Effective Health Care

Implementation of Evidence Based Interventions

Results of Topic Selection Process & Next Steps

The nominator is a group of health systems invited to participate in an AHRQ-LHS meeting. The nominator is interested in using a systematic review process to use this evidence report to inform operational decisions related to implementing change management interventions including which interventions to implement and how to adapt them to account for local context and available resources. This evidence report can also be used to inform and support management strategies and practical decisions that, may be driven by the extent of resources available.

A new systematic review will not be feasible due to heterogeneity of the studies that used evidence based interventions (EBI) and implementation strategies. The studies included a variety of health conditions, at many different settings, and on heterogeneous populations. The program will not develop a review at this time. No further activity on this nomination will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Number and Name: Implementation of Evidence Based Interventions

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

Background

This topic brief will use below terminology to avoid inconsistency and confusion.
Evidence Based Intervention (EBI) are treatments, practices or programs that have documented empirical evidence of effectiveness eg: evidence-based clinical practice recommendations.
Implementation strategies (IS) are methods or techniques used to enhance the adoption, implementation, and sustainability of a EBIs to new populations or new settings or both.

Before implementing the EBI-IS to new populations or new delivery systems raises two questions:

1- Is there sufficient empirical evidence or justification from prior evidence that this EBI would impact health outcomes as expected?
2- Are EBI necessary and acceptable by health systems to make it feasible, practical and sustainable in the new context?[2]

Health systems commonly use scale up (to reach larger numbers of target audience within the same/similar setting in effectives studies) or scale-out (to reach new populations and/or new settings that differ from those in effectives studies) intervention strategies to broaden the delivery of an EBIs.
Scale up or scale out strategies that are commonly reported to broaden the implementation of EBIs are:[3]

1- Heath care infrastructure related: eg: providing medical equipment etc.
2- Policy and regulation related eg: revising policy to allow wide spread community based care management of a disease
3- Financial related eg: changing payment mechanism
4- Human resources related eg: training HC providers
5- Patient related: eg: involving patient/public in promotion

Assessing the effectiveness of implementation outcomes is important for the new populations and setting/context. Proctor et al.[4] developed framework for assessing implementation outcomes "acceptability, adoption, appropriateness, cost, feasibility, fidelity, penetration and sustainability".

Nominator and Stakeholder Engagement

The topic is nominated by a Senior Vice President and Chief Quality Officer at Northwell Health and a panel of Learning Health Systems (LHS) invited to participate AHRQ-LHS meeting.

Key Questions and PICOTS

The key questions for this nomination are:

1- What is the effectiveness of strategies to implement evidence-based clinical practice recommendations (or EBI) on provider/staff behavior and patient outcomes in clinical setting?
   a. What are the characteristics of these implementation strategies?
   b. Of strategies that demonstrate fidelity, what are the common elements? Which elements can be adapted to reflect the local context without losing fidelity?
   c. What implementation strategies are most effective for whom?
   d. What are resources and costs of the implementation strategies?
   e. What is the cost-effectiveness of the implementation strategies?
   f. What strategies also support sustainment after implementation?
   a. Which clinical staff are responsible for maintaining the change?
   b. What staff training is needed to sustain change?

   Contextual Questions: What interventions, or strategies can be used to influence or change individual behaviors? E.g., Are there interventions/strategies that draw from the non-clinical medicine literature such as behavioral economics, Jobs theory etc. that may effectively change behavior?

To define the inclusion criteria for the key questions, we specify the population, interventions, comparators, outcomes, timing, and setting (PICOTS) of interest (Table 1).

Table 1. Key Questions and PICOTS

Key Questions	What is the effectiveness of strategies to implement evidence-based clinical practice recommendations (or EBI) on provider/staff behavior and patient outcomes in clinical setting?
Population	Clinicians, Clinical Staff
Interventions	• System-Level IS o Change of Infrastructure

	○ Locally tailored strategies ○ Involving local decision makers • Clinician/clinical staff Level IS ○ Education of Clinicians and Clinical staff ○ Clinician and Clinical staff accountability (Audit, feedback, Quality scores) ○ Clinical Decision Support (CDS) ○ Financial Incentives ○ Project ECHO • Others
Comparators	Usual care/no intervention
Outcomes	• Intermediate Outcomes ○ Implementation Outcomes ▪ Acceptability ▪ Adoption ▪ Appropriateness ▪ Cost ▪ Feasibility ▪ Fidelity ▪ Penetration ▪ Sustainability ○ Clinician/Clinical Staff Outcomes ▪ Satisfaction ▪ Behavior change • Final/Patient Outcomes ○ Morbidity ○ Mortality ○ Quality of Life
Timing	• Right after implementation strategy (within 3 months) • Longer follow up (3 months to 12 months) • More than 12 months
Setting	All settings (acute/subacute/chronic/primary care)

Abbreviations: EBI=evidence-based interventions; IS=implementation strategy

Methods

We assessed nomination "Implementation of Evidence Based Interventions" for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one. See Appendix A for detailed description of the criteria.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews published in the last three years from March 2016 to March 2019. See Appendix B for sources searched.

