

352b Infectious Diseases - Chronic

Definition/Cut-off Value

Conditions likely lasting a lifetime and require long-term management of symptoms. Infectious diseases come from bacteria, viruses, parasites, or fungi and spread directly or indirectly, from person to person (1). Infectious diseases may also be zoonotic, which are transmitted from animals to humans, or vector-borne, which are transmitted from mosquitoes, ticks, and fleas to humans (1, 2). These diseases and/or conditions include, but are not limited to (an extensive listing of infectious diseases can be found at:

<http://www.nlm.nih.gov/medlineplus/infections.html>):

Chronic Infectious Diseases*	
HIV Human Immunodeficiency Virus	Hepatitis B
AIDS Acquired Immunodeficiency Syndrome	Hepatitis C
Hepatitis D	

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

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

Both chronic and acute infectious diseases can lead to: 1) poor appetite, 2) low nutrient absorption, 3) accelerated nutrient utilization, and/or 4) rapid nutrient loss, depending on the individual's nutritional state before becoming infected and the individual's diet during the improvement period (3). The following information pertains to some of the more prevalent and/or serious chronic infectious diseases.

Human Immunodeficiency Virus (HIV)/ Acquired Immunodeficiency Syndrome (AIDS)

The Human Immunodeficiency Virus (HIV) is a chronic virus that reduces an individual's ability to fight off infections and diseases (4). HIV destroys white blood cells found in the immune system, also known as CD4

(cluster of differentiation) or T cells (T lymphocytes) (5). HIV is transmitted only through blood, semen, pre-seminal fluid, rectal fluids, vaginal fluids, and breast milk from an HIV-infected person (6). HIV can lead to Acquired Immunodeficiency Syndrome (AIDS) if left untreated (4). Individuals who are aware of their HIV status and are undergoing antiretroviral therapy (ART) to stop the replication of the virus, can typically live decades – while those unaware of their status or are not on ART, can usually remain in this stage about ten years before progressing to the AIDS stage. Some individuals may progress to the AIDS stage sooner than 10 years. During the time period a person progresses from HIV to AIDS, the immune system becomes extremely weakened and can no longer protect against other infections or opportunistic illnesses** - which are infections generally not detrimental to healthy individuals, but can be life-threatening in people infected with HIV. A person with AIDS and an opportunistic illness that goes untreated has a life expectancy of approximately one year (4).

Getting tested is the only way individuals know they are infected with HIV. Many people infected with the virus display no symptoms for as long as ten years or more. The Centers for Disease Control and Prevention (CDC) currently estimates that 1 in 6 people in the United States infected with HIV do not know they have the virus and therefore recommends that everyone between the ages of 13-64 get tested at least once as part of a regular health screening. The CDC further recommends that all pregnant women be tested early in their pregnancy, via an “opt-out” testing measure – which is when pregnant women are told that an HIV test will be included in the standard group of prenatal tests and that they may decline the test. Unless the HIV test is specifically declined, they will be tested for the virus. (7)

An early diagnosis in pregnant women can reduce the transmission of HIV in babies to 2%, if the expectant mother (8):

- Receives Active Antiretroviral Therapy (ART) during pregnancy, labor, and delivery.
- Delivers the baby by cesarean, or C-section.
- Avoids breastfeeding.

There is a 20% chance of transmission if the HIV positive, expectant mother does none of the prevention measures listed above (8). In addition, women living in certain geographic areas or women considered high risk, such as those with sexually transmitted infections, multiple partners, or have substance abuse issues, are encouraged to be retested in the third trimester, preferably when less than 36 weeks pregnant (9).

PrEP (Pre-Exposure Prophylaxis) is a daily pill containing two medicines (tenofovir and emtricitabine), recommended for HIV negative people who are at substantial risk of becoming infected with HIV. PrEP, when taken consistently, reduces HIV transmission by up to 92%, and is recommended for (10):

- Individuals in an HIV discordant relationship in which one partner is HIV positive and the other partner is HIV negative.
- Heterosexual women who do not regularly use condoms with sex partners of unknown HIV status.
- Women who share injectable drug paraphernalia or were in treatment for injectable drug use in the past six months.

** Extensive listing of opportunistic illness can be found at: <http://womenshealth.gov/hiv-aids/opportunistic-infections-and-other-conditions/>.

