



Benefits Evaluation

OntarioMD EMR Physician Dashboard Proof of Concept

October 2017

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Executive Summary

Introduction

Electronic medical records (EMRs) hold tremendous potential for improving the workflow and efficiency of primary care practices, serving as a vital hub for an interconnected health care system, and ultimately improving health quality and patient outcomes. Since 2004, OntarioMD has played a central role in facilitating the widespread adoption and use of OntarioMD-certified EMRs by physicians and specialists. With more than 14,000 community-based physicians and specialists now using EMRs in their practice, OntarioMD's mandate with the Ontario Ministry of Health and Long-Term Care (MOHLTC) has shifted to a focus on how to optimize EMR functionality and how to connect to products and services that increase the clinical value of EMRs.

OntarioMD's current EMR Agreement with the MOHLTC includes initiatives that advance interoperability and data portability. The OntarioMD EMR Physician Dashboard Proof of Concept (Dashboard PoC) builds on this by introducing a framework for an essential digital health tool that:

- provides immediate clinical value to physicians, through real-time visual representation of EMR data using widely-recognized, primary care indicators;
- provides the ability to drill down to patient level data for each indicator enabling physicians to take immediate proactive steps to improve patient care;
- helps physicians standardize their data entry to improve the quality of patient data in their EMR;
- allows physicians to trend and compare their indicator metrics with other physicians using the Dashboard;
- would scale provincially to all Ontario physicians using an OntarioMD-certified EMR, and is easily expanded with new and evolving data quality, practice and clinical indicators.

OntarioMD's work on the Dashboard PoC was conducted in partnership with Health Quality Ontario, the Association of Family Health Teams of Ontario, the Canadian Institute for Health Information and the Association of Ontario Health Centres (and funded by the MOHLTC) to develop the framework. OntarioMD led and facilitated the development of provincial indicators used in the OntarioMD EMR Physician Dashboard (Dashboard), and collaborated with participating EMR vendors to support related training and change management activities.

The benefits evaluation focused on assessing the clinical value of the OntarioMD EMR Physician Dashboard Framework (Dashboard Framework) in improving clinical outcomes and practice efficiencies. The evaluation considers the perspective of physicians who participated and offered their feedback during the Dashboard PoC. The methodology used for this benefits evaluation was adapted from the Canada Health Infoway Benefits Evaluation Framework. Benefits are considered in the following categories: Dashboard Supports and Service; Dashboard Use; Indicator Effectiveness; User Satisfaction. This evaluation considers qualitative feedback received in the form of physician emails/phone calls, physician training and touchpoint sessions, as well as quantitative data in the form of physician responses to a baseline survey and final survey.

This benefits evaluation report provides a summary of identified benefits, lessons learned and recommendations for future work. The OntarioMD EMR Physician Dashboard Proof of Concept Final

Report provides additional detail and context around key findings and recommendations from the initiative.

These insights will be used to support and inform broader provincial planning around a dashboard strategy.

Approach

The Dashboard PoC initiative was carried out between December 2015 and March 2017. A total of 111 physicians participated in the Dashboard PoC through their Practice Solutions Suite (PS Suite), Med Access or OSCAR 15 EMR. Participants spanned several regions of the province, and represented solo practitioners, care group specialists, Family Health Teams and group practices (FHGs, FHOs, FHNs).

Project work was carried out through the following stages:

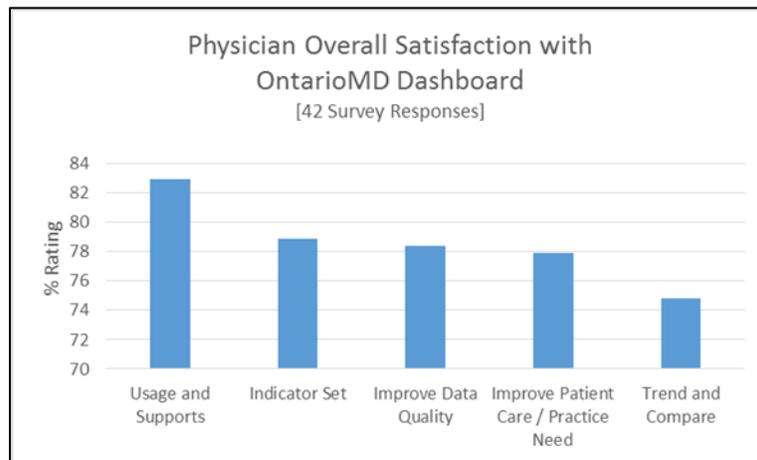
- **Planning:** OntarioMD worked with selected EMR vendors, clinicians and indicator framework stakeholders to finalize the key business and technical requirements for the OntarioMD EMR Physician Dashboard Framework, and finalize the selection of indicators to be included in the Dashboard PoC.
- **Development:** Vendors incorporated the OntarioMD EMR Physician Dashboard Framework into their OntarioMD-certified EMR.
- **Physician Engagement:** OntarioMD developed a strategy to reach out to physicians across all Local Health Integration Networks for participation in the Dashboard PoC.
- **Physician Demonstration:** Participating physicians used the OntarioMD EMR Physician Dashboard to demonstrate and evaluate the objectives of the Dashboard PoC.

Key Findings and Benefits

By integrating with existing EMR technology, the Dashboard reveals clinically relevant views of well-known primary care indicators using patient data already present in EMRs, rather than requiring the data to migrate to external analytics tools. It is also easily expandable to integrate new and evolving data quality, practice and clinical indicators. This has important implications for physicians because the Dashboard allows them to improve data capture processes that support best practice standards for recorded information, quickly and clearly see health trends among their patient population, and generate real-time data and patient lists they can act on for improved care – all while maintaining full control over the patient data in their system.

Perhaps most importantly, the Dashboard PoC demonstrated that the Dashboard is easy to use. For clinicians in a busy practice, this is crucial for ensuring they realize the full clinical value of the tool.

Results of a survey of physicians participating in the Dashboard PoC show a clear majority believe the Dashboard holds value for their practice and patient outcomes.



Physicians using the Dashboard also have the option to access aggregate indicator metrics for trending and comparison when they agree to share their Dashboard metrics with other participating physicians using a common dashboard framework, and no personal health information is included. In the Dashboard PoC, 80% of physicians took advantage of the opt-in feature to share their Dashboard metrics and access the trend/compare functionality in the common dashboard framework. This has the potential to benefit the system as a whole. By tapping into high-quality health data aggregated from dashboard-connected physicians across the province focused on key indicators, health trends and outcomes can be better measured and acted upon across communities.

The Dashboard PoC also showed that a common dashboard framework can be used by physicians across the province, regardless of the OntarioMD-certified EMR offering they're using. This is an important benefit for EMR vendors because it presents them the opportunity to participate in an initiative that is proven to add value to existing OntarioMD-certified EMR offerings, simply by leveraging the common dashboard framework and lessons from this Dashboard PoC.

Recommendations

1. **Develop and deploy a common dashboard framework to achieve scalability across all OntarioMD-certified EMR offerings.** This will require:
 - a consistent, collaborative effort among vendors; and
 - a costing model that ensures equity among vendors.
2. **Ensure successful provincial deployment of a common dashboard through streamlined processes, and dedicated resources for administration, communication, training, and change management.**
 - OntarioMD has a comprehensive suite of existing change management tools that can be leveraged to support physicians in the provincial adoption of the Dashboard. Over 80% of Dashboard PoC physician participants surveyed rated OntarioMD change management processes effective in addressing their Dashboard questions and concerns.

- 3. Develop a strong indicator governance structure to manage the evolution of provincial indicators.** This structure should involve OntarioMD as a sponsor of provincial indicators used in the Dashboard and a facilitator in the development and evolution of indicator definitions to support OntarioMD's role of facilitating EMR standards and clinical adoption of the EMRs, to consider:
 - selection of new provincial indicators and definition of queries with guidance from indicator framework representatives, clinicians, and OntarioMD;
 - revision of existing indicators due to changing guidelines; and
 - indicator implementation and change management standards across EMRs.

- 4. Include physicians across a range of geographic areas, practice models and clinical care groups in establishing requirements and anticipating support needed for province-wide Dashboard adoption and use.**

1 OntarioMD EMR Physician Dashboard Proof of Concept

1.1 Background

OntarioMD, in collaboration with Health Quality Ontario (HQO), the Association of Family Health Teams of Ontario (AFHTO), the Canadian Institute for Health Information (CIHI), and the Association of Ontario Health Centres (AOHC), and funded by the MOHLTC, has developed an OntarioMD EMR Physician Dashboard Framework (Dashboard Framework) which will provide physicians with visual representations of clinical indicators across their patient population, allowing them to see key practice information at a glance. OntarioMD led and facilitated the development of provincial indicators used in the OntarioMD EMR Physician Dashboard (Dashboard), and collaborated with participating EMR vendors to support related training and change management activities.

