White Paper

Understanding Health-Systems' Use of and Need for Evidence To Inform Decisionmaking

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Research White Paper

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States.

The reports and assessments provide organizations with comprehensive, evidence-based information on common medical conditions and new health care technologies and strategies. They also identify research gaps in the selected scientific area, identify methodological and scientific weaknesses, suggest research needs, and move the field forward through an unbiased, evidence-based assessment of the available literature. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To improve the scientific rigor of these evidence reports, AHRQ supports empiric research by the EPCs to help understand or improve complex methodologic issues in systematic reviews. These methods research projects are intended to contribute to the research base in and be used to improve the science of systematic reviews. They are not intended to be guidance to the EPC program, although they may be considered by EPCs along with other scientific research when determining EPC program methods guidance.

AHRQ expects that the EPC evidence reports and technology assessments, when appropriate, will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality.

If you have comments on this Methods Research Project they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Structured Abstract

Background. According to the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine, in order for health care systems to improve health quality, outcomes, cost, and equity there needs to be a process for transmitting new knowledge into everyday care. Systematic reviews are one potential source of knowledge. However, little is known about the types of evidence used by health-systems and how evidence reports produced by the Agency for Healthcare Research and Quality (AHRQ) Evidence-based Practice Center (EPC) program could be used by learning health-systems.

Purpose. To better understand how health-systems identify and use evidence and how EPC reports could help them with their decisionmaking in the future.

Methods. From February to September 2017, an AHRQ/EPC Methods Workgroup interviewed nine individuals with leadership roles in enhancing health-system quality, safety, and process improvement from academic, non-academic, and small community health-systems, as well as health-system collaborative organizations. Workgroup members reviewed interview notes and transcripts to identify key themes and exemplar quotations. The nine Key Informants (KI) reviewed the draft report for accuracy.

Results. Health-systems have various internal processes for getting and using evidence in their decisionmaking. All of the health-systems we spoke with have either centralized and standardized quality, safety, and process improvement functions within their health-system or have formed partnerships with other organizations to support these improvements. Health-systems recognize that evidence and improvement ideas can come from both the top down (from leadership to local level) as well as from the bottom up (local to leadership). One common process was to conduct searches themselves to obtain information and evidence from the literature. However, there was variation in how this information is obtained. Some of the larger health-systems have medical librarians and centralized committees to gather and disseminate this information. For smaller systems, it is more common that the local chief medical officers or clinical champions identify the information. Other processes for getting evidence include: using internal data to benchmark performance across the system and identify where improvements are needed; and forming subspecialty committees within the health-system to review information and make improvement recommendations within the subspecialty (e.g., cardiology, oncology, and orthopedics). Some of the challenges to the existing processes include: how to resolve conflicting information and whether the information applies to local needs; and how to know whether information is up-to-date. Health-systems feel the standard timeframe to generate systematic reviews is very long, which could hamper optimal utilization in decisionmaking. KIs generally feel that guidelines and systematic reviews are excellent sources of evidence and facilitate quality, safety, and process improvements. While some clinical experts in the health-systems prefer randomized clinical trials, most people in health-systems prefer the synthesized data in guidelines and systematic reviews. KIs generally prefer guidelines, especially those with

treatment algorithms, because they are more actionable. KIs prefer evidence from systematic reviews to be summarized into short digestible summaries with the option to click on a link for the more detailed report. They also prefer systematic reviews from known entities and entities that do not have commercial bias. KIs suggest alerting people at multiple levels in a health-system when new evidence reports are available via email or listserv. Some KIs, especially those in small and rural health-systems, noted that they want to be able to obtain evidence in standard search engines, such as Google, rather than having to rely on literature databases. Some KIs felt that they could partner more closely with AHRQ to identify topics but felt that the prolonged turn-around time from topic generation until the report was available could be a barrier. The topics of greatest interest to health-systems varied, but some of the most common ones include: predictive analytics; high-value care; advance care planning, and care coordination.

Recommendations and Conclusions. Based on these interviews, we recommend the consideration of the following key actions to make EPC reports more useful to health-systems:

1. Modify the dissemination emails that go out to health-systems to include not only the titles of the reports and hyperlinks to the full reports, but to include key messages (or hyperlinks to key messages) so that potential users can better assess the relevance of their report to their decisionmaking and better triage the findings internally within their system.
2. Periodically construct an EPC newsletter — perhaps building off the existing EHC listserv — with a format similar to "The Medical Letter" or "Prescriber's Letter," which provides short three of four sentence summaries of report highlights with hyperlinks to reports.
3. Ensure that EPC reports are searchable both within PubMed but also within common search engines such as Google, Bing, and Yahoo. This would include having medical librarians test search using these sites, strategize how to enhance the chances of finding reports for educational purposes, and to reach out to the common search engines and inquire about ways reports can be designed to enhance pick up in searches.
4. Explore opportunities to deliver reports more quickly, perhaps through further limiting the scope of a project, writing more focused reports, or by dividing a larger topic into two or three subtopics so that more timely evidence can be available to health-system decision makers.
5. EPC reports should not make clinical recommendations like guidelines. However, if the reports could more clearly identify what the current process of care is for a target disease or disorder and where the trials/studies being summarized or pooled will inform decisions that members of health-systems could make, it would make the results more actionable.
6. Conduct broad outreach to health-systems to alert them of the topic nomination process so that these topics can be considered within the EPC program and discuss partnerships not unlike those AHRQ has with guideline groups and other Federal agencies. AHRQ and the EPCs can begin with the contacts made with health-systems from this project, contacts identified from the Spring 2017 EPC meeting, and contacts identified from the health-systems which have EPCs to form an advisory group and devise a strategy.
7. Establish consistent and prominent branding of the EPC program and its products, ensure that the high-quality journal articles based on our reports are identified as part of the EPC

program, and promote the EPC program as a source for timely and reliable reports to improve the quality, safety, and value of care.

