

Lessons Learned from the Cohort Analysis of Rural Health Programs: Data Dashboards



Why Create a Data Dashboard

Emerging value-based health care and alternative payment models (APMs) are moving hospitals and other health care providers towards data-driven, evidence-based performance-improvement collaboratives. The potential to improve care efficiency and quality through the use of data dashboards and information sharing is an important focus of rural healthcare providers across the country.

Data dashboards offer broad utility for organizations, such as:

- (1) monitoring patient treatment progress;
- (2) enhancing data reporting;
- (3) reducing potentially avoidable utilization (PAU);
- (4) supporting clinical access to patient health data;
- (5) improving patient satisfaction; and
- (6) identifying best or promising care practices.

Data dashboards are a key tool to unlock opportunities to improve care quality and integration and long-term health care system sustainability.

Data Dashboards

Federal Office of Rural Health Policy (FORHP) in the Health Resources and Services (HRSA) awardees created data dashboards to capture key measures and resultant patient outcomes. Awardees identified strategies to support data collection, documentation, and track progress across the funding period. Rural hospitals and clinics increasingly use electronic health records (EHRs) and other health information technology (HIT) tools to support data extraction for dashboards to improve care delivery.

Data dashboards are powerful tools that can save time, improve processes, and streamline workflows. They enable users to quickly identify trends and outliers so that issues can be addressed in a timely manner.

Definition of a Data Dashboard

Data dashboards are **information management tools that help organizations visually track, analyze, and display key performance indicators.**

Within health care, data dashboards are used to track important outcomes and trends related to patient health and organizational processes, improve quality, increase patient satisfaction, and enhance population health. Data dashboards may be maintained in Excel files or integrated into EHRs.

One such data dashboard deployed by a Delta Program awardee was developed in response to the COVID-19 public health emergency. Delta Program awardee Delta Health Alliance, in conjunction with the University of Memphis Center for Community Research and Evaluation, supported creation and maintenance of a **dashboard focused on displaying COVID-19 impact within Mississippi Delta region counties.** The dashboard helps awardees and stakeholders further understand the impact faced by community members and adjust approaches and actions as necessary to meet community needs.

Considerations for Developing Data Dashboard

Effective data dashboards are **tools that help organizations easily track performance indicators over time to support clinicians and health care leaders make informed decisions with the goals of improving care quality, patient satisfaction, and the overall health of the community through better health outcomes.**

Data dashboard users range widely in their familiarity and facility in data for decision-making. Healthcare and clinical leaders may use data to inform strategic decisions and track organizational metrics, such as hospital readmissions, while care coordinators may use data to identify diabetic patients overdue for their HbA1c tests.

Data Dashboards

In conversations with dashboard users, awardees found it important to consider visually engaging and user-friendly platforms because many users, including network partners, do not have time to familiarize themselves with all of the utility and functionality. Dashboards need to be engaging to look at, easy to use, and easily understood. Dashboard users want to generate reports directly out of the platform, which can support discussions with leadership and inform decisions about staffing, departmental or facility policies, quality improvement efforts, and patient engagement, among others.

Common Roadblocks to Avoid

Through the process of designing and implementing data dashboards, organizations may encounter issues that delay implementation progress or result in a dashboard that does not adequately meet users' needs or support clinical decision making. Awardees noted that a wide range of issues affected implementation success including design complexity, agreement on performance indicators, and the ability to drill down to the provider level.



Streamline Data. The visual aspects of the dashboard should be as straightforward as possible so that the information is clear and the need for interpretation is minimized. Health care delivery processes generate large amounts of data – presenting and monitoring every key performance indicator will lead to information overload. Too much data or irrelevant indicators make dashboards confusing and ineffective or both. Awardees emphasized that the first step to creating an effective data dashboard is to assess the data needs of potential users. Once the needs are clearly identified, the dashboard can be designed to provide timely, reliable, relevant data that is easily accessible for the user.



Incorporate Performance Indicators and Benchmarks. Awardees stressed the importance of providing essential key indicators, such as HbA1c levels, alongside appropriate benchmarks to provide data dashboard users with actionable information. Key indicators also include non-clinical measures that provide administrators with important information on indicators such as patient satisfaction and experience, referral trends, and revenue and expense analyses, among others. More than merely presenting statistical measures that show outcomes, awardees stressed the importance of providing essential key indicators that answer important questions. Awardees carefully considered and engaged end users to limit the amount of unnecessary measures and helped decision makers see, track, and analyze the most salient data. In several cases, this involved bringing together different sources of data, this awardee commented on the synergy of combining data:



“Some of the programmatic information comes from the program staff, and then there is some that comes directly from the EMR [Electronic Medical Record]... So it comes from a couple of different sources...to try to give a global look at how the network is impacting health, whether it be directly associated with one disease state or multiple over time...to promote patient engagement, provider engagement and how the two kind of marry to improve health over time.”