This initiative ran from December 2015 to March 2017, and aimed to advance EMR maturity among clinicians, improve data quality, and establish a provincially scalable Dashboard Framework that could be easily expanded with new and evolving data quality, practice, and clinical indicators. This initiative aligns with OntarioMD's strategy to deliver next-generation EMR technologies, products and services that provide clear clinical value.

1.2 Objectives and Approach

The work of the OntarioMD EMR Physician Dashboard Proof of Concept (Dashboard PoC) was built around the following objectives:

- Provide a framework for real-time access to an introductory set of high-value indicators from HQO, AFHTO, and CIHI, along with indicators to improve identification and management of various patient populations (for example, eligible patients who have been screened for colorectal cancer) in different physician practice models (e.g., Family Health Team, Family Health Group, Family Health Network, Family Health Organization, solo practitioner, Community Health Centre).
- Associate high-value indicators with data quality of the underlying elements, for example, the number of patients eligible for colorectal cancer screening who have no screening activity recorded in chart.
- Be provincially scalable across all OntarioMD-certified EMRs and can be easily expanded with new and evolving data quality, practice, and clinical indicators.

The initiative was carried out in three stages:

1. **Planning:**
Work with selected EMR vendors, clinicians and other stakeholders, to finalize the key business and technical requirements for the OntarioMD EMR Physician Dashboard Framework, and finalize the selection of indicators to be included in the Dashboard PoC.
2. **Development:**
Incorporate the Dashboard PoC requirements into the selected OntarioMD-certified EMRs.

3. Demonstration:

Demonstrate and evaluate the objectives of the initiative in selected Ontario physician practice settings.

A project extension allowed for an incremental scope change that included:

- Provision of a feature to allow for the aggregation and trending over time of primary care indicator metrics shared by participating physicians
- Physician access to a common shared dashboard for aggregating, trend viewing, and comparing provider-shared metrics for a set of indicators
- Scalability across multiple OntarioMD-certified EMR offerings and vendor platforms
- Support of approximately 100 physicians participating in the Dashboard PoC.

1.3 Dashboard at a Glance

OntarioMD is leading the Dashboard PoC working collaboratively with the Clinical Working Group composed of physician representatives and indicator framework representatives from HQO, AFHTO, CIHI, and AOHC. Selected EMR vendors and participating physicians comprise the initial subscribers to the Dashboard PoC.

The intent of the Dashboard PoC is to provide physicians with an easy-to-interpret visual display of their patients’ outcomes based on widely recognized standard indicators and real-time EMR data and to be able to perform an action on the patient list to address a practice or population need. The example below (Figure 1) illustrates this intent by displaying the indicator metrics in pie chart form and allowing for drill-down capability to view the specific patient detail relative to the indicator. The physician would be able to perform an action on the patient list, for example, access a patient chart to view/modify information or send messages to staff and patient chart(s).

Below is an example of a diabetes indicator of the number of HbA1C tests completed with patients within a specific timeframe. There are two outcomes: patients with diabetes who have had two or more HbA1C tests within the past 12 months (purple/dark shade) and those who have not (blue/light shade). By selecting the graphic, drill-down details relative to the indicator are displayed to support patient follow-up, if required. The physician would then have the capability to perform an action on a patient or patients within the list, such as selecting a patient to access their chart or select multiple patients to send a message for follow-up.

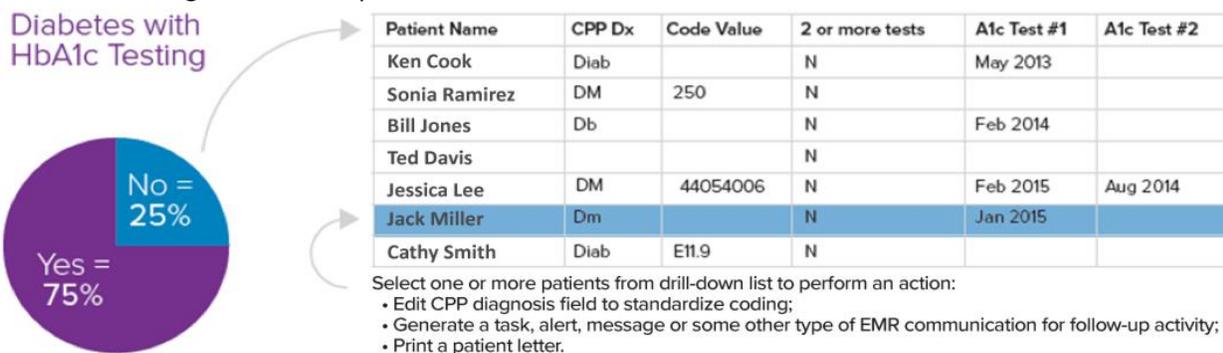


Figure 1: Example of the OntarioMD EMR Physician Dashboard concept.

This initiative required a comprehensive process to ensure the Dashboard Framework included features and functionality that physicians wanted as well as relevant indicators to support assessment of the Dashboard by participating physicians. As depicted in the process diagram below (Figure 2), a Physician Advisory Group was engaged to define the OntarioMD EMR Physician Dashboard Framework requirements and the indicator framework representatives from HQO, AFHTO, and CIHI participated in defining the indicators to be used (Introductory Indicator Set). Through a procurement process, vendors with OntarioMD-certified EMR offerings were invited to submit a proposal for the OntarioMD EMR Physician Dashboard Proof of Concept initiative. Telus Health Solutions and OSCAR EMR were selected. Implementation and change management planning clarified the project tasks and timelines. OntarioMD engaged with each vendor throughout the Dashboard development work to ensure the requested Dashboard requirements were met and introductory indicators included for implementation. **The insights from this initiative will be used to support broader provincial planning.**

This Proof of Concept ran from December 2015 to March 2017.

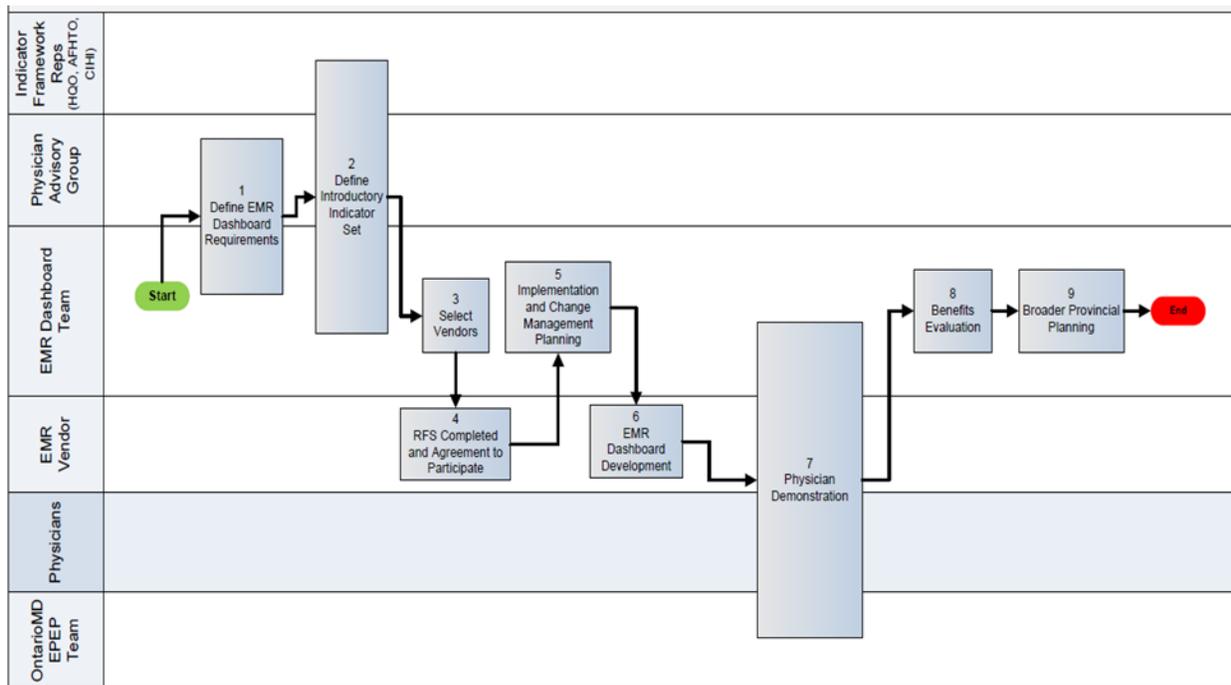


Figure 2: OntarioMD EMR Physician Dashboard Proof of Concept Process

2 Benefits Evaluation Outline

2.1 Benefit Evaluation Objectives

The objectives of this Benefit Evaluation (BE) are:

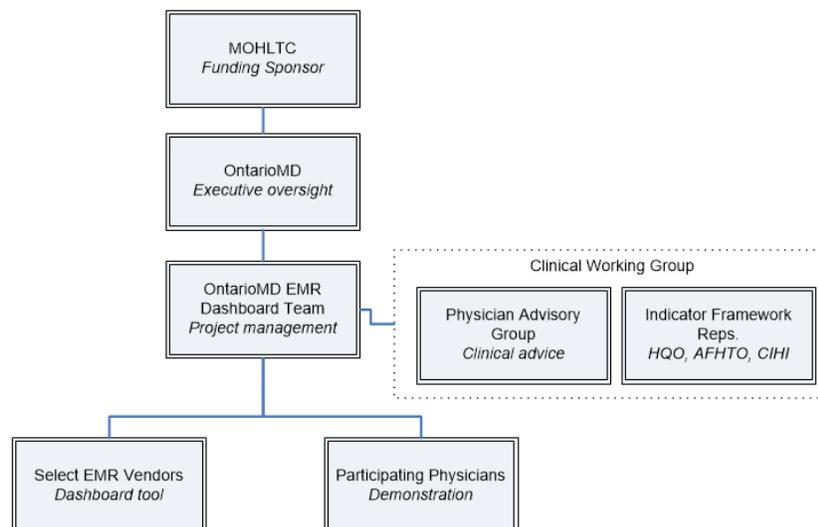
- Assess the clinical value of the OntarioMD EMR Physician Dashboard Framework objectives for improving clinical outcomes and practice quality;
- Inform broader provincial planning and implementation.