Contents

Background

In its report *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*, the Health and Medicine Division of the National Academy of Sciences proposes ways the health care system can promote continuous learning and improve health quality, outcomes, cost, and equity.[1] To be a learning health care system, health care systems should have real-time access to knowledge, digital capture of the care experience, engaged and empowered patients, leadership-instilled culture of learning, incentives linked to value, and supportive system competencies.[2,3] The access to and usability of high quality evidence is a linchpin for making quality, safety, process, or purchasing decisions. In response to the NAS's call to promote learning health care systems,[1] the Agency for Healthcare Research and Quality (AHRQ) is exploring how its work can facilitate these changes and improvements.

AHRQ's Evidence-based Practice Center (EPC) program funds independent EPCs across the United States and Canada to conduct rigorous and comprehensive evidence reviews of scientific literature. These reviews focus on a variety of issues, including assessing and comparing clinical drugs, treatments, interventions, and diagnostic tests to improve health care delivery. The EPC program's reports are used regularly by guideline groups, professional societies, and policy-makers. However, it is unclear how health-systems access and use evidence and how the EPC Program could make its reports more useful to health-systems.

Purpose

To better understand how health-systems get and use evidence and how EPC reports could help them with their decisionmaking in the future.

More specifically, the purpose of this EPC methods project is to understand health-systems' processes for reviewing and using evidence:

- Sources of evidence
- Preferred format of evidence
- Gaps in evidence used
- Topics most interested in
- Familiarity with AHRQ EPC program

Procedure

In February 2017, AHRQ convened a Workgroup with members from across the EPCs and AHRQ. The project involved: (1) determining what the Workgroup and the EPC Program wanted to learn through this project, (2) identifying potential health-system leaders for interviews, (3) generating a semi-structured interview guide, (4) conducting interviews, and (5) analyzing the qualitative interview data and summarizing it in this report. Appendix A contains the interview guide.

Workgroup investigators conducted interviews with nine individuals with leadership roles in enhancing health-system quality, safety, and process improvement from academic, non-academic, and small community health-systems, as well as health-system collaborative organizations (see Table 1 for a list of Key Informants).

A primary and secondary facilitator conducted each interview and a notetaker took notes of the discussion. Most interviews were also audio recorded. After each interview, one of the facilitators summarized the discussion and shared it with the other interviewer and notetaker to identify and correct areas of disagreement and/or refinement. Workgroup members reviewed the meeting notes, transcripts, and summaries to identify the key themes, which are summarized in this report. When possible, differences and commonalities in themes based on the type of health-system (e.g., academic vs small community) are described. The recommendations were developed based on suggestions from Key Informants (KI) as well as Workgroup analysis of the key themes. The Workgroup shared the draft report with the nine KIs to ensure clarity of message and fidelity of the key points.

Table 1. Overview of Participating Health-Systems

Health-System	Description of Health-System	Titles of Key Informants
Duke University	Single academic health-system with 3 hospitals, >70 primary care clinics, and Accountable Care Organization in North Carolina	Director of Care Redesign Director of Safety & Quality Programs
Mayo Clinic	Single academic health-system with >8 hospitals, 10 critical access hospitals, primary care clinics in Minnesota, Arizona, Florida, Wisconsin, and Iowa (part of HVHC, see below)	Associate Dean for Value Creation
Catholic Health Initiatives (CHI)	Third largest nonprofit health-system in the United States with health centers ranging from academic to small/rural; comprised of 104 hospitals in 19 states, community clinics, and living communities	Chief Quality Officer Vice President of Analytics Head, Cardiovascular Service Line
(OCHIN): Winding Waters Community Health Center and Cowlitz Family Health Center	Two independent health-systems (one in Oregon and one in Washington) which are part of OCHIN, one of the largest health information and innovation networks, serving hundreds of organizations and over 10,000 clinicians nationwide	Medical Director Executive Director
High Value Healthcare Collaboration (HVHC) and Intermountain Healthcare	HVHC is a 15 health-system partnership ranging from academic to nonacademic from across the country in a data sharing partnership Intermountain is a single health-system with 22 hospitals and 180 clinics in Utah and Idaho that partners with HVHC	Chair of HVHC and Chief Quality Officer at Intermountain

Feedback From Health-System Key Informants

In this section we summarize the key themes from the interviews, each key theme is bolded and direct quotes are italicized.

Process for Reviewing and Using Evidence

At the start of each interview, the faciliators asked about the current process for identifying, reviewing, and using evidence in their health-system to inform decisionmaking. The processes varied but generally consisted of one of the following methods.

Using centralized performance improvement processes. All of the health-systems we spoke with have either centralized and standardized quality, safety, and process improvement functions within their health-system or have formed partnerships with other organizations to support these

improvements. They also expressed that they expect the degree of integration of these function in or between health-systems to accelerate over time.

The joke a couple years ago was that we were fully integrated on the brochure, but we want to be fully integrated through a management philosophy. We are and we've taken huge steps in that direction already: we've centralized our performance management team, we've created a health-system quality department.

