



## Effective Health Care

### Effectiveness of Health Risk Assessments

#### Results of Topic Selection Process & Next Steps

The nominator, Wellsource, is interested in a new evidence review on the effectiveness of health risk assessment to improve and promote their products that include health risk assessments.

Due to limited program resources, the program is unable to 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:** 0815 Effectiveness of Health Risk Assessments

**Nomination Date:** 09/04/2018

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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

Health risk assessments (HRA), also known as health risk appraisals, systematically collect information on a patient's current health behaviors and risks, and provides them feedback on risks from the information provided.<sup>1</sup> HRAs began based on a shift in medical care to focus on prevention as well as treatment, and are ultimately intended to help participants modify risky health behaviors.<sup>1</sup> Modifiable health behaviors such as tobacco use, alcohol use, poor diet, and physical inactivity are associated with serious and costly health conditions including diabetes mellitus, myocardial infarction, and chronic obstructive pulmonary disease.<sup>2</sup> HRAs and similar interventions that can inform people of their risk and initiate behavioral changes can potentially reduce the incidence and morbidity of these harmful and chronic conditions. A 2003 RAND systematic review on HRAs found evidence that supported the potential benefit of HRAs on general health status, physiologic variables like blood pressure and weight, and behavioral outcomes, with the most consistent evidence being on exercise.<sup>1</sup>

HRAs have been utilized by employers because they are thought to be low-cost, easy to implement, and effective ways to improve the health of employees, resulting in reduced medical costs and improved productivity.<sup>1</sup> These assessments have been used in workplace setting since the 1980s<sup>3</sup>, and there are several cited examples of cost savings for companies with wellness programs that employ an HRA; for example Johnson & Johnson saw a reduction of \$244.66 per year per employee in medical claims over four years of their program,<sup>3</sup> and Citibank, N.A. saw an estimated return on investment of \$4.56 to \$4.73 saved for each dollar spent with their HRA-based health program.<sup>4</sup> With the passage of the Patient Protection and Affordable Care Act in 2010, HRAs are now included in Annual Wellness Visits for Medicare beneficiaries without any cost to the patient.<sup>5</sup>

Since there is not a consensus on the definition of a HRA, we obtained input from several reviews<sup>1, 2, 6</sup> to define an HRA as having the following components: 1) Participants self-report health behaviors; 2) The assessment covers multiple health behaviors/indicators/domains; and 3) Participants must be provided feedback based on their assessment, such as risk scores, descriptions of risk status, and/or recommendations to promote health. Tools that only screened for outcomes unrelated to health behaviors (e.g., genetic screening) were excluded.

### Nominator and Stakeholder Engagement

This topic was nominated by Wellsource, a company that produces health risk assessments for health care providers and employers. They requested an evidence effectiveness of health risk assessments to further promote their products. Given their financial conflict of interest, we did not include their input in the development of key questions (KQs), population, intervention, comparator, outcomes (PICO). However, this topic may still be of interest to health care systems and health insurance providers, as health care costs rise and the interest in the cost-effectiveness of preventive medicine grows. Therefore, we instead obtained input from a leader of a major health system. He reviewed the topic's key questions and PICO. He provided no edits and noted his support for evaluating effectiveness by dividing into three key questions (overall effectiveness, effectiveness by demographics, and cost effectiveness).

### Key Questions and PICOs

The key questions for this nomination are:

1. What are the effectiveness and comparative effectiveness of HRAs?
  - a) Does the effectiveness of HRAs vary by site (outpatient or work site)?
2. Does the effectiveness of HRAs vary by patient's age, gender, or race/ ethnicity?
3. What is the cost-effectiveness of HRAs?

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

**Table 1. Key Questions and PICOS**

<b>Key Questions</b>	What are the effectiveness and comparative effectiveness of HRAs? a) Does the effectiveness of HRAs vary by site (outpatient or work site)?	Does the effectiveness of HRAs vary by patient's age, gender, or race/ethnicity?	What is the cost-effectiveness of HRAs?
	Adults	Adults	Adults
	HRA alone, HRA with feedback, HRA with health education, HRA with other intervention; health risk appraisal	HRA alone, HRA with feedback, HRA with health education, HRA with other intervention; health risk appraisal	HRA alone, HRA with feedback, HRA with health education, HRA with other intervention; health risk appraisal
	Any HRA above, no HRA, usual care	Any HRA above, no HRA, usual care	Any HRA above, no HRA, usual care
	Mortality Morbidity (e.g., CVD, DM) Intermediate outcomes (e.g., BP, cholesterol, BMI) Quality of life Cost Harms	Mortality Morbidity (e.g., CVD, DM) Intermediate outcomes (e.g., BP, cholesterol, BMI) Quality of life Cost Harms	Mortality Morbidity (e.g., CVD, DM) Intermediate outcomes (e.g., BP, cholesterol, BMI) Quality of life Cost Harms
	Any (including health care, work site)	Any (including health care, work site)	Any (including health care, work site)

Abbreviations: HRA = health risk assessment; CVD = cardiovascular disease; DM = diabetes mellitus; BP = blood pressure; BMI = body mass index

## Methods

We assessed nomination 0815 Effectiveness of Health Risk Assessments 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 on the key questions of the nomination. 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 New Evidence Review**

We conducted a literature search in PubMed from November 2013 to November 2018. See Appendix C for the PubMed search strategy and links to the ClinicalTrials.gov search.

