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# Participant-centered Education: Building a New WIC Nutrition Education Model

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## ABSTRACT

**Objective:** To assess the readiness of the Western Region Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) states to implement participant-centered nutrition education (PCE) and to develop a PCE model for WIC service delivery.

**Design:** Formative research including on-line survey, qualitative in-depth interviews, focus groups, and observational assessments.

**Setting:** WIC clinics within the Western Region WIC states.

**Participants:** State and local staff and WIC clients within 8 states, 2 tribal organizations, and 2 territories.

**Phenomenon of Interest:** Readiness indicators of states to implement and expand PCE elements to include in PCE model development.

**Analysis:** On-line surveys were collected and analyzed. On-site assessment forms, interviews, and focus group findings were collected, coded, and summarized by themes.

**Results:** Key themes from state and local findings guided the model development for PCE implementation in the Western Region WIC states. The PCE model must be flexible and systems oriented, contain strong training and mentoring components, and integrate cultural sensitivity to best reach program participants.

**Conclusions and Implications:** The PCE model has the potential to improve WIC nutrition services and enable participants to make positive health-related behavior changes that will influence long-term health issues. Further outcome studies are needed to determine the success of PCE implementation in the Western Region WIC states.

**Key Words:** counseling, mothers, nutrition education, WIC, participant-centered (*J Nutr Educ Behav.* 2010;42:S39-S46.)

## INTRODUCTION

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides nutrition education as a core component in its service delivery model to encourage participants to adopt healthful eating and nutrition-related behavior.<sup>1</sup> More than 9 million low-income people receive WIC benefits each

month.<sup>2</sup> Approximately one-half of all infants born in the United States (US) are enrolled in WIC. Services continue during the critical growth years from birth to age 5, a time when lifetime food preferences and attitudes are largely formed.<sup>3-6</sup> Unhealthful behaviors learned early in life often persist and lead to increased health risks well into adulthood. Leading health experts recognize the value of

early prevention of obesity, the leading cause of chronic disease in this country.<sup>7,8</sup> By influencing family eating and physical activity behaviors, WIC's nutrition education has the potential to have a large impact on the prevention of childhood obesity.

Nutrition education is most commonly delivered using the didactic model, in which the educator provides information and direction to the participant in a traditional teacher-student relationship. Although didactic approaches are generally successful at conveying information and increasing participant knowledge about nutrition, they have been less successful in motivating participants to translate this knowledge into the adoption of healthful behavior.<sup>9-11</sup>

Recent advancements in behavior change theory have led to more promising methods of influencing behavior change. Leading experts agree that to

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be effective in addressing complex, food-related behaviors, nutrition educators must go beyond simply providing information and instead engage participants in a dialog to identify needs, set goals, increase self-efficacy, and address barriers to change.<sup>12-16</sup> Advancements in behavior change theory will aid in the development of successful models for improving nutrition education in the WIC setting.

Participant-centered education (PCE) is part of an overall effort by the Western Region WIC state agencies to improve the effectiveness of WIC's nutrition education services to meet the goals of the US Department of Agriculture Food and Nutrition Service's initiative, Revitalizing Quality Nutrition Services (RQNS). This initiative aims to enhance and strengthen the effectiveness of WIC nutrition services, helping participants achieve and maintain optimal nutritional status.<sup>17</sup> Another initiative within the framework of RQNS, Value Enhanced Nutrition Assessment (VENA), creates a positive approach to the nutrition assessment process as a starting point in providing quality outcome-driven participant services.<sup>18</sup> Participant-centered education is a complement and extension of this initiative.

Participant-centered education provides a critical bridge from nutrition assessment to nutrition education, and ultimately, to positive behavior change. With PCE, nutrition educators become facilitators who help participants adopt positive nutrition and health behaviors. Participant-centered education places the participant at the center of the nutrition education process. The fundamental spirit of PCE includes working collaboratively, eliciting and supporting motivation to change, and respecting participants' independent thoughts and actions. Participant-centered education focuses on participants' capabilities, strengths, and needs, rather than solely on problems, risks, and negative behaviors identified by educators (Figure 1).