Using targeted literature searches for identifying evidence. One of the common processes used was to obtain information and evidence from the literature. However, there was variation in how this information was obtained. Some of the larger health-systems had medical librarians and centralized committees to gather and disseminate this information. For smaller systems, it was more common that the local chief medical officers or clinical champions identified the information. Some of the larger health-systems noted that identifying evidence can be challenging and having staff with experience doing such searches can be very valuable.

We have more consistently integrated people who are experts in kind of navigating the vast volumes of information that's out there, to help put together an evidence-based solution.

While Medline and other medical literature databases were commonly used to identify relevant literature, Google searches were used to identify evidence as well, especially in small and rural health-systems with less access to medical librarians. Smaller health-systems did not have the ability to access to Medline, Cochrane Central, or Embase. KIs noted that they liked how articles identified by Google can be easily shared among the clinicians in a health-system via weblinks.

I don't have a primary subscription to those, and I can just Google recommendations on COPD and it shows up, so something I can find on Google that's high-quality evidence is definitely going to be used.

We post things to the resource library and provide links to national standards.

Using benchmarking data to compare performance and drive improvements. Some KIs noted that their system had a centralized process to compare national standard of care to local and peer performance. They felt the ability to identify exemplar hospitals or clinics within a health-system or an examplar health-system within a consortium of health-systems to compare and contrast their processes which was seen as a big advantage. This prevents health-systems from having to start from scratch, since they can see what is working well in the exemplar sites.

All of us as systems are being held accountable under CMS, from Medicare particularly, for a series of quality measures.

For any measure, we'll nearly always have some members… that are just absolutely nailing them. So, on percentile rankings, up in the high 90s. For others, you'll do more poorly in… We know where we rank, but far more important—way, far more important is

*what we do next, is we take those rankings and we go to the top end systems and say,
"What are you doing? Why are you ranked highly?"*

Larger health-systems utilize Vizient Reports, Procured Health Reports, ECRI's Top Threat Report, National Patient Safety Foundation (NPSF) Newsletter, IHI Newsletter, and the AHRQ Newsletter to identify new areas where they can identify metrics to benchmark or to reach out to high achieving systems for insight. The small/rural KIs did not have access to these specialized services. If they try to standardize care, they rely more on national guidelines issued by professional societies.

I've used the AHRQ Newsletter, or the NPSF Newsletter, or the IHI Newsletter. I use those things as they come in, in an unstructured way to say, like, "Ooh, do we need to be thinking about that?" and then push some of those thoughts and thinking—or like the ECRI Top 10 Safety Concerns Report, that's the one we're talking about now.

Using inter-professional committees within a medical subspecialty to understand the issue, the current care process, and make recommendations for process improvement. KIs using inter-professional committees felt they were in the best position to drive changes in the processes. The KIs from health-systems using this model felt that the representatives on the inter-professional committee are actively treating patients within their subspecialty (i.e. cardiology, oncology, orthopedics), have first-hand knowledge of the processes and the reasons current processes evolved in this manner, and will be directly impacted by the remedies they recommend.

We are also organized into some… enterprise level specialty councils, particularly in our specialty practice. So, those are the groups that are really… using… most of the clinical evidence and developing protocols and the like. It is… the specialty councils who are responsible for creating those and using evidence from multiple sources… in order to generate those. They can be as simple as definitions and general approaches and then a way to contact the known experts…, or can be care process models that are very flowchart-oriented and tell you exactly what to do.

For some health-systems, especially the small and rural ones, most of the evidence is handled locally by the medical director or chief medical officer. They are responsible for identfying and vetting the literature and driving the process, sometimes with little to no resources. Involving a clinician champion in evidence-based practice review and development was cited as an important way to make change.

They are doing the discovery themselves and the sense of ownership appears to be driving a lot of improvement.

…it's getting harder and harder to dig up the evidence in the first place and do it one person at a time.

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Using a mix of top down/bottom up approaches, especially to prioritize areas of improvement. Internal processes for prioritizing topics of interest to clinicians and health care managers were described in the interviews – some described as occuring at the individual clinician level and spreading organically, others with a more formal top-down structured approach beginning with health-system leadership. So while new literature evidence may be an impetus to assess a process, frequently health-systems identfiy the target areas for improvement and then search for literature in that area.

> *They have a process by which they go through an annual vetting process to identify key areas... we're trying to intersect more with the kind of strategic and performance improvement operations of the organization*

> *The way it works is that we are hunting for evidence around a specific topic... if I could tell if I hit a live one, that would be handy, because it would speed me up.*

> *You take a high priority process and you build an evidence-based practice around it.*

Health-systems also use these approaches to prioritize competing issues. They understand that they cannot correct every discrepency at the same time.

> *We think these are the top five to eight things, as an organization, that either need dedicated or focused attention, that the entities, through their own planning, need to do.*

In addition to describing the processes for getting and using evidence in the health-systems, KIs also noted some of the challenges with the current processes which included:

Integrating evidence and changes into clinical processes. Most of the KIs touched on the amount of work it takes to transform evidence from reviews or guidelines into practical clinical application. Some of the concerns included how to communicate the basis for process changes within the health-system and how to craft a change that minimizes the impact to workflow for practitioners.

> *The key to success is integrating into the workflow or developing a workflow that allows use of that evidence to occur.*

> *His aim was to get the evidence in front of physicians... at the point in time they were making a clinical decision. ... How do you get it right where it's needed at the moment it's needed, and in an easy to use format where people don't have to look it up?*

> *When I look at it and when I start looking at the details, 'well but how do you even operationalize something like this?' ... it will involve a lot more thought into the process of how do you operationalize something that's evidence-based and put it into your day-to-day practice.*

In larger health-systems these changes require the approval of governing bodies before they can be implemented and then the front line clinicians need to be educated about the changes.

