Optimizing the Provider Experience in Maestro Care

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Background

The electronic health record (EHR) has been a part of the American health care system since the 1960s. Early EHR systems were designed by hospitals for local use and were referred to as “hospital information systems” (HIS). By the 1990’s, with personal computers becoming commonplace, the development of full scale EHRs started in earnest, and the Institute of Medicine suggested that by 2000 all physician offices should have an EHR system.¹ In 2004, President George W. Bush set a goal that by 2014 every physician office and hospital should have an EHR.² The modernization of medical records was further supported and funded by the Health Information Technology for Economic and Clinical Health Act (HITECH Act), a part of the larger American Recovery and Reinvestment Act (ARRA), which was signed into law by President Barak Obama in 2009.³

In current clinical practice, the EHR has become ubiquitous. Over time, the EHR has evolved from simply being a repository of medical information to including computerized physician order entry (CPOE), electronic prescribing (e-prescribing), patient-provider communications, provider-provider communications, medication reconciliation, note writing, billing, and other administrative tasks. While the initial goal of the EHR was to improve communication between providers, it has increased the clerical burden on providers and affected patient-provider interaction in unforeseen ways. The most common reasons cited for discontent with the EHR include: poor usability, time-consuming data entry, interference with face-to-face patient interaction, degradation of documentation and inability to exchange health information.⁴ Simultaneously, physician burnout rates have increased between 2011 and 2014.⁵ While the causes of physician burnout are complex, it has been linked with the use of EHR.⁶ ⁷

Duke University Health System (DUHS) migrated from their HIS, the “PIN Browser”, to an EHR system, Maestro Care (by Epic Systems) in 2012. Seven years after its implementation, despite numerous systems-based improvements, providers continue to struggle with Maestro Care. DUHS leadership has recognized this, and one of the projects assigned to the 2018 Duke Clinical Leadership Program (DCLP) cohort was to address the burden of “In-Basket,” the main portal for all provider assignments (CPOE, e-prescriptions, patient and other provider communications, etc.). Recognizing that a large component to In-Basket messages was patient communications (Duke clinicians receive approximately 2 million MyChart messages per month), the 2018 DCLP class addressed the important issue of patient-provider communications. Through provider surveys and Maestro Care data analysis, they determined that approximately 38% of patients generated 80% of the total messages. Several patient and provider facing technological improvements in MyChart as well as staff workflow changes were proposed (personal communication with Michael Lipkin, MD, MBA). A Patient and Provider Communication and Coordination team was established to address these issues, and their work is ongoing.

The project assigned to our DCLP group was titled “Reducing the burden of In-Basket, part II.” Despite the progress made by the previous DCLP group, many aspects of In-Basket continue to be problematic and a source of frustration to providers, and therefore we were tasked with suggesting innovations that would further reduce the burden of In-Basket.

Our first task was to familiarize ourselves with Signal data, a data tracking system designed by EPIC to monitor when and how providers spend time in the EHR. As we explored the data capture of In-Basket time in Signal, we discovered that any navigation in the EHR away from In-Basket for greater than 5 seconds (e.g. Chart Review, review of lab results, imaging, etc.) was not captured. This critical limitation meant that focusing on In-Basket time vastly underestimates total provider burden of the EHR. Thus, we
chose to re-focus our effort on total provider burden, which includes time in notes and other functions. Specifically, we wanted to determine how provider practices could be optimized to reduce the EHR burden and, by extension, favorably impact provider burnout. Additionally, we appreciated the after-hours use of the EHR and the provider cost associated with it. We wanted to make sure that suggestions proposed would be financially viable and offset by cost savings, both in terms of provider time and provider wellbeing.

Methods

I. Stakeholder meetings

Our first task was to understand the full scale of the project, so we started with meeting our sponsor, Michael Lipkin, MD, MBA, to better understand what had been done before and how best to narrow the scope. In addition to Dr. Lipkin, we identified other stakeholders within the Health System, PDC, and DHTS. Early on, we identified key strengths of our team members and how to leverage them for the project.

