

## Appendix E-2.34: Evidence Portfolio

### Part D. Chapter 4: Food Environment and Settings

#### What is the impact of worksite policies on the dietary intake, quality, behaviors and/or preferences of employees?

**Conclusion Statement:** Moderate and consistent evidence indicates that worksite nutrition policies, alone and in combination with environmental changes and/or individual-level nutrition and health improvement strategies, can improve the dietary intake of employees. Multi-component interventions appear to be more effective than single-component interventions.

**DGAC Grade:** Moderate

#### Key Findings

- This evidence portfolio includes one systematic review (Kahn-Marshall, 2012) which evaluated 27 studies by independent investigators with sufficient sample sizes published between 1985 and 2010. The review examined the evidence for the effectiveness of a variety of worksite health promotion programs using environmental and/or policy changes either alone or in combination with health behavior change strategies focused on individual employees.
- Some interventions were multi-component, with a combination of strategies targeting employees and/or the food environment at the worksite. Strategies included point-of-purchase labeling, increased availability of healthier food items, and/or educational programs and materials. The primary dietary outcome of interest was fruit and vegetable intake.
- In the body of evidence available, the worksite-based policies were diverse, thus identifying the most effective strategies is challenging. Despite this variability, multi-component interventions, and in particular those that targeted individual employees in addition to the environment were more effective than single-component interventions for eliciting significant dietary improvements. Overall, worksite interventions moderately increase fruit and vegetable intakes.
- Some inconsistency is evident across studies assessed for the systematic review in regards to scientific rigor and impact. The inconsistencies may be explained by differences in the populations sampled and methodologies used, including duration, exposure of the intervention, and follow-up periods. Although findings indicate that worksite policies increase consumption of fruits and vegetables, the magnitude of the effect is difficult to assess.

#### Description of the Evidence

This evidence portfolio includes one systematic review published by Kahn-Marshall and Gallant in 2012. The review includes 27 studies published between 1985 and 2010. Study designs included 10 randomized controlled trials (RCTs), 11 quasi-experimental studies, and 6 studies lacking experimental design. Eleven studies focused on environment or policy alone; sixteen interventions were multi-component. The review had relatively low risk of bias, as evidenced by an AMSTAR score of 8 points out of a possible 11. The methodological quality of the studies included in the review was assessed based on six criteria (sample size, study design, validity of measurement instrument for self-reported data, reliability of measurement instrument for self-reported data, type of data collection, and follow-up). Studies received a plus or a minus depending on whether they met each criterion. Studies were considered of a relatively high quality if five or

more of the criteria were scored positively. No studies were excluded due to poor quality. Eight studies were rated high quality.

**Population**

The studies examined employees of blue- and white-collar worksites. The reported sample sizes ranged from 177 to 26,806 adults. Fourteen studies were conducted in the United States and thirteen were conducted in other highly developed countries. The review did not review or present results by gender or race/ethnicity (refer to the Overview Table for review-specific details).

**Exposures**

The studies included in the reviews examined a variety of worksite environmental policies for targeting the dietary intake of employees and their behaviors related to nutrition. For example, the impact of point-of-purchase nutrition information, increased availability of healthy food options, catering policies, and company policies rewarding employees for healthy behaviors were evaluated. Some worksites also incorporated individual-level strategies (e.g., health education and informational materials).

**Outcomes**

The primary outcomes of interest were dietary behaviors (e.g., intake of fruits and vegetables), physical activity (e.g., minutes of exercise per week and stair use), and health outcomes (e.g., blood pressure, BMI, and blood cholesterol).

**Evidence Synthesis**

Kahn-Marshall and Gallant reviewed studies evaluating the effectiveness of worksite health promotion programs using environmental and/or policy changes either alone or in combination with health behavior change strategies focused on individuals. Environmental nutrition policies, alone and in combination with individual strategies, appear effective for increasing consumption of fruits and vegetables. Findings related to other outcomes were limited and inconsistent. The evidence base for multi-component interventions combining strategies on the environmental level as well as the individual level is stronger than for single component interventions.

**Overview Table**

<b>Summary of systematic review examining the impact of worksite policies on the dietary intake, quality, behaviors and/or preferences of employees</b>			
<b>Author, Year Study Design AMSTAR Score* Number of Included Studies</b>	<b>Purpose of Review Subject Population Location of Included Studies</b>	<b>Independent Variable Outcomes</b>	<b>Results</b>

