

Implementation Guide for Automatic Referral



Building, Implementing, and Troubleshooting an Automatic Referral for Cardiac Rehabilitation

Introduction

Acronym List

Term	Abbreviation
AHRQ	Agency for Healthcare Research and Quality
AR	Automatic referral
CABG	Coronary artery bypass surgery
CC	Care coordination
CR	Cardiac rehabilitation
EMR	Electronic medical record
IG	Implementation guide
PTCA	Percutaneous transluminal coronary angioplasty
QI	Quality improvement

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Project Overview

What is TAKEheart?

TAKEheart is an initiative of the Agency for Healthcare Research and Quality (AHRQ) that is designed to help hospitals and health systems implement two evidence-based strategies that have been proven to increase patient participation in cardiac rehabilitation (CR): automatic referral (AR) with effective care coordination (CC).

TAKEheart provides training, guidance, and tools needed to plan, prepare for, and undertake the process changes needed to implement these two strategies.

The essential first steps for any hospital wishing to implement either or both of these strategies involve laying the groundwork for the process changes that will be sought. A complete discussion of these essential first steps, including guidance and tools for achieving them, is included in the **Getting Started** Curriculum. We strongly recommend that you begin there before turning to this guidance on implementing an AR system.

Implementation Guide (IG) Purpose and Supplementary Materials

This IG is designed to provide actionable, step-by-step guidance for planning and working through the necessary steps for designing, testing, implementing, and troubleshooting an AR system in your hospital/health system.

Before or after you review each section of this IG, you are strongly encouraged to review the section with the same name in the companion [Implementing Automatic Referral Slide Deck](#). The slides provide additional information about the WHAT and WHY of the activities described in the IG. *This information is presented in a customizable PPT format so it can be easily shared with other staff whose support or involvement you will need to succeed in automating your referral system.*

The third component of the TAKEheart Consolidated Curriculum for Implementing Automatic Referral is the associated [Resource Guide](#), which contains additional tools, templates, articles, and other rich materials expanding on the topics covered in the IG.

The guidance provided in these TAKEheart training materials is meant to supplement the recommended process changes and corresponding resources presented in the [Million Hearts®/AACVPR Cardiac Rehabilitation Change Package \(CRCP\)](#). The CRCP was developed to help cardiac rehabilitation programs, hospital QI teams, and public health professionals with whom they partner, implement strategies for increasing patient participation in CR. You strongly encouraged to explore the contents of the CRCP, especially *the section devoted to referrals!*

IMPORTANT NOTE:

The **Consolidated Curriculum for [Getting Started](#)** discusses essential ground-laying activities for any QI project. We strongly encourage you to begin with that curriculum, especially if this is your first QI project.

Chapter 1: Understanding AR

What is AR?

- AR is an EMR-based CR referral built into an order set in such a way that all patients with a qualifying diagnosis and/or procedure for CR are referred by default, unless the clinical provider takes action to remove the order.
- AR is NOT a pop-up message that emerges in the patient's medical record giving the clinical provider a choice about referring the patient to CR.
- AR is NOT a substitute for a clinician conversation with the patient about the benefits of CR and follow up by clinical professionals. The "human touch" has been shown to be a very strong influencer of patient participation in CR.

Referral Patterns

Patients take many paths to reach outpatient CR, and as a result, there are many referral patterns. This IG focuses on creating an AR system from the inpatient/procedural environment to outpatient CR.

What is a completed referral?

- AR is only one step in the referral process.
- CR referral process measures require a verbal conversation between the ordering clinician and the referred patient. Under the current quality measure specifications for CR referrals, hospitals can only get credit for the CR referral if the patient conversation takes place.
- Care coordination (CC) activities work in tandem with the AR to ensure the patient reaches CR.

Who needs to be involved?

A common error is to relinquish the design and implementation of AR to the IT department. As you work on the design and implementation of AR, you need to actively engage a diverse team.

