

# Infant Cereal: Topic of the Month

MARCH 6, 2024

Infant cereal is one of the foods most commonly introduced when an infant has shown signs of readiness for solids. Because infant cereal is an excellent source of iron and zinc, it is an ideal choice to support the developmental needs of the growing infant. This memo will explore the benefits of infant cereals, when to introduce it, why not to put it in the bottle, and what to do with extra cereal as the older infant transitions to table foods.

## Infant cereal

Infant cereals are defined as “processed cereal-based foods” made into simple cereals that are then reconstituted by adding breastmilk, water, or formula.<sup>1</sup> Infant cereals are commonly one of the first grains an infant is exposed to and are available in either ready-to-feed individual containers or in bulk, as dry flakes.

The WIC program offers 24 oz (8 or 16 oz containers) of plain infant cereal to infants from 6 to 12 months of age. Participants may choose from plain rice, oatmeal, whole wheat, corn, or multigrain infant cereals. Participants may not choose the ready-to-feed serving sizes, organic options, or those with added fruit, yogurt, formula, DHA, or other additives.

The utilization of WIC allowed infant cereal in Minnesota stayed around 37% between July-Dec. 2023. This means that as many as 63% of infants on WIC may have been missing out on this valuable source of iron and zinc.

## Benefits of infant cereal

Existing data suggests micronutrients that infants and toddlers are at the most risk of being low or deficient include fiber, iron, calcium, zinc, magnesium, potassium, vitamins B6, D, E, and A.<sup>2</sup> Also found are intakes high in sodium, added sugars, and saturated fats.<sup>2</sup>

Infant cereal is an ideal choice when introducing solids since it contains many important nutrients, is easy to digest, the texture can be altered according to infant’s developmental needs, and it is least likely to lead to an allergic reaction.<sup>2</sup> Plain infant cereal contains no added sugar, sodium, or fats.

Infant cereal is also a great source of both iron and zinc to support growth and neurological and immune functions at a time when the infant’s iron stores from birth are depleting.

The [Dietary Guidelines of Americans 2020-2025](#) recommendations for infant feeding includes:

- Exclusive breastfeeding for the first 6 months and continued breastfeeding along with complementary foods up to 1 year of age.
- Feeding iron-fortified infant formula when human milk is not available.

- Providing vitamin D soon after birth.
- Introduction to nutrient-dense complementary foods.
- Exposure to potentially allergenic foods (unless the healthcare provider has indicated otherwise).
- Infants should consume a variety of foods from each food group, including those rich in iron and zinc.
- Avoid added sugars, honey, and unpasteurized foods and beverages.
- Limit added sodium/ avoid high sodium foods.

## Introduction to textures

Introduction of complementary textures and flavors during infancy, at the appropriate stage, helps to set children up for life long healthy eating habits. A baby's first food is the parents' choice; however, cereal is an obvious and safe option with its nutrient profile, mild taste, and adjustable texture.

### Things to consider when introducing textures:

- **Infant shows signs of readiness for solids:**
  - Infant can control head and neck, sits up alone or with minimal support, brings objects to mouth, and can use tongue to swallow food rather than push it out of mouth.
- **Foods are appropriate textures for the developmental stage to avoid choking risks:**
  - Consistency of food should be appropriate for the stage of the infant, the infant should be sitting in an upright position, infant should be supervised at all mealtimes, and solid food, such as cereal, is offered only from a spoon and NOT placed in the bottle.
- **Culture practices:**
  - Families may customize the infant diet to reflect their personal preference and cultural traditions while keeping with the recommendations set for infant feeding by the [Dietary Guidelines of Americans 2020-2025](#).

## Keeping infant cereal out of the bottle

Offering cereal in the bottle is an age-old practice that is often handed down through the generations by way of advice to calm a fussy baby, help them to sleep longer, and help with weight gain.<sup>5</sup> It is also often used when a baby is considered to be "spitting up too much".

While adding cereal to the bottle is common, it is far from safe. Research suggests that adding cereal to the bottle may be associated with increased calorie intake and dysregulation of hunger and satiety cues.<sup>5</sup>

The *American Academy of Pediatrics (AAP)* guidance for bottle feeding parents includes avoiding propping the bottle and placing only breastmilk or formula in the bottle unless a pediatrician has directed otherwise.

