

Improving Health Systems' Access to High-Quality Evidence: AHRQ EPC 2018 Pilot Projects Summary



Improving Health Systems' Access to High-Quality Evidence: AHRQ EPC 2018 Pilot Projects Summary

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
5600 Fishers Lane
Rockville, MD 20857
www.ahrq.gov

Contract No. 290-2017-00003C

Prepared by:

Scientific Resource Center
Portland, OR

Investigators:

Celia V. Fiordalisi, M.S,
Amanda Borsky, Dr.PH, M.P.P.
Stephanie Chang, M.D., M.P.H.
Martha Gerrity, M.D., M.P.H., Ph.D.
Allison M. Schmidt, M.S.
Jeanne-Marie Guise, M.D., M.P.H.

AHRQ Publication No. 19-EHC015-EF
August 2019

Key Messages

Purpose of report

This report summarizes nine Evidence-based Practice Center (EPC) pilot projects that developed companion products intended to accelerate the uptake and implementation of evidence from EPC reviews in health systems.

Key messages

- EPCs developed nine companion products, which included dissemination products (e.g., short report summaries), interactive data visualization products (e.g., interactive maps), and implementation products (e.g., electronic health tools and decision aids) to help health systems use the findings from EPC reviews.
- Developing companion products to EPC evidence reviews required additional time, resources and information, and expertise.
- Before starting an evidence review, working with health systems to understand the needs and decisional dilemma they are facing will allow systematic reviewers to incorporate additional context specific information to improve usefulness for health systems.
- Companion products may help health systems use findings from AHRQ evidence reviews. Products should prioritize clear writing, meaningful tables and graphs, and tailor the evidence to the needs of a partner.

This report is based on research conducted by the Agency for Healthcare Research and Quality (AHRQ) Scientific Resource Center, funded through the following contract: Scientific Resource Center III (290-2017-00003C). The findings and conclusions in this document are those of the authors, who are responsible for its contents; the findings and conclusions do not necessarily represent the views of AHRQ. Therefore, no statement in this report should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help EPCs and AHRQ understand how EPC reports can be improved to benefit health-system decision making. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

This report is made available to the public under the terms of a licensing agreement between the authors and the Agency for Healthcare Research and Quality. This report may be used and reprinted without permission except those copyrighted materials that are clearly noted in the report. Further reproduction of those copyrighted materials is prohibited without the express permission of copyright holders.

AHRQ or U.S. Department of Health and Human Services endorsement of any derivative products that may be developed from this report, such as clinical practice guidelines, other quality enhancement tools, or reimbursement or coverage policies, may not be stated or implied.

Persons using assistive technology may not be able to fully access information in this report. For assistance contact epc@ahrq.hhs.gov.

Suggested citation: Fiordalisi CV, Borsky A, Chang S, Gerrity M, Schmidt AM, Guise JM. Improving Health Systems' Access to High-Quality Evidence: AHRQ EPC 2018 Pilot Projects Summary. Methods Research Report (Prepared by the Scientific Resource Center under Contract No. 290-2017-00003C). AHRQ Publication No.19-EHC015-EF. Rockville, MD: Agency for Healthcare Research and Quality; August 2019. Posted final reports are located on the Effective Health Care Program [search page](#). DOI:<https://doi.org/10.23970/AHRQEPCMETHENGAGESUMMARY> .

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 healthcare in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new healthcare technologies and strategies. 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 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 will inform individual health plans, providers, and purchasers as well as the healthcare system as a whole by providing important information to help improve healthcare quality. The reports undergo peer review prior to their release as a final report.

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.

Gopal Khanna, M.B.A.
Director
Agency for Healthcare Research and Quality

Arlene Bierman, M.D., M.S.
Director
Center for Evidence and Practice
Improvement
Agency for Healthcare Research and Quality

Stephanie Chang, M.D., M.P.H.
Director
Evidence-based Practice Center Program
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

Amanda Borsky, Dr.P.H., M.P.P.
Dissemination and Implementation Advisor
Center for Evidence and Practice
Improvement
Agency for Healthcare Research and Quality

Improving Health Systems' Access to High-Quality Evidence: AHRQ EPC 2018 Pilot Projects Summary

Structured Abstract

Introduction. Health systems want to use the best evidence available in their decision making, but they have limited time and resources to identify and evaluate evidence from systematic reviews. EPCs initiated a series of pilot projects in order to identify effective approaches to accelerate the uptake and implementation of evidence from systematic reviews.

Methods. EPCs developed, piloted, and evaluated nine products to facilitate dissemination or implementation of information from selected EPC systematic reviews in health systems. They conducted interviews with their health system partners to evaluate potential usability of their product. While the pilot projects were being evaluated, the EPCs met in person and used a nominal group technique to develop recommendations for the EPC Program, based on their lessons learned. After completion of reports and evaluations, the SRC conducted a content analysis of EPC pilot reports and of a semi-structured survey from all EPC projects.

Results. EPC products varied widely, ranging from dissemination products (e.g., short summaries of EPC reports) through interactive data visualization products (e.g., interactive maps) to implementation products (e.g., electronic health tools and decision aids). Most EPCs required additional expertise beyond the typical systematic review team and several needed to synthesize additional literature in order to develop their product. All required additional time to develop the products (range from 20 hours to 2,850 hours), which corresponded to the amount of additional information or expertise needed beyond the typical systematic review team. Dissemination products summarized results from systematic reviews and required on average 57 hours to develop. Interactive data visualizations used technology or software to enable an interactive interface with findings of reports and required on average 152 hours to develop. Implementation products helped health systems implement evidence into practice, and required on average 1,077 hours to develop. All but one health system reported the products would help them use evidence from systematic reviews in practice. Health systems found projects likely to improve dissemination and implementation of evidence reports by tailoring the information to suit health system needs. The only health system that reported the product would not help them implement evidence into practice was not currently facing a decisional dilemma related to the healthcare topic.

Conclusions. Companion products may help health systems use findings from AHRQ evidence reviews. Dissemination products required the least time investment, while implementation products required the most. Alternative presentation formats may allow expert users and stakeholders to interact with evidence synthesis in a more meaningful and useful way. When planning a companion product, authors should work with health systems to understand the needs and decisional dilemmas, so that context-specific information can be gathered during the review and the report can be tailored to fit evidence needs. Companion products can augment reports to improve usefulness, but require additional time and resources. Different formats may be useful for different audiences and tailored content may be more useful than general summaries. Further research is needed to understand which formats are most effective in which contexts.

Contents

Introduction..... 1

Methods..... 2

Results 4

 Sections of EPC Reviews Used in Product Development 7

 Expertise Required..... 8

 Evaluation by Health System Partners..... 10

 Characteristics of Products 13

 Lessons Learned..... 16

 Limitations 17

Recommendations 18

Conclusions..... 20

 Next Steps for the EPC Program 20

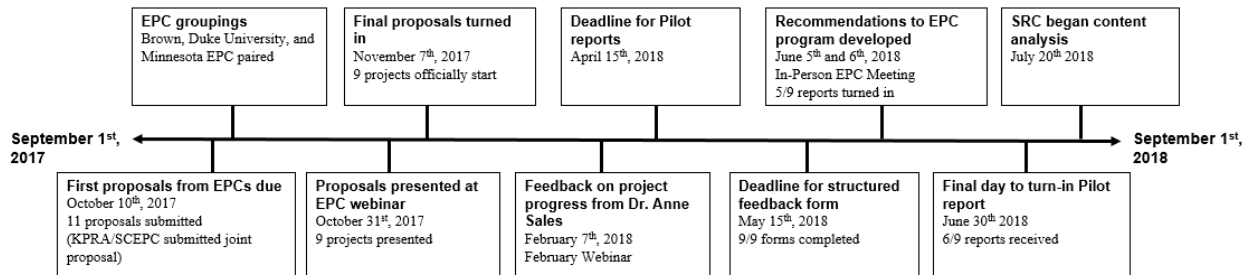
References 21

Abbreviations and Acronyms 22

Tables

Table 1. EPC pilot project groupings, pilot project titles, and corresponding EPC evidence report titles..... 2

Figure 1. Timeline of 2018 EPC pilot projects 3



..... 3

Figure 2. EPC pilot project approaches on spectrum of dissemination to implementation..... 4

Table 2. EPC review sections rated as “very useful” in product development..... 8

Table 3. Expertise required to develop and evaluate products 10

Table 4. Summary table of pilot projects..... 13

Figure D-1. Alberta-EPC 1

Figure D-2. Brown University - Duke University - Minnesota EPC..... 2

Figure D-3. University of Connecticut 2

Figure D-4. KPRA and SCEPC 3

Figure D-5. Mayo Clinic..... 3

Figure D-6. Pacific Northwest 4

 Figure D-8. RTI-UNC..... 6

Table E-1. Product features thought to improve uptake/use..... 1

Figures

Figure 1. Timeline of 2018 EPC pilot projects 3
Figure 2. EPC pilot project approaches on spectrum of dissemination to implementation. 4

Appendixes

Appendix A. Secure Site Reporting Form Questions.
Appendix B. Pilot Project Proposal Instructions.
Appendix C. Recommendations Developed by EPCs
Appendix D. Product Snapshots.
Appendix E. Report Excerpts.

Introduction

The Agency for Healthcare Research and Quality (AHRQ) established the Evidence-based Practice Center (EPC) program to promote evidence-based practice in every day care. Since 2016, the program has increased its focus on promoting use of evidence-based decision making within healthcare delivery systems. Prior work included development of a framework to categorize health system questions and needs¹ and exploration of the operational processes by which health systems identify and incorporate evidence in decision making.² Building on these efforts, AHRQ charged EPCs to engage with a self-selected healthcare system—either on their own or in partnership with other EPCs—to develop a companion product that would facilitate health system uptake and implementation of evidence from an AHRQ EPC review. EPCs were encouraged to be creative with their partners in approach and products.

Methods

The EPC Program Scientific Resource Center (SRC) analyzed and summarized these pilot project efforts, obtaining information from three sources:

1. Qualitative narrative of nine pilot project reports (see Figure 1)
2. Structured feedback provided by EPCs via a reporting form (see Appendix A)
3. Presentations and discussions at in-person EPC meetings

This report summarizes information and lessons learned from all three of these activities.

Nine Pilot Project Reports

Each pilot project report provided detailed documentation of the methods and results from the evaluation. Table 1 lists the final nine pilot project groupings and project titles (proposal instructions included in Appendix B).

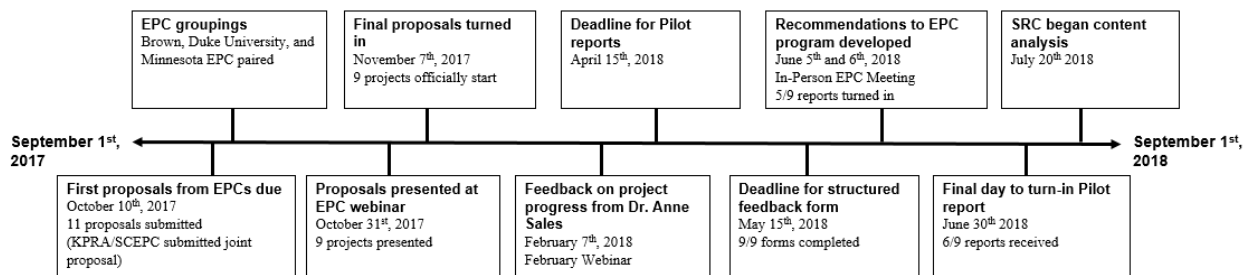
Table 1. EPC pilot project groupings, pilot project titles, and corresponding EPC evidence report titles.