- **Executive IT Leadership** must approve alterations to the hospital's EMR. Their support and involvement are critical to making AR an organizational priority.
- A **CR Champion** advocates for IT and executive support and creates a bridge between the needs of patients, staff, and management.
- A **QI Leader** will understand challenges associated with a quality improvement project and can lend support with managing change.
- **IT Lead/Staff** possess deep understanding of the EMR system. They will need to make the technical changes needed to operationalize and maintain the AR and may have the power to prioritize actions needed to introduce AR or improve existing procedures for electronic referrals.
- **Clinical Staff** are the ultimate users of the referral system. Their needs, insights, and experience with workflow are critical for building a system that they can and will use.
- A **Data Analytics Coordinator** manages the collection and interpretation of data to

support AR and supports analysis of data on referral testing and implementation.

- **Patients** provide key information about the workability of the referral process; sometimes referrals get stuck in the queue.
- **Representatives of External CR Programs** offer information about CR services that are available outside the organization and how to refer patients to these programs.

Implementing AR Takes Time!

Successfully implementing AR is NOT a simple reprogramming of an EMR!

While there is wide variation in the length of time needed to implement AR, **even hospitals with well-operating EMRs and strong IT support may need several months to get their AR systems up and running.**

Before you Begin: Anticipating Common Challenges

Implementing an AR system is a complex undertaking; it is NOT a simple reprogramming of an EMR. As a result, the challenges likely to arise as you work with your stakeholders to implement such a system will not merely be technical in nature.

Table 1 below describes common errors in implementing changes in an EMR. Keep these in mind as you plan your initiative and work through the steps outlined in the remainder of this IG.

TABLE 1: Common Challenges Experienced When Implementing Changes to EMR Systems

Type of Challenge	Detailed Description
Leadership Issues	<ul style="list-style-type: none"> • Lack of unconditional leadership support with the skills, knowledge, and engagement to manage the project. • Poor decision-making structure, or the wrong people in leadership to drive the health IT project. • Lack of good, bi-directional communication between leadership and staff. • Failure to understand the principles of change management.
Workflow Issues	<ul style="list-style-type: none"> • Failure to understand the overwhelming importance of workflow in determining productivity, and inadequate workflow mapping prior to go-live. • Failure to assign specific roles for data gathering and data entry. • Failure to do a full walk-through to identify gaps, bottlenecks, and optimal location of devices to support workflows.
Provider Issues	<ul style="list-style-type: none"> • Absence of a strong clinical champion. • Failure to have full provider support for the project or provider participation in the selection process, including which devices to use. • Failure of providers to understand their role in utilizing the EMR leading to counterproductive physician behavior, such as not attending user training and lack of cooperation or participation in workflow redesign efforts.
Training Issues	<ul style="list-style-type: none"> • Underestimation of the amount of training required. • Failure to time the training to when users can optimally absorb it. Too much training takes place before users have a context to understand it. • Failure to assure that providers actually complete training. • Failure to have a full-dress rehearsal before go-live. • Failure to provide sufficient real-time support during go-live when the risks are greatest, the learning potential is highest, and when staff need training the most.
Data Interface Issues	<ul style="list-style-type: none"> • Failure to build, test, and implement all essential interfaces prior to go-live. • Failure to migrate the right information from legacy systems and paper records into the EHR.
User Interface Issues	<ul style="list-style-type: none"> • Failure to properly configure essential EMR features required for patient care, and to assure they are properly turned on and tested. • Failure to create and test tools such as charting templates and preference lists needed to see patients, place orders, and document visits. • Failure to organize charting tools so care team can easily find them. • Failure to limit the amount of customization prior to go-live. • Failure to plan for prioritizing fixes and customization for system optimization after go-live.

Adapted from Qualis Health's EMR Implementation with Minimal Practice Disruption in Primary Care Settings: The Experience of the Washington & Idaho Regional Extension Center.

Chapter 2: Defining Eligible Patients

AR requires knowing which patients are appropriate and eligible for CR services and which are not. ALL patients with an agreed-upon set of codes should be automatically referred/opted in. And ONLY patients with the agreed-upon set of codes should be referred/opted in. Cardiac rehabilitation representatives and cardiac care clinicians must discuss and reach consensus about which types of patients should and should not be considered eligible for CR.

