National WIC Association

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IOM WIC Food Package Review Committee
Institute of Medicine of the National Academies
Food and Nutrition Board
Keck Center
500 Fifth St., NW
Washington, DC 20001

Dear Members of the IOM WIC Food Package Review Committee:

The National WIC Association (NWA) is proud to have played a significant role in helping to shape the Institute of Medicine's 2005 WIC Food Package Review and Recommendations and the 2009 USDA interim and subsequent final rules. NWA and our members look forward to serving as a continued resource for the Committee as you undertake this new review.

The significant scientifically-based changes to the WIC food packages in 2009 were the first of their kind since the Program's inception in 1974. These changes aligned the WIC foods with the Dietary Guidelines for Americans and other nationally established dietary recommendations, enabling WIC programs nationwide to complement WIC nutrition education with the foods offered by the Program. Promulgation of the 2014 final rule brought with it additional important modifications. For the upcoming review, NWA is eager that nutrition science and WIC redemption data continue to inform further changes to the food packages.

NWA is pleased to offer the Committee the attached recommendations to help further improve the food packages. The Association enthusiastically supports the scientific review of the food packages every 10 years, or less when warranted, and is ready to partner in this effort where appropriate.

For questions regarding the recommendations, please contact NWA Staff/Nutrition Program Director, Cecilia Richardson at crichardson@nwica.org/202.232.5492.

Sincerely,

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National WIC Association Recommendations for the 2014 IOM Review of the WIC Food Packages

Background

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides supplemental nutritious foods, nutrition education and counseling, and health and social-service referrals to low-income pregnant, breastfeeding and postpartum women, infants and children.

The nutrition education component of the WIC Program focuses on ensuring positive pregnancy outcomes for women, successful breastfeeding for mother-baby dyads, and optimal nourishment for infants and children. It guides parents and caregivers in establishing long-term healthy dietary patterns for their children and families. The supplemental food component assists participants in implementing the recommendations provided by the WIC nutrition staff in their nutrition counseling and education efforts.

Prior to the first Institute of Medicine's (IOM) review in 2004, the WIC food packages targeted specific nutrients (protein, iron, calcium and vitamins A and C) found to be lacking in the diets of the participant groups and included foods that were good sources of these nutrients.

In 2005, IOM published its review of the WIC food packages, taking into consideration the nutritional needs of the WIC population, embracing many of the National WIC Association's recommendations, and recommending changes to the foods then offered through the WIC program. In 2007, based on the IOM review and recommendations, an interim rule was released by USDA revising the WIC food packages with required implementation by October 1, 2009.

The revised food packages in the interim rule were intended to better promote and support the establishment of successful, long-term breastfeeding, and complement WIC nutrition education by providing WIC participants with a wider variety of foods including fruits and vegetables, whole grains, soy, and culturally appropriate products. For the first time, since the Program's inception in 1974, the WIC food packages aligned with the Dietary Guidelines for Americans and child feeding guidelines of the American Academy of Pediatrics.

Following the food package changes in 2009, studies have shown, among others:

- improved participant access to healthy foods (e.g., whole grains, fruits, vegetables, and lower-fat milk) for WIC participants, as well as the community at large;[1,2]
- increased breastfeeding initiation among WIC mothers; increased consumption of fruits, vegetables, whole grains, and lowfat/nonfat milk by young children; and decreased weight for length and body mass index in young children;[3]
- improved participant consumption of whole grains, decreased consumption of whole milk among caregivers and children who usually consumed it, and increased consumption of fruits and vegetables;[4] and

- improved inventory of healthier foods (e.g., fresh fruits and vegetables, lower-fat milk, whole-grain bread, and brown rice) in WIC-authorized and non-WIC-authorized stores.[5]

The Final Rule

In response to the interim rule, USDA considered and accepted public comments; and in March of 2014, released a final rule on revisions in the WIC food packages. The final rule made several significant refinements to the interim rule, all of which NWA enthusiastically supports. These include:

- Increasing the Cash Value Voucher (CVV) for fruits and vegetables for children from $6 to $8/month;
- Allowing the partial replacement of jarred infant foods with CVV;
- Allowing the issuance of jarred infant foods for children and women in food package III for qualifying conditions where pureed foods are beneficial;
- Allowing soy beverage and tofu substitution for milk without requiring medical documentation;
- Allowing yogurt as a partial substitution for milk; and
- Allowing fat-reduced milks for children ages 12-23 months who are at risk of overweight or obesity.

IOM Review

An important basis for WIC's success is the program's science-based food packages that supplement and enhance the diets of women and young children it serves. Continuing to align the WIC food package with the Dietary Guidelines for Americans and the American Academy of Pediatrics policies will further position WIC as the nation's premier public health nutrition program. As the IOM begins the task of its second review of the WIC food packages, NWA is committed to preserving and protecting the science review process and the scientific integrity of these packages.

