



# Self-service data: How Intermountain and Ottawa Hospital are powering collaboration, research & innovation

Healthcare organizations generate vast and increasing amounts of operational and patient-level data. Yet, the processes and methodologies commonly used to leverage this data for care improvements, cost efficiencies and research discoveries are not fully optimized.

*Becker's Hospital Review* spoke with four healthcare data experts to learn more about the advantages of leveraging a comprehensive, real-time synthetic data platform. They shared how this approach can provide C-suite leaders and clinical researchers with faster access to data – speeding answers and actions for critical operational, research and innovation-related questions.

The experts included:

- **David Crockett**, PhD, senior director of digital technology services, Intermountain Health (Salt Lake City)
- **Innie Chen**, MD, assistant professor and clinical research chair of reproductive population health and health services, department of obstetrics and gynecology, Ottawa (Ontario) Hospital; associate scientist, Ottawa Hospital Research Institute
- **Deanna Rothwell**, director, analytics, The Ottawa Hospital; senior investigator, The Ottawa Hospital Research Institute
- **Farukh Usmani**, MD, MS, medical director, digital technology services, Intermountain Health



## Data availability + ease of access play key roles in driving improvements

As data permeates more and more facets of hospital and health system operations, leaders are seeing the benefits of data for improved decision-making. For example, relevant data that is well-structured, easily accessible and presented in a user-friendly fashion can help address the needs of front-line staff faster, as well as guide more efficient solutions to operational challenges and priorities.

"Having data available at a very detailed level across the organization is important to be able to make decisions on where to cut services, where to expand services and know where you're going to get the best value for money," Ms. Rothwell said.

This is particularly relevant when strategic decisions depend on having enough data to tip the scales one way or another. "We need a way to assess measurable outcomes, like where's an increase in value going to be seen, is it going to decrease costs and can we measure that with data before we make those decisions," Ms. Rothwell said.

To do that, hospital and health system leaders need faster access not only to historical data, but also to real-time data and insights. "Speed-to-answer and 'telling the story' are no longer a nice-to-have luxury but are now a must-have deliverable from our data teams," Dr. Crockett said. "Improvements in cost and patient care flow naturally when leaders have timely and accurate information available on demand."

Having more and better data serves not only top decision-makers but all employees, Ms. Rothwell added. "Data-driven culture is increasing," she said. "It used to be mostly researchers who needed detailed data, but now all types of roles across the organization need this data – from front-line staff to administrative people to quality improvement personnel."

That is certainly the case at Intermountain Health. "At Intermountain, we push data into the hands of those making decisions about patient care, financial needs and operations," Dr. Usmani said. "Ease of access and speed to data are extremely important."

However, the growing availability of ever-more granular data, including real-time data from wearable devices, poses several data-related challenges. These challenges include managing the volume, quality, security and interoperability of data. Health systems must be able to answer specific questions, such as where to store this data; what are the optimal tools or technologies to make the data available; and what is the level of data literacy needed by users to derive value from the data.

To navigate these challenges – while harnessing the benefits of an expanded view into clinical and operational areas – organizations need a modern, integrated, one-stop-shop data infrastructure.

## MDCClone provides unified infrastructure for data discovery + user-friendly tools

Many healthcare organizations use business intelligence tools, such as Microsoft Power BI, to visualize data and monitor performance trending on key indicators. However, those tools are limited in terms of the deep-data discovery capabilities that clinical researchers need to test emergent findings or new hypotheses.

The MDCClone platform, which brings together and centralizes large amounts of different types and categories of data from across an organization, enables data discovery in a self-service data analytics environment for clinicians and researchers. The MDCClone platform makes this possible without risking access to patient-identified information because the platform uses patient “avatars” that are based on synthetic data, which statistically resemble real-world data but are not data from real patients. This capability allows researchers to explore relationships between variables without compromising patient privacy and confidentiality, which expedites projects that would otherwise need time-consuming ethics approvals by institutional review boards (IRBs).

This approach has the added benefit of making organizations’ data ecosystems and data-related interactions more efficient. “A solid platform for self-service data prompts accelerated answers to stakeholder questions, and empowers broader collaboration and innovation without the need to hire dozens of additional data FTEs,” Dr. Crockett said.