To create your agreed-on codes, you will need to discuss the following topics, each of which is explained more fully immediately below:

- Determine patients to include
- Determine patients to exclude
- Specify referring physician
- Include referral origination
- Include referral destination
- Discuss coding decisions

Determine Patients to Include

In general, these patient conditions qualify for CR:

- Coronary artery bypass surgery
- Current stable angina
- A heart valve repair or replacement
- A coronary angioplasty or coronary stent
- A heart or heart-lung transplant
- Stable chronic heart failure

Use ICD-10 diagnosis and procedure codes as well as CPT codes to identify which patients have these conditions. Review the eligible diagnosis codes [in Million Hearts Outpatient Cardiac Rehabilitation Use Surveillance Methodology \(hhs.gov\)](#)

Verify that these data are accessible in your EMR.

Verify the ability to identify WHEN a patient is eligible for CR.

- Know the date of diagnosis and/or procedure.
- Don't assume that it'll be easy to establish these dates. Sometimes this can be challenging and require extensive programming or even additional data entry.
- Raising this issue early with the IT department can help avoid surprises later.

Determine Patients to Exclude

Filtering out patients for whom CR is not appropriate is just as important as identifying eligible patients. Even if a patient is identified as eligible for CR, there may be good reasons

not to refer him or her. For example, a patient only receiving hospice or palliative care or one with advanced dementia should probably not be referred.

To address these issues:

- Set aside dedicated time to discuss exclusion criteria and get feedback from stakeholders.
- Compile a list of patient exclusions, comorbidities/conditions (dementia/cancer) that are contraindications to CR.
- Give clinicians the ability to opt out.
- Connect the opt-out feature to a comment box in which clinicians are encouraged to cite the reason he or she is electing not to refer specific patients. This will inform refinements to the exclusion criteria over time.

Specify Referring Physician

Identifying the referring physician is necessary to fully implement AR. However, determining which physician SHOULD make a referral for a patient can sometimes be confusing:

- Is it the patient's cardiologist, their surgeon, or possibly a hospitalist, supervising their care following an operation?
- It's quite possible the physicians involved are themselves unsure about this, which can result in a patient not being referred by anyone.
- To address this issue, engage in discussions with relevant groups of physicians about who should be making referrals and the specific circumstances that may impact this decision.

Include Referral Origination

- Referrals to CR arrive from many locations.
- Start with automating referrals from the inpatient/procedural environment.
- Identify the origin of the referral.
- Distinguish referrals associated with your newly implemented AR system from those coming from other sources. (This is crucial for tracking the effectiveness of the AR system.)

Include Referral Destination

To close the loop on the referral, it is important to understand the destination of the referral.

- Some organizations have a single CR program, others have several CR sites.
- To accommodate patient needs and concerns, there are some patients who need to be referred to programs outside the organization.

Discuss Coding Decisions

- Dedicate time to discuss coding combinations with the billing/coding representatives.
- Many EMR systems store diagnosis codes in multiple places. The visit diagnosis often indicates the ICD-10 code for a clinical encounter, while the problem list contains all the ICD-10 codes associated with a patient. Be sure the problem list is up to date.

- Walk all the necessary stakeholders through the EMR system to identify the best source for codes. Stakeholders may include:
 - IT representatives
 - Billing/coding representatives
 - CR representatives
 - Cardiac care clinicians
 - Data analysts
 - Quality/informatics specialists

Chapter 3: Creating EMR Specifications

Preparing to Design EMR specifications

Successful design and implementation of an AR system requires close collaboration with the IT department and those involved in creating/updating order sets for the EMR.

To begin:

- Sit down with your IT professionals and look at how your system currently identifies, or will identify, appropriate patients for CR. (This is especially important if IT professionals were not involved during the workflow mapping process [The workflow mapping process is described in [Getting Started.1](#)]) If you did not engage in this process, we recommend doing so at this time.
- Do not be surprised if they themselves – the IT staff -- learn that the EMR system does not function as they thought it did.

Different EMR systems have differing programming capabilities. Work with IT to understand:

- Does the current system have the means for AR?
- Does it need to be turned on?
- Do you need to acquire the ability?