2.2 Benefit Evaluation Governance Model

The benefits evaluation was led by OntarioMD and received guidance and advice from the Clinical Working Group.

OntarioMD provided overall project management leadership for the initiative, including the benefits evaluation. The Clinical Working Group provided valuable clinical advice regarding Dashboard requirements, indicators used, additions and enhancements. The selected vendors provided an important role through Dashboard development service provision. Participating physicians played a vital role in demonstrating the Dashboard in their practice and providing feedback to support the benefits evaluation, through touchpoint sessions, emails, phone calls and survey responses. The diagram below provides an overview of the various stakeholders involved.

Figure 3: OntarioMD EMR Physician Dashboard Stakeholders



2.3 Benefit Evaluation Methodology

The Dashboard PoC benefits evaluation methodology is adapted from the Canada Health Infoway Benefits Evaluation Framework (Figure 4).

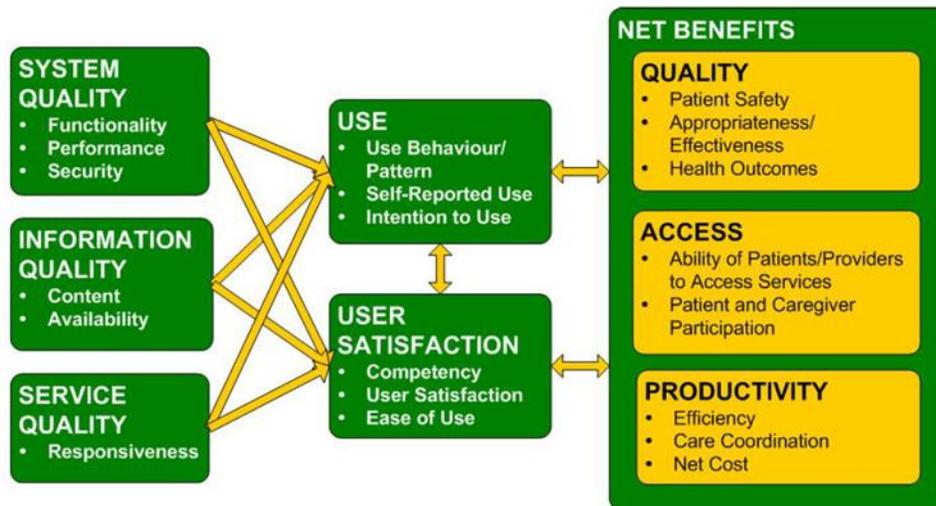


Figure 4: Infoway Benefits Evaluation Framework

The framework adaptation follows the principles of the Infoway model to identify the:

- BE Domain - Program being evaluated:
 - This is a benefits evaluation of the OntarioMD EMR Physician Dashboard Proof of Concept
- Benefits Area - Benefits are expected to be seen in the following areas:
 - Service: Dashboard Supports and Service
 - Use: Dashboard Use
 - Information: Indicator Effectiveness
 - User Satisfaction
- Measurable Value for the Benefit
 - These details are specifically defined for each benefit area and assessed in benefits evaluation results
- Evaluation Sources
 - In general, this evaluation will be based on physician feedback of their demonstrated use of the Dashboard Framework with feedback received from physician emails or phone calls, physician training and touchpoint sessions, Baseline Survey responses, Final Survey responses.
- Benefits Evaluation Results
 - A summarized evaluation of measurable value of the Dashboard using the findings from evaluation sources.
- Key Findings: Lessons Learned and Recommendations
 - A summary of the evaluation results for consideration in future planning.

3 Benefits Evaluation

3.1 Understanding Physician Practices Participating in the Dashboard PoC

A total of 111 physicians participated in the Dashboard PoC:

- 87 participating physicians use Telus-supported EMRs (Practice Solutions Suite, Med Access)
- 24 physicians use the OSCAR EMR's OSCAR 15

The table below (Figure 5) shows a breakdown of physician participation based on their practice type:

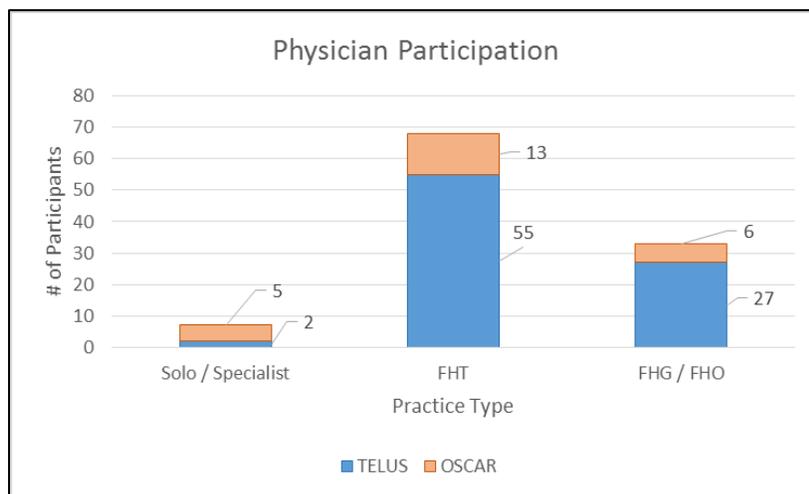


Figure 5. Physician Participation by Practice Type

The table below (Figure 6) shows a breakdown of physician participation by LHIN:

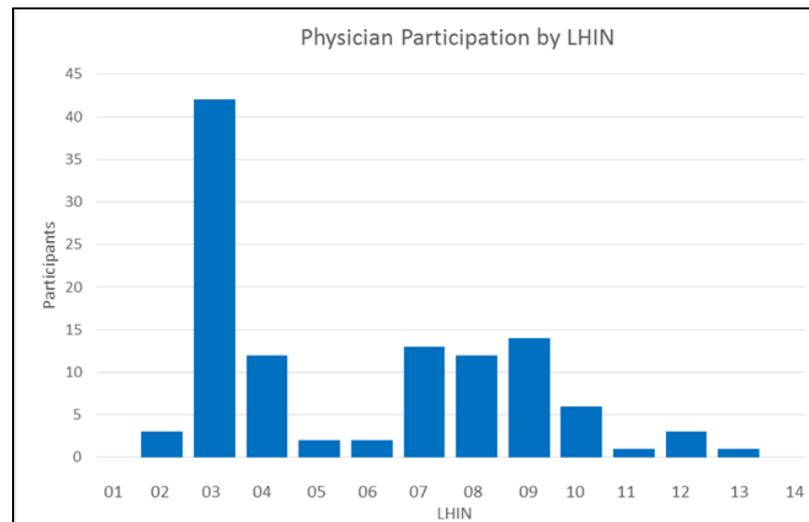


Figure 6. Physician Participation by LHIN

Physicians participated through the demonstration phase of the Dashboard PoC based on their individual capacity. This provided for a range of Dashboard comprehension levels and feedback. As the participation model did not mandate how often physicians should provide feedback or use the Dashboard, this benefits evaluation will focus on a qualitative analysis of responses received through demonstrations, training, and follow-up touchpoint sessions. A quantitative analysis will be provided when details are specific to survey responses.

Physicians were also asked to provide feedback through survey responses. Below is a breakdown of the feedback received through the **Baseline Survey** (Figure 7a, 7b) distributed after the first training session and **Final Survey** (Figure 8a, 8b) distributed at the end of the Proof of Concept timeframe.