In August 2006, the state of Arizona, on behalf of 12 of the 14 Western Region WIC state agencies, contracted with Altarum Institute to develop a participant-centered nutrition education model for delivering

WIC services. The Western Region state agencies include 8 states, 3 tribal organizations, and 3 territories. The Western Region covers a greater land area than any other region and serves the largest number of WIC participants, approximately 24% of the overall WIC caseload. This diverse region represents a mix of rural and urban populations and a mix of cultures, with a growing Hispanic population and a higher percentage of Asian/Pacific Islanders than any other region. Participating agencies included were from Alaska, American Samoa, Arizona, California, Guam, Hawaii, Idaho, the Inter-Tribal Council of Arizona, Navajo Nation, Nevada, Oregon, and Washington. This project, which included an in-depth assessment of each participating state, tribal, or territorial WIC agency, was designed to:

- assess the readiness of states to implement and expand PCE;
- identify supportive features and elements in place at the state agency level and within local WIC agencies;
- identify barriers that must be addressed to effectively implement PCE; and
- use the findings of the formative research to aid the development of a model for the implementation of PCE in the Western Region WIC state agencies.

## METHODS

To facilitate the assessment and model-building process, the Altarum PCE assessment team (7 members, including the project leader) initially gathered information and examples of PCE from relevant literature to identify and assess different models in the context of nutrition education and health-related behavior change. In total, 84 relevant articles, published between 1992 and 2006, were included in the literature review. The literature search from relevant medical and social science databases was refined to include at least 1 of the following: the theoretical underpinnings of behavior change; the use of PCE in changing behavior; and the effectiveness of nutrition education approaches with the WIC-eligible population. The literature review al-

lowed the project team to begin to explore how the broad parameters of PCE could be applied in the WIC context and to initiate the development of assessment tools to examine the readiness of states to implement this new approach. The project team developed state assessment tools, which were pretested in 2 states and revised based on the findings.<sup>19</sup>

Altarum used a participatory facilitation process to conduct the 12 individual state assessments; these assessments identified factors that are working well in the current nutrition education delivery system, as well as those elements that must be addressed to effectively implement PCE. Each individual state's Institutional Review Board approved the assessment process, which consisted of:

- **Review of state materials and documents:** Materials included nutrition assessment forms, VENA plans, education materials, policies and procedures, and local caseload information.
- **Site assessments:** Visits to 24 local WIC clinics throughout the Western Region WIC states were completed from February to September of 2007. Each state agency selected 1-3 local clinics that would be representative of the participants in their state. A mixture of rural and urban clinics was chosen. Each site visit was conducted by 2 or 3 members of the Altarum assessment team.
- **Staff surveys:** Prior to the on-site assessments, all 184 of the local nutrition supervisors and nutrition educators from the participating WIC clinics completed survey questionnaires. These questionnaires identified feelings and attitudes of individual staff members about their own readiness for implementing PCE, including their beliefs about how participants would respond to PCE. The survey results helped the site visit team to focus on questions and issues most relevant to that local site.
- **Group discussion with state-level staff members:** Altarum completed state-level meetings with each state WIC director, each nutrition coordinator, and staff members involved in various aspects of each state's service delivery system.

	TEACHER CENTERED	PARTICIPANT CENTERED
Educator's Presentation	Educator strives to be seen as a knowledgeable nutrition expert	Educator strives to be seen as a facilitator or partner, providing information and support to help the participant make positive nutrition/health behavior changes
Educator's Actions	<ol style="list-style-type: none"> <li>1. Asks for information from the WIC participant about risks and problems</li> <li>2. Decides which nutrition/health behavior changes the WIC participant should make</li> <li>3. Informs the WIC participant what is wrong with her current nutrition/health behaviors (her "nutritional risks")</li> <li>4. Presents an action plan with broad suggestions for behavioral change</li> <li>5. Asks yes/no and leading questions to confirm the WIC participant's understanding</li> </ol>	<ol style="list-style-type: none"> <li>1. Asks for information from the WIC participant about her goals, abilities, questions and concerns</li> <li>2. Helps the WIC participant decide which nutrition/health behaviors she wants to change, in the context of her own goals, culture and personal situation</li> <li>3. Helps the WIC participant identify barriers to change and ways they can be overcome</li> <li>4. Offers information and ideas for how participant can change her behavior, with small doable action steps</li> <li>5. Asks open-ended questions and uses active listening skills to encourage the WIC participant's active participation</li> </ol>
Expected Outcomes	WIC participant leaves with information she can use to change educator-identified nutrition/health-related behaviors	WIC participant gains ideas and makes her own decisions about small steps she can take, explores her motivation to take those steps, and leaves with a feeling of support that can help her to change her nutrition/health-related behaviors

Figure 1. A comparison of nutrition education approaches in WIC.