Consider these keys to success:

- Involve ALL necessary people. Team members may include the improvement team, IT representatives, data analysts, quality improvement staff and informatics specialists.
- Make sure the team has a shared vision about what work needs to be done and how to accomplish it.
- Assign roles and responsibilities and set target dates for completion of assigned tasks.
- Review the referral process failures identified during your mapping exercise.
- Build a referral system that fits as seamlessly as possible within existing workflow processes
- Ensure that all eligible patients are referred, unless the clinical provider takes action to stop the referral from moving forward.
- Update your Action Plan first developed during your ground-laying phase (see [Getting Started Training Curriculum](#))

Suggested Variables

To design an AR system, you'll need to create several variables and/or EMR specifications:

- Patient eligibility
- Patient exclusions
- Referring physician/practice
- Location of origin for the referral
- Referral destination
- Date of referral
- Reason provider takes action to stop the referral (“opt-out”)
- Provider feedback

Creating EMR Specifications

The key specifications that must be programmed into the EMR are:

- Patient identification & opt-out
- Timing/location of the automated referral
- Referral options
- Feedback mechanisms

Establishing Patient Identification & Opt-Out

Your team will need to decide how easy or difficult to make the opt-out feature. Just clicking a box to opt the patient out is easy. Instead, you might want to consider:

- Requiring the provider to type in the reason for the opt-out.
- Asking IT to build a drop-down list of reasons into the EMR (you may wish to survey a sample of physicians who commonly opt-out to identify reasons for doing so).

Referrals from the Inpatient/Procedure Environments

- AR should be built into the discharge order set.
- Discharge is the time in the patient care cycle where patient conversations are routine. Making the referral at discharge increases the chances it will be discussed with the patient prior to the patient leaving the hospital or procedure suite.

Include Referral Options

The AR system should be designed to be able to send referrals to multiple programs.

- Patient convenience is a major factor in patient participation in CR.
- Be aware of CR programs locally, as well as in surrounding communities.
- Create a list that includes days and hours of operation and establish a way to regularly update this list.
- Remind the team that increasing referral to CR may require referrals to external programs.
- Use the skills of the CR Champion to help eliminate potential friction around external referrals.

Add a Feedback Mechanism

- Include a mechanism to collect and respond to continual feedback from users.
- Feedback can be used to suggest needs for system refinements.
- Responding to feedback makes frontline workers feel heard and part of system change.

Chapter 4: Testing & Fine Tuning

It is important to take time to test the system you've designed before "going live." We recommend three testing phases:



Defining Your Testing Process

Create a testing plan by answering the following questions:

- What is the purpose of each testing phase?
- Who will do the testing?
- How will the testing be performed?
- What is the timeframe for testing?
- How will you define testing success?

Once consensus is reached on the process, move on to bench testing.

Bench Testing

Bench testing will enable you to assess the accuracy, completeness, and quality of the newly programmed EMR in identifying eligible patients for CR. Bench testing is comprised of a set of activities designed for finding errors so that they can be corrected before the system is released to end-users. It is a check to see if the system is defect-free and is working to the specified functional requirements. Manually executing test cases without using automation tools can help you find bugs in the system.

Bench Testing Step 1: Select types of cases for testing

- Choose test cases which cover the entire field of patient eligibility for CR.
- Include cases which should and should not be referred.
- Include both straightforward and more complex scenarios, including those that involve issues or factors raised in earlier discussions with cardiologists and others involved with your program.

The overall goal is to locate and correct programming errors using hypothetical patients BEFORE you begin making (or not making) AR of actual patients.

Examples

Table 2 includes sample patient characteristics as well as an explanation for why such a scenario may be worth testing. You should include additional scenarios and perhaps adjust some of these scenarios to ensure that the programming reflects the criteria your program has agreed on or how the AR system should work.

