

2020 Dietary Guidelines Advisory Committee: Beverages and Added Sugars Subcommittee

Subcommittee chair: Elizabeth Mayer-Davis

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Chair representative: Barbara Schneeman

[DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

3 Topic Areas

1. Beverage patterns and non-alcoholic beverages

- What is the relationship between beverage consumption and
 - growth, size, body composition, and risk of overweight and obesity?*
- What is the relationship between beverage consumption **during pregnancy** and
 - birth weight standardized for gestational age and sex?*
 - gestational weight gain?*
- What is the relationship between beverage consumption **during lactation** and
 - post-partum weight loss?*
 - human milk composition and quantity?

* Protocols to be discussed today;
2 available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov)

3 Topic Areas

2. Added Sugars

- What is the relationship between added sugars consumption and
 - growth, size, body composition, and risk of overweight and obesity?
 - risk of cardiovascular disease?
 - risk of type 2 diabetes mellitus?
- What is the relationship between added sugars consumption **during pregnancy** and
 - gestational weight gain?
- What is the relationship between added sugars consumption **during lactation** and
 - post-partum weight loss?

3 Topic Areas

3. Alcohol

- What is the relationship between alcohol consumption and
 - growth, size, body composition, and risk of overweight, and obesity?
 - risk of cardiovascular disease?
 - risk of cancer?
 - neurocognitive health?
 - all-cause mortality?
- What is the relationship between alcohol consumption **during lactation** and
 - infant developmental milestones, including neurocognitive development?
 - post-partum weight loss?
 - human milk composition and quantity?

Covered today: 4 questions on non-alcoholic beverages

Questions:

What is the relationship between beverage consumption and

- 1) growth, size, body composition, and risk of overweight and obesity?
- 2) birth weight standardized for gestational age and sex? (pregnancy)
- 3) gestational weight gain? (pregnancy)
- 4) post-partum weight loss? (lactation)

Materials:

- Analytic Frameworks for each question
- Comparison of Inclusion/Exclusion Criteria

Approach to Answer Questions: NESR Systematic Reviews

Key Definitions

- **Beverage pattern** – the quantities, proportions, variety or combinations of different beverages in diets. Studies that examine a specific beverage or beverage group will also be considered
- **Gestational weight gain** – weight a woman gains during pregnancy (CDC)
- **Post-partum weight retention** – amount of weight that remains during the postpartum period minus the woman's pre-pregnancy weight (IOM, 2009)

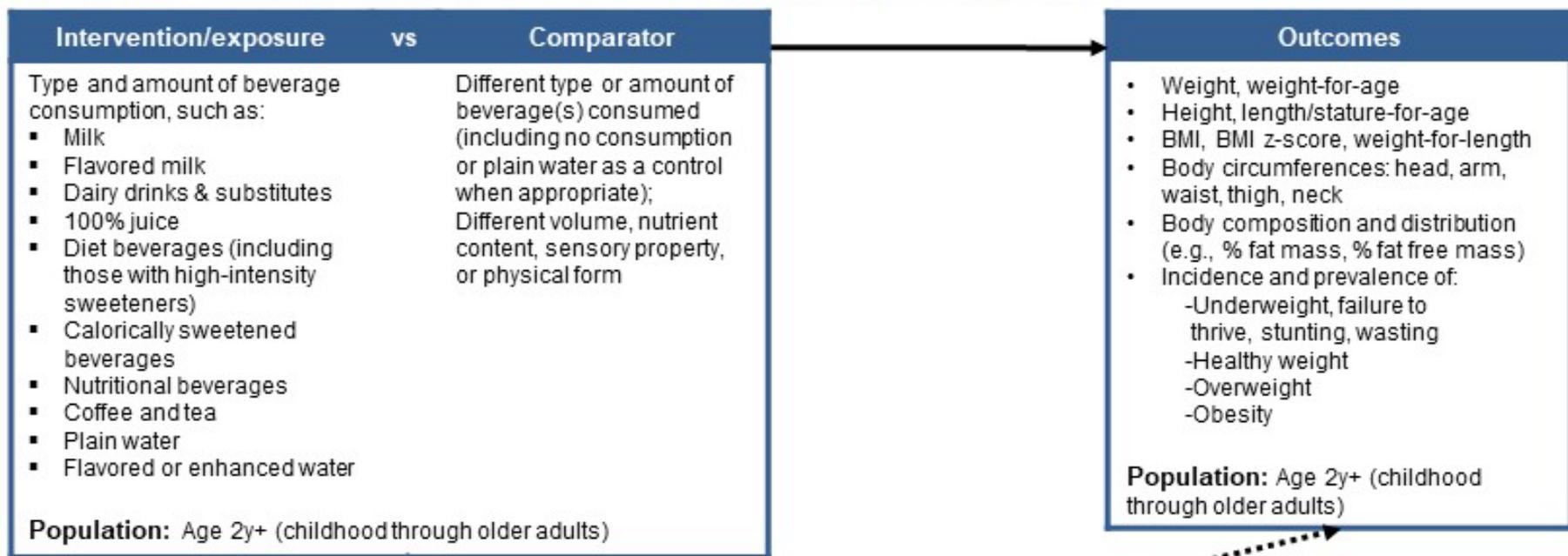
All non-alcoholic beverages will be included

