

## HOM Disease, Symptom, and Treatment Guide

Medical practice in Haiti like many developing countries is very different from practice in the United States. The lack of resources can be challenging to medical providers who are accustomed to confirming their diagnosis with labs, x-rays and other diagnostic tests. In Haiti, even when the resources are available, few people have the money to pay for labs or other tests. Diagnosis and treatment often is based primarily on history and physical. This guide is not intended to be a substitute for professional medical judgment but to help providers to arrive at an appropriate treatment for diseases that are less common in the U.S. or are diagnosed or treated differently in Haiti. As most Haitian are antibiotic naïve, and more susceptible to side effects of many medications, lower doses for shorter duration is appropriate for most acute illnesses.

Anemia	Dengue Fever	Lymphatic Filariasis
Cellulitis	Epigastric Pain	Malaria
Chikungunya	Helminths	Tropical Sprue
Diarrheal pathogens	Ascaris lumbricoides (Roundworm)	Tuberculosis (TB)
Amebiasis	Enterobius (Pinworm)	Typhoid Fever
Cholera	Hookworm infections	Typhus
Giardiasis	Hepatitis A & E	Vit A deficiency (VAD)
Schistosomiasis	Leprosy	
Shigellosis	Leptospirosis	

### **ANEMIA**

#### Signs and Symptoms

- pale conjunctiva (inner eyelid), nail beds, gums, tongue, lips, skin,
- fatigue
- HA
- breathlessness

#### Treatment

- Adult: 150-200mg/day of elemental iron for 3 months
- Pregnant women: 1 tablet of iron & folic acid every day for 6 months
- Children under 6 y/o at risk of iron poisoning

### **ANTHRAX** (Colloquially known as “malcharbon” or “sick charcoal”)

Human anthrax usually involves the skin (neck, face and upper extremities.) Spores enter the skin through minor cuts or abrasions. Most lesions remain localized and resolve spontaneously in a few of weeks. In 20%, cutaneous anthrax can spread into the blood and result in sepsis, meningitis and death.

#### Signs and Symptoms

- painless (pruritic) papule that enlarges and develops a central vesicle with a black, depressed eschar
- surrounding tissue edema
- regional lymphadenopathy
- fever, malaise and headache

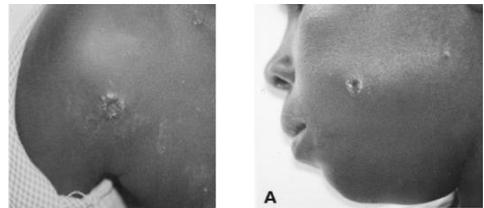
#### Treatment

##### Ciprofloxacin

- Adults 500 mg p.o. BID
- Pediatrics: 15 mg/kg p.o. BID

##### Doxycycline

- Adults 100 mg p.o. BID
- Pediatrics: 2.2 mg/kg p.o. BID



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### CELLULITIS

#### Signs and Symptoms

- fever and chills
- pain/tenderness in area of rash/sore
- skin redness/inflammation
- sudden onset (24hr)

#### Treatment

- Adult: Cephalexin 500mg p.o. TID x 10 days (face) 7 days (leg)
- Pediatric: <2 years: 200 mg/d p.o. >2 years: Administer as in adults



### CHIKUNGUNYA FEVER

This viral illness is transmitted through the bites of infected mosquitoes. The majority of people infected become symptomatic within 3–7 days and typically resolves within 7–10 days. Some patients might have relapse of rheumatologic in the months following acute illness. Mortality is rare and occurs mostly in older adults

#### Signs and symptoms

- acute onset of fever (typically >39°C [102°F])
- Joint symptoms are usually bilateral and symmetric, and can be severe and debilitating.
- Other symptoms include headache, myalgia, conjunctivitis, nausea/vomiting, or maculopapular rash

#### Treatment

- Rest, fluids, and non-steroidal anti-inflammatory drugs (NSAIDs)
- Corticosteroids may be useful for persistent pain

<http://www.cdc.gov/chikungunya/hc/clinicalevaluation.html>

### DIARRHEAL DISEASES

Diarrhea is a leading cause of child mortality in Haiti. Diarrhea is usually caused by infectious pathogens but may also be a symptom of other disorders as malaria, pneumonia, meningitis and UTI. These diagnoses need to be considered under the appropriate circumstances. Diarrhea is divided into 2 forms: watery and bloody.

**WATERY DIARRHEA:** In infants and young children, the most likely pathogen is rotavirus. In older children and adults, E. coli is the leading cause. For watery diarrhea, the principle treatment is hydration. Under outbreak situations when patients are experiencing large volumes of rice water stool, cholera should be considered.