We identified 12 systematic reviews, 72 randomized control trials (RCT) and 167 other articles; therefore, we reviewed all identified 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. Additionally, we identified 149 clinical trial protocols and similarly reviewed them for relevance.

## **Value**

We assessed the nomination for value. We considered whether or not the clinical, consumer, or policymaking context had the potential to respond with evidence-based change; and if a partner organization would use this evidence review to influence practice.

## **Results**

See Appendix A for detailed assessments of all EPC selection criteria.

## **Appropriateness and Importance**

This is an appropriate and important topic. HRAs are widely used with Medicare patients and are common in workplace health promotion programs; a survey in 2004 of worksites with more than 750 employees found that 46% of worksites had used an HRA in the past year.<sup>3</sup> Furthermore, HRAs are often employed as cost-saving measures.

## **Desirability of New Review/Duplication**

A new evidence review would not be duplicative of an existing product. We identified one 2018 Cochrane systematic review<sup>7</sup> evaluating interventions intended to increase influenza vaccination rates in older adults, and included four studies on health risk appraisals' effect on vaccination rates. Since the review focused on the effectiveness of interventions including health risk appraisals on an intermediate outcome (influenza vaccination rates), it is partly duplicative for key question 1, but not key question 2 or 3. See Table 2, Duplication column.

## **Impact of a New Evidence Review**

A new systematic review may have high impact. There are no recent, high-quality systematic reviews on the effectiveness of health risk assessments. A framework for HRA for Medicare beneficiaries exists,<sup>5</sup> but there is no consensus on the definition of HRAs or on effectiveness in the literature.

## **Feasibility of a New Evidence Review**

A small evidence review is feasible. A total of 10 studies were identified that addressed key question 1, including 5 randomized control trials<sup>8-12</sup>, 3 retrospective studies<sup>13-15</sup>, 1 prospective study<sup>16</sup>, and 1 other study<sup>17</sup>. Two clinical trials that addressed key question 1 were also identified<sup>18, 19</sup>. No studies or clinical trials that addressed key question 2 were identified. A total of four studies that address key question 3 were identified, comprised of three retrospective

studies<sup>13-15</sup> and one quasi-experimental study<sup>20</sup>. One clinical trial<sup>21</sup> was identified that was relevant to key question 3. See Table 2, Feasibility column.

**Table 2.** Key Questions and Results for Duplication and Feasibility

Key Question	Duplication (11/2015-11/2018)	Feasibility (11/2013-11/2018)
KQ 1: What are the effectiveness and comparative effectiveness of HRAs? a) Does the effectiveness of HRAs vary by site (outpatient or work site)?	Total number of identified systematic reviews: 1 <ul style="list-style-type: none"> <li>Cochrane: 1<sup>7</sup></li> </ul>	<u>Size/scope of review</u> Relevant Studies Identified: 10 <ul style="list-style-type: none"> <li>RCT: 5<sup>8-12</sup></li> <li>Retrospective: 3<sup>13-15</sup></li> <li>Prospective: 1<sup>16</sup></li> <li>Other: 1<sup>17</sup></li> </ul> <u>Clinicaltrials.gov</u> : 2 <ul style="list-style-type: none"> <li>Active: 1<sup>18</sup></li> <li>Other: 1<sup>19</sup></li> </ul>
KQ 2: Does the effectiveness of HRAs vary by patient's age, gender, or race/ethnicity?	Total number of identified systematic reviews: 0	<u>Size/scope of review</u> Relevant Studies Identified: 0  <u>Clinicaltrials.gov</u> : 0
KQ 3: What is the cost-effectiveness of HRAs?	Total number of identified systematic reviews: 0	<u>Size/scope of review</u> Relevant Studies Identified: 4 <ul style="list-style-type: none"> <li>Retrospective: 3<sup>13-15</sup></li> <li>Quasi-experimental: 1<sup>20</sup></li> </ul> <u>Clinicaltrials.gov</u> : 1 <ul style="list-style-type: none"> <li>Active: 1<sup>21</sup></li> </ul>

Abbreviations: KQ=Key Question; RCT=Randomized control trial

## Value

The potential for value is high. The American Academy of Family Physicians expressed interest in being a partner on this topic if it moves forward for an evidence review.

## 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. One 2018 Cochrane review partially addressed key question 1, but only examined the effectiveness of health risk assessments on one outcome, influenza vaccination rates in older adults.
- Impact: A small systematic review has high impact potential. There are no recent, high-quality systematic reviews on the effectiveness of health risk assessments, and while the evidence base is likely small, due to the prevalent use of these tools, a review of their effectiveness is necessary.
- Feasibility: A small systematic review is feasible. The evidence base is likely small.
- Value: The potential for value is high. The American Academy of Family Physicians expressed interest in being a partner on this topic if it moves forward for an evidence review.

