Closing the Loop

A Guide to Safer Ambulatory Referrals in the EHR Era
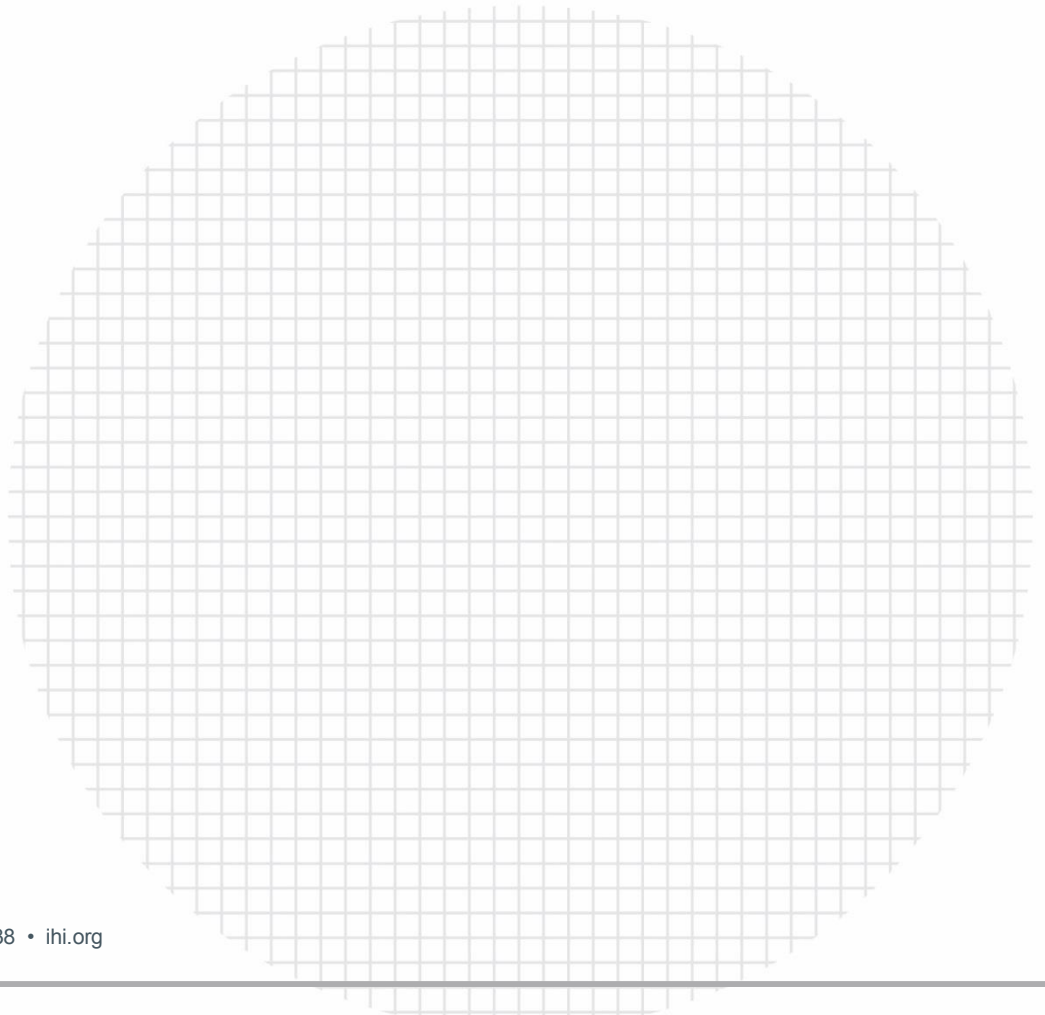
Report of an Expert Panel Convened by CRICO and the

Institute for Healthcare Improvement / National Patient Safety Foundation

Contents

Executive Summary

Missed or delayed diagnosis with subsequent treatment delay is a significant patient safety issue, particularly in the ambulatory setting. Breakdowns in the referral process can lead to delays in diagnosis and treatment. More than 100 million specialist referrals are requested in the US each year in the ambulatory setting, yet only half of these are completed. Among those that are incomplete, there are multiple process errors, including missing information and communication failure. Of malpractice claims related to missed or delayed diagnosis in the ambulatory setting, almost half involve failure to follow up, many of which involve problems with specialist referrals.

Both specialists and primary care practitioners (PCPs) are dissatisfied with the referral process, citing lack of timeliness among other issues. While electronic health records (EHRs) hold potential to address problems in the current referral process, they might also add concerns such as new types of communication breakdowns, lack of interoperability, and documentation burden.

The goal of this report is to provide both technological and process-oriented recommendations to optimize the reliability of referrals in real-world clinical practice. A closed-loop referral process is one in which all patient data and information that require action are communicated to the right individuals at the right time through the right mode of communication to allow for review, action, acknowledgment, and documentation. To help achieve a closed-loop referral process, CRICO and the Institute for Healthcare Improvement / National Patient Safety Foundation convened an expert panel to develop recommendations. The panel identified nine key steps that need to be considered to develop a closed-loop referral process, as illustrated in Figure 1.

Figure 1. The Nine Steps of the Closed-Loop EHR Referral Process
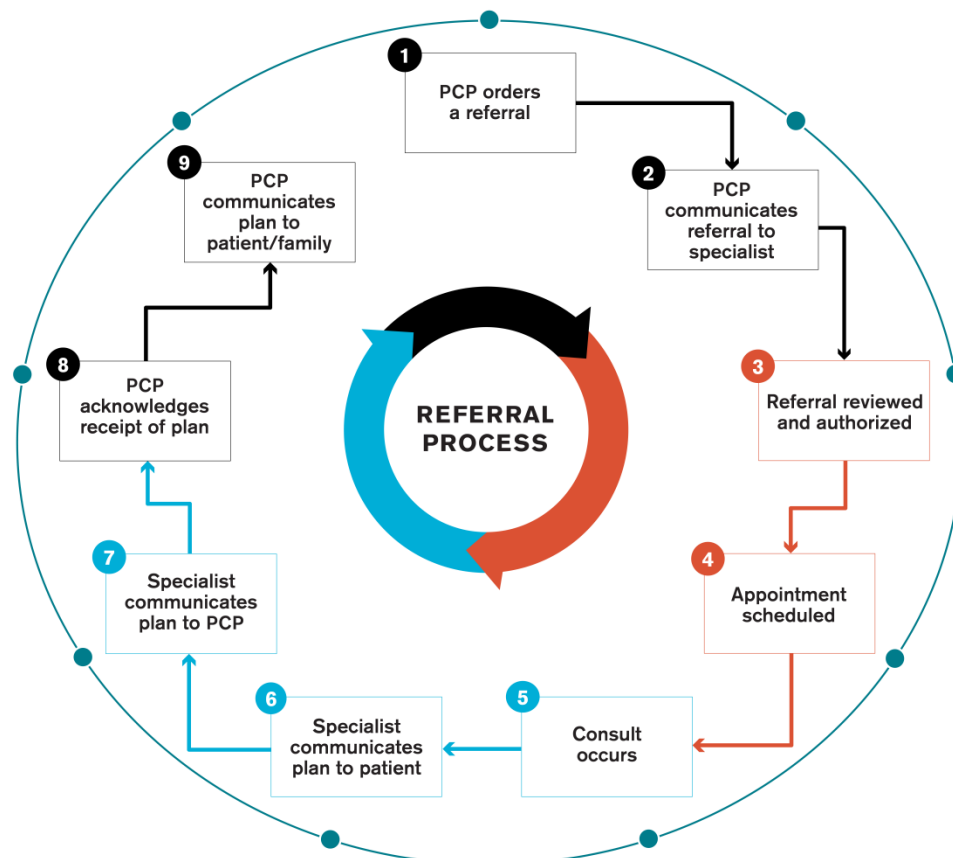
The panel reached consensus on several general recommendations that span across more than one step in order to form the foundation of a closed-loop referral process. These recommendations include:

- Ensure interoperability between systems of referring PCP and specialists.

- Conduct a proactive risk assessment of electronic communication related to the referral process using SAFER guides.[1]

- Create and use collaborative care agreements to delineate expectations for PCPs and specialists, including roles in co-management and communicating with patients and families; agreements should also include expectations regarding scheduling, etiquette, and timeliness of communication.

- Improve and standardize handoffs during the referral process, similar to recent advances in handoffs at transitions of care.

- Use a process map to delineate current workflow and address workflow-related problems before implementing an electronic referral process.