- Categories will be used to help organize the data (subject to change)
- Included studies can assess beverage patterns, beverage categories, and/or individual beverages

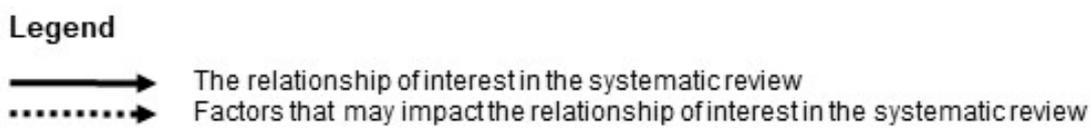
Milk			Nonalcoholic beverages					Water	
Milk	Flavored milk	Dairy drinks & substitutes	100% Juice	Diet Beverages (Including high-intensity sweeteners)	Sweetened Beverages	Nutritional beverages	Coffee and Tea	Plain water	Flavored or enhanced water
Milk, whole	Flavored milk, whole	Milk shakes & other dairy drinks	Fruit juice	Diet soft drinks	Soft drinks	Meal replacement beverages	Coffee -plain -sweetened	Including: Tap water Bottled water	Flavored or carbonated water
Milk, reduced fat	Flavored milk, reduced fat	Milk substitutes	Vegetable juice	Diet sport and energy drinks	Fruit drinks	Smoothies & grain drinks	Tea -plain -sweetened		Enhanced or fortified water
Milk, <u>lowfat</u>	Flavored milk, <u>lowfat</u>			Other diet drinks	Sport and energy drinks	Protein shakes			
Milk, nonfat	Flavored milk, nonfat			Juice diluted with water	<i>May include smoothies & mixed coffee drinks</i>	Functional drinks: (e.g., kefir, <u>kombucha</u>)			

Analytic Framework: Growth, size, body composition, risk of overweight and obesity

Systematic review question: What is the relationship between beverage consumption and growth, size, body composition, and risk of overweight and obesity?