Dr. Lipkin suggested examining “pajama time”, i.e., time providers spent in the EHR that was outside their normal work hours. Pajama time is a surrogate for the burden of In-Basket that leads to negative attitudes about the EHR and possibly contributes to burnout.

We then met with David Claxton, MMCi, Strategic IT Coordinator, to gain access to Signal data and learn how to navigate within it. After we discovered that the time in In-Basket did not capture any time a provider clicked over to an encounter or chart review in the course of the In-Basket work, we chose to look at the entire burden of work in the EHR. We refined our project to “Optimizing the Provider Experience in Maestro Care.”

To better understand how the recommendations from the last DCLP project were being implemented, we met with Simon Curtis, MHA, Vice President, PDC Ambulatory Services. He invited us to attend the Patient and Provider Communication and Coordination Team meeting. This team was created in part based on recommendations from the prior DCLP group and was charged with improving the patient and provider facing MyChart messaging in Maestro Care. This group was looking at the granular details of the interface within MyChart to make expectations clearer to patients and allow better classification of message types. In addition, Jedrik Wosik, MD, a Cardiology fellow, shared how he was using his Duke Institute for Health Innovation (DIHI) grant to develop a “chatbot” that would interface with patient messages. Dr. Wosik’s work would also allow our healthcare system to categorize types of messages received from patients, something EPIC software was not allowing us to do previously.

We also met with Jennifer Perkins, MD, MBA, Medical Director Access Services for hospital-based clinics. In her role in Access Services, Dr. Perkins is keenly involved with optimizing physician efficiency and productivity. She laid the foundations that led to the previous DCLP In-Basket project. Dr. Perkins pointed out the limitation of the Signal data, and she cautioned against narrow definitions of EHR usage. She pointed out how not everyone who appeared to be an outlier was really an outlier; providers interfaced with In-Basket at times most appropriate for their situations, and narrowly defining appropriate use of In-Basket was not helpful. Dr. Perkins reframed some of her key findings regarding
time in the EHR in terms of a full-time equivalent (FTE) for providers. As an example, in her own endocrinology practice, responses to her In-Basket Patient Advice Request message volume would add up to an additional 0.27 FTE. Dr. Perkins recommended an in-depth study of individual service lines to see how their use of In-Basket could be optimized, rather than addressing all providers en masse.

Our DCLP group next met with Genie McPeak Hinz, MD, MS, Associate Chief Medical Information Officer. Among her many roles, she also represents DUHS in the Arch Collaborative. The Arch Collaborative has helped over 150 provider organizations learn from clinician feedback about their EHR and helps collaborate with other organizations and learn best practices. She noted that the same EHR resulted in very different levels of satisfaction by providers (Figure 1). How the EHR is implemented has a large effect on provider satisfaction. The medical center with the highest satisfaction was notable for having a new CEO who changed local work culture by creating a slogan for the team, “We don’t work with jerks!”, which proved to be a turning point in their organizational ethos. The bottom line was that it isn’t the EHR per se which creates burnout, but the manner in which it is implemented and supported. Providers tend to be isolated and rely on the skills from their introductory training with the EHR throughout their clinical lifespan, without opportunities to further learn or share best practices with colleagues.

![Figure 1: Level of satisfaction among providers with the EHR that they use. The X axis denotes level of satisfaction with the EHR. The bars in RED are Epic Systems, while the bars in BLUE are other EHRs. © Copyright KLAS 2018](image)

Marie Evangelista, MPH, MHS, PA-C, RD, an Epic Provider Champion at a Duke OB/GYN ambulatory clinic, created an outstanding example of how an individual work unit can examine EHR patterns and improve practice. Their practice, as a result of low scores for communicating results to patients, decided
to move to a triage pool for results. They instituted a new EHR workflow in which lab results were first directed to clinic nurses. Nurses triaged the labs and communicated normal results to patients, sending only abnormal ones to the providers. Speaking of the results of this change in workflow, Ms. Evangelista noted, “I appreciate not having 20 patients worth of new normal labs to weed through every day or two and [instead] only having to manage the abnormals.” Each clinical unit can benefit from a critical assessment of its workflow bottlenecks.