Recommendations to Improve and Enhance the WIC Food Packages

(See Table 1 for justifications)

- For infants age 9 – 11 months: Allow States the option to replace *all* jarred infant fruits and vegetables with CVV.
- Further support and incentivize breastfeeding by increasing the Cash Value Vouchers (CVV) for fully breastfeeding women above that for non- or partially- breastfeeding women.
- Allow all fat levels of yogurt for all participant categories.
- Reduce allowed sugar content of yogurt to a level that aligns with current recommendations of the Dietary Guidelines for Americans.
- Allow full or partial replacement of the juice benefit with CVV if it would not affect vitamin C or iron status.
- Remove the requirement for providing formula or WIC-Eligible Nutritionals in Food Package III when whole milk is to be issued to children over age 2 and women for qualifying conditions.
- Remove the requirement for providing formula or WIC-Eligible Nutritionals in Food Package III when jarred infant foods are issued to children and women for qualifying conditions.
- Allow vegetarian substitution for baby food meats for fully breastfed infants with consideration for protein, iron, zinc, and omega-3 fatty acids.
- Allow vegan substitutions for eggs and canned fish.

- Allow two separate food packages to meet the differing developmental needs of the infant over age 6 months: 1) age 6-8 months and 2) age 9-11 months.
- Expand options for the increasing number of diverse populations through culturally acceptable foods.
- Expand substitutions for special dietary concerns to include food allergies.
- Simplify requirements within the minimum/maximum formula parameter to better conform to industry packaging, acknowledging that package changes will continue to occur.
- Standardize the issuance allowance of products that do not have a standard yield, such as certain modular WIC-eligible nutritionals.
- Continue to allow inclusion of organic foods as a State option.
- Allow ranges of container/package sizes to accommodate marketplace variations so as not to limit participant access or choice.
- Allow the redemption of CVV at Farmers' Markets.
- As States move to EBT WIC benefits, allow the Farmers Market Nutrition Program benefit to be added to the WIC card for use at farmers' markets.
- Consider States' various Management Information Systems (MIS) to enable efficient implementation of food package rules.
- Allow effective administration of the WIC program by ensuring that implementation dates allow for adequate planning, food list printing, local agency staff and vendor training, and data systems updates.

Table 1.

Rationale for recommendations

Recommendation	Rationale
Fruit & Vegetable Benefit (Cash Value Voucher or CVV)	
For infants age 9 – 11 months: Allow States the option to replace *all* jarred infant fruits and vegetables with Cash Value Vouchers (CVV).	A full CVV option for infants age 9-11 months would reinforce nutrition education messages of adding increasing texture and encouraging self-feeding to meet the developmental needs of the older infant. A 2012 study conducted in California showed that redemption of jarred baby foods declines for the older infant. In addition, of those surveyed with infants between age 9 and 11 months, 80% preferred CVV for fruits and vegetables over jarred baby food across ethnic groups.[4]
Further support and incentivize breastfeeding by increasing the CVV for fully breastfeeding women above that for non- or partially-breastfeeding women.	The interim rule for WIC Food Packages provided a larger food package for the fully breastfeeding woman including a $10 CVV for Fully Breastfeeding Women as compared to $8 CVV for all other women. The increased dollar amount for the fully breastfeeding woman provided further incentive for a woman to choose to fully breastfeed her infant. Since the original implementation of the interim rule, the dollar amount of the CVV for pregnant, post-partum and partially breastfeeding woman has been increased to match the $10 amount issued to the fully breastfeeding woman. This increase in dollar