## Risks associated with adding cereal to the bottle:

- An infant's digestive system may not be ready to handle the thickened substance.
- Adding a thickened liquid in the bottle may cause gagging/choking and/or inhalation of particles into the lungs.
- Starting solids too early (before the age of 4 months) may place infant at risk of developing food allergies.
- Overfeeding/underfeeding can occur if the infant is getting too many or not enough of the proper calories and nutrients afforded by breastmilk or formula alone.
- It is normal for babies to wake at night to eat, for a diaper change, or simply to be comforted. As they grow, they will eat more, sleep longer, and will learn to regulate their own natural sleep patterns.

## Arsenic concerns

Heavy metals like arsenic, lead, cadmium, and mercury permeate the entire food supply because they occur naturally in soil, water, and/or air.<sup>4</sup> As a result, they are found in many of the foods and beverages consumed by all Americans, not just infant foods that are provided through WIC.

Consistent with guidance from the *American Academy of Pediatrics (AAP)*, WIC providers should recommend serving a variety of nutrient-dense foods to children as an effective strategy to minimize heavy metal exposure. Families can also vary the brands and stores that they purchase foods from. Buying organic may limit pesticides but not heavy metals.<sup>4</sup>

When choosing WIC approved infant cereal, families may choose to rotate between the variety of grains available rather than offering rice cereal as the only option.

Refer to [Heavy Metals in Infant Foods](#) for more information.

## Leftover cereal

As the infant grows and starts accepting more textures in their diet, infant cereal can be thickened to desired consistency, could be enhanced by adding fruits or vegetables, may be used to add texture to jarred or homemade infant foods, or used in recipes to create new textures and flavors for the child to enjoy.

The [WIC Infant Food Recipes](#) provide ideas for including infant cereal and also jarred foods in daily meals, shares four recipes that have infant cereal as an ingredient, and gives tips on storing those leftover baby foods safely.

A few more recipes for [Iron-Fortified Infant Cereal Recipes: Finger Foods For Babies and Toddlers](#) are available to share with participants in English, Spanish, French, Vietnamese, Chinese, and Punjabi.

## Education

When talking to parents/caregivers, ask them openly about introduction to solids, *“Tell me about your plan to introduce solid foods with Bobbi.”* Share with them the benefits of infant cereal, *“If it is okay, I can share with you how infant cereal can benefit Shandra.”* Encourage safety with adding solids into the infant’s diet, *“It is amazing how fast Georgie is growing! What ways has he showed you that he may be ready to start to try solid foods?”* If they have already started solids, ask how it is going, *“Tell me how things are going so far with feeding cereal/infant foods to Ahmed.”*

## Things to remember:

- Discuss signs of readiness for solids.
- Educate on safe introduction to textures.
  - Mixing according to recommendations
  - Proper temperature
  - Using the right utensils
  - Risks with adding cereal to the bottle
  - Safe storage of leftovers
- Share about [Baby Behaviors](#) with the [Getting to Know Your Baby - English brochure](#) (also in Spanish and Somali) to help parents learn more about feeding cues, normal sleep behaviors, and crying.
- Show them which infant cereals are WIC approved!

To ensure continuity of care, be sure to document what was discussed at the nutrition education contact. Effective communication between WIC CPA staff can make a richer experience for the follow up with the parents/caregivers at their next call or in person visit.

## Resources for parents

[Introducing Solid Foods](#) (MN WIC Nutrition Education Card)

[Starting Solid Foods](#) (Healthychildren.org/AAP)

[MN WIC Baby Behavior Education](#) (MDH WIC)

## Article resources

1. [Infant Cereals: Current Status, Challenges, and Future Opportunities for Whole Grains](#) (Nutrients, 2019)
2. [Nutrient intake, introduction of baby cereals and other complementary foods in the diets of infants and toddlers from birth to 23 months of age](#) (American Institute of Mathematical Sciences (AIMS) Public Health, 2020)
3. [Infant Food and Feeding](#) (American Academy of Pediatrics (AAP), 2023)
4. [AAP: Babies should eat a varied diet to protect against heavy metals in commercial, homemade food](#) (AAP, 2022)
5. [Characteristics Associated with Adding Cereal in the Bottle among Immigrant Mother-Infant Dyads of Low Socioeconomic Status and Hispanic Ethnicity](#) (Journal of Nutrition Education and Behavior, 2017)
6. [Cereal in a Bottle: Solid Food Shortcuts to Avoid](#) (Healthychildren.org/AAP, 2015)
7. [Parental Cognitions About Sleep Problems in Infants: A Systematic Review](#) (Front Psychiatry, 2020)