**BLOODY DIARRHEA:** Dysentery refers to a syndrome of bloody diarrhea accompanied by fever. The most common cause is Shigella. Dehydration is rarely of concern due to the small volume of stools. Antibiotics are recommended due to the invasive nature of the infection.

#### VITAMIN SUPPLEMENTATION

In children, zinc supplementation reduces the frequency and duration of an episode of acute diarrhea and the incidence of diarrhea in the following 2-3 months. The dose is 20 mg daily for 10-14 days (10 mg < 6 months).

#### ANTIDIARRHEAL AGENTS

These are best avoided in cases of infectious diarrhea. These agents may cause paralytic ileus or prolong infection by delaying the elimination of the causative organism. Never give to children <5 years of age.

#### ORAL REHYDRATION SOLUTION (ORS)

Oral rehydration is the preferred means of fluid resuscitation in the developing world. It is highly efficacious and cost effective. IV fluid resuscitation should NOT be used routinely.

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## 1. Amebiasis

Amebiasis is caused by a one-celled parasite *Entamoeba histolytica*, found primarily in tropical areas with poor sanitary conditions. Only about 10% to 20% of people infected become sick. Symptoms usually develop within 2 to 4 week and are often quite mild. Severe infections inflame the mucosa of the large intestine causing amoebic dysentery.

### Signs and Symptoms

- loose stools
- gas (flatulence)
- abdominal cramping or pain and distention
- bloody stools and fever (amebic dysentery)
- rarely, liver abscess and colitis (amebic dysentery)

Treatment: In endemic areas, asymptomatic infections are not treated

Metronidazole 750 mg t.i.d., 5-10 days OR 50 mg/kg, 1 dose followed by paromomycin or diloxanide.

## 2. Cholera

Cholera is an acute diarrheal disease caused by an infection in the intestines. People infected with cholera bacterium have mild diarrhea or no symptoms at all. Symptoms can occur in 2 hours or up to 5 days after infection, and in severe cases cause extreme dehydration and kidney failure.

### Signs and Symptoms

- sudden onset of large volume painless watery diarrhea ("rice water" appearance and fishy odor)
- abdominal cramps and vomiting
- usually no fever (children can have fever)
- coma and seizures from dehydration

Diagnosis: Usually based on symptoms in endemic areas. Can be confirmed with microscopy

### Treatment

Evaluate the degree of dehydration upon arrival. Rehydrate the patient in 2 phases.

1. Rehydration (for 2-4 h) Lactated Ringer solution is preferred over isotonic sodium chloride solution because saline does not correct metabolic acidosis
2. Maintenance (until diarrhea abates). The objective of the maintenance phase is to maintain normal hydration status by replacing ongoing losses. Oral route is preferred; use oral rehydration solution (ORS) at a rate of 500-1000 mL/h recommended.
3. Antibiotics

#### Azithromycin

- Adult: 1gm p.o. x 1
- Pediatric: <6 mo. not established >6 mo.: 20mg/kg p.o. x1

#### Doxycycline

- Adult: 250 mg p.o. qd for 3 day or 1 gm x1
- Pediatric: Doxycycline not recommended

#### Septra DS

- Adult: p.o. bid for 3 days
- Pediatric: >2 months: SMX (200 mg/40 mg) 40 mg/kg p.o. divided BID x 5 days

<http://www.who.int/mediacentre/factsheets/fs107/en/index.html>

## 3. Giardia Intestinalis

Many infected individuals are asymptomatic and infections are self-limited. The incubation period from the time of ingestion until onset of symptoms is 1-2 weeks. Symptoms develop in 40-80% of infected children

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### Signs and Symptoms

- flatulence
- malodorous, greasy stools or diarrhea
- malaise, weakness and fatigue
- abdominal distention and cramps
- nausea and vomiting
- anorexia and weight loss
- various neurologic symptoms (e.g., irritability, sleep disorder, mental depression)
- urticaria

Diagnosis: Motile trophozoites are identified in a saline wet mount of fresh liquid stool obtained during the acute stages of illness. Trophozoites are not found in semi-formed stool.

### Treatment

Metronidazole (drug of choice)

- Adult 250mg p.o. TID for 5 d
- Pediatric: 15mg/kg/d p.o. divided TID for 5 days (not to exceed 750mg)

Albendazole

- Adult 400m g p.o. qd for 5 d
- Pediatric: 15mg/kg/d p.o. divided bid for 5 days

<http://www.cdc.gov/parasites/giardia/>

#### 4. **Schistosomiasis** (Snail Fever)

Schistosomiasis is a chronic, parasitic disease prevalent in tropical and sub-tropical areas, especially in poor communities without access to safe drinking water and adequate sanitation.

