an innovative system that puts the focus on the customer by breaking down existing silos between various social service agencies, and giving case managers and others a more comprehensive view of the individuals they serve.

That vision is now available through the IBM® Health and Human Services Connect360 solution.

A recipe for success

With so many individual case management systems, designing and deploying a data model that allows a comprehensive, collaborative view of customers proved difficult. But the bigger challenge was accommodating the different privacy levels and access rules used by the various case management systems.

To overcome any difficulties, it was important to establish access models and enterprise-wide governance for service delivery practices and data management. IBM built the technology to harness cross-program data to support collaboration and provide actionable information at the point of care. The IBM solution achieves this goal by placing a unifying data management and coordination layer over existing systems. Normally, an extra layer can add complexity—but sometimes, more is less.

The system's design and technology allows non-invasive access to the various source systems using each data system's own permissions. IBM Health and Human Services Connect360 then applies sophisticated matching algorithms to gather the data into a cohesive whole.
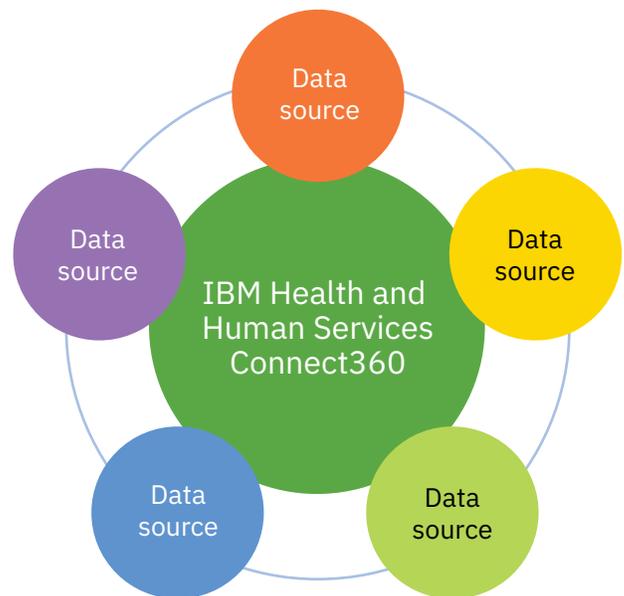

Figure 3: The IBM Health and Human Services Connect360 service environment model.

The result is a holistic view of the customer, family and community from a lifestyle, social and clinical perspective.

Plus, by using each data system's security controls, IBM Health and Human Services Connect360 maintains compliance with applicable laws and regulations for the storage and access of client data — so no additional compliance issues arise at the program level.

And the current case management systems operate exactly as they did before, allowing existing infrastructure to remain in place.

Coordinated client support

Giving caseworkers from multiple social service agencies the same cohesive view of a client can pay huge dividends. Coordinated client support also helps to break down existing institutional barriers.

These invisible walls are not necessarily politically created. Instead, these barriers generally result from siloed data that functionally resides within multiple programs—each complying with different data standards.

Using a capability unique to IBM Health and Human Services Connect360, the elaborate access control layer intelligently allows collaboration in new ways, such as sharing notes. Ultimately, this capability can help trigger the shift from program-centered service to person-centered service.

Figure 4: Coordinated client support is critical to a person-centered program.

Fast, actionable client insights

Cohesive data access and the ability to share case notes are just two necessary components for person-centered service. Without the ability to act intelligently on that data, nothing happens.

For example, in Victor's situation, the caseworkers for the various social support programs undoubtedly knew his single mother was supporting him and his sister. They also probably knew the details of his father's situation, and that it meant his grandmother was helping his mother raise Victor and his sister.

But data insights could help service providers foresee the risk posed if Victor's grandmother experiences a health-related issue. Data-driven insights will help achieve the goal for a person-centered service.

To achieve that goal of person-centered service, the IBM solution uses an event-driven architecture. The architecture integrates IBM software to deploy and operate a rule-based alert system. And in the future, the architecture could incorporate IBM Watson® technology to provide cognitive-based alerts, as well.

