TAKE heart
AHRQ's Initiative To Increase Use of Cardiac Rehabilitation

EHR Q&A Sessions

Introduction

Prior to each EHR Q&A event, participants were asked to submit questions related to the implementation of automatic referral in Meditech, Epic, and Cerner. Most questions concerned diagnostic codes, embedding automatic referral into order sets, getting buy-in from physicians regarding referral to and promotion of cardiac rehabilitation (CR), running reports and understanding the general process of implementing automatic referral. Participants were encouraged to ask questions of panelists and respond to peers using the Chat feature.

Panelists

- Meditech
  - Melo-Dee Collins is the Administrative Director of Cardiovascular Services at Marion General Hospital and has helped build order sets with the help of the IT cohort.
  - Jacklyn Meyer is a registered nurse and works in the IT department primarily supporting providers and nurses with documentation and order sets.
- Epic
  - Amy Miller is the Chief Health Informatics Officer at Beth Israel Lahey Health
  - David Rubins is the Medical Director of Advanced Decision Support at Mass General Brigham Digital Healthcare
- Cerner
  - Kathy Lee Bishop is the Program Manager at Emory Saint Joseph's Hospital Cardiac Rehabilitation Program
  - Guru Patel is the Director of Clinical Informatics in the Office of Quality and Risk at Emory Healthcare

As many of the questions were general to the process and implementation of any EHR, this document grouped those questions on pages 1-8 into the following categories:

- Design of Automatic Referral System
- Clinician Engagement
- Diagnostic & Procedures Codes/Order Sets/Exclusions
- Referrals to Other Programs/Missed Referrals

EHR specific questions are listed at the end of the document; Cerner (9-11), Epic (11-14), and Meditech (14).

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Contents (To facilitate access, there is linked navigation to and from contents)

Design of Automatic Referral System

Q: Can you please clarify what the meaning of "automatic referral"? Do you mean that the order for the referral is pre-selected and then populates over into the orders basket for the provider to review and sign? Or do you mean that based on build for patient criteria, the referral is automatically placed? If so, what provider name is associated?

- None of the above. We have a collection of orders, and physicians must choose one of those orders. Those include referral orders to all our existing CR centers, external CR referrals, and the option of "I don't want to refer the patient at this time."
- Providers have to make a conscious decision, and we try to make it as easy as possible.
- We cannot pre-select orders, because we have so many CR locations that each do their own scheduling.

Q: How does the automatic referral process work from start to finish?

(There are two perspectives to this question: one is the process of implementing automatic referral; the other is what happens within the automatic referral once it is implemented. Both perspectives are addressed in earlier TAKEheart Module trainings.)

- When we discharge adult patients, we use a standard order set. We have built components into that order set that identify patients who are ineligible for CR. If a patient has a disqualifying item in their medical record (for example, they are on hospice), that component is displayed in the order set, and it prompts a response — one of which is for the physician to opt out of a CR referral. All of these orders are included in the discharge paperwork that goes to the attending physician, who co-signs the entire discharge bundle.

- In terms of implementing automatic referral: it involves working with IT and providers — getting all stakeholders together — and figuring out the things that may qualify and disqualify a patient for CR. We found it easiest to include at all these things as part of the discharge process.

Q: Who was on your team as you were getting ready to implement automatic referral?

- Make sure you have all the right people involved in the conversation: those who understand how the EHR is built, those who understand user perspectives, and CR experts who can speak to how the referral process should work. Those are the key players that you want pulled together from the outset.
- Our lead cardiologist works a lot on order sets. Our Medical Director is in cardiopulmonary rehab and saw an opportunity to get more referrals and add to order sets. We tried to pre-click to make sure we don't miss different quality indicators that we need to address before discharge.
- We decided that our Acute Coronary Syndrome order sets are an opportunity to add to the cardiac rehab referral. Once the set is ordered, it was also added to the PCA post. Once the automatic referral happens, the IT department faxes the order to the rehab department. We also have a discharge referral that can be done for patients, but that is not an automatic referral. It is, however, automatically sent when the provider orders it.

Q: What are some practical suggestions for programs that are just starting to implement automatic referral?