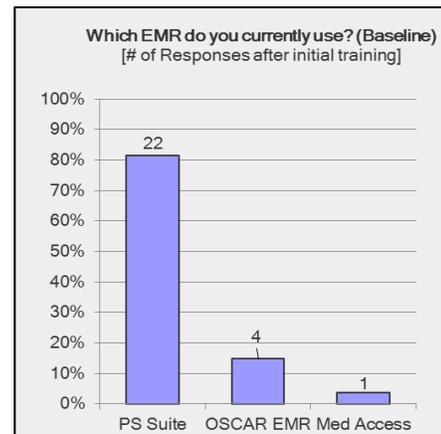
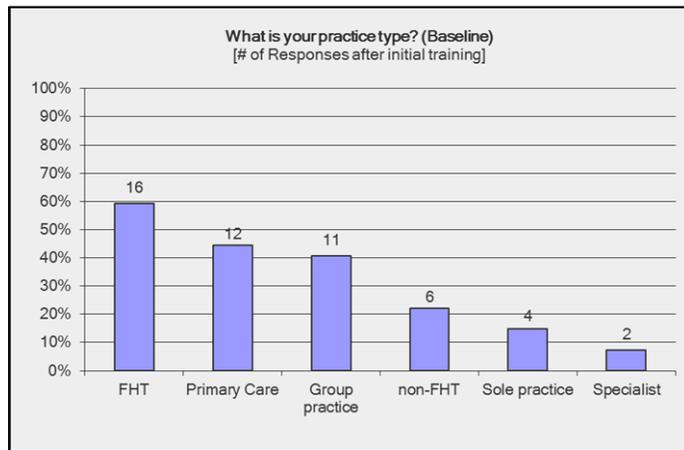


Figure 7a & 7b. Baseline survey participation breakdown

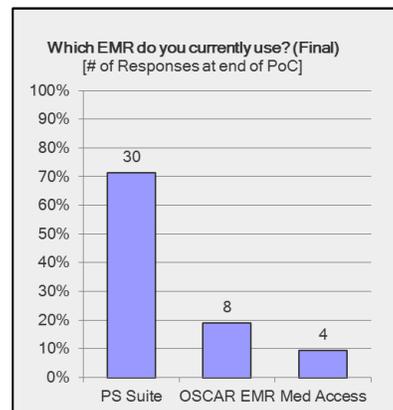
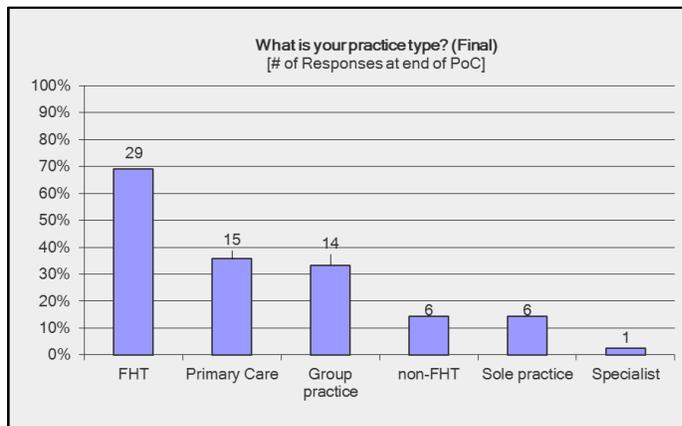


Figure 8a & 8b. Final survey participation breakdown

3.2 Dashboard Supports and Services

This section assesses the overall quality of the service provided for the Dashboard PoC initiative, including the level of training and support provided.

3.2.1 Measurable Value

The impact of Dashboard PoC supports and service were evaluated based on feedback from physicians related to the following:

- An assessment of the initial and overall training and support provided
- Aspects of training that could be improved
- Satisfaction rating of supports received from OntarioMD and the EMR vendors

3.2.2 Identified Benefits

As the table below (figure 9) shows, physicians either agreed or strongly agreed that the training and support provided by OntarioMD and their EMR vendor efficiently addressed their questions or concerns to get them started using the Dashboard. The Change Management Plan for physicians provided by each participating vendor and approved by OntarioMD identified the process for implementing the Dashboard Framework, including the use of product demonstrations, hands-on training, follow-up touchpoint interactions, and contact for extra support when required. Documentation accompanying the training included an orientation of the Dashboard PoC, training material to further explain indicator criteria and use, as well as additional EMR features that would support the Dashboard use. Figure 9 provides the physicians rating of training and support.

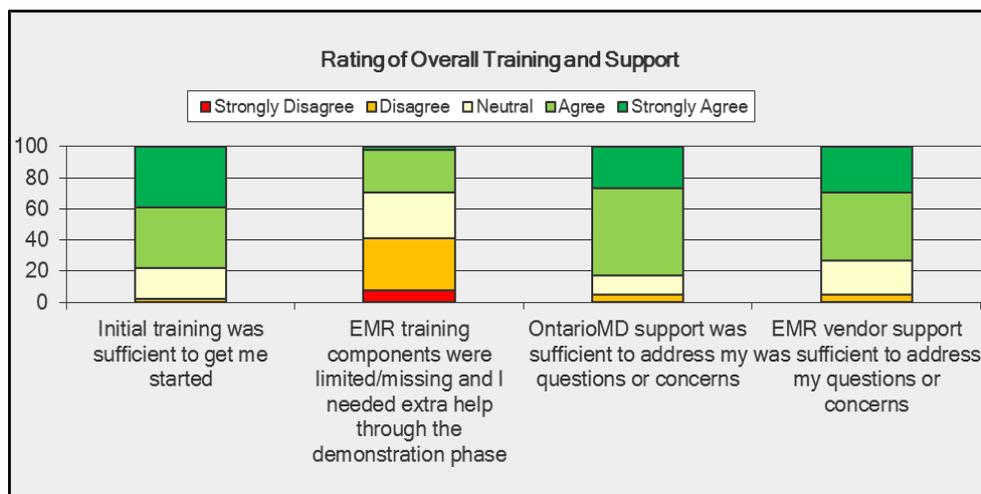


Figure 9. Rating of Training and Support

Hands-on training was highly valued, as it included content tailored to the physician’s specific indicator metrics and patient details. Some physicians relied on other colleagues or their IT office staff for additional supports.

Training sessions allowed for detailed discussions of what the Dashboard revealed, as well as of relevant issues. Once physicians were able to see their own patient metrics through the Dashboard, many wanted to spend even more time on training to build their understanding of the tool.

Training sessions were arranged based on physician availability, usually ran for one hour to one and a half hours. Group sessions were arranged for better efficiency in multi-physician clinics.

In many cases, training was divided into two sessions in consideration of the physicians' time, availability, and orientation needs. Through the initial engagement process to identify potential participants, there were many instances where the clinics wanted more detailed information about the initiative before committing, so an orientation was provided to them. The separate orientation session was labeled an 'introduction session' to explain the scope of the project, indicators and functionality available, and participation terms.

Figure 10 categorizes the various training/supports that physicians used during the demonstration phase to support their needs for the Dashboard.

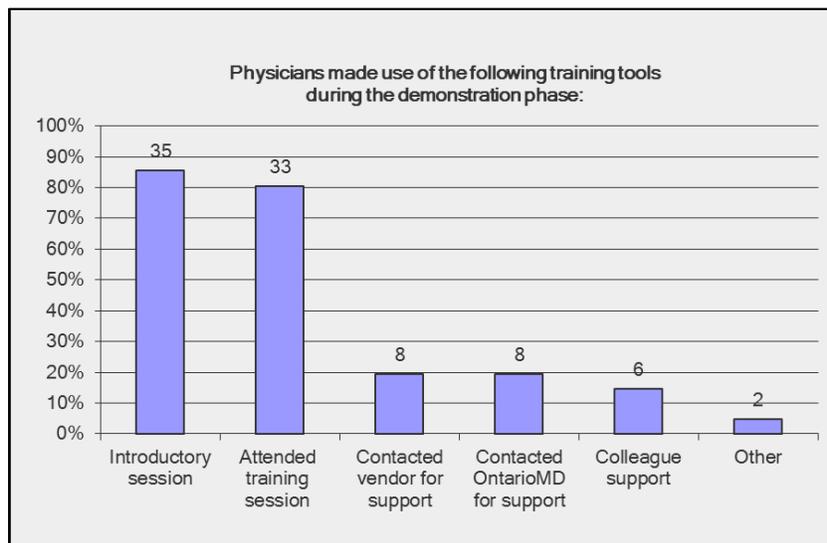


Figure 10. Training/Support used during Demonstration phase.

Training and related supports covered four main areas: Dashboard functionality; indicators and customization; data quality; and other EMR features.

In general, most participating physicians agreed that they developed a better understanding of Dashboard functionality and indicators after the training. Training provided an opportunity for discussion regarding indicator enhancements and defects, and any issues were documented in the Feedback and Issue Log for correction and consideration in the next phase. Some physicians also provided valuable feedback on aspects of training that could be added or improved, which will be considered for future planning and deployment. Most discussions revolved around data quality relating to diagnosis coding and where/how to enter information in the EMR so it would be accurately represented by an indicator.