HIV/AIDS and Nutrition: Dietary needs for an HIV positive individual are determined by the presence of symptoms (11, 12). **Symptomatic** individuals experiencing unintended weight loss, or wasting, and are dealing with: 1) poor food intake due to medication side effects, sore mouth, or mental health issues; 2)

altered metabolism due to disease progression; or 3) nutrient malabsorption caused by gastrointestinal problems resulting from medications or just the presence of the virus. In symptomatic participants, the main goals are to: 1) increase or maintain a normal body weight; 2) retain or increase lean body mass; and 3) ensure adequate intake of macro- and micronutrients. In most cases, these individuals usually require diets higher in protein and potentially a multivitamin, as vitamins A, B₆, C, and E are lower in symptomatic people. In instances when wasting cannot be alleviated through regular dietary means, enteral and parenteral nutrition therapy may be necessary. For **asymptomatic** individuals or those with a stable weight, the goals should focus on adequate intake of nutrients to prevent wasting – and if food intake is low, these individuals could potentially include a multivitamin or mineral supplement to avoid deficiencies (11, 12).

It is important to note that taking large amounts of iron supplements, leading to iron-overload, encourages disease progression from HIV to AIDS, and should be avoided. In addition, Vitamin A and Zinc, in the form of supplements, can have a negative impact on adults living with HIV/AIDS (12). Participants should always consult with their health care providers before taking dietary supplements over the Recommended Dietary Allowance to prevent adverse reactions and interactions with medications used to treat HIV/AIDS. (13)

HIV/AIDS Medication Nutritional Problems: Even though people with HIV are able to manage the disease and live longer with Highly Active Antiretroviral Therapy (HAART), the side effects can have a negative impact on a person's nutritional status. Common side effects include: gastrointestinal problems, lipid disorders, and insulin resistance/glucose intolerance. Participants experiencing these problems should: reduce total fat intake and cholesterol; increase dietary fiber; increase physical activity; reduce alcohol consumption; and reduce the consumption of simple sugars. (11, 12)

HIV/AIDS and Food Safety: Participants living with HIV are more susceptible to contracting a food-borne illness due to weakened immune systems and therefore should be encouraged to: store and prepare foods safely; check expiration dates; and avoid raw or semi raw foods, such as meat, non-pasteurized dairy, and soft cheeses (11, 12). Infants born to HIV positive mothers, regardless of their HIV status, should drink ready-to-feed or liquid concentrate infant formula as powdered infant formula is not sterile and may not be microbiological safe (14).

HIV/AIDS Care and Support: HIV-affected families often experience a lack of financial and psychosocial support needed to deal with an HIV/AIDS diagnosis, including the effects of social stigma which negatively impacts their ability to comply with the medical treatment needed to control the disease (15). Further, to fully benefit from current treatment protocols required to manage HIV and reduce the progression to AIDS, infected individuals who know their status, must get care, stay in care, and adhere to an effective antiretroviral treatment plan known as an HIV/AIDS Care Continuum (16). WIC agencies should proactively refer participants to health care services and various community resources, including other FNS nutrition assistance programs, to improve health outcomes among HIV-infected WIC participants.

Implications for WIC Nutrition Services

WIC can improve the management of chronic infectious diseases through WIC foods, nutrition education, counseling, and referrals to community resources that provide support in the long-term management of chronic infectious diseases.

HIV/AIDS

The table below summarizes the WIC Nutrition Services that can help improve the health and birth outcomes of participants with HIV/AIDS.

Participant Category	WIC Nutrition Services Recommendations for HIV/AIDS
ALL CATEGORIES	<p data-bbox="610 312 1328 373">NUTRITION AND HEALTH TIPS TO MANAGE HIV/AIDS SYMPTOMS (12, 17, 18, 19)</p> <ul data-bbox="513 411 1430 1497" style="list-style-type: none"> • Use MyPlate as the guide for dietary needs. • Consult health care providers when using supplements and herbs to avoid adverse reactions or medication interactions that could reduce effectiveness. • Eat small, frequent meals when gastrointestinal problems are present or persistent. • Eat soft foods with manageable textures at tolerable temperatures when oral lesions and dental problems are present (i.e. mashed potatoes, scrambled/boiled eggs, bananas, non-citrus juices, puddings, custards, milk, cooked vegetables, rice, oatmeal, non-fizzy drinks, cottage cheese, non-spicy foods). • Add canned tuna, beans, cheese, peanut butter, dried milk for inexpensive extra protein. • Add moderate amounts of concentrated sources of calories to diet when needed (e.g., butter, cream cheese, gravies, whole milk, ice cream). • Consume nutritious, high caloric foods when appetite is normal or has returned. • Drink adequate water to stay hydrated, replace fluid loss from diarrhea and vomiting, and help medications move through the body. • Consume foods high in fiber or fiber supplements to slow digestion if foods are moving too quickly through the body. • Eat yogurt or foods with <i>Lactobacillus acidophilus</i> culture to help with bacterial over-growth resulting from prolonged use of antibiotics. • Avoid caffeinated beverages to prevent dehydration. • Avoid or reduce sugar-free foods with sorbitol as diarrhea may be exacerbated. • Consult with health care provider about use of complete oral nutritional supplements to help nutritional status. • Avoid alcohol and illegal drugs for overall good health and to help protect the liver. • Use pancreatic enzymes when medically prescribed to help with digestion. • Prepare and store food safely. • Avoid expired and moldy foods or foods with rotten spots. • Participate in weight-bearing exercises to strengthen and maintain bones. • Refer HIV-affected families to other community resources for food, housing, and medical resources to improve compliance with HIV treatment.
WOMEN	<ul data-bbox="513 1524 1425 1843" style="list-style-type: none"> • Encourage all women to be tested to prevent mother-to-child HIV transmission through delivery and breastfeeding (7). Women who are considered high risk, such as those with sexually transmitted infections, multiple partners, or have substance abuse issues, are encouraged to be retested during late gestation, preferably before 36 weeks (9). Note: HIV testing is not a standard medical test administered to pregnant women in many states, in addition, pregnant women can opt-out in those states in which HIV testing is part of the standard test. Therefore, WIC can impact the spread of HIV/AIDS by making referrals to participants for early and late gestation testing, given that some populations served by WIC are most at risk for contracting HIV (7).