	amount for those previously receiving $8 is a positive change as it allows WIC families to purchase more fruits and vegetables, however, this match in dollar value for the CVV diminishes the food package incentive for the fully breastfeeding woman.
Yogurt	
Allow all fat levels of yogurt for all participant categories.	The current restriction for only whole milk yogurt for 1 year olds is difficult to navigate at the retail level. According to the CFR 21 131.200 (standard of identity for yogurt) "yogurt" must contain not less than 3.25% milk fat and states that the name of the food is "yogurt". Often these yogurts are not labeled as “whole milk yogurt” as the standard of identity only requires that type of labeling for lowfat and nonfat yogurts. The yogurt substitution allowance per month is 32 ounces. For comparison, 32 ounces of a popular yogurt made with whole milk contains 9 grams fat while the fat-free version contains 0 grams fat. This results in an average daily difference of 0.3 gm fat.[7] Retailers often stock larger quantities of lowfat and fat-free yogurts which can make obtaining the higher fat yogurts more difficult. By removing the fat restriction, it will increase choice and access to a greater variety of yogurt for all participant types.
Reduce allowed sugar content of yogurt to a level that aligns with current recommendations of Dietary Guidelines for Americans.	Allowing yogurt as a partial substitution for milk is a highly welcomed addition in the WIC Food Package. However, the specification of $\leq$ 40 gm total sugar per one cup of yogurt is quite generous given that many popular yogurts on the market actually contain lower levels. For example, Yoplait Kids low fat yogurts only contain 24 grams of sugar per 8 oz serving. In addition, manufacturers are now working to lower the sugar content by the use of different active cultures, which naturally result in a less tart product, hence, requiring less sweetening.[8] Consumption of sugar sweetened beverages and food items, including bakery products and yogurt, has been linked to excess weight gain in children and adults.[9-12] One study determined sugar-sweetened yogurt consumption was associated with increased total calorie intake per day in children 6-7 years old, exceeding age-based daily energy requirements.[12] The 2010 Dietary Guidelines for Americans recommend limiting total intake of discretionary calories, which include added sugars and solid fats to 5%-15% of daily caloric intake. This recommendation continues to be exceeded, with added sugars alone contributing to an average 16% of the total calories in the current American diet.[13]
Juice	
Allow partial or full replacement of the juice benefit with CVV if it	The juice provided in the WIC food package provides a consistent source of vitamin C, which aids in the absorption of non-heme

would not affect vitamin C or iron status.	iron.[14] WIC juice plays an important role in the vitamin C and iron status of women and children participating in WIC. The current WIC juice allowance aligns with the American Academy of Pediatrics (AAP) recommendations for maximum daily consumption for children ages one to six years old.[15] However, the 2010 *Dietary Guidelines for Americans* (DGA) notes that "nutrients should come primarily from foods. Foods in nutrient-dense, mostly intact forms contain not only the essential vitamins and minerals that are often contained in nutrient supplements, but also dietary fiber and other naturally occurring substances that may have positive health effects…" Fruits, particularly citrus fruits, fruit juices, and many vegetables are excellent sources of vitamin C.[13] The DGA also advise that juice lacks dietary fiber and when consumed in excess, can contribute extra calories. The majority of the fruit servings recommended should come from whole fruits, including fresh, canned, frozen, and dried forms, rather than from juice. Current consumption of fruit juice exceeds consumption of whole fruits in children.[16] In addition, excess juice and its inappropriate use may contribute to obesity and/or tooth decay.[15] It is hoped that the IOM can determine if the provision of juice in the WIC food package should be replaced by CVV and if doing so would be beneficial or if it would negatively impact vitamin C and iron status.
Food Package III	
Remove the requirement for providing formula or WIC-eligible nutritionals in Food Package III when whole milk is to be issued to children over age 2 and women for qualifying conditions.	Currently, if a woman or child age 2 or over has a qualifying condition where whole milk consumption would be beneficial, they are assigned Federal Food Package III. Participants who are assigned Food Package III *must* also receive an infant formula, exempt infant formula or WIC-eligible nutritional. In some instances, these participants can be managed without the additional formula/nutritional but are required to receive it. Though overweight and obesity are major concerns in the low-income population, 3-4% of low-income children ages 2-4 in the United States are underweight.[17] The Food and Agriculture Organization of the United Nations describes that "milk plays a key role in treating under-nutrition… in industrialized countries" because it includes components such as protein, minerals, and lactose that are thought to be crucial in the treatment of undernourished children. Lactose, in particular, supports growth by contributing to improved absorption of minerals and providing a prebiotic effect.[18] In order to increase calories in a child's diet, the Academy of Nutrition and Dietetics recommends using whole milk and whole milk products.[19] Requiring the addition of formula/nutritionals in order to provide additional calories is often unnecessary. In addition, formulas/nutritionals are more expensive than whole milk and, thus, could increase the cost of the food package, undermining WIC's cost-containment efforts.[20]