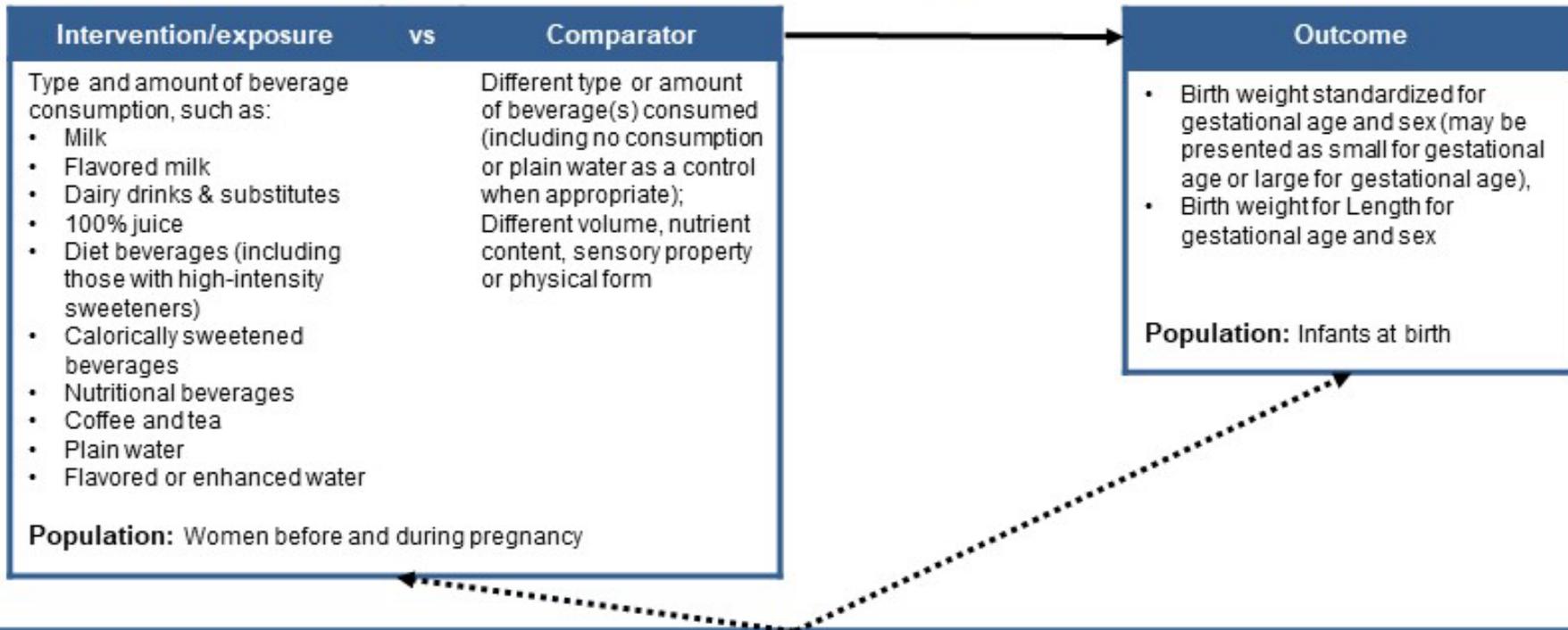


Key Confounders: Sex, age, race/ethnicity, socioeconomic status, total energy intake, anthropometry at baseline, smoking



Analytic Framework: Birth weight

Systematic review question: What is the relationship between beverage consumption during pregnancy and birth weight standardized for gestational age and sex?