- **Staff interviews and group discussions:** Each of the 24 clinic supervisors was interviewed using a standardized discussion guide that was pilot-tested in 2 states. All staff members who provide WIC nutrition education (including WIC paraprofessional nutrition educators and breast-feeding peer counselors) participated in group and individual discussions.
- **Participant interviews:** Altarum interviewed a convenience sample of WIC participants who were at the clinic during the time of the assessment to understand their feelings about current WIC nutrition services and identify issues that might need to be addressed in developing a PCE model. The methods used to collect the information varied based on the structure and clinic flow of the individual agencies. In some clinics, one-on-one interviews were conducted, whereas in others, group discussions were held. In some cases, both individual and group sessions were conducted.
- **Environmental assessments:** Using tools designed specifically to assess the WIC setting, Altarum conducted an assessment of the WIC clinic's physical environment, including clinic appearance and clinic flow in each of the 24 local clinics. These tools were pretested in 2 states and modified based on the findings.
- **Nutrition education observations:** Altarum observed nutrition education in one-on-one sessions

and group classes using the participant services observation tools created for the project. At all 24 sites, one-on-one sessions were observed. Group education was observed only in those clinics that normally provide group education to their participants. Eighteen group sessions were observed during the site visits.

The Altarum PCE assessment team worked together to analyze the data collected from the assessment visits. The qualitative findings from discussion guides and observations were reviewed by all members of the team and coded by themes. Quantitative findings from the survey were analyzed using SAS software (version 9.1, SAS Institute, Cary, NC, 2003), and results were examined individually by state and collectively for the region. Individual reports were provided to each state agency. Results were combined into a final report that identified common themes across multiple states as well as unique state features that were identified as supportive of participant-centered services.

## RESULTS

There was a range of readiness across the WIC programs assessed, from those states that spent considerable time thinking about, designing, and implementing PCE activities to those that were in the beginning stages of designing what their PCE effort might

include. A few states implemented key features they believed were important components of PCE, such as training on motivational interviewing and critical thinking, developing nutrition education materials to facilitate a PCE approach, and designing mentoring strategies to help educators change their approach to providing nutrition education. Seven of the 12 states were actively devoting resources to PCE activities, and 2 states had made efforts to develop PCE-specific materials.

## Findings from State and Local Staff

*Finding 1: There was a strong commitment from both state and local staff for improving nutrition education and an overall recognition that the current approach is not the most effective.* During discussions with state and local staff members, there was an overwhelming enthusiasm for improving nutrition education services. There was general agreement across all staff members that the goal of nutrition education is to motivate positive behavioral change, and the traditional method of providing information to participants was not the best approach. A majority of state agency staff members believed that addressing issues related to childhood overweight and obesity, such as incorporating fruits and vegetables into diets and guiding participants to address poor eating habits, requires an approach that goes beyond providing factual nutrition information.

Many nutrition educators felt that the existing teacher-centered approach was adequate for providing information but did not necessarily motivate participants to change behaviors. Although the majority of staff members (56%) felt "most" participants have increased their knowledge about nutrition, they thought that only "about one-half" of participants experienced changes in skills, self-confidence, or nutrition habits. When asked how likely it would be for participants to want to see a WIC nutritionist if nutrition education was not part of receiving WIC checks, only 7% of the nutrition educators felt it would be "very likely." Participant-centered education was seen as the best approach to help motivate participants to adopt

healthful nutrition and health-related behaviors.

Although no state expressed any negative attitudes toward PCE, a few states expressed strong concerns that they might not have the ability to implement PCE. In particular, 2 states were concerned that the rural nature of their state, combined with the difficulty of WIC agencies to deliver nutrition education in these rural settings, would impede implementation of PCE. Of particular concern was the ability of these rural sites to hire and retain a qualified staff, the difficulty of conducting training in rural areas, limited access for participants to attend clinic sessions, and the need to modify methods to reach participants living in isolated areas.