Pilot Project Grouping by EPC	Pilot Project Title	EPC Review
University of Alberta (UA-EPC)	Development and Usability Testing of EPC Evidence Review Dissemination Summaries for Health Systems Decisionmakers	“Strategies to improve mental healthcare for children and adolescents” and “First and second-generation antipsychotics in children and young adults”
Brown University, Duke University, Minnesota EPC	Web Interactive Presentation of EPC Reports and Mapping to Quality Measures	“Protocol for Nonsurgical Treatments for Urinary Incontinence in Adult Women: A Systematic Review Update”
University of Connecticut (UConn)	Assessing the Impact of Indexing Performance Measure Codes on the Perceived Value of EPC Reports to Health-Systems	“Protocol for Nonsurgical Treatments for Urinary Incontinence in Adult Women: A Systematic Review Update”
ECRI Institute – Penn Medicine (ECRI-Penn)	Use of a Clinical Pathway to Facilitate the Translation and Utilization of AHRQ EPC Report Findings	“Early Diagnosis, Prevention, and Treatment of Clostridium Difficile: Update.”
Johns Hopkins University (JHU)	Disseminating Findings from EPC Reports: Pilot Project of Three Products	“Contrast-Induced Nephropathy: Comparative Effects of Different Contrast Media”
Kaiser Permanente Research Affiliates (KPRa), Southern California Evidence-based Practice Center (SCEPC)	Linking Evidence Reviews to Organizational Guideline Planning: A Pilot Test of an Interactive, Web-based Presentation and Discussion of Evidence	“Screening for Abnormal Glucose and Type 2 Diabetes Mellitus: A Systematic Review to Update the 2008 U.S. Preventive Services Task Force Recommendation”
Pacific Northwest Evidence-based Practice Center (PacNW EPC)	Improving Access to and Usability of Systematic Review Data for Health Systems Guidelines Development	“Noninvasive, Nonpharmacological Treatment for Chronic Pain Protocol”
RTI International – University of North Carolina (RTI-UNC)	Development of a Primary Care Guide for Implementing Evidence-based Screening and Counseling for Unhealthy Alcohol Use with Epic-based Electronic Health Record Tools: A Pilot Dissemination Project	“Screening, Behavioral Counseling, and Referral in Primary Care to Reduce Alcohol Misuse”

Pilot Project Grouping by EPC	Pilot Project Title	EPC Review
Mayo Clinic	Anxiety in Children- A Dual Approach to facilitate health systems uptake of evidence synthesis reports	"Anxiety in Children"

EPCs submitted proposals describing their proposed approach and timeline to AHRQ for feedback and approval. Each EPC presented their pilot at a virtual meeting on October 31st, 2017 and submitted their final proposals to AHRQ by November 7th. In February 2018, EPCs presented proposals, summaries of accomplishments, and issues/questions at a virtual meeting with feedback from an implementation science expert, Dr. Anne Sales. Each EPC conducted monthly calls with AHRQ staff to track progress between December 2017 and August 2018. A first draft report was due April 15th and final report was due June 30th following discussions at an in-person meeting in June 2018. Figure 1 summarizes the pilot project process and timeline.

Figure 1. Timeline of 2018 EPC pilot projects



Structured Feedback

The SRC and AHRQ developed a semi-structured form to obtain feedback on projects and lessons learned across all pilot projects. The structured feedback form opened for data entry on January 24th, 2018, and closed June 1st, 2018. Several questions were based on the Reach Effectiveness - Adoption Implementation Maintenance (RE-AIM) framework for implementation,^{3,4} with other questions developed by investigators. Subject areas included: potential implementation and impact, process descriptions, applicability of product to other EPC reviews or health systems, and EPC impressions of completing the project (Appendix A).

Presentations and Discussions at In-Person Meeting

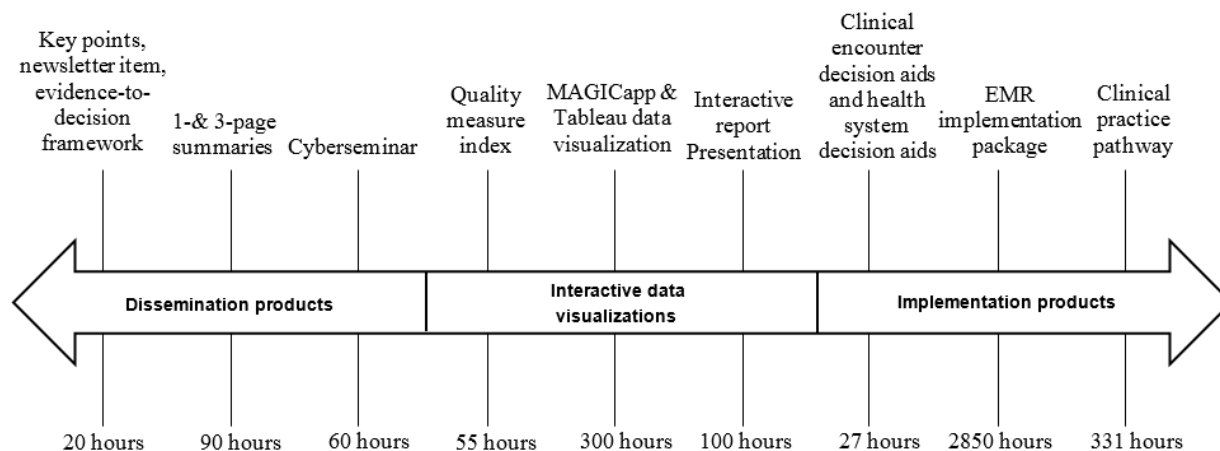
After pilot projects had been developed and were underway, each EPC presented preliminary findings, lessons learned from their product evaluation to date, and interim recommendations to the AHRQ EPC Program at an in-person EPC meeting (see Appendix C). Using an adapted nominal group technique, EPCs, AHRQ, and external health system speakers consolidated the individual lists from interim recommendations and arrived at consensus on the most important and actionable recommendations for the EPC Program. The three recommendations – along with the summary themes from each EPC project – are described in the final section of this report.

Results

The EPCs developed three main types of companion products: (1) dissemination, (2) interactive data visualization, and (3) implementation. Dissemination products all aimed to provide a general overview of the evidence and inform a system-level or departmental decision. Interactive data visualizations generally provided more detailed data than dissemination products with the intent of informing or answering very specific questions. Implementation products aimed to integrate evidence into clinical workflow (see Appendix D for snapshots of the products).

In this section, we summarize the products and the results of their respective evaluations. Table 4 provides a detailed summary of key features and characteristics of these products. And, to help characterize the chosen approach to improve uptake of EPC report findings, Figure 2 depicts the EPC pilot projects on the dissemination to implementation continuum, as described by Tabak and colleagues.⁵ Total time required for conducting pilots ranged from 20 hours to 2850 hours. All EPCs reported the total time it took to conduct the pilot. However, it's important to note that some pilots had funding beyond the EPC program to conduct their work. This may have enabled them to develop larger scale projects than others. Pilots reporting receiving outside funding included the EMR implementation package and clinical practice pathway (331 hours and 2850 hours, respectively).

Figure 2. EPC pilot project approaches on spectrum of dissemination to implementation.



Dissemination Products

Dissemination is defined by Tabak et al. as “an active approach of spreading evidence-based interventions to the target audience via determined channels using planned strategies.”⁵ We expanded on this definition to include products that involved repackaging portions of existing EPC reviews or key messages into a more readable format or through Cyberseminars. Products considered to fall within the category of dissemination products are: key points, newsletter items, and Evidence-to-Decision framework; 1- & 3-page summaries; and a Cyberseminar. All three products within this category provided high-level summaries of the EPC review and aimed to address department or systems-level decisions.

- **Key points, newsletter item, and Evidence-to-Decision (EtD) framework.** The Johns Hopkins University EPC developed, piloted, and compared three different products. Key

points (developed from current EPC program guidance), a newsletter item (developed according to recommendation from a previous workgroup)², and an Evidence-to-Decision (EtD) framework developed according to guidance previously published by Grades of Recommendation Assessment, Development and Evaluation (GRADE).⁶ The primary source of the information in JHU's products was the EPC review executive summary and accompanying journal manuscript. For the EtD framework, questions pertaining to EtD elements (such as benefits/harms, outcome importance, equity, acceptability, and feasibility) were phrased to health system partners to stimulate their thinking about these parameters.

- **1- & 3-page summaries.** The UA-EPC developed 1- and 3-page summaries for two EPC reviews based on guidance from the Canadian Foundation for Healthcare Improvement and Cochrane.^{7, 8} Information included in UA-EPC's products primarily came from the EPC reviews' executive summaries. The two products intentionally differed on specific design elements (use of color, placement of program logos, and others), and types of information included (qualitative versus quantitative) for the purpose of comparison. Both summaries briefly mentioned methods, with links to the full reports, and in the summary of a qualitative EPC review, information included strength of evidence, and qualitative comparative analysis figures were presented. The quantitative summary product displayed summary tables, strength of evidence, and network-meta analysis figures.
- **Cyberseminar.** The Southern California EPC (SCEPC) and Kaiser Permanente Research Affiliates jointly developed and evaluated a Clinical Operations Evidence Review (COER) Cyberseminar. The interactive seminar format was developed based on investigator experiences with the United States Preventive Services Task Force (USPSTF), Veteran's Affairs Cyberseminar program, and SCEPCs' previous expert panel work. The Cyberseminar highlighted implementation-ready interventions and went beyond simply describing the evidence by including contextual and implementation considerations.

Projects that needed more information or expertise beyond the systematic reviews (SRs) required the most time (Table 3). The 1- and 3-page summaries required additional literature searching and summarizing of relevant contextual information as well as graphic design expertise and required the most time of the dissemination projects at 90 hours. The Cyberseminar included additional information such as framing EPC review findings with other SRs being used by health system partners, Centers for Medicare and Medicaid Services (CMS) reimbursement information, additional considerations identified with health system partners, and required additional implementation science expertise with a total of 60 hours. Developing key points, newsletter items, and EtD frameworks used no additional expertise or literature review, and thus required the least time—20 hours—to prepare.

Interactive Data Visualization Products

EPCs developed interactive data visualization products to promote understanding and use of EPC review findings through quality measure indexing, MAGICapp and Tableau data visualization, and an interactive report presentation. We included in this category any products that used technology or software to enable an interactive interface with report findings. Data visualization has been previously described as “encompass[ing] a broad set of techniques for representing data values and other information graphically.”⁹

- **Quality measure indexing.** The University of Connecticut EPC piloted a table within EPC reviews that would direct readers to the appropriate page numbers where quality measure relevant information could be found. In electronic formats of the report, the page numbers in the Quality measure index table would be hyperlinked, immediately redirecting readers to the relevant pages. Quality measure indexing was developed based on feedback from previous methods workgroups² and additional health system feedback. Investigators needed to perform a review to identify relevant quality measures as this information is not typically contained in EPC reviews.
- **MAGICapp & Tableau data visualization.** The Pacific Northwest EPC explored various existing software options for different data visualizations. The EPC selected and piloted two interactive data visualizations using MAGICapp and Tableau software, respectively. The MAGICapp visualization used a standardized template that allowed users to see summary results at a high level, but also “drill down” into specific information as needed. The Tableau visualization required more programming effort, but allowed the user to “slice and dice” to see specific types of information as needed.
- **Interactive report presentation.** The Brown University EPC developed an open-source web-based interactive report that allowed users to compare across select populations, interventions, and outcomes of interest. Data for meta-analyzed and non-meta-analyzed outcomes were included in the product. Health system partners provided feedback on key features and analyses in mockups of the interactive tool.

All three projects within this category required additional expertise beyond that of a typical SR team, including clinical expertise on the topic area, computer programming, and the need to develop expertise with MAGICapp and Tableau software (Table 3). Products within this category required no additional literature review or analyses. Learning new software required more time investment than learning the content of a report. The Quality measure indexing project required 55 hours and was based on a report not completed by that EPC, thus requiring some time investment to understand content, and the MAGICApp and Tableau visualizations required 300 hours and investigators had to familiarize themselves with new software. The interactive report presentation required 100 hours to complete. All three products within this category included detailed data and allowed some customization or specification to lead end-users to results of interest.

Implementation Products

Implementation is defined by Tabak et al. as “the process of putting to use or integrating evidence-based interventions within a setting,”⁵ and products categorized as facilitating implementation include: clinical encounter decision aid and health system decision aid, clinical practice pathway, and Electronic Medical Record (EMR) implementation package. We expanded upon the Tabak et al. definition for implementation products to include those that facilitated integration of evidence directly into clinical workflow.