### Signs and Symptoms

- abdominal pain
- diarrhea and blood in the stool
- liver enlargement is common in advanced cases

Diagnosis: Detection of parasite eggs in stool

### Treatment

- Adult: Praziquantel 20 mg/kg p.o. every 4 hours for 3 doses (1 day treatment)
- Pediatric:  $\leq$  4 years: Praziquantel 20 mg/kg p.o. every 4 hours for 3 doses (1 day treatment)

<http://www.who.int/mediacentre/factsheets/fs115/en/index.html>

#### 5. **Shigellosis**

Shigellosis tends to occur because of overcrowding and poor sanitation. Disease from Shigella causes an estimated 1 million deaths and 165 million cases of diarrhea annually worldwide. Self-limited course (3 days to 1 week and rarely lasts as long as 1 month)

### Signs and Symptoms

- acute bloody diarrhea and passage of mucus
- crampy abdominal pain and lower abdominal tenderness
- tenesmus (ineffective painful spasm of the anal sphincter)
- normal or increased bowel sounds
- fever (1-3 d after exposure)
- occasionally vomiting (35% prevalence)
- dehydration

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### Treatment

General supportive care of patients with shigellosis includes the following:

- treat high fever in children
- avoid narcotic-related anti-diarrheals
- avoid antimotility agents as they may worsen symptoms and cause toxic dilation of the colon
- oral rehydration solutions are preferable for fluid and electrolyte supplementation

Antibiotic treatment indicated in most patients

#### Ceftriaxone

- Adult: Uncomplicated infections: 250 mg IM once; not to exceed 4 g  
Severe infections: 1-2 g IV qd, or divided bid; not to exceed 4 g/d
- Pediatric - Infants and children: 50 mg/kg/d IV/IM qd (not to exceed 1.5 g/d for 5 d)

#### Ciprofloxacin

- Adult - 500 mg P.O. bid for 5 d
- Pediatric - Not recommended

*Note: The use of TMP-SMX and amoxicillin is strongly discouraged due to widespread resistance*

## DENGUE FEVER

Dengue Fever is spread by the bite of infected mosquitoes, which are common in Haiti. People will usually develop symptoms in 4-7 days after exposure, but it can take up to 2 weeks for symptoms to appear.

### Signs and Symptoms

- abrupt onset of high fever, chills,
- muscle aches
- frontal headache (often accompanied by retro-orbital pain)
- restlessness/lethargy
- faint macular rash on the torso and arms that becomes evident on the 2nd to 4th day of illness
- a petechial rash may be found in classical dengue, as well as dengue hemorrhagic fever



### Treatment

There is no specific treatment for dengue fever. Treatment is supportive and includes Tylenol for pain and fever, rest and rehydration. Avoid aspirin/NSAIDs (risk of bleeding) Dengue can be ruled out if fever lasts > 2 weeks.

<http://www.who.int/mediacentre/factsheets/fs117/en/index.html>

## EPIGASTRIC PAIN

In patients with chronic abdominal pain, H Pylori is common - 62% in rural Haiti. If all other causes of pain are ruled out, assume H. Pylori and treat accordingly. (See below)

## HEADACHE

A common complaint encountered in Haiti. Headache type is often not determined but it is important to confirm it is not from hypertension, infection or acute vascular. Typically headaches of unclear etiology can be treated with Tylenol/ibuprofen and reassurance.

## HELICOBACTER PYLORI

Endemic in Haiti, found in 60% of biopsies specimens from Haitians with chest pain and/or epigastric pain.

### Signs and Symptoms

- gastritis or GERD symptoms
- abdominal pain
- appetite changes

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## Treatment

Administer triple therapies for 10-14 days. The treatment regimens are:

- omeprazole, amoxicillin, and clarithromycin (OAC) for 10 days OR
- bismuth subsalicylate, metronidazole, and tetracycline (BMT) for 14 days OR
- lansoprazole, amoxicillin, and clarithromycin (LAC) for either 10 days of treatment.

\* Use H2 blockers (*Pepcid*) instead of PPIs in pregnant women

## HELMINTHS



Intestinal parasites infect more than 1/3 of the population. The highest infection rates occur among school-aged children. The most common helminthes in Haiti are *Ascaris lumbricoides*, *Trichuris richiura* (whipworm) and *Necator americanus* (hookworm). Infection with these organisms results in malnutrition and impaired growth

### 1. ***Ascaris lumbricoides* (Roundworm)**

Infection occur contaminated water or food is consumed. Unhatched juveniles penetrate the mucosa and enter the lungs. They migrate from the lung up to the pharynx and then pass through the digestive system where they produce eggs. More than 2 billion people are affected by this infection. Infections with these parasites are more common where sanitation is poor. Most infections produce no symptoms. Heavy infection can lead to nutritional deficiency or intestinal obstruction.

