357 Drug Nutrient Interactions

Definition/Cut-off Value

Use of prescription or over-the-counter drugs or medications that have been shown to interfere with nutrient intake, absorption, distribution, metabolism, or excretion, to an extent that nutritional status is compromised.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

There are two general concerns with regard to interactions between nutrients and medications: the impact the nutrient has on the medication and the impact the medication has on nutritional status. Although nutrients can dramatically impact the effectiveness of medications, the focus of this risk is on the impact that medications may have on an individual's nutritional status. The interactions that may occur between medications and nutrients can be physical, chemical, physiologic, and/or pathophysiologic (1).

Over-the-counter and prescription medications may impact nutritional status directly or indirectly. Direct impacts of medications on nutritional status include changes to the following:

- The absorption and the distribution of the nutrient.
- The metabolism of the nutrient.
- The rate at which the nutrient is excreted.

These direct impacts of medications may be severe enough to lead to nutrient deficiency and/or nutrient toxicity, which can then impact bodily systems such as bone formation, immune system function, and energy metabolism. (2)

Indirect impacts of medications on nutritional status include the following:

- Changes to appetite
- Changes to taste and smell
- A dry or sore mouth
- Epigastric distress, nausea, vomiting, diarrhea, and/or constipation

These indirect medication related side-effects can impact the amount and/or variety of foods consumed by the individual and may lead to weight changes and/or the development of nutrient deficiency diseases. Some medications that are known to cause the indirect side-effects listed above include pain medications, such as oxycodone and hydrocodone, and medications to treat cancer. (2)

Research on the overall incidence and prevalence of nutrient and drug interactions remains limited. The following table provides a summary of medications that are commonly used and their associated potential impacts on nutritional status. For a comprehensive list of food and medication interactions, WIC programs should reference resources such as the *Physician's Desk Reference* or the most current *Food Medication Interactions* guide. Additional information on medications can also be found online at: https://medlineplus.gov/druginformation.html.

Medication	Medication Purpose	Impact on Nutritional Status
Amiloride (Midamor)	Diuretic	May cause loss of appetite, nausea diarrhea, and vomiting (3) May reduce magnesium excretion (4)
Calcium Carbonate (Tums)	Antacid	May cause vomiting, constipation, and loss of appetite (3) May decrease the absorption of iron, zinc, magnesium, and fluoride (2)
Chlorthalidone (Hygroton)	Diuretic	May cause upset stomach, vomiting, diarrhea, and loss of appetite (3) Increases excretion of zinc (5)
Ciprofloxacin (Cipro)	Antibiotic	May cause nausea, vomiting, stomach pain, and diarrhea Decreases the absorption of zinc (5)
Furosemide (Lasix)	Diuretic	May cause constipation and diarrhea (3) May increase magnesium excretion with chronic use (4)
Lansoprazole (Prevacid) and Omeprazole (Prilosec)	Proton pump inhibitors	May cause constipation, nausea and diarrhea (3) May reduce iron absorption and lead to suboptimal iron repletion with supplements (6)
Levothyroxine (Synthroid, Levothroid, Levoxly)	Thyroid hormone	May cause diarrhea and vomiting (3) May decrease appetite and weight (2)
Metformin	Antihyperglycemic	May cause diarrhea, indigestion, and constipation (3) May decrease appetite (2)

Medication	Medication Purpose	Impact on Nutritional Status
		May decrease the absorption of folate and vitamin B12 (2)
Methadone	Analgesic (Opioid)	May cause weight gain (3) May cause dry mouth, nausea, vomiting, and constipation (2)
Ondansetron (Zofran)	Antiemetic, Antinauseant	May cause constipation (3) In rare cases may decrease potassium levels (2)
Phenobarbital	Antiepileptic	May cause nausea and vomiting (3) May decrease vitamin D and vitamin K level (2) Decreases calcium absorption (7) May decrease folate levels (8)
Prednisone	Corticosteroid	May deplete calcium and lead to osteoporosis (9) Calcium and vitamin D supplement recommended with long-term use (2)
Rantidine (Zantac)	Antiulcer, AntiGERD, Antisecretory	May cause constipation, diarrhea, nausea and vomiting (3) May decrease iron and vitamin B12 absorption (2)
Sertraline (Zoloft)	Antidepressant	May cause nausea, diarrhea, constipation and vomiting (3) May lead to anorexia and decreased weight (2)
Sulfasalazine	Ulcerative Colitis Treatment	May cause diarrhea, loos of appetite and vomiting (3) Decreases folate absorption (8)

Breastfeeding and Medication Use

Breastfeeding is important for promoting the health of both the mother and infant. Medication use in the postpartum period, however, can sometimes pose some challenges to breastfeeding. While many medications are safe to use while breastfeeding, some are not compatible with breastfeeding or should be used with caution. If breastfeeding women require medication, then medications should be chosen that are not contraindicated with breastfeeding, if possible. It is thus very important for the mother to discuss her breastfeeding status and goals with her healthcare provider to determine the best infant feeding and medication plan. Information and recommendations on the use of specific medications while breastfeeding

can be found at the National Institutes of Health's LactMed Drugs and Lactation Database (https://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm) and in the most recent version of *Hale's Medication and Mothers' Milk*. Note that while these resources provide useful information, WIC staff need to refer women to their healthcare provider to discuss the safety of taking specific medications while breastfeeding. For additional guidance on breastfeeding and medication use, please refer to the Food and Nutrition Service's WIC *Breastfeeding Policy and Guidance,* specifically section 1.4, "When Mothers Should Avoid Breastfeeding" (https://fns-prod.azureedge.net/sites/default/files/wic/WIC-Breastfeeding-Policy-and-Guidance.pdf).

Implications for WIC Nutrition Services

For participants who are currently taking a medication with known nutrient interactions, WIC staff can:

- Refer the participant/caregiver to their health care provider or pharmacist to discuss the potential nutrient related side-effects and weight fluctuation of medications they take.
- Encourage improved intake of whole grains, legumes, dairy, lean protein, fruits, and vegetables, as appropriate.
- Inform the participant/caregiver of foods or beverages that provide nutrients that may be impacted by the medication.
- Provide education on nutrient-dense foods (when appropriate), meal frequency, portion sizes, and fluid intake when medications induce poor appetite, nausea, or vomiting.
- Provide education on fiber and fluid intake and physical activity to manage constipation related side-effects.
- Provide education on fluid intake, moist foods, and dental care when medications cause a dry mouth.
- Refer women who are either breastfeeding or planning on breastfeeding to their health care provider to determine the best infant feeding and medication plan.

Additional Resources for WIC Staff:

- For information on food and medication interactions:
    - *Physician's Desk Reference* (most recent edition)
    - *Food Medication Interactions* (most recent edition)
    - National Institute of Health's Medline Plus Database on Drugs, Herbs and Supplements (https://medlineplus.gov/druginformation.html)
- For information and recommendations on the use of medications while breastfeeding:
    - Food and Nutrition Service's WIC *Breastfeeding Policy and Guidance,* specifically section 1.4 "When Mothers Should Avoid Breastfeeding" (https://fns-prod.azureedge.net/sites/default/files/wic/WIC-Breastfeeding-Policy-and-Guidance.pdf)
    - National Institutes of Health's LactMed Drugs and Lactation Database (https://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm)
    - *Hale's Medication and Mothers' Milk* (most recent edition)

References

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.