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## Appendix A. Selection Criteria Assessment

Selection Criteria	
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, the focus is on the effectiveness of HRAs in terms of health outcomes and cost-effectiveness, and for comparative effectiveness of HRAs across different demographics.
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, the nomination is consistent with what is known about the topic.
2a. Represents a significant disease burden; large proportion of the population	Yes, HRAs are used with Medicare beneficiaries and are widespread components of workplace health promotion programs. <sup>3</sup> A 2004 survey found nearly 46% of worksites surveyed with more than 750 employees had used an HRA in the past year. <sup>3</sup>
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	Yes, due to their widespread use, including among Medicare beneficiaries, this topic is of high public interest.
2c. Represents important uncertainty for decision makers	Yes, there is no consensus on the definition of HRAs.
2d. Incorporates issues around both clinical benefits and potential clinical harms	No
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, HRAs are often employed as cost-saving measures for both Medicare and employers, and so their cost-effectiveness should be evaluated.
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)	Yes. One 2018 Cochrane review looked at HRAs impact on influenza vaccination rates in older adults <sup>7</sup> which partly addressed KQ 1, but did not evaluate the comparative effectiveness of different demographics or cost-effectiveness.
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)?	Yes, a framework for HRA for Medicare beneficiaries exists, <sup>5</sup> but there is no consensus on the definition of HRAs or on effectiveness in the literature.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	There is no evidence that HRAs vary from guidance.
5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review	We identified 10 primary studies, <sup>8-17</sup> and 2 clinical trials <sup>18, 19</sup> that were relevant to KQ 1. <ul style="list-style-type: none"> <li>• RCT: 5<sup>8-12</sup></li> <li>• Retrospective: 3<sup>13-15</sup></li> <li>• Prospective: 1<sup>16</sup></li> </ul>



<p>- Newly available evidence (particularly for updates or new technologies)</p>	<ul style="list-style-type: none"> <li>• Other: 1<sup>17</sup></li> </ul> <p><u>Clinicaltrials.gov</u>: 2</p> <ul style="list-style-type: none"> <li>• Active: 1<sup>18</sup></li> <li>• Other: 1<sup>19</sup></li> </ul> <p>Examples of outcomes measured in these studies and trials included health risk behaviors<sup>8-12, 19</sup> (e.g., smoking cessation<sup>12</sup>), healthcare utilization<sup>8, 14, 15</sup> (e.g., prescription drug fills<sup>14</sup>), general health risks<sup>13, 15-18</sup> (e.g., cardiovascular disease risk<sup>16, 17</sup>) and mortality<sup>8</sup>. The methods for calculating risk and measuring behavior were not explicit in the abstracts, and therefore there may be variation in the studies on how risk is calculated or behaviors are measured.</p> <p>In three studies<sup>10, 13, 14</sup>, the HRA was part of a workplace wellness program, which included other components such as biometric screening and health coaching, and in two studies<sup>8, 11</sup>, the HRA was part of a health intervention that also included counseling.</p> <p>There were no studies identified that addressed KQ 2.</p> <p>We identified four primary studies<sup>13-15, 20</sup> and one clinical trial<sup>21</sup> that addressed KQ 3.</p> <ul style="list-style-type: none"> <li>• Retrospective: 3<sup>13-15</sup></li> <li>• Quasi-experimental: 1<sup>20</sup></li> </ul> <p><u>Clinicaltrials.gov</u>: 1</p> <p>Active: 1<sup>21</sup></p> <p>These studies and trial include health care costs as an outcome of interest. In three studies<sup>13, 14, 20</sup>, the HRA was part of a larger workplace wellness program, which included other components such as biometric screening and health coaching.</p>
<p>6. Value</p>	
<p>6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change</p>	<p>Yes, legislation promoting the use of HRAs passed with the Patient Protection and Affordable Care Act, and thus exists within a policy- and clinical-making context.</p>
<p>6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation)</p>	<p>Yes, the American Academy of Family Physicians expressed interest in being a partner on this topic if it moves forward for an evidence review.</p>

Abbreviations: KQ=Key Question

## Appendix B. Search for Evidence Reviews (Duplication)

Listed below are the sources searched, hierarchically

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

## Appendix C. Search Strategy & Results (Feasibility)

Health Risk Assessment - Feasibility	
MEDLINE(PubMed) searched on: November 26, 2018	
Concept	
Health Risk Assessments	health risk[Title/Abstract]) AND (appraisal[Title/Abstract] OR assessment[Title/Abstract] OR screening[Title/Abstract])
	AND
Assessment	((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 (((("mortality" [Subheading] OR "Mortality"[Mesh]) OR ( " "Morbidity"[Mesh] OR "epidemiology" [Subheading] )) OR "Blood Pressure"[Mesh]) OR "Cholesterol"[Mesh]) OR "Body Mass Index"[Mesh]) OR "Quality of Life"[Mesh]) OR ( " "Economics"[Mesh] OR "economics" [Subheading] ))
Limits: Adults, Published in last 5 Years	Filters activated: published in the last 5 years, Adult: 19+ years
SR N=12	Systematic review[sb]
RCT N=72	(((((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])
Other N=167	