*Finding 2: WIC state and local staff face competing priorities and challenges.* From discussions with state and local staff members, as well as surveys conducted with nutrition staff members, it was clear that there were concerns that PCE implementation would be affected by competing priorities, which would strain already limited resources. For the state staff, implementing the VENA initiative and the new WIC food package were already demanding a substantial proportion of their time. Some state agency staff expressed concerns about their ability to identify necessary funds within existing resources to fully implement PCE. Local staff members noted that limited time and increasing caseload demands often take precedence over training and other activities. Although competing priorities and limited resources were of a general concern to all states, 2 WIC state agencies indicated that these factors may be the single greatest barrier to implementing PCE and could potentially prevent them from moving ahead. These 2 states were in the process of changing their WIC information management systems, along with implementing VENA and preparing to implement the new food package. Both states noted that current staffing levels allowed them to focus only on these current activities, and that taking on PCE implementation would be a hardship for existing staff. Several staff members noted in discussions, however, that

implementing PCE could help achieve other priorities, such as helping WIC staff members communicate more effectively about positive changes in the WIC food package.

*Finding 3: Staff members would need training to fully implement PCE.*

During the observations of individual and group counseling sessions, the majority of nutrition educators still used a “teacher-centered” approach, and within local WIC programs, there was a wide range of knowledge and skills. Responses from the staff survey varied greatly from state to state with regard to the amount and content of nutrition education training the staff had received. The majority of local agency staff members believed that they could learn how to implement a PCE approach given proper training, materials, and support. Many of the staff members, however, did not have a clear understanding of the core principles of PCE. From the pre-assessment surveys of nutrition educators, 86% of the participants reported that they put in “a lot of effort” to increase participant knowledge about nutrition, whereas only 63% of nutrition staff members reported that they put in “a lot of effort” to increase participant self-confidence to improve their nutrition habits. Nutrition staff members ranked “knowledge” as “most important” for participants to have to improve their nutritional habits (above skills, self-confidence, and access to healthful food). In general, local WIC supervisors, clinic directors, and nutritionists had more knowledge of PCE, and how it differs from the didactic model, than did paraprofessional staff members.

Staff members had varied levels of confidence in their ability to learn and acquire PCE skills. During discussions, some staff members expressed doubt in their ability to guide participants in a facilitated conversation to bring about positive health-related behavior change. Of particular concern were the concepts of focusing on a topic of interest to the participant rather than one chosen by the nutrition educator, not having enough knowledge to answer participant questions, and worry over how to engage and motivate the participant to

change behavior. This concern was mirrored at the state level. Although the state agency staff was committed to the process of improving nutrition education, two-thirds of the state agency staff interviewed reported some concerns about the ability of staff to implement PCE. These concerns generally fell into 2 areas: (1) concerns related to the ability of staff members who have worked in WIC for many years to adopt new skills, and (2) concerns related to the amount of training and practice that would be required for both professional and paraprofessional staff to successfully implement PCE.

*Finding 4: Mentoring and modeling at the state and local levels will support PCE efforts.*

Mentoring nutrition educators was identified as an important component of WIC PCE implementation. Clinic coordinators noted that individual mentoring is important because mastering PCE skills takes time and practice, and staff members in the local clinic are at very different levels in terms of counseling skills and education levels. State and local level staff members cited high rates of staff turnover as a reason to implement a mentoring program. Within the WIC program, at state and local levels, there are high rates of turnover as skilled staff members gain experience and move on to different, often higher paying positions. This process creates a knowledge gap, which is more pronounced in smaller or rural states that have fewer staff members. Two issues identified by both state and local staff, to be addressed in the design of the PCE model, included limited time for mentoring at state and local levels, and feelings of discomfort on the part of staff members when conducting observations or being observed themselves.

*Finding 5: Cultural diversity in the WIC program will affect PCE implementation.*

Many local agencies were found to employ staff members from the various cultural groups being served in their clinics. These staff members, often paraprofessionals, understand cultural issues surrounding participants' food selections and dietary choices.<sup>20,21</sup> From discussions

with state and local staff members, however, there were several issues regarding how PCE may suit the wide range of cultural diversity among WIC participants. Some common concerns included the following:

- Use of an interpreter could dull the “spirit” of an interactive dialog;
- Some WIC participants come into the WIC clinic expecting to be “told what to do” and may not appreciate a new approach;
- Cultural differences related to the role of the individual within the family often mean that the participant has little or no control over nutrition decisions;
- The complexity of cultural diversity will make it difficult to develop a uniform approach to PCE; and
- The lack of culturally appropriate nutrition education materials will affect PCE implementation within these cultural groups.

These issues were deemed central to the effective implementation of PCE and would be integrated into the development of the PCE model. Overall, WIC state agencies and local staff members were found to be supportive of PCE and committed to addressing the challenges inherent in changing how nutrition education services are provided in their states.