Remove the requirement for providing formula or WIC-eligible nutritionals in Food Package III when jarred infant foods are issued to children and women for qualifying conditions.	Currently, if a woman or child has a qualifying condition such as Down Syndrome, Autism, or developmental delays where pureed infant fruits and vegetables would be beneficial, they are assigned Federal Food Package III. Participants who are assigned Food Package III *must* also receive an infant formula, exempt infant formula, or WIC-eligible nutritional. Some participants can be managed without the additional formula/nutritional but are required to receive it. In some states, physicians will not write a prescription for a formula or nutritional in order for the participant to receive pureed foods. In addition, participants who are issued the unneeded formula/nutritional receive additional calories which may lead to overweight or obesity. The requirement of providing these products may increase concerns with WIC program integrity and may also increase the cost of the food package which is counter to WIC's cost containment efforts.
Protein	
Allow vegetarian substitution for baby food meats for fully breastfed infants with consideration for protein, iron, zinc, and omega-3 fatty acids.	A 2011 study conducted in Wisconsin showed that 18 months after the WIC food package changes were implemented, fewer than 35 percent of fully breastfed infants had used all of their food instruments for infant meat.[21] Many states report similar redemption rates. The American Academy of Pediatrics and the Academy of Nutrition and Dietetics agree that a well-planned vegetarian diet can meet the nutritional needs and promote normal growth and development of infants.[22-25] Offering the option of a vegetarian substitution for jarred infant meats will help meet the needs of families who wish to provide only vegetarian foods to their babies.
Allow vegan substitutions for eggs and canned fish.	Currently, the only two categories of WIC foods that offer no vegan substitutions are the egg category and canned fish category. The US Dietary Guidelines for Americans recommend increasing the consumption of plant foods.[13] According to a large body of scientific research, appropriately planned vegan and vegetarian diets can be healthful for pregnant mothers and their infants, as well as for older children.[24] Vegetarians may be at an increased risk for protein, iron, vitamin B12, zinc, calcium and vitamin D deficiencies as they eliminate an entire food group from their diets.[25,26,27] Therefore, it is essential that vegetarians eat adequate amounts of these nutrients and replace meat in their diets with age-appropriate meat alternates, such as nuts, nut butters, seeds, legumes, tofu and other soy products that provide concentrated energy and support growth.[23,24,25,28] Offering vegan substitutions in the eggs and fish categories will help meet the nutritional needs of participants on a vegan or vegetarian diet.

Older Infant Food Package	
Allow two separate food packages to meet the differing developmental needs of the infant over age 6 months: 1) age 6-8 months and 2) age 9-11 months.	The American Academy of Pediatrics recommends introduction of complementary feeding around age 6 months.[23] First foods are typically “puree” in texture and progress through “ground,” “fork mashed” and “diced" as the infant matures. By 8-10 months of age, infants develop the fine motor skills necessary for self-feeding, such as the pincer grasp necessary to pick up small pieces of food with thumb and finger.[29] The WIC food package (Federal Food Package II) for infants currently meets the developmental needs for infants age 6-8 months by providing pureed jarred infant foods and fortified infant cereal. There is a lack of marketplace infant fruit and vegetable options for the older infant’s need for increased texture and self-feeding. The option to allow a full substitution of infant foods with CVV will help bridge this gap (see Fruit and Vegetable recommendation section). In addition, the creation of a distinct older infant food package would allow for inclusion of additional age-appropriate foods (i.e. finger-fed type cereals, beans, tofu cubes, etc.).
Cultural and Special Considerations	
Expand options for the increasing number of diverse populations through culturally acceptable foods.	While national data is not readily available, New York State reports that WIC participants in that state speak over 150 different languages. Missouri, a comparatively small state, reports that WIC literature is translated into 16 languages. Given the cultural diversity of the WIC population, WIC nutritionists recognize the need to offer a supplemental food package with regionally or locally available and culturally familiar foods that meet nutritional needs, and request IOM’s assistance in identifying such foods.
Expand substitutions for special dietary concerns to include food allergies.	From 1997 to 2007, the prevalence of reported food allergy increased by 18% among children under age 18 years.[30] Eight types of food account for over 90% of allergic reactions in affected individuals: milk, eggs, peanuts, tree nuts, fish, shellfish, soy, and wheat.[31, 32] By expanding available substitutions, the WIC food package can better meet the nutritional needs of participants with special dietary concerns including celiac disease and other food allergies.
Formula	
Simplify calculations to determine infant formula monthly quantities to better conform to industry packaging, acknowledging that package changes will continue to occur.	State Agencies are required to comply with current regulations regarding the amount of infant formula to provide WIC participants. Multiple methods (monthly issuance, rounding methodology or a combination of the two) are necessary to determine these amounts. The final rule attempts to address the issue of “little flexibility to accommodate changes in the package