- Develop processes to ensure clear accountability of patient follow-up (i.e., ownership and coordination at each step).

- Develop a user-friendly, reliable method to track referral status at the patient level until it is closed and to ensure routing to correct specialist.

- Apply evidence-based communication techniques when communicating with patients and families.

- Monitor progress in improving the EHR referral process.

The expert panel also developed additional recommendations specific to each of the nine steps of the closed-loop referral process.

Each recommendation is supported with strategies and tools for implementation. Acknowledging that all stakeholders — organizational leaders, EHR vendors, clinicians, support staff, and patients and families — play roles in building and maintaining a closed-loop referral process, the panel identified the primary stakeholder(s) accountable for each suggested tool or strategy. Nevertheless, the responsibility of ensuring closed-loop electronic referrals is likely to be shared among many stakeholders.

Bridging the gaps in the referral process is only possible with the concerted, coordinated efforts of all stakeholders, with all constituents accepting accountability for their respective roles. Given the prevalence and significant impact of safety gaps in the current referral process, patients and their families deserve our immediate and high-priority attention to creating sustainable, efficient, and reliable systems for management of electronic referrals in the ambulatory setting.

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[1] Available at no charge from the Office of the National Coordinator for Health Information Technology at https://www.healthit.gov/safer/safer-guides

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The EHR Referral Safety Imperative

Twelve million adults experience a diagnostic error in the ambulatory setting in the US every year (Singh et al. 2014). Such errors harm patients in a variety of ways, including missed diagnoses, which can lead to delayed, unnecessary, or harmful treatment, and negative emotional or financial consequences (National Academies 2015). Reliable, accurate, patient-centered referral processes are needed to ensure correct and timely diagnosis and treatment.

About 24 percent of filed medical malpractice claims (CRICO 2014) relate to a missed or delayed diagnosis. For claims stemming from the ambulatory setting, almost half involve failure to follow up, and those often involve specialist referrals (CRICO 2014). A 2013 study documented that breakdowns in referral processes occurred in about 20 percent of diagnostic errors in primary care (Singh et al. 2013). Bidirectional communication breakdowns occur in about 7 percent of referrals despite the use of a comprehensive electronic health record (EHR) (Singh et al. 2011).

Analysis of medical malpractice claims data reveals breakdowns in the referral process. Between 2006 and 2015, CRICO identified 46 claims among its Harvard-affiliated member organizations related to referral issues, with an incurred cost of $11 million (CRICO 2017). Claims related to referral issues tended to have high severity of harm (83 percent). The majority of cases (80 percent) were related to care in family medicine and internal medicine specialty practices.

The specialist referral process is complex, involving a series of steps from the placement of the referral order to completion of the evaluation and communication back to the referring clinician and the patient. Any misstep in the series can result in diagnosis or treatment delays, or "failure of a planned action to be completed as intended," which has been defined as a medical error (Institute of Medicine 1999).

This complex process is further encumbered by the sheer volume of referrals. Between 1999 and 2009, the number of specialist referrals in the ambulatory setting more than doubled from 40.6 million to 105 million (Barnett et al. 2012). The complexity of the process and the high number of referrals overall — and the fact that patients are often referred to several different specialists — have made accurate tracking and monitoring of completion a time-consuming challenge for both support and clinical staff. In one study, only half of specialist referrals were completed (Weiner et al. 2010). Among the incomplete referrals, researchers found multiple process errors, including missing information, misdirected referrals, and faulty communications. In another, almost 70 percent of specialists received no information from the referring care provider prior to seeing the patient, and 25 percent of primary care practitioners (PCPs)[2] failed to receive information back from the specialists within four weeks of the evaluation (Gandhi et al. 2000).

A serious challenge in executing an optimal referral process is the need for clinicians and staff to engage with a variety of information systems (e.g., scheduling, billing, insurance authorization) and communicate with patients using a variety of methods to complete a referral successfully. If these systems are not integrated, then tracking a referral from order to completion is extremely difficult. Both PCPs and specialists are dissatisfied with the referral process, citing lack of timeliness of information and inadequate referral letter content as key sources of dissatisfaction (O'Malley and Reschovsky 2011; Gandhi et al. 2000).

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[2] In this report, we have used the term primary care practitioner to include physicians, advanced practice nurses, and physician assistants. However, we believe the principles and recommendations apply to any individual who initiates, requests, or orders a referral to another care practitioner.

EHRs hold the potential to improve communication related to referrals and to address the concerns that clinicians voice about the current referral process (Gandhi et al. 2008). Several studies have shown benefits of EHRs to improve referral communication and reduce inappropriate referrals (Kim-Hwang 2010; Gandhi et al. 2008). However, EHRs can also add to the complexity of problems related to referrals, some of which existed before the advent of EHRs, such as lack of interoperability, or ineffective communication between EHRs in different systems.

In addition, communication breakdowns in the referral process can persist despite EHRs (Giardina et al. 2013; Singh et al. 2011; Deckard et al. 2010; Sittig and Singh 2010), and EHRs may generate large quantities of newly communicated information that could lead to "noise" for providers that prevents them from easily identifying key information (Singh et al. 2013).

Moreover, although technical specifications for electronic transmission of referrals are currently being developed (ONC 2017), no national evidence-based guidelines exist to inform the implementation, use, and monitoring of electronic referral systems. Ensuring a high-quality EHR-based referral process will require appropriate workflow design, integration between health information technology (IT) systems, and effective implementation.

Given the substantial increase in clinician burnout in recent years, any workflow or technology change must strive to alleviate the documentation burden on health care professionals, which has been shown to be a significant driver of burnout (Shanafelt et al. 2017). In addition, design and implementation of a streamlined, reliable EHR referral process may decrease clinicians' worry about patients falling through the cracks during the referral process, an additional source of stress for many clinicians.

The Business Case for Improving Clinical Referrals Managed in Electronic Systems

The potential risk to patient safety is strong motivation to seek improvements to the systems that are used to manage referrals. Health care leaders currently face multiple high-priority concerns — production pressures, declining reimbursement, orchestrating the shift to value-based payment models, maintaining market share and reputation, controlling costs to remain fiscally viable — all while trying to improve the patient experience, care quality, and patient safety. Addressing breakdowns in the EHR referral process is a worthy goal with a compelling business case for doing so.

At the service line level, making the referral process more efficient and reducing inappropriate referrals may free up specialty resources and help alleviate capacity issues that can hamper patient access to timely care. This would improve patient experience. Increasing reliability and reducing the administrative burden associated with referrals can improve care coordination as well as PCP and specialist satisfaction. Further, improving the quality, completeness, and appropriateness of referral requests can reduce current inefficiencies and time burden for both the PCP and specialists, including "cognitive offloading" to help re-engage clinicians. It also represents an opportunity to forge new expectations about the way that PCPs and specialists work in close collaboration and to address several administrative drivers of clinician burnout and turnover (Noseworthy et al. 2017).

Most of the recommendations that follow are feasible with the technology available today. For the most part, leadership engagement and governance around creating change are essential, and neither requires costly capital investment. Any investments that are required may be offset by

subsequent financial gains: savings due to fewer malpractice claims and increased productivity from streamlined high-quality referral processes.

In June 2017, CRICO and IHI/NPSF convened an expert panel to achieve three goals:

- Identify the factors related to EHR design, implementation, and use that need to be considered and/or optimized to enable closed-loop referral management.

- Develop consensus on best practices for closed-loop referral management in EHR systems using a socio-technical approach.

- Outline next steps for achieving meaningful changes in EHR design, implementation, and use in order to improve referral management.

Panel members represented a wide variety of stakeholders in the EHR referral process, including PCPs, specialists, nurses, EHR vendors, organizational leaders, and representatives from several professional societies. They were asked to focus their attention on referrals initiated by PCPs for specialist consultations in ambulatory settings.

A Critical Assessment of the Points of Failure in Referrals Managed in the EHR

A closed-loop strategy includes "all mechanisms which ensure that all patient data and information that may require an action are delivered and communicated to the right individuals at the right time through the right mode to allow interpretation, critical review, reconciliation, initiation of action, acknowledgment, and appropriate documentation" (personal communication, Lorraine Possanza, program director, ECRI and the Partnership for Health IT Patient Safety, July 28, 2017).

Ensuring such functionality for specialist referrals involves identifying all necessary steps in the process, assigning accountability for each step, and confirming that the consultation occurred and that both the referring clinician and the patient were informed about the outcome of the specialist visit and the subsequent care plan. Data suggest that, in many cases, the EHR referral process does not function effectively as a closed-loop system.