Finally, to fully understand the customizability of In-Basket and the relationship of the Maestro Care concierges to the clinical practices, our group met with Mr. Demarcus Simmons, Maestro Care Physician Support specialist. The Maestro Care concierge team was created in 2014, a couple of years after implementation of Maestro Care. A concierge meets with all new providers and spends a few hours with them “at the elbow” in their first few clinics. While they have standardized personalization checklists for PDC and DPC providers, it generally does not include structuring smart phrases to meet billing requirements. Mr. Simmons has observed that many providers become accustomed to the pathways they’ve created to manage their workflow in the EHR, and are reluctant to accept follow up meetings. Moreover, there are no clear off-boarding criteria for providers, and in some cases providers who change roles within the health system or leave the health system continue to receive In-Basket messages from their prior practice.

Mr. Simmons noted that the concierge team has varying relationships with various clinical units. Some use the concierges, but most do not. Some recognize that they have needs but do not reach out, while others say they are doing “fine”. If asked, the concierge team can provide valuable service, but they cannot guess who needs the help. There are 13 concierges for 3,700 total providers (including nursing and other staff, as well as newly acquired sites in the expanding healthcare system), and they do not have the staffing to maintain consistent connections with every unit.

In addition, we learned that providers who volunteered to be Maestro Care “superusers” received no role definition or expectations, and after some initial education, there was no ongoing training. Superusers, who represent an unselected population who volunteered for the role, are not compensated for the time spent in helping other providers in navigating the EHR. The optimal ratio of providers to superusers is not clear. The presence of superusers in clinical units is variable and subject to change as providers move in and out of clinical roles.

II. Data Gathering and Analysis

Simultaneous to our stakeholder meetings, we analyzed Signal data from providers in Pediatrics, Internal Medicine, and Family Medicine in primary care (not urgent care) clinics. Leveraging the clinical departments our group represented in primary care allowed us to select clinicians who had similar clinical FTE, in order to generate meaningful comparisons of their workload. We selected a cutoff of at least 6 clinic sessions during the week (i.e. at least 0.7 clinical FTE), in order to remove outlier providers who have only a small amount of clinical time mixed with other duties. In Pediatrics, this was a very small number of providers, fewer than 20, and for this reason we focused on a convenience sample of 70 (of a total of approximately 150) Internal Medicine and Family Medicine providers for the main analyses. For the providers with at least 0.7 clinical FTE, the corresponding Signal data were extracted and compiled, and analysis was done using the following metrics:
• Time in In-Basket per day
• Time in In-Basket per appointment
• Time in orders per day
• Time in orders per appointment
• Time in clinical review per day
• Time in clinical review per appointment
• Time in Notes per note
• Time in Notes per day
• Time in Notes per appointment
• Time outside scheduled hours
• Time on unscheduled days
• Time outside of 7 AM to 7 PM
• PEP score (Provider Efficiency Profile - clinician-level data about workload, system usage, specific number of tools adapted, amount of time in certain activities, time spent during specific hours of the day, etc.)
• Proficiency score (measures a provider’s proficiency with EPIC features like Quick-Actions, Preference Lists, Smartools, Speed Buttons and Chart Search)

For each evaluation metric, a histogram of the data was plotted to show the distribution of performance across providers. The mean, median and standard deviation of the data were calculated to represent the average and variance of the performance.