Participant Category	WIC Nutrition Services Recommendations for HIV/AIDS
<p>WOMEN (Continued)</p>	<ul style="list-style-type: none"> • Advise infected pregnant women to consume a diet adequate in nutrients, achieve appropriate weight gain, and discuss taking a multivitamin with their health care provider (11). • Educate mothers with HIV/AIDS to avoid breastfeeding. This is especially important for recent immigrants and refugees from developing nations, as the recommendations are different in developing countries (15). In some developing countries, breastfeeding is encouraged due to the lack of available clean water to prepare infant formula and other sanitation problems). • More information about women and HIV can be found at: <ul style="list-style-type: none"> ○ http://www.womenshealth.gov/hiv-aids/ ○ http://www.cdc.gov/hiv/risk/gender/pregnantwomen/facts/
<p>INFANTS</p>	<ul style="list-style-type: none"> • Inform mothers/caregivers that formula feeding is the standard for infants born to HIV positive mothers in the United States as breastfeeding is not recommended – especially to the immigrant and refugee population (13). • Ensure that liquid concentrate, or ready-to-feed infant formula, prescribed with medical documentation, is provided to HIV-exposed infants or babies born to HIV positive mothers, even if the infant has tested negative for HIV. Powdered infant formula is not sterile and therefore may not be microbiologically safe for immune-compromised participants (14). • Discourage giving pre-chewed food, regardless of HIV status, as the individual’s HIV status, who is pre-chewing the food is unknown (6). • More information about infants and HIV can be found at: <ul style="list-style-type: none"> ○ http://www.cdc.gov/hiv/risk/gender/pregnantwomen/facts/
<p>CHILDREN</p>	<ul style="list-style-type: none"> • Discourage giving pre-chewed food, regardless of HIV status, as the individual’s HIV status, who is pre-chewing the food is unknown (6) • More information about children and HIV can be found at: <ul style="list-style-type: none"> ○ http://www.cdc.gov/hiv/risk/gender/pregnantwomen/facts/ ○ http://aids.gov/hiv-aids-basics/just-diagnosed-with-hiv-aids/overview/children/

VIRAL HEPATITIS

Hepatitis is inflammation of the liver. It is most often caused by viruses, but can also be caused by excessive alcohol consumption, toxins, and medicines such as acetaminophen, as well as other medical conditions linked to liver inflammation (20). Viral hepatitis is caused by a series of viruses labeled A, B, C, D, and E with A, B, and C being the most common forms in the United States. Viral hepatitis A and E are the only forms that are acute and do not become chronic, whereas B, C, and D can both be acute and chronic in nature (20). Regardless of the type of hepatitis, infected individuals with signs of the infection will typically experience: anorexia, nausea, vomiting, diarrhea, jaundice, epigastria pain, tiredness, and weakness, all of which affect one’s diet and health (21). In addition, darker urine and pale stools may be present in infected individuals. It is important to note that viral hepatitis is the leading cause of liver cancer and the most frequent need for liver transplants in the United States (22).

