

SOLVE Research

2021
EHR Usability



ABOUT THIS REPORT

The HITECH act of 2009 encouraged a “*mad dash*” of hospitals adopting Electronic Health Record (EHR) solutions. The stated goal of EHRs was to improve the quality, safety, and efficiency of patient care, engage patients in their care, and increase coordination of care. Hospitals are still working to achieve these goals and are now striving to improve the usability of their EHR to achieve them.

Unfortunately, clinicians state that EHRs still need improvement. In one interview, a physician shared, *“I think that usability is the one thing that EHR vendors have not paid enough attention to. Most physicians will tell you that usability has not been studied well and EHRs have not made an improvement in usability that the vendors believe they have.”*

The purpose of this study is to benchmark and compare the usability of four EHR solutions from the clinician’s perspective. We gathered insights into these EHR solutions to share with both healthcare providers and EHR vendors to help improve the current level of usability that clinicians experience.

USABILITY

We measured usability based on the following three key areas:

1. Efficiency
2. Effectiveness
3. Learnability

Efficiency refers to the amount of time a clinician spends at each part of the patient visit. We asked clinicians about the amount of time they spend reviewing the patient chart before a visit, in a patient visit, and charting after the visit. In addition, we asked about the number of patients they see versus the number of patients they should be able to see.

Effectiveness measures the simplicity of accomplishing tasks within the EHR. In this area, we asked study participants to rate on a scale of 1 to 5 either how complicated (1) or how simple (5) it is to perform these tasks. These scores highlight the cognitive burden placed on the clinician by the EHR. We also asked respondents to rate their EHR’s overall ease of use. By comparing these two scores we can uncover insights about the burden placed on clinical by their EHR.

Finally, Learnability deals with the experience of clinicians to learn and achieve a level of confidence with the EHR solution. Learnability is measured by asking study participants to rate the ease of learning the EHR solution as well as understanding the amount of time it took for them to feel proficient with their EHR solution.

This occurred with the comparison of the overall ease of doing specific tasks with the EHR, which was measured on a scale of 1 to 5, and the overall ease of use, which was measured on a scale of 0 to 10.

We collected a minimum of fifteen (15) interviews from unique organizations for each EHR solution except for Meditech Expanse. For Expanse, we were able to collect insights from ten (10) unique organizations. As such, we have labeled their data as “*preliminary*” and placed an asterisk next to their name throughout the report to signify that their data is preliminary.

Finally, to encourage participants to speak openly and honestly about their experience, we will maintain their identities and their organization’s identities anonymous.

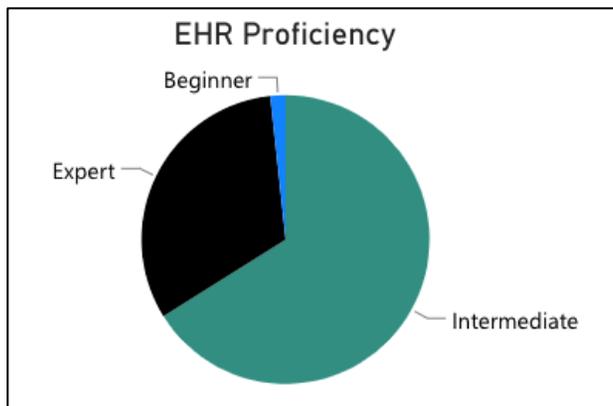


Chart 3: EHR Proficiency of Study Participants

“I think that usability is the one thing that EHR vendors have not paid enough attention to. Most physicians will tell you that usability has not been studied well and EHRs have not made an improvement in usability that the vendors believe they have.”

TABLE OF CONTENTS

KEY TAKEAWAYS	7
VENDOR OVERVIEW	7
DEEP DIVE	9
EFFICIENCY	9
EFFECTIVENESS	10
LEARNABILITY	13
ADDITIONAL INSIGHTS	13
VENDORS	15
ALLSCRIPTS	15
CERNER	17
EPIC	19
MEDITECH	21

Usability Quadrant: Effectiveness (Ease of Tasks) vs. Learnability



Chart 4: Usability Quadrant

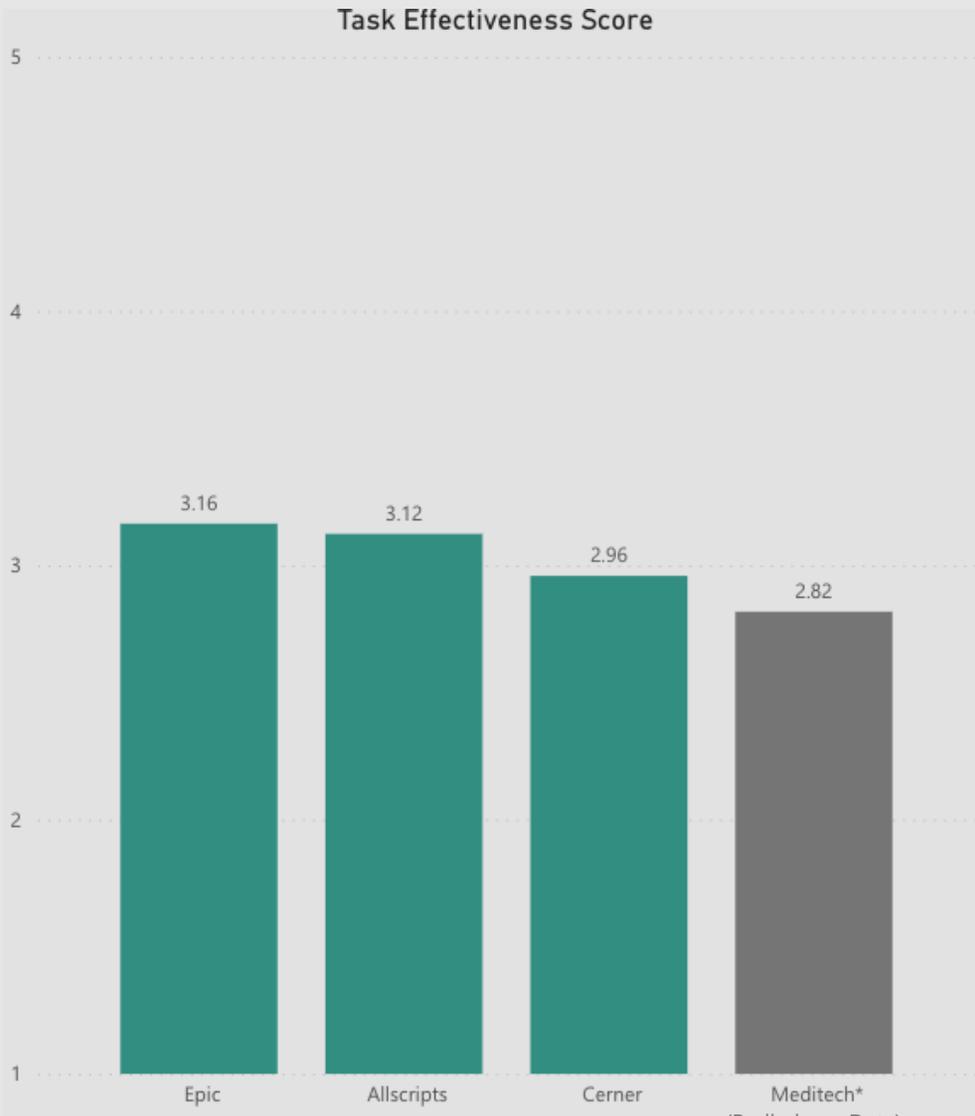


Chart 5: Task Effectiveness Scores

KEY TAKEAWAYS

- Allscripts Sunrise is the only EHR to make it into the Usable quadrant. Their scores in both task effectiveness and solution learnability placed Sunrise in this quadrant.
- Clinicians rated Epic EpicCare as the easiest solution to work with for doing common tasks but the most complicated to learn.
- Clinicians brought up the importance of workflows in tackling usability and mentioned both Epic EpicCare and Allscripts Sunrise as solutions that provide or can accommodate them.
- The preliminary data for Meditech* Expanse indicates it has a very short learning curve – less than two (2) months.