Figure 2 demonstrates the large variations across these providers. There are clearly some outlier providers in each histogram, as indicated by the red circles, who spent a much longer time than most of their peers in the activities listed. Moreover, the outlier providers are different depending on the metric analyzed, showing that Signal data provides complementary information about different aspects of providers’ time distribution (Table 1). In the example provided in Table 1, Provider 1 has the most time in In-Basket per day (44 minutes), while Provider 3 has the most time on unscheduled days (354 minutes) and Provider 2 has the most time outside scheduled hours (191 minutes) and time outside 7 AM to 7 PM (137 minutes). This demonstrates the potential of using Signal data for intra-department analysis to identify providers who may need assistance with EHR usage and are at high risk for burnout. Note that similar analysis can be done for inter-department comparison as well to assess and compare the departmental usage and efficiency.
Figure 2: Histograms showing how much time the Primary Care (Internal Medicine and Family Medicine) providers are spending in the EHR. The RED circles identify the outliers in each category.

Table 1. Outlier providers and statistics of the Signal data from the Primary Care cohort

<table>
<thead>
<tr>
<th></th>
<th>Time in In-Basket per Day</th>
<th>Time outside scheduled hours</th>
<th>Time on unscheduled days</th>
<th>Time outside of 7am to 7pm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example of individual providers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider #1</td>
<td>44</td>
<td>56</td>
<td>51</td>
<td>47</td>
</tr>
<tr>
<td>Provider #2</td>
<td>37</td>
<td>191</td>
<td>121</td>
<td>137</td>
</tr>
<tr>
<td>Provider #3</td>
<td>38</td>
<td>81</td>
<td>354</td>
<td>5</td>
</tr>
<tr>
<td><strong>Statistics for all 70 providers in primary care</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mean</td>
<td>24</td>
<td>46</td>
<td>66</td>
<td>33</td>
</tr>
<tr>
<td>Median</td>
<td>23</td>
<td>41</td>
<td>51</td>
<td>27</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7</td>
<td>35</td>
<td>57</td>
<td>27</td>
</tr>
</tbody>
</table>

Signal data can also be used to analyze and compare EHR usage patterns of specific providers. Data showed that there is remarkable variability in how individual providers were using the EHR. While some providers were able to limit their use of the EHR close to working hours, others used it throughout the
evening and night. For instance, Signal data from two providers in the same division with comparable clinical work load is illustrated in Figure 3. This data can be used to identify the tasks on which providers are spending the most amount of time. Thus, Signal data can not only identify which providers are at most risk, but also which tasks they need most assistance with.

Provider A

![Usage on Average Day Chart]

**Figure 3:** Providers A and B are in the same division and have comparable clinical work load. Provider A has much more “pajama time” than Provider B and spends that time completing notes and letters. This illustrates individual variability in using the EHR and can be used to create individualized support plans.

**Risks and Alternatives**

We identified several risks in the project as originally assigned. First, we realized that the topic as originally assigned, “Reducing the burden of In-Basket, part II”, would not get to the impact of the entire EHR on providers. We took the approach of absorbing the impact of past survey data, learning about individual EHR fixes, and hearing big picture implementation struggles from experts at DUHS. We found that by listening to stakeholders who have spent a significant amount of time working in this area and not imposing a preconceived agenda, we were able to weave together a narrative that honed-in on the most important issues relevant to the burden of the EHR. Thus, we requested and received permission to modify our topic to, “Optimizing the Provider Experience in Maestro Care.”
Second, the EHR experience is a hot button issue for providers, often with a high degree of emotional involvement, which is connected to burnout.\textsuperscript{6,7} Provider burnout is increasingly recognized as a source of reduction in provider effectiveness and increase in medical errors.\textsuperscript{8} We thought about addressing the concurrent issue of burnout as it relates to the EHR as that would further broaden our scope. We sought out existing data on burnout among DUHS providers. We learned, however, that the prior and current Culture Pulse surveys did not contain questions linking burnout to EHR. As a result, our team devised our own survey for burnout assessment, based on key elements of the Maslach Burnout Inventory.\textsuperscript{9} (Appendix 1). We considered administering our survey to all primary care providers in the Duke Primary Care network, however, our timing coincided with the roll out of the 2019 Culture Pulse survey. Thus, in order to avoid confusion and survey fatigue, we did not conduct the survey, but will reserve it for future use.