Impact of a New Evidence Review

The impact of a new evidence review was qualitatively assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

Feasibility of a New Evidence Review

We conducted a literature search in PubMed from March 2014 to March 2019. See Appendix C for the PubMed search strategy and links to the ClinicalTrials.gov search.
Because a large number of articles were identified, we reviewed a random sample of 200 titles and abstracts for inclusion and classified identified studies by key question and study design, to assess the size and scope of a potential evidence review. We then calculated the projected total number of included studies based on the proportion of studies included from the random sample.

Results

See Appendix A for detailed results for all selection criteria.

Appropriateness and Importance

This is an appropriate and important topic.

Desirability of a New Review/Duplication

A new evidence review (OR mapping) would not be duplicative of an existing product. We identified one AHRQ systematic review on "Quality improvement, implementation, and dissemination strategies to improve mental health care for children and adolescents"; 33 SRs [1, 5-36] from PubMed relevant to the topic targeting variety of HC providers and on variety of topics. The most common topic areas on EBI and ISs were non-specific (n=8); Musculo-skeletal (n=4) cardiac (n=3); ID (n=3); M-medicine/telehealth (n=3). In addition we identified 9 Cochrane systematic reviews related to the drug adherence, antibiotic use and tools to promote the uptake of guidelines.
See Table 2, Duplication column.

Feasibility of a New Evidence Review

A new evidence review is not feasible.
A new systematic review will not be informative for LHSs due to heterogeneity of the studies that used EBI/IS. The studies included a variety of health conditions, at many different settings, and on heterogeneous populations. The majority of the studies assessed the outcomes of disease specific guidelines and guideline uptake by using variety of implementation strategies.

See Table 2, Feasibility column.

Table 2. Key Questions and Results for Duplication and Feasibility

Key Question	Duplication (3/1/2019-3/1/2016)	Feasibility (3/1/2019-3/12014)
KQ 1: Change Management Interventions for Clinicians	Total number of identified systematic reviews: # • AHRQ EPC: 1[37] • Cochrane: 9 [11, 22, 38-44]	Size/scope of review Relevant Studies Identified: # 978 and sampled

Key Question	Duplication (3/1/2019-3/1/2016)	Feasibility (3/1/2019-3/12014)
	• PubMed: 33 [3-10, 12-21, 23-36, 45]	Random sample Projected Total: # 254 (25%) • RCTs: 15 (8%) [42, 46-59] • Observational: 31 (15%) [60-89] • Pre/post: 6 (3%) [90-95] Clinicaltrials.gov#14 • Recruiting: 5 • Active: 2 • Complete: 7

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; KQ=Key Question

Summary of Findings

- Appropriateness and importance: The topic is both appropriate and important.
- Duplication: A new review would not be duplicative of an existing product. Eventhough we identified 39 systematic reviews with emphasis on the most recent, most on-point, most comprehensive, and highest quality (i.e, Cochrane or AHRQ) reviews. The reviews included a variety of health conditions, at many different settings, and on heterogeneous populations.
- Impact: A new systematic review has unclear impact potential.
- Feasibility: A new review is not feasible due to heterogeneity of the studies that used evidence based interventions (EBI) and implementation strategies.

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Appendix A. Selection Criteria Assessment

Selection Criteria	Assessment
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes
1b. Is the nomination a request for a systematic review?	Yes
1c. Is the focus on effectiveness or comparative effectiveness?	Yes
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	The nomination is not specific to a disease. It is related to implementation of variety of Evidence based interventions on variety of medical conditions.
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	The target population is clinicians, clinical staff and health systems.
2c. Represents important uncertainty for decision makers	Yes, there is significant variation on HS delivery and implementation strategies on the published literature and it is also not clear if there is differences on implementation strategies based on a specific disease.
2d. Incorporates issues around both clinical benefits and potential clinical harms	Yes
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes, some implementation strategies can be costly which is why health systems want to know which are the most evidence based implementation strategies for a specific condition.
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	There are multiple SRs on the topic but mostly specific to a disease, population and health system.
4. Impact of a New Evidence Review	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	This topic is related to EB Intervention delivery and implementation.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes there is variations since the topic is implementation related and most implementation strategies are topic, setting and specific.
5. Primary Research	

5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies)	We identified large number of studies and estimated size of the review is 250. ClinicalTrials.gov. showed 14 ongoing or recently completed trials.
6. Value	
6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change	Yes
6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation)	Partner is the AHRQ-LHS panel. Many of the organizations represented on the LHS Panel are members of the High Value Healthcare Collaborative (HVHC) and could potentially distribute this report to other HVHC members. The health systems represented on the LHS panel will use this evidence report to inform operational decisions related to implementing change management interventions including which interventions to implement and how to adapt them to account for local context and available resources. This evidence report can also be used to inform and support management strategies and very practical decisions that, again, may be driven by the extent of resources available (for example, having a central clinical coordinator across medical offices v. a clinical coordinator at each office to help with diabetes management).