VENDOR OVERVIEW

ALLSCRIPTS SUNRISE

Sunrise’s scores for easiness to use and learnability placed it in the “Usable” quadrant. Clinicians praised its “*tremendous capability*” to accommodate the needs of both clinician and hospital and its “*flexibility for building workflows.*”

Physicians disliked its “*look and feel*” and described it as looking “*like it was made in the 90s.*” In addition, while its flexibility allows it to be tailored to a customer’s needs, these customizations can also lead to more maintenance needs.

CERNER MILLENNIUM

Clinicians commented on the amount of information Millennium can display on one screen allowing them to navigate the system quickly. In addition, they report that Millennium allows physicians to personalize the main screen to accommodate their preferences.

Some also praised Millennium for checkboxes and mouse-overs that helped them save time.

Several clinicians reported a “perceptible lag” when using Millennium. This lag can take “20 to 30 seconds for the solution to load.” In addition, one physician mentioned a patient safety issue where Millennium will update right before clicking on a patient record causing the user to enter the wrong patient’s record.

EPIC EPIC CARE

Physicians highlighted that “Epic is more geared towards the correct workflows” and that “the clicking is better than other systems.” They described EpicCare as “holistic” and “inclusive” and score it as the easiest overall to use for tasks. In addition, EpicCare offers some shortcuts to facilitate a better clinician experience. One physician explained, “I created my own macros and figured out how to streamline Epic processes.”

Physicians claimed that Epic is the most complicated to learn. One physician said “it is so complicated because it is so inclusive. You can easily get lost in it if you are not trained.” Another said it was “very tedious” and “hard to find your way around.” Some complained that as soon as they learn the system, Epic will update the solution which then requires additional training.

MEDITECH EXPANSE

Meditech* Expanse received praise as the easiest solution to learn and having the shortest learning curve. They averaged forty-five days for a user to be comfortable with the solution. In addition, respondents said it is “rich” with features and functionality.

Clinicians scored the ease of doing tasks within Expanse as complicated. In addition, one physician complained about a serious patient safety issue with the way Expanse works with expired medication prescriptions saying, “in Expanse when a medication expires, even if it is an absolutely critical life medication, it just simply jumps off the system.”

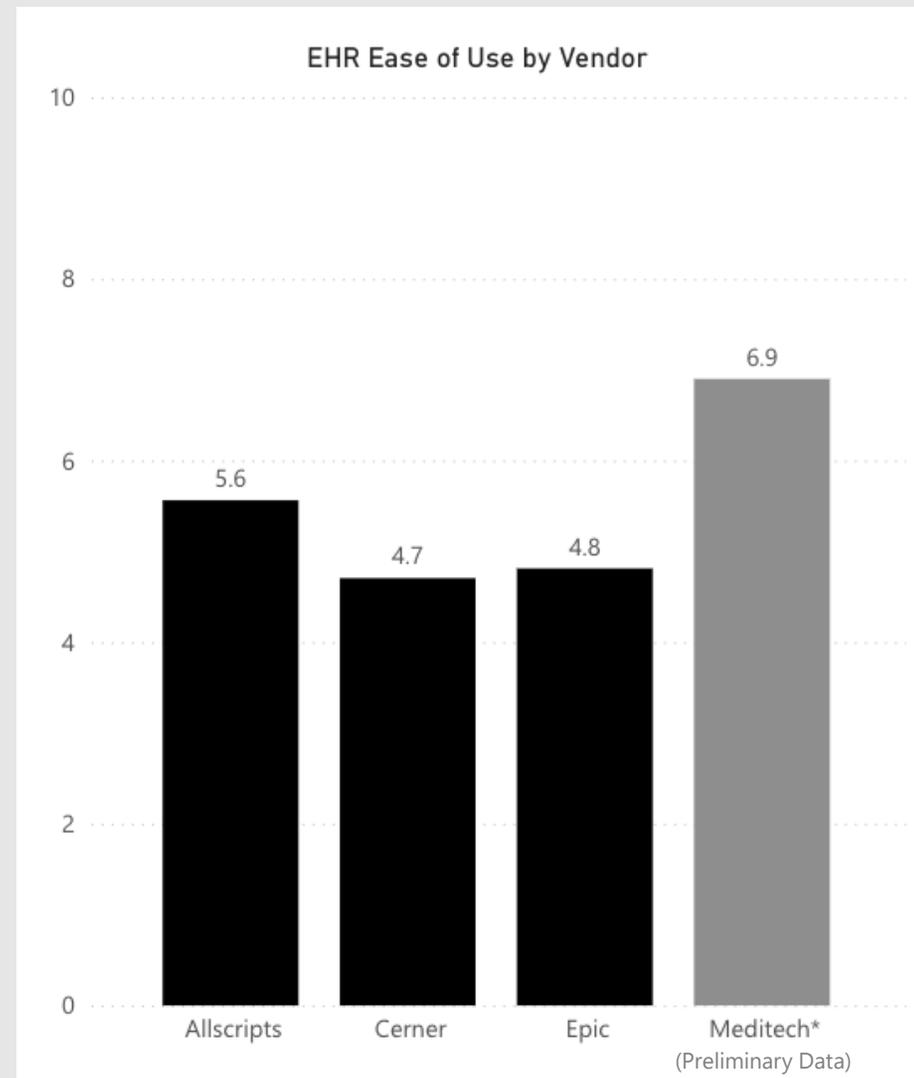


Chart 6: EHR Ease of Use

DEEP DIVE

EHR solutions have improved over the last several years. However, study participants claimed that they still need improvement. One physician said, “None of the EHRs are excellent. They all have their shortcomings.” Others explained that in the “mad dash” to adopt an EHR solution, vendors and hospitals missed the opportunity to do more than just replace paper patient records. Clinicians talked about the need for EHR systems to accommodate the way they work with patients.

One physician suggested a reason why EHRs may be difficult to use saying “I struggle sometimes with my IT colleagues because they’ll say ‘oh this is the greatest thing. Providers will love it.’ Then they’ll show me something and I’ll think ‘really?’ You find that valuable. In the IT’s mind it’s like the coolest thing, but in the clinician’s mind, what a waste of time and effort.”

Additionally, EHRs must accommodate more than just the usability required by clinicians. One physician shared “[Our hospital leaders] wanted [the EHR] to capture everything that we should be billing. I think, in our case, it deals more with billing than usability for the end-user.”

Several clinicians also characterized EHRs as “visit-based” which can “leave a lot of room for error.” For example, one physician said “everything that is encounter-based versus patient level, has pros and cons. It makes total sense in the hospital setting because it is a place you check into and out of. But in a hospital system, the patient may enter and exit different buildings within the system, it becomes very problematic because there is nothing to save at a patient level.”

Study participants recognized that EHR vendors are working to improve the usability of their solutions to accommodate clinician needs. One physician noted, “We have seen an increase in usability over the last few years.” These improvements are starting to differentiate the various EHR solutions.

We gathered research in three areas to understand and differentiate the four EHR vendors in this study. These three areas include Efficiency, Effectiveness, and Learnability.

EFFICIENCY

Efficiency refers to the amount of time a clinician spends at each part of the patient visit. We asked clinicians about the amount of time they spend reviewing the patient chart before a visit, time in the patient visit, and charting after the visit. In addition, we asked about the number of patients they see versus the number of patients they should be able to see.

Based on the study data, the overall clinician’s efficiency with each EHR solution is similar. In some cases, clinicians may realize slight efficiencies, but we didn’t find any significant efficiencies connected to the EHR solution.