Our governance process involves an Executive Committee, the Care Redesign Oversight Committee, that includes hospital Presidents, the Chief Nursing Officer for the system, the Chief Medical Officer for the system, our Executive Vice President for the system, the VP from Performance Services, the CFO for our inpatient facilities, as well as other leaders. The leaders of our Care Redesign teams present their initial data--performance data as well as salient literature--to inform decisions about practice changes to that committee using a standard presentation format. The committee exists to support changes and to identify any resource needs or any potential competing priorities in a particular area.

We also have a template to communicate the basis for change and some of the evidence involved to inform those changes. We would typically deploy those materials at faculty meetings, nurse staff meetings, and in forums attended by the people who will need to change their day-to-day work as a result of the decisions by the Care Redesign Team.

Sources and Formats of Evidence Used

KIs were asked about where they typically get their evidence from in terms of sources/producers of the evidence and which types of evidence they prefer. In addition, KIs were also asked about the typical format they like their systematic reviews to be presented in.

Desired Sources of Evidence

Guidelines and systemtic reviews are highly sought after. All of the health-systems believe in and use evidence from the literature in quality, safety, and process improvement decisionmaking but most KIs felt that guidelines and systematic reviews were particularly valuable as a very efficient way to understand the topic area. KIs liked how systematic reviews include data synthesis as well as the raw evidence; and they rely primarily on the summary section of the reviews.

I really like guidelines, I really like systematic reviews, and part of that is because, you know, you're consolidating evidence, and oftentimes you're able to come up with more straightforward recommendations as a result of that.

I really like guidelines and systematic reviews; it's probably my first go-to.

I like simple reviews at a high level or a consensus paper and then to drill down and pull out references that were used to delvelop that consensus.

Guidelines and systematic reviews were specifically identified as being useful for reconciling discordant evidence from trials and studies.

> *I can find half a dozen articles that tell me that's a good idea to do it and half a dozen say it doesn't make a difference. Right? Like, that we have to make a determination of 'is there evidence to support this or not', and 'is there any specific recommendation that would happen'… so in that sense, guidelines and systematic reviews are very helpful.*

KIs felt that randomized controlled trials are specifically desired by clinical experts on health-system committees making quality, safety, or process improvements. One KI reported that clinical experts were skeptical of systematic reviews, arguing that their results were oversimplified, did not take the circumstances of individual patients into account, and may not reflect contemporary practice.

> *…meta-analysis frequently contain a potpourri of trials that may or may not necessarily be timely or relevant to what many of our doctor's feel to be contemporary practice. The meta-analysis does have some utility but as I'm sure you know to collect a dozen trials, to do a meta-analysis, some of those trials included may be five, six, seven, eight years older, and so they [don't have] the gravitas, again the word, that either a professional society guideline or a large randomized prospective study would hold.*

However, KIs felt that for those who are not experts int the field, randomized controlled trials are less desirable than guidelines or systematic reviews because they can be confusing and taken out of context.

> *…people like guidelines. I think if you look—for example, our nursing group, we have a very active nursing practice group. They really like guidelines because it provides clear direction, and kind of outsource the work of vetting and kind of saying this evidence is the right run or this is the right direction.*

Experience and reputation of producers of systematic reviews are important. The experience and reputation are the most important indicators a KI uses for whether a source will be trusted and used in decisionmaking. KIs consistently referred to having greater trust in established evidence sources like AHRQ and Cochrane. Peer hospitals and physicians are good sources of best practices and advice, but not necessarily of systematic reviews.

> *I mean, certainly you can tell when things are more specifically industry-sponsored. Those I always kind of take with a grain of salt.*

> *I pretty consistently go to things like AHRQ, NPSF, IHI, Cochrane; those are the types of things I will tend to gravitate towards to look for evidence.*

Preference for evidence of comparative effectiveness rather than just efficacy. KIs felt that knowing the balance of efficacy and safety of active treatments, rather than just the efficacy or just the effects versus placebo, and understanding the applicability of the evidence is critical to decisionmaking.

A whole lot of the trial evidence is not useful for the questions that I'm asking. It shows me that a particular treatment is better than nothing, but if I've got four or five treatments, I nearly never believe they're all equivalent. I've got five that I know are better than nothing, they're efficacious—which one's best?

Preference for clinical recommendations and actionable information. KIs from all types of health-systems expressed a desire for prepackaged solutions. Guidelines with specific and actionable recommendations and systematic reviews that included recommendations for practice and not just clinical trial results. They spoke very favorably of guidelines that included clinical pathways with step-by-step instructions for managing patients with specific conditions. Algorithms were appreciated because it helps facilitate an understanding of the current process and how the new information may impact that in an easier to understand fashion. This is important in root cause analysis.

Then they go into root cause analysis, that is where education begins. They start reading the evidence and start pulling the evidence down.

Desired Formats of Systematic Reviews

Systematic reviews need to have a brief summary as well as be comprehensive in the full report. KIs generally stated a preference for a short, digestable systematic review summary that allows the reader to decide if the report was "fit to the purpose" for an issue the organization was investigating and thus likely worth investing time on reading the full report. When asked about the usefullness of systematic reviews one KI found it daunting to get through a major review and pull out the main points.

…it would have been nice if I didn't have to spend the whole day to get to the information and distill it for other folks.