Vulnerabilities in the Referral Process

The typical path for a specialist referral is illustrated in Figure 2 (Hysong 2011).

Figure 2. Movement of Responsibility of Patient Care During the Referral Process
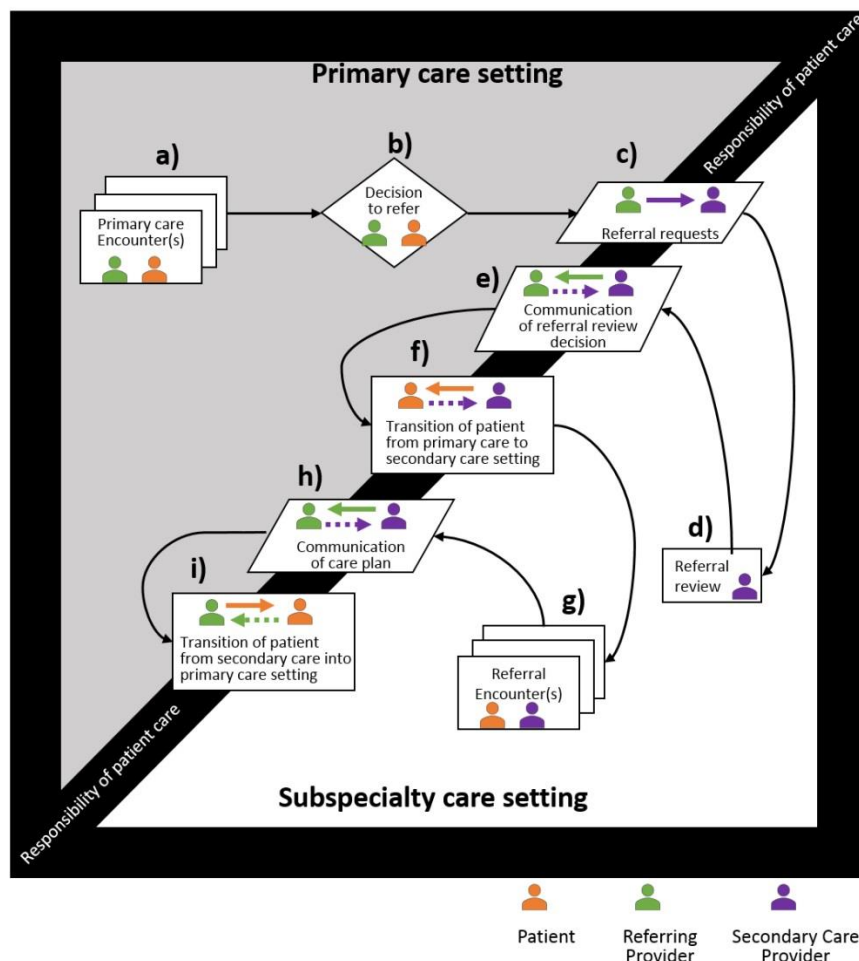
Responsibility moves back and forth between the realms of primary care and specialist, involving a handoff of information and responsibility for care. Each step is at risk for breakdown. For example, ambiguous responsibility regarding various aspects of patient care can cause significant issues in scheduling and in communicating with the patient.

At each handoff, a variety of breakdowns can occur. A focus group study of PCPs and specialists found four areas of breakdowns in referral handoffs (Hysong et al. 2011):

- Lack of clear policies and detailed instructions (e.g., how to address no-shows)

- Lack of standard protocols for electronic referrals (e.g., how to handle information-only referrals)

- Ambiguous roles and responsibilities for the PCP, the specialist, and their staff (e.g., who should gather specific information for patient assessment)

- Insufficient resources (e.g., staff to monitor referral process)

The most common contributing factors leading to referral-related malpractice claims were in the area of clinical systems, including failure to identify the provider coordinating care (see Figure 3).

Figure 3. Factors Contributing to Referral-Related Malpractice Claims
(CRICO 2017)

FACTOR	% CASES
Clinical Systems	100%
Clinical Judgment	87%
Communication	65%
Behavior-related	48%
Documentation	28%

TOP CLINICAL SYSTEMS FACTORS	% CASES
failure to identify provider coordinating care	70%
lack of/failure in patient follow-up system	52%
failure/delay reporting findings/revised findings	26%
fail/delay sched/perf recom test/consult/referral	15%

TOP CLINICAL JUDGMENT FACTORS	% CASES
patient assessment issues	67%
failure/delay in obtaining consult/referral	46%
selection and management of therapy	22%

TOP COMMUNICATION FACTORS	% CASES
communication among providers	43%
communication btw patient/family and providers	43%
telephone/email/fax-related	7%

Identifying Gaps in the Closed-Loop Referral Process

The expert panel approached the EHR referral process through two foundational considerations: use of a failure mode and effects analysis (FMEA) to analyze breakdowns, and use of a socio-technical model to contextualize the safety of referral processes within an EHR-enabled health care environment.

FMEA can be used to ensure the integrity of a closed-loop process by identifying the steps in the process; calling out potential sources of error; estimating the frequency, potential severity, and the detectability of each failure; and listing potential solutions. A steering committee for the expert panel conducted an FMEA.

The expert panel then examined the FMEA to identify any additional sources of error and list potential action steps to prevent those errors (see Figure 1 and appendix A).

Note that panel members were asked to focus on referrals initiated by PCPs in the ambulatory setting for specialist consultations starting from the point at which the referring clinician had already made the decision to refer.

Figure 1. The Nine Steps of the Closed-Loop EHR Referral Process (repeated for reference)
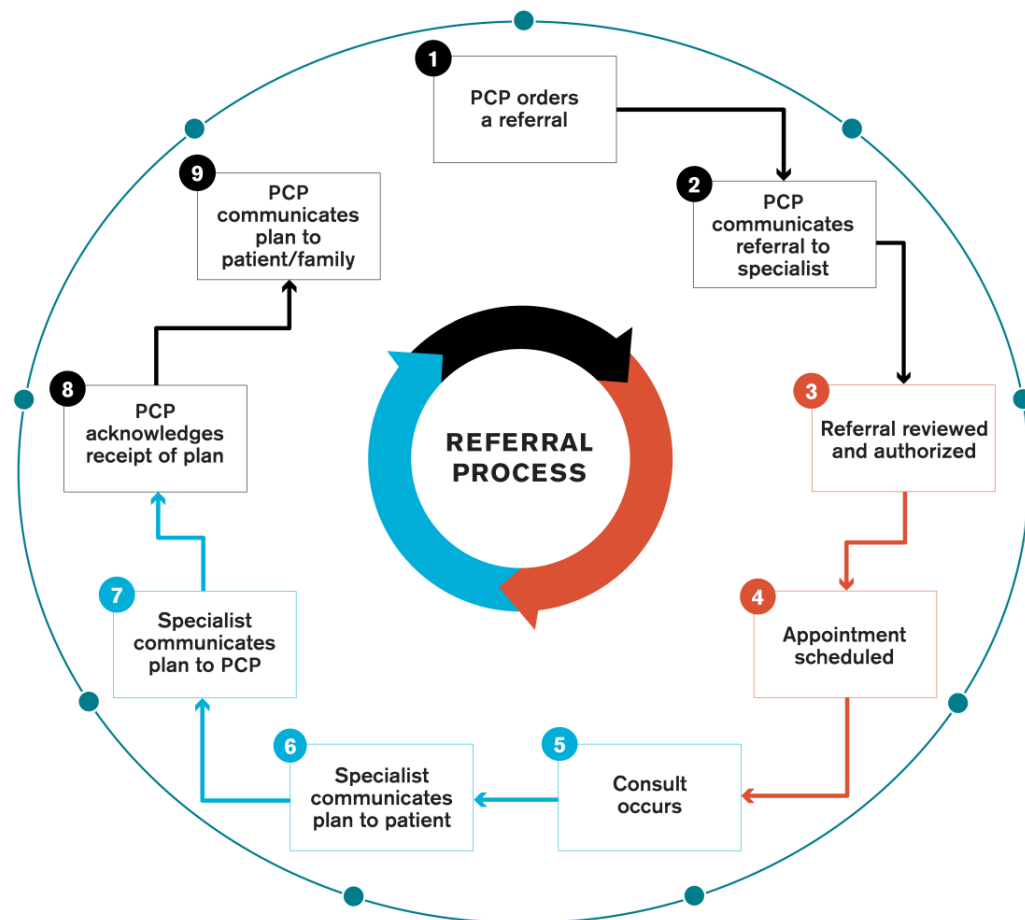
The socio-technical model accounts for the complexity of information technology implementation and use in health care settings (Sittig and Singh 2010). Successful implementation requires that the technology is easy to use and enables clinical work and that it fits well within the social system in which it is utilized (see Figure 4).