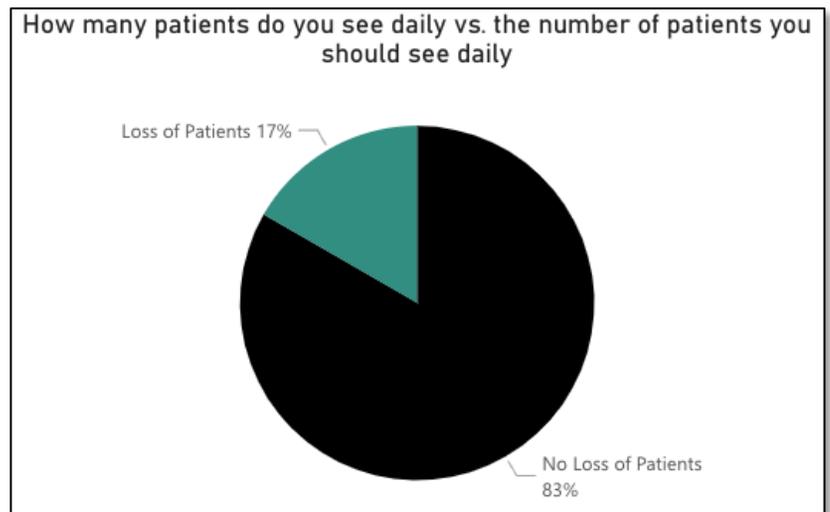


Chart 7: Percentage of Physicians Who See Fewer Patients

PATIENTS PER DAY

It isn’t uncommon to hear that an EHR solution impacted the number of patients that a physician can see during the day. As part of this study, we asked participants to answer questions about the average number of patients they are able to see daily compared with the number of patients they think they should be able to see daily.

Seventeen percent (17%) of responding physicians indicated that they see fewer patients than they think they should because of their EHR. Those who said they see fewer patients suggested that their attrition could be upwards of thirty-three percent (33%).

PATIENT CONTINUUM

We also asked if the EHR affected the amount of time that a clinician spends with a patient. We asked clinicians to share the amount of time they spend in the following areas:

- Reviewing the patient record before a patient visit
- Time spent with the patient
- Time charting after a patient visit
- Time charting after normal business hours

REVIEWING PATIENT RECORDS

Almost all physicians (98%), who participated in this study, reported that they review a patient's chart for 10 minutes or less before visiting with a patient. When we examined the responses based on the EHR solution, the data did not show that the associated EHR solution had any noteworthy impact on the amount of time clinicians spend reviewing the patient record.

PATIENT VISIT

Similarly, an analysis of the time physicians spend visiting with a patient, when looking through the lens of the EHR solution, did not indicate any noteworthy trend associated with the EHR. However, eighty-seven percent (87%) of respondents indicated that they do not use the EHR during a patient visit unless the patient asks a question that requires it.

Many said that it takes too long to log into the system, which feels very "awkward." One physician said that it can take up to 30 seconds for the system to load at his hospital. Most importantly, clinicians said that they want their focus to be on the patient and not on a computer screen during the visit.

Finally, we asked clinicians how much time it would take to answer a question that required them to search in the EHR. Most stated that

finding an answer in the EHR would take less than 2 minutes, regardless of the EHR solution they are using.

CHARTING AFTER PATIENT VISIT

After a patient visit, most participants said they spend between five and fifteen minutes charting. Interestingly, the data shows that half (50%) spend more time charting than they spend with the patient. However, the amount of time spent charting after the patient visit tends to be a function of the clinical specialty instead of the EHR solution.

CHARTING AFTER HOURS

Spending time after normal business hours is one of the reasons we hear that exacerbates the feelings of burnout among clinicians. As part of this study, we asked participants to share information about the amount of time that they spend charting after normal business hours.

Many indicated that they either do not spend time outside normal business hours charting or they may spend an hour or less per week. Once again, the amount of time spent charting after normal business hours appears to be more connected to the clinical focus than to the EHR solution.

EFFECTIVENESS

EHR effectiveness describes the ease at which clinicians can accomplish common tasks within the EHR. We asked clinicians to rate tasks on how simple they are to complete. In addition, we asked participants to rate the EHR solution for overall ease of use.

Of all the tasks that physicians commonly do within the EHR daily, physicians scored medication reconciliation as the most difficult with an overall score of 2.65 out of 5. On the other side of the spectrum, physicians reported that results review is the easiest task they can do within an EHR with a score of 3.85 out of 5.

As we review the scores clinicians gave their EHR, we see the strengths and weaknesses of each solution emerge. EpicCare received the overall best score for all tasks and the highest score specifically for communicating with patients, communicating with other clinicians, and medication reconciliation. Among the fully rated solutions, it also

scored the best for medication ordering. Epic's lowest score in a specific task was for documenting.

Allscripts Sunrise received the second-best overall score for all tasks and the highest score specifically for managing work queue tasks. It also received the highest score, among the fully rated EHR solutions, for documenting and chart review. Its weakest scores were for communicating with patients and communicating with clinicians. Interestingly, Sunrise was the only solution that did not receive the lowest score for any specific task.

Cerner received the highest scores for the task of results review. Unfortunately, clinicians scored Millennium lowest for several tasks including managing work queue tasks, communicating with patients, and medication ordering.

Meditech* Expanses preliminary data suggests that Expanses is easy to use for documenting, chart review, and medication ordering. Whereas Expanses weakest tasks were communicating with clinicians and medication reconciliation.

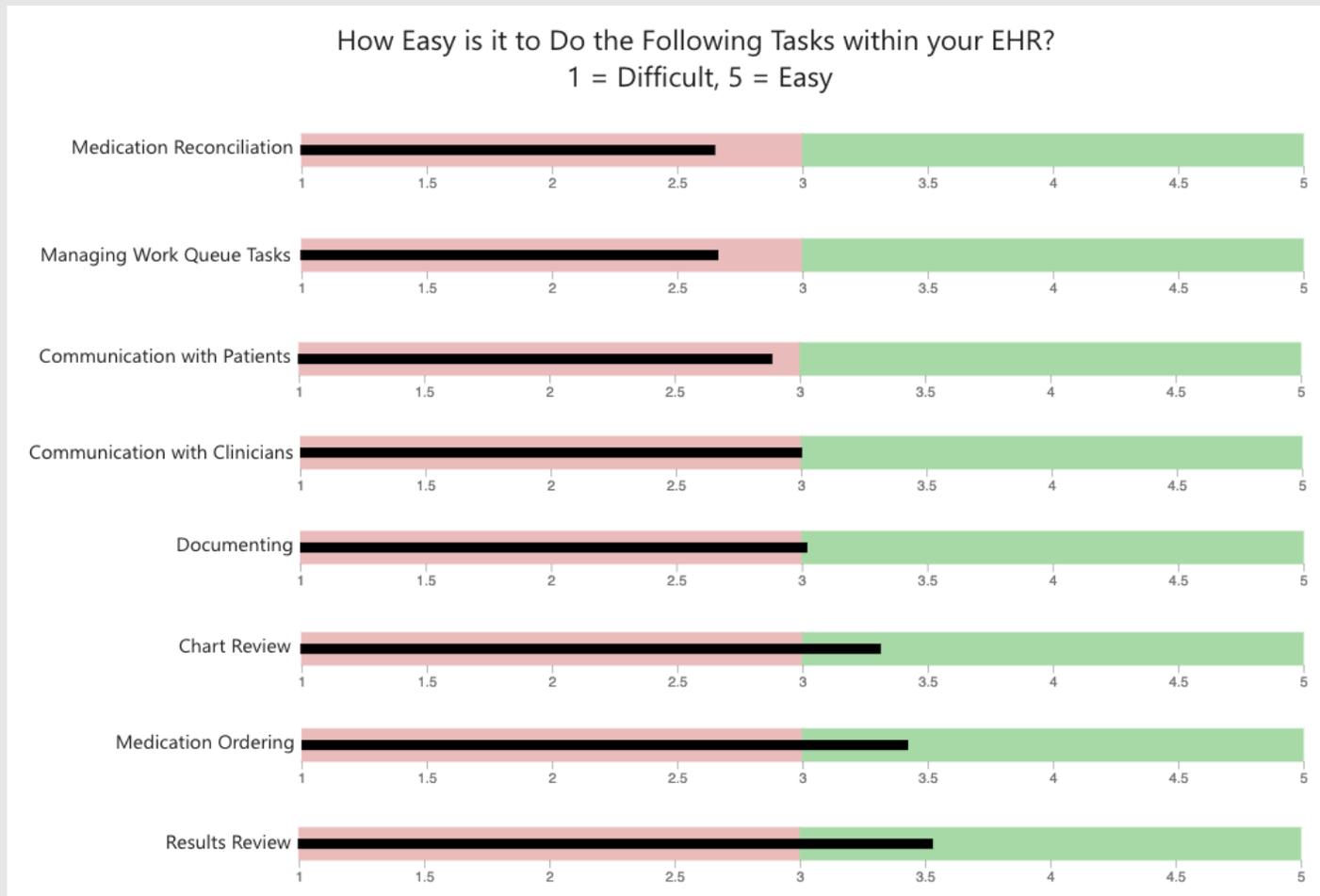


Chart 8:
Overall Task
Effectiveness

The Number of Months to Feeling Confident with the EHR vs. Average Number of Years Using the EHR