KIs want to push the summary, with links to the journal article or full report, to appropriate improvement team leads. One KI noted wanting the summary available quickly without requiring clicking on multiple links. Another noted that PowerPoint slides help distill a summary. Whether KI preferred a summary as a straight-up statement of findings with a fast link to the report or as a summary that provides the gist of the larger publication followed by some interpretation depended more perhaps on personal preferences rather than organizational size or class.

KIs also stated that the people deeply involved in developing practice changes needed to dive deeply into the full reports to fully understand the evidence and therefore, the availabiliy and comprehensiveness of the full report is still important.

Anybody who's actually building an evidence-based best practice guideline better read the whole article, obviously.

Gaps in Evidence Used

To better understand gaps in health-systems existing processes and evidence sources, KIs were asked to describe these gaps and future needs. Some of the key gaps consisted of the following:

How to use evidence when guidance and information are unclear or evidence is insuffcent? Most KIs were concerned about what to do when there was no clear guidance on how to translate the available evidence into practice. They were interested in the most reasonable actions, not necessarily a list of options, to use in patient care. Practical point-of-care algorithms were recommended, for example.

> *So I'm going to point again at the ASCCP [American Society for Coloposcopy and Cervical Pathology], which I think is amazing because you can Google it and because it—literally you can say, 'Okay, where does my patient fit,' plug them into the top and figure out where to go next. If there was an algorithm PDF version of the JNC 8, like 'woman in her fifties with these co-morbidities start here', that would make it way more accessible.*

> *…when you get this result, here's what you need to do.*

In addition, in systematic reviews where there is insufficient evidence or low strength of evidence for a number of treatments or approaches, it is not always apparent whether all of the options can be considered equally insufficient/low evidence or if there is a scenario where one looks to be preferred (even if there is a chance that future research might contradict the advice).

How to use evidence that is frequently not applicable to the typical patient or patient subset seen by the health-system? KIs were concerned about the extent to which the evidence in the literature is applicable to the patient populations seen in the health-system. For example, some noted that identifying and predicting the impact of interventions in high-risk patients with many medical comorbidities is difficult because they are not well studied.

> *…there may not be great evidence for what you're trying to do because there's local systems of care that are impacting the applicability of many of the things that are being done in that space.*

How to use evidence from a systematic review that may be out of date? In systematic reviews with moderate to high strength of evidence findings, KIs understand the long rigorous approaches that the investigators need to undergo. However, they are concerned with the delay from completing the analyses to publishing the results and worry that in the intervening time between publication and the time the health-system is using the review that new trials or studies have come out. They also worried that old and irrelevant evidence might be included in the

analyses so that a comparison of two approaches might be tainted by trials not using contemporary baseline therapy.

> *Things change all the time so that what we may have known two or three years ago may be different this time around.*

Topics Most Interested In

To better understand the issues that are of greatest interest to the health-systems interviewed, we asked KIs about which topics they were most interested in for their decisionmaking, such as prevention strategies, diagnostic strategies, treatment strategies, health policies, and specific clinical domains. Overall, the topics of interst to KIs varied depending on their expertise, role, and position within the health-system. While the topics suggested varied, some examples of potential topics included:

- **Predictive analytics**
    - How to identify and predict high-risk and potentially high-cost patients?

> *That to me is where sort of the predictive kind of analytics come in and that to me is a big need, especially in a high-referral practice like this because we tend to get the patients [the high-risk and high-cost patients] —and I'm sure all other AMCs will tell you this too—we tend to get these patients and so how can we sort of assess these patients in a way that really helps us personalize their care from both an outcome perspective and a cost perspective.*

   - How to use predictive analytics to understand how the system is functioning?
   - How to predict readmissions and mortality?
- **High-value care**
    - How to limit pharmaceutical use?

> *I feel like the thing that I'm most struggling with from an evidence-based standpoint, is limiting pharmaceuticals to non-pharmaceutical treatment, or figuring out how to follow all the guidelines without having people on 20 drugs, and how to de-prescribe in an evidence-based way based on age or co-morbidities or drug interactions.*

   - What are the opportunities to substitute less costly, but equally effective, pharmaceuticals for specific health conditions?

> *Can we substitute nicardipine which is relatively cheap as a vasodilator drug for nitroprusside which has increased tenfold in price over the past two years and we've had to sort of do the amalgamation. Have we—are we able to substitute Aggrastat for Integrilin, which the evidence show, if you will, equivalents for that.*

> *IV acetaminophen, perfect example that we're now having lots of controversy within our organization and we've had to do a big internal review of that because there is no real amalgamated opinion on the use of IV acetaminophen as a perioperative modulator of pain. So, if that type of service was available that might provide some value, if you will, on-demand data collection and amalgamation.*

   - How to identify which diagnostic strategies related to imaging are most cost effective?

- How to eliminate unneccessary laboratory testing?
- **Advanced care planning**
  - How to coordinate advanced care planning between the hospital, home care, hospice, primary care and specialty groups?

  So, we're trying to do work around advanced care planning and if you're really only focused on the hospital side of things, you're really not capturing—so how are we intersecting with our home care and hospice agencies? How are we intersecting with our primary care groups or specialty groups around advanced care planning? How are we creating access? So, it really behooves us to have a cross-continuum approach that we can't do at individual entities coming together to talk like a system. You have to actually function as a system to do some of that activity.