To address performance issues during training sessions, the vendors used their demo environment to go through Dashboard features and specific indicator discussions. To address performance issues for generating indicator metrics, the vendors made modifications to the implementation at the affected clinics; either increasing the query run-time so queries could complete in the allocated time, or restricting the Dashboard to specific indicators that were known to complete in the allocated time. The

vendors continue to work with the clinics to address technical issues that would further improve performance and capacity for queries to complete and drill-down tables to execute. To address query defects, the vendors worked with clinics to analyze the issues for resolution and are working on the development cycle to resolve the issues.

Using a five-point Likert scale, physicians were asked to rate their level of satisfaction for the supports provided by OntarioMD and the EMR vendors. The tables below (Figure 11a, 11b) summarize the satisfaction ratings for Dashboard functionality, indicator and customization, data quality, and other EMR features. These details are important for future planning considerations of the types of supports that should be offered by OntarioMD and/or EMR vendors.

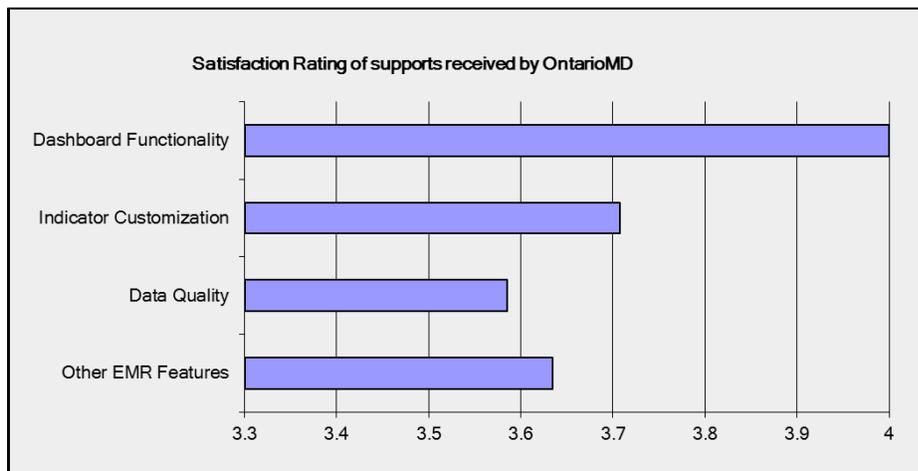


Figure 11a. Satisfaction rating of supports from OntarioMD
(Graph extract of scale to demonstrate average response range of 3 to 4)

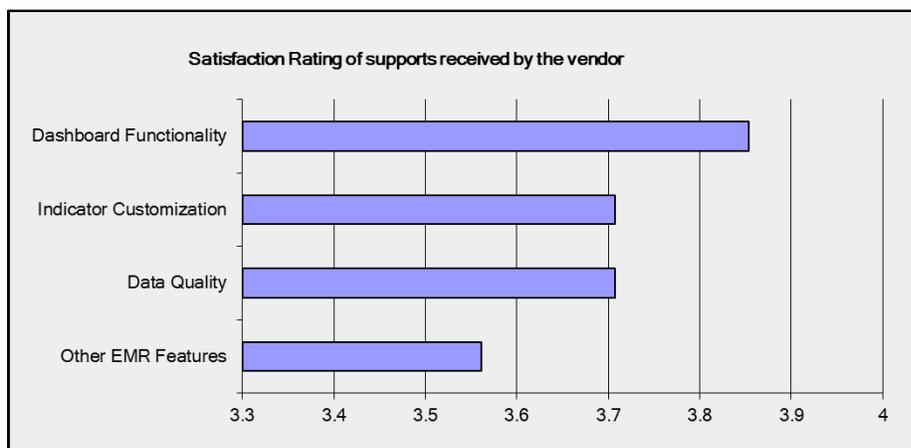


Figure 11b. Satisfaction rating of supports from the EMR vendor
(Graph extract of scale to demonstrate average response range of 3 to 4)

3.2.3 Lessons Learned and Recommendations

- a. Some physicians reported requiring extra help from OntarioMD or the vendor, beyond the training provided. Follow-up training sessions with OntarioMD and the EMR vendor were arranged for physicians requiring extra support and were seen to be valuable to physicians. Some clinics did not arrange follow-up sessions; this was perceived by the project team as a missed opportunity to provide clarity if required and feedback regarding issues under review or modifications planned.
- b. Training and support methods and resources will need to be carefully considered when the Dashboard is rolled out provincially. During the Dashboard PoC, OntarioMD and the vendors partnered to offer these services. However, these efforts should be complementary rather than combined to avoid duplication of efforts. Existing OntarioMD support and change management resources can be scaled to meet demand, while EMR vendor resources should be considered as an add-on to augment roll-out demands. Other methods of training should also be considered to scale the provincial roll-out. These methods could include training clinic leads (train-the-trainer), and using electronic training tools such as training videos and detailed user guides.
- c. Feedback from participating physicians indicates that most appreciated the multi-level training and support offered by OntarioMD and the vendors. Engagement opportunities included product demonstrations, hands-on training, follow-up touchpoint interactions, email, online meetings, and contact points for extra support as required.
- d. Physicians' time is an important consideration in the design and delivery of training, as is the availability of clinic staff. Offering the training in multiple, shorter sessions as required was viewed as a useful strategy.
- e. Training and supports covered four main areas; Dashboard functionality, indicators and customization, data quality, and other EMR features. In general, most responses stated that training helped provide physicians with clarity around Dashboard functionality and indicators. Generally, physicians were more satisfied with Dashboard functionality supports provided by OntarioMD, and data quality supports provided by the EMR vendor. Future planning for training and support resources should take these details into consideration.
- f. Diagnosis coding became a primary focus of discussion for physicians who were not familiar with recording the patient diagnosis either in the disease registry (OSCAR 15), or as a coded problem/history (PS Suite, Med Access). In many cases, physicians found coding hindered their use of the indicators and expressed an interest in extra help to support this workload. Vendors provided extra support to help physicians understand this task, and OntarioMD's EMR Practice Enhancement Program leads were engaged to investigate standards further; they will support indicator query updates as standards are confirmed. Once physicians applied the coding to patient diagnosis, they were able to realize the benefit of accurately identifying patients with the diagnosis and minimizing false positive inclusion in the indicator results.
- g. OntarioMD played a key role throughout the Dashboard PoC. As the sponsor for the Dashboard PoC, the organization led and facilitated the development of indicators used in the Dashboard, and was the primary contributor to support training and change management activities that impact a clinic from a provincial scale. Dashboard collaboration efforts must be managed from a provincial perspective to engage with stakeholders to achieve results that support and benefit Ontario physicians and their practices. A strong indicator governance structure is necessary to

manage the evolution of provincial indicators. This structure should involve OntarioMD as a sponsor of provincial indicators used by the Dashboard and as a facilitator in the development and evolution of indicator definitions. This governance structure would ensure OntarioMD's guidance in facilitating EMR standards and clinical adoption across all EMRs, and would consider:

- selection of new provincial indicators and definition of queries, with guidance from indicator framework representatives, clinicians, and OntarioMD;
 - revision of existing indicators due to changing guidelines; and
 - indicator implementation and change management standards across EMRs.
- h. Performance issues impacted whether an indicator query could execute to generate metrics, or the ability for revealing the patient drill-down table information. Some physicians reported this impeded their adoption of the Dashboard. The vendors made implementation modifications for the affected clinics to address identified performance issues, either increasing query run-time so queries could finish in the allocated time, or restricting the Dashboard to specific indicators that were known to finish in the allocated time. The vendors continue to work with the clinics to address technical issues that would further improve performance and capacity for queries to complete and drill-down tables to execute. The vendors are working on improving queries to execute in an acceptable timeframe and will be implementing changes in the next phase.

3.3 Dashboard Use

The evaluation will look at who is using the Dashboard and aspects of use by frequency.

3.3.1 Measurable Value

The impact of Dashboard use was evaluated based on feedback from physicians related to the following:

- Roles that create searches/queries
- Frequency of executing searches/queries for clinical and practice needs
- Roles and frequency of Dashboard access

It is important to put into context how many times physicians accessed the Dashboard during the Dashboard PoC. Physicians had hands-on access to the Dashboard during engagements with the Dashboard team in training sessions, follow-up calls or support. Where some physicians participating in the Dashboard PoC only accessed the Dashboard during these touchpoint sessions, results show that most physicians accessed the Dashboard five or more times for their own practice use (Figure 12a).