● Average of Months to Feeling Confident with EHR ◆ Average of Years Using EHR

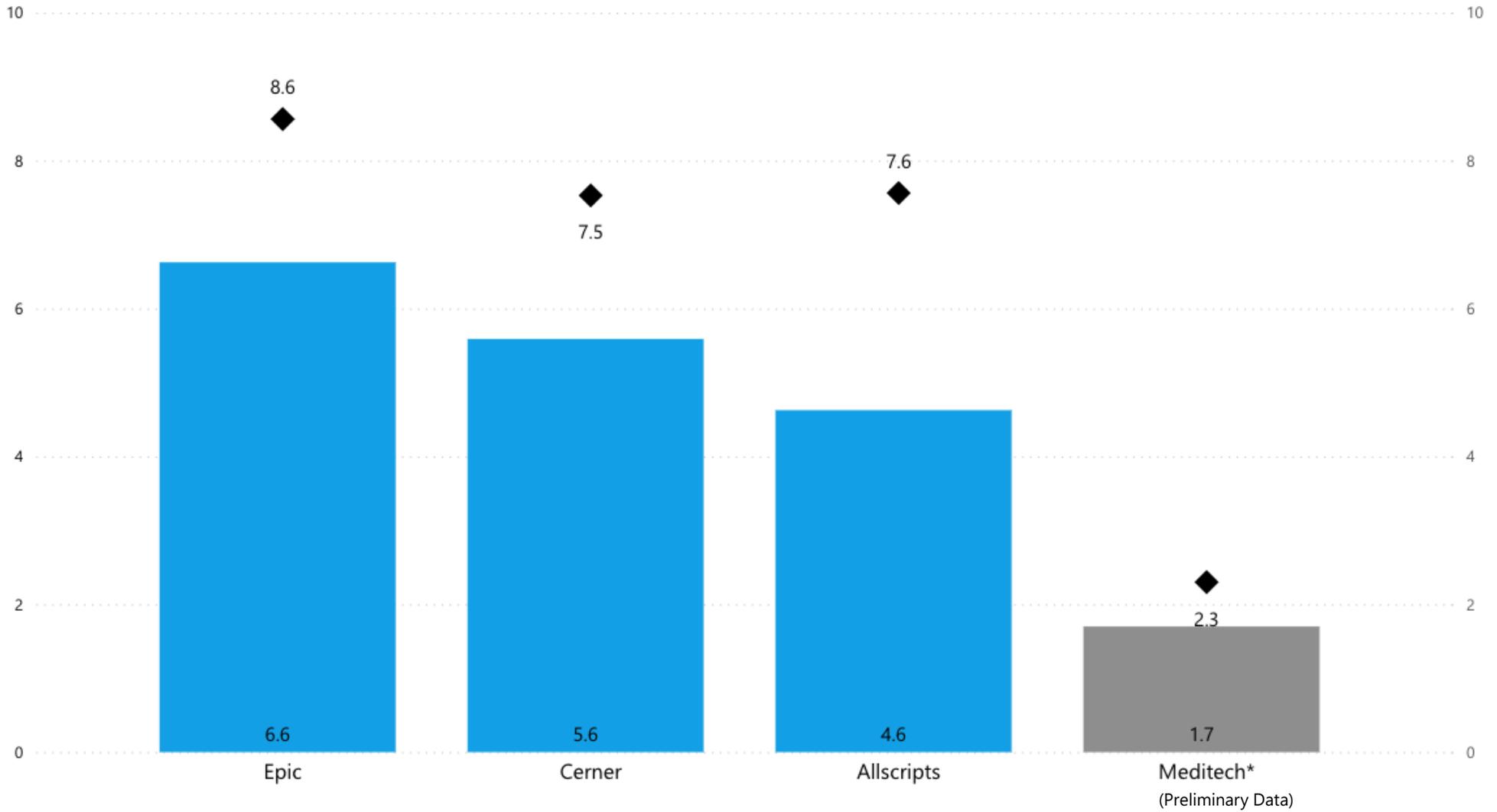


Chart 9: The Number of Months to be Confident Using EHR

We asked participants to rate their solution for overall ease of use. Meditech* received the highest overall scores for ease of use with a 6.9 out of 10 in their preliminary data. Of the fully rated solutions, Allscripts Sunrise received the highest score on solution ease with a 5.6 out of 10.

LEARNABILITY

The learnability of an EHR solution is the final area we evaluated for overall usability. EHR learnability is measured on two levels. First, we asked respondents to score their EHR for ease to learn specific tasks as well as the time it took for clinicians to feel confident using the EHR.

Meditech’s preliminary data suggests that it is the easiest to learn and requires the shortest amount of time to achieve a level of proficiency. Clinicians indicate that Meditech* takes an average of 1.7 months to learn.

Of the fully rated solutions, clinicians report that Allscripts Sunrise is the easiest to learn with an average learning curve of 4.6 months.

Averages for each vendor are:

Allscripts

Average Months to Learn	4.6
Max Months to Learn	12
Min Months to Learn	1
Ease to Learn Score	3.43

Cerner

Average Months to Learn	5.6
Max Months to Learn	12
Min Months to Learn	1
Ease to Learn Score	2.94

Epic

Average Months to Learn	6.6
Max Months to Learn	13
Min Months to Learn	2
Ease to Learn Score	2.82

Meditech* (Preliminary Data)

Average Months to Learn	1.7*
Max Months to Learn	3*
Min Months to Learn	1*
Ease to Learn Score	3.91*

ADDITIONAL INSIGHTS

BURNOUT

The feeling of burnout continues to impact clinicians. Ninety-six percent (96%) of study participants shared that they are feeling some degree of burnout and sixty-five percent (65%) reported that they are feeling a high level of burnout (a score of 3 or greater on a scale of 1 to 5).

The feeling of burnout can increase based on the challenges clinicians face daily. One physician said, “It depends on the day. Today, I’m at a 2.” Reasons respondents mentioned for burnout include the difficulty of working with an EHR as well as dealing with administrative problems

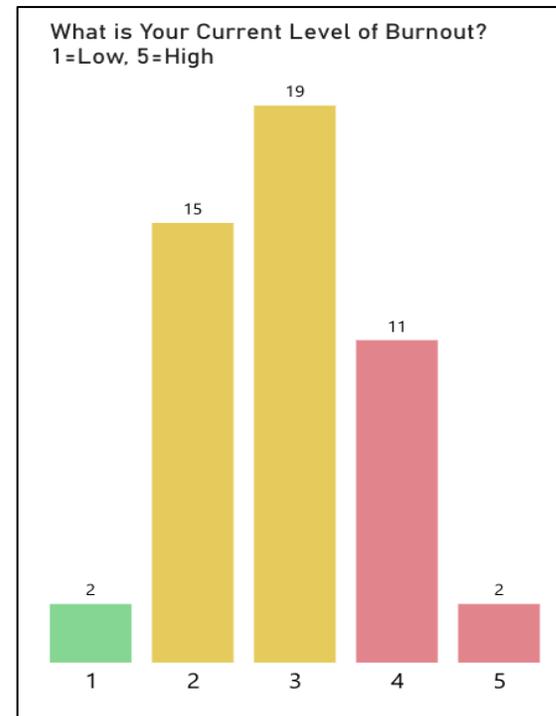


Chart 10: Clinician Burnout Scores

like working with payors to receive preapproval for medical procedures.

WORKFLOW

In the conversation about usability, clinicians mentioned workflow. The common sentiment is that none of the EHR solutions have mastered workflow, but some are better than others.