- **Care transitions and coordinating care**
  - How to improve handoffs across care settings?
  - How to coordinate advanced care planning between the hospital, home care, hospice, primary care and specialty groups?
- Some **other topics** that were briefly referenced include:
  - Measures health-systems are held accountable for (e.g., CMS measures, pay for value)
  - Antibiotic stewardship and use of antibiotic impregnated patches for pacemakers
  - Urinary tract infections
  - Falls
  - DVT prophylaxis
  - Second line infections
  - Selection of chemotherapy
  - Advanced heart failure procedures
  - Selecting the right patient for ECMO and other treatment strategies
  - Medication reconcilliation
  - Workforce resilience and well being
  - Developing relevant quality measures
  - Hepatitis C treatment coverage

Familiarity With the AHRQ EPC Program and Impressions of EPC Reports

Although our interviews focused on how health-systems get and use evidence more broadly, we also wanted to explore their familiarity with existing EPC reports and how these might be modified to help them with their decisionmaking in the future

Lack of familiarity with AHRQ EPC reports. Among the nine KIs, two were very familiar with EPC reports and AHRQ and two others had used EPC reports or their derivative publications in journals in the past. One of these KIs attributed his familiarity with earlier work he conducted with AHRQ, and a second through regular emails received from AHRQ that include results from newly completed systematic reviews. A third KI was familiar with or had

used AHRQ reports but was unfamiliar with the EPC program. The fourth KI reported having used Cochrane and AHRQ reports, but did not refer to them by name as EPC reports.

I'm familiar with the stuff that I receive from AHRQ because I do receive emails and I open them up once in a while and say, "Oh, this is pretty cool" but when I look at it and when I start looking at the details, "Well but how do you even operationalize something like this?"

I can go to... the Effective Health Care site. I've been on that but I've never really kind of connected it back to the EPC work in particular, thinking through how that happened, so that's really interesting.

Effective Health Care Web site not well known. Most KIs were not aware of the Effective Healthcare website and the ability to search using key terms. One KI noted that while email alerts are fine, it likely will not come out at exactly the time a process change is being considered. They really want to be able to access the information on-demand when they need it.

But the reality is, and using your example, if that review came out tomorrow and it sort of showed up in my inbox, I'd probably say, gee, that's very nice. It's not on our radar screen at the moment. So, that's why I spoke about having some ability to access that type of information really on demand or as needed because we're focusing on our current problems that may be driven by either we have a quality problem that needs to be addressed and it's fairly important, or we have a care delivery process that is being redesigned that we have to address, or we are faced with an important financial decision

The reports are helpful when discovered by health-systems. Four of the KIs said that they found the reports useful. One commented that they used a report when they could not find information elsewhere. Because the reports can be difficult to read, they start with more distilled information, like a journal article and then go to the larger report if they need more detail. Another said that the reports provide a baseline of what is known and not known.

One of the places that actually had it was AHRQ and I looked at the evidence and I was able to forward it to the provider that I needed to forward it to and I actually did make a presentation out of it as well.

Email notifications about reports should include brief summaries. When asked about what would be the best way for AHRQ to alert health-systems to reports on these topics, KIs noted that email is often the best way. However, KIs noted they wanted a brief summary of the topic in the email so they could easily determine whether it was relevant – and whether they should click on the link for more information. Some suggested models that use this approach including *Journal Watch, Prescriber's letter,* and *Annals of Internal Medicine.*

… my Journal Watch subscription… also helps you, like I said, to sort of gauge when evidence is changing around a topic and you might need to adjust practice. So, there are a couple of things about that that I like. It keeps evidence and evidence-based practice right front and center as I am providing care. It's something I think about every day. It

comes as a really digestible synopsis format that I can skim while I'm drinking coffee, going to the bathroom, whatever. It's super easy, and it has links to full articles…

I'll give an example of something that might work better is when Annals sends communications that are a little bit shorter and has the gist of what's in the bigger content, then that probably helps a lot more than just providing a link of the title and then saying that, 'Go to this link to see more of it' but when you click on the link it's like two or three pages long.

Alerts at multiple levels in an organization is the best strategy. In terms of who to notify about new reports released, KIs noted that there would likely be a number of people within a health-system who should be notified, including the interviewees themselves, medical directors, chief medical directors, quality and safety officers, clinical development teams, and teams working on the specific issues. This increases the chances that it will be seen by someone actively working in that area at the time.

Remember that the way it works is, we don't just come and search the list just looking for something interesting, that's not how it works. The way it works is that we are hunting for evidence around a specific topic.

Some health-systems would be interested in a closer partnership with the EPC program. KIs from some of the health-systems saw the potential for a closer partnership with AHRQ's EPC Program where they could recommend topics critical to their needs and have members of the health-systems serve as Key Informants for future Workgroups to identify key questions pertinent to health-systems.

…the idea that we could help set their agenda. That's a great idea. Because, we know what the big topics are, typically. We can say, "These are the things that are that combination of key processes, plus the things that are getting really heavy focus from the Feds."

The length of time from conception to EPC report publication inhibits maximum impact. Health-systems go from issue identification or metric discrepancy to fashioning process changes in a few months. Waiting a year from idea conception to having the results in a report impedes the rapid progress health-systems desire.

I wonder if we could better interconnect those. Now, the only real difficulty I anticipate, believe it or not, is that you won't be able to respond quickly enough…

When asked how long their timeline is from starting to work on a topic to process changes being proposed, one KI responded.

You're going to hate this. A maximum of three months.

However, the KI pointed out that although health-systems need to take action quickly, there are several opportunities for impacting downstream updates with an evidence report which might not be ready for the initial process change. Specifically, after rolling out process changes in a health-system, there are issues when it is implemented and modifications are often made several months down the line. In addition, there are also scheduled updates where new evidence can inform revisions.