- Finding a physician champion who saw the value in CR was critical. From there, we built a team that was centered around the IT department.
- Asking frontline staff for their input was crucial. Our core team tried to get feedback from the end users; in this case, nurses are typically the people who put the orders in.
- Our physician leaders were ready to put work towards what needed to be done and clarify things along the way. The IT department does not implement automatic referral by themselves. No one does a project of this magnitude on their own.

Q: Any other recommendations for those starting out?

- It was important to make sure key stakeholders and providers are on board. IT should also be involved in the process during implementation. A nurse embedded in the IT department can play an invaluable role. It is helpful to have a clinical background when creating order sets.
- We would also recommend building everything out then testing it, testing it, and then testing it again. Let providers look at the test process and try it on test patients.
- When people say "we can't do something" — figure out where that's coming from. In other words, make sure that the right leadership is bought into the program.

- It's helpful to find examples of successful AR implementation. What are other institutions doing, and what has worked well for them?
- Sometimes, the word "automatic" throws people off; physicians assume we're taking away their decision-making power. So, it's important to understand where any resistance is coming from and to correct those assumptions. Even though it's an automatic prompt, physicians can still override it if clinically necessary. Typically, if the prompt is embedded in an order set, a physician has to uncheck it if they don't want it.

Q: How do we reconcile decisions made at the system level with our needs at the hospital level?

- This is a perpetual challenge. I highly recommend making the business case for why you need something to be different. There's always this assumption that what the system wants is also what the hospitals want. By understanding the reasoning for why those aren't aligned, at least everyone is informed on the decision, even if that doesn't change the decision itself.
- While some of you are implementing automatic referral at the hospital level, if you're envisioning spreading this across your system, it's important to have conversations early with the other hospitals in your system (so you can avoid doing things that won't work for your peers).

Clinician Engagement

Q: What is your advice on training that increases physicians' use of automatic referral (AR) and promotion of CR?

- We did not train our physicians. Our goal was to make this a seamless part of their workflow so that we didn't need to explain it to physicians. We didn't do anything to warn folks or to advertise the initiative. We haven't been asked for our reports on opt-outs. In areas where we do try to intervene on physician behavior, some things that can work include sharing de-identified data about how colleagues are performing and people's relation to each other. If there's a way for physicians to let us know in real time if they have complaints on an order, that's helpful for long-term engagement.
- We engaged one of our marketing team members to get their input on how to best reach the end user — both on the inpatient and ambulatory side.
- From an informatics standpoint, it's important to note contraindications — reasons that a patient may not be suitable for CR, such as "contagious infectious diseases" or "acute or decompensated heart failure." A lot of the time, we push providers to give a referral, but we don't provide a way out. It's important for physicians to indicate why they're not ordering CR.

Q: How do you increase buy-in among providers at facilities outside of your system?

This continues to be a challenge. We try to reach out to all 40 CR programs in our region, although not all of them will accept our systems' patients. The goal is for all of us to be on the same EMR, so that our patients can move smoothly across the system. In our area transportation is a challenge, so many patients avoid attending CR in the city proper.

Q: How do you engage with other departments (e.g. pharmacy) that may be involved in the automatic referral process?

- Even with strong ownership from our physician champion, this took months to complete. For all of our order sets, we have clinical pharmacists that have been identified. Everyone in my department knows which pharmacists to reach out to. All referral notifications go to a multi-patient task list, which has the ability to filter by location. It took us 22 months to roll out this system.

Q: It seems like you'd need to involve physicians in earlier testing phases for this to work well. Did you do that, to make sure that this process was as intuitive as you wanted it to be?

- Since we wear multiple hats (being physicians ourselves), we haven't felt the need to bring in additional end users to test it per se. Sometimes, we test an intervention on pilot users, but that's only if it's novel.

Q: As you were implementing AR, did you couple that with any outreach efforts to cardiologists to help them understand the general value of CR?

- We didn't do any communication around this where I work, because we felt like AR is not a big enough deviation from people's workflows that it would warrant training. But in general, training is great.

Q: Can you walk through what happens once the physician agrees to the referral? How is the rehab notified?