	size while still providing the full nutrition benefit (FNB) and not exceeding the maximum monthly allowance amount" by establishing a separate monthly maximum amount for liquid concentrate. However, limitations remain. Some reconstituted yields for powder formula continue to fall outside the minimum as well as the maximum allowed quantities, requiring the use of the more complicated rounding methodology. Confusion exists among State Agencies on how to interpret the regulations when their calculations, those provided by the WIC Works formula calculator and those published by formula manufacturers differ. Industry packaging undergoes frequent changes and has resulted in the need for recent USDA policy exception memos. Additionally, mixed methodologies for calculating formula quantities do not translate easily into State Agency Management Information Systems, further compounding system management of frequent formula packaging changes. In all, the methodology is overly complex and places a substantial burden on State Agencies to remain compliant. A simpler way to determine infant formula monthly quantities is needed to ensure WIC participants receive the intended supplemental amounts regardless of industry changes.
Standardize the issuance allowance of products that do not have a standard yield, such as certain modular WIC-eligible nutritionals.	State agencies have difficulties in determining the standard issuance for products that do not have a standard yield and, at times, manufacturers do not publish reconstituted amounts. Individual states determine issuance levels of these products which is often not consistent between states. Providing a standard issuance allowance for these products used by all states will ensure that WIC participants receive consistent amounts regardless of where they reside.
Organic Foods	
Continue to allow inclusion of organic foods as a State option.	State Agencies are tasked with identifying, selecting and authorizing WIC Foods in accordance with Federal regulations at 7 CFR 246.10.[33] Criteria and methods for identifying, selecting and authorizing WIC foods includes the following factors: nutritional integrity of the products consistent with federal regulations, state specific nutrition criteria, variety and choice for the participant (including cultural preferences and religious considerations), availability, packaging, participant acceptance, convenience and cost, etc. State agencies, in order to responsibly manage allocated food funds, have the authority to make administrative adjustments to control costs. Cost-saving strategies shared with state agencies in the *USDA Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Food Package Guidance- A Guide for FNS Regional Offices, and WIC State and Local Agencies, Appendix C* states "Appropriate vendor selection, monitoring and sanctioning, use of private label or store branded products that are nutritionally equivalent to national brands, encouraging participants to shop in

	cost-conscious manner….. and limit organic product and "natural" food items unless they are less expensive. State agencies may not restrict the purchase of organic fruits and vegetables with cash-value voucher."[34] Organic foods costs are typically higher than conventional foods. The USDA Economic Research Service tracks organic and conventional food costs,[35] and data is available at http://www.ers.usda.gov/data-products/organic-prices.aspx. Some State Agencies may have a high demand for organic foods and have the food dollars to support authorizing these foods while others may not. Therefore, organic foods should continue to be allowed as a State option.
Container Sizes	
Allow ranges of container/package sizes to accommodate marketplace variations so as not to limit participant access or choice.	It is agreed that participants should receive the full nutrition benefit. However, limited or lack of availability of food of certain package sizes often prevents a participant from receiving the benefit altogether. Some examples of products which created difficulty were: • Bread – not available in 16 oz size in many rural areas. • 48 oz juice – vegetable juice is only available in 46 oz size, resulting in its removal from packages for women. • Whole wheat pasta – not widely available in 16 oz size, which has resulted in it not being added to the food list in many states. • Brown rice – instant/parboiled varieties often available only in 14 oz size. • Jarred infant fruits and vegetables – changing jar size by manufacturers and multi pack sizes can limit States' ability to meet the full nutrition benefit. • "Fresh- only" infant CVV – while technically not a size issue, allowing frozen and canned fruits and vegetables for children and women but not for infants can limit the provision of the infant CVV in areas where fresh produce is not widely available. WIC participants' shopping experiences should be positive and uncomplicated. By establishing package size ranges for the products of concern, WIC can accommodate changes in the marketplace to ensure participants have access to intended supplemental nutritious foods.
Farmers' Markets	
Allow the redemption of the CVV at Farmers' Markets.	USDA has been supportive of local agriculture and the growth of farmers' markets. Increasing the ability for families to access a greater amount and variety of produce will help them achieve levels recommended in the Dietary Guidelines for Americans. Recipients of the Supplemental Nutrition Assistance Program
As States move to EBT WIC benefits, allow the Farmers	

Market Nutrition Program benefit to be added to the WIC card for use at Farmers' Market.	(SNAP) benefits have access to farmers market produce. SNAP customers redeem their benefits by swiping their EBT cards at a Point of Service (POS) terminal located at a farmers' market and receive, in exchange, paper certificates, tokens, or receipts which then can be used to purchase eligible food products at these markets.[36,37] By allowing a similar redemption method for the CVV, families would be able to support local agriculture while accessing high quality, nutrient dense fruits and vegetables. In addition, for WIC families who also participate in the Farmers Market Nutrition Program, allowing those benefits to be accessed through the state-issued WIC electronic benefits card would also facilitate redemption.
Additional Considerations	
Consider States' various Management Information Systems (MIS) to enable efficient implementation of food package rules.	There are a wide variety of Management Information Systems (MIS) currently utilized by State Agencies. Each state's MIS has specific procedures that must be put in place in order to effectively implement changes and provide seamless services to WIC participants. The diverse MIS system requirements must be considered in the rule-making process to allow for effective and efficient implementation.
Allow effective administration of the WIC program by ensuring that implementation dates allow for adequate planning, food list printing, local agency staff and vendor training, and data systems updates.	Many components are involved in the implementation of food package updates and changes within the WIC program. These include: planning time, preparing materials, training of staff and vendors and updating MIS systems. In addition, the staggering of implementation dates is undesirable for coordinating all of these components. To effectively administer the WIC program, ensure program integrity and facilitate efficiency, it is imperative that dates of implementation allow a sufficient time frame for these activities to occur.