IBM has worked to develop the rule-based alert capabilities for several use cases. Then, the solution goes further by providing caseworkers with analytics for diagnostic support, data-driven care pathways and operational reporting.

Finally, caseworkers from multiple service areas can use the embedded, shared platform to access the decision-making, planning and assessment tools. This information allows them to:

- Assess the client's need with greater accuracy
- Identify appropriate services, gaps or redundancies in existing services
- Support a more proactive approach to delivering services

The system's stroke of brilliance

With so much private data flowing through a regional system, it's possible some data sharing could be allowed within the system while other data sharing may be prevented due to regulations. This mixture of authorization levels impedes the system's ability to deliver person-centered service.

This issue is mitigated through an innovative data authorization model that lets individual customers decide what data is shared among departments and caseworkers for his or her own benefit.

This capability is crucial to bring the customer into the decision-making process because providing a multi-option authorization model empowers the individual and provides flexibility, all while maintaining compliance with laws and regulations.

Customer-based consent management also helps the system comply with the volumes of data security and protection regulations that various public agencies and organizations must follow.

The art of the possible

As recently as a decade ago, the vision to improve the health, safety and well-being for all residents was just that—a vision. But IBM Health and Human Services Connect360 is transforming that vision into reality.

Now imagine a different outcome for Victor and his family. This time, they live in a region that has deployed a system based on IBM Health and Human Services Connect360.

If the region's hospital system is connected to the local government's system, once Victor's grandmother is admitted to the hospital, the community's IBM-based system ingests that new data point. With a holistic customer view, the system recognizes Victor and his sister might be at risk and automatically alerts caseworkers so that they can take action.

Just as important, these proactive actions pay real money dividends. By investing in upstream interventions, the downstream costs are ultimately reduced—all while delivering better health and social outcomes to the region's residents.

IBM delivered the technology platform that the Yukon Baby project used to raise awareness about available pregnancy and newborn care resources throughout the Yukon Territory.[4]

And IBM helped the New York City Human Resources Administration save 64,000 hours annually by streamlining the application and interview process for new and recertified supplemental nutrition services.[5]

Finally, IBM's community commitment covers more than discrete community-based projects. The IBM Cúram Research Institute collaborates with policy makers, academia, think tanks and nongovernmental organizations to innovate service delivery models for enhanced community social and economic potential.

For more information

To learn more about how IBM and IBM Health and Human Services Connect360 can help transform your community's social service system, please visit ibm.biz/social-services.

About the authors

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Figure 5: A cohesive social support program can transform your community's social outcomes.

Why IBM?

At IBM, we think turning these visions into reality is a better way to serve the public. For over 100 years, we have supplied the technology, expertise and organizational resources to improve the lives of millions of citizens, in thousands of communities, on six continents. Some examples follow.

To meet the County of San Diego's *Live Well San Diego* vision of a region that's healthy, safe and thriving by building a better service delivery system, IBM worked closely with the county team to develop a new technology solution—ConnectWellSD. This new platform makes customer data from across service areas available to county workers without revealing the information source. This approach, along with an access model that helps manage privacy concerns, is making it easier to provide person-centered services, which is foundational in making a positive impact on individuals and families.

1 *A Bipartisan Nation of Beneficiaries*, Rich Morin, Paul Taylor and Eileen Patten, 18 December 2012, www.pewsocialtrends.org/2012/12/18/a-bipartisan-nation-of-beneficiaries

2 *The Road to Safety for Our Children*, County of Los Angeles, 18 April 2014, http://ceo.lacounty.gov/pdf/brc/BRCCP_Final_Report_April_18_2014.pdf

3 *A Call to Be Whole: The Fundamentals of Health Care Reform*, Barbara J. Sowada, 2003, Praeger Publishers

4 *Yukon Baby*, IBM, 4 May 2016, ibm.com/software/businesscasestudies/US/en/corp?synkey=H583329W52011D51

5 *New York City Human Resources Administration*, IBM, 14 June 2016, ibm.com/software/businesscasestudies/ US/en/corp?synkey=B025674T19569B75

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