- Each of our rehabs has a work queue where the referrals land. For a patient who doesn't want to go to any local locations, we have an order specifically to send them to an external CR program. Of course, not all programs have the bandwidth to make these exceptions.

Q: There are some (typically, smaller) hospitals with IT departments that don't necessarily have clinicians embedded within. It just strikes me that in facilities like that, what you're describing would be kind of challenging. Do you have any advice for facilities like that?

- In general, having clinicians that you can ask questions of is beneficial, and to some degree necessary, for informatics projects. But it can be challenging to find the right

collaborators. For example, at our hospital, if you were to go to the department chair, they're the wrong person to talk to about this type of workflow.

- We have trainees that do a lot of the ordering at our academic medical centers; and at a community hospital, it's most likely that all physicians are using the tools. I think it's just connecting with providers who use the workflow that you're trying to make the change in and getting their gut check and advocacy moving forward.
- Examples can be helpful. I know that's shifting the burden onto providers, but when we get requests that I'm not as familiar with, it's good to walk through what the workflow is. There are a lot of steps that we, as clinicians, sometimes don't remember that we're doing when we take care of patients. So, it's important to describe your workflow in detail to IT folks.
- It was important for the providers to understand what was going on and to get their buy in as active supporters. Our cardiologists were all on board with automatic referral.

Diagnostic & Procedures Codes/Order Sets/Exclusions

Q: Are there any order sets that providers could choose that do not have the automatic referral to cardiac rehab built in?

- We have discussed ideas for creating short order sets. For example, a patient may come in with a heart failure exacerbation as a primary diagnosis. While the patient is at the hospital they may have an non-ST segment elevation myocardial infarction (NSTEMI) so they would qualify for cardiac rehab. We can pull on pieces of order sets.

Q: How do we identify all of the eligible patients and know what the correct codes are?

- TAKEheart Module 5 implementation guide contains a full list of diagnostic codes.

Q: What are the pros and cons of using pre-procedure and discharge diagnoses? Do you use one or the other, or both?

- We look at anything attached to the patient's admission and consider it fair game; it's not limited to discharge diagnoses. In general, our physicians may not be the most thoughtful about a diagnosis associated with an inpatient. Often, on the first day, problems get associated with the patient, and everyone billing after that don't necessarily maintain a curated list of diagnoses. When implementing automatic referral, we tried to take a broader approach, rather than looking at only a subset of diagnoses at admission.
- As a provider, it's best to work off the ICD 10 codes. That is what prompts providers to know what order sets to pull and what to address. The order sets are based off a diagnosis, but they are not necessarily tied to the diagnosis. The providers must choose which order to implement.

Q: How do we get physicians to use the right codes? For example, a lot of patients come because of abnormal stress tests, which may not be coverable.

- Broadly, the strategy we've taken is to put structured indications for physicians to choose, and then map those indications to diagnoses. That allows us to direct them either to a 1:1 match, or (in the case of something like heart failure), it forces them to choose from the indications that we offer.
- The first component is someone putting the right diagnostic code on the patient record — but we know that this is not always done correctly. For this reason, we ended up relying on procedural records as well as diagnosis codes to identify patients who were eligible for CR. We also consulted CR experts to confirm which diagnostic codes to include in the build.

Q: How do you get the right person to approve the CR referral?

- The discharge order set gets routed to the attending physician. Because they're the ones signing, everything about the discharge (including the order set) is approved.

Q: What percentage of the time do cardiologists decline to make referrals to CR?

- We haven't experienced this issue. Anecdotally, we got great feedback from CR programs that they saw an increase in referrals after we implemented AR.

Q: Can AR be part of a care path, if you don't have a single discharge data set?

- We have not set those up where I work, but AR could certainly be part of a care path. If you're at a site that uses care paths routinely, this could be feasible.

Q: How do you make sure you identify heart failure patients correctly?

- We use the problem list for that. We also have a registry of heart failure patients, which takes into account echocardiogram results and other clinical criteria. You don't necessarily have to have comprehensive AR in order to start using it. Conversely, just because you have an AR system in place, doesn't mean it won't need improvement.

Q: Automatic referral is built into an order set — but sometimes, physicians don't use the right one. How do we address this?