Figure 4. Eight-Dimension Socio-Technical Model Used to Inform Recommendations (Sittig and Singh 2010)

The socio-technical model takes into account interrelated factors from both the social aspects of use (e.g., personnel and workflow) and the technical (e.g., hardware, software, and the user interface) that affect the success of technology interventions in health care. It also allows for identification of unintended negative consequences that may impact patient safety, clinician workload or satisfaction, and other important aspects of care and care delivery. The model has been used successfully to assess the implementation of an EHR referral system in a large academic medical center (Barnett et al. 2016).

The use of FMEA to identify sources of error and potential solutions and the socio-technical model to assess the implementation of EHR-based referrals provided the expert panel with a rigorous foundation to identify gaps and develop a list of suggestions for improving patient safety around EHR-based referrals. Their recommendations, grouped according to the step addressed (after the decision to order a referral has been made), are described in the next section.

Principles and Recommendations

Recognizing that referrals managed via an EHR are bound to have significant variations in clinical sites across the country, the expert panel outlined a set of high-level principles as well as generalizable practical recommendations. These principles and recommendations aim to standardize certain aspects of the referral process where excessive variation would be detrimental, while at the same time allow local flexibility to achieve the needed changes.

Principles to Close Patient Safety Gaps in Management of Electronic Referrals

The panel recommends seven overarching principles that apply to all stakeholders, including providers and practices, the care team, EHR vendors, leaders of health care systems, and, as appropriate, patients and families. These principles informed the development of the general and specific recommendations.

1) Design the referral process with the patient and family at the center.

2) Create and communicate expectations, accountability, and responsibility for achieving a closed-loop referral process.

3) Implement consistent and coherent workflows that achieve the aims of each step in the closed-loop referral process while minimizing unnecessary variations of care.

4) Minimize administrative burden.

5) Employ user-centered design principles when creating or modifying EHRs for referrals.

6) Ensure seamless information flow within and across health care delivery systems and practices by addressing issues that hinder interoperability.

7) Measure the effectiveness and safety of the referral process.

The rationale for these principles is as follows.

1) **Design the referral process with the patient and family at the center.** The referral process must be created to optimize care from the perspective of the patient and his or her family. A collaborative shared decision-making process should be embedded in the referral workflow throughout the patient care experience.

2) **Create and communicate expectations, accountability, and responsibility for achieving a closed-loop referral process.** Ambiguous responsibility is a major barrier. Thus, expectations, roles, and accountability related to the referral process must be communicated and agreed upon by referring clinicians, recipient specialists, and associated practice staff. These expectations must be explicitly delineated in transparent policies and procedures. Essential components of this principle include:

   o **Define key terms involved in the referral process.** Unless all stakeholders are using consistent definitions of terms, there may be misunderstandings and miscommunications that can lead to delays or unresolved referrals. For example, these definitions might include the urgency level of the referral (e.g., in clinical severity or

number of days) and the status of the referral (e.g., closed, open, completed, unresolved, or discontinued).

- o **Clarify expected wait times for referrals.** Communicating and agreeing upon standard expected wait times for referrals will help all stakeholders identify unresolved referrals that need prompt attention.

- o **Articulate a back-up plan in which those in each role understand what to do when the referral process fails.** To prevent delays in closing the referral loop, each practice or health care organization needs a plan for identifying and addressing unresolved referrals.

3) **Implement consistent and coherent workflows that achieve the aims of each step in the closed-loop referral process while minimizing unnecessary variations of care.** Variability within a clinical setting and across settings creates opportunities for gaps and miscommunication. Consistency in the processes that support efficient referrals will minimize the risk of errors.

4) **Minimize administrative burden.** Clinician burnout, in part due to excessive administrative duties, imperils both clinicians and patients. Ensuring a burden-neutral or burden-reducing process for referrals is essential.

5) **Employ user-centered design principles when creating or modifying EHRs for referrals.** To minimize the chance for errors and time spent on administrative rather than clinical work, the design of health IT systems must be guided first and foremost by users' needs and preferences. The design must be shaped by substantial and continuing input from frontline users.

6) **Ensure seamless information flow within and across health care delivery systems and practices by addressing issues that hinder interoperability.** Clinicians and support staff need EHR functionality that will allow for the streamlined flow of information across clinical entities. Lack of interoperability is a significant barrier to an efficient, safe referral system.

7) **Measure the effectiveness and safety of the referral process.** To ensure improvement in the referral process, key measures should be monitored and tracked. These metrics may include receipt of adequate pre-visit information, missed appointments, patient satisfaction, clinician satisfaction, and time to completion of the steps in the referral process, as well as overall time to referral completion, and others.

Recommendations and Action Steps for Each Component of the Referral Process

The panel developed recommendations and action steps after gaining a deep understanding of the current barriers to the ideal state and the many limitations that hinder an ideal closed-loop EHR referral process.

General Barriers to a Closed-Loop EHR Referral Process

The expert panel identified both general barriers that affect several different aspects of the referral process and barriers that are specific to each step of the process. General barriers are listed below. Barriers specific to each step are outlined in the sections on each step that follow.

- Patient-centeredness
    - Complexities of care delivery system largely unfamiliar to patients
    - Lack of patient engagement
    - Lack of preparation for the clinical encounter on the part of the patient
    - Loss of patient control in the referral process
    - Failure to identify patient goals
- Staff and clinician workload and workflow
    - Burden of workload for staff and clinicians
    - Insufficient time for clinicians to communicate adequately about consults
    - Lack of adaptability of clinicians to EHR
- Accessibility and relevance of information
    - Needed information is not easily accessible
    - High volume of information in EHR without effective prioritization
    - Varying information requirements for referral
- Communication and coordination between clinicians
    - Lack of effective system for ensuring optimal referral process during turnover or cross-coverage of clinicians
    - Lack of real time communication between referrer and specialist
    - Lack of clarity among clinicians regarding their role in communication with patients
    - Lack of coordination among multiple specialists
    - Ambiguity about which clinician is responsible for follow-through on the care plan
    - Lack of interoperability

General Recommendations

The expert panel developed several general recommendations that span various steps in the process. These general recommendations, which are listed in the table along with the primary stakeholders responsible for action, are essential to the overall success of the EHR referral process.

General Recommendations for Creating a Closed-Loop Referral Process

Recommendation	Primary Stakeholder Accountable for Action	Comments/References
Ensure interoperability between systems of referring PCPs and specialists.	Organizational leaders EHR vendors	Sittig and Wright 2015.
Conduct a proactive risk assessment of electronic communication related to the referral process using SAFER guides.	Organizational leaders	Sittig and Singh 2017. ONC 2017.
Create and use collaborative care agreements to delineate expectations for PCPs and specialists, including roles in co-management and communicating with patients and families; agreements should also include expectations regarding scheduling, etiquette, and timeliness of communication.	Clinicians	Clearly delineate whether the specific condition will be managed by the PCP, the specialist, or both. Barnett et al. 2016. Hysong et al 2011. For sample care agreement, see appendix of toolkit, PCPI and Wright Center 2015. Listed as potentially useful practice in ONC 2016: "Organizational policies and procedures facilitate the creation of collaborative care agreements that define both primary care (or referring) practitioner and specialist expectations and accountability about referral content, required information and shared care."
Improve and standardize handoff during the referral process, similar to recent advances in handoffs at transitions of care.	Organizational leaders Clinicians EHR vendors	Listed as potentially useful practice in ONC 2016: "Policies and procedures are in place to prevent messages from getting lost in the system, such as messages sent to clinicians no longer employed by the organization." Starmer et al. 2012.
Use a process map to delineate current workflow and address workflow-related problems before implementing an electronic referral process.	Organizational leaders Clinicians	Barnett et al. 2016.
Develop processes to ensure clear accountability of patient follow-up (i.e., ownership and coordination at each step).	Organizational leaders Clinicians	Ensure that patients and families are not left solely responsible for follow-up and coordination. Esquivel et al. 2012.
Develop a user-friendly, reliable method to track referral status at the patient level until it is closed and to ensure routing to correct specialist.	EHR vendors	Ensure system includes "smart tracking," an escalation protocol for high-risk referrals, and a flagging system for open referrals.