–Awardee Project Director

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Include a Drill Down Function. Drilling down into the data is a capability that allows dashboard users to shift from an overview to a more detailed and granular look within the same dataset by choosing indicators. It enables the user to explore specific information from different levels by honing in according to a predefined data hierarchy, such as panel of patients with diabetes to a specific patient. Awardees noted that drilling down to the provider level allows individuals to see their performance as part of a whole effort. In addition, identifying which providers have the best patient outcomes can serve as an opportunity for other clinicians to replicate best practices and promising approaches.

Lessons Learned

Awardees shared several important lessons learned that helped them in their data dashboard design and implementation efforts. These lessons may help other rural providers design and implement data dashboards to support their quality improvement efforts and transition to value-based payment.



Develop Key Questions Around What You Need To Know. Process change requires input and buy-in from all levels of an organization and its partners. Data and information needs differ by users, depending on their roles and responsibilities within the organization. Answers to key questions inform which performance indicators, data sources, and reporting functions will be included in data dashboards. It is vital to include and incorporate the potential users' perspectives during dashboard development to promote value and utility. Likewise, it is important that leadership convey their support for the development and implementation of a data dashboard, recognizing that it may affect workflows and other process changes (e.g., how data are collected).



Consider The Different Users' Data Needs. Identifying who will use the dashboard and how they will use the information is foundational to designing and developing a dashboard. Soliciting users' perspectives of the timeliness, relevance and reliability of their data needs are important in the dashboard development process. For example, some users may access reports on a monthly basis while other user may need to roll up the data for annual reporting. Documenting an organization's current data and reporting functions can help guide what unmet data needs a dashboard can fulfill.



Sharing Is Fundamental To Dashboard Utility. Leveraging the same data to serve different users' needs, such as clinical and administrative data needs, is key to developing an efficient dashboard. Providing tailored data reports to different groups is the next step. Performance indicators will be different between groups (e.g., clinical and financial groups), departments, and between internal and external stakeholders. Creating separate dashboard report functions or specific views may be useful strategies for getting the right data to the right people at the right time. Consistent data sharing provides users the ability to see data across departments or initiatives. Ensuring that the data is easy to view and understand

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enhances the dashboard's utility. The dashboard can also generate reports to internal organizational bulletin boards, track progress in newsletters, and create data visualizations for presentations to staff and other stakeholders.



Dashboard Adjustments Are Necessary And Inevitable. Awardees frequently mentioned that starting a new data dashboard effort was the most difficult part of the process. One awardee remarked about the amount of time necessary, emphasizing:



"It takes a long time to build these platforms... it's taken us about a year and a half to stand up this new platform."

–Awardee Project Director



Once a dashboard already existed, gathering feedback and making changes became an iterative process of continuous quality improvement – methods familiar to most health care organizations. It is important to note that data dashboards will evolve over time to support the changing organizational and stakeholder needs and priorities. Additionally, the underlying data systems that supply dashboards with data also need to be updated to improve data quality. Dashboard development teams should meet regularly with users to review and incorporate feedback to ensure the dashboard is evolving to support the data and information needs of the organization.

Conclusions and Guiding Questions for Dashboard Developers and Stakeholders

Data dashboards are useful tools that help organizations track, analyze, and show trends in performance indicators. Monitoring health data, improving quality, shifting to value-based care and APMs, supporting telehealth initiatives, and identifying best practices are a few of the activities supported by data dashboards.

Awardees agreed that users' questions drive development. Identifying basic questions that users would like data dashboards to help answer are a great starting place. Below are a few key questions to begin dashboard development conversations:

- How can a dashboard support health care delivery and quality improvement efforts?
- How can the dashboard provide strategic support for clinical leaders and administrators?
- How do staff, leadership, and other stakeholders plan to use dashboard data?
- How can different stakeholders engage in the dashboard design process?
- Which data are the most meaningful for potential users?
- What are the best ways to present the data in a clear and concise manner?
- How can dashboard reports be structured to produce actionable information?
- What drill down functions are needed to support users?
- How can dashboard data support communication with stakeholders and patients?

Cohort Analysis of Rural Health Programs

Section 330A of the Public Health Service Act authorizes grants to improve access to and quality of health care services in rural areas by funding consortiums or networks to implement locally-driven programs. The Federal Office of Rural Health Policy (FORHP) in the Health Resources and Services Administration (HRSA) administers these grant programs, including the Small Health Care Provider Quality Improvement Program (Quality Program), Rural Health Network Development Program (Network Development Program), and Delta States Rural Development Network Grant Program (Delta Program).

The NORC Walsh Center for Rural Health Analysis (NORC), in partnership with the University of Minnesota Rural Health

Research Center (UMN), was contracted by FORHP to evaluate the Section 330A grant programs, paying particular attention to implementation, impact, and sustainability.

As a part of our evaluation, NORC and UMN conducted telephone interviews with 13 awardees from the Quality, Network Development, and Delta programs to understand common challenges and solutions awardees used to address barriers. This brief provides an overview of the considerations rural organizations employed to develop and use data dashboards, common implementation roadblocks, and lessons learned that other organizations may apply in their own efforts to build or expand data dashboards.