In addition to the significant recommendations that NWA offers to further improve and enhance the WIC food packages, NWA also highlights some of the primary research questions related to the WIC food packages that have emerged since the 2009 implementation. These are questions and areas of research that the WIC community hopes can be addressed by the Committee. They include both overarching questions and more detailed questions related to specific WIC food categories.

Overarching Research Questions

Periodicity of Food Package Review. Understanding that there is a mandate to scientifically review the food package every 10 years, is there a way to ensure that the WIC food packages remain aligned with emerging nutrition science and in synchrony with the Dietary Guidelines for Americans which are released twice as often?

Functional/Non-Nutritive Ingredients. What does new or emerging science suggest about the risks, benefits, and cost-benefits of functional food ingredients? In the past few years, WIC State agencies have been asked to approve a growing number of food products for purchase; many with added functional ingredients and higher costs relative to 'traditional' foods. How should WIC State Agencies determine which functional ingredients should be allowed in WIC-authorized foods? Similarly, what does existing or emerging science suggest about the risk and benefits to infants, young children, pregnant women, non-breastfeeding and breastfeeding mothers from artificial sweeteners, colors, and dyes in food products, and how should States determine which foods containing those ingredients should be allowed?

Redemption Rates. What can be learned from examining the redemption rates of WIC foods? Are items with low redemption rates truly meeting their intended nutritional impact and if not, are there substitutions that are nutritionally equivalent, cost neutral and likely to be better accepted by participants?

Post-partum Benefits and Interconception Health. Given the emerging evidence on the importance of interconception health, what does research suggest about enhancing WIC food benefits for mothers in the post-partum period? Is there a reason to consider a greater quantity of benefits in the current time period or to extend a similar provision of benefits over a longer period of time? Which nutrients are most beneficial in this time period and which nutrients are most deficient? Are there significant differences in the type/degree of nutrient deficiency when comparing non-breastfeeding, partially breastfeeding, and fully breastfeeding women? What opportunities does the WIC Program have to enhance interconception health/nutrition?

Breastfeeding Promotion. How have the current food packages supported breastfeeding in WIC? What modifications to the food packages could be considered to further promote breastfeeding? Are there other policy options outside of the food package that should be considered to improve breastfeeding outcomes in WIC?

Detailed Questions Related to Specific WIC Food Categories

Infant Foods and Formula

A. Introduction of Solid Foods/Developmentally Appropriate Foods

Commercially prepared jarred infant foods are offered to WIC infants from 6-11 months of age. The recently released final rule on the food package allows for partial substitution of infant fruits and vegetables with a CVV for fresh fruits and vegetables for the older infant (9-11 months). However, there are no provisions for substitution of the packaged infants meats or infant cereals for the older infant. Multiple states report low redemption of infant meats and decreased infant fruits and vegetables and infant cereal redemption as the infant ages.

The justification for considering a graduated infant food package stems from the natural developmental progress of eating abilities of infants as they age. Infant self-feeding efforts begin with the palmar grasp and then move to a more adept pincer grasp. The introduction of finger foods gives infants an opportunity to practice developing their fine motor skills and therefore should be introduced when an infant develops their pincer grasp, typically around 8-9 months of age. The AAP's *Pediatric Nutrition Handbook* states, for infants 8-11 months, to "offer more finger foods and cooked food from the table. In addition, parents should offer at least three different types of food per meal for variety." *Infant Nutrition and Feeding: A Reference Handbook for Nutrition and Health Counselors in the WIC and CSF Programs* states that mashed foods should be introduced at 6 months, then advanced to ground/finely chopped foods at 8 months, and chopped foods shortly thereafter. Therefore, the following question emerges:

- *Does the WIC infant food package for 6-11 month old infants match the developmental needs of the infants participating in the program, particularly in older infancy?*

B. Policy to reduce formula allowance after 6 months of age for infant food package

Partially and non-breastfeeding infants may receive infant formula from WIC. The maximum number of ounces of formula provided to a fully formula-fed or partially breastfeeding infant changes based on the age of the infant according to previous recommendations by the IOM food package review committee. The amount of formula that the 6-11 month old receives is less than what WIC had provided in the past for this age group and there is a question about the adequacy of this lower amount.