Table 2: Sample Test Cases

Test Case Patient Characteristics	Rationale
Patients who meet one of the main eligibility criteria	Make sure the system flags patients that meet one of the 7 main criteria for eligibility for CR.
Patients who are under 18 years of age and who meet one or more of the main eligibility criteria (Table 1) for CR	While there are no set age criteria for CR eligibility, you may conclude that under or beyond some age limit, AR is not appropriate. You will need to decide whether any such patients should be referred or whether they should be flagged for follow-up with their cardiologist regarding whether a referral is appropriate.
A patient who went to CR following bypass surgery 15 months ago, and was recently hospitalized for a non-cardiac condition	You should verify that your EMR is correctly excluding patients who are current or recent past CR participants.
A patient with a heart attack that occurred 15 months ago, who was recently hospitalized for a non-cardiac condition	Because eligibility requires a heart attack in the past 12 months, you should verify that your EMR is correctly excluding patients with a heart attack more than 12 months ago.
Patients meeting one of the criteria for AR, but are identified as being in palliative care or experiencing advanced dementia	While such patients should be excluded, you should review with relevant clinicians the exact diagnosis codes or other data that will be used for such exclusions. For example, if you decide that your system cannot correctly identify patients with extreme dementia, then you may choose to not exclude any patients for this condition. However, you'll also need to explain this decision to cardiologists so they understand that they may periodically need to opt-out such patients based on their knowledge of their level of dementia.
Patients meeting one of the criteria for AR, but with a physical address a considerable distance away	The criteria for external referrals will need to be defined. Ideally, a list of external programs should be included in the referral process. You will need to check to make sure these patients are identified by the system.
Chronic heart failure patients with a major cardiovascular hospitalization or procedure 5 weeks ago	CR eligibility requires no major cardiovascular hospitalizations or procedures for at least 6 weeks. So, this patient would not yet meet the criteria for stable chronic heart failure. However, you should decide whether you want to begin the AR process for patients before they meet the six-week criteria so they can begin CR as soon as possible after they are eligible.
A patient hospitalized for internal injuries incurred in a car accident who had received PTCA 9 months ago	Your EMR should be able to distinguish between prior treatment episodes and the most recent hospitalization.

Bench Testing Step 2: Use the test cases

- Ask relevant stakeholders to review the test cases you've selected to ensure continuing consensus about which cases should and should not be referred and to build buy-in to the process of AR more broadly.
- Run the test cases through the AR logic to see what happens.
- Adjust the EMR specifications as needed to remedy any errors that surface.
- Start with basic, straightforward test patients and verify they work correctly.
- Meanwhile, continue to discuss inclusion of more detailed criteria.

Bench Testing Step 3: Use actual former patients' records

- Identify records of real patients, who were and were not eligible for referral over the last year.
- Run those patients through the AR logic to determine if the system identifies eligibility appropriately.

Pilot Testing

The purpose of pilot testing is to verify that the AR order set is performing as expected in a limited environment.

Select an appropriate hospital unit for testing use cases and some live patients.

- Choose a unit that has bought into the idea of an AR order set.
- Pick a unit with patients most likely to have the relevant ICD-10 codes and relevant providers, e.g., cardiologists or hospitalists, to get the volume of orders necessary to test the order set.
- Run a short pre-in-service about what to expect and a quick post-in-service with a short survey to collect feedback for making any updates to the AR order set and/or Go-Live process.

At the conclusion of pilot testing:

- Huddle with your implementation team to debrief about what did and did not work.
- Gather feedback from providers as well as from any members that "touch" the referral in the CR workflow process.
- Determine if any updates to the plan are needed and create a timeline for Go-Live.
- If there are problems, repeat pilot testing before moving to hospital implementation.

The extra time spent testing scenario cases with live patients and fixing the AR order set in the EMR can ensure a smoother and well-received Go-Live process and will likely save time in the long run.

Chapter 5: Preparing to Go-Live

The following key steps in preparing to Go-Live are discussed below:

- Communicating with colleagues
- Educating and training staff
- Sending reminders immediately before launch
- Planning for TA during launch

Strategies for Communicating with Colleagues

1. Create a one-pager describing the purpose, value, and use of AR to educate all involved staff and to ensure standardization of key messages (see Table 3).

- Include a discussion of what to expect when the AR system goes live and how patients will benefit
- Be concise in your description
- Use more graphics than text
- Use plain language
- Ensure all members of the team review the document for accuracy
- Enlist your hospital’s marketing and communication department to review, edit, and format the document.

Table 3: Template for Creating a One-Pager

Title of QI Initiative	Create an informative title so stakeholders will understand the project.
Goals of QI Initiative	Create 2-3 bullet points describing expected results; these may be drawn from your Aim Statement (as described in the Getting Started Curriculum).
Objectives of QI Initiative	Create 2-3 bullet points describing how progress toward objectives be measured quantitatively.
Employee Action	What will each staff type do? Create a bullet point for each staff type.
Training Modality	Describe available training.
Scheduled AR Order Set Go-Live Date	Include the date that the new practice is set be turned on in the EMR.
Key Contacts for this QI Initiative	Ensure that someone will always be available to answer questions or provide technical assistance and provide their contact information. This will prevent users from giving up in frustration!