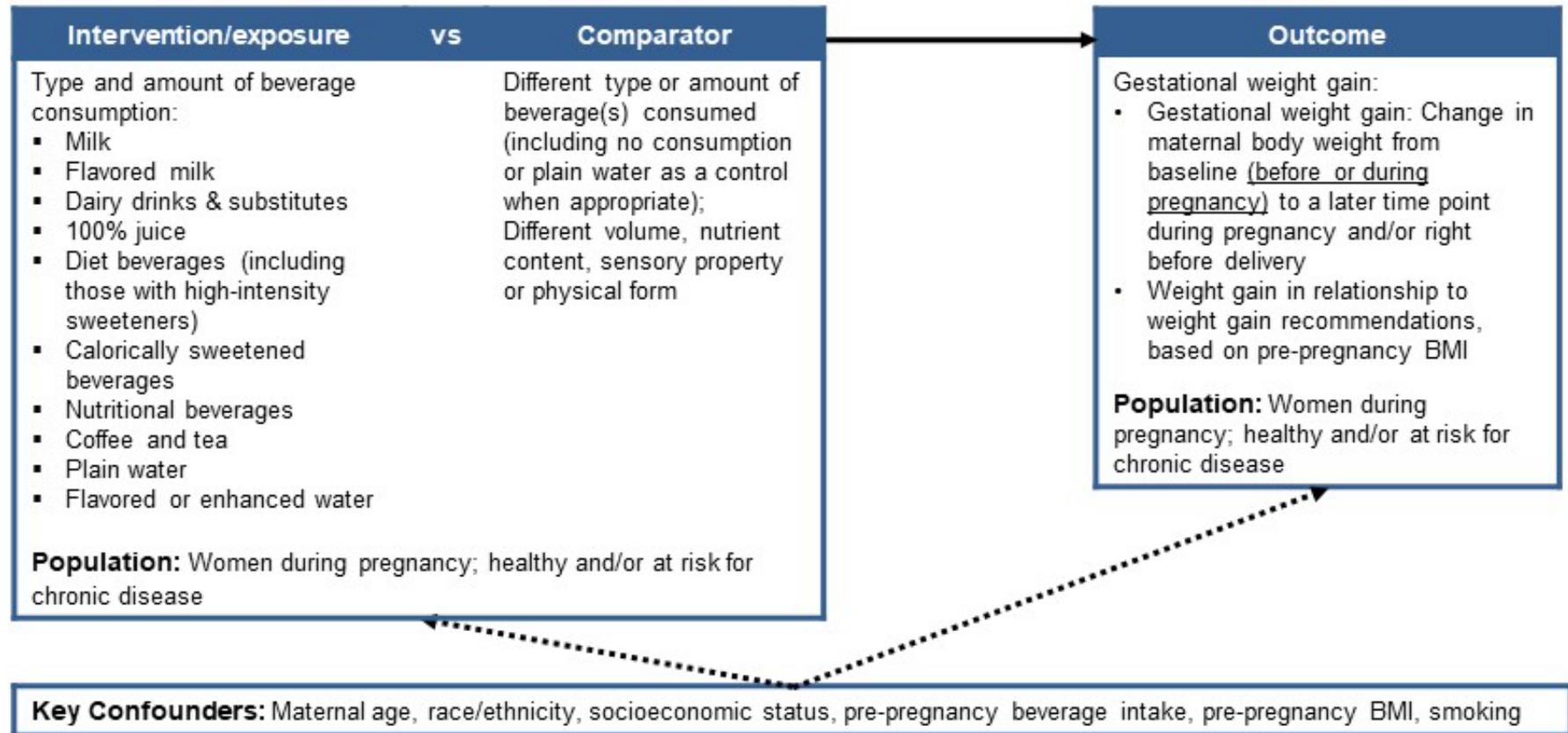
Key Confounders: Maternal age, race/ethnicity, socioeconomic status, pre-pregnancy beverage intake, pre-pregnancy BMI, smoking, diagnosis of gestational diabetes mellitus

Legend

- The relationship of interest in the systematic review
-→ Factors that may impact the relationship of interest in the systematic review

Analytic Framework: Gestational weight gain

Systematic review question: What is the relationship between beverage consumption during pregnancy and gestational weight gain?