Under the current WIC infant food package, the amount of supplemental formula provided to a non-breastfeeding infant 4-5 months of age is 960 fl. oz. of reconstituted powder. At 6-11 months of age that amount drops to 696 fl. oz. reconstituted powder.

- *Given that the WIC current standard advice is to wait until 6 months to introduce complementary foods and this is not an immediate and full transition, does this drop in ounces of formula increase risk for nutrient deficiencies or failure-to-thrive in 6-7 month old infants?*

C. Infant Fruits and Vegetables

Infants age 6-11 months receive fruit and vegetable benefits in varying amounts based on breastfeeding status. The final rule allowed State agencies to replace half of 9- to 11-month-old infant fruit and vegetable benefits with a Cash Value Voucher (CVV) for fresh fruits and vegetables. Although it is too soon to know which State agencies will exercise this option and how well WIC families utilize their infant CVVs, there is some evidence (e.g. Kim et al, 2013) that families have not fully utilized their jarred infant fruit and vegetable benefits, particularly for the older infant. WIC families may benefit from further expansion of the infant CVV options.

- *To what extent are the 6 to 8 and 9- to11-month-old infants utilizing their jarred infant fruit and vegetable benefits?*

- *In states allowing infant CVV, what is the percentage of infants that are opting to substitute half of their jarred infant fruit and vegetables for a CVV for fresh fruit and vegetables?*

- *In states allowing infant CVV, how does redemption change as the infant gets older and what is the redemption rate for the CVV compared to the jarred infant fruit and vegetables for these older infants?*

- *Should the substitute option be expanded to full substitution for the older infants (9-11 months) and should any substitution be allowed for younger infants (6-8 months)?*

- *Is there a scientific basis for restricting the substitution of the CVV with only fresh fruit and vegetables? (Frozen vegetables are an economic, nutritious option for making homemade baby foods. Certain "canned" products, like applesauce, are also appropriate infant foods and are economical choices allowing WIC families to get more out of their fruit and vegetable benefit.)*

- *How well do the jarred baby foods that WIC provides to infants 9-11 months of age align with the importance of increasing food variety, progressing textures, and introducing finger foods?*

- *Is the original rationale to provide jarred infant foods in order to minimize the risk of foodborne illness supported by the literature? Are there significant differences in rates of foodborne illness between infants fed jarred baby food compared to those eating texture modified adult foods or homemade baby foods?*

D. Infant Meats

Under the current WIC infant food package, fully-breastfed infants ages 6-11 months receive 77.5 oz of jarred baby food meats each month to provide a good source of iron and zinc. However, redemption rates differ considerably across States, and are quite low in some of them. In Oregon, a state with a high rate of fully-breastfed infants, only an estimated 30% of the checks for infant meat are redeemed.

Similarly, Massachusetts WIC estimates that 39% of infant meat benefits are redeemed. In contrast, Chickasaw Nation WIC estimates that 81% of the infant meat benefits are redeemed.

- *Do current redemption patterns for infant meats support their continued inclusion in the WIC food package?*

- *Is there epidemiological or clinical evidence that low-income, exclusively breastfed infants between 6-11 months of age have a higher prevalence of iron deficiency anemia than formula fed infants or exclusively breastfed infants from higher income households?*

- *Are there other developmentally appropriate food options that could be used to provide the iron and zinc that is present in jarred infant meats?*

E. Infant Cereal

Under the current WIC infant food package, infants from 6-11 months receive infant cereal. The Final rule stated that issuing adult cereal to infants is inappropriate due to adult cereal having too high of a sodium content.

- *What is the epidemiological or clinical evidence that sodium intake is a significant health concern for infants? Does this rationale consider typical infant portion sizes of adult cereal? Is it worthwhile to consider WIC's ability to influence the market and establish sodium levels more in line with the dietary recommendations for infants?*
  [NOTE: The Dietary Reference Intakes (DRI) report from the IOM states that the Adequate Intake (AI) for sodium for infant ages 7-12 months is 0.37 g/day and that there is no Upper Limit (UL). The document notes the UL is "not determinable due to lack of data of adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from food only to prevent high levels of intake."] ***(Source: Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. www.nap.edu.)***

- *Given the developmental progression to finger foods noted at the beginning of this section on infant foods, could the older infant (9-11 months) have the option of selecting infant cereal or adult cereal?*

Milk and Milk Alternatives

A. Policy change to lowfat or nonfat milk for women and children (2-5 y/o)

The interim rule eliminated whole milk as an option for women and children (2-5 y/o), except with medical documentation. Some states found that whole milk was selected most often by their participants prior to this new requirement. In an effort to maintain caseload and minimize the impact of the change, these states opted to offer other allowable milk options, including reduced fat (2%), lowfat (1%) and nonfat (skim). Other states, however, opted to offer only lowfat and nonfat milk. The final rule requires all states to offer only lowfat and nonfat milk to women and children (2-5 y/o). This decision was made to increase consistency with the Dietary Guidelines, which emphasize lowfat and nonfat milk as a means of reducing intake of saturated fat and calories. New evidence, however, suggests that the

link between whole milk and obesity may not be as clear. At the same time, there is concern that the shift to 1% milk may reduce overall milk intake of children.