## References- Complete listing of hyperlinks:

### [Dietary Guidelines of Americans 2020-2025](#)

([www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary\\_Guidelines\\_for\\_Americans-2020-2025.pdf](http://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf))

### [Heavy Metals in Infant Foods](#)

([www.health.state.mn.us/docs/people/wic/localagency/wedupdate/2021/topic/0210metals.pdf](http://www.health.state.mn.us/docs/people/wic/localagency/wedupdate/2021/topic/0210metals.pdf))

[WIC Infant Food Recipes](http://www.health.state.mn.us/people/wic/recipes/infantfoods.html) ([www.health.state.mn.us/people/wic/recipes/infantfoods.html](http://www.health.state.mn.us/people/wic/recipes/infantfoods.html))

[Baby Behaviors](http://www.health.state.mn.us/people/wic/localagency/training/bb.html) ([www.health.state.mn.us/people/wic/localagency/training/bb.html](http://www.health.state.mn.us/people/wic/localagency/training/bb.html))

### [Getting to Know Your Baby - English brochure](#)

([www.health.state.mn.us/docs/people/wic/nutrition/babybehaviors/english.pdf](http://www.health.state.mn.us/docs/people/wic/nutrition/babybehaviors/english.pdf))

### [Introducing Solid Foods](#)

(<https://www.health.state.mn.us/docs/people/wic/nutrition/english/infintrosolids.pdf>)

[Starting Solid Foods](http://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Starting-Solid-Foods.aspx) ([www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Starting-Solid-Foods.aspx](http://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Starting-Solid-Foods.aspx))

### [MN WIC Baby Behavior Education](#)

([www.youtube.com/playlist?list=PLnv1INVkmxmtYaMmowS5oBHnbgmps7Ai1](http://www.youtube.com/playlist?list=PLnv1INVkmxmtYaMmowS5oBHnbgmps7Ai1))

### [Iron-Fortified Infant Cereal Recipes: Finger Foods For Babies and Toddlers](#)

(<http://www.healthlinkbc.ca/healthy-eating-physical-activity/age-and-stage/infants-children-and-youth/iron-fortified-infant>)

## INFANT CEREAL: TOPIC OF THE MONTH

[Infant Cereals: Current Status, Challenges, and Future Opportunities for Whole Grains](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6412837/#:~:text=Infant%20cereals%20are%20defined%20as,%E2%80%9D%20%5B5%2C6%5D)  
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6412837/#:~:text=Infant%20cereals%20are%20defined%20as,%E2%80%9D%20%5B5%2C6%5D>)

[Nutrient intake, introduction of baby cereals and other complementary foods in the diets of infants and toddlers from birth to 23 months of age](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7109529/)  
([www.ncbi.nlm.nih.gov/pmc/articles/PMC7109529/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7109529/))

[Infant Food and Feeding](http://www.aap.org/en/patient-care/healthy-active-living-for-families/infant-food-and-feeding/) ([www.aap.org/en/patient-care/healthy-active-living-for-families/infant-food-and-feeding/](http://www.aap.org/en/patient-care/healthy-active-living-for-families/infant-food-and-feeding/))

[AAP: Babies should eat a varied diet to protect against heavy metals in commercial, homemade food](http://publications.aap.org/aapnews/news/21916/AAP-Babies-should-eat-a-varied-diet-to-protect) ([publications.aap.org/aapnews/news/21916/AAP-Babies-should-eat-a-varied-diet-to-protect](http://publications.aap.org/aapnews/news/21916/AAP-Babies-should-eat-a-varied-diet-to-protect))

[Characteristics Associated with Adding Cereal in the Bottle among Immigrant Mother-Infant Dyads of Low Socioeconomic Status and Hispanic Ethnicity](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5682590/)  
([www.ncbi.nlm.nih.gov/pmc/articles/PMC5682590/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5682590/))

[Cereal in a Bottle: Solid Food Shortcuts to Avoid](http://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Cereal-in-a-Bottle-Solid-Food-Shortcuts-to-Avoid.aspx) ([www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Cereal-in-a-Bottle-Solid-Food-Shortcuts-to-Avoid.aspx](http://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Cereal-in-a-Bottle-Solid-Food-Shortcuts-to-Avoid.aspx))

[Parental Cognitions About Sleep Problems in Infants: A Systematic Review](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7779594/)  
([www.ncbi.nlm.nih.gov/pmc/articles/PMC7779594/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7779594/))

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