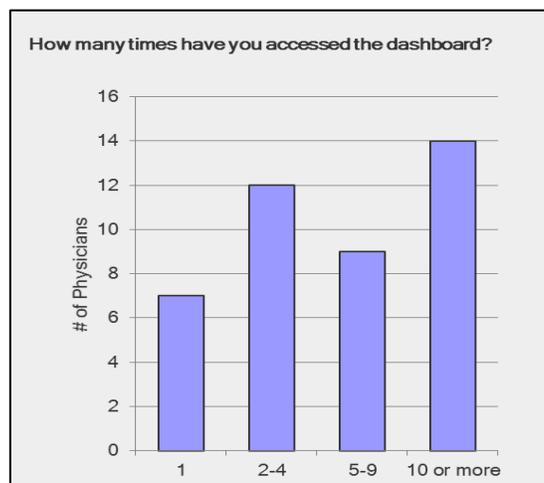


Figure 12a. Frequency of access

Staggered onboarding of physicians participating in the Dashboard PoC took place between July 2016 and March 2017 (Figure 12b). All participating physicians were given the same opportunities for touchpoints and support. Clinics with data quality goals likely accessed the Dashboard more frequently during the Dashboard PoC to leverage those goals.

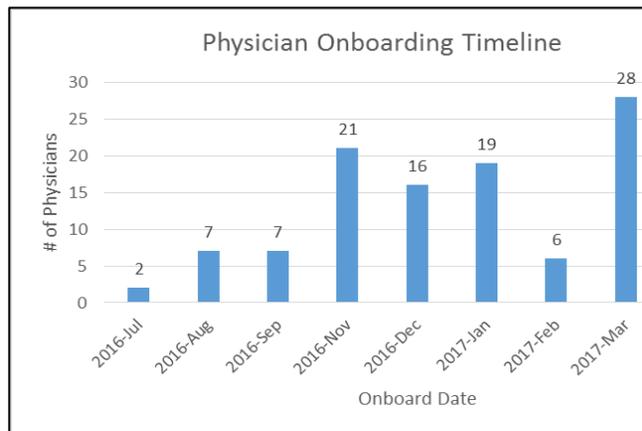


Figure 12b. Physician Onboarding

To properly evaluate the use of the Dashboard, it is also important to understand who in participants' practices are responsible for creating searches/queries. This is a key functionality, as it can influence the ability to generate lists of patients for whom physicians need to take action. Indicators within the Dashboard use this search/query capability to provide metrics and patient lists. Figure 13 illustrates who in participants' practices most often create searches and queries for the clinic.

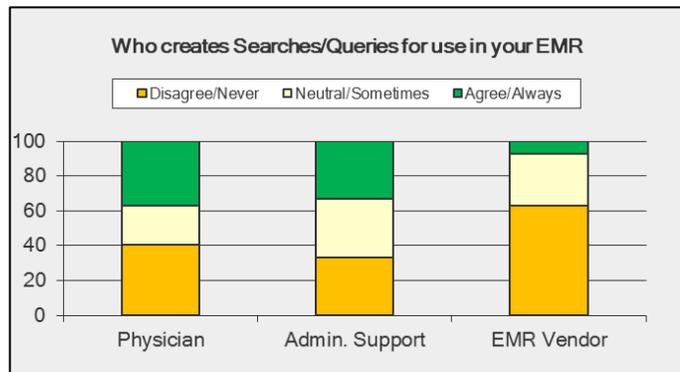


Figure 13. Creating Searches/Queries in the EMR

3.3.2 Identified Benefits

When considering a provincial Dashboard Framework, standard indicator definitions are an essential component. The indicators from HQO, AFHTO and CIHI were used to identify indicators and definitions used in the Dashboard Framework. The physician members of the Advisory Group weighed in on the definition criteria to ensure relevant EMR criteria are identified to support indicator development. The EMR vendors were responsible for developing the indicator within the EMR based on the standard indicator definition. The OntarioMD project team ensured consistency in the development across the different EMRs, local and common dashboards, and managed the implementation timelines. The EMR vendors / Service Providers deployed the indicators to the participating physicians. This process ensured a standard indicator definition was implemented for all physicians to use, regardless of EMR or user capabilities.

Access to the Dashboard can be linked to increased review of preventive care and screening information. Participating physicians were asked at the start of their Dashboard PoC involvement how often they (or their admin staff) review overdue preventive care or screening details. Their feedback, shown in Figure 14, indicates a tendency toward performing these reviews quarterly, monthly, or as needed. Very few reported weekly reviews; and no one reported daily reviews.

Participating physicians were asked a similar question at the end of the Dashboard PoC about how frequently the Dashboard was accessed, and by which roles in their practice. Figure 15 below shows a switch to accessing the Dashboard daily, weekly or monthly.

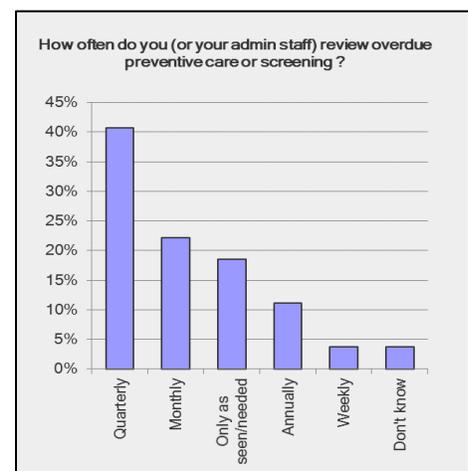


Figure 14. Frequency of viewing preventive care or screening details

Increased familiarity with the Dashboard and satisfaction with indicator data quality led physicians and staff to focus on Dashboard information that had the most impact for their practice. During the Dashboard PoC, it became increasingly evident that other clinic resources (if available in the physician practice model) were also interested in the information that supported their business need; for example, administration staff would use the data to recall patients for screenings.

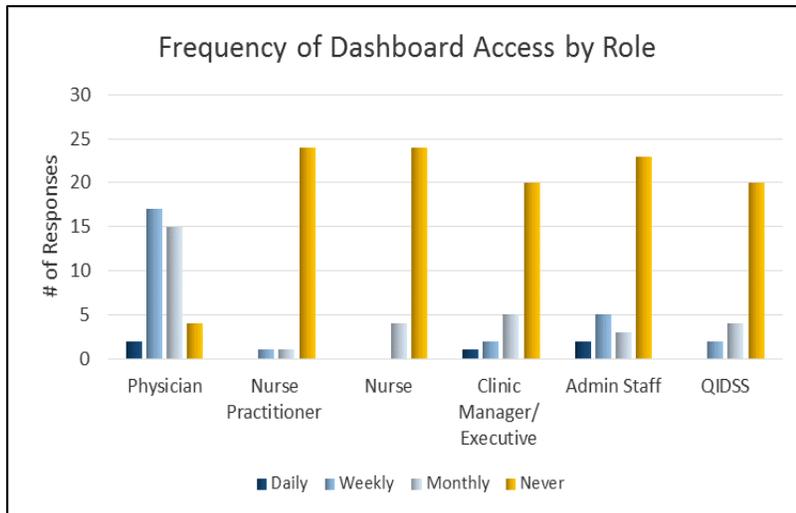


Figure 15. Frequency of Dashboard access by role

3.3.3 Lessons Learned and Recommendations

- a. The more hands-on use physicians had with the Dashboard, the more likely they were to address data quality issues and provide feedback on indicator effectiveness as well as supports and services they received.
- b. If searches/queries used by dashboard-connected practices are shared with the broader physician/EMR community, they can be used to improve broad use of the Dashboard; however, some physicians were not familiar with functionality to create or share searches/queries.
- c. A primary objective of the Dashboard PoC is to provide a framework for real-time access to high-valued indicators from HQO, AFHTO or CIHI; this implies use of a standard indicator definition. However, it may be difficult to ensure a standard indicator definition if development of provincial indicators is open to all users within their individual EMRs. Under a common dashboard framework, it becomes even more difficult to implement a consistent definition for use. A primary development source for each EMR should be identified for the provincial indicator development strategy.
- d. Physicians should play a vital role in the indicator definition process as well as evolving indicators for improvements. This information is significant and should be addressed in order to ensure standard Dashboard indicator definitions are maintained, they remain relevant for physician use, and follow a change strategy to ensure timely modifications are applied and made available for all physicians to use.

- e. As physicians used the Dashboard, they reported increased frequency in their review of preventive care or screening details. In some cases, physicians also reported improvements in their follow-up processes for patients of interest. The project team recorded additional feedback based on physician reviews to assess data quality, assess indicator definition for defects, assess indicators for additional criteria, and assess additional Dashboard functionality. This feedback can be used to help understand physician use of the Dashboard, as well as to define other staff resources that should have access to the Dashboard to better support some of the available Dashboard uses.

3.4 Indicator Effectiveness

The section looks at content and availability of the Dashboard. Completeness, accuracy and relevance of information provided, the speed at which it is available when needed, and the format and layout of information are assessed.

3.4.1 Measurable Value

The impact of indicator effectiveness was evaluated based on feedback from physicians related to the following:

- Data quality and use of the Dashboard indicators to support this effort
- Interest in indicators provided in the introductory set, others for consideration, and information provided
- Availability of indicator information

The graph below (Figure 16) provides a general perspective of how participating physicians rated their overall EMR data quality at the beginning of the Dashboard PoC. Data quality was defined as recording patient clinical information in the EMR in a consistent and complete way so it can be easily searched or queried.