Hepatitis B: Hepatitis B is both acute and chronic, and is transmitted through contact with hepatitis B virus (HBV) infected blood, sexual intercourse with an infected person, and from mother to child by both vaginal or cesarean section births (20). Those at higher risk of becoming infected with hepatitis B are those: living

with a hepatitis B infected person; coming into contact with blood, needles, or body fluids through work; working or living in a prison system; from Asian and Pacific Islands nations; undergoing kidney dialysis; infected with HIV or hepatitis; and who have an immigrant or refugee status (21).

Treatment for Hepatitis B involves the use of interferon and antiviral drugs to interfere with the course of the virus. Early diagnosis and treatment of hepatitis B can help prevent damage to the liver. In addition, the Hepatitis B vaccination can prevent Hepatitis B. (22)

Hepatitis B is not spread through human milk. Given that Hepatitis B is spread through blood, mothers who breastfeed should care for their nipples to avoid cracking and bleeding. If a mother with Hepatitis B has cracked and bleeding nipples, she should temporarily stop breastfeeding until her nipples heal - but continue to pump and discard pumped milk to maintain her milk supply (23). If a mother with HBV has concerns with providing her milk to her infant or concerns with drug treatment for the HBV, she should consult her physician.

Hepatitis C: Hepatitis C is both acute and chronic; however, most cases are chronic and commonly spread through sharing needles during intravenous drug use (20). It can also spread through sexual intercourse; having a blood transfusion or organ transplant before July 1992; or using the razor, toothbrush, or nail clippers of an infected person. Being infected with a sexually transmitted disease or HIV can increase the chances of becoming infected with Hepatitis C. Getting tattoos and body piercings from unlicensed facilities, in casual settings, or with the use of non-sterile instruments can also transmit Hepatitis C (20).

By the time symptoms appear with hepatitis C, the liver has been damaged, which in most cases can be as long as ten years after being infected. There is no vaccine for Hepatitis C. Medicines are used to slow or stop the virus from damaging the liver in chronic hepatitis. Severe damage to the liver leading to failure may require a liver transplant. (20)

Infants born to mothers with hepatitis C can become infected; however, breastfeeding is not contraindicated, as Hepatitis C is not transmitted through human milk, unless the mother's nipples are cracked and bleeding. (See information above in **Hepatitis B** about breastfeeding with cracked and/or bleeding nipples.)

Hepatitis D: Hepatitis D is both acute and chronic. Though not common in the United States, viral hepatitis D can only be contracted when an individual also has hepatitis B (20, 22). The virus is present in blood and other body fluids of infected persons and is most commonly transmitted through: engaging in sexual activity; mother to child during delivery; sharing injection drug paraphernalia, razors, or toothbrushes; or coming in direct contact with the blood of an infected person. Chronic hepatitis D resulting from a super-infection, in which an individual has chronic hepatitis B, can progress to end-stage liver diseases (cirrhosis) or liver cancer. In some patients, interferon may be useful for treating hepatitis D. Although no vaccine exist for Hepatitis D, it can be prevented in persons who do not have Hepatitis B, by getting the Hepatitis B vaccination (20, 22).

Implications for WIC Nutrition Services

WIC can improve the management of chronic infectious diseases through WIC foods, nutrition education, counseling, and referrals to community resources that provide support in the long-term management of chronic infectious diseases.

HEPATITIS

The table below summarizes the WIC Nutrition Services recommendations that can help improve the health outcomes of participants with Hepatitis.

Types of Hepatitis	WIC Nutrition Services Recommendations for Chronic Hepatitis (24, 25)
All Types	<ul style="list-style-type: none"> • Recommend testing to pregnant women and high risk individuals. • Encourage abstinence from alcohol. • Provide information on high calorie, high protein and moderate fat diets. • Recommend high calorie consumption at breakfast to mitigate nausea. (Typically nausea is less common in the morning.) • Recommend, in consultation with health care provider, consumption of high calorie and protein liquid formula between meals to boost calorie intake. • Encourage a bland diet with extra fluids depending on the severity of nausea and vomiting.
Hepatitis B	<ul style="list-style-type: none"> • Encourage the Hepatitis B vaccine for all newborns, previously unvaccinated adolescents through the age of 18, and high-risk adults. • Promote breastfeeding as being safe, but to avoid breastfeeding when nipples are cracked and bleeding – at which time, mothers should pump and discard milk to maintain supply. • Discourage the practice of pre-chewing food for infants, as blood may be present.
Hepatitis C	<ul style="list-style-type: none"> • Promote breastfeeding as being safe, but to avoid breastfeeding when nipples are cracked and bleeding – at which time, mothers should pump and discard milk to maintain supply.
Hepatitis D	<ul style="list-style-type: none"> • Recommend Hepatitis B vaccine.

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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 to 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.