Third, distilling meaningful data from Signal was not only limited by what Signal was able to see, but also by the great variability in the clinical effort of providers. Within any department and division, providers could have as low as 1 and as high as 9 clinic sessions per week. Of course, their In-Basket time and experience were likely to be considerably different. To limit this variability, our group decided to limit our analysis of providers to those in the departments of Internal Medicine and Pediatrics that had at least 6 clinic sessions per week, or 0.7 FTE. Though this would limit the generalizability of the analysis, we felt it would make the data more consistent and comparable.

Fourth, as mentioned earlier, Signal data on DUHS providers does not capture the true burden of provider work. There were issues with how the amount of time attributed to a particular function in In-Basket was calculated. We ultimately relied on broad data within Signal for comparative purposes, which demonstrates the range of provider experiences, as well as published reports that comment on the core issues.

Finally, we found that many of the groups within the Health System who have a stake in the EHR work in isolation. There seemed to be a lack of coordination between the Health System, PDC, and DHTS in terms of on-boarding, support, and off-boarding. As an example, the concierge initiating a new provider on the EHR may not have access to the PDC compliance requirements for documentation. Further downstream, the PDC may have performance metrics that aren’t utilized by the DHTS concierge team to develop a support plan for providers. We found that sharing of resources and manpower and improved cross-communication were major opportunities in optimizing the EHR experience for providers.

**Recommendations**

Based on interviews with stakeholders, analysis of our data, and review of the literature, our DCLP group has divided our recommendations for “Optimizing provider experience in Maestro Care” into three categories: Recommendations for departments and divisions, recommendations for EHR utilization and recommendations for burnout reduction.
I. **Recommendations for Departments and Divisions**

A. Department and division leaders should review Signal (pajama) data for their clinical providers to identify high-risk individuals. Additionally, providers that are having difficulty with managing In-Basket can be asked to self-identify.

**Impact:** High-risk providers will be identified earlier and interventions can be targeted towards them. This may help mitigate burnout.

**Advantages over alternatives:** Institution-, department- or division-wide interventions may miss the needs of the most impacted providers. Moreover, solutions that may benefit some providers may adversely affect those that are already optimally using the EHR.

B. Individualize In-Basket solutions for providers and functional groups. Once high-risk providers are identified, proposed solutions should account for individual preferences and schedule limitations. Some providers may prefer to work late at night instead of 4-6 PM time frame; these preferences should be respected and solutions devised around them.

**Impact:** The In-Basket solutions can be specifically targeted to individuals, increasing the likelihood of buy-in from providers.

**Advantages over alternatives:** Implementing one-size-fits-all solutions will likely alienate providers that are high-risk, and adoption of improvements will be limited. Changes without provider buy-in will also have limited impact.

C. Institutional and departmental sharing of best practices will be necessary for the collective benefit. Opportunities for sharing best practices should be built into the administrative structure of individual practices.

**Impact:** Best practices learned by one group should be shared with others. Though individual differences in practice are certainly common, there are likely to be underlying themes of how providers use the EHR. Innovation by one group will be valuable to share so that others with similar issues can adopt a similar solution.

**Advantage over alternatives:** If best practices are not shared, groups will begin or continue to work in silos, increasing frustration and burnout.

II. **Recommendations for EHR Utilization**

A. Increase the number of Maestro Care concierges. Currently there is one concierge for 285 providers. The optimal ratio of providers to concierge is uncertain, but 100:1 is a reasonable target.