#### Signs and Symptoms

- cough and bloody sputum
- fever
- abdominal discomfort, passing worms, etc.

Diagnosis: Made by identifying the appearance of the worm or eggs in feces

#### Treatment

- Mebendazole 100 mg p.o. once
- Albendazole >2 years old: 400 mg p.o. once <2years old: 100mg p.o. once

### 2. ***Enterobius* "Pinworm"**

Pinworms occur most frequently in school age children (5 - 10 years old) and are relatively uncommon in those under 2 years old. Transmission is via direct anus to mouth spread from contact with an infected person, via airborne eggs dislodged from contaminated clothing or bed linen or eating food touched by soiled hands.

#### Signs and Symptoms

- asymptomatic is common
- perianal itching - most common symptom
- nocturnal restlessness and insomnia secondary to itching
- secondary bacterial infections can result if the excoriation is severe
- occasionally the worm burden is so high that abdominal pain, nausea, and vomiting develop
- Vulvovaginitis – caused by migration of the adult worm from the perianal region into the genital tract of the female host, this can make the host more susceptible to urinary tract infections.

Diagnosis: "Scotch tape" test - performed by sticking clear cellophane scotch tape onto a wooden stick, and then doubling it over and press against the perianal skin. Eggs are asymmetrically flattened on one side, female adult worms, which are white, pin-shaped, and 8 to 13 mm long, may be found in the perianal area.

#### Treatment

- Mebendazole 100 mg p.o. once
- Albendazole >2 years old: 400 mg p.o. once <2years old: 100mg p.o. once
- Both can be repeated after one or two weeks to increase cure rate

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### 3. Hookworm infections

A major impact of hookworm infection is on the patient's nutritional status. The worms consume 0.3 ml – 0.5 ml of blood a day, also cause loss of albumin and likely impair digestion and contribute to malnutrition.

#### Signs and Symptoms

Cutaneous manifestations

- pruritic maculopapular eruption at the sites of larval penetration
- serpiginous tracks of intracutaneous larval migration can be seen (see skin conditions)

Acute gastrointestinal symptoms

- nausea, diarrhea, vomiting,
- abdominal pain (usually mid-epigastric and often with postprandial accentuation)
- increased flatulence

#### Treatment

- Albendazole 400 mg P.O. once OR
- Mebendazole 100 mg orally BID for three days or 500 mg once

*Notes: Ivermectin, which is effective for many helminthic parasitic infections, is ineffective for hookworm.*

*Mass treatment campaigns even when only providing temporary relief from infection have been shown to have positive effects on growth, exercise, and cognitive function of affected children and adults*

<http://www.who.int/mediacentre/factsheets/fs366/en/index.html>

### HEPATITIS A & E

Hepatitis A is spread through the fecal-oral route through contaminated food or water. Diagnosis is made by a combination of clinical signs and symptoms. Symptoms usually develop within a month from the exposure. People only can develop hepatitis A once in their lifetime. Infected children under six years of age do not usually experience noticeable symptoms, and only 10% develop jaundice. Among older children and adults, infection usually causes more severe symptoms, with jaundice occurring in more than 70% of cases

#### Signs and Symptoms

- jaundice (yellowing of eyes and skin),
- fever
- fatigue
- loss of appetite, nausea, vomiting, and abdominal pain
- dark urine and clay or pale-colored stools
- joint pain



Treatment: There is no specific treatment for Hepatitis A or E; It is usually a self-limiting infection and resolves within 4–6 weeks. Therapy is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea.

### HIV

The HIV rate in Haiti is 2-3% for the general population. There are wide-spread campaigns in Haiti aimed at reducing the prevalence and providing treatment. HIV testing is available at GHESKIO and other hospitals

#### Risk Factors

- Multiple sexual partners or homosexual contact
- Blood transfusion
- Needle stick
- Other STD (higher risk of transmission of HIV with HSV, gonorrhea and Chlamydia)
- IV drug user

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### Hypertension and Other Chronic Conditions

If previously diagnosed and already on a medication, try to match this drug as closely as possible. If newly diagnosed, please treat adequately even if you ask the patient to come back for a follow-up soon. Give at least 60-90 days of medications for chronic conditions. Education is crucial; for hypertension, advise low Na diet, For DM, advise restrict sweets. Be aware of potential side effects of certain medications in this population. Beta Blockers should be the last drug of choice for HTN due to fatigue. HCTZ 12.5 mg or 25 mg is a good option because of cost & availability, Do not recommend doses higher than 25 mg because of potential for hypokalemia. Avoid Sulfonylureas for D.M. due to risk of hypoglycemia in this generally malnourished population.