## How it works: The MDCClone platform accelerates time- and labor-intensive research cycles

Conducting clinical research requires vast volumes of high-quality, curated data. Pre-processing this data depends on healthcare organizations’ IT and data science teams, who must extract, clean and fix errors in the data before it is made available to researchers for analysis and hypothesis testing. These data-wrangling cycles can be extremely time-consuming, which delays research projects and discoveries.

This occurs because the traditional workflow for conducting clinical research begins with clinicians sending unfiltered research queries to data teams, which often leads to both sides getting drawn into a lengthy back-and-forth. Clinicians and data analysts have to explain to each other the specifics of the research question and the data variables and metrics that would be needed to answer it.

“One of the bottlenecks to conducting clinical research, aside from obtaining ethics board approval, is the dialogue that needs to take place between the clinical teams and the data teams,” Dr. Chen said.

The MDCClone platform provides a solution by putting data access directly into the hands of clinicians, while unburdening data teams from exploratory and data-wrangling work. It is designed to allow free-form exploration of data without a huge requirement to be data literate, effectively connecting healthcare organizations’ two most valuable resources: people and data.







"MDClone has been a game changer in terms of data access," Dr. Chen said. "It allows clinicians such as myself to access synthetic data directly; test a potential data request on my own, to see if it is reasonable before engaging the data warehouse team; and ensure that once I engage the data team, the request is as close as possible to exactly what I want." Additionally, the process Dr. Chen described eliminates the excessive lag time between when an IRB ethics approval request is made and granted, a data request is initiated, the data is extracted and cleaned – and when a practical analysis of that data can actually begin.

Dr. Crockett shared how this approach is streamlining processes at his organization, as well. "Intermountain Health is using the MDClone platform to address the need for making self-service data available to data teams and their stakeholders," he said. "This allows many data questions to be addressed directly, without waiting on data analysts or data architects to have time in a long list of priority work."

As a result of accelerating research projects, Dr. Chen said the platform has also been a game changer for improving care quality by surfacing insights that illuminate outcome-related trends, but that require vast amounts of patient data. "An investment in MDClone is a signal that everyone working in a hospital should be able to access data to help improve the care of patients," she said.

### **Case study:**

#### **How Intermountain leveraged MDClone to improve kidney care.**

Since 2019, leaders at Intermountain Health, Select Health and MDClone have worked collaboratively to design a clinical approach to improve chronic kidney disease (CKD) care. This collaboration involved leveraging Intermountain's medical informatics and clinical expertise.

As Intermountain worked to harvest data from its self-service platform, explore ideas and build queries, the MDClone team supported the journey to improve care practices and outcomes for the CKD population. Through this work, Intermountain was able to identify specific medication that had a direct impact on this patient population. Intermountain also implemented patient-centric care practices and care guidelines based on the MDClone data. This work changed the care guidelines and culture at Intermountain regarding kidney care and helped the organization reach optimal CKD outcomes.

## Faster research cycles + other data enhancements can serve as a differentiator

Beyond supporting internal priorities like enhanced operational decision-making, quicker research cycles and better-monitored quality improvement initiatives, faster access to synthetic data in a self-service environment can increase healthcare organizations' appeal to job candidates and can strengthen brands in the eyes of potential partners.

"We can access data in days as opposed to weeks or months – this has a lot of value for researchers, but it also helps us recruit people and develop partnerships with universities and other organizations," Ms. Rothwell said. "Having a synthetic data platform that enables us to share data faster allows us to work with academic partners, business partners and research partners on tangible projects without too much overhead related to complicated data-sharing agreements."

In developing teaching and training modules using MDClone, organizations can further develop their own leaders and talent pipelines, setting themselves apart from the competition. "A differentiator is teaching people how to do it themselves and having tools that allow dynamic, ad-hoc questions with data," Ms. Rothwell said.

One of the best outcomes Intermountain Health has realized is when a subject matter expert sits down side-by-side with an MDClone expert to quickly define a cohort and explore cost and outcomes. "Within a session or two, the users become excited to learn to do that on their own and can soon find the answers themselves," Dr. Crockett said. "This in turn allows our existing data teams to focus on more complex requests."

Ms. Rothwell emphasized the value in raising data exploration and analysis skill sets across the organization – via experience with self-service technology – versus relying on a small set of people who are highly skilled to do all the detailed data work. "It just opens up the world for what you're able to do," she said.