The following ratings were recorded:

- *Advanced* means patient data is documented in a consistent, repeatable and complete way that can be easily searched and queried. No data quality changes needed.
- *Basic* means minor data quality changes are required to consistently search/query patient information.
- *Needs Improvement* means major data quality changes are required.

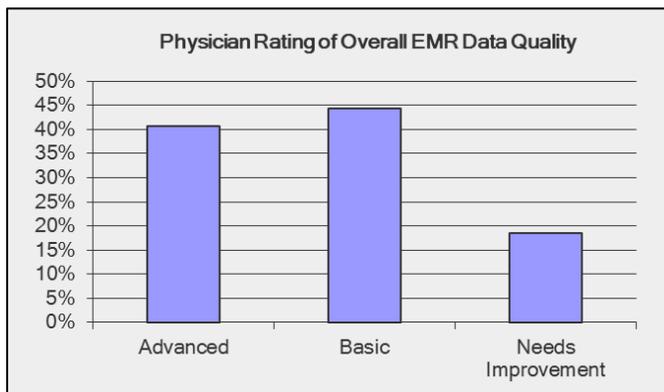


Figure 16. EMR Data Quality Rating

3.4.2 Identified Benefits

Most participating physicians surveyed after the Dashboard PoC agreed, or strongly agreed, that the Dashboard indicators would support their ability to improve data quality. Specifically, they will help improve the quality of data focused on the diabetes indicators, preventive care cancer screening indicators, and care bonus indicators. The physicians confirmed that their use of the Dashboard clearly reveals how they are collecting and recording patient information, can help them improve data quality and the way information is documented, provides improved search results based on indicator criteria, and allows them to review trending to assess whether their results are improving. These findings are especially important considering a Baseline Survey of participating physicians conducted at the

beginning of the Dashboard PoC shows that only 20% thought their data quality needed significant improvement.

Participating physicians found significant value in being able to identify and take action on the up-to-date patient lists displayed from the indicator results. A survey of participants shows that approximately a third of physicians would like immediate or on-demand availability of this type of information, a third would like daily availability, and the other third would like either weekly or monthly availability (Figure 17).

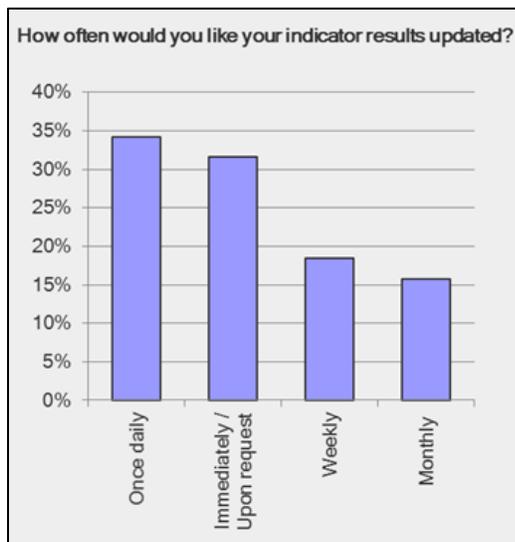


Figure 17: Frequency of result updates

Physicians provided valuable feedback that can be used to improve the introductory indicator set or advance the library of indicators (Feedback and Issue Log). Physicians and clinics that have their own library of searches/queries can play a vital role in the evolution of indicators, providing relevant information to support new and change criteria to advance provincial indicators used in the Dashboard. The timeliness of indicators developed and implemented in the Dashboard is a key component to be addressed in the Dashboard evaluation.

3.4.3 Lessons Learned and Recommendations

- a. The majority of physician feedback and survey responses indicate that physicians use text format for recording diagnosis if a standard diagnosis tool/registry has not been implemented. Some physicians and clinics were involved in collaborative groups to standardize the text being used or the tools available for use to provide a more standard way of recording diagnosis. Many physicians were not aware of diagnosis standards. Many were familiar with billing codes and could match a billing code to a diagnosis. Many physicians were concerned about the workload required to update text diagnosis to coding diagnosis (via a tool or registry). This reveals the complexity in defining a standard way to identify a diagnosis for use in the indicator query definition, and the way to enter diagnosis that physicians could be trained on and use within the various EMRs.

- b. Physicians were largely interested in all the indicators available in the introductory set with specialist interest for the Rheumatology indicator. Throughout the Dashboard PoC initiative, feedback was received from physicians that identified defects within some indicator queries, options to enhance some indicators, options for co-assessment of attributes to indicators, and identification of new indicators for consideration. These details are recorded in the Feedback and Issue Log and will be used for future indicator planning. Many clinics offered to provide information to support indicator enhancements based on the searches they are currently using in their EMRs. Some physicians and clinics have developed practice and clinical searches that provide advanced, complex information that could support indicator improvements. To highlight physician recommendations to evolve the next generation of indicators, the majority of responses included the following:
- Patient care indicators – Indicator details by patient targets, Diabetes enhancements, COPD, Bone Density, Chronic Kidney Disease, Co-morbidities, Tetanus Immunization, Narcotics Prescription, Advance Care Planning, Depression, Dementia;
 - Practice Level indicators such as Same Day / Next Day Appointments, User Login Monitoring.
- c. The Dashboard PoC allowed for a ‘local’ Dashboard model as well as a ‘common’ Dashboard model. Each Dashboard implemented core requirements with the following exceptions:

Local Dashboard

- features and functionality which is developed within the EMR.
- allows for creation/modification of new indicators, provides a library of indicators to display or hide, ability to create a user-defined dashboard of ‘favourite’ indicators, real-time updates to metrics and patient lists, and patient list filtering.

Common Dashboard

- features and functionality that is developed externally and integrated into the EMR.
- allows for trend and compare functionality, electronic share capability, standard indicator graphic and metric view across multiple EMRs, and daily updates of metrics with real-time link to physician’s EMR.

- d. Development of a Local Dashboard model and Common Dashboard model, and access to physicians during the Dashboard PoC revealed the general and priority features they were interested in to express the value they found with the Dashboard and indicators. Generally, physicians were satisfied with the Dashboard model they had access to. Physicians had one main complaint associated with each of the Dashboard models. For the Local Dashboard, physicians wanted to have access to trending and comparing their indicator metrics to other physicians in their clinic, region, or specialty. For the Common Dashboard, physicians wanted the capability for creation/modification of new indicators and to be able to filter patient lists on modified indicator criteria.

3.5 User Satisfaction

This section assesses overall satisfaction, productivity, quality of care, impact on job, ability to coordinate patient care, sharing of information, efficiency of processes.

3.5.1 Measurable Value

The impact of user satisfaction was evaluated based on feedback from participants related to the following:

- General questions regarding what value the physician recognizes by using the Dashboard to improve patient care, improve data quality, drill-down to real-time patient lists, perform actions on a patient list, address potential billing efficiencies
- Changes to how the physician engaged with patients
- Use of electronic opt-in feature to share metrics
- Ability to trend and compare results to aggregate of participants

3.5.2 Identified Benefits

As shown in Figure 18 below, participating physicians were asked for their level of agreement with several perceived benefits of Dashboard use. In all cases, the majority agreed, or strongly agreed, that the Dashboard provided each identified benefit. Physicians also provided substantiating comments to support their positive value assessments, as well as areas for improvement to support their concerns. These comments have been recorded and will be considered in future project work.