- **Clinical encounter decision aid and health system decision aid.** The Mayo Clinic EPC developed two decision aids: a health system decision aid and an encounter decision aid. The health system decision aid was developed based off the EtD framework by GRADE,⁶ and includes information on costs, feasibility, and other implementation considerations that are not typically included in EPC reviews. The encounter decision aid was developed based on “the principles of shared-decision making and the design characteristics

recommended for decision aids,”¹⁰ and includes information pertaining to harms and effectiveness.

- **Clinical practice pathway.** The ECRI-Penn EPC piloted a clinical pathway that was integrated into the EMR. The clinical practice pathway was developed based on Penn Medicine’s existing 10-step process for developing pathways, including a review of existing guidelines, rapid review updates, and clinical input to develop a structured pathway. Health system partners reviewed and gave feedback on pathway prototypes.
- **EMR implementation package.** The RTI-UNC EPC piloted an implementation package that included an EMR integrated tool (Nurses Best Practice Alerts) and instructions for use. The EMR implementation package included an overview of implementation, preliminary steps, detailed implementation steps, facilitators, and barriers to implementation.

All three implementation products required additional information beyond what was typically contained within an EPC review. Two products involved integrating evidence into clinical workflow through the EMRs. Both were highly resource intensive requiring not only additional literature review or synthesis, but also clinical expertise to develop the clinical pathway. The implementation package required 2,850 hours to complete, and the clinical practice pathway required 331 hours to complete. The clinical encounter decision aid and health system decision aid required additional literature review and analyses on contextual factors pertaining to cost preferences, patient values, implementation considerations, feasibility/acceptability considerations, as well as expertise in graphic design, and required 27 hours to develop.

Sections of EPC Reviews Used in Product Development

EPCs rated which sections of the EPC reports were most useful based on the type of companion product they developed. The executive summary, key points, and summary of findings sections were most often rated “very useful” by EPCs (see Table 2). Not all projects completed this question on the structured reporting form (n=8).

Table 2. EPC review sections rated as “very useful” in product development

Type of product	Key Points: Dissemination Products	1 & 3 Page Summary: Dissemination Products	Cyber-seminar: Dissemination Products	Quality Measure Index: Interactive Data Visualization Products	MAGICapp and Tableau: Interactive Data Visualization Products	Interactive Report Presentation: Interactive Data Visualization Products	Decision Aids: Implementation Products	EMR Implementation Package: Implementation Products	Clinical Practice Pathway: Implementation Products	Total Count (n=8)
Executive summary	✓	✓	✓	✓	✓	✓	✓	✓		8
Key messages		✓	✓	✓		✓	✓	✓	✓	7
Summary of findings table		✓	✓	✓	✓		✓	✓	✓	7
Evidence table			✓		✓	✓	✓	✓	✓	6
GRADE table				✓	✓	✓		✓		4
Other: analysis figures						✓				1
Other: e.g. Published article	✓							✓		2

Expertise Required

The majority of pilots, seven of nine, reported that additional expertise (beyond what is typically present in EPCs) was required to conduct this pilot, which seemed to correlate with the amount of time required to complete the project. While all reported requiring skills in evidence synthesis and project management, the majority, seven of nine, also reported they required staff with expertise that is typically not contained in EPCs such as qualitative research evaluation methods, health system experience, and specific clinical expertise. Other areas of expertise mentioned included graphic design, computer programming, and development of clinical pathways. Table 3 provides information on the types and number of products requiring certain types of expertise. The non-typical SR team expertise required to develop the dissemination products was graphic design and implementation science, while the non-SR expertise required to develop the interactive data visualizations revolved around software or computer programming. The implementation products required expertise in creating EMR integrated tools and graphic design.

Table 3. Expertise required to develop and evaluate products

Expertise	Key Points: Dissemination Products	1 & 3 Page Summary: Dissemination Products	Cyber Seminar: Dissemination Products	Quality Measure Index: Interactive Data Visualization Products	MAGICapp and Tableau Data Visualization: Interactive Data Visualization Products	Interactive Report Presentation: Interactive Data Visualization Products	Decision Aids: Implementation Products	EMR Implementation Package: Implementation Products	Clinical Practice Pathway: Implementation Products	Total Count (n=8)
Clinical	✓	✓	✓	✓			✓	✓	✓	7
Health system		✓	✓		✓		✓	✓	✓	6
Quantitative research			✓		✓	✓		✓		4
Implementation science		✓	✓					✓		3
Graphic design		✓			✓		✓			3
Quality improvement			✓	✓						2
Guideline development									✓	1
Pathway development									✓	1
Computer programming						✓				1

Evaluation by Health System Partners

EPCs were required to evaluate their new product and to get feedback from the health system on the new product and its uptake. But the method of their evaluation and the type and amount of data they collected varied widely.

Dissemination Products

- **Key points, newsletter item, and Evidence-to-Decision (EtD) framework.** The three different products were evaluated by members of the Johns Hopkins Health System using a survey comprised of open-ended and discrete questions (Table 4). The key points and newsletter item products were considered useful by one of four health system partners, and the remaining health system partners either did not respond or did not have favorable impressions for the format or content of products. Health system partners who did not view products as useful stated the evidence did not include interventions relevant to their system or was not new.
- **1- and 3-page summaries.** Topic-relevant members of Strategic Clinical Networks (SCNs) evaluated the summary documents using a think-aloud exercise (Table 4); these members develop and implement change across the SCN and also determine areas of future research. Health system partners determined that the 3-page summaries included the right amount of information to be most useful in decision making. Health system partners felt the 3-page summaries should have their purpose and intended audience clearly indicated upfront, use an unambiguous layout (intuitive headings and subheadings), and use plain language as much as possible.
- **Cyberseminar.** The Cyberseminar was evaluated by members in varying roles early in a topic-relevant guideline development process at Kaiser Permanente using both interviews and an online survey. All elements presented in the Cyberseminar were rated as somewhat or very important by those who completed the survey, although only two of nine queried answered all questions.

Interactive Data Visualization Products

- **Quality measure indexing.** The quality measure indexes were evaluated by senior leadership positions at Duke University Health System and clinicians from Hartford Healthcare and University of Connecticut Healthcare. Including indexes decreased the amount of time required to find quality measure-related material and health system partners in a structured survey responded quality measure index tables were “very easy to use.” Health system partners rated their likelihood as “somewhat likely” or “very likely” to use EPC reviews in the future if they had enhanced quality measure tables available.
- **MAGICapp and Tableau data visualization.** The MAGICapp and Tableau visualizations were evaluated by the director of clinical integration at Oregon Health & Science University. Interviews with health system partners showed these two products were useful in their ability to customize data presentation to audience needs; for example, expert level users could “slice and dice” data as needed to explore particularly relevant aspects of the data or “drill down” from general summaries for more novice users. Health system partners expressed preference for Tableau, appreciating the graphical presentation of results across outcomes.

- **Interactive report presentation.** The interactive report presentation was evaluated by senior leadership positions at the Duke University Health System. Health system partners at the Duke University EPC and Minnesota EPC evaluated an interactive tool that allowed users to display customizable degrees of detail in data. The final product was considered useful by health system partners but some suggested improvements include analyzing subpopulations, including multiple outcomes, displaying more information within hyperlinks, and improving interoperability.

Implementation Products

- **Clinical encounter decision aid and health system decision aid.** Senior leadership, clinicians, and patients from the Mayo Clinic health system evaluated the clinical encounter and health system decision aids. Health system partners considered the health system decision aid very useful as it included important information necessary for decision making such as cost, implementation considerations, and feasibility; health system partners requested future tools include information pertaining to side effects and safety. Clinician and patient partners generally found the tool helpful and promoted evidence-based decision making in clinical encounters.
- **EMR implementation package.** The clinical director and social worker from the University of North Carolina General Internal Medicine clinic evaluated the EMR implementation package using quality improvement metrics such as screening percentages and fidelity to screening protocol, while a semi-structured interview was conducted based on the RE-AIM framework.³ Integration of the tool increased patients screened by about 45 percent. Most sections of the implementation package were rated as either “very useful” or “somewhat useful.”
- **Clinical practice pathway.** A multidisciplinary stakeholder panel comprised of individuals from Penn Medicine provided input for the Clinical practice pathway. Final pathway utilization was evaluated using metrics such as view rate. In four and a half months of use (April 15th, 2018– August 31st, 2018), the pathway was viewed 325 times. The pathway has also been uploaded onto the AHRQ CDS Connect site as of October 12, 2018.¹¹

Characteristics of Products

Table 4. Summary table of pilot projects

Type of Product	Key Points, Newsletter Item, Evidence-To-Decision Framework: Dissemination Product	1- & 3-Page Summaries: Dissemination Product	Cyberseminar: Dissemination Product	Quality Measure Index: Interactive Data Visualization Product	MAGICApp & Tableau Data Visualization: Interactive Data Visualization Product	Interactive Report Presentation: Interactive Data Visualization Product	Clinical Encounter and Health System Decision Aids: Implementation Product	Implementation Package Including EMR Tool Development: Implementation Product	Clinical Practice Pathway: Implementation Product
EPC project	JHU	UA-EPC	KPRA / SCEPC	UConn	Pacific Northwest	Brown / Duke / Minnesota	Mayo Clinic	RTI-UNC	ECRI-Penn
Health system partner	JHU Health System	Alberta Health Services	Kaiser Permanente Care Management Institute	Duke University Health System; Hartford Healthcare; UConn Health Care	Oregon Health & Science University	Duke University Health System	Mayo Clinic Health System	University of North Carolina General Internal Medicine Clinic	Penn Medicine
Role within system	Department-level	System-level	System-level	System-level	System-level	System-level; clinicians	System-level; clinicians	Department-level	System-level; clinicians
Product intent	Inform departmental decision on which contrast media should be used	Provide overview of the state of the evidence	Provide interactive forum to discuss evidence translation and inform national, system-level guideline development	Identify and match AHRQ EPC evidence reports associated with quality improvement measures	Inform ongoing work related to opioid prescribing guideline development	Create customizable information about desired comparisons and outcomes	Support system-wide implementation of a therapy and promote evidence-based decision making among patients	Support systems-wide implementation of updated alcohol abuse screening recommendations	Inform clinical decision making regarding <i>Clostridium difficile</i> infection treatment
Health system partner evaluation method	Electronic survey with combination of open ended and discrete questions	Interview; "think aloud exercise"	Interview with key partners; survey of several Cyberseminar participants	Interview, timed evidence-finding exercise, survey	Interview with key partners	Interview and electronic survey	Interview with clinicians, patients, and decision makers	Interviews based on RE-AIM, ³ survey; and proportion of patients offered counseling	Interview; monitored pathway utilization