### LEPROSY (Hansen's disease)

The majority of people exposed to patients with leprosy do not develop the disease because of their natural immunity. Leprosy has been classified according to the WHO system into:

1. Paucibacillary leprosy defined as fewer than five skin lesions with no bacilli on skin smear
2. Multibacillary leprosy defined as six or more skin lesions and may be skin-smear positive

#### Signs and Symptoms

- most common initial presentation: A skin lesion
- sensory loss
- anhidrosis
- neuritic pain and palpable peripheral nerves
- nerve damage (most commonly affected nerves are ulnar, median, common peroneal, posterior tibial, radial nerve of the wrist, facial, and posterior auricular)
- muscle atrophy and weakness
- foot drop
- claw hand and claw toes
- lagophthalmos, nasal septal perforation, collapse of bridge of nose of eyebrows resulting in "leonine" faces



#### Diagnosis

A case of leprosy is diagnosed in a person who has one or more of the following cardinal signs and who has yet to complete a full course of treatment:

- Hypopigmented or erythematous skin lesion(s) with definite loss or impairment of sensations
- Involvement of the peripheral nerves, as demonstrated by definite thickening with sensory impairment
- Skin smear positive for acid-fast bacilli

#### Treatment

Refer to leprosy hospital in Port Au Prince for treatment, which lasts between 6 and 24 months depending on type of leprosy.

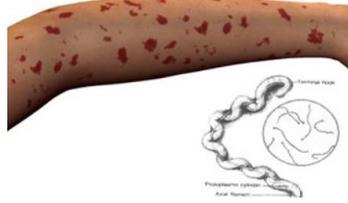
### LEPTOSPIROSIS

Bacterial disease that affects animals and humans; infection occurs through contact with water, food, or soil contaminated by animal urine. Illness usually begins abruptly with fever and other symptoms. Leptospirosis may occur in two phases: after the first phase (with fever, chills, headache, muscle aches, vomiting, or diarrhea) the patient may recover for a time but become ill again. If a second phase occurs, it is more severe; the person may have kidney or liver failure or meningitis. This phase is also called Weil's disease.

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### Signs and Symptoms

- high fever and chills
- red eyes
- severe headache
- vomiting and diarrhea
- jaundice or rash
- muscle aches



### Treatment

The illness lasts from a few days to 3 weeks or longer. Without treatment, recovery may take several months and may result in kidney damage, liver failure, meningitis, or respiratory distress; fatality rates are low.

### **LYMPHATIC FILARIASIS (Elephantiasis)**

Lymphatic filariasis is a tropical disease that occurs when filarial parasites are transmitted to humans through mosquitoes and migrate to the lymphatic system. Infection is usually acquired in childhood, but the painful and profoundly disfiguring visible manifestations of the disease occur later in life.

### Signs and Symptoms

Acute manifestations

- episodic attacks of fever
- inflammation of the inguinal lymph nodes, testis, spermatic cord or combination of these
- skin exfoliation of the affected body part
- repeated episodes of inflammation and lymphedema lead to lymphatic damage; chronic swelling; and elephantiasis of the legs, arms, scrotum, vulva, and breasts.
- Hydrocele common in chronic *W bancrofti* infection in males but is rare with *B malayi* and *B timori*



### Treatment

Albendazole plus Ivermectin in areas where river blindness is also endemic or diethylcarbamazine citrate (DEC) in areas where onchocerciasis is not endemic

Ivermectin (Mectizan)

- Adult: 150-200 mcg/kg/d P.O. as single dose; repeat q2-3mo
- Pediatric: <5 years or <15 kilograms: Not recommended >5 years: Administer as in adults

Diethylcarbamazine (Hetrazan) DEC

- Adult: 6 mg/kg P.O. qd for 12 d to 3 wk
- Pediatric: Administer as in adults

Albendazole

- Adult: 400 mg P.O. single dose
- Pediatric: Administer as in adults

Inpatient care may initially be required for chronic filariasis and includes antihistamines, steroids, pain relief, and IV antibiotics for secondary infections. Bed rest, limb elevation, and compression bandages have been used for the management of chronic lymphedema.