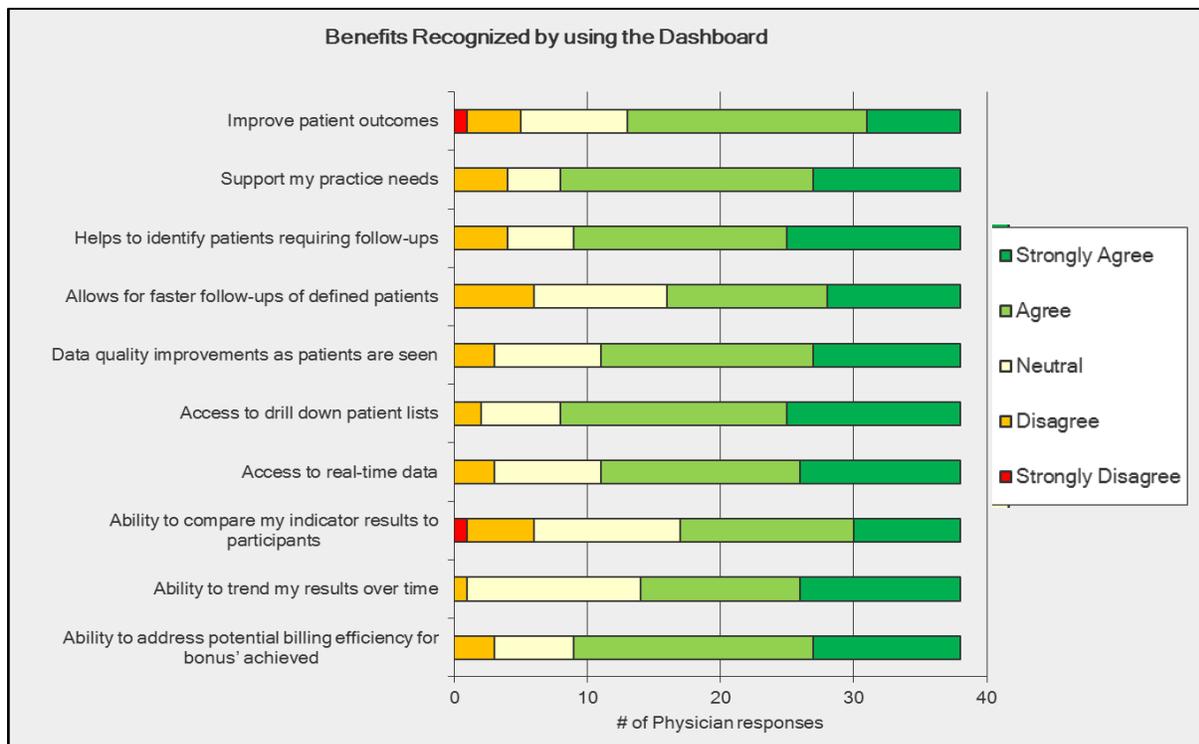


Figure 18. Value of the Dashboard

Physicians strongly agreed that the Dashboard was easy and intuitive to use, and provided a clear visual understanding of patient metrics based on graphical views.

Physicians agreed that the Dashboard supports improvements to patient care by offering physicians and staff an efficient way to identify patients requiring follow-up, or to spot the need for data clean-up work. Some physicians also reported a change in how they engage with patients and an improvement to patient care by using the Dashboard.

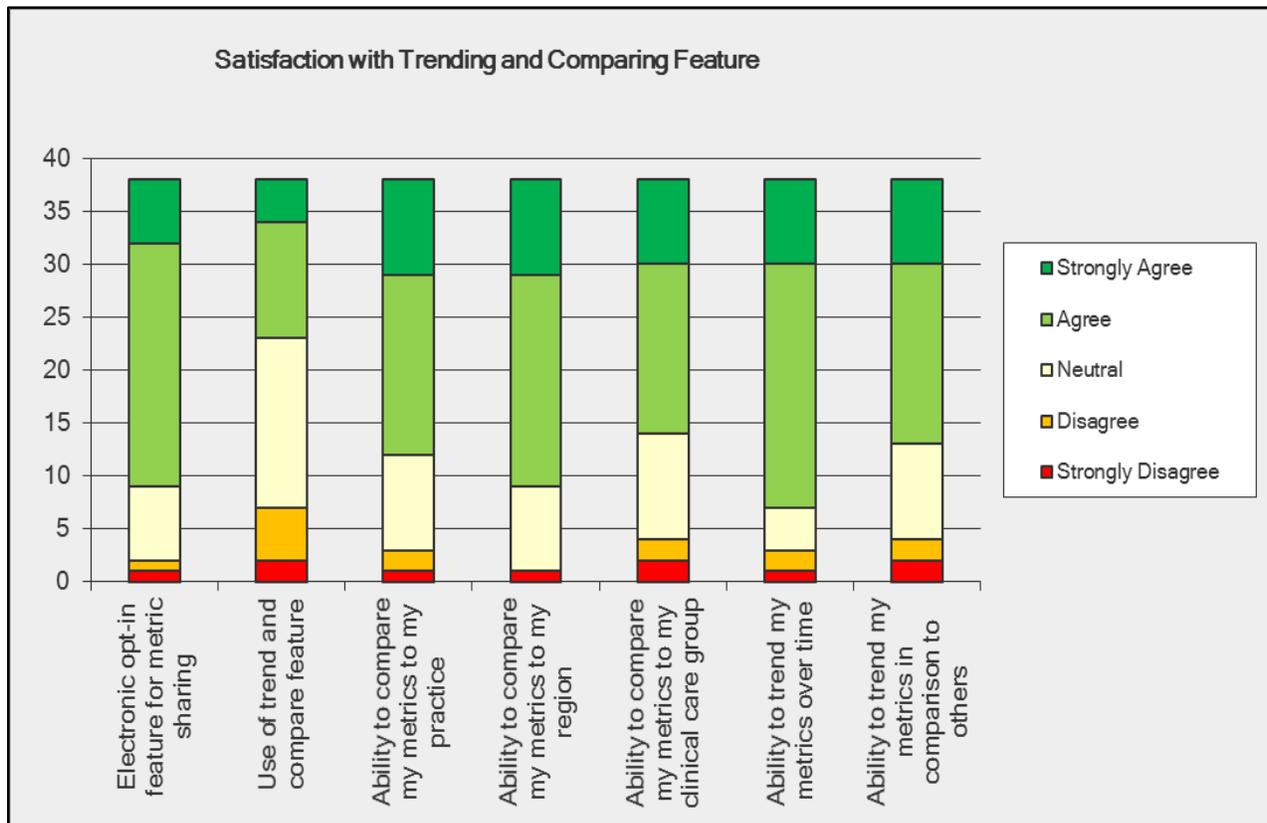


Figure 19. Trending and Comparing

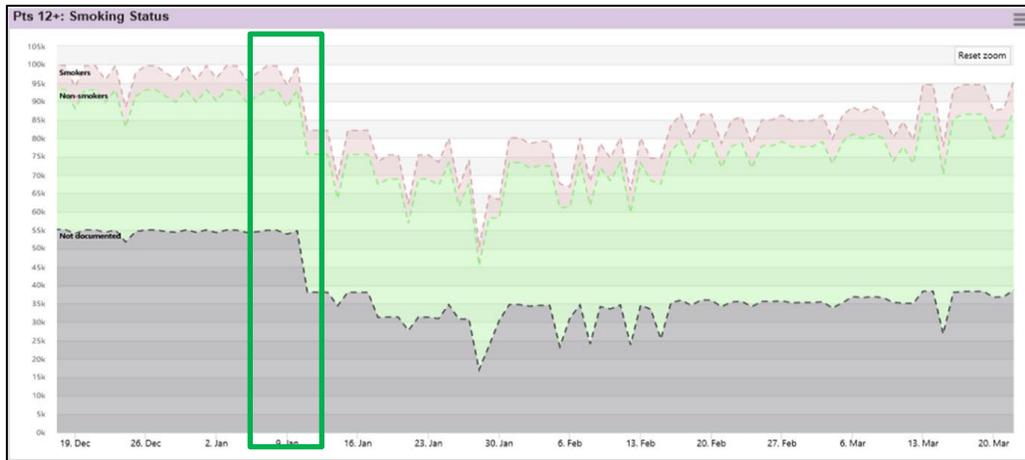
The extended scope phase of the Dashboard PoC involved increased use of trending and comparing features; as Figure 19 shows, most physicians found value in using these features.

All participating physicians were required to share metrics with OntarioMD during the Dashboard PoC. Physicians could either send in screen prints of their indicator metrics (graphical view), or opt in to share electronically from the Common Dashboard. **Physicians were satisfied that no PHI would be shared, only metric information, and as a result, 80% of physicians used the electronic opt-in feature to share metrics.**

Most physicians also agreed to access a tool allowing them to compare their practice metrics to the aggregate of physicians in their practice, their region, or their clinical care group (e.g. Specialty). The ability to trend metrics over time was seen as a valuable feature. Physicians reported that using their trend information could support data quality initiatives, as the feature clearly shows when focused data quality efforts modify the metrics. For example, multiple clinics focused on data quality associated with

their active patient status, smoking status, and obesity indicators. The trend view of their Dashboard allowed them to see a change in overall metrics.

In early January, many clinics went through a process to review their patient status and inactivated patients not seen in more than two years. This data quality work resulted in a more accurate representation of their active patients. As illustrated in the trend view for the Smoking Status (Figure 20), physicians were able to use this view to identify when data quality efforts were applied and the improvements that were made.



*Figure 20.
Trend and
Compare data
quality effort*

3.5.3 Lessons Learned and Recommendations

- a. While the majority of participating physicians either strongly agreed, or agreed, that the Dashboard provides value, some feedback did focus on areas of improvement that will be used for broader provincial planning, namely:
 - performance issues associated with accessing drill-down lists for those physicians using PS Suite,
 - extra work required for coding to identify patients with specific diagnosis (all EMRs),
 - the need for a way to remind physicians to access their Dashboard regularly,
 - the need for a way to address data quality that is impacted by other EMR functionality (i.e., lab results) or limited standards on how/where to enter data in the EMR,
 - changes to indicators to correct query defects or provide more relevant information, and
 - the need for a more efficient way to provide feedback to the project team.
- b. Physicians and other clinic participants recognize workload efforts are required to improve data quality for the Dashboard to provide more reliable results. Addressing data quality is a challenge that needs to be assessed based on practice type, options or approaches to addressing the data quality, and supports available to assist with this endeavour.