Type of Product	Key Points, Newsletter Item, Evidence-To-Decision Framework: Dissemination Product	1- & 3-Page Summaries: Dissemination Product	Cyberseminar: Dissemination Product	Quality Measure Index: Interactive Data Visualization Product	MAGICApp & Tableau Data Visualization: Interactive Data Visualization Product	Interactive Report Presentation: Interactive Data Visualization Product	Clinical Encounter and Health System Decision Aids: Implementation Product	Implementation Package Including EMR Tool Development: Implementation Product	Clinical Practice Pathway: Implementation Product
Type of info included from systematic review	<ul style="list-style-type: none"> High-level summary Executive Summary 	<ul style="list-style-type: none"> High-level summary Key Messages Executive Summary 	<ul style="list-style-type: none"> High-level summary 	<ul style="list-style-type: none"> Executive Summary 	<ul style="list-style-type: none"> Executive Summary Evidence tables 	<ul style="list-style-type: none"> Evidence tables 	<ul style="list-style-type: none"> Key messages Executive Summary 	<ul style="list-style-type: none"> Executive Summary 	<ul style="list-style-type: none"> Executive Summary Evidence tables
Rationale for EPC review chosen	Selected by EPC (review covered system-level intervention)	Two topics – one selected by health system and one selected by EPC	Selected by health system (relevant to ongoing initiatives)	Selected by EPC (in order to collaborate with Brown/Duke/Minnesota EPC)	Selected by EPC (high general interest)	Selected by EPC (quantitative analysis)	Selected by EPC and health system (relevant to ongoing initiative)	Selected by EPC and health system (relevant to ongoing initiative)	Selected by EPC and health system (relevant to ongoing initiative)
Additional information added	None	Contextual information	Contextual information	Relevant Quality Measures	None	None	Implementation considerations	Implementation considerations	Rapid review of current guidelines and clinical pathways
Total time to develop	20 hours	90-hours per product	60 hours	55 hours (Estimated range 30-50 if more familiar with content)	300 hours	100 hours	50 hours	2850 hours	331 hours
Evaluation results *	<ul style="list-style-type: none"> “Pushing” information not requested by decision makers not useful 	<ul style="list-style-type: none"> Include the purpose and intended audience upfront Maximum three pages with key messages, details on results, and 	<ul style="list-style-type: none"> Cyberseminar was rated “good” or “excellent” Local politics need to be considered when inviting participants 1 respondent said “extremely 	<ul style="list-style-type: none"> Required less time to identify information relevant to quality measure Liked table that efficiently directed to relevant pages 	<ul style="list-style-type: none"> Platforms allow customization for different audiences (clinicians, guidelines developers, etc) Appreciate visual graphics 	<ul style="list-style-type: none"> Upfront key messages requested Allow customizable tables and subgroup analyses Integrate with SRDR 	<ul style="list-style-type: none"> Health system Decision Aid: Very useful because it included implementation considerations Liked brevity and concision 	<ul style="list-style-type: none"> Most sections rated as “very useful” or “somewhat useful” Increased screening rate by 45% Providing direct, 	<ul style="list-style-type: none"> EPC reviews are insufficient as the sole evidence source for clinical pathways From May 1st to August 31st, to pathway

Type of Product	Key Points, Newsletter Item, Evidence-To-Decision Framework: Dissemination Product	1- & 3-Page Summaries: Dissemination Product	Cyberseminar: Dissemination Product	Quality Measure Index: Interactive Data Visualization Product	MAGICApp & Tableau Data Visualization: Interactive Data Visualization Product	Interactive Report Presentation: Interactive Data Visualization Product	Clinical Encounter and Health System Decision Aids: Implementation Product	Implementation Package Including EMR Tool Development: Implementation Product	Clinical Practice Pathway: Implementation Product
		<p>strength of evidence.</p> <ul style="list-style-type: none"> • Use meaningful images, graphs, figures, and tables to convey information 	<p>important” to address implementation issues”</p>		<p>across outcomes(T ableau) and links to primary studies (MAGICApp)</p>	<p>and MEDLINE</p> <ul style="list-style-type: none"> • More informative and dynamic “exhibits” showing strength of evidence, sample size, etc, and need hyperlinks to original studies 	<ul style="list-style-type: none"> • Clinical encounter aid: helped patients visualize effects of treatment 	<p>practical guidance for implementation found to be very useful</p> <ul style="list-style-type: none"> • Alert fatigue can be a barrier with EMR integrated reminders 	<p>was viewed 325 times</p>

Abbreviations: JHU- Johns Hopkins University; UA-EPC- University of Alberta; KPRA/SCEPC- Kaiser Permanente Research Affiliates/Southern California Evidence-based Practice Center; UConn- University of Connecticut; R TI-UNC- University of North Carolina; ECRI-Penn- Penn Medicine; EMR- Electronic Medical Record; RE-AIM- Reach Effectiveness-Adoption Implementation Maintenance; SRDR- Systematic Review Data Repository.

*The method of each EPC’s evaluation and the type and amount of data collected varied widely.

Lessons Learned

We asked EPCs to indicate whether they believed their pilot would be applicable to other health systems and to other EPCs reports—all reported that they would be useful. A few key caveats included—

- Given the complex nature of EPC reviews, many pilot projects recommended companion products be developed by the EPC that conducted the original review. They noted that becoming familiar with an outside report is time consuming and identifying salient points for products can be challenging.
- Some companion products would only be applicable to other reports with similar types of analyses or comparisons (e.g., quantitative vs qualitative summary of the evidence).
- Companion products could be useful to other health systems, if health systems were also interested in the topic.

The ultimate goal of this overall these pilots was to identify ways to promote the systematic uptake of high-quality evidence into routine practice in health systems. Overall, we found some product features helped to improve uptake and use of the products and some features reduced uptake and use.

Appendix E presents excerpts from pilot project reports documenting feedback received from health system partners related to features that would reduce the likelihood of uptake and those that were thought to improve uptake of translational products. Key themes include—

Improving Uptake

Products were generally well received because they displayed important information in a concise format, allowed end users to explore/tailor information relevant to them, and provided contextual information to implement in health system. More specifically important features included:

- Ability to tailor information
- Simplicity
- Readability
- Credibility of evidence source
- Visually appealing graphics
- Meaningful tables
- Layered and interactive data displays
- Including contextual information
- Including cost and implementation considerations
- Evidence easily accessible in workflow

Reducing Uptake

Factors that limited the uptake and utility of products included:

- Lack of organizational readiness
- “Pushing” of information when there wasn’t an organic need
- Not including desired comparisons (subgroups or tradeoffs)
- Irrelevant information
- Platform or format limitations that limited ability to tailor information
- Not including desired implementation, cost, or contextual information

Limitations

Several key factors limit our assessment of these pilots. Pilots were developed independently over a short time period using different reviews, intended audiences, product formats, and evaluation methods. While this report attempts to summarize across these variations, we couldn't make project comparisons. Thus, it is not clear which, if any, product would be most effective if applied to other evidence reports or which would be likely to be used by other health system partners.

The process by which EPCs evaluated their product varied by project, but most EPCs interviewed their health system partners about potential usefulness of the product. The timeline for these projects was short and did not allow time to evaluate whether the health system partner implemented findings and the utility and impact of the EPC review for the health system partner. Also, because the same EPC that developed the product and had been working with the health system is asking the evaluation questions, it is possible that health systems might have been reluctant to be too critical or candid in their responses.

Most pilots did not routinely or methodically collect time data, and many EPCs merely provided estimates of development time by email after the pilots completed. Some projects built on existing well-refined processes with existing infrastructure (e.g., Penn pathways, Mayo Clinic decision aids), which may mask the total resources required to create these products *de novo* in other institutions. The synthesis of report findings was an iterative process. Although there were some structured elements for analysis defined *a priori*, the categories by which the products are grouped (dissemination, interactive data visualization, implementation) and analyzed were developed after pilots were completed.

Recommendations

Health system partners found eight of the nine companion products to be helpful for understanding and using the findings from an EPC review. The positive feedback regarding these products suggests that they may be a useful step toward bridging the gap between evidence production and use in health systems.¹² Overall, based on these pilot projects, we learned the following:

- **Companion products may help health systems use findings from AHRQ evidence reviews.** Developing companion products may be one way the EPC program can attempt to close the gap between evidence synthesis and evidence implementation by health systems. But, more work is still needed to better understand what types of products are most appropriate for the various types of decisions health systems make.
- **Present concise and tailored evidence.** Health system partners generally liked products that display evidence in a concise format, allow end-users to explore details that are relevant to them, and provide the contextual information needed to implement findings in a health system. The information also needs to provide the level of detail about sub-populations and other specifics that are based on the individual needs of the health system. While interactive data visualization products allow the user to tailor the information presented, they could not necessarily do every analysis an end-user may need.
- **Don't "push" products for an unknown need.** Products should not "push" information to health systems. This was a critique of the dissemination products. Health systems should have an organic need for the evidence and reason to use the evidence. Lack of organizational readiness within the health system was a reason for poor feedback and experiences from the health systems.
- **Developing companion products requires additional expertise.** Development of these translational products required additional skills beyond what are typically found in EPCs; such as qualitative methods, health system expertise, computer programming, and graphic design. Several pilot project reports as well as previous methods workgroup findings^{1,2} have suggested that EPC reviews could be improved with the addition of more meaningful graphs, figures, or other visual presentations of data. Implementing this however may prove difficult as the skillset contained within EPCs has not typically included those with graphic design expertise.
- **Developing companion products requires additional time and resources.** All products required additional time and resources to be completed, which may make them a challenge to include with each report, despite the benefit they may provide in promoting the uptake of evidence. For example, the RTI-UNC pilot had nearly two years additional funding (prior to FY2018 TO1 funds) to develop their product. While this product was based off an EPC review, additional resources were required to make it implementable within the UNC health system.
- **Health systems often required information beyond what was available in the original EPC review.** This additional information may include costs, harms, subpopulations, summaries of organizational guidelines, and prior reviews. Some of this information could potentially be included in an EPC review, but in order to do so, the specific needs must be known at the start of an evidence report. Additional information

was needed for some of the dissemination and implementation products, but not data visualization products.

These themes and findings align with the EPCs three recommendations to the program, based on their experiences while conducting these pilots.

1. Re-conceptualize the presentation of report findings through use of software tools, alternative graphical formats, and concise summary text to make data more accessible, user-friendly, and adaptable.

EPC reviews have typically contained primarily text and table-based results, which may not be the most accessible way to display data. Creating visually appealing, understandable presentations of data will likely increase uptake of EPC review findings. Tools can prevent the need to make updates in multiple places at the draft stage. These products could be developed alongside or separately from the SR, although would likely require different expertise.

Additional summary/data presentation formats should capitalize on the work already being done by EPCs. For example, EPCs already upload review data to the Systematic Review Data Repository (SRDR)¹³ and many EPCs use DistillerSR¹⁴ to facilitate the conduct of their reviews. Both of these tools could be used to create alternate presentations of findings while minimizing additional time investment from EPCs. Website repositories such as CDS Connect can help improve uptake and use of implementation products such as clinical pathways and EMR tools.

2. Topic refinement processes should clarify the decisional dilemma and identify any needed contextual or implementation information.

For any EPC review, a close relationship with the end-user beginning in the topic refinement stage will promote the production of the most useful report. Topic refinement occurs after an EPC has been awarded a review and aims to further refine the review's scope and key analytical questions. The topic refinement stage is the best place to ensure a review is appropriately scoped and will include all necessary information for decision makers, potentially including information on implementation and contextual factors.

However, it is important to keep in mind that the more tailored a review is to a specific decision maker, the less generalizable the review potentially becomes to a wider audience. Finding a balance between creating a usable review that meets the needs of an end-user and including information general enough to be meaningful to a wider audience creates unique challenges for the topic refinement and tool development process.

3. To enhance utility of reviews for health systems, certain content in an evidence review may be needed on a case-by-case basis.

Report end-users often need additional information not typically contained in reviews to make findings actionable. Some additional elements that may be needed by health systems include EtD framework elements such as: tradeoffs, costs, values, resources, personnel and training, feasibility, acceptability; contextual information such as how results fit in with current standards of care; and recommendations or synthesis of current guidelines. Much of this information could be collected and synthesized via an environmental scan or key informant interviews and do not necessarily require SR.

Conclusions

EPC reviews serve as a comprehensive, high-quality, trusted source of evidence. To increase the use of evidence by health system partners, EPCs developed companion products, based on the evidence from existing EPC reviews. These companion products can be described as dissemination products, interactive data visualization products, and implementation products. The dissemination products provide a range of different levels of information from the larger EPC review in concise, organized formats. The interactive data visualization products allow users to view the review evidence in as much detail as is of interest to the user. These products preserve the comprehensiveness of the reviews and make details accessible, while attempting not to overwhelm the user in the way a full EPC review might. Implementation products provided additional contextual information that was required to fully integrate evidence into clinical care. All three types of companion products had some degree of usefulness for health systems and further research could explore which types of products are most useful in different contexts.

Next Steps for the EPC Program

The results from these pilots are already being incorporated into AHRQ EPC program efforts to improve health systems use of evidence reports. Some examples of new efforts include—

- Convening a Learning Health Systems Panel to help identify how EPC evidence reports can help health systems improve patient care.
- Building SRDR 2.0 to help make EPC reviews more interoperable and computable, and easily transferrable to other formats.
- Exploring a new interactive website that will allow users to create a customizable summary and data visualizations of report findings.
- Piloting brief report summaries that will provide a higher-level overview of the evidence review findings, which can be used by a wide group of decision makers.
- Reconfiguring AHRQ EPC report guidance to ensure reviews focus on a defined set of decisional dilemmas and report evidence as it pertains to those knowledge needs.