- *What is the strength of the evidence linking milk fat percentage (whole vs. lower fat dairy products) to obesity rates? To what degree are associations between milk fat percentage and body weight confounded by the factor of excessive milk intake (of any fat percentage)?*

- *Has the switch to lowfat and nonfat milk resulted in a lower milk intake for our WIC participants?*

B. Policy to allow cow's milk alternatives

The interim rule allowed for the first non-dairy substitute for cow's milk – soy beverage. This was in response to the incidence of milk allergies, lactose intolerance and the growing diverse WIC population that did not consume cow's milk. However, only a small percentage of women and children request soy beverage as a substitute for cow's milk. Estimates from Massachusetts, California and Oregon, for example, range from 1-2%.

- *Since the interim rule has been in place, many other non-dairy milk alternatives have been introduced into the market. Are there other non-dairy substitutes that might present an appropriate/acceptable alternative to soy beverage?*

- *Should consideration be given to the fact that soy allergy is one of the more common food allergies and that currently WIC does not authorize a milk alternative that is not soy-based?*

Fruits, Vegetables and Juice

The 2009 WIC food package change brought fruits and vegetables to the WIC food packages. This has been a well received change for the WIC and public health communities, enabling WIC programs to align their nutrition education messaging with the food package. However, redemption of the CVV appears to vary. Until 2009, juice was considered an essential component of the food package to ensure proper Vitamin C levels. However, now that the CVV is offered to participants, the necessity of providing juice is less clear, particularly since nutrition guidance states that whole fruits and vegetables are preferred to juice. Older data (1994-1998) suggest that rates of vitamin C inadequacy among children are less than 1 percent; estimates of vitamin C deficiency among women range from 20-40 percent (cited from WIC Food Packages, Time for a Change, 2005).

- *What is the average dollar redemption amount for CVVs? At what rate is the CVV check actually redeemed?*

- *What is the current prevalence of vitamin C deficiency among low income pregnant women, postpartum women, infants and children 1-5 years old?*

- *If in fact it is determined that the prevalence of vitamin C deficiency is low among children, and nutrition guidance states that whole fruits and vegetables are preferred to juice, (1) is juice*

needed? (2) Would CVVs better meet the children's nutritional needs, especially in light of concerns related to obesity and childhood dental caries? and (3) would a change to CVVs present any risks to iron status given the role of Vitamin C in iron absorption?

Whole Grains

Policy on at least half of adult cereals offered be whole grain

The interim rule established a policy that at least half of the adult cereals offered to participants be whole grain. This ruling has increased the administrative burden to maintain the balance of whole-grain and other approved cereals. The intent of this policy was to increase the purchase and, ultimately, consumption of whole grains, specifically whole grain cereals. Some states have taken this policy further, and only allow whole-grain cereals. It is not clear what impact either of these policies have had on participants' choices of WIC cereals, or on the reformulation of cereals in the marketplace.

- *What is the overall redemption rate for adult cereals for states that require that all cereals be whole grain, compared with other states?*

- *Did participants increase their purchase of whole grain cereals with this policy change?*

Fish

There has been much research conducted about the benefits of fish consumption for prenatal women and fetal development. Similarly, many questions arise about exposure to mercury through fish consumption.

- *What is the current, average daily intake of omega-3 fatty acids in the diets of pregnant and breastfeeding women? Is there sufficient evidence that it is a nutrient of concern? If so, should a dietary source of omega 3's be added to the pregnant woman's food package? (See Position of the Academy of Nutrition and Dietetics: Dietary Fatty Acids for Healthy Adults, J Acad Nutr Diet 2014;114:136-153.)*

- *How does the scientific literature about mercury levels in fish impact the provision of fish in the WIC food package?*

Many WIC programs across the country have access to administrative data related to the food packages that, while not published in scientific journals or peer-reviewed Federal reports, are likely to provide important information to the IOM Committee. While all states and regions do not share the same capacity to access their administrative data, we encourage the IOM Committee to partner with NWA to facilitate assess to WIC administrative data (e.g. redemption data, issuance data, etc.) that may support the Committee's work.

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