**Impact:** Maestro Care concierges can provide personalized, “at the elbow”, assistance to providers to improve their use of the EHR. This type of personalized attention can greatly impact provider’s ability to use the EHR, thereby improving provider’s productivity.
Advantage over alternatives: Currently, concierges are available by appointment only. The lack of readily accessible support leads to work-arounds and reduced efficiency of providers. Providers may also feel that concierges are not available when needed, and thus do not utilize the concierges to their full capabilities. Concierges are well positioned to link the compliance mission of the PDC to provider efficiency and satisfaction.

B. Increase the number of both physician and non-physician superusers.

Impact: Provider superusers have similar clinical needs to their peers and are ideally situated to support their peers in optimizing their EHR use. Currently, there are about 1,750 physician providers and 1,950 non-physician providers in Duke Health. The optimal provider to superuser ratio is not known, but a 50:1 is likely to be adequate. The superusers should be compensated for their time. We estimate that supporting 50 peer providers for up to 2 hours per year would equate to approximately 0.25 FTE per superuser.

Advantage over alternative: A lack of financial support will limit the number of providers who consider serving as superusers. Time spent on superuser tasks is time away from billable clinical activity. As such, the cost of such support should be recognized. Supporting superuser time sends the message that peer support is valued.

C. Enhance the role of provider superusers and provide them with clear job requirements.

Impact: The superusers can enhance the EHR functionality for a provider group. They can provide training sessions at routine intervals to their group of providers and help identify those that are struggling. Examples of improvements might include things like shared use of specific Smartools, improved In-Basket and notes training with sharing of tools for high efficiency. Moreover, superusers can serve as an organized conduit back to Epic about enhancements that would further improve Maestro Care functionality.

Advantage over alternative: The current method of using provider superusers is inefficient. Their roles and training requirements are not clearly delineated. They are not compensated for this role. All these factors lead to reduced and erratic utilization of superuser services.

D. Build a fast track for small, high value optimizations. This will allow rapid improvement in EHR functionality that is guided by providers.

Impact: With targeted EHR optimization, provider buy-in and satisfaction will improve. These improvements will lead to reduced provider burnout.

Advantage over alternative: Slow implementation of provider level improvements to the EHR increases frustration with the EHR and the process of improvement. When the improvements are finally implemented, they are likely to be perceived as less valuable.

III. Recommendations for Burnout
A. Providers should be surveyed about the EHR and burnout. Having provider specific In-Basket and burnout data will allow more meaningful analysis and better recommendations. Additional burnout questions could be added to the Culture Pulse survey or a custom designed survey could be used.

Impact: Our DCLP group created a survey to query providers about burnout and how it relates to the EHR. This or a similar survey can provide valuable links between burnout and EHR use and increase awareness of burnout. The survey would provide an opportunity for departments to message the importance of tracking burnout among providers, and our willingness to make changes to improve burnout.

Advantage over alternative: Our survey would offer several advantages over utilizing the Culture Pulse for this purpose. First, it can be more flexible in its implementation timing and targeted to departments with specific concerns. Second, because the Culture Pulse survey is a validated instrument conducted by a third-party contractor to DUHS, it is not clear that altering the structure will be possible. Third, grounding the questions in the Maslach Burnout Inventory lends the survey both internal and external validity.

B. Burnout should be made an EHR quality metric.

Impact: If burnout was a quality metric for the EHR, enhancements and improvements to the platform would specifically address issues of burnout. This could reduce burnout rates and improve the EHR acceptance rates.

Advantage over alternative: Without a focus on how the EHR is leading to physician burnout, EHR development will be agnostic to provider issues. Moreover, the EHR updates may not address the issues of greatest significance to providers.