- We only have one adult discharge order set. If you have multiple order sets, you could try to collapse them into a single order set. Alternatively, you could build a prompt that suggests the right order set based on logic regarding patient diagnosis.

Q: What's the name of your discharge order set?

- At our hospital, we do not have diagnosis-specific discharge order sets; instead, we have one general adult discharge order set. So, physicians can't move forward unless they address the CR referral.
- If you have numerous order sets, it becomes a question of which order sets are likely to be used for patients who need a CR referral, as well as what percentage of patients getting the order set makes it worth putting in the effort to embed it.

Q: What program can we use for generating orders for Phase II?

- The whole automatic referral is, by default, for Phase II (on the ambulatory side).

Q: What is your advice on screening outpatients for whom CR is not appropriate?

- If a patient is on hospice and thus it's clinically inappropriate for them to attend CR… we note these exclusions. On our alerts, we also have a place for physicians to click and give us feedback. If we forget to exclude something, we can trust that a physician will provide detailed feedback that the alert is inappropriate. So, we crowdsource ideas from the end users as we go.
- The most common feedback we get is that patients have been referred to an external CR program, and we don't have a structured way of noting that.
- The exercise physiologist goes through the referral and looks for patients that would not be appropriate. The cardiologist in the program also reviews charts. If the patient has a contraindication that are harder to program, they can be screened manually.

Referrals to Other Programs/Missed Referrals

Q: How do you handle referrals to other programs, such as outpatient settings or hospitals outside of your system?

- We do not have anything in place for anybody out of town. We have a cardiac rehab facility both to the north and south of our hospital and we have passed on referrals to them a few times over the years. The volume of patients that are referred to those facilities are low so we did not attempt to automate given the limited frequency.
- We have 2 CR programs within our system that are about 10 miles apart; however, the general system foot-reach is multi-state. So, we adjusted our communication tool to include 40 regional CR programs that were outside of our system. We update those programs as they turn over and as points of contact change.
- One of the struggles with ambulatory workflows is that it's so quick; the patient sometimes comes in and out in a matter of minutes. In the inpatient workflow, we can lock the provider down and force them to make a decision. In the outpatient world,

that's very difficult. In our design, we tried to put the CR referral on the 'quick orders' page. We can't force clinicians to click on it, but we can improve its visibility.

Q: How do we handle missed referrals that aren't identified until after the patient is discharged?

- We instructed the cardiologists in our multiple practices to ask patients (during follow-up visits) whether they have enrolled in CR. These multiple heart failure clinics in our system can put in an ad-hoc referral on the ambulatory side.

Quality Improvement

Q: How would you change the process to operate more efficiently?

- Any time we make an order set, we are making changes to it to go along with new recommendations. We have used the cardiac rehab automatic referral process to build similar processes in other order sets.
- If you have had successful implementations of similar processes in the past, automatic referral associated with cardiac rehab will probably be easier. You also need input from key stakeholders so it is important to invest the time in planning upfront.

Q: Has automatic referral increased the number of patients that are being referred and enrolled in your program?

- Yes, it has increased our referrals. Right now, we are more focused on collecting data on why a patient chooses not to participate after referral. The primary reasons for not participating are:
    - They do not want to exercise in the community, in which case we have sent information on how they can exercise in their home on their own.
    - They are returning to work.

Additional Resources

TAKEheart modules that contain helpful information related to this Q&A session. For instance, Module 4 and Module 5 include the ICD10 codes that are associated with various qualifying conditions, plus Module 5 and Module 7 contains more information about the design, testing and implementation of automatic referral for cardiac rehab.

EHR-Specific Questions and Answers

CERNER

Q: How is Cerner different from other EMR platforms?

- This is not necessarily unique to Cerner, but one of the nice things about the software is that you can create a task for someone that says "there's a referral for this patient; please work on it." You can also send something that triggers a physician order. You're

not confined to just your organization; there's the ability to create a task for someone outside of your organization as well, even if that organization is not part of a health information exchange (HIE).