2. Create an elevator speech directly from the one-page document.

- This is a one-minute speech colleagues can use when they run into relevant staff who will participate in the Go-Live launch of the AR order set.
- A template for developing a one-minute elevator speech is available at: <https://www.hsag.com/globalassets/hqic/hqic1minelevatorspeechtemplate.pdf>

3. Spread the Word!

- Email your one-page overview to all relevant departments and stakeholders.
- Request a slot at unit and department meetings to discuss the initiative in five minutes or less, allowing time for questions.
- Request permission to post the one-pager in staff breakrooms, etc.
- Ask all team members to memorize the elevator pitch to use when running into staff who need to be made aware of the project. “Hi Lisa, how are you doing? Did you know that we’re rolling out...?”

Staff Training Before Go-Live

Staff training and re-training will be essential for preparing all professionals who work in, or support, your CR program for the changes they will encounter.

In order to prepare relevant staff for their roles, you will need to know:

- **WHAT** roles staff will have to play
- **WHICH** staff will have roles to play
- **WHEN** tasks will need to be performed
- **HOW MUCH** work and time may be required

In planning training for staff who are impacted, consider:

- **WHO** needs to receive training
- **WHEN** you will provide the training
- **HOW** you will provide the training
- **WHAT** the training should contain

Likely Training Needs

- **WHO:** Staff responsible for tracking the overall success of the AR system in capturing and referring all eligible patients (probably someone in CR program leadership).
- **WHAT:** Training in how to obtain or generate aggregate reports on key metrics and how to use the information in these reports to track overall progress and success (see Chapter 6 below).
- **WHO:** Staff responsible for interacting with the clinicians and practices whose patients have been automatically referred to CR.
- **WHAT:** Training in how to discuss the AR process with clinicians who are unfamiliar with the process and how to respond to questions or objections.

- **HOW:** Provide these staff with a script to guide their conversations about AR, a set of frequently asked questions, a one-pager description of AR, and written guidance on what to do if the clinician has questions or concerns that the staff member is unable to answer.
- **WHO:** Other stakeholders are outside your CR program staff who may be affected by AR implementation, for example:
 - Clinicians caring for eligible patients
 - Practice managers or nurses
 - Social workers in the hospital
 - Care ambassadors
- **WHAT:** Explain the purpose and value of moving to AR and how the change may impact their roles.
- **HOW:** If the list of staff is small and you work closely with them already, you may be able to handle training informally with individualized conversation, or you can share the one pager you developed earlier.

Training Tips

- Ensure no member of the team will be on vacation during the training period, engaged with another project, etc.
- REVIEW workflows with staff affected by them.
- Be a good listener during training. You may get good ideas for further adjustments that can make your AR system work even more effectively.
- DOCUMENT your training activities and content. Staff turnover is inevitable, so you will inevitably need to train new staff to perform AR-related activities.
- Pay attention to TIMING. Adults benefit most from training they receive shortly before they need to begin using it. If you encounter delays during roll-out, you may need to do a short refresher training when rollout begins.
- Ensure easy access to training materials. Store training materials and information in a place where staff can find it easily. Ask staff to suggest a storage location.

Final Preparations for Launch Day

To ensure your AR launch goes smoothly:

- Send reminder emails hospital-wide twice: 1-week AND 24 hours before Go-Live.
- Line up staff to provide technical support on the day of – and days following –launch.
- Assign two onsite “elbow staff” per unit to assist with entering AR order sets. In this case, someone from IT and someone from the CR program would sit at the elbow of clinicians as they enter order sets.
- Ensure implementation team representation on all shifts.
- Assign coverage of a hotline telephone number for first 24-48 hours.
- Create and monitor an email box for questions and respond in a timely manner.
- Set up a group email for sharing key updates during the Go-Live.