I don't get it on the first pass, but by the time we come around to the next cycle--my teams meet monthly and they review these protocols monthly, their own experience, people suggest changes to the frontline, new evidence. So, it's not like they're static. A good one is… in a constant state of update to reflect current best knowledge, best experience.

Recommendations

The EPC/AHRQ working group assessed the key themes that were brought up by the KI and recommend several possible changes for consideration to the EPC Program:

1. Modify the dissemination emails that go out to health-systems to include not only the titles of the reports and hyperlinks to the full reports, but to include key messages (or hyperlinks to key messages) so that potential users can better assess the relevance of their report to their decision making and better triage the findings internally within their system.
2. Periodically construct an EPC newsletter — perhaps building off the existing EHC listserv — with a format similar to "The Medical Letter" or "Prescriber's Letter," which provides short three of four sentence summaries of report highlights with hyperlinks to reports.
3. Ensure that EPC reports are searchable both within PubMed but also within common search engines such as Google, Bing, and Yahoo. This would include having medical librarians test search using these sites, strategize how to enhance the chances of finding reports for educational purposes, and to reach out to the common search engines and inquire about ways reports can be designed to enhance pick up in searches.
4. Explore opportunities to deliver reports more quickly, perhaps through further limiting the scope of a project, writing more focused reports, or by dividing a larger topic into two or three subtopics so that more timely evidence can be available to health-system decision makers.
5. EPC reports should not make clinical recommendations like guidelines. However, if the reports could more clearly identify what the current process of care is for a target disease or disorder and where the trials/studies being summarized or pooled will inform decisions that members of health-systems could make, it would make the results more actionable.
6. Conduct broad outreach to health-systems to alert them of the topic nomination process so that these topics can be considered within the EPC program and discuss partnerships not unlike those AHRQ has with guideline groups and other federal agencies. AHRQ and the EPCs can begin with the contacts made with health-systems from this project, contacts identified from the Spring 2017 EPC meeting, and contacts identified from the health-systems which have EPCs to form an advisory group and devise a strategy.

7. Establish consistent and prominent branding of the EPC program and its products, ensure that the high-quality journal articles based on our reports are identified as part of the EPC program, and promote the EPC program as a source for timely and reliable reports to improve the quality, safety, and value of care.

Discussion and Limitations

This is one of the few known projects of its kind that specifically identifies the process and role of evidence in quality, safety, and process improvements within health-systems. We asked leaders in the field who represented or had knowledge of what was happening in academic, nonacademic, and small and rural health-systems so that we would better understand their evidence needs. Based on the feedback we received, we proposed seven recommendations that can help AHRQ's EPC program have greater visibility and impact in health-systems. The insight we gained and the recommendations we propose are, by and large, in line with those derived from prior literature as well.

Our first, second, and third recommendations center around making it easier for people in health-systems to access our reports, rapidly discern if the results are relevant to them, and to enhance the readability and clarity of those reports. These findings are similar to those of Academy Health who spearheaded semi-structured interviews with 43 individuals from safety-net health-systems in 2016.[4] The individuals from the Academy Health study encouraged researchers to learn to speak and write using clear language that is meaningful to clinicians, health-system executives, and others while tailoring a publication's length and level of detail to the needs of the intended audience. Several KIs pointed to the usefulness of one-page research briefs or syntheses that describe the problem being examined, the intervention tested, and the outcomes, with links or citations that direct the reader to more information.

Our sixth recommendation centers around educating health-systems that there is a topic nomination process where topics of particular importance to health-systems can be made and around having AHRQ partner more closely with some health-systems like they do with professional organizations and federal agencies. In the Academy Health project, health-system KIs emphasized that they have evidence needs that are unique to them and not currently assessed. KIs in the Academy Health study wanted evidence on interventions that enhance coordination and transitions of care, data sharing efficiency intra- and inter-institutionally (health-systems, pharmacies, long-term care, visiting nurses), and effectiveness of various community based interventions in patients with health disparities.[4] This is very similar to topics identified in our current project where predictive analytics, advanced care planning, care transitions, and coordination of care are specifically called out. Tying health-systems into topic nomination and partnering with them to identify and prioritize topics with particular importance to health-systems can better assure that we create reports with greater impact.

Our seventh recommendation centers around enhancing the awareness of AHRQ's EPC Program which is critical to the success of the other recommendations. In an assessment of formulary decisionmakers in health-systems published in 2013, 39 pharmacists and 18 physicians on health-systems pharmacy & therapeutics committees participated in 90-minute focus groups.[5] Overall, 51% of KIs said they had heard of the site to access EPC reports and 28% had used material from them. This is very similar to what we found in our current project with four of nine KIs being familiar with EPC reports and/or the journal publications that result from them.

Our fourth and fifth recommendations are to consider ways to reduce the time from starting a systematic review to the publication of the report and working to make the results as actionable as possible. In the formulary decisionmaker project, guidelines and clinical trials were the most highly sought after type of evidence with systematic reviews coming in third. The main critiques of EPC reports in the formulary decisionmaker project that limited their effectiveness were: the reports lacked timeliness (they came out months after the new drug needed to be reviewed internally), and the results were perceived as largely inconclusive.[5] In our current project, KIs feel the timeframe from project initiation until publication of a systematic review is too long and they prefer guidelines because they have more definitive recommendations. Systematic reviews cannot be guidelines, even though quality guidelines are driven by rigorous systematic reviews. However, they can be written clearly with the step in the care process being investigated elucidated to facilitate action within the health-system.