References

1. Schoelles K, Umscheid C, Lin J, et al. A Framework for Conceptualizing Evidence Needs of Health Systems. 2017.
2. White CM, Sanders Schmidler GD, Butler M, et al. Understanding Health-Systems' Use of and Need for Evidence To Inform Decisionmaking: Agency for Healthcare Research and Quality (US), Rockville (MD); 2017.
3. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health*. 1999 Sep;89(9):1322-7. PMID: 10474547.
4. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health*. 1999 1999/09/01;89(9):1322-7. doi: 10.2105/AJPH.89.9.1322.
5. Tabak RG, Khoong EC, Chambers DA, et al. Bridging research and practice: models for dissemination and implementation research. *Am J Prev Med*. 2012 Sep;43(3):337-50. doi: 10.1016/j.amepre.2012.05.024. PMID: 22898128.
6. Alonso-Coello P, Schünemann HJ, Moberg J, et al. GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 1: Introduction. *BMJ*. 2016;353. doi: 10.1136/bmj.i2016.
7. Foundation CHSR. Reader-Friendly Writing - 1:3:25. 2010. <https://www.cfhi-fcass.ca/PublicationsAndResources/ResourcesAndTools/CommunicationNotes/10-06-01/d497a465-5398-4ec8-addf-d7cbf86b1e43.aspx>. Accessed December 10, 2018.
8. Cuello C. Probiotics and necrotizing enterocolitis in preterm babies: Cochrane Review. In: *Reviews CDoS*, editor; 2014.
9. Hallgren KA, McCabe CJ, King KM, et al. Beyond path diagrams: Enhancing applied structural equation modeling research through data visualization. *Addictive Behaviors*. 2018 2018/08/29/. doi: <https://doi.org/10.1016/j.addbeh.2018.08.030>.
10. Morrow A.S. W, S.P., Sim, L., Brito, J.P., Wang, Z., Murad, M.H. EPC Pilot Project, Anxiety in Children- A Dual Approach to facilitate health systems uptake of evidence synthesis reports . (Prepared by the Mayo Clinic Evidence-based Practice Center under Contract No. <##>.) Agency for Healthcare Research and Quality. Rockville, MD: Quality AfHRA; 2018.
11. PCORCDS. Clostridium Difficile (C. diff) Infection (CDI) Treatment Pathway. <https://cds.ahrq.gov/cdsconnect/artifact/clostridium-difficile-c-diff-infection-cdi-treatment-pathway>. 2018. Accessed December 2, 2018.
12. Guise JM, Savitz LA, Friedman CP. Mind the Gap: Putting Evidence into Practice in the Era of Learning Health Systems. *J Gen Intern Med*. 2018 Aug 28. doi: 10.1007/s11606-018-4633-1. PMID: 30155611.
13. Systematic Review Data Repository. <https://srdp.ahrq.gov/>. Accessed December 15, 2018.
14. DistillerSR Ottawa, Canada: Partners, Evidence; 2011. <https://v2dis-prod.evidencepartners.com/> Accessed December 15, 2018.

Abbreviations and Acronyms

AHRQ	Agency for Healthcare Research and Quality
CDS	Clinical Decision Support
CMS	Centers for Medicare and Medicaid Services
COER	Clinical Operations Evidence Review
ECRI-Penn	Penn Medicine
EMR	Electronic Medical Record
EPC	Evidence-based Practice Center
EtD	Evidence-to-Decision
FY	Fiscal year
GDT	Guideline Development Team
GRADE	Grades of Recommendation Assessment, Development and Evaluation
HSP	Health System Partner
JHU	Johns Hopkins University
KPRA/SCEPC	Kaiser Permanente Research Affiliates/Southern California Evidence-based Practice Center
PacNW EPC	Pacific Northwest Evidence-based Practice Center
RTI-UNC	University of North Carolina
RE-AIM	Reach Effectiveness-Adoption Implementation Maintenance
SCN	Strategic Clinical Networks
SR	Systematic review
SRC	Scientific Resource Center
SRDR	Systematic Review Data Repository
TO	Task Order
UA-EPC	University of Alberta Evidence-based Practice Center
UConn	University of Connecticut
USPSTF	United States Preventive Services Task Force

Appendix A. Secure Site Reporting Form Questions

Implementation and impact

1. Describe who is intended to use and implement your product (e.g., providers, units, etc.). (Reach; recipients)
 - a. Open text box ("Please describe:")
2. Describe the patient population you want to reach with your product. (Reach; recipients)
 - a. Open text box ("Please describe:")
3. Describe the effectiveness of your product from the pilot project. How did you evaluate this and what did you find? (Effectiveness)

Process – what sort of expertise and information was needed to develop this product?

- 4a. What non-EPC person(s) were engaged to develop this product?
- a. "Title and organization" text box
 - b. "Role and expertise" text box
 - c. "Hours" text box
 - d. "Comments" text box

- 4b. What non-EPC person(s) were engaged to implement and disseminate this dissemination product?
- a. "Title and organization" text box
 - b. "Role and expertise" text box
 - c. "Hours" text box
 - d. "Comments" text box

5. Skillset – Did you involve staff with expertise in:
- a. Systematic reviews
 - a. Yes or no
 - b. "Total hours" text box (number only)
 - c. Open text box ("Describe expertise, how they were involved")
 - b. Qualitative research evaluation methods
 - a. Yes or no
 - b. "Total hours" text box (number only)
 - c. Open text box ("Describe expertise, how they were involved")
 - c. Quantitative research evaluation methods
 - a. Yes or no
 - b. "Total hours" text box (number only)
 - c. Open text box ("Describe expertise, how they were involved")
 - d. Clinical expertise
 - a. Yes or no
 - b. "Total hours" text box (number only)

- c. Open text box (“Describe expertise, how they were involved”)
- e. Project management
 - a. Yes or no
 - b. “Total hours” text box (number only)
 - c. Open text box (“Describe expertise, how they were involved”)
- f. Implementation science
 - a. Yes or no
 - b. “Total hours” text box (number only)
 - c. Open text box (“Describe expertise, how they were involved”)
- g. Health system experience
 - a. Yes or no
 - b. “Total hours” text box (number only)
 - c. Open text box (“Describe expertise, how they were involved”)
- h. Quality Improvement
 - a. Yes or no
 - b. “Total hours” text box (number only)
 - c. Open text box (“Describe expertise, how they were involved”)
- i. Other
 - a. Yes or no
 - b. “Total hours” text box (number only)
 - c. Open text box (“Describe expertise, how they were involved”)

6. What parts of the AHRQ EPC report were most or least useful?

- a. Summary of findings table: (Summarizes the body of evidence and includes overall SOE. Often this table is located in the executive summary.
 - a. Very useful, somewhat useful, or not at all useful
 - b. Open text box (“Describe what was or wasn’t useful”)
- b. Evidence table: (Summarizes the characteristics and outcomes of the individual studies. Often these tables are located in the appendices.)
 - a. Very useful, somewhat useful, or not at all useful
 - b. Open text box (“Describe what was or wasn’t useful”)
- c. GRADE table of SOE grades: (Summarizes the body evidence for selected outcomes and include the GRADE domains, e.g. risk of bias, precision, consistency.)
 - a. Very useful, somewhat useful, or not at all useful
 - b. Open text box (“Describe what was or wasn’t useful”)
- d. Key messages:
 - a. Very useful, somewhat useful, or not at all useful
 - b. Open text box (“Describe what was or wasn’t useful”)
- e. Executive summary:
 - a. Very useful, somewhat useful, or not at all useful
 - b. Open text box (“Describe what was or wasn’t useful”)
- f. Other

- a. Very useful, somewhat useful, or not at all useful
- b. Open text box (“Describe what was or wasn’t useful”)

7. What extra information did you need to develop your product that wasn’t provided by the EPC report?

- a. Open text box (“Please describe this information”)
- b. Could this information have been provided by the report? (Yes or no)
- c. Open text box (“Please explain”)

Applicability – how can the product developed be applied to other EPC reports and in other health systems?

8. Please rate the likelihood you dissemination product would:

- a. Be applicable to other EPC reports?
 - i. (Extremely likely, likely, neither, unlikely, extremely unlikely)
 - ii. Open text box (“Why or why not? Please describe:”)
- b. Be used or implemented within your own health system?
 - i. (Extremely likely, likely, neither, unlikely, extremely unlikely)
 - ii. Open text box (“Why or why not? Please describe:”)
- c. Be generalizable to other health systems?
 - i. (Extremely likely, likely, neither, unlikely, extremely unlikely)
 - ii. Open text box (“Why or why not? Please describe:”)

EPC Impressions – what were the experiences of EPCs in developing these products?

9. What was it like for your EPC to develop and evaluate this dissemination product?

- a. Pain scale (0-10)

10. Do you think this dissemination product would be beneficial if included in routine EPC scope of work?

- a. Yes, no or maybe
- b. Open text box (“Why or why not? Please describe”)

11. If you had to develop this dissemination product again, what specific areas of help (resources, expertise, information) would you need?

Open text box (“Please describe”)

Appendix B. Pilot Project Proposal Instructions

Proposed TO1 FY 2018 Methods Focus on Making EPC reports useful for Learning Health Systems

Background

In FY17, the EPC program engaged with health systems to understand their evidence needs through a variety of venues and projects. A cross-EPC workgroup developed a framework for categorizing the types of health system questions and understanding where EPC work can help inform health system needs (draft available). Another cross-EPC workgroup interviewed health system organizations to understand their process for using evidence to inform their decision making, and their preferences for sources and formats of evidence, and topics of greatest interest (draft available). AHRQ and the EPC program have also gained insight through conversations with colleagues and experts in the field.

Some takeaways from these workgroups and conversations include:

- Reviews on clinical topics are still helpful to health systems, but would be more helpful to have:
 - Short, to the point summaries (bite, snack, meal)
 - Short summary in newsletter format with enough information to decide if worth following a link
 - Dissemination tools available (3 slides) for distribution to others involved in QI efforts
 - Information available in timely fashion. (i.e. decision makers cannot wait long from question to decision)
 - Information about cost and cost effectiveness
 - Reports include contextual information for implementation, including patient preferences
- EPC reports may need different approaches for implementation studies
 - Improve methods for reviewing implementation studies to account for questions by health systems
 - Improve understanding and appropriate use of observational studies for effectiveness, harms, and implementation
 - Integrate real world data in meaningful and useful way for health systems.

Objective:

The 2018 EPC Methods project charges EPCs to develop a report that will summarize recommendations on how EPC report products can better meet the needs of health systems. EPCs will do this by engaging with a health system leader to develop a dissemination product based on an existing and recent EPC report that is relevant to health systems.

EPCs shall:

- Identify a health system leader by name, organization, and role
- Develop pilot product or tool that will accelerate uptake and implementation of findings from EPC report with input from health system leader. Product or tool should be based on an EPC report that is current, relevant to health system quality improvement efforts, and aligns with AHRQ priorities.

Products or tools may include, but are not limited to:

- Alternative format(s) or summaries of systematic review, technical brief, topic briefs that can be more useful to health systems, such as a short summary that contextualizes the findings for the health system context or decision.
- Slides or other tools that will accelerate dissemination and implementation of findings from an existing EPC report

Deliver final pilot product to AHRQ, with summary of recommendations on:

- What information is most necessary in the EPC report to develop implementation tool or product
- What elements of the implementation tool or product were most helpful to the health system individual
- Contextual factors of the health system that may accelerate uptake and use of the EPC report.

Proposal and next steps:

EPCs should develop a proposal which includes:

- Proposed health system individual the EPC would work with and specific individuals to engage (including role of individual within health system), justifying appropriateness of individual given project proposed. (include letters/emails of support) Include proposed role for health system individual.
- Proposed project
 - EPC report (describe currency, relevance to health system, relevance to AHRQ priorities)
 - Tool or product to accelerate dissemination
- Plan for evaluation and follow up for implementation within health system. This should include information about uptake and use of EPC report by health system, recommendations to the EPC Program about next steps to improve ability of EPC reports to be taken up by health systems.
- Timeline for deliverables
 - Engaging health system
 - Development of project
 - Development of report
- Personnel (time and roles) and Cost (must be within TO1 budget).