### Local Agency Infrastructure

Altarum examined local agency infrastructure to determine the extent to which it may facilitate or impede implementation of PCE. In examining infrastructure, 3 specific themes were found throughout the local clinics:

- **Physical layout of the WIC clinic and clinic flow:** WIC clinics are very busy and sometimes noisy places. Clinic space is often limited, and in many cases, lacks privacy. The settings assessed to be the most conducive to PCE were comfortable, non-rushed, and respectful of privacy issues. Although WIC staff members believed they needed to work within their existing setting, many staff members had been able to change the physical layout of the WIC clinic or redesign the flow of participants to better promote privacy and effi-

ciency. Providing a comfortable environment and decreasing the wait time have been noted to increase the number of visits by WIC mothers.<sup>22</sup>

- **The impact of management information systems:** A good management information system can facilitate clinic flow, provide clinic staff with valuable information, and be used as a tool to document participant behavioral goals. No state or local agency reported that their management information system (MIS) was designed to support PCE. However, 2 states noted that some minor changes to their system could help facilitate PCE.
- **Creating a clinic environment supportive of PCE:** In several clinic waiting rooms, there was feeling of being in a sterile “government office,” with complicated, often outdated signs and very little to occupy children and parents. There were several local clinic environments, however, that were assessed to be supportive of PCE. These physical spaces were attractive, comfortable, welcoming and child friendly, with signs and posters that reflected participant-centered concepts and messages.

### Findings from Participant Interviews

Participants were interviewed either through a group discussion process or in one-on-one interviews. Across all states, the majority of participants were positive about their WIC experience. Most participants interviewed reported that WIC staff members treated them with respect, provided helpful information, and made good use of their time at the clinic. Overall, participants interviewed for this project reacted in a positive manner when presented with the principles of PCE. It is perhaps important and motivating to note that participants being served by the one local agency that has been using PCE for the past 5 years were very positive about their WIC experience, and they felt that WIC staff members really listened to them and motivated them to “do better” in improving nutritional behavior.

There were common suggestions from the participant interviews about ways to improve nutrition education in WIC. These suggestions included the following:

- Nutrition education opportunities and materials should appeal to and be responsive to the interests of diverse cultures.
- Nutrition education should focus on the needs of the entire family, not solely on those of the child.
- Group classes should be specific to the interests and needs of that particular group and include more input from participants.
- Materials should be relevant to participants’ lives and include practical information such as shopping and healthful cooking tips.
- WIC staff members should involve other family members in nutrition education discussions.

### DISCUSSION

The results of individual state assessments showed a positive commitment to implementing PCE. Although each state had challenges, all states were enthusiastic about improving nutrition education services by implementing a PCE model. From the results of the assessment, it was clear that, to work for multiple states, any model for PCE at WIC would have to have the following characteristics:

- **The PCE model must be flexible:** The Western Region WIC state agencies are at different stages of readiness for implementing a participant-centered nutrition education model. The model would need to be flexible in design so that it could be modified or adapted to meet unique and evolving needs of diverse state and local programs.
- **The PCE model must be a systems-based model:** It became clear throughout the assessment process that to fully address the nutrition education component of WIC, a PCE model should take into account:
  - WIC policies that enhance or impede customer service;
  - Clinic processes through which participants must navigate to receive services;
  - Clinic environment and its impact on the participant; and

- Interpersonal skills of WIC staff members and their ability to facilitate the delivery of WIC services in a participant-centered manner.
- **The model must account for the rich diversity of culture and background of WIC participants and staff:** Recognizing that culture plays a critical role in an individual's communication, nutrition habits, and food selection, a system-wide approach to addressing cultural issues must be incorporated into the PCE model. Nutrition education strategies should target individual cultural needs of the participant.<sup>23</sup>
- **State and local agency and federal regional office management staff members must be supportive of and engaged in the process:** Leadership, guidance, support, and long-term commitment from the state and local management staff are essential for successful implementation of the PCE model at the local level. In addition, success of state implementation depends on federal regional office support for PCE, with regard to policy and procedure development, including state evaluation requirements.
- **Local staff will need training to implement participant-centered services:** From the assessment process, it was clear that paraprofessional and professional staff will require training and support to change from a teacher-centered approach to a participant-centered approach. Participant-centered skills take time to learn, and continual training is needed to prevent staff from returning to the comfortable teacher-centered approach.<sup>24</sup>
- **The PCE model should have a strong mentoring component:** The presence of such a component will ensure that PCE is not viewed as “just another project,” but an integral and ongoing part of WIC service delivery. A strong mentoring program would bolster training efforts and support ongoing development of staff skills. Mentoring creates an atmosphere of continuous growth and learning, as mentors are able to impart knowledge, offer encouragement, and demonstrate the process. A mentoring program would also ensure continuity of the PCE approach as new

staff members are hired, improving the capacity of programs to sustain advancements in nutrition education services despite staff turnover.