- Set up a plan for regular communication and coordination among the individuals responsible for coordinating and overseeing the Go-Live --until AR is fully implemented. Consider:
 - Mid-day huddles, place holds on everyone's calendar ahead of time to prevent double-booking
 - Post signs to alert clinicians that the support group is off for brief (15-minute) huddle
 - A group email and/or text
- If allowable, buy snacks for Go-Live units, and plan to deliver meals to the launch team to avoid staff leaving their posts.
- Have team members come in earlier than their usual start time on Go-Live day to be ready for the start time.

An essential task in preparing for launch is putting in place a plan for using data to track your progress, and for gathering information about what is and is not working to support continuous improvement of your system over time. These activities are described in the following chapter.

Chapter 6: Data & Feedback Monitoring

Develop a Monitoring Plan

The three steps to developing your data and feedback monitoring plan include:

1. Determining availability and transparency of referral-related data
2. Determining who will review the data and how often
3. Developing a continuous feedback loop and work transformation plan.

Lessons learned from the testing phase and the Go-Live phase may flag areas of the CR process and AR order set that should be monitored to avoid break-down.

For instance, did a specific unit have a problem entering the AR order set during Go-Live? You may want to build in daily/weekly evaluations of that unit's data on AR order set completion with a feedback loop to ensure they don't fall behind and stop using it.

Step 1: Determine what data are available to you

Consider:

- What CR referral data might you already have within a clinical data registry?
 - See, for example, AACVPR's [Using Clinical Data Registries to Access Cardiac Rehabilitation Referral Data](#).
- What data will you collect to ensure you're tracking key processes for the full completion of the AR order set from the patient being ordered CR all the way through the patient arriving and completing the first CR appointment?
 - For suggestions, see [Using Cardiac Rehabilitation Referral Performance Measures in a Quality Improvement System](#).
- Can the EMR be programmed to readily provide the desired common data elements, or will you have to use manual chart review to extract your data to compile a measure?

Step 2: Determine who will review the data and how often

Once you've sourced your data and configured it into a measure to be extracted either by the EMR or hand-counted by staff completing manual chart reviews, you need to determine how often to get the data for this measure or measures and with whom to share them.

Shortly after Go-Live:

- Collect measures weekly or even daily to catch any major errors occurring in the process.
- As the process stabilizes, you can collect measures monthly or quarterly. If measure results show a breakdown in the process, revert to more frequent monitoring.
- Make a list of all relevant AR stakeholders to determine how, where, and when you'll share measure results.
- Determine who is responsible for building the report for measure results and which stakeholders need access.
- Create measure dashboards that allow for drill-down features to unit and provider level but ensure only senior level line chiefs have access at the provider level. Some

may want full transparency of all provider results, but that is dictated at the senior level leadership of each service line.

- Schedule time at monthly provider meetings to share provider results by unit to the chief medical officer and line chief. Deliver the relevant report and dashboard to them one week before the meeting, so they may plan for the discussion and intervention, allowing for the time to review and determine if improvement is needed or a congratulations for a job well done.
- Let the measure results guide you towards the areas to focus on for refinement.
- Monitor AR process for behavior changes and examine user-level data.
- Gather information from staff, identifying steps in process that show resistance to change, and providing helpful user-level feedback.
- Identify reasons for provider opt-outs/workarounds.
- Work with IT to make any necessary adjustments.

Step 3: Develop and operationalize your continuous feedback loop and work transformation plan

It is important to regularly check in with staff to: assess how well the AR order set and process are working; share successes; identify or acknowledge areas needing refinement; and describe steps being taken to correct and/or improve.

- Providers need to see their data on a regular basis to see the increase in CR referrals and that it's benefitting the patient.
- Sometimes data sharing among providers allows for a friendly competitive spirit to motivate hospital/health system change.
- Sometimes clinicians need a powerful patient story to motivate hospital/health system change. Build the case for AR with a story that emphasizes why AR is important.
- Some providers will need coaching from QI or IT staff on how to respond to AR and how to improve referral rates.
- Some providers may need a refresher course on the value of CR and its role in providing comprehensive cardiovascular care.
- Manage the process to move any paper AR referrals to automated EMR AR and keep communicating and assessing the process until the changes are completed.
- Give all stakeholders (leadership, clinicians, CR staff) the opportunity to reflect on the findings, explain/react to observed trends, and make future recommendations for system improvement based on evidence.
- Solicit periodic staff surveys about the AR process (i.e., what's working/not working).
- Solicit feedback at key provider meetings such as rounds, service line, etc.
- Operationalize the process to account for staff who leave and to onboard new staff.
- Adjust policies and procedures as needed to account for changes in processes.