Recommendation	Primary Stakeholder Accountable for Action	Comments/References
Apply evidence-based communication techniques when communicating with patients and families.	Organizational leaders Clinical staff Patients and families	Use techniques such as active listening,* Teach Back method, checklists, OpenNotes, and certified, standardized decision and education aids** to help patients.
	Organizational leaders Clinicians	Engage clinical care team members to clarify and reinforce aspects of care plan at the appropriate health literacy level for the patient and family.
Monitor progress in improving the EHR referral process.	Organizational leaders EHR vendors	Measure and track patient satisfaction with the referral process. For sample survey tool, see appendix of toolkit, PCPI and Wright Center 2015.

* http://www.massmed.org/Continuing-Education-and-Events/Online-CME/Courses/Legal-Advisor-Active-Listening/Legal-Advisor--Active-Listening-as-a-Tool-for-Improved-Doctor--Patient-Communication/

** https://www.ahrq.gov/professionals/education/curriculum-tools/shareddecisionmaking/tools/tool-6/index.html

Specific Recommendations

Additionally, the panel drafted specific recommendations for each step of the referral process. These steps are illustrated as a circle in Figure 1. These step-specific recommendations should be implemented in conjunction with the general recommendations to create a comprehensive approach for designing and executing a closed-loop referral process.

Figure 1. The Nine Steps of the Closed-Loop EHR Referral Process (repeated for reference)
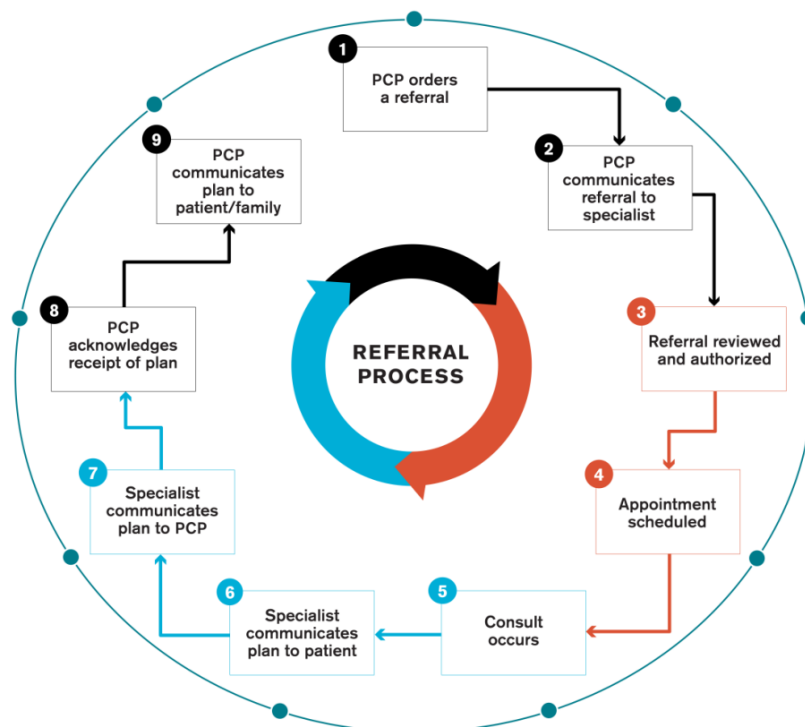
Step 1: PCP orders a referral

Considerations: In a closed-loop referral process, ordering a specialist referral is reliable, efficient, and accurate. During placement of the order, the patient is matched to the right specialist or specialty practice in a timely manner while minimizing burden on the PCP and care teams. A number of potential failures in the current process exist: The intended order may not be created or acted upon; it may be entered without the information required to be completed; the wrong specialist may be selected or the urgency level and priority status may not be indicated on the referral request.

Existing barriers to a closed-loop process include:

- Lack of an effective catalogue to identify appropriate specialist (individual/service/mixed)

- Time required to create referral request

- Poor usability of referral system leading to an inefficient flow of referral request tasks with other tasks in the workflow

- Lack of awareness about the information that the specific specialist needs prior to the evaluation, including clinical and insurance information

- Referral request is sent to the wrong group or specialty

- Poor coordination when there is a lack of interoperability between the EHRs used by the specialist and the referring PCP

- Patient's insurance does not cover services for the requested specialist (especially challenging when this is not known at the time of the request)

- Concern that automation of referral process might decrease patient awareness of the referral and the steps he or she needs to take to complete the process (e.g., schedule the appointment)

Recommendations for Step 1

Recommendation 1.1: Ensure that order entry processes fit into real-time workflow

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Streamline user interface for referral management by clinicians and support staff.	Organizational leaders EHR vendors	Listed as potentially useful practice in ONC 2016: "Referral template user interfaces should be designed to minimize cognitive load on the provider making the referral." According to the socio-technical model, the human-computer interface includes "aspects of the system that users can see, touch, or hear." Development of the user interface should be iterative and take into account clinical workflow (Sittig and Singh 2010). Some electronic referral systems require only one click to complete a general departmental referral (Barnett et al. 2016). For more information, see ONC 2017.

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Enable auto-population feature to import clinical data needed for referral.	EHR vendors IT support staff	Listed as potentially useful practice in ONC 2016: "The EHR enables automatic prepopulation of fields in the referral template when possible (e.g., referring clinician, patient name and demographic data, insurance information, current medication list, recent relevant laboratory and radiology test results)."
Review current policies regarding which team members can enter data in the EHR and respond to EHR notifications; if overly conservative based on current federal and local regulations, revise policies (and related EHR functionality) to allow tasks to be shared.	Organizational leaders EHR vendors Regulators	Note that EHR functionality may be developed to accommodate the most conservative state regulations in the country, and thus overly restrictive for many organizations. Advocate for team members to work at the top of the license regarding data entry. Consider changes in the context of existing policies and initiatives on teamwork. Ensure clarity of roles, responsibilities, and expectations of each team member regarding data entry.
Enable specialty look up in directory with an optimized search engine (catalogue automation).	Organizational leaders Clinicians Support staff	Develop standard terminology and listing format for specialists that includes clinical interest areas. Listed as potentially useful practice in ONC 2016: "The organization has a process for maintaining current contact information for the EHR provider directory," and "The organization should maintain up-to-date patient care team information within the EHR."
Facilitate accurate routing of referrals and allow for clinicians to have channels for both asynchronous (i.e., messages) and synchronous (i.e., verbal) information exchange.	Organizational leaders IT specialists	Build flexibility for both electronic messaging systems and face-to-face communication in addition to presence of electronic referrals. Consistent with ONC 2016: "The EHR facilitates accurate routing of clinician-to-clinician messages and enables forwarding of messages to other clinicians."

Recommendation 1.2: Ensure referral information is complete and order is completed in a timely manner

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Require that the reason for referral be documented. To simplify this entry, systems can provide the ability to select from a specialty-specific list of common reasons for referral. In addition, systems should allow the referring clinician to document specific questions that the specialist should address.	Clinicians EHR vendors	For a sample list of information to be included and a sample of outgoing referral EHR screen, see appendix of toolkit, PCPI and Wright Center 2015.

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Ensure that EHR includes easily identified fields for relevant patient-specific information, such as name and contact information of caregiver or health care proxy, relevant communication barriers, and insurance information.	EHR vendors	These features may also be included by client institutions when referral templates are configured locally in the EHR. This would require the involvement of organizational leaders to mandate such configuration as an institution-wide standard for each receiving specialty department, and it would typically require local configuration and build by IT specialists.
Highlight or place alert on referral orders that are not completed within the referring practice in a timely manner (and therefore not sent to the specialist).	EHR vendors	Configuration of the referral orders at the local level may be necessary.
To minimize variation in ordering of referrals, encourage standardization where possible (e.g., templates for referral requests).	Organizational leaders Clinical staff	Listed as potentially useful practice in ONC 2016: "Referral requests should include, at a minimum, the Common Meaningful Use Data Set."

Recommendation 1.3: Ensure that patients and families are engaged in EHR-based referral processes and understand the importance of specialist evaluation

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Use OpenNotes to facilitate transparency of referral related process for patients.	Organizational leaders Clinical staff Patients and families	For more information, www.opennotes.org
Optimize patient communication technology (e.g., with patient portals in the EHR).	EHR vendors	Include prepared information about various specialties to which referrals are made.
Ensure that visit summaries consider any health literacy and language barriers.	Clinical staff EHR vendors	

Recommendation 1.4: Ensure appropriateness of referrals

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Build specialty-specific referral templates into EHR.	Clinical staff EHR vendors	
Create system with capacity for electronic communication such that specialists can regularly prescreen referrals to ensure necessity, to triage to another specialist if appropriate, and to request tests to be conducted before the consultation.	EHR vendors	Esquivel et al. 2012. Mehrotra et al. 2011.