Clinicians mentioned EHR workflow when commenting on Epic EpicCare and Allscripts Sunrise. One clinician said, *“Epic is more geared towards the correct workflows.”* Another said, *“It has auto fields that will pull in information automatically.”*

Regarding Allscripts Sunrise, one physician praised Sunrise saying *“Allscripts is better than other EMRs on the market. Allscripts has the most flexibility in building workflows. If you have a unique workflow, you can build that within the solution.”*

PATIENT SAFETY

Patient safety was another topic mentioned by physicians. A few physicians mentioned a patient safety issue for Cerner and Meditech*. One talked of an experience with Cerner. The system refreshed at the same time he clicked on a patient’s record. This caused him to enter the file of the wrong patient and enter a note. Fortunately, he caught the issue and was able to correct it immediately.

Another physician mentioned an issue with Expanse saying, *“in Expanse when a medication expires, even if it is an absolutely critical life medication, it just simply jumps off the system.”* Unfortunately led to some issues with a few patients. He went on to share that *“There is one subtle place where if you are looking actively, you can monitor what is going on.”*

SATISFACTION

We asked study participants the classic Net Promoter Score question to judge the level of satisfaction they have for their current solution. We feel that the sheer number of the scores would not provide an accurate depiction of the overall satisfaction for each EHR solution, however, believe it is important to the narrative that we share some information about participant satisfaction.

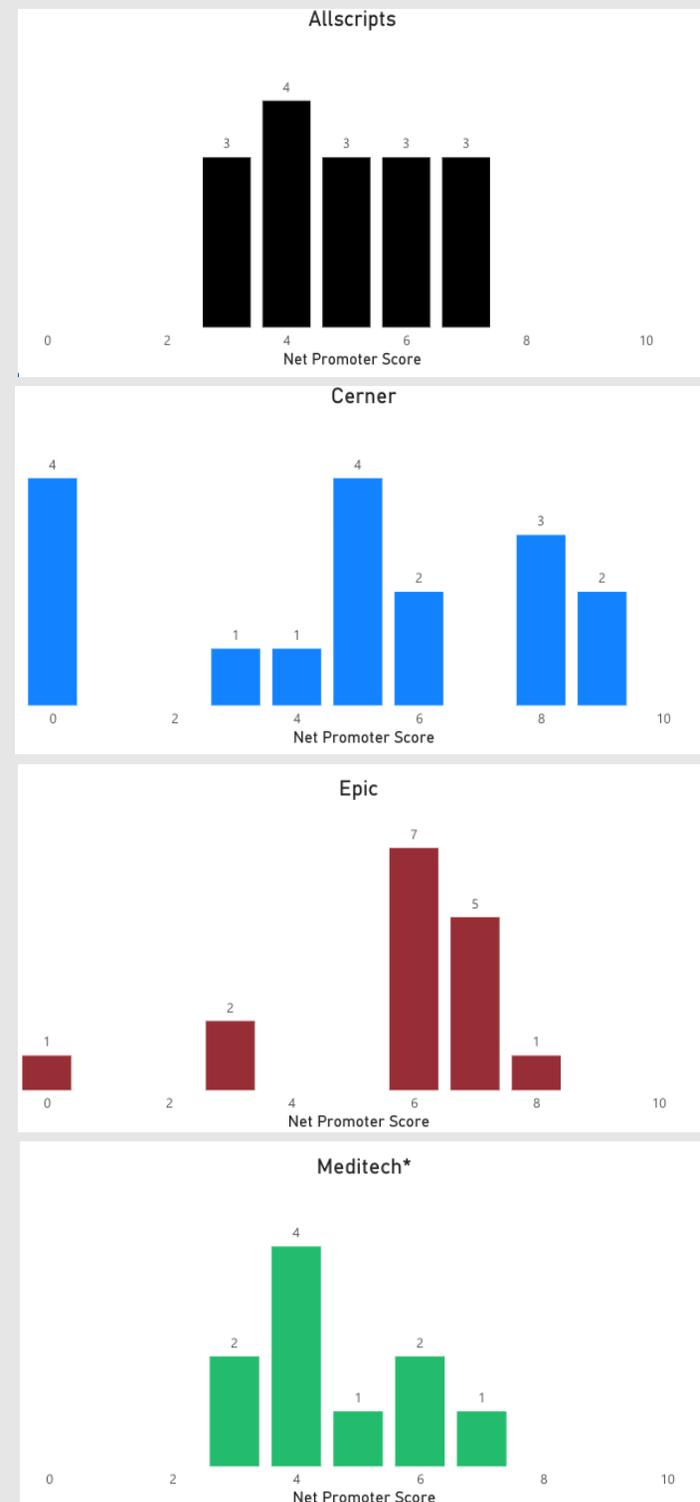


Chart 11: NPS Score Distribution by EHR Vendor

VENDORS

ALLSCRIPTS

Sunrise is the only solution that scored well enough on both task effectiveness and solution learnability to be placed in the “Usable” quadrant. Clinicians also claimed that Allscripts is making progress towards improving the usability of Sunrise. One physician said, “we have seen an increase in usability over the last few years.”

Clinicians praised Sunrise for being very customizable. One physician commented “Allscripts has tremendous potential and capability as far as the things you can do with it. What you can build is almost limitless.” Another said, “By and large, Allscripts Sunrise is a very open platform, which means that we can provide a lot of custom logic and clinical decision support to enhance and support the product itself.” In one instance a physician commented that “Allscripts has the most flexibility in building workflows. If you have a unique workflow, you can build that within the solution.”

Sunrise received the highest score for overall ease of use among the fully rated solutions and the second-highest score for all tasks. In addition, it received the best score for managing work queue tasks and, compared to the fully rated solutions, the best score for documenting. One physician remarked “The documentation is straightforward. The template and user-friendliness are good.”

Allscripts offers tools to help promote physician ease of use for Sunrise. Several respondents mentioned a solution called Notecetera that simplifies making physician notes. “One thing we added to our Sunrise version is Notecetera. That has made a difference for us on doing notes. It’s much easier. It is not super simple to learn, but it is pretty easy.”

One of the biggest dislikes physicians mention about Sunrise is its interface. One physician described it as looking “like it came from the 90s. Even the icons look like windows 95 icons.” While this does not have any impact on the solution’s performance, it does “give the perception that you didn’t upgrade anything. And so, I think that’s a huge downer that there is no visual confirmation that you have actually made the downtime worth it.”

Finally, one physician said that he has experienced problems with solution updates. He explained, “Allscripts will update modules within Sunrise, it isn’t uncommon for the updates to lack the necessary functionality that physicians depend on to effectively care for patients. As such, the organization will not move forward with the upgrade” at that time.