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; EB=evidence-based; HS=health system; KQ=Key Question; LHS=learning health system; SR=systematic reviews

Appendix B. Search for Evidence Reviews (Duplication)

Listed below are the sources searched, hierarchically.

Primary Search
AHRQ: Evidence reports and technology assessments https://effectivehealthcare.ahrq.gov/; https://www.ahrq.gov/research/findings/ta/index.html; https://www.ahrq.gov/research/findings/evidence-based-reports/search.html
VA Products: PBM, and HSR&D (ESP) publications, and VA/DoD EBCPG Program https://www.hsrd.research.va.gov/publications/esp/
Cochrane Systematic Reviews http://www.cochranelibrary.com/
HTA (CRD database): Health Technology Assessments http://www.crd.york.ac.uk/crdweb/
Secondary Search
AHRQ Products in development https://effectivehealthcare.ahrq.gov/
VA Products in development https://www.hsrd.research.va.gov/publications/esp/
Cochrane Protocols http://www.cochranelibrary.com/
PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospero/
Tertiary Search
PubMed https://www.ncbi.nlm.nih.gov/pubmed/

Appendix C. Search Strategy & Results (Feasibility)

MEDLINE (PubMed) searched on:	
Concept	
Increased use of evidence	((((("Diffusion of Innovation"[Mesh])OR "Guideline Adherence"[Mesh]) OR (("Evidence-Based Practice/methods"[Mesh] OR "Evidence-Based Practice/organization and administration"[Mesh] OR "Evidence-Based Practice/standards"[Mesh]))) OR "change management"[Title/Abstract]
AND	
Interventions	(((evaluation studies[pt] OR evaluation studies as topic[mesh] OR program evaluation[mesh] OR validation studies as topic[mesh] OR (effectiveness[tiab] OR (pre-[tiab] AND post-[tiab])) OR (program*[tiab] AND evaluat*[tiab]) OR intervention*[tiab]))) OR ((utilization[Title/Abstract] OR address[Title/Abstract] OR program*[Title/Abstract] OR intervention*[Title/Abstract]))
AND	
Clinician and System Level	(("Delivery of Health Care"[Mesh]) OR "Attitude of Health Personnel"[Mesh]) OR "Health Personnel"[Mesh]
Limits: 5 years English	Filters: published in the last 5 years; English
SR N=84	Systematic[sb]
https://www.ncbi.nlm.nih.gov/sites/myncbi/r.relevo.1/collections/57865387/public/	
RCT N=756	(((((((groups[tiab])) OR (trial[tiab])) OR (randomly[tiab])) OR (drug therapy[sh])) OR (placebo[tiab])) OR (randomized[tiab])) OR (controlled clinical trial[pt])) OR (randomized controlled trial[pt])
https://www.ncbi.nlm.nih.gov/sites/myncbi/r.relevo.1/collections/57865408/public/	
Observational N=64	"Observational Study" [Publication Type] OR "Observational Studies as Topic"[Mesh]
https://www.ncbi.nlm.nih.gov/sites/myncbi/r.relevo.1/collections/57865420/public/	
Qualitative N=157	(((((barriers[Title/Abstract] AND facilitators[Title/Abstract])) OR obstructive benificial[Title/Abstract]) OR restriction enablement[Title/Abstract])) OR ((("Focus Groups"[Mesh]) OR "Qualitative Research"[Mesh]) OR "Delphi Technique"[Mesh])

https://www.ncbi.nlm.nih.gov/sites/myncbi/r.relevo.1/collections/57865453/public/
clinicalTrials.gov 14 Studies found for: **Recruiting, Not yet recruiting, Active, not recruiting, Completed, Enrolling by invitation Studies | Evidence-Based | Evidence-Based | Evidence-Based | First posted from 02/28/2014 to 02/28/2019** https://clinicaltrials.gov/ct2/results?cond=&term=&type=&rslt=&recrs=b&recrs=a&recrs=f&recrs=d&recrs=e&age_v=&gndr=&intr=Evidence-Based+&titles=Evidence-Based+&outc=Evidence-Based+&spons=&lead=&id=&cntry=&state=&city=&dist=&locn=&strd_s=&strd_e=&prcd_s=&prcd_e=&sfpd_s=02%2F28%2F2014&sfpd_e=02%2F28%2F2019&lupd_s=&lupd_e=&sort=