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Facilitate workflow to support specialist prescreening of referrals.	Organizational leaders	
Ensure all necessary information is included in the referral or easily accessible.	Clinicians Clinical staff Support staff	See example of checklist in appendix B.
Define and use standardized urgency levels for referrals.	Clinicians	
Clearly indicate urgency level. Develop flagging system to notify when actions appropriate to urgency level are not taken. Require that the urgency of the referral is documented in the order.	Organizational leaders EHR vendors	Consistent with ONC 2016: "The EHR displays time-sensitive and time-critical information more prominently than less urgent information." Listed as potentially useful practice in ONC 2016: "Messages with critical or urgent information are made visually distinct (e.g., visually highlighted)."

Step 2: PCP or referring clinician's practice communicates referral to specialist

Considerations: In a closed-loop referral process, the PCP and the specialist have a shared understanding of the information elements that will be included in the referral order. Incomplete orders, which lack essential information including urgency, differential diagnosis, and clinical concern, delay or hinder the referral process.

Barriers to achieving a seamless process include a lack of information from PCPs about their thought process regarding the clinical scenario and the desired input from the consultant, and a lack of standards and common nomenclature regarding the information to be included in a referral.

Recommendations for Step 2

Recommendation 2.1: Set expectations about and facilitate complete communication between PCP and specialist

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Use free-text comment fields to communicate thought processes regarding the clinical scenarios and their desired input from the consultant.	Clinicians	For example, a summary of patient's issues, specific questions the PCP is posing to the specialist, the PCP's expectations of the specialist, and questions about the services the specialist will provide.
Design and use communication systems within the EHR, and between EHRs, that are user-friendly and allow for efficient bi-directional communication of information relevant to the referral.	Clinicians EHR vendors	For example, tools for easy messaging within the EHR between two clinicians and among relevant groups of clinicians.

Recommendation 2.2: Ensure specialist and PCP have easy access to relevant notes and data

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Streamline the collection of relevant data for inclusion in the referral request, including laboratory, radiology, pathology, and other testing results.	EHR vendors	Consistent with ONC 2016: "The EHR facilitates provision of all necessary information for referral and consult request orders prior to transmission."
Develop systems with the capacity for electronic consults to enable specialist to ask and respond to questions before patient is seen.	Organizational leaders EHR vendors	Electronic consults can allow for a more nuanced conversation between PCP and specialist, replacing the traditional "curbside consult." In addition, the electronic consult adds the specialist to the patient's record and thus establishes a provider-patient relationship. In contrast, with a curbside consult, the clinicians may not name the patient whose case they are discussing, and the conversation is not likely to be included in the record.

Recommendation 2.3: Ensure coordination of clinical and support staff in the referring and specialist sites

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Involve care teams at the referring and specialist sites in referral processes, including triage.	Organizational leaders Clinical staff Support staff	Clarifying roles and responsibilities related to the referral process can help reduce malpractice claim risk.

Step 3: Referral is reviewed and authorized

Considerations: Ideally, the referral request is accepted in a timely manner by the specialist and authorized by the insurer. However, potential failures in this step include denial of the referral by the specialist, or a prolonged or delayed evaluation, or lack of authorization by the insurer.

Primary barriers to achieving a closed-loop process include:

- Lack of awareness about the information that the specialist needs prior to the evaluation, including clinical and insurance information

- Lack of awareness regarding the insurance authorization process, including appeal of rejected referral

- Appointment is not scheduled

Recommendations for Step 3

Recommendation 3.1: Clarify role expectations related to review, authorization, and communication

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Identify a dedicated staff member at the PCP practice and the specialist practice for review/authorization, and delineate a clear process that includes the patient.	Organizational leaders Clinical staff	Quality control, ensuring that the needed information is present in the referral request, is an essential prerequisite for insurance authorization, during which it is determined whether the specialist's services will be covered by the payer.
Develop standardized expectations regarding the response time of specialists to referral requests.	Organizational leaders Clinicians	
Design approval-related workflow to include communication back to PCP.	Specialist Clinical staff	

Step 4: Appointment is scheduled

Considerations: In a closed-loop referral process, the appointment with the specialist is scheduled in an appropriate timeframe for the clinical condition or question and at a time that is convenient for the patient. Gaps that may interfere with the process include the appointment is not scheduled by support staff (or by the patient if he or she was given responsibility for doing so) or the appointment is scheduled with the wrong specialist or outside the desired timeframe related to the urgency level of the clinical condition. Additionally, the patient may cancel, for example due to lack of transportation, but not reschedule the appointment.

Barriers to the optimal state include:

- Lack of clarity regarding responsibility for scheduling appointment (i.e., PCP, specialist, or patient)

- Lack of standard work and expectations regarding care referral–related communication (e.g., a policy that if the specialist's office fails to reach the patient after three attempts, the PCP will be notified)

- Technology limitations related to tracking, interoperability (especially with clinicians in different health systems or practices), and communication regarding scheduling

- Lack of patient awareness, understanding, engagement, and accountability related to follow-up

- Patient barriers related to health literacy, ability to navigate the system, language, and transportation

- Scheduling based solely on specialist convenience (i.e., the patient is simply given a date)

- Lack of clinician adaptability to new communication modes (e.g., requires referral requests to be sent by fax)

- Insufficient resources and staff to schedule consultation for patient

- Patient desires to see a specific specialist

- Inability to schedule appointment until authorization by insurance plan is completed

- Lack of clear expectations about timeliness of evaluation

Recommendations for Step 4

Recommendation 4.1: Ensure status of referral is communicated and progress is tracked

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Define and implement an escalation system for high-priority and urgent referrals	Clinicians EHR vendors	
Design and use a reliable tracking process for missed, cancelled, and no-show appointments.	Clinical staff EHR vendors	Listed as potentially useful practice in ONC 2016: "A comprehensive policy outlining responsibility for follow-up action for certain situations (e.g., no-shows) is implemented."

Recommendation 4.2: Improve patient engagement and partnership with patients relating to referral appointments

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Implement and use appointment reminders.	Clinical staff EHR vendors Patients and families	
Leverage the patient's support system to confirm comprehension and intentions.	Clinical staff Patients and families	
Maintain updated patient contact information.	Clinical staff	
Use appropriate digital or electronic communication aides (e.g., videos) that explain the need for a specialist referral and next steps in the process.	Clinicians Clinical staff	For health literacy resources, see the toolkit, PCPI and Wright Center 2015, pg. 15.
Create standardized scripts for clinical staff and support staff to use while scheduling appointments for patients.	Organizational leaders Clinicians	
Facilitate patient-centered convenient appointment scheduling.	EHR vendors Clinical staff Support staff	Develop and use scheduling technologies to facilitate scheduling process, including online scheduling. Consider offering access to online scheduling on site via a kiosk in the office or clinic.

Step 5: Consult appointment occurs

Considerations: Ideally, the appointment occurs in a timely manner, and sufficient, relevant information is available to the specialist such that he or she can conduct an effective, efficient evaluation. The urgency level should be clear, and the specialist should have easy access to relevant information about the patient and the PCP's rationale for the referral. In addition, during the evaluation the specialist should engage the patient and family in decision making. Gaps may occur if the specialist cannot identify the reason for the referral or, in the absence of information from the PCP, the patient describes a different problem to be addressed. Gaps can also occur if the specialist cannot access adequate and relevant medical record information such as visit notes, medication lists, and test results, or if the assessment is incomplete, for example if the specialist requires more than one appointment to complete the evaluation and the patient is lost to follow-up after the first visit.

Barriers to achieving the ideal state include:

- Lack of policies for tracking and addressing patient "no-shows"

- Inability to access key information about the problem for which the evaluation was requested

- Lack of clear expectations about the responsibilities of the referring clinicians and specialists after the evaluation

- Lack of sharing of relevant information with specialist

- Specialist does not adequately document next steps in the consult note

- Adequate transportation is not available for the patient

- Adequate translation services are not available for the patient

Recommendations for Step 5

Recommendation 5.1: Facilitate timely, effective evaluation
Note that the recommendations for overcoming the Step 5 barriers are mostly addressed in the General Recommendations.