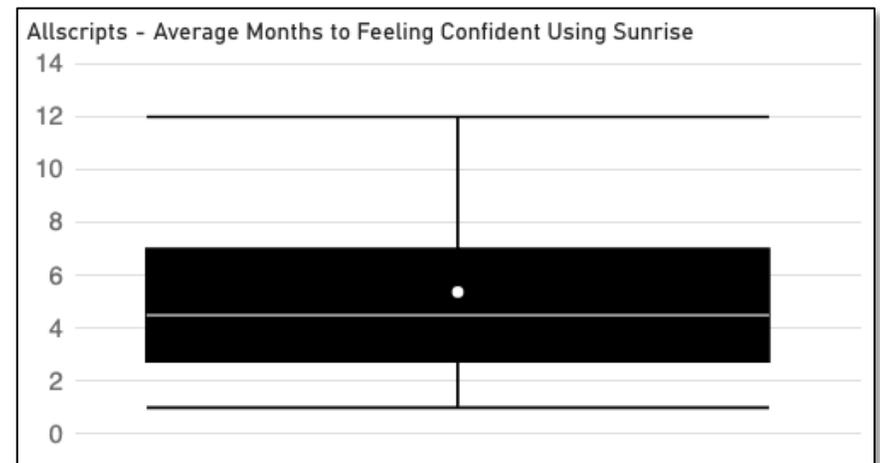


Chart 12: Allscripts Sunrise Learnability

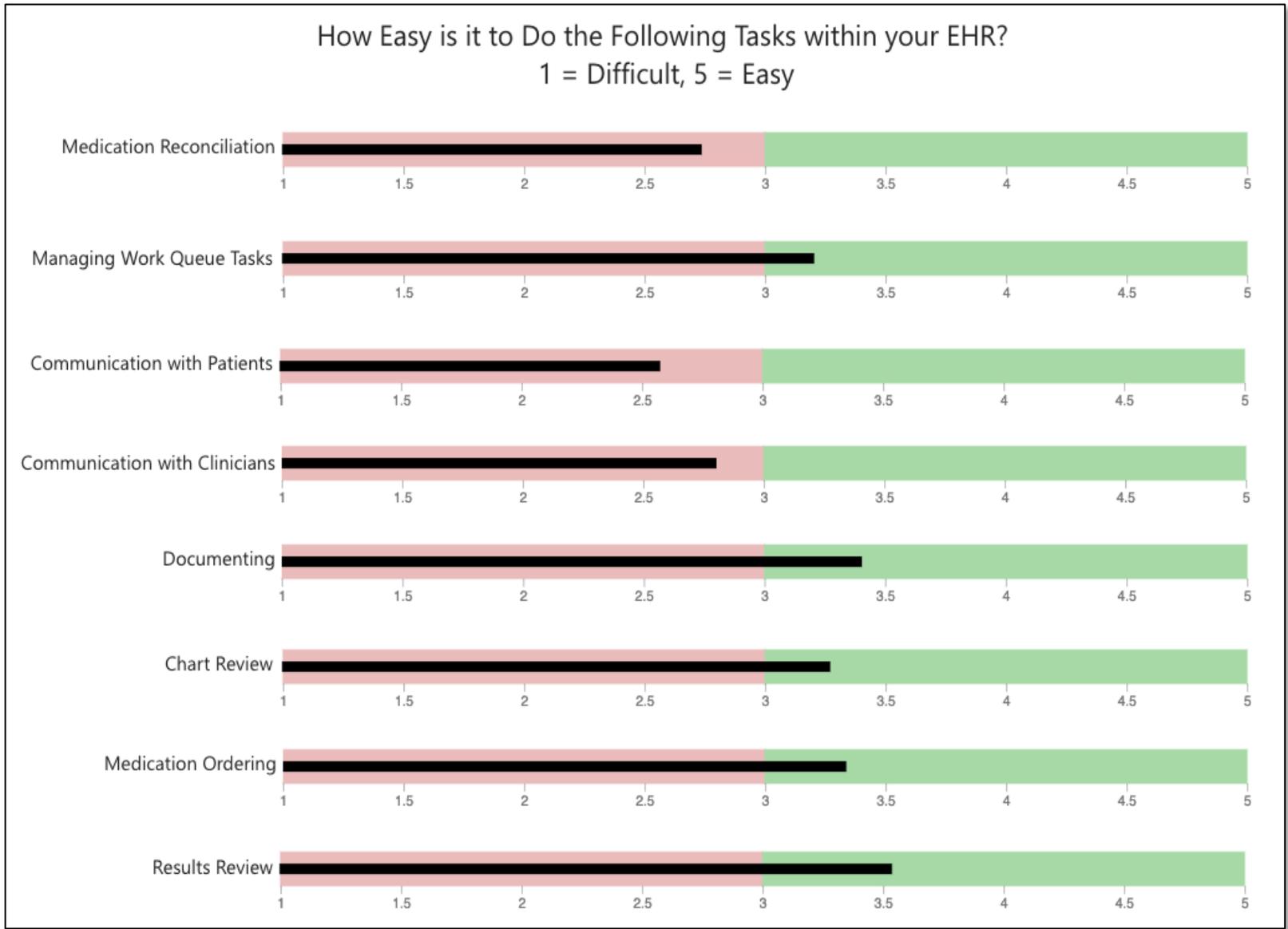


Chart 13: Allscripts Sunrise Task Effectiveness Scores

CERNER

Clinicians reported that Millennium has several strengths. First, Millennium is customizable and “pretty easy to use.” Several said Millennium is designed to share a lot of information that the clinician needs on one screen. One physician said “There is a lot of data on the screen. But what you see is modifiable and controllable. The person may have to get some help from IT support to modify what they see.”

Millennium also has functions such as mouse-overs and checkboxes to help physicians do their work quicker. Some praised Millennium for “bringing in things like a patient’s vitals and labs automatically into a note.” Finally, physicians appreciate that Millennium allows them to modify a patient record easily if they make a mistake.

Millennium received the highest score in only one task, results review. However, it received competitive scores for chart review, medication reconciliation, and communicating with clinicians. One physician said about his experience communicating with other clinicians, “If I am messaging a physician within my system, it is really easy to communicate with them.” But added, “if I’m trying to send or route a consult note or follow-up note to a referring physician or provider that is outside our Cerner system, that can be problematic.”

Unfortunately, Cerner received the lowest overall usability score. Some said that when they open Cerner Millennium, they are confronted with a screen of “overwhelming” information. One physician shared that the “Information is poorly organized, hard to find readily, requires frequent refreshing” Another said that Millennium “cannot reorganize problem list, medications to be useful. Cannot categorize or color code diagnoses or medications to reduce errors. Way too many popups, especially for medication orders.”

However, the most common dislike voiced by physicians is a “perceptible lag” with the system. One physician said “I spend a lot of time waiting on the hourglass. The response of Cerner is pretty slow, which is typical for me. There is surely plenty of time where I’m waiting and it gets into the range of 10s, 20s, and 30s of seconds.” Another mentioned “Probably 50 to 100 times a day, I wait for something to function in the system. Like when I finalize a record, I hit finalize and it probably takes 15 seconds to finalize before I can move to the next task. All the time I see a little hourglass that tells me to wait because the system is waiting. It’s never gotten to be where I think it is good.”

Finally, physicians described Millennium as difficult to learn. One physician said “It’s got a son of a b**ch of a learning curve. It took 5 or 6 months before I could use it without really thinking about it.”