<http://www.who.int/mediacentre/factsheets/fs102/en/index.html>

### **MALARIA**

Malaria is spread by the bite of infected mosquitoes. Clinical diagnosis of uncomplicated malaria is based on exposure to malaria and a history of fever in the previous 3 days with no features of other severe diseases. In settings where the risk of malaria is high, diagnosis is based on a history of fever in the previous 24 hours and/or the presence of anemia, pallor of the palms appears to be the most reliable sign in young children.

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### Signs and Symptoms

- shaking chills, fever and flu-like illness
- fatigue and malaise
- headache
- liver tenderness
- nausea/anorexia/vomiting
- abdominal pain
- myalgias/artralgias

Diagnosis: \* Rapid tests are available

### Treatment

Chloroquine (Malaria seen in Haiti is Chloroquine-sensitive)

- Adult: 600mg P.O. immediately; followed by 300mg at 6h, 24h, & 48h
- Pediatric: 10mg/kg/dose P.O. immediately; followed by 5mg/kg/dose at 6h, 24h, & 48h
- Children <8 years and pregnant women, with malaria, should not be treated with doxycycline

<http://www.who.int/mediacentre/factsheets/fs094/en/index.html>

## **PROTEIN-ENERGY MALNUTRITION**

Worldwide, severe protein energy malnutrition is a leading cause of death among children younger than five years of age. Severe protein-energy malnutrition is associated with one of two classical syndromes, marasmus (Wasting syndrome) and Kwashiorkor, or with manifestations of both. Each type of protein-energy malnutrition is classified as acute or chronic, depending upon the duration of nutritional deprivation. Children with acute malnutrition appear wasted, whereas children with chronic malnutrition have stunted linear growth. Malnourished children also suffer a number from numerous associated complications. They are more susceptible to infection, especially sepsis, pneumonia, and gastroenteritis. Vitamin deficiencies and deficiencies of minerals and trace elements.

### Indicators for Haiti (2006 data)

Children under five years of age overweight for age (%) 3.9

Children under five years of age stunted for age (%) 29.7

Children under five years of age underweight for age (%) 18.9 94

### Signs and Symptoms

Clinical findings in children with chronic under-nutrition usually include:

- diminished height
- poor weight gain
- deficits in lean body mass and adipose tissue
- Other features include reduced physical activity, mental apathy, and retarded psychomotor and mental development.

### **Marasmus (Skin and Bones)**

Marasmus is characterized by the wasting of muscle mass and the depletion of body fat stores. It is the most common form of Protein Energy Malnutrition (PEM) and is caused by inadequate intake of all nutrients, but especially dietary energy sources (total calories). Classically, children with marasmus may have severe constipation and are ravenously hungry once refeeding is in progress.

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### Physical examination findings include:

- diminished weight and height for age
- emaciated and weak appearance
- bradycardia
- hypotension
- hypothermia
- thin, dry skin
- redundant skin folds caused by loss of subcutaneous fat
- thin, sparse hair that is easily plucked

### **Kwashiorkor** (Edematous with potbelly)

Kwashiorkor caused by inadequate protein intake and is characterized by marked muscle atrophy with normal or increased body fat. Anorexia is almost universal.

### Signs and Symptoms

- normal or nearly normal weight and height for age
- extreme generalize edema
- rounded prominence of the cheeks ("moon-face")
- pursed appearance of the mouth
- pitting edema in the lower extremities and periorbitally
- dry, atrophic, peeling skin with confluent areas of hyperkeratosis and hyperpigmentation
- dry, dull, hypopigmented hair that falls out or is easily plucked
- hepatomegaly (from fatty liver infiltrates)
- distended abdomen with dilated intestinal loops.

*Adequate protein intake restores hair color, resulting in alternating loss of hair color interspersed between bands of normal pigmentation (flag sign)*

### **MALNUTRITION SCREENING**

Arm/head circumference —this method uses the mid-upper arm circumference as a proxy for weight and head. Its accuracy requires that no malformation of the head (eg, microcephaly or hydrocephalus) is present..

Severity is assigned according to the ratio as follows:

- Less than 0.31: First-degree (mild) acute malnutrition
- Less than 0.28: Second-degree (moderate) acute malnutrition
- Less than 0.25: Third-degree (severe) acute malnutrition

### Treatment

Children with chronic malnutrition may require caloric intakes more than 120-150 kcal/kg/d to achieve appropriate weight gain. Refer children to Children’s Nutrition Program of Haiti in Leogane if at all possible. \* It is very difficult to get children into the program – have your team leader refer all children with moderate to severe malnourishment to S/P personnel.

