

Implementation of an Electronic Dashboard for Reporting and Tracking of Health Care Professional Requirements

Christina Cinelli, MD, David Somsen, MD, Ashley Quinn, Nancy Horn, CPCS, Rebecca Murray, BSN, CPC, CHC

INTRODUCTION

Since the adoption of the Patient Protection and Affordable Care Act of 2010, there has been a trend in medicine to focus on quality metrics aimed at increasing “value-added care” [1]. This trend is happening in parallel with continued advances in technology, as well as increasing utilization of radiologic services. As a result of these realities, there has been increasing demand on both radiologists and associated support staff members to track professional requirements. In our multispecialty physician group, these requirements had historically been tracked with a paper-based or person-based method. It was evident that as providers were employed by more hospitals in more states and as requirements expanded in number, there was a higher likelihood of these being overlooked or even expiring.

Electronic dashboards are increasingly used to improve upon a multitude of facets of health care, including safety, efficiency, quality, and compliance, and have continued to show their value over time [2-4]. Many radiology-centric dashboards focus on improving patient care and clinical efficiency, with dashboards that track productivity, report turnaround time, patient flow, and other aspects of imaging utilization [4]. With the continued push for cloud-

based imaging platforms, dashboards are more commonly integrated as part of this new architecture, allowing dashboards to expand into nonclinical areas of radiology.

WHAT WE DID

To address the ever expanding requirement tracking issues, our multispecialty physician organization developed a dashboard of provider professional requirements. The intent was to create an efficient, comprehensive, and personalized dashboard to track and report requirements for credentialing, privileging, ongoing and focused professional performance evaluations, and accreditation. The final product transformed a traditionally siloed process into a more collaborative, systems-based process, a move that has proved beneficial in many fields of health care and health care management [5,6]. Additionally, the dashboard serves to help physicians navigate requirements, while providing a scalable process to support clinical expansion and ongoing changes without hiring additional resources.

In October 2017, a team of physicians, IT, and administrative staff members was formed to create this dashboard, aimed at monitoring professional requirements. An inventory

of requirements was obtained by the Medical Staff Services Department (MSSD) by reaching out to licensing boards, health care facilities (hospitals, ambulatory surgery centers, imaging centers), and accreditation bodies (ACR, FDA, Accreditation Association for Ambulatory Health Care, The Joint Commission). Departments within the company that were tracking and reporting provider requirements were also identified and interviewed to determine any redundancies.

Individualized baseline interviews were performed with physicians, human resources, and the quality department to optimize the final product for multiple groups of people in the organization. Common interview responses from physicians revolved around improving access to the data stored in the MSSD, as well as the desire to have a personalized and itemized list of their professional requirements and upcoming expiring requirements. Human resources interviews were conducted to define job requirements for not only subspecialty-credentialed providers but also other health care professionals in the group. The quality department interviews determined the requirements that were already being tracked and reported as part of focused and ongoing professional performance evaluations to meet Joint Commission

standards. This data collection helped streamline the way the organization handles many different evaluation and reporting processes.

Using Microsoft tools, the dashboard was launched in February 2018 (Fig. 1). Rollout of the new process occurred within several forums at both the business office and at physician meetings over the course of several months. The developed electronic reporting system generates monthly dashboards for all physicians (Fig. 2). These contain a list of each provider's specific requirements with red, yellow, or green status with regard to the requirement's due date (red, 0-31 days; yellow, 32-180 days; green, greater than 180 days). Additional e-mail notifications are triggered for any requirement due to expire in the next 31 days. Any necessary instructions, required

content, and links for requirement completion are embedded within the notification, for example, a link to the state licensure renewal website.

MSSD and operational staff members have access to the dashboard created using the Microsoft Power BI program (Microsoft, Redmond, Washington). This dashboard allows staff members to see the real-time status of all physicians' requirements. The dashboard has multiple filters that allow visualization of requirements by provider, subcategory, subspecialty, site of service, and so on (Fig. 1).

Success metrics on the impact of this project included evaluating physician satisfaction, evaluating on-time completion of credentialing requirements, and assessing overall labor input from both support staff members and physicians. After 9 months of dashboard trial, a survey (see the

online supplement) was conducted of physicians and staff members to evaluate satisfaction of the new electronic dashboard and requirement process.