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Ensure that adequate transportation is available for the patient.	Organizational leaders Support staff	Bhise V et al. 2016. Powers et al. 2016.
Ensure that adequate translation services are available for the patient.	Organizational leaders Support staff	

Step 6: Specialist communicates the plan to the patient

Considerations: In a closed-loop referral process, the patient receives clear communication from the specialist about the consultation with messaging consistent to that provided to the PCP. Gaps occur when a comprehensive report or plan is not communicated to the patient, or when the plan is communicated but the patient does not understand it or the importance of following the recommendations.

Barriers to achieving the ideal state include:

- Lack of communication between specialists and PCP

- Lack of optimal communication methods

- Lack of pre-existing relationship between specialist and patient

- Tendency to use specialty-specific rather than holistic view of patient

- Lack of clear expectations regarding the scope of visit

- Information provided to patient is insufficient or not at the correct health literacy level for the patient

- Communication is inconsistent with, or in direct contrast to, advice the patient has heard from other clinicians

Recommendations for Step 6

Recommendation 6.1: Facilitate effective communication with patients and families

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Create standardized, plain-language visit summaries to be provided to patients.	Clinicians EHR vendors	
Use professional medical interpreters for language-concordant communication.	Organizational leaders Clinicians	

Recommendation 6.2: Support streamlined, secure, convenient patient communication at the appropriate health literacy level

Examples of tools and strategies	Primary stakeholder accountable for action	Comments/References
Identify and use the patient's preferred method of asynchronous, secure communication.	Clinicians Clinical staff Support staff	
Ensure patient access to tracking processes and data to raise awareness of referral status.	EHR vendors	
Enlist care managers in PCP practices, if available, to support communication.	Organizational leaders Clinical staff	

Step 7: Specialist communicates the plan to the PCP

Considerations: Ideally, the specialist clearly communicates the results of the evaluation and the care plan to the PCP in a timely manner and through a reliable process. Gaps occur when the plan is either not communicated or is poorly communicated to the PCP.

Potential barriers to a closed-loop referral process include:

- Technology limitations, including lack of interoperability and poor access to out-of-network clinicians

- Lack of collaborative care agreement among clinicians

- Lack of awareness by PCP that a communication was sent

- Lack of agreement between the specialist and PCP about next steps in care plan

- Lack of specificity about future care plans (e.g., how long to continue a medication)

- Limitations to tracking outstanding reports

Recommendations for Step 7

Recommendation 7.1: Facilitate communication between specialist and PCP

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Ensure that instructions given to patients by specialists are also shared with PCP.	Clinical staff EHR vendors	
Ensure that specialist-PCP communication channels clearly highlight action items.	EHR vendors	Listed as potentially useful practice in ONC 2016: "When sending notes or documentation to other clinicians (e.g., for co-signing), the EHR allows the sender to add recipient-specific explanatory messages, highlighting, or markup."
Create standardized formats and modalities for asynchronous communication between specialist and PCP.	EHR vendors	In the current environment, referring providers and specialists are faced with the challenge of communicating across email, secure clinical messaging, fax, letter, direct messaging, text messaging, and phone calls. The diversity of communication modalities, ironically, leads to greater risk that important communication will be lost. Emerging secure communication standards, including health information exchange, encourage direct EHR-to-EHR messaging, where clinical messages are directly attached to the patient's EHR record, and patient health information is transmitted, stored, and handled securely.

Recommendation 7.2: Improve the quality of content in communication between clinicians

Examples of tools and strategies	Primary stakeholder accountable for action	Comments/References
Set clear expectations regarding the timeliness, quality, and completeness of communication for each mode that will be used.	Organizational leaders Clinicians	The Robert Wood Johnson Foundation learning module on referral management contains resources and toolkits, see http://www.improvingprimarycare.org/work/referral-management

Step 8: PCP acknowledges receiving information from specialist

Considerations: In a closed-loop referral process, the PCP receives and understands the results of the evaluation and the recommendations. He or she also communicates to the specialist acknowledgment of the information. Potential gaps include the PCP not receiving the information or failing to communicate and consult with other active specialists involved in the patient's care.

Several barriers exist to the optimal state, including:

- PCP not aware that the specialist's care plan has been initiated or that the note and plan have been completed

- Lack of specificity in the report or care plan (e.g., which items need follow-up and which do not)

- Lack of effective system for ensuring optimal referral process during turnover or cross-coverage of clinicians

- Lack of clarity about the definition of "acknowledgment" and the associated degree of responsibility for care and follow-up

- Discrepancy between care plan and services that are covered by patient's insurance

- Lack of a coded field to electronically acknowledge the plan

- Multitude of communication channels by which referral-related information is sent to PCP

- Lack of communication back from the specialist about the care plan

Recommendations for Step 8

Recommendation 8.1: Facilitate clinical review of information by PCP

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Create a practice-based view of referrals: a queue that includes a bundle of all reports and information related to a particular referral order.	Clinicians EHR vendors	Ensure that the queue includes information related to all referrals, regardless of the channel by which they are communicated.

Recommendation 8.2: Ensure the referral system can document acknowledgment of the plan

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Ensure the EHR has a method to electronically capture PCP's acknowledgment, as well as PCP's communication to other relevant members of care team (which would include other specialists).	EHR vendors	
Ensure the EHR has the capacity to allow PCP to share the plan with multiple care providers simultaneously.	EHR vendors	

Step 9: PCP communicates plan to the patient and family

Considerations: Ideally, the patient and family are engaged in an active shared decision-making process with the PCP, and they confirm understanding of the care plan shaped by the specialist evaluation. Gaps in the closed-loop process may occur if there is an inadequate treatment plan (or no plan) based on the specialist evaluation, if the plan exists but is not communicated to the patient and family, or if the patient and family are unsure about the coordination of care between the PCP and the specialist(s).

Barriers to achieving a closed-loop referral process include:

- Inaccurate or incomplete contact information

- No standardized method for the PCP to communicate with the patient and family, especially if the patient does not have a scheduled appointment with the PCP soon after the specialist appointment

- PCPs assumes the specialist will communicate to the patient, thus failing to close the communication loop between the PCP and the patient

Recommendations for Step 9

Recommendation 9.1: Establish an expectation about communication with the patient after the specialist visit

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Set expectation with patient at time of ordering referral.	Clinicians	

Recommendation 9.2: Designate communication tiers and standardized approaches for communicating with patients in each tier based on urgency level of referral

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Implement tiers for communication based on urgency level.	Clinicians	For example, if a cardiologist recommends a stress test, this would be considered urgent and be communicated via phone call.

Recommendation 9.3: Support streamlined, secure, convenient patient communication

Examples of Tools and Strategies	Primary Stakeholder Accountable for Action	Comments/References
Create secure patient portals for communication between specialist, PCP, and patient.	EHR vendors	The EHR should support and promote access to the patient portal through technologies that are widely used by consumers (e.g., mobile devices across different operating systems).
Identify and use the patient's preferred method of asynchronous, secure communication.	Clinicians Clinical staff Support staff	

Conclusion

Gaps in the referral process are an important contributing factor for delays in diagnosis and treatment. These gaps can lead to preventable harm to patients and families and increase providers' risk of allegations of malpractice. EHRs represent an opportunity to identify and mitigate these gaps and support coordination across the care continuum, but referral systems embedded within them should account for the clinical workflow and other dimensions of the socio-technical model.

All nine steps in the closed-loop referral process must be optimized to create a system that is effective, safe, convenient, and patient-centered, while minimizing the administrative burden on clinicians. Organizational leaders, EHR vendors, regulatory agencies, clinicians, and patients all play roles in the design, implementation, and use of optimal referral systems. The recommendations outlined here provide a foundation to help redesign the EHR-based referral process and improve patient care.

Appendix A: Failure Mode and Effects Analysis (FMEA)

The failure mode and effects analysis (FMEA) is a tool for prioritizing opportunities for improving a process before a process fails and results in patient injury. Its purpose is to find the source of problems and show where repairs can be made to prevent incidents from occurring. Its basic structure shows not only the potential for error but also how severe the problem will be if something goes wrong.