## MODEL DEVELOPMENT

Armed with findings from the assessment process and literature review, Altarum Institute and the PCE Steering Committee (representatives from the Western regional office and from each Western Region WIC state agency) set out to develop a participant-centered model for WIC nutrition services. The process began during a 2-day planning meeting in November 2007.

In addition to the PCE steering committee, Altarum worked with a team of consultants who are experts in nutrition behavior change, adult learning, cultural competence, and WIC. These experts helped develop the conceptual framework for the model, which takes into account complex systems that are constantly interacting and shaping WIC services. This process considers the larger environment in which problems arise and identifies critical interactions within and across systems. This “complete picture” is critical to developing and successfully implementing sustainable, systems-based changes in WIC. In addition to the contextual and mediating factors of the participant and educator, there are other factors such as time with the participant, staffing constraints, skills of WIC supervisors, and the level of management support for PCE. All of these factors were considered in the context of WIC nutrition education. The framework for the model was developed and populated with findings from the site visits, the literature review, consultant input, and feedback from the PCE steering committee.

## THE PCE MODEL

The PCE model, graphically represented here, provides a framework for comprehensive, system-wide implementation of participant-centered nutrition services (Figure 2). Participants' needs and goals are at the core of service delivery, surrounded by 7 domains, each touching on different aspects of the WIC system that affect

participants. Within each domain are specific features designed to improve the effectiveness of WIC's nutrition services. The 7 domains are listed below, along with an example of a specific feature within that domain:

- **State agency responsibilities:** Establishing the role of the state agency in implementing and supporting PCE. (Example: All state staff understand the principles of PCE and receive training in its concepts and in the skills needed to model and support its implementation.)
- **Service delivery environment:** Ensuring that the physical environment and clinic procedures reflect PCE and highlight PCE's importance in reaching participants. (Example: Clinic environment supports the principles of the PCE model. The physical space is attractive, comfortable, welcoming, and child friendly.)
- **Leadership and mentoring:** Creating a framework for internal mentoring to support the ongoing progress and development of current and future WIC staff, and working with state and local leaders to create a management structure that supports participant-centered services. (Example: PCE mentors receive training on skills needed to successfully model and support other staff members.)
- **Local agency staff engaged and supportive:** Actively engaging all clinic staff in the ongoing process of PCE implementation. (Example: At each clinic, a PCE champion motivates and encourages staff members to adopt and use PCE concepts and principles.)
- **Nutrition educator skills:** Providing the skills and training nutrition educators need to promote the adoption of positive nutrition and health-related behaviors by WIC families. Included in this domain are the basic skills necessary to support PCE. (Example: Nutrition educators and participants understand that to be effective, both parties must truly engage and participate in the process. Ongoing training enables nutrition educators to build upon and sharpen skills.)