Financial Implications

Due to the variability between different groups, we decided to describe the possible financial implications for one group as an example. We chose the Internal Medicine/Family Medicine (Primary Care) sample – the largest group for which we had FTE data that could be verified. The expenses and cost savings presented here can be extrapolated to other units as appropriate. By reviewing the Signal data for the Internal Medicine/Family Medicine unit (70 providers), we saw that providers used Maestro Care after-hours for an average of 45 minutes per provider per day(Figure 4). Taking into account that providers work an average of 10 hours per day (8AM-6PM), 45 minutes represents 0.075 FTE (0.75 hours added to a 10-hour day). Since there are 70 providers in this example, a total 5.25 FTE (0.075 X 70) is needed in this unit for the after-hours workload. Assuming an average salary of $200,000 per physician (and 30% benefits), a total of $1,365,000 can be considered the financial cost of the afterhours work (Figure 4). This amount does not take into account the cost associated with on-boarding of new hires.
Implementing a few measures can improve provider efficiency and allow them to finish their clinical duties within working hours. Expenses to implement these measures can be justified by cost savings created by avoiding the cost of after-hours work. While the cost of after-hours work is borne by the provider, it contributes to burnout, which in turn contributes to providers seeing fewer patients, leaving DUHS or cutting back overall hours. In this way, we believe that costs initially borne by the providers themselves are ultimately borne by the institution.

The financial impact of our suggested support measures is noted below, however, they must be tailored to the needs of specific units and providers.

- Concierge training: If we aim for a provider: concierge ratio of 100:1, the 70 providers in our sample will need a 0.7 FTE concierge. The cost of a 0.7 FTE concierge is estimated to be about $47,775 (based on an average salary of $52,500 plus 30% benefits). ¹⁰
- Superuser assistance and training: Superusers need to spend about 2 hours per year for regular providers and 4 hours per year for high risk providers (usually 10% of providers). This will total about 154 hours ((63 X 2) + (7 X 4) = 126 + 28 = 154 hours). Considering that there are 46 work weeks per calendar year, a superuser will need 3.35 hours per week to counsel and train providers in this unit. Assuming a 50-hour work week, the cost of a physician superuser will be approximately $17,400 per year (for a salary of $200,000 and a 30% benefits rate). The cost of a nonphysician superuser is likely to be lower.

If the above measures are instituted for the 70-provider group being analyzed, the cost would be $65,175. These measures would greatly help in reducing the $1,365,000 cost of provider after-hours work. Of course, not all measures may be needed for specific groups and costs may vary. The theme of this illustrative example is that the cost of support is expected to be far smaller than the costs to providers, and ultimately the cost to the institution, of leaving the In-Basket burden unattended.
Next Steps and Key Elements for Success

Given the number and nature of our recommendations, we categorized them as Near Term (up to 12 months) and Long Term (up to 24 months). Below we have outlined the various recommendations and how success should be measured.

I. Near Term (up to 12 months)

A. Department and division chiefs review Signal and pajama data and identify high-risk providers.

   **Key success factor:** Each department identifies an estimated 10% of their providers who are high-risk.

B. EHR optimization techniques discussed with high risk providers.

   **Key success factor:** At least one EHR optimization per high-risk provider.

C. Quarterly department and division-wide meetings to determine optimization strategies and share best practices.

   **Key success factor:** Quarterly division meetings in which EHR optimization strategies are addressed and regular emails regarding Maestro updates that contain specific provider successes.

D. Enhance role of provider superusers

   **Key success factor:** Create clear job description of provider superusers. Provide superusers have protected time (2.5 – 5% FTE) to support approximately 50 peers.

E. Increase collaboration between DUHS, PDC, PRMO, DHTS

   **Key success factor:** Monthly meetings between functional groups to address EHR and provider burnout related issues. Follow recommendations by the Patient and Provider Communication and Coordination Team assembled last year. Address issues in a problem-based fashion where all groups weigh in: for instance, provider on-boarding, where concierges incorporate PDC compliance needs and PRMO billing needs.