PROCESS STEP 1: PCP orders a referral
Goal: Order activates referral system

Potential Failures	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
1. Order is not created 2. Order is not noted or not acted on 3. Wrong specialty provider selected	Patient does not get specialty assessment at this time, diagnosis is delayed	a) PCP is interrupted b) Wrong patient record is opened c) PCP is unclear which provider or specific clinic to consult	Patient returns at a future date with repeat concerns	1. Automation to pre-populate e-referral requests with patient-specific data 2. Include real-time communication and collaboration between practitioners

PROCESS STEP 2: PCP communicates referral to specialist
Goal: Specialist understands reason for appointment

Potential Failure	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
Documentation does not include reason for consult, differential diagnosis, or clinical concern	Patient does not get appropriately assessed, diagnosis is delayed	a) PCP is too busy b) PCP forgets c) PCP does not think it is important to include	Specialist report to PCP lacks expected information	1. Standardized e-referral templates (structured and free text) 2. Hard-wire e-capture of the reason for the referral 3. Automation to pre-populate referral requests with patient-specific data and to enable attachment of tests and images 4. Urgency flags

PROCESS STEP 3: Referral is reviewed and authorized
Goal: Ensure payment is not an impediment

Potential Failure	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
Referral is denied	Patient does not get specialty assessment at this time, diagnosis is delayed	a) Incomplete or ambiguous clinical information b) Authorization request requires more information for further processing	Notification of denial	Keep order open until authorization received

PROCESS STEP 4: Appointment is scheduled
Goal: A timely appointment is scheduled with all parties aware

Potential Failures	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
1. Appointment is not scheduled (≥ 3 attempts)	Patient does not get specialty assessment, delayed diagnosis	a) Patient is unable to schedule b) Patient is unaware of urgency or need c) Access/wait list d) Patient given wrong contact information e) Inadequate resources or staffing to enable scheduling f) Available times not good for the patient g) Training issues with scheduling staff	Patient returns at a future date with repeat concerns	1. Integrate patient communication into e-referral process 2. More patient-centered scheduling procedures 3. Admin oversight of referral queue and outreach to patient for appointment scheduling (standardize scheduling outreach) Keep order open until appointment is scheduled or cancelled by PCP or patient (flag for reminder to PCP if time-sensitive)
2. Appointment status changes	Patient does not get specialty assessment	a) Patient cancels without rescheduling b) Specialist cancels c) Patient leaves without being seen d) Patient does not show	Unable to detect without referral tracking process, would need to wait for patient return to PCP	Automatically notify PCP of no-shows and follow-up plan (i.e., who is expected to follow up with patient)

PROCESS STEP 5: Consult appointment occurs
Goal: Ensure patient is assessed per PCP's intent

Potential Failures	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
1. Incomplete assessment	Diagnosis is missed or delayed Critical information is unavailable to specialist	Information is absent or lacking, e.g.,tests and images	Specialist is unaware of clinical concerns	Require specialist acknowledgment of receipt of tests or images or patient record access
2. Documentation inaccessible to specialist		Non-compatible EHRs		

PROCESS STEP 6: Specialist communicates the plan to the patient
Goal: Ensure patient comprehends care plan

Potential Failure	Potential Impact	Possible Cause	Detection Mechanism	Solution/Intervention
Plan is not communicated	Treatment is delayed	Care coordination is not clear between PCP and specialist	Patient expresses uncertainty to PCP	Patient portal

PROCESS STEP 7: Specialist communicates the plan to the PCP
Goal: Ensure PCP is fully aware of specialist findings

Potential Failure	Potential Impact	Possible Cause	Detection Mechanism	Solution/Intervention
Communication is absent or incomplete	Follow-up care is not coordinated between PCP and specialist	PCP is unable to reinforce specialist recommendation	Patient returns to PCP questioning care plan	Referral status tracking and feedback capabilities Keep specialist appointment open until plan is communicated to PCP

PROCESS STEP 8: PCP acknowledges receiving information from specialist
Goal: Ensure clarity for patient follow-up

Potential Failure	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
Lack of information or plan	Follow-up care is not coordinated between PCP and specialist	a) Plan is lost in transfer b) PCP "acknowledges" but does not review specialist's note	Plan unavailable to PCP at next patient visit	

PROCESS STEP 9: PCP communicates plan to the patient and family
Goal: Ensure patient is aware of the care plan and agreed-upon actions

Potential Failures	Potential Impact	Possible Causes	Detection Mechanism	Solution/Intervention
1. Communication of plan does not occur	Follow-up does not occur per plan	a) Care coordination is not clear between PCP and specialist	Patient fails to adhere to plan	
2. Communication of plan is unclear to patient	Follow-up does not occur per plan	b) Health literacy or language barrier	Patient fails to adhere to plan	

Appendix B: American College of Physicians Model Specialty Out-Patient Referral Checklist

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*(This information, which is recommended to be included **with all referrals**, can be communicated through any of several means including a paper-based referral form, detailed clinical note from last appointment, or a template within the electronic medical record.)*

1. **Patient demographics and scheduling information**
   a. Patient name, demographics, and contact information (including surrogate if appropriate)
   b. Considerations that may require special arrangements by the consultant such as severe vision or hearing loss, non-English language preference, cognitive deficits, cultural factors, preference regarding who to include in treatment planning, etc.
   c. Insurance company name/type of coverage
   d. Referring provider name and contact information (including method for direct contact for urgent issues)
   e. Indicate that patient (or surrogate) understands and agrees with the purpose of the referral.
   f. If a face-to-face appointment is requested, indicate whether: (Choose one)

   _____ the patient will call to schedule an appointment

   _____ the specialty practice should contact the patient

2. **Referral information**
   a. Indicate the specific clinical question including a brief summary of the most relevant clinical information as it relates to your overall care plan.
   b. Urgency: (Choose one)
   _____Urgent: (local definition; often 1-2 days) Recommend direct communication between referring and referral practice; Minimally provide written justification for urgency
   _____Subacute (local definition; often 1-2 weeks)
   _____Routine
   c. Pending subspecialist/specialist evaluation, the anticipated referral-type is: (Choose one)
   _____ Previsit Advice *
   _____ Non Face-to-Face (information-only) consultation **
   _____ Consultation (Evaluate and Advise, with the goal to managing the problem remaining with the referring clinician)
   _____ Procedural Consultation
   _____ Co-Management with Shared Care (Referring clinician (e.g. PCP) maintains first call for the referral disorder) ***
   _____ Co-Management with Principal Care (Referred to subspecialist/specialist assumes first call for the referral disorder) ****
   _____ Please assume Full Responsibility for Complete Transfer of all Patient Care

    d.   **Pertinent Data Set:** Clinical information **directly relevant** to the referral question. May include results of recent office visit; care summaries; relevant lab and imaging data and/or specific clinical information requested by the referred to specialty/subspecialty practice prior to the consult. ***Please refer to the pertinent data set recommendations for select specific conditions developed by medical societies that participated in the American College of Physicians' High Value Care Coordination (HVCC) project available at*** http://hvc.acponline.org/physres_data_sets.html

3. **Patient's core (general) data set: (***should be included with all referrals*** as an aspirational goal)**
   a. Active problem list
   b. Updated medication list; medical allergies
   c. Summary of any significant medical and surgical history not previously specified
   d. Summary of any significant family history not previously specified.
   e. Summary of any significant behavioral habits/social history not previously specified.
   f. List of providers (care team)

4. Care coordination
   a. Referring practice requests notification from the specialty practice of the following: (circle any applicable)
   - Receipt of the referral
   - Date of scheduled appointment
   - Decision to defer appointment and reason why
   - Patient cancellation or no-show for the appointment

   b. Referrals made from one <u>non-primary care</u> specialty to another (e.g., secondary referrals) are advised to include the notification of the patient's primary care clinician with patient consent.

*Previsit Advice: Previsit preparation or assistance which can take place before any type of referral can include establishment of referral guidelines; request for guidance regarding whether referral is to appropriate subspecialty/specialty; and guidance for previsit work-up. If referring and referred to practice have an ongoing relationship, best to handle these issues through a formal care coordination agreement.

**Non Face-to-Face Consultation: An information-only exchange intended to address a discrete question in lieu of an office visit. Depending upon the organization, these may be electronic, phone, or video-based exchanges between the referring provider and the subspecialist/specialist. Non face-to-face consultations should allow the subspecialist/specialist to convert the request to an office consultation for reasons of case complexity.

***Shared care indicates that the care of the referred patient for a specified condition or set of conditions is shared between the referring clinician and the subspecialist/ specialist with the referrer assuming responsibility for most of the elements of care for the specified condition, unless other arrangements agreed upon.

****Principal care indicates that the care of the referred patient for a specified condition or set of conditions is managed by the subspecialist/specialist with assumption of the elements of care for that condition, unless other arrangements are agreed upon.

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