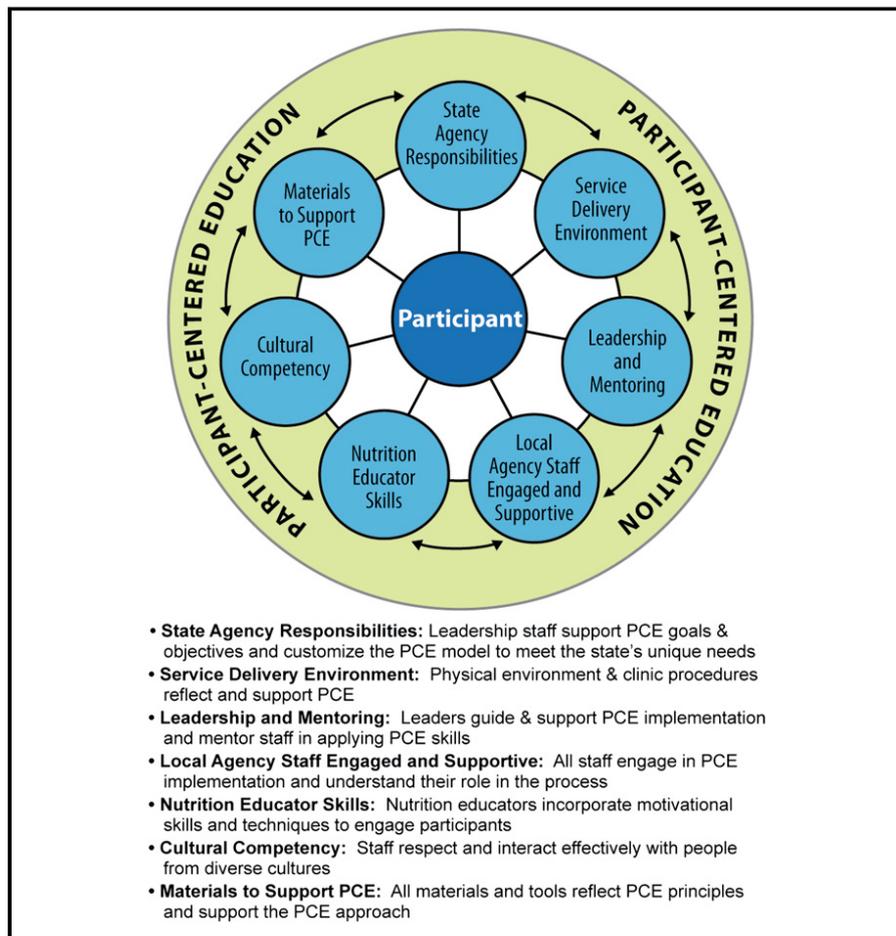


Figure 2. The Participant-centered Education model.

- **Cultural competency:** Considering the needs of WIC's culturally diverse participant population in all components of WIC services. (Example: An agency-wide process helps staff to understand how cultural and linguistic differences influence behavior.)
- **Materials to support PCE:** Creating participant-centered materials and tools that enhance participant understanding and support their efforts toward positive health behaviors. (Example: Clinic has a process to review materials for adherence to PCE concepts and principles.)

The domains and features within the model provide a framework for local agencies to use as they implement a system-wide PCE approach to improve the health and nutrition outcomes of WIC families. The PCE model is flexible in design, adapting to meet the unique needs of diverse state and local WIC programs. State agencies may use the model to implement system-wide changes in each

domain, or they may choose to focus their efforts on particular domains, or features within those domains, based on their own programs' unique needs and resources.

Implementation efforts are now underway in WIC programs throughout the Western Region WIC states. Initial efforts include strategic planning and training, mentoring program implementation, and creating model PCE clinics that will serve as "pilot" clinics for the rest of the state. The flexibility of the PCE model allows states to focus on a variety of elements within the larger WIC system that have the potential to move them closer to maximizing positive health outcomes in their populations.

### IMPLICATIONS FOR RESEARCH AND PRACTICE

The PCE model touches on every aspect of the WIC program. It represents efforts of the Western Region WIC

state agencies to improve the effectiveness of WIC nutrition education by helping participants make positive nutrition and health-related behavior changes, thus improving the health and well-being of WIC families. Just as VENA provides a framework for establishing policies and procedures for the nutrition assessment component of WIC services, the PCE model offers a comprehensive framework for improving the effectiveness of WIC counseling and education, meeting the goals of RQNS.

As the Western Region WIC state agencies move to implement PCE's systems-based approach, more research is needed to test the effectiveness of this model in relation to the traditional WIC service delivery model. Specific research questions include:

- How effective is the PCE model in motivating participants to make positive nutrition and health-related behavior changes?
- Does the PCE model help local WIC programs respond to shifting priorities and challenges?
- To what extent is the mentoring component of the PCE approach critical to the successful implementation of PCE?
- To what extent will the adoption of the PCE model reduce the turnover rate of WIC staff?
- What additional support is needed to effectively implement the PCE model?

The PCE model has the potential to be more effective in influencing participants' health-related behavior than the more commonly used teacher-centered model, which will influence long-term health issues such as obesity and other chronic diseases. Ongoing commitment, sustained efforts, and resources are needed to continue the comprehensive, system-wide transformation of WIC operations and services using the PCE model. This commitment will ensure that WIC will continue to be the premier nutrition education program.

Resources from the project are included in an on-line toolkit that was developed to assist states with the assessment of PCE readiness and provide guidance for planning and implementing the PCE model.

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