Legend



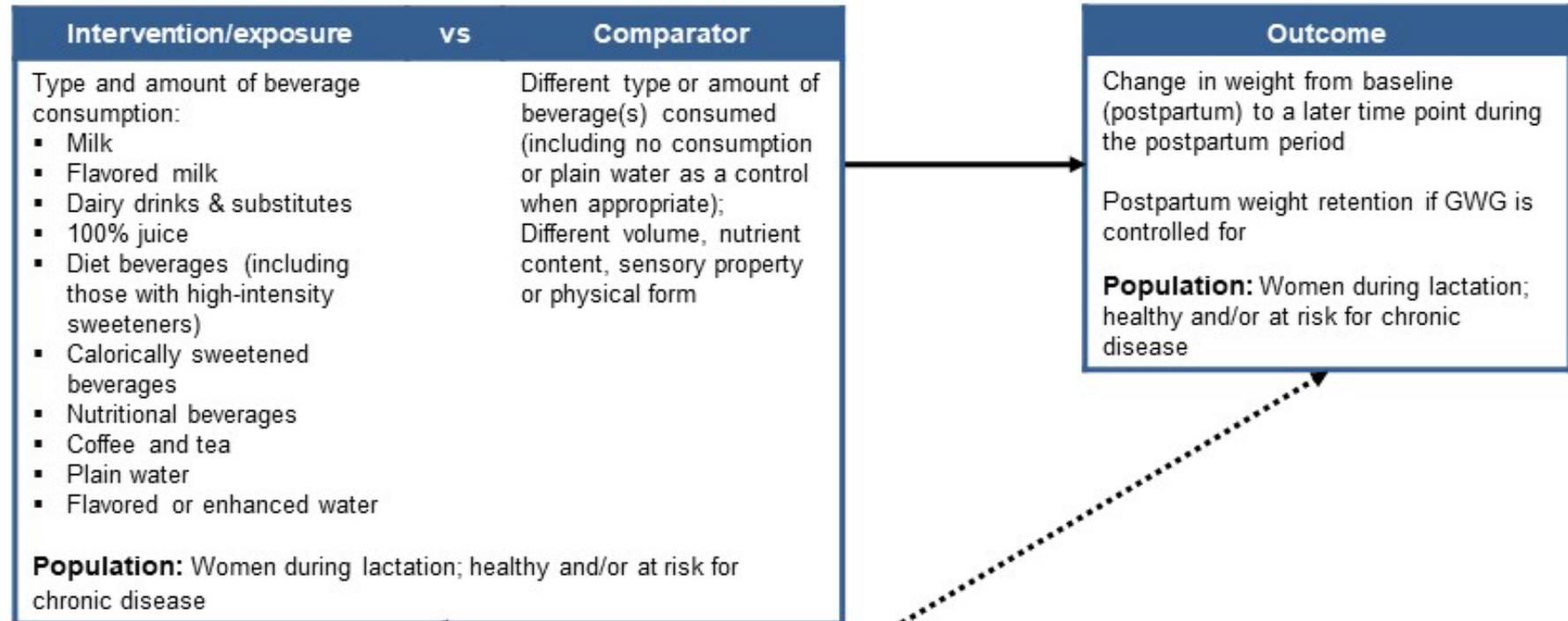
The relationship of interest in the systematic review



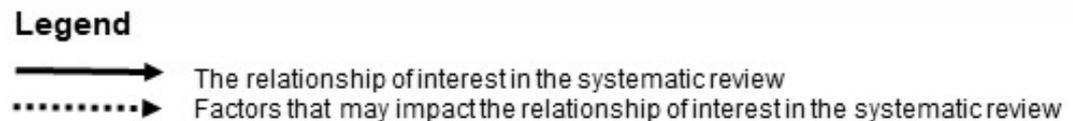
Factors that may impact the relationship of interest in the systematic review

Analytic Framework: Postpartum weight loss

Systematic review question: What is the relationship between beverage consumption during lactation and post-partum weight loss?



Key Confounders: Maternal age, race/ethnicity, socioeconomic status, pre-pregnancy beverage intake, pre-pregnancy BMI, gestational weight gain, smoking, breastfeeding status



Inclusion and Exclusion Criteria: Beverage pattern/non-alcohol questions

- **Standard criteria:**
 - Study design
 - Publication status
 - Language of publication
 - Country
- **Tailored to these 4 non-alcoholic beverage questions:**
 - Date of publication (January 2000 – June 2019)
 - Study duration
- **Modified and tailored to the specific non-alcoholic beverage questions:**
 - Study participants
 - Health status

Inclusion and Exclusion Criteria: Study duration

Category	Inclusion Criteria	Exclusion Criteria
Study duration	Minimum duration for experimental studies: 8 weeks	Experimental studies shorter than 8 weeks