II. Long Term (12 – 24 months)

A. Increase the number of concierges

   **Key success factor:** Goal to reach provider: concierge ratio of 1:100. Additional 15 concierges to be hired by end of 24 months.

B. Increase the number of provider superusers

   **Key success factor:** Clearly identify provider superusers in each division or clinic unit. The goal is to reach provider:superuser ratio of 50:1.
C. Routinely survey providers about burnout

Key success factor: Include burnout questions in Culture Pulse survey. Administer separate burnout questionnaire annually (Appendix 1). Evaluate burnout in context of EHR use.

D. Make burnout an EHR quality metric

Key success factor: Epic developers routinely report burnout data. Concrete measures adopted to address high-risk features of EHR.

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2. David Claxton, MCCI; Strategic IT Coordinator, PDC
3. Simon Curtis, MHA; Vice President, PDC Ambulatory Services
4. Jennifer Perkins, MD, MBA; Medical Director Access Service for hospital-based clinics
5. Genie McPeak Hinz, MD, MS; Associate Chief Medical Information Officer
7. Demarcus Simmons; Maestro Care Physician Support specialist
8. John Ragsdale, III, MD; DCLP coach
References


Appendix 1

Survey: Physician Burnout and the EHR

1- Gender:
   - Male
   - Female

2- Age: (years)
   - <25
   - 25–34
   - 35–44
   - 45–55
   - >55

3- What is your specialty:
   - General internal medicine
   - Family medicine
   - Pediatrics
   - Medicine-pediatrics
   - Medicine subspecialty: specify
   - Neurology
   - Obstetrics-gynecology
   - Other: specify

4- On average, how many hours a week do you spend in direct ambulatory clinical practice? Please include ambulatory clinical sessions for which you are the primary billing provider, do not include procedure time or operating room time.
   - <20 hours per week
   - 20–39 hours per week
   - 40–60 hours per week
   - 60+ hours per week

5- To what extent do you agree with any of the following statements: (1-5 scale)
   - I feel emotionally drained from my work
   - I feel fatigued when I get up in the morning and have to face another day on the job
   - I’ve become more callous towards patients since I took this job
   - I worry this job is hardening me emotionally
   - I can easily understand how my patients feel about things
   - I have accomplished many worthwhile things in this job
6- What are the primary major contributors to your stress level (if any): (choose up to 3)
- No personal control over my workload (working too many hours)
- Lack of autonomy in my job
- Chaotic work environment
- Lack of effective teamwork in my environment
- Lack of shared values with my team’s leadership
- Too much time spent on administrative tasks
- After-hours workload
- Electronic health record or other technological tools inhibit my ability to deliver quality care
- Electronic health record or other technological tools reduce my efficiency
- Lack of training/proficiency on EHR or other IT tools

7- Regarding the electronic health record, to what extent do you agree with the following statements: (1-5 agree disagree)
- I have sufficient time for documentation built in to my workday
- I spend only minimal catch up time at home
- The electronic health record interface is intuitive for me
- I was well trained in the use of the electronic health record
- My volume of in-basket messages is manageable

8- I spend the most time in:
- Chart review
- Notes
- Order entry
- In Basket results or messages
- I don’t know

9- How do you primarily document in the EHR?
- Direct entry (type)
- Voice recognition
- Someone else helps enter (scribes or office staff)
  Dictation/transcription

10 How much time do you spend on an average day reading and responding to notifications in the Maestro In-Basket?
- < 20 min
- 20-40 min
- 40-60 min
- 60-120 min
- > 2 hours

11 How many hours per week do you spend completing your charting outside of your normal business hours (evenings, weekends, after your shift, etc.)?
- 0–5 hours
- 6–15 hours
- 16–25 hours
- 25+ hours

12 Please tell us, in addition to optimizing physical workflow within Maestro, what one additional feature would help reduce stress related to the electronic health record:
   [narrative]

13 Please share any other thoughts on the topic of electronic health records and/or burnout.
   [narrative]