References

Hartling L, Guise J-M, Kato E, Anderson J, Aronson N, Belinson S, Berliner E, Dryden D, Featherstone R, Foisy M, Mitchell M, Motu'apuaka M, Noorani H, Paynter R, Robinson KA, Schoelles K, Umscheid CA, Whitlock E. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Research White Paper. (Prepared by the Scientific Resource Center under Contract No. 290-2012-00004-C.) AHRQ Publication No. 15-EHC008-EF. Rockville, MD: Agency for Healthcare Research and Quality; February 2015.
<https://www.effectivehealthcare.ahrq.gov/search-for-guides-reviews-and-reports/?pageaction=displayproduct&productid=2047>

Appendix C. Recommendations Developed by EPCs

EPC	Recommendation
Mayo Clinic	Address the awareness of AHRQ reports by Health systems (general efforts ongoing but specifically “push” to systems)
	Improving reports: better synthesis of “table 1”
	(2 votes) Additional tasks added to CER to enhance utility of reviews for HS can include (through contract option or modification because it requires a lot of work): Collection and synthesis of information/evidence on EtD factors: tradeoffs, costs, values, resources personnel & training, feasibility, acceptability Developing tools that support the decision at two levels, the health system level and the clinical encounter level
	A multidisciplinary team of investigators (beyond the typical) is required to develop these tools
	Creating a tool by ways of modifying an existing one makes the process more feasible and successful
	(2 votes) Topic refinement of evidence reports that are intended to be used by health systems should address whether additional contextual and implementation information or tools are required. The addition of these tasks will impact the size and cost of the review.
KPRA and SCEPC	Develop processes/methods to identify and respond to organizational readiness.
	(1 vote) Investigate resources to foster partnerships with healthcare organizations.
	Consider resource implications of having EPC reviewers serve as experts for organizations wishing to use EPC work.
	(1 vote) Consider further development of methods for enabling decision makers, implementers, and evidence review experts to simultaneously engage the evidence.
ECRI-Penn	(1 vote) AHRQ EPC reports should include a summary and quality assessment of recent guidelines and pathways to reduce barriers to developing these dissemination tools.
	Focus on updating EPC reports that address issues of highest priority to health systems.
	Target relevant clinical societies in their EPC report dissemination strategy to ensure these important bodies are proactively informed of relevant reports.
RTI-UNC	(1 vote) Similar dissemination packages could be developed for other EPC reports, but would require expansion of the timeline and resources

EPC	Recommendation
	<p>Similar dissemination packages could be developed for other EPC reports, but would ideally be facilitated by working with a team that has recently implemented the clinical service in question</p>
	<p>If such packages are developed, concise support tools would be most useful for busy primary care environments – avoid inclusion of general information and keep background brief</p>
UConn	<p>Create Quality Measure Index (QMI) for another project and assess 6 diverse health-systems using a crossover design (each person given one report with QMI and another without. Report on time to index, time to find information, perceived value of intervention</p>
	<p>Create a working group to develop QMI guidance for EPCs</p>
PacNW EPC	<p>(3 votes) Continue to explore use of existing software tools (e.g., MAGICapp, Tableau) to make presentation of systematic review data more accessible, more user friendly, and more adaptable to different needs</p>
UA-EPC	<p>(1 vote) Format and content may differ depending on whether they are intended to: be broadly accessible plain-language, user-friendly summaries ('one size fits all'), or support specific decisions and needs within a given health system (may require more targeted products and more actionable information).</p>
	<p>Need to clearly identify purpose of summaries and audience.</p>

Appendix D. Product Snapshots

Figure D-1. Alberta-EPC

Strategies to Improve Mental Health Care for Children and Adolescents

Background

- About 20% of American children and adolescents are living with at least one mental health problem
- Despite advances in our knowledge of the benefits of various interventions to treat mental health problems in children, some outcomes remain suboptimal because of: (a) issues related to access to care, and (b) failure of healthcare systems and providers to adopt established quality improvement strategies

Purpose

This document summarizes the findings of a comprehensive systematic review to answer the following questions:

- What is the effectiveness of quality improvement, implementation, and dissemination strategies in outpatient mental health services for children and adolescents? What are the harms?
- Do characteristics of young patients, or contextual factors, modify the effectiveness or harms of these strategies?

The information presented in this summary could be useful for researchers, clinicians, and decision-makers, and may help to inform clinical practices, guidelines, and policies. The full report is available [online](#).

Key Messages

- Several approaches can improve both intermediate and final health outcomes and resource use: 12 of 17 included studies (11 of 16 strategies) showed significant improvement in at least one outcome
- There are not enough studies to determine with confidence the efficacy of any one strategy
- The evidence for strategies with educational meetings, materials, and outreach was inconsistent; there seemed to be no benefit for strategies that included (a) only educational materials and/or meetings, or (b) only educational materials and outreach components (low strength of evidence)
- There is not enough evidence to judge the potential harms of using any of the strategies

Systematic Review Methods

Search strategies

- Searched online databases from inception to January 14, 2016:
 - MEDLINE[®]
 - Cochrane Library
 - PsycINFO[®]
 - CINAHL[®]
 - Gray literature
- Scanned reference lists
- Contacted study authors

Criteria used to select studies

Criteria	Included	Excluded
Population	Healthcare systems, organizations, and practitioners that care for children and adolescents with mental health and/or substance use problems	Systems, organizations, and practitioners that care only for adults or only for children and adolescents with developmental disorders
Interventions (strategies)	Quality improvement, implementation, or dissemination strategies	Interventions targeting only drugs, only patients, or not otherwise stated as included
Comparator	Any control strategy	-
Outcomes	Multiple patient, practitioner, system, or organization outcomes	Outcomes not otherwise stated as included
Setting	Outpatient settings High Human Development Index countries	Inpatient or residential treatment settings, drug treatment programs, jails or prisons

Data were synthesized via qualitative comparative analysis and two reviewers graded the quality of the evidence

Full text available at: <https://effectivehealthcare.ahrq.gov/topics/mental-health-children/research>

Summary of Key Findings

Included Studies

17 Studies provided 16 Strategies and 7 Features Associated with Success

13 randomized controlled trials
2 controlled clinical trials
1 cohort study
1 interrupted time series

7 studies evaluated professional training strategies and 10 evaluated financial or organizational change strategies

Strategy component or combination of components that resulted in significant improvement in the majority of practitioner, system, and patient intermediate outcomes

Evidence of Effectiveness

AT LEAST low strength of evidence	Strategy Features Associated with Success*	# of Studies
Of the 17 studies, 12 resulted in significant improvements	Financial component	1
	Changing the scope of benefits	1
Qualitative comparative analyses revealed 7 strategy features associated with success	Multidisciplinary team and NO audit and feedback	1
	Educational materials/meetings and patient-mediated intervention and educational outreach	2
Low strength of evidence	Educational materials/meetings and patient-mediated intervention and reminders	2
	Educational materials/meetings and educational outreach and reminders	1
	Audit and feedback and NO educational outreach and NO multidisciplinary team	3

*Two studies did not contribute to any feature and one study met criteria for two features

Implications for Research and Practice

- The current state of the evidence does not give clinicians and healthcare decision-makers a definitive understanding of the best methods to introduce evidence-based practices successfully in clinical settings
- Future studies should aim to address the gaps in the evidence base by:
 - Evaluating strategies in the psychotherapeutic and pharmacologic treatment of mental illness in youth
 - Focusing investigations on regulatory and financial components
 - Measuring and reporting on the fidelity to the original intervention
 - Documenting and reporting on the harms and costs of various strategies
 - Describing the strategies clearly and fully in published reports

Conclusion: There were not enough studies to judge the potential harms of using any of the strategies, or to assess which moderators might allow the strategies to work optimally

Full text available at: <https://effectivehealthcare.ahrq.gov/topics/mental-health-children/research>

Summary of the 16 strategies

Strategy	Population	Intervention	Comparator	Outcomes	Strength of Evidence
Adding an active learning component (in-person or computerized) to a professional training workshop to implement an evidence-based practice	Anxiety; 9 to 17 years	Cluster randomized trial; 115	Controlled clinical trial; 115	Cluster randomized trial; 115	1
Adding weekly feedback to 90-day feedback for practitioners regarding patient symptoms	Home-based mental health treatment; mean age 15 years	Cluster randomized trial; 144	Controlled clinical trial; 30	Cluster randomized trial; 144	2
Adding intensive quality assurance to workshops for implementing an evidence-based practice	Substance use disorders; 12 to 17 years	Controlled clinical trial; 30	Controlled clinical trial; 30	Controlled clinical trial; 30	5
Embedding a behavioral healthcare practitioner in pediatric primary care office for implementing and evidence-based practice	Various conditions; 12 to 18 years	Cluster randomized trial; 47	Cluster randomized trial; 47	Cluster randomized trial; 47	6
Paying practitioners for successfully implementing an evidence-based practice	Substance use disorders; mean age 16 years	Cluster randomized trial; 49	Cluster randomized trial; 49	Cluster randomized trial; 49	7
Co-locating a behavioral health evidence-based practice parenting program in primary care compared to referral to an external program	Externalizing behaviors; 12 to 17 years	Controlled clinical trial; 4 practices	Controlled clinical trial; 4 practices	Controlled clinical trial; 4 practices	10
Training professionals with or without feedback to implement an evidence-based practice	Externalizing behaviors; 3-17 years	Cluster randomized trial; not reported	Cluster randomized trial; not reported	Cluster randomized trial; not reported	1, 2
Adding computer-assisted training with or without ongoing supervision and coaching to workshop for practitioners implementing an evidence-based practice	Substance use disorders; 12 to 17 years	Cluster randomized trial; 161	Cluster randomized trial; 161	Cluster randomized trial; 161	1, 8
Training practitioners to identify and refer cases	First-episode psychoses; 14 to 30 years	Cluster randomized trial; 110	Cluster randomized trial; 110	Cluster randomized trial; 110	1, 8
Collaborative consultation to promote the use of titration trials and periodic monitoring during medication management	Attention deficit hyperactivity disorder; mean age 7 years	Cluster randomized trial; 33	Cluster randomized trial; 33	Cluster randomized trial; 33	2, 8
Training nurses to educate parents about evidence-based practices	Children suspected of abuse; 7 to 17 years	Interrupted time series and randomized trial; not reported	Interrupted time series; not reported	Interrupted time series; not reported	1, 3, 8
Training practitioners to use patient medication monitoring program for second-generation antipsychotics	Children on antipsychotics; mean age 14 years	Interrupted time series; not reported	Interrupted time series; not reported	Interrupted time series; not reported	1, 4, 8
Program to improve organizational climate and culture	General mental health; 8 to 24 years	Cluster randomized trial; 19 programs	Cluster randomized trial; 19 programs	Cluster randomized trial; 19 programs	1, 2, 7, 8
Adding diagnosis and treatment guidelines to a computer decision support system	Externalizing behaviors; 9 to 17 years	Two-stage randomized trial; 257	Two-stage randomized trial; 257	Two-stage randomized trial; 257	1, 2, 7, 6
Providing practitioner access to practice guidelines via an internet portal	Home-based mental health treatment; mean age 15 years	Cluster randomized trial; not reported	Cluster randomized trial; not reported	Cluster randomized trial; not reported	1, 3, 4, 5
Attention deficit hyperactivity disorder; 6 to 12 years	Cluster randomized trial; not reported	Cluster randomized trial; not reported	Cluster randomized trial; not reported	Cluster randomized trial; not reported	1, 2, 3, 4, 5

Strategy Components

1. Educational meetings or materials	6. Multidisciplinary teams
2. Audit and feedback	7. Provider incentives
3. Patient responsibility	8. Incentive payments
4. Reminders	9. Provider education (e.g., CME)
5. Quality monitoring	10. Changing the scope of benefits

Strength of Evidence Scale

High confidence that the estimate of effect is close to the true effect for this outcome. The body of evidence shows few or no deficiencies. Findings appear stable.