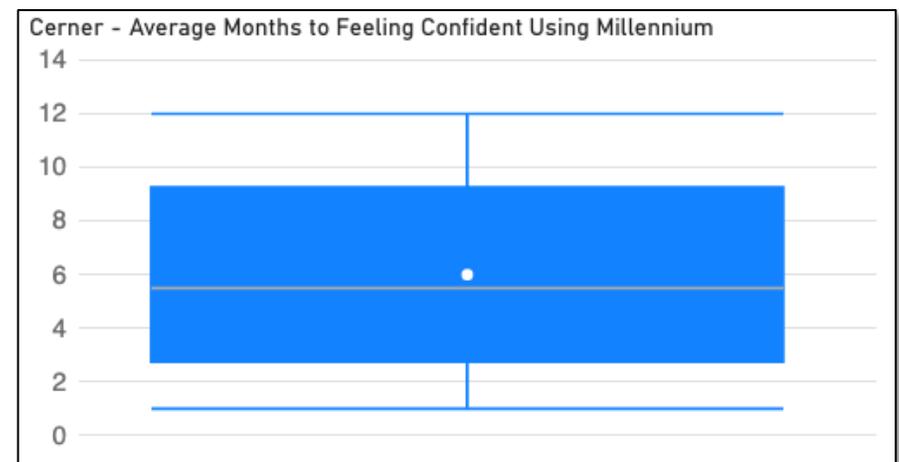


Chart 14: Cerner Millennium Learnability

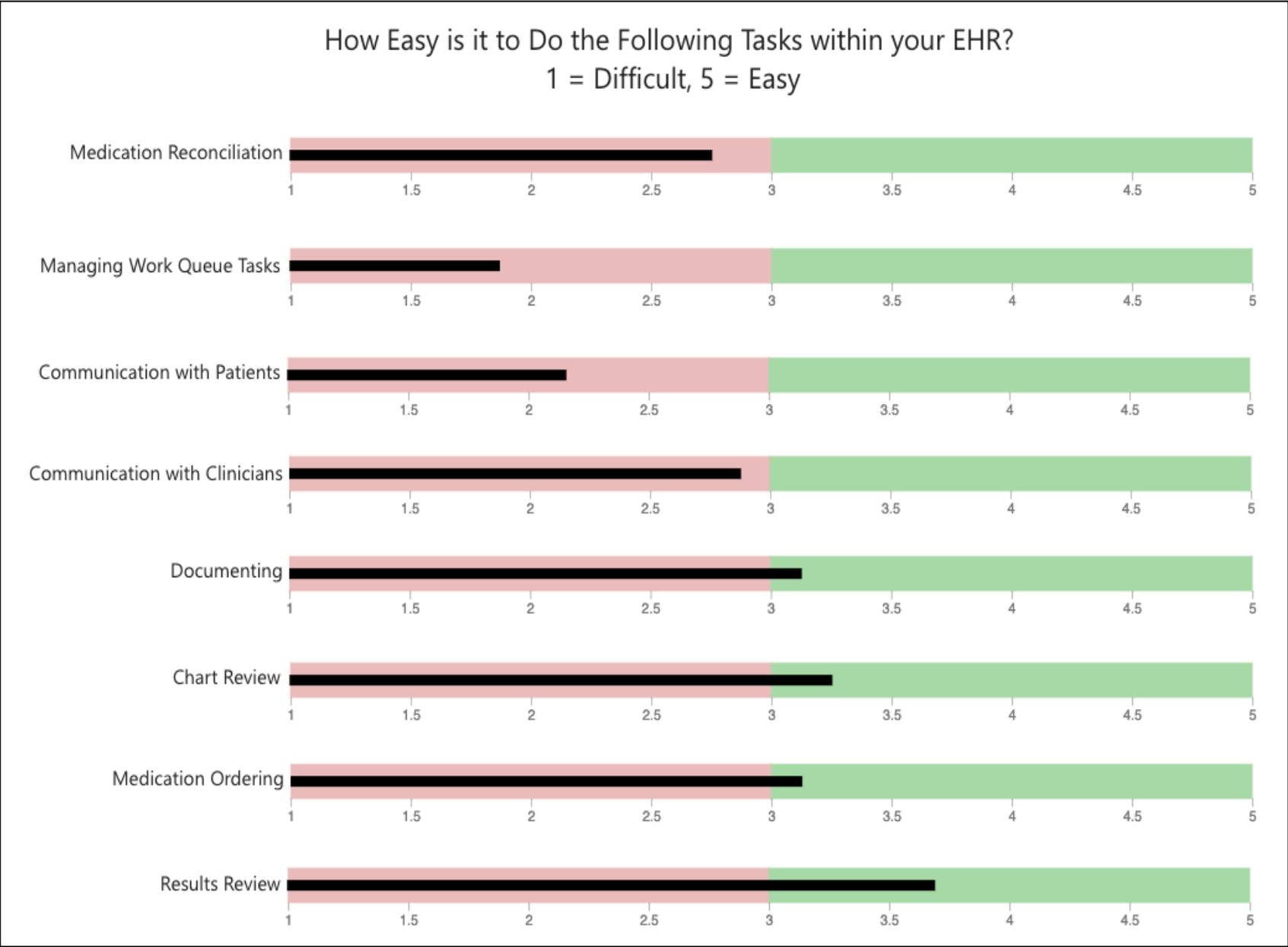


Chart 15: Cerner Millennium Task Effectiveness Scores

EPIC

Physicians scored EpicCare as the easiest to use to accomplish the common tasks they perform daily. Out of the eight physician tasks we measured, Epic received the highest score in three of them: communicating with patients, communicating with clinicians, and medication reconciliation.

In addition, clinicians praised Epic for its ability to receive data from other systems. In one example, a surgeon, who uses both Millennium and EpicCare remarked *“With Epic, I’ve noticed that I get more imported documents from other systems. If a patient of mine is seen at a different hospital, I will see a notification on that.”*

Physicians also praised Epic for its design. One physician said, *“As a clinician, Epic is more geared towards the correct workflows.”* Another said *“It pulls in information automatically. The clicking is better than other systems I have used. The workflow was pretty easy.”* Others remarked on how *“holistic”* and *“inclusive”* it is. In addition, EpicCare offers shortcuts to facilitate a better clinician experience. One physician explained, *“I created my own macros and figured out how to streamline Epic processes.”*

Epic takes the most time to learn. Physicians reported that it takes, on average, between 6 and 7 months to feel comfortable with the system. One physician described her experience saying, *“Epic’s biggest problem is that it is so complicated because it is so inclusive. You can easily get lost in it if you are not trained.”* While another physician said *“The problem with Epic is you have to know where to start. Once you know where to start the solution is very user-friendly.”* Finally, another said, *“Epic is very tedious. If you need to use the EMR for a function other than your usual one, it’s hard to find your way around.”*

Ongoing training may be necessary for clinician success with EpicCare. A few clinicians said that Epic makes regular updates to EpicCare. One physician commented, *“As soon as I feel proficient, there is a change in the methods.”* While another said, *“The Epic system is constantly changing.”*

Finally, a few commented that EpicCare is difficult when an order needs to be changed. One physician said *“the solution is very user-friendly. However, one issue I’ve had in Epic is once I’ve made an order, it is very difficult to go back and change it, delete it, or modify it.”* Another said *“Epic just isn’t easy to modify. If you make a mistake, it is hard to go back and change.”*



Chart 16: Epic EpicCare Learnability

How Easy is it to Do the Following Tasks within your EHR? 1 = Difficult, 5 = Easy

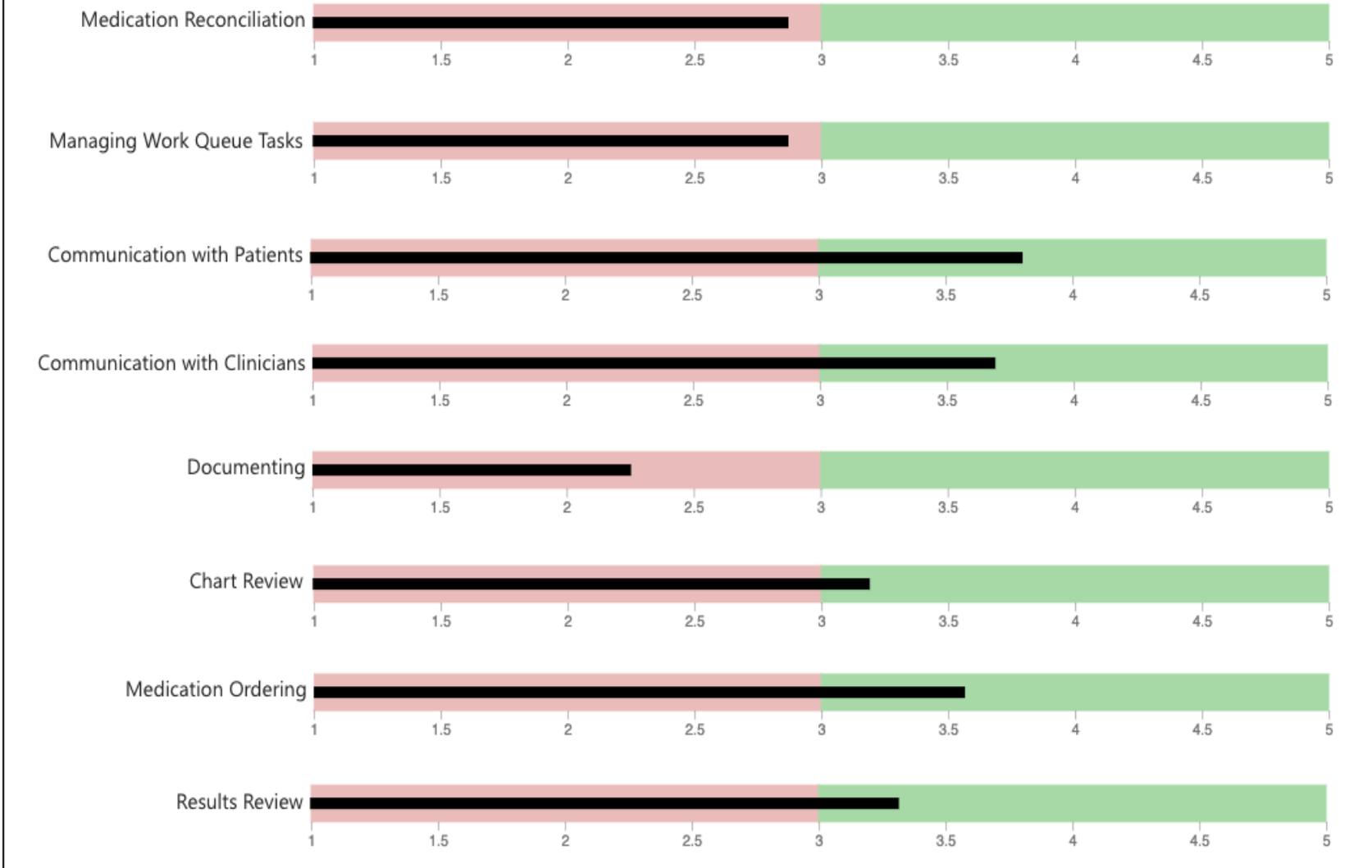


Chart 17: Epic EpicCare Task Effectiveness Scores

MEDITECH* (Preliminary Data)

Meditech launched Expanse early in 2018. As a new EHR solution, clinicians reported that *“Meditech is great with how easy it is to learn.”* Clinicians say that it will take less than two months, on average, to feel comfortable using Expanse.