See the change concept titled “Use Data to Drive Improvement in Referrals to CR” in the [Million Hearts®/AACVPR Cardiac Rehabilitation Change Package \(CRCP\)](#) for additional strategies and resources to support your efforts.

Chapter 7: Post-Launch Troubleshooting

Maintaining Momentum

It is likely to take months to fully implement AR. There will almost certainly be frustrations and setbacks after launch. Maintain momentum by setting interim data goals that permit the measurement of progress. Be sure to share that progress with others.

Progress measures could include:

- Generating a list of all patients in the EMR eligible for CR.
- Generating a list of all patients in the EMR eligible for CR, but who should not be referred due to contraindications the cardiologists have agreed on (e.g., in hospice, experienced advanced, severe dementia, etc.).
- Determining whether each eligible patient in the EMR can be linked to one or more physicians who could make a CR referral for them.
- Describing in a defined time period (e.g., the last quarter or six months) how many patients eligible for CR fit into each of the seven eligibility categories noted above in step two.
- Categorizing eligible CR patients based on age, race, and ethnicity.

Setting goals for achieving these or other data milestones can help demonstrate tangible progress towards AR implementation.

Troubleshooting

Even with diligent planning and preparation, problems are likely to arise. **Table 4** describes strategies for mitigating some common problems you might face.

Table 4: Potential Problems and Mitigation Strategies

Problems	Mitigation Strategies
<p>My automatic referral isn't working like I thought it would</p>	<ul style="list-style-type: none"> • Be sure you have accurately captured your workflow processes during the mapping exercise. • Confirm that the order set has been correctly programmed. • Check for: <ul style="list-style-type: none"> ○ Accuracy of ICD-10 and CPT codes ○ Overly frequent pop-ups that are causing pop-up fatigue. These may be caused by BPA, or best practice advisory, that is triggered when certain ICD-10 codes are entered ○ Ability of providers to work around, skip, or opt-out of default order sets or discharge smart sets ○ Reflex or cascading orders that are suggested by the EMR based on other comparable medical orders (e.g., an EKG was ordered triggering a suggestion of CR) • Work with IT to determine the best way to correct problems.
<p>Uncertainty regarding whether referrals are increasing or decreasing</p>	<ul style="list-style-type: none"> • Develop and use a data monitoring and feedback plan (see chapter 6). It will be important to get baseline numbers and referral reports before you implement a new AR order set. • Increase the frequency with which you check the data and share it with stakeholders. • Create AR order set reminders (e.g., newsletters, discussion at rounds, at-the-elbow reminder cards, etc.).
<p>My automatic referral is working, but my referral numbers are not increasing.</p>	<ul style="list-style-type: none"> • Go back to your baseline workflow analysis. Check that your new AR build aligns with how providers use the system. • Rethink your design, working with your EMR team to explore alternatives. • Ask IT staff about alternative technologies.
<p>Providers seemed to have developed a work-around/opt-outs and we're not getting referrals.</p>	<ul style="list-style-type: none"> • Be sure your AR order set matches the provider workflow. • Communicate with providers! Clarify your desired goal and probe for obstacles they are facing in the AR process. Discuss CR with providers, emphasizing its benefits for those who are skeptical.
<p>The wrong patients are getting referred.</p>	<ul style="list-style-type: none"> • Check the ICD-10 and CPT codes used to build the order set. <ul style="list-style-type: none"> ○ Check diagnosis and procedure to determine if what was programmed into the order set is what was intended ○ Ensure the codes are fully specified ○ Determine the accuracy of exclusions ○ Check with providers for agreement on codes • If using a default or alert order set, check that it is showing up for the provider. <ul style="list-style-type: none"> ○ Determine whether providers are ignoring the order. If so, use a survey to determine why.
<p>Everything seems to be working but goes badly when the patient refuses.</p>	<ul style="list-style-type: none"> • Make sure the provider is writing timely CR orders so that the patient can receive education about CR before discharge. • Consider an EMR alert that is sent to a provider when an eligible patient refuses CR for any reason.