Our report should be viewed in light of a companion report entitled *"Developing a Framework for Evidence Needs of Health-Systems"* which was created in tandem by other representatives from the EPCs and AHRQ. While we enhanced our understanding of evidence needs for quality, safety, and process improvement through interviews with representatives from health-systems in our report, the companion report comprehensively summarizes what has already been published on this topic. Their recommendations are very much in line with ours, centering around alerting people in health-systems to new systematic review reports in a tiered manner with less detail initially, reducing the timeline from starting a project to generating a systematic review report, and partnering more closely with health-systems in topic nomination, prioritization, and development.

Our report describes the perceptions of, and recommendations from, health-system representatives who participated in our quality improvement project. The main limitation is that we did not query a large number of health-systems, just a small sample. In addition, we scheduled each of the interviews for hour-long blocks, limiting the amount of feedback we could receive versus using longer interview periods. Even with these limitations, we believe that the feedback is largely consistent across the KIs providing greater confidence in the applicability of the findings.

Conclusion

There are difference between large and small health-systems in terms of the personnel who lead quality, safety, and process changes, access to internal data and literature evidence, and the sophistication of the support team. Guidelines, systematic reviews, and randomized controlled trials were all highly sought after sources of evidence. The ability to summarize large amounts of evidence efficiently within a guideline or systematic review and the ability to reconcile conflicting trials is valuable, especially for nonspecialists. Systematic reviews, however, can be difficult for health-systems to identify, access, and utilize. In addition, there are topics unique to health-systems that could be explored by EPCs but currently are not. We propose recommendations that could enhance knowledge of the EPC program and the utilization and impact of EPC reports. Improving how we alert people in health-systems about new reports, making reports more clear and concise, and reaching out to members of health-systems to nominate topics and to partner more closely with us could result from adoption of these recommendations.

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Appendix A. Script for Quality, Safety and Process Leaders Interviews

Thank you for agreeing to meet with us today, we really appreciate your time and hope to get a better understanding about your organization and how decisionmakers within your health-system use evidence in making important care decisions.

As some background -- the Agency for Healthcare Research and Quality (AHRQ) is the lead Federal agency within the U.S. Department of Health and Human Services that is charged with improving the quality, safety, efficiency, and effectiveness of health care for all Americans. One of its programs, the Evidence-based Practice Center (EPC) program, funds 13 independent EPCs across the United States and Canada to conduct rigorous, comprehensive evidence reviews of scientific literature. These reviews focus on a variety of issues, including comparing clinical drugs or treatments, and interventions to improve health care delivery. We are conducting this project because we know our EPC work is being used by people such as guideline groups and major payors but we don't know the extent to which it is being used by key decisionmakers in health-systems. If we understood more about health-systems and the major decisionmakers who could benefit from evidence reviews, we may be able to partner more effectively with them, produce more useful products for use in this setting, let them know about our reviews, and make our future projects responsive to the needs of health-system decisionmakers.

- Do you have any questions about the overall purpose of this project?
- We would like to record the session so that we can be sure that we capture your thoughts and insight accurately. Would this be ok?

Before we dive in to our questions about using evidence within your health-system we just need a little more information on your specific role and the structure of your health-system:

1. What is your current title/role within your institution?
2. Can you tell me about how you fit into your health-system? What other departments do you interact with most? Can you describe broadly how your health-system is currently structured? {Prompts, top down structure impacted whole system or confederation of independent parts}

We now want to ask you specifically about the use of evidence within your health-system – both in terms of your use of evidence and where there are gaps that could be filled.

Process for Reviewing and Using Evidence

1. At your health-system (and within your role) what is the current process for reviewing and using evidence?
2. Who within your health-system makes the decisions about what to do with the evidence? What departments/divisions do these decisions apply to? You can think broadly about allied health professionals such as nursing and pharmacy.
3. In the next 5 years, how do you anticipate decisionmaking to change at your health-system? E.g., will it be made in a more centralized manner? More decentralized? Or on the basis of external guidelines?
4. What do you see as the greatest barriers to evidence-based medicine in your health-system?

Sources of Evidence

5. What sources do you most frequently use for identifying evidence? For reviewing evidence?
6. Who produces this evidence?
7. E.g., information that comes from within the health-system? Cochrane? AHRQ? Other sources?

Format of Evidence

8. When you review evidence, typically what format is it in? E.g., formal report, memo, PowerPoint, etc?
9. What is the typical length of this format?
10. What format do you normally use to disseminate evidence to your health-system members?

Gaps in Evidence Used

11. Do you see gaps in how you currently get evidence? How would you like to get evidence?

Topics Most Interested In

12. What topics are you most interested in for your decisionmaking?
    o Prevention strategies
    o Diagnostic strategies
    o Treatment strategies
        ▪ Drugs, devices, non-pharmaceuticals…
    o Health policies
    o Specific clinical domains?
13. If we had AHRQ EPC reports that assessed any of these topics, how would you feel about AHRQ alerting you when they became available?
    o What is the best way to alert you?

Familiarity With AHRQ EPC program

14. Are you familiar with the AHRQ EPC reports?
    o If yes:
        ▪ Are there specific reports that you have found useful in your past decisionmaking?
        ▪ Are there things that you have found not useful about the EPC reports?

Other

15. Is there anything else that you feel would be helpful for AHRQ and the EPCs to know about your evidence needs and how they can better meet your evidence needs?
16. Would you be willing to share any exemplars/examples of evidence that you use?

That is all of our questions for today. Thank you for your time. We are going to be talking to some other decisionmakers from your institution and from other health-systems. This information will be very helpful to AHRQ and the EPC Program as we consider next steps.