<p><b>Kahn-Marshall, 2012</b></p> <p>Systematic review</p> <p>AMSTAR Score: 8/11</p> <p>27 studies:</p> <ul style="list-style-type: none"> <li>• 10 randomized controlled trials; 11 quasi-experimental; 6 lacking design</li> <li>• 8 deemed high quality</li> <li>• 16 multicomponent; 11 environmental or policy alone</li> </ul>	<p>Examine the evidence for the effectiveness of worksite health promotion programs using environmental and/or policy changes either alone or in combination with individually focused health behavior change strategies</p> <p>Employees of blue- and white-collar worksites</p> <p><b>Location:</b>          14 in the US          4 Netherlands          2 Japan          1 each in Scotland, Canada, Mexico, New Zealand, Chile, US+Canada</p>	<p><b>Independent variables:</b></p> <ol style="list-style-type: none"> <li>1. Only environmental and policy changes at the worksite</li> <li>2. Multicomponent interventions that included changes to the worksite</li> </ol> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Dietary behaviors (e.g., fruit and vegetable intake, SSB intake, meat intake)</li> <li>• Physical activity behaviors (e.g., stair use, minutes/week)</li> <li>• Health outcomes (e.g., blood pressure, BMI, blood cholesterol)</li> </ul>	<p>Nutrition interventions included point-of-purchase labeling, increased availability of healthier food items, and/or educational programs and materials. Multicomponent studies encouraged being more physically active through planned exercise as well as increasing daily activity (e.g., taking the stairs).</p> <p><b>Only Environment and/or Policy Changes:</b>          Of the 3 studies evaluating <b>nutrition</b> policies alone, 2 saw improvements: 1) increased access to FV at work and co-worker support and 2) increased intake of FV, low-fat dairy products, and whole grain products.</p> <p>One study evaluated a policy targeting <b>nutrition and physical activity</b> and did not see any improvements in the targeted behaviors.</p> <p><b>Environment &amp; Individual-level Strategies:</b>          Three of the 4 <b>nutrition</b> studies demonstrated increased FV consumption.</p> <p>Of the 9 studies targeting <b>nutrition and physical activity</b>, 5 studies demonstrated improvement with 4 being significant for self-reported FV intake.</p>
<p>*Quality assessed by AMSTAR (Shea, 2007: <a href="http://www.ncbi.nlm.nih.gov/pubmed/17302989">http://www.ncbi.nlm.nih.gov/pubmed/17302989</a>)</p>			

**Assessment of the Body of Evidence**

**Quality and Quantity:** The evidence base includes 27 independent studies with 10 randomized controlled studies evaluated in a high-quality systematic review with an AMSTAR score of 8 out of 11 possible points. However, some of the individual studies included in the review lacked scientific rigor.

**Consistency:** Across individual studies, worksite policies increased fruit and vegetable intakes, in particular when combined with individual-level strategies. Multi-component interventions were more effective than single-component interventions.

**Impact:** Fruit and vegetable intakes increased significantly in most studies evaluating this outcome; however the magnitude of the change was not quantified and thus the potential health impact of this change cannot be determined.

**Generalizability:** The studies included in the review were geographically diverse (both nationally and internationally), but information on the characteristics of the participants was very limited. Thus, the generalizability of the findings is not known with confidence.

**Limitations:** While the systematic review conducted by Kahn-Marshall and Gallant is of high quality, the quality of the studies included in their assessment varied, with only eight studies deemed to be of high quality (out of 27 total studies).

**Implications\***

Existing evidence indicates that worksite approaches focused on dietary intake can increase fruit and vegetable intakes of employees. Multi-component programs targeting nutrition education in combination with dietary modification interventions are found to be effective. Additionally, environmental modifications in conjunction with a variety of worksite policies targeting dietary modification, including point-of-purchase information, catering policies, and menu labeling are effective. Thus, these evidence-based strategies should be implemented in worksites through a variety of means, such as corporate

wellness programs, food service policies, and health benefits programs. Programs should emphasize multi-component approaches targeting diet and physical activity while policies should support behavior changes associated with improving health outcomes such as increasing the availability of healthy foods within the workplace and encouraging more physical activity throughout the workday. Given that approximately 64 percent of adults are employed and spend an average of 34 hours per week at work, the workplace remains an important setting for environmental and behavioral interventions for health promotion and disease prevention.

### **Research Recommendation\***

Assessments of the effectiveness of worksite interventions that emphasize obesity prevention and weight control among workers across racially/ethnically diverse populations, blue and white collar employees, and at risk populations are needed. Scientifically rigorous studies (especially RCTs) addressing long-term health impact of worksite-based approaches and policies that improve employee diet, physical activity, and body weight control would have public health relevance.

**Rationale:** In light of the high rates of obesity and overweight, worksite interventions targeting obesity prevention and weight control, via enhanced dietary behaviors and increased physical activity among workers is important. The majority of the studies to date have been conducted for a relatively short period of time, and the long-term impact of these approaches and policies may prove beneficial.

\*Because the four worksite questions are complementary, the Dietary Guidelines Advisory Committee chose to develop only one implication statement and research recommendation for all of the questions.

### **Reference**

Kahn-Marshall JL, Gallant MP. Making healthy behaviors the easy choice for employees: a review of the literature on environmental and policy changes in worksite health promotion. *Health Educ Behav* 2012;39(6):752-776. PMID: 22872583 <http://www.ncbi.nlm.nih.gov/pubmed/22872583>