Moderate confidence that the estimate of effect is close to the true effect for this outcome. The body of evidence has some deficiencies. Findings are likely to be stable or have small errors.

Limited confidence that the estimate of effect is close to the true effect for this outcome. The body of evidence has major or numerous deficiencies, or both. Additional research is likely to have a substantial impact on the estimate of effect.

Low confidence that the estimate of effect is close to the true effect for this outcome. There is no confidence in the estimate of effect, with no evidence available or insufficient evidence to permit a conclusion.

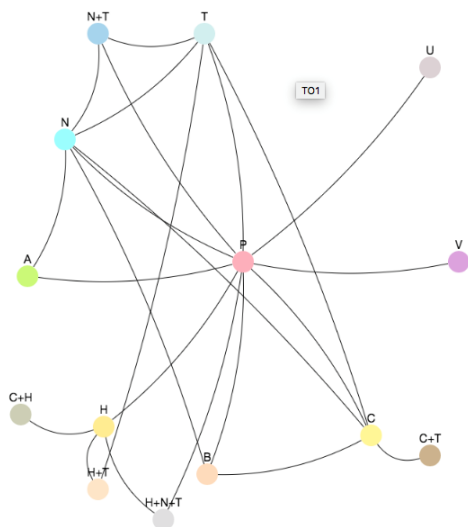
Figure D-2. Brown University - Duke University - Minnesota EPC

UI Type: All Stress UI Urge UI

Population: All Older women

Outcome: Cure Improvement Satisfaction Quality of Life Adverse Events

[Get Studies](#)



A: alpha agonist
 B: botulinum toxin A
 C: anticholinergic
 H: hormones
 N: neuromodulation
 T: behavioral therapy
 U: periurethral bulking
 V: intravesical pressure release
 P: sham/no treatment/placebo

[Guided Tour!](#)

[About this project](#)

[Key Messages](#)

[Overview of the Evidence Base](#)

[Summary](#)

[Predicted Outcome Rates \(League Tables\)](#)

[Relative Effects](#)

Figure D-3. University of Connecticut

Table 2. Index of Where Information on the Urinary Incontinence Quality Measures Can be Found in the Text.

QM #	Pages indexed
1	ES-2 , ES-4 , ES-5 , ES-9 , ES-10 , ES-11 , ES-13 , ES-16 , ES-19
2	ES-2 , ES-5 , ES-9 , ES-10 , ES-11 , ES-14 , ES-16 , ES-19 ,
3	ES-4 , ES-5 , ES-9 , ES-10 , ES-11 , ES-14 , ES-16 , ES-19
4	ES-2 , ES-3 , ES-5-6 , ES-9 , ES-11 , ES-11b , ES-12 , ES-13 , ES-14 , ES-16 , ES-19
5	ES-2 , ES-4 , ES-5 , ES-9 , ES-11 , ES-14 , ES-16 , ES-19
6	ES-2 , ES-3 , ES-4 , ES-5 , ES-7-8 , ES-11-12 , ES-12b , ES-14 , ES-16 , ES-16b , ES-17 , ES-19
7	ES-2 , ES-5 , ES-6 , ES-14 , ES-19
8	ES-2 , ES-5 , ES-9 , ES-11 , ES-14 , ES-16 , ES-19
9	ES-2 , ES-4 , ES-5 , ES-9 , ES-11 , ES-13 , ES-16 , ES-19

Legend: Each page number starts with ES for Executive Summary followed by the number. The bolded page numbers will generally contain the greatest amount or most pertinent information germane to that quality measure and is an efficient place to start. For information on the definitions of the quality measures and which organization of society endorses it, please see Appendix J, Table 1.

Figure D-4. KPRA and SCEPC

Understanding the Evidence for Medication and Lifestyle Interventions to Delay the Onset of Diabetes

February 12, 2018

Jennifer Lin, Lisa Rubenstein, and Tracy Beil

Kaiser Permanente Research Affiliates (KPRA) and Southern California (RAND) EPCs

Facilitated by Beth Liles

Presenters



Jennifer Lin, MD, MCR, FACP
Director, KPRA Evidence-based Practice Center
Investigator, Kaiser Permanente Center for Health Research
General Internist, Northwest Permanente



Lisa Rubenstein, MD, MSPH
Director, VA Quality Scholars Program at Greater Los Angeles
Director, VA QUERI Center for Implementation Practice & Research Support
Professor of Medicine and Public Health at VA Greater Los Angeles and UCLA
Senior Natural Scientist at RAND



Tracy Beil, MS
Project Director, KPRA Evidence-based Practice Center
Research Program Manager

The speakers have no conflicts of interest to report.

© 2018, KAISER PERMANENTE CENTER FOR HEALTH RESEARCH
KPRA EPC Center for Health Research
KAISER PERMANENTE | CENTER FOR HEALTH RESEARCH
Appendix C-2 KPRA EPC Center for Health Research

Key Question 7 in the systematic review

Overall Findings for Key Question 7

Do interventions for impaired fasting glucose or impaired glucose tolerance delay or prevent progression to type 2 diabetes?

- Lifestyle interventions
- Medications
 - e.g., metformin, thiazolidinediones, alpha-glucosidase inhibitors

	No. studies	Summary of findings on progression to diabetes	Limitations
Lifestyle	10	RR 0.57 (95% CI 0.43, 0.70)	Clinical heterogeneity
Medications			
Metformin	3	RR 0.69 (95% CI 0.49, 0.76)*	Few studies, TZD high statistical heterogeneity
TZD	3	RR 0.51 (95% CI 0.23, 1.06)	
α-glc inhibitors	4	RR 0.65 (95% CI 0.44, 0.91)	
Multifactorial interventions	2	No pooled analysis, no effect on progression to DM	Clinical heterogeneity, Imprecision

* from DPP trial, no pooled estimate calculated

KAISER PERMANENTE | CENTER FOR HEALTH RESEARCH
Appendix C-6 KPRA EPC Center for Health Research
KAISER PERMANENTE | CENTER FOR HEALTH RESEARCH
Appendix C-8 KPRA EPC Center for Health Research

Figure D-5. Mayo Clinic



The image shows a set of decision aid cards for anxiety treatment. The cards are arranged in two rows. The top row includes: 'Anxiety Treatment Decision Aid' (blue), 'Improvement in Day-to-Day Function' (red), and 'Reduction in Anxiety Symptoms' (purple). The bottom row includes: 'Treatment' (green), 'Cost' (teal), and 'Side Effects' (dark blue). Each card provides detailed information about CBT, SNRI, SSRI, and CBT+SSRI treatments, including session frequency, duration, and associated costs and side effects.