In addition, clinicians reported the *“functionality is pretty good.”* Clinicians scored Meditech 6.9 out of 10 for ease of use. Meditech also received the highest scores for chart review, documenting, and medication ordering.

Some reported a few weaknesses with Expanse. Clinicians score Meditech poorer than the other EHR solutions in two areas, communicating with other clinicians and medication reconciliation. As far as medication, one physician said, *“in Expanse when a medication expires, even if it is an absolutely critical life medication, it just simply jumps off the system.”* He went on to share that *“There is one subtle place where if you are looking actively, you can monitor what is going on.”* They went on to describe a few patient safety issues that were caused by this situation.

Finally, some clinicians report that Expanse *“does not have good integration with other solutions.”*

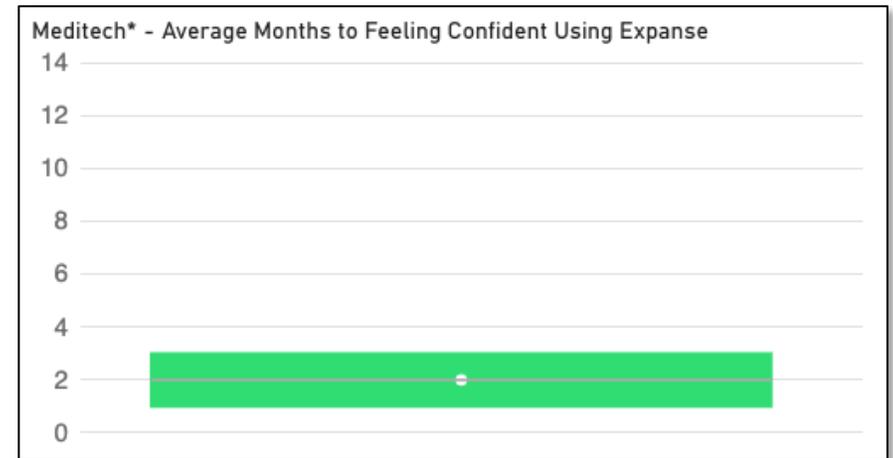


Chart 18: Meditech* Expanse Learnability (Preliminary Data)

How Easy is it to Do the Following Tasks within your EHR? 1 = Difficult, 5 = Easy

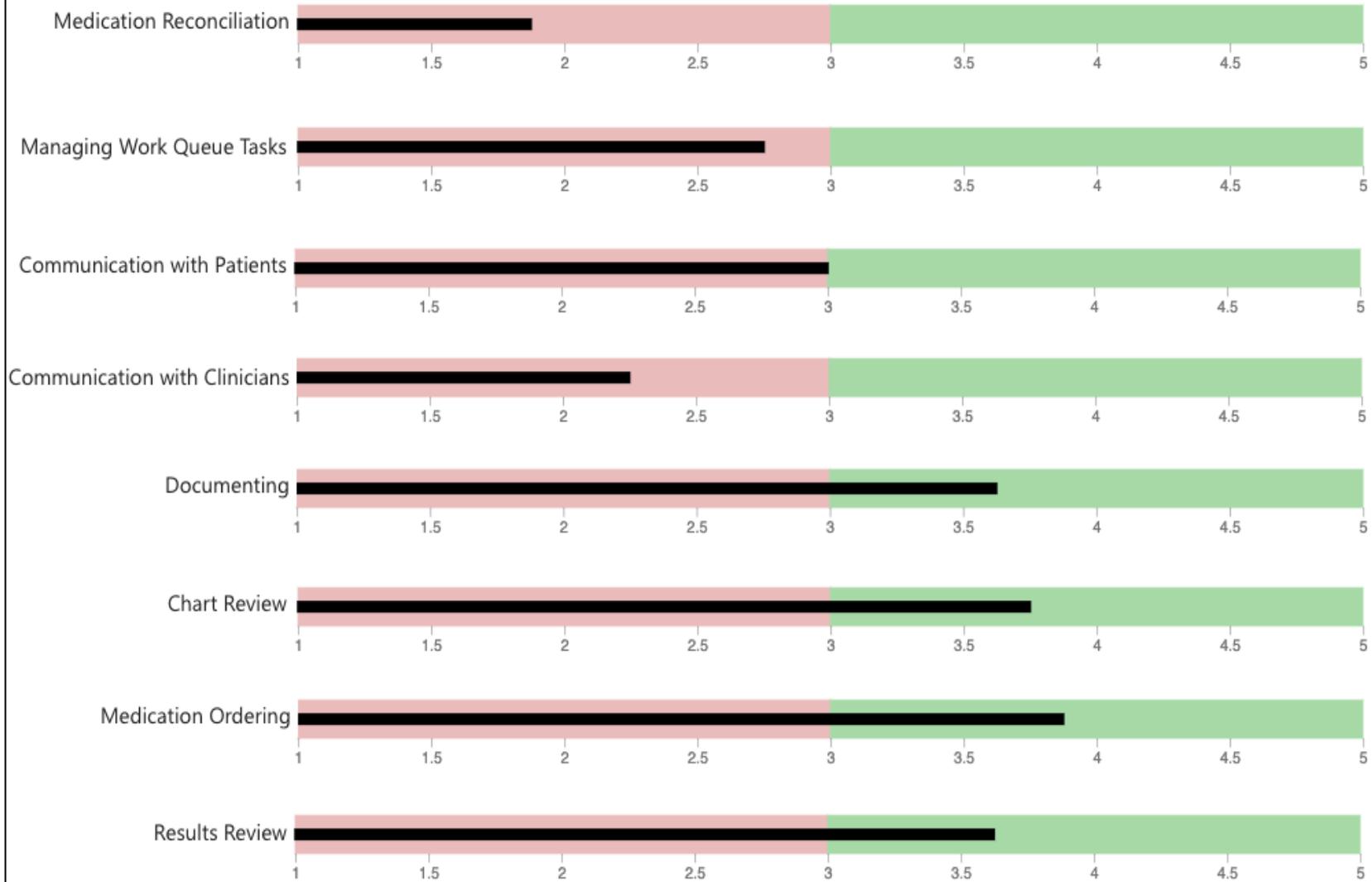


Chart 19: Meditech* Task Effectiveness Scores (Preliminary Data)

DISCLAIMER

While we have made every attempt to ensure that the information contained in this report has been obtained from reliable sources, SOLVE research is not responsible for any errors or omissions, or for the results obtained from the use of this information. All information in this report is provided “as is”, with no guarantee of completeness, accuracy, timeliness, or of the results obtained for the use of this information, and without warranty of any kind, express or implied, including, but not limited to warranties of performance, merchantability, and fitness for a particular purpose. In no event will SOLVE Research be liable to you or anyone else for any decision made or action taken in reliance on the information in this report. SOLVE Research reports and services do not constitute legal, valuation, taxation, or consulting advice. Nor are they a statement on the performance, or future potential of the industry(ies), product(s), or region(s), discussed. They are offered as information only.

EHR Usability
Copyright © 2021 SOLVE Research
All rights reserved