- Within Cerner itself, there are some nice tools available: for example, you can design alerts/triggers that work differently for different clinicians. Creating focused alerts and decision support tools can help with getting buy-in.
- As a large healthcare system, we wanted to make sure that a patient's documentation traveled with them and that their CR referral became part of their medical record. At the time that we implemented automatic referral, our healthcare system had four hospitals and 100 clinics; however, our patients' documentation went to a central information port, which allowed us to send our referrals to where they needed to go. Our patient network is multi-state; thus, it was helpful for it to be so easy for us to reach patients who had gotten orders.

Q: How is a task set up once a referral is placed?

- There's a tool within Cerner called a "multi-patient task list." It's designed at the organizational level; you can click a button and can see multiple patient tasks on a single list. The users just need to make sure that they designate clinical "roles" within this list.
- We leveraged that functionality; our referral management design was based on Cerner orders. This multi-patient task list worked well for us; our system became so efficient that we were actually calling patients before they got discharged – we had to take a pause!

Q: How do you navigate the signatures involved in the referral process (e.g., advanced practitioners needing a co-signature from a doctor)?

- Our APPs are required to enter a supervising physician when they place the order. In Cerner, we can flip whether the supervising physician needs to co-sign or not. If a referral requires a physician's co-signature, our printed orders from Cerner have the physician's signature at the bottom.

Q: How do we keep the Emergency Department (ED) physicians from placing orders, as opposed to cardiologists?

- That boils down to security settings within Cerner. If all your physicians have the same security role within Cerner, making this distinction is difficult. In our system we can use the patient location to hide or show certain orders. Our physician security is set up so that we can choose not to show these orders to our ED physicians. We have the freedom to customize our alerts accordingly.

Q: How do we get the inpatient elective order to be seen in a future outpatient encounter?

- Once the order is completed, it loads into the patient's chart under "cardiology > clinical notes." We're able to do this because the physician fills out a power form, located on the "orders and charges' page, which is then rendered into a clinical note. Our technical team designed this to meet insurance and compliance requirements.
- I would recommend working with your Cerner representatives to build this out. We ended up creating an order that lives in our clinical notes section, that is later utilized for referrals.

Q: How do we send inpatient notes to outpatient facilities?

- We can easily pull out reports from our data warehouse as we designed an order-based workflow. The multi-patient task list serves as a report in and of itself. You can send an alert or notification (but not necessarily an order) to an organization outside your system.
- When you design a power form, you want to create discrete fields. For instance, ours can track percentages of eligible patients based on ICD9 codes, whether patients used internal or external CR, etc. This helps track patient outcomes.

Q: Any advice for hospitals that may have some elements in place for automatic referral, but not all?

- Within Cerner "power plans," there's a function to link orders in such a way that if a physician bypasses it, they receive a nudge from the system.
- Similarly, we designed an alert system that hard-stops physicians if they have not placed a CR referral at discharge, at which point they must indicate why it's not needed. Those are data points that we can report out on. We're able to track which physicians frequently bypass the CR referrals, and we can educate them about the importance of CR.

EPIC

Q: How do we make sure that we're getting a diagnosis of myocardial infarction (MI) from the most recent hospital visit, as opposed to something that may have occurred 5 years ago?

- Within Epic, the diagnoses are associated with a particular encounter — so, we can confirm that the diagnosis was recent.

Q: Is there a standard approach [to automatic referral in Epic] that small hospitals can utilize without having to reinvent the wheel?

- Epic has a few different mechanisms to share knowledge between sites — because if someone's figured it out, there's no need to reinvent it. One of those is called the Epic

User Web, which is a forum for participants to post questions and answers, and to see what other sites have done.

- Epic also has a "Community Library", which allows participants to look at all the Epic implementation sites (with permission) and look at over a thousand screenshots (including those from Mass General's implementation) to look at wording, lookback times, etc. Additionally, you can always work with your Epic representative, who can talk to representatives at other sites.

Q: How do we identify patients being treated in outpatient settings, so that they can be referred to CR?

- In our inpatient workflow, we have a discharge order set that everyone converges on. Providers can't discharge a patient without using this order set. So, we can embed them there and force clinicians to see the bundle as part of the discharge process.
- On the outpatient side, we have a best practice advisory that attempts to do the same thing – but the challenge in the outpatient setting is, you can come up with a million things that you want to remind providers of, but you don't want to drive them crazy with interruptive alerts. For this reason, most alerts are passive, and physicians don't notice them.