Figure D-6. Pacific Northwest

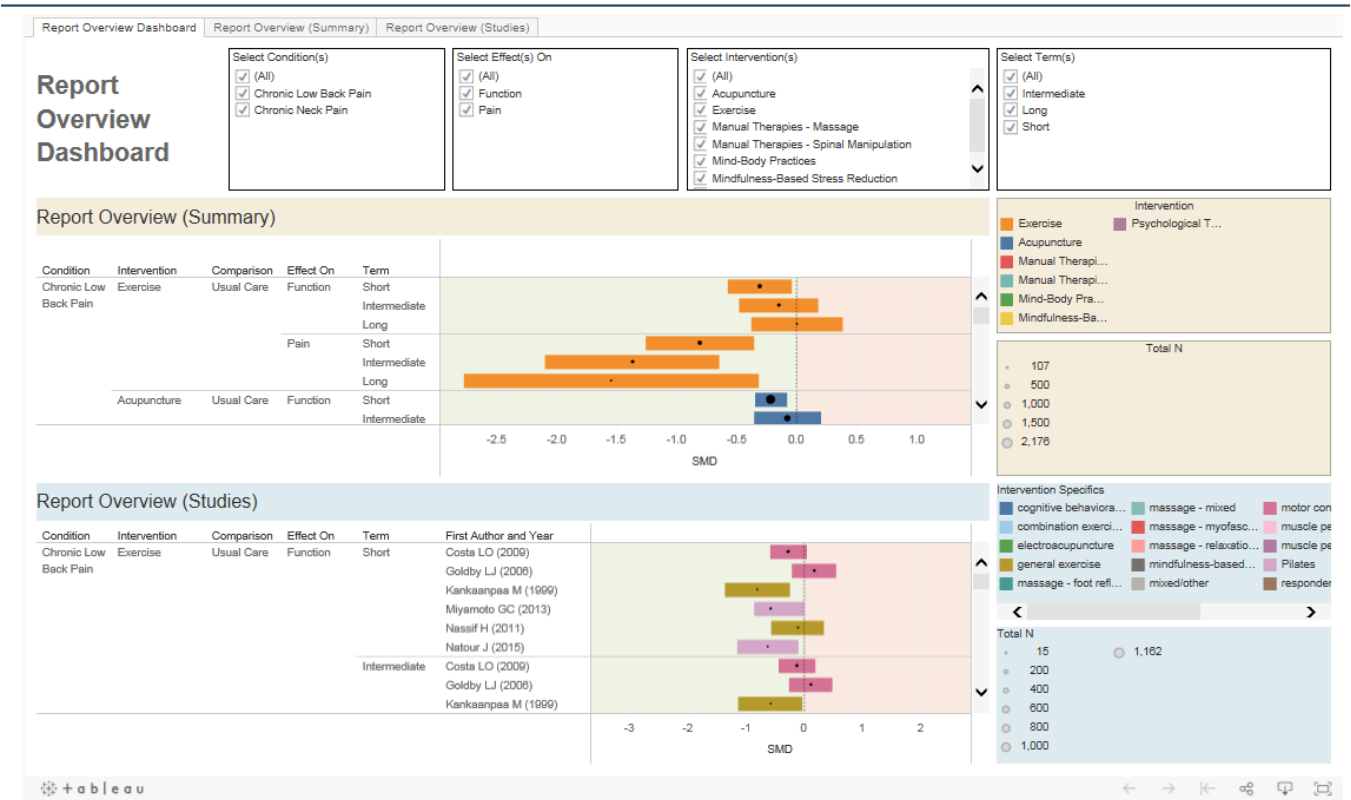


Figure D-7. ECRI-Penn

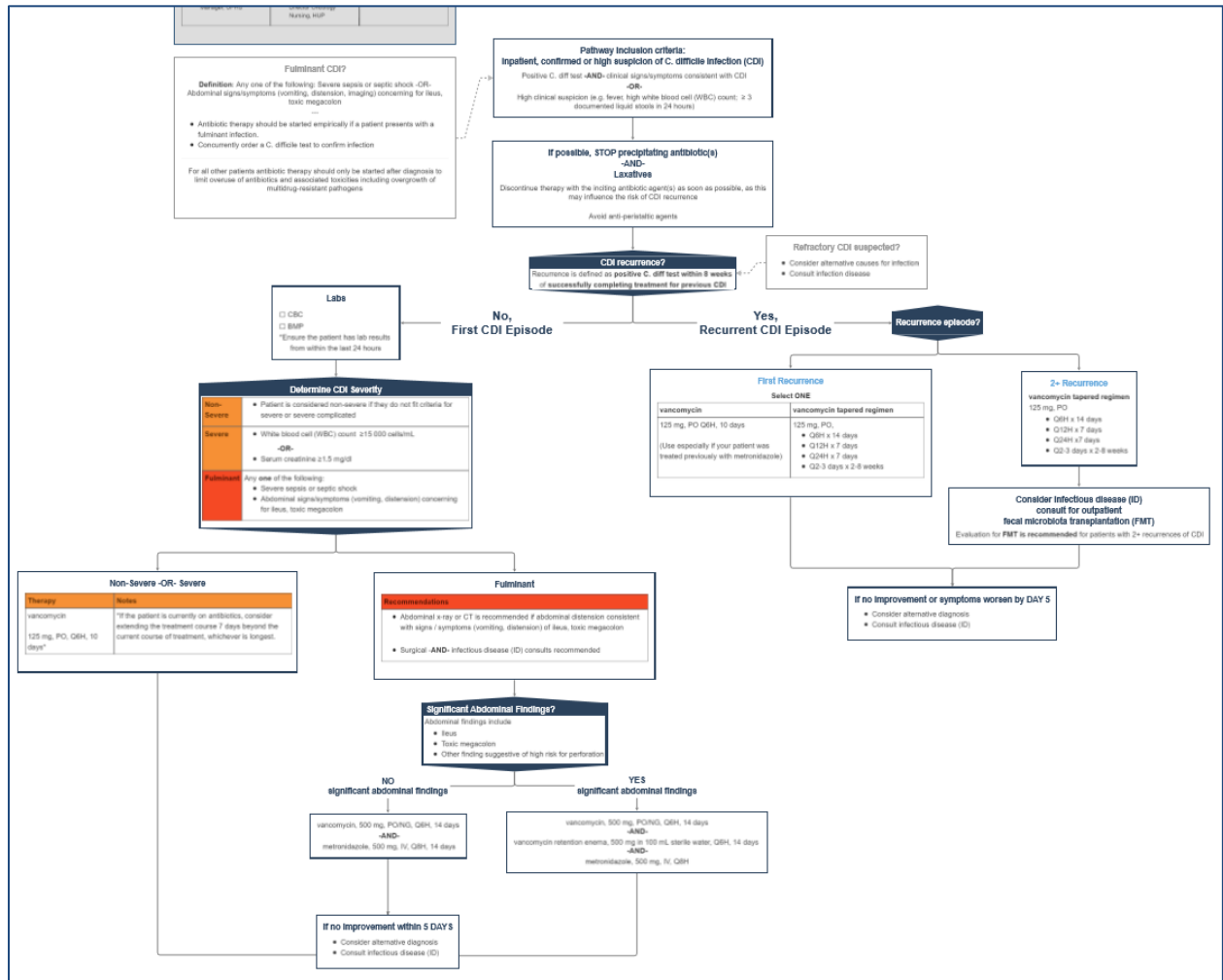



Figure D-8. RTI-UNC

A PROVIDER GUIDE FOR Addressing Unhealthy Alcohol Use

The 5 A's Approach to Reducing Alcohol Use

- **Assess** current drinking behaviors
- **Advise** on healthy levels of daily alcohol use
- **Assist** in exploring reasons for change
- **Agree** on options for risk reduction
- **Arrange** follow up



STEP 1 ASSESS

Review the score from the AUDIT. Use the scale below to assess drinking risk level.

SCORE		
MEN	WOMEN	
<6	<4	Alcohol dependence unlikely. Proceed with counseling.
6-14	4-12	Review questions 4-6. If score < 2 proceed with counseling. If score ≥ 2 Alcohol dependence likely. Consider referral.
≥15	≥13	Alcohol dependence likely. Consider referral.

Would you mind if we talked for a few minutes about your drinking and your health?

How does drinking fit into your life?

What do you know about drinking and your health?

So what I hear you say is ...

STEP 2 ADVISE

Would you like to know more about safe drinking levels?

For healthy men up to age 65:

- No more than 4 drinks in a day AND no more than 14 drinks in a week

For healthy women, and healthy men over age 65:

- No more than 3 drinks in a day AND no more than 7 drinks in a week

STEP 2 ADVISE

Review drinking patterns and risk.

What is your reaction to this information?

Would you be willing to come back for another visit to talk more about your alcohol use?

Would you be willing to keep a record of your drinking in preparation for that visit?

NEXT VISIT

Since your last visit, have you been able to keep a diary?

What was it like to complete the diary?
Tell me your thoughts about how much you drank.
Tell me about areas that concern you, if any.

Help me to understand a few things about your drinking.

- For you, what are the good things about drinking?
- What are the bad things?

Would it be helpful to compare your drinking over the past month with healthy drinking levels?

Review drinking diary and drinking patterns.

What is your reaction to hearing this information?

What do you know about the health risks of drinking?

Would it be ok if I told you a little more?

Review health risks.

What do you think about this information?

STEP 3 ASSIST

How important is it to you to change the amount of alcohol you drink?

0 1 2 3 4 5 6 7 8 9 10
Not at all Very

Why didn't you rate yourself LOWER? (Why is it important?)

Why didn't you rate yourself HIGHER? (What doubts do you have?)

So what I heard you say ...

How confident are you that you could change the amount of alcohol you drink?

0 1 2 3 4 5 6 7 8 9 10
Not at all Very

Why didn't you rate yourself LOWER? (What are your sources of confidence?)

Why didn't you rate yourself HIGHER? (What are the barriers?)

So what I heard you say ...

DRINKING PATTERNS





WHAT'S YOUR DRINKING PATTERN?	HOW COMMON IS THIS PATTERN?	HOW COMMON ARE ALCOHOL DISORDERS IN DRINKERS WITH THIS PATTERN?
DAILY LIMITS Men – 4 drinks Women – 3 drinks WEEKLY LIMITS Men – 14 drinks Women – 7 drinks	Percentage of adults	Number with alcohol disorders
Never exceed the daily or weekly limits	72%	Less than 1 in 100
Exceed only the daily limit	16%	1 in 5
Exceed both daily and weekly limits	10%	Almost 1 in 2

You probably know that alcohol can cause liver disease, but you may not realize it can also cause other health problems.

- Risky drinking is associated with:
 - Cancers of the mouth, throat, esophagus, colon, liver, and breast
 - Liver disease
 - Stroke
 - Heart disease
 - Pancreatitis
 - Injuries and accidents
 - Miscarriages / still births
 - Depression and suicide
- Alcohol misuse is the third leading cause of preventable death in the United States.
- Alcohol is responsible for 85,000 deaths a year in the US.

WHAT'S A STANDARD DRINK?

Below are standard drink equivalents as well as the number of standard drinks in different container sizes for each beverage. These are approximate, since different brands and types of beverages vary in their actual alcohol content.

STANDARD DRINK EQUIVALENTS	APPROXIMATE NUMBER OF STANDARD DRINKS IN:
BEER or WINE COOLER	
12 oz.  5% alcohol	<ul style="list-style-type: none"> • 12 oz. = 1 • 16 oz. = 1.3 • 22 oz. = 2 • 40 oz. = 3.3
MALT LIQUOR / MICROBREWS	
8-9 oz.  7% alcohol	<ul style="list-style-type: none"> • 12 oz. = 1.5 • 16 oz. = 2 • 22 oz. = 2.5 • 40 oz. = 4.5
TABLE WINE	
5 oz.  12% alcohol	<ul style="list-style-type: none"> • a 750-ml (25-oz.) bottle = 5
80-PROOF SPIRITS (hard liquor)	
1.5 oz.  40% alcohol	<ul style="list-style-type: none"> • a mixed drink = 1 or more* • a pint (16 oz.) = 11 • a fifth (25 oz.) = 17 • 1.75 L (59 oz.) = 39 <p><small>*Note: Depending on factors such as the type of spirits and the recipe, one mixed drink can contain from one to three standard drinks.</small></p>

STEP 4 AGREE

Are you ready to think about making a change in your drinking?

If YES:

- What ideas have you thought of to address your drinking?
- Would you be interested in seeing a list of things that other patients have tried?
- What do think about these options?

If NO:

- It can be difficult to change.
- There could be risks involved with continuing your current level of drinking.
- Recommendations are to stay with safe drinking levels.
- We are available to talk with you further about ways you could be healthier.

Appendix E. Report Excerpts

Table E-1. Product features thought to improve uptake/use

Category	Product	Theme	Illustrative Example Excerpt
Dissemination products	Key points, newsletter item, evidence-to-decision framework	Simplicity	“decision makers in health systems want to be provided with what to do – they want a simple answer. ”
	1- & 3-page summaries	Readability	<p>“...plain language should be used to reach a broad audience of decision makers, with consistent style and reading level throughout... [health system partners thought] three pages of information was ideal”</p> <p>“Interviewees liked the key messages... felt that this gave a strong overview of the content of the report.”</p> <p>“Interviewees liked the tables with results and conclusions... a lot of information could be organized in a small space; they preferred tables over dense text” “...three pages of information was ideal”</p>
	Cyberseminar	Allow for tailoring	<p>“Our health system partner found the deeper dive into details on implementation-ready interventions very helpful”</p> <p>“[health system partners thought] interactively engaging national or regional clinical policy, guideline, or program developers with evidence reviewers in this type of Cyberseminar was desirable.”</p>
Interactive data visualizations	Quality measure index	Simplicity	<p>“It took our health-system participants 68% to 82% less time to find quality measure information...”</p> <p>“[health system partners] found the quality measure index tables very easy to use, and one was somewhat likely and the other very likely to use the reports in the future if they had enhanced quality measure tables available”</p>

Category	Product	Theme	Illustrative Example Excerpt
	MAGICapp & Tableau visualizations	Allow for tailoring Graphic and visually attractive & interactive	“[health system partners like] the ability to drill down from overall summaries through increasing levels of detail” “[health system partners] provided positive feedback on the products, aesthetically as well as for their potential functionality ”
	Interactive report presentation	Allow for tailoring	“...tool was helpful and intuitive , allowing them to explore deeper when they needed specific details on treatments or outcomes”
Implementation products	Decision aids	Tailored to needs of health system Enhances credibility of provider	“...found the decision aid to be very useful because it adds information on cost , resources required to implement evidence, and feasibility of the interventions” “...the cards added credibility to conversations with patients and parents... helpful in explaining evidence-based treatment to other colleagues (i.e. social workers)”
	EMR implementation package	Tailored to needs of health system	“The 12 sections of the package, each corresponding to an important component of the implementation process... were rated as “very useful” by a majority of the [health system partners]” “[health system partner feedback] indicated that it provides helpful guidance for other health systems wishing to implement [evidence] in primary care clinics.”
	Clinical practice pathway	Made evidence accessible in clinical workflow	“In [four and a half months], the pathway ha[d] been viewed 325 times”

Table E-2. Product features thought to reduce uptake/use

Category	Product	Themes	Illustrative Example Excerpt
Dissemination products and alternative summary formats	Key points, newsletter item, evidence-to-decision framework	Information needs to match the needs of the health system	“Nothing in [the products] adds to what everyone already knew. I found [the products] to be of little value.” “Individuals noted that the [treatments] in the dissemination products are not used in their department. No further response received.”
	1- & 3-page summaries	Simplicity	“None of the interviewees liked the analytic framework... they found it confusing and unhelpful.”

Category	Product	Themes	Illustrative Example Excerpt
	Cyberseminar	Be aware of politics and be careful when mixing groups and individuals	"...bringing together people from different areas of the organization was confusing, and that organizational politics needed to be acknowledged when trying something new."
Interactive data visualizations	Quality measure index	Long reports	"length of the [full systematic review] reports make it time consuming to read and difficult to parse out the data that they need."
	MAGICapp & Tableau visualizations	Software limitations, no single solution	"Overall, neither dissemination product fully supported all of the stated needs of researchers or end-users..."
	Interactive report presentation	Format/software limitations that don't allow tailoring of content	"...desire to have user-specified subsets of populations, interventions, outcomes, or other ways to define subgroups of studies, and obtain analogous descriptions of the evidence base, the individual studies, and their quantitative summaries." "... users asked for a way to examine tradeoffs between competing outcomes, or... explore implications of multiple outcomes on the preferability of each treatment considering their own preferences."
Implementation products	Decision aids	Evidence that does not reflect practice Format/software limitations that don't allow tailoring of content	"While the [product] suggested that [treatment] had no side effects, clinicians informed patients about some drawbacks to [treatment], such as...'hard work,' 'uncomfortable,' or 'challenging'..." "...tool [was] less helpful in patients with comorbidities... severe symptoms, or currently already receiving...treatment."
	EMR implementation package	Alert fatigue Lack resources to use	"EHR tools increased service provision but could contribute to alert fatigue." "Competing demands, large patient population, and turnover in nursing staff and resident providers were identified as potential barriers."
	Clinical practice pathway	Platform limitations, integration with practice	"The promise of clinical pathways will likely be fully achieved only through tighter integration of pathways in the electronic health record."