OUTCOMES AND LIMITATIONS

The dashboard initially tracked 2 requirements, licensing and Drug Enforcement Administration requirements but now tracks more than 90 requirements, serving 64 radiologists at 36 different sites (Fig. 1). More than 1,025 hours per year of MSSD staff time has been saved, and half of that was time spent handling inquiries from physicians. Expired requirements decreased from 30% to 7% in the first year. Intervention went from 100% manual to 100% automation (Fig. 3).

Realtime dashboard view.



Fig 1. A real-time view of the dashboard as seen from the support staff perspective. This specific snapshot shows the results for all radiologists in the company. Results can be separated by division, requirement, alert status, provider, and requirement name. The legend in the top right corner demonstrates the time left until requirement expiration: red denotes less than 31 days or already expired, yellow denotes expiration in 31 to 180 days, and green denotes expiration in more than 180 days.

Sample contents of monthly notification for providers.


Professional Requirements Report
 Radiology South

Status	Requirements Summary	
✓	ACR Mammography	15.00 Hours in a 36 month period
✓	Board Certification	Active Status through 12/31/2023
✓	CME - DHHS Mandatory Report Training	1.00 Certificate in a 48 month period
✓	CME - ME Licensure/Opioid	3.00 Hours in a 24 month period
✓	CME - NH Licensure	40.00 Hours in a 24 month period prior to 12/31/2019
✓	CME - ME Licensure	40.00 Hours in a 24 month period prior to 12/31/2020
✓	DEA Expiration *	Active Status through 8/31/2020 * Renewal cannot be done earlier than 60 days prior to expiration
✓	ME License Expiration *	Active Status through 12/31/2020 * Renewal cannot be done earlier than 60 days prior to expiration
✓	NH License Expiration	Active Status through 6/30/2020
✓	Privilege - Fluoroscopy - Maine Medical Center	1.00 Certificate in a 24 month period

Report Date: 7/1/2019 12:37:22 PM

Legend

- ✗ Expires in less than 31 days OR is expired
- ⚠ Expires in 31-180 days
- ✓ Expires in more than 180 days

Link to [INSTRUCTIONS for Navigating your Professional Requirements Report](#)

Fig 2. An example of the dashboard notification sent monthly to each provider of professional requirements status, including expiration deadlines. This figure shows a summary of all applicable requirements with a description and any relevant details. Also, there are embedded links that when clicked will take providers to specific websites or documents for completing the requirements. The green, yellow, and red legend is also included, indicating how much time remains until requirement expiration.

A total of 58 physicians responded to the survey, with 90% of physicians being satisfied with the dashboard and 95% feeling that the report delivers timely information. The most common themes among the respondents giving negative feedback related to a desire to review the information in real time instead of the monthly e-mail report, as well as requesting to add additional notifications of timeline requirements, such as maintenance of certification and continuing medical education details.

No initial changes were made after receiving the results of the survey given the overwhelming satisfaction. However, the feedback has led the MSSD to investigate a new software solution that is more personalized. This will support providers' individual needs and requests and allow physicians to have more direct access. The upgrade will interface with existing reports, and the

dashboards will provide enhanced access to support staff members, allowing proactive and continued oversight.

There are many benefits of the system, affecting both physicians and support staff members. Through the collaborative, systems-based approach, instead of the historically siloed approach, our physicians are able to better track their professional requirements, see real-time data relating to individual requirements expiration dates, and easily access the necessary paperwork or website in order to complete each requirement (Fig. 3). Additionally, support staff members are unburdened from keeping track of and filing repetitive paperwork and fielding numerous inquiries from physicians. The system also has markedly decreased the number of expired requirements, greatly benefiting physicians, staff members, and medical facilities.

Regarding limitations, the product currently is unique to this company, though we believe it can be implemented and individualized for any multispecialty group. Some of the data are anecdotal (interview and satisfaction survey results), and although we focus primarily on the applicability to radiology in this case study, the results have been positive across all physician specialties in the company. Going forward, this dashboard system is scalable and can be used to encompass even more requirements that are currently not tracked, such as licensure requirements of supervising a physician assistant, maintenance of certification, and utilization in both primary and subspecialty medical settings. Additionally, it has the potential to be even more personalized and user friendly when integrated into cloud-based imaging architecture.

Before and after the dashboard, achieving systemness.