MUAC (Mid Upper Arm Circumference): Children 6 months to 5 years			
Score	Color	Result	Intervention
< 110 mm	Red	Severe Acute Malnutrition	Notify Medical Coordinator
≥ 110 and ≤ 125 mm	Yellow	Moderate Acute Malnutrition	Refer to AVSI
> 125 mm	Green	Nutritional Status Stable	No action needed

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### MUMPS

Symptoms typically appear 16-18 days after infection. Mumps is communicable from 6 days before to 9 days after facial swelling is apparent. Many people have very mild or no symptoms. Death due to mumps is rare.

#### Signs and Symptoms

- fever
- headache
- muscle aches, fatigue and malaise
- loss of appetite and anorexia
- swollen and tender salivary glands under the ears on one or both sides (parotitis)
- pain with chewing
- pain/swelling of testes



#### Treatment

- no antiviral agent is indicated for mumps, supportive therapy is indicated
- adequate hydration and alimentation is important. (Foods and liquids that contain acid may cause swallowing difficulty as well as gastric irritation.)
- analgesics for headaches or discomfort due to parotitis. In orchitis, stronger analgesics may be needed

### RABIES

Rabies is a viral illness transmitted by the bite of an infected animal. In Haiti, the main animal source is the dog. Any dog bite in Haiti is considered a potential source of rabies until proven otherwise. The incubation period of the virus is 1-3 months. The first signs of rabies are a non-specific flu like illness, which lasts several days. Ultimately, the patient lapses into a coma and dies of respiratory failure and shock.

#### Signs and Symptoms

- excessive salivation
- hyperactivity
- fever
- fluctuating level of consciousness
- hydrophobia (fear of drinking water) as these typically provoke painful pharyngeal (throat) spasms

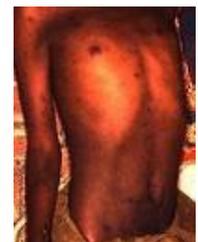
Treatment: Supportive, rabies is 100% fatal

### TETANUS

#### Signs and Symptoms

Hallmark feature of tetanus is muscle rigidity and spasms. Muscle spasms are progressive and may include a characteristic arching of the back. Muscle spasms may be intense enough to break bones and dislocate joints.

- irritability, muscle cramps, sore muscles, or weakness
- sardonic smile (results from facial muscle spasms)
- lockjaw and difficulty swallowing
- severe cases can involve spasms of the vocal cords or muscles involved in breathing



#### Treatment

- wound cleansing and supportive measures, pain medicine as needed
- sedatives such as diazepam (Valium) to control muscle spasms
- ventilator support in the event of spasms of the vocal cords or the respiratory muscles
- IV rehydration due to constant muscles spasm, increased metabolic demands are placed on the body
- Metronidazole to kill the bacteria, tetanus vaccine if available
- Cephalosporin: Cefuroxime 500 mg p.o., or Ceftriaxone 1 g IM for 3 to 7 days for infection.

## HOM Disease, Symptom, and Treatment Guide

### TROPICAL PYOMYOSITIS

Risk factors for Staphylococcus aureus pyomyositis - Strenuous activity, muscle trauma, skin infections, infected insect bites, illicit drug injections, and diabetes

Causes: Bacterial -S aureus (most common, 70%); Streptococcus viridans; Streptococcus pyogenes; Streptococcus pneumoniae; Salmonella enteritidis; Klebsiella pneumoniae; Clostridium freundii; Bartonella; gramnegative organisms including Escherichia coli and Pseudomonas aeruginosa, Neisseria, Yersinia, Morganella morganii, and Citrobacter species

#### Signs and Symptoms

- fever and malaise
- abscess - Subtle symptoms such as fever and flank and pain
- pyrexia of unknown origin
- painful, swollen, tender, and indurated muscles ((quadriceps & psoas muscles most often affected)
- Depending on the site of involvement, it may mimic appendicitis (psoas muscle), septic arthritis of the hip (iliacus muscle), or epidural abscess (piriformis muscle).

#### Treatment

Refer to hospital for IV antibiotics and possible drainage

### TROPICAL SPRUE

Chronic malabsorptive diarrhea of unclear etiology, Folate, vitamin B-12, and iron deficiencies are the most common nutrient deficiencies.

#### Signs and Symptoms

- Diarrhea, dehydration and weight loss
- Leg swelling
- Pallor, fatigue and malaise
- Fever
- Oral mucosa changes (glossitis, stomatitis)
- Edema

#### Treatment

Therapeutic interventions involve antibiotics and replacement of nutrients (e.g., folic acid, vitamin B-12, iron), fluids, and sometimes blood. Antibiotics and folic acid are given to patients for 3-6 months. In patients with symptoms longer than 6 months, administer the combination for as long as a year.