Q: How can we identify patients with ejection fractions of up to 35?

- In terms of identifying patients with ejection fractions under 35, we use Cupid (the Epic module for cardiology) and all of our ejection fractions are stored as a lab value, so we can very easily identify those patients.
- The logic of the BPA alert is that it looks back on three months for patients who have had a qualifying procedure, or a discharge with a qualifying diagnosis. We don't have the best acceptance for these alerts; we're always trying to balance how interruptive we're going to be to providers, with trying to accomplish the end goal.
- In the past six months, that BPA has fired for almost a thousand patients, and yet we've only gotten orders placed for approximately 30 of them. Thus, the BPA doesn't seem to make much of a difference.
- Our BPA alerts are on the Epic Community Library.

Q: We're transitioning from Cerner to Epic. Do you have any advice?

- We went onto Epic from homegrown systems. When Epic was working with us on implementation, someone from Epic would say "We don't recommend doing it that way", and we said "We know better! This is how we've always done things!". I'd say that Epic knows their system well, and they know when something isn't a good decision. So, when they say not to do something, trust them.

- As you're transitioning to Epic, make sure at the start that you're getting the data you need (such as ejection fractions).

Q: What do you do if the data that you want (like ejection fractions) isn't recorded in the EMR?

- *Mass General* has a program where, if they get paper records, there are staff that transcribe those records into the EMR as structured data elements. Epic will soon have the ability to do string searches within scanned documents.
- Epic has several bundling-name databases and other mechanisms of getting information (like, from claims data). A number of those things are posted on the Community Library.

Q: Why is it so hard to get data out of Epic?

- It really shouldn't be that hard to get data out of Epic. One of the reasons it ends up being difficult is that Epic was designed to report on an individual patient. Because of the way Epic is structured, data-pulling can be slow.
- Epic does know this, and they've worked on several ways to solve this. One is a tool called Slicer Dicer, which is a quick way to identify patients seen in your department and filter to those who have a specific diagnosis and who have or have not been referred to CR. There are older and more complicated versions of reports, but I think Slicer Dicer is a good tool for getting data.

Q: Is it possible to get reports that include information about individual patients?

- In Slicer Dicer, you can take quickly generated data and look at sub-reports on a side panel with information about individual patients. This is customizable by the IT team.
- There are also 730 different reports on Community Library that you can look at for inspiration.
- This is a case where a picture or layout of your ideal report is much more valuable than a thousand-word email explaining what you'd like. To the extent you can create a mock report that has the information you'd like, it will be easier for you to work with IT.

Q: How do you educate providers about referral sources outside of your network/city/state?

- We're not dealing with any external physicians per se, since they are by definition one of our Epic users. We did, however, talk about building this into Epic CareLink in order to reach external providers.

Q: How many changes have you made to your AR since you rolled it out?

- Initially, we were including patients who had had angiograms, but not coronary disease; we had to correct for that, and we made a number of changes. For example, we now have an alert that shows all the different locations that patients can receive CR. We still

are making changes to this. The good thing about Epic is you have the ability to build something in 'silent mode' in order to catch mistakes before they're rolled out.

Q: In Epic, is the "work queue" the only option to have the notification sent to? Can it be sent in another way, such as email?

- There is no technical limitation on the Epic side, although the work queue is the default place for notifications to land.
- It all depends on staffing and bandwidth. Some places employ a coordinator to conduct in-person visits with inpatients who are eligible for CR. So, in Epic, that notification might take the form of a page when the order happens.

MEDITECH

Q: How long did it take from deciding to do an automatic referral for the system to go live?

- It took a couple of months because the order set had to go through the medical directors and department directors for approval.
- We also had to create paper downtime forms which the committee had to approve. This should be encouraging to smaller hospitals that it does not necessarily take as much time to complete the preliminary steps.

Q: How did you handle the sequencing of activities between testing the order sets and sending them for approval?

- We have Meditech Test and are able to create the sets under test names. Providers look at the sets built in the test environment. We do tests before the approvals by the committees. Building an order set does not take that long and is not difficult to print in another department. Getting the provider approval and review is the process that takes the longest time.