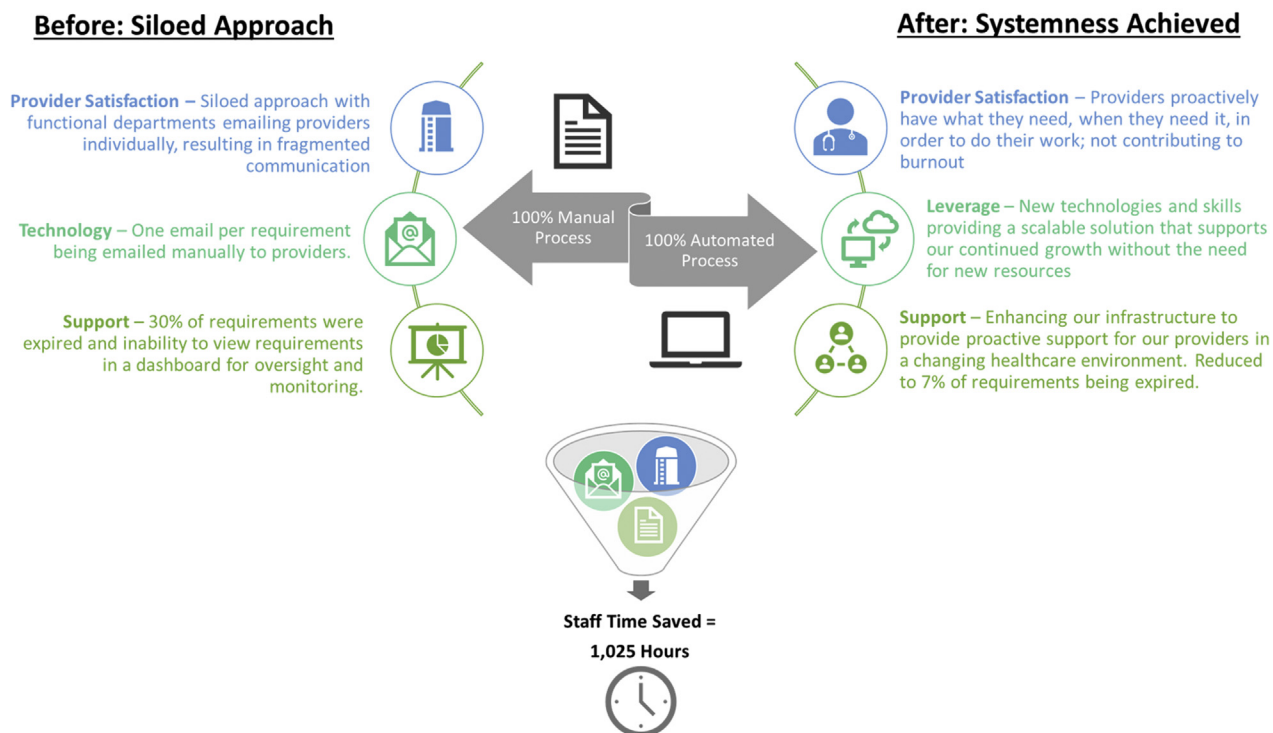


Fig 3. The situation before and after the dashboard moved from a siloed to a systems-based approach. The dashboard created major improvements regarding provider satisfaction, technology, and administrative support while moving from a 100% manual process to 100% automated process. With the help of the dashboard, both administrative staff members' and providers' time has been saved.

ACKNOWLEDGMENTS

The authors thank Roseann Napoleone, medical staff services manager at Spectrum Management Services, for survey questions and results.

ADDITIONAL RESOURCES

Additional resources can be found online at: <https://doi.org/10.1016/j.jacr.2020.09.021>.

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Christina Cinelli, MD, is from Spectrum Healthcare Partners, South Portland, Maine. David Somsen, MD, is from the Maine Medical Center, Portland, Maine. Ashley Quinn, Rebecca Murray, BSN, CPC, CHC and Nancy Horn, CPCS are from Spectrum Management Services Company, South Portland, Maine.

The authors state that they have no conflict of interest related to the material discussed in this article. Dr. Cinelli is a partner. Dr. Somsen, Ms Quinn, Ms Horn, and Ms Murray are employees.

Christina Cinelli, MD: Spectrum Healthcare Partners, 324 Gannett Drive, Suite 200, South Portland, ME 04106; e-mail: christina.cinelli@spectrumhcp.com.