Inclusion and Exclusion Criteria: Study participants

Category	Inclusion Criteria	Exclusion Criteria
Growth, size, body composition, overweight, obesity	<p>Age at intervention/exposure/outcome:</p> <ul style="list-style-type: none"> • Child (2-5 years) • Child (6-12 years) • Adolescents (13-18 years) • Adults (19 and older) • Older adults (65+ years) 	<p>Age at intervention/exposure/outcome:</p> <ul style="list-style-type: none"> • Infants and toddlers (<2 years)
Birth weight	<ul style="list-style-type: none"> • Human subjects • Females who are pregnant 	<ul style="list-style-type: none"> • Animal and in vitro models • Hospitalized patients, when hospitalization is not related to pregnancy, birth and immediate postpartum
Gestation weight gain	<ul style="list-style-type: none"> • Females capable of becoming pregnant • Neonates (outcome) 	<ul style="list-style-type: none"> • Pregnancies conceived ONLY using Assisted Reproductive Technologies • Studies that exclusively enroll multiple gestation pregnancies • Studies that enroll both singleton and multiple pregnancies and do not account for singleton and multiple gestation in the design or analyses and only present aggregate findings
Postpartum weight loss	<ul style="list-style-type: none"> • Human subjects • Post-partum women who are lactating 	<ul style="list-style-type: none"> • Animal and in vitro models • Hospitalized patients, when hospitalization is not related to pregnancy, birth and immediate postpartum • Studies that enroll lactating and non-lactating mothers and ONLY present combined data for lactating and non-lactating mothers

Inclusion and Exclusion Criteria: Health status of study participants

Category	Inclusion Criteria	Exclusion Criteria
Growth, size, body composition, overweight, obesity	<ul style="list-style-type: none"> • Studies that enroll participants who are healthy and/or at risk for chronic disease • Studies that enroll <i>some</i> participants diagnosed with a disease • Studies that enroll <i>some</i> participants who are classified as underweight, stunted, wasted, or obese 	<ul style="list-style-type: none"> • Studies that <i>exclusively</i> enroll participants diagnosed with a disease, or hospitalized with an illness or injury • Studies that <i>exclusively</i> enroll participants classified as obese (i.e., studies that aim to treat participants who have already been classified as obese)
Birth weight;	<ul style="list-style-type: none"> • Studies that enroll mothers who are healthy and/or at risk for chronic disease, including those with obesity 	<ul style="list-style-type: none"> • Studies that <i>exclusively</i> enroll preterm infants (gestational age <37 and 0/7 weeks) (Birth weight only)
Gestation weight gain;	<ul style="list-style-type: none"> • Studies that enroll <i>some</i> participants who are classified as underweight, stunted, wasted, or obese 	<ul style="list-style-type: none"> • Studies that <i>exclusively</i> enroll mothers diagnosed with a disease, or hospitalized with an illness or injury (For this criterion, studies that <i>exclusively</i> enroll mothers with obesity will <i>not</i> be excluded)
Postpartum weight loss	<ul style="list-style-type: none"> • Studies that enroll <i>some</i> mothers diagnosed with a disease • Studies that enroll mothers with infants born full-term (≥ 37 and 0/7 weeks gestational age) (Birth weight only) • Studies that enroll <i>some</i> mothers with infants who are born preterm (gestational age <37 and 0/7 weeks), with low birth weight (2500g), and/or small for gestational age (Birth weight only) 	

Next Steps: Proposed order of remaining questions

1. What is the relationship between **beverage consumption during lactation** and human milk composition and quantity?
2. What is the relationship between **added sugars** consumption and
 - growth, size, body composition, and risk of overweight and obesity?
 - risk of cardiovascular disease?
 - risk of type 2 diabetes mellitus?
 - gestational weight gain? (lactation)
 - post-partum weight loss? (lactation)
3. What is the relationship between **alcohol** consumption and
 - growth, size, body composition, and risk of overweight, and obesity?
 - risk of cardiovascular disease?
 - risk of cancer?
 - neurocognitive health?
 - all-cause mortality?
 - infant developmental milestones, including neurocognitive development? (lactation)
 - post-partum weight loss? (lactation)
 - human milk composition and quantity? (lactation)

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