Folic acid replacement

- Adults 5 mg/d p.o./IM/SC
- Pediatric: <12 years: Not established; >12 years: 1 mg/d p.o./IM/SC

B12 replacement

- Adult: 1000 mcg p.o./IM; 30 mcg/d IM/SC for 5-10 d then 100-200 mcg/mo.
- Pediatric: 100 mcg IM/SC for 10-15 d then 60-100 mcg/mo IM/SC

Ferrous Sulfate replacement

- Adult: 325 mg/d p.o.
- Pediatric: <15 kg: 5 mg/kg/d p.o.; 15-30 kg: Half of adult dose p.o.

Tetracycline

- Adult: 250 mg p.o q6h for 3-6 mo
- Pediatric: <8 years: Not recommended; > 8 y years: 25-50 mg/d p.o. divided bid/qid

## HOM Disease, Symptom, and Treatment Guide

### **TUBERCULOSIS (TB)**

#### Signs and Symptoms

##### Pulmonary tuberculosis (TB)

- cough that lasts over 3 weeks and may be full of blood or sputum
- loss of appetite, weight loss and weakness
- chills, fever and night sweats
- chest pain, abnormal breath sounds, especially over the upper lobes or areas involved



#### Cutaneous TB

- ulcer or wartlike lesion
- infected lymph node that results in a draining sinus
- hematogenous spread may result in a reddish brown plaque on the face or extremities (lupus vulgaris) or tender nodules or abscesses



#### Signs of Extrapulmonary TB differ depending on the tissues involved; may include

- confusion, coma, or neurologic deficit
- chorioretinitis (inflammation of the choroid and retina of the eye)
- lymphadenopathy
- cutaneous lesions



#### Diagnosis: Positive PPD

##### PPD Larger than or equal to 5 mm AND

- Close contacts to persons with newly diagnosed TB
- Persons with HIV infection
- Patients with organ transplant or taking more than 15 mg/d of prednisone for one month or more

##### PPD Larger than or equal to 10 mm AND

- Patients with medical conditions that increase the risk of TB (DM, hematologic malignancies, carcinoma of the head and neck, intravenous drug use end stage renal disease, malnutrition,
- Recent converter - At least 10-mm increase in skin test in past 2 years (regardless of age)

##### PPD Larger than or equal to 15 mm - Persons with none of the above

#### Treatment

Many different treatment plans are available for those diagnosed with tuberculosis. Refer to TB hospital in Port Au Prince for treatment

### **TYPHOID FEVER** (Enteric fever)

A bacterium that spreads person to person through contact with a person infected or food contaminated with the bacteria. Hand washing is the best way to prevent the spread of Typhoid Fever.

#### Signs and Symptoms

- gradual onset
- prolonged fever, chills, and sweats
- headache
- fatigue
- loss of appetite
- abdominal pain and tenderness
- "pea soup" diarrhea – foul smelling, green/yellow liquid or
- bloody diarrhea
- rash ("rose spots") on the torso, can develop anywhere from 1 week to 2 months after exposure



## HOM Disease, Symptom, and Treatment Guide

### Treatment

- Use steroids and appropriate antimicrobial agents if patient is in shock or has altered mental status
- Restoring nutrition: clear liquid diet to minimize diarrhea. Fluid and electrolyte therapy may be needed
- Isolate patient. Caregivers must wash hands carefully and often
- *Start antibiotics, even without a definite confirmation, if high index of suspicion in a severely ill patient*
  - Adults: Ciprofloxacin (1st line) 500 mg orally twice daily for 10 days
  - Pediatric: Cefixime p.o. 10 to 15 mg/kg twice daily
  - Azithromycin (10 mg/kg) is suitable for children with uncomplicated typhoid fever
  - Ceftriaxone, if allergic to Cipro or pregnant

*Antibiotic resistance is a growing problem. Ampicillin, TMP/SMX, and chloramphenicol are no longer reliable first-line agents. \* NEVER administer laxatives/enemas or salicylates, which may cause hypothermia, gastrointestinal irritation, and hypotension in patients with typhoid fever*

### **TYPHUS**

Typhus is an acute febrile illness caused by rickettsial organisms. The duration of most clinical symptoms and signs in untreated typhus is approximately 2 weeks. Several months may pass before complete recovery.

#### Signs and Symptoms

- abrupt onset and persistent fever, may persist for 24-72 hours after initiation of antibiotic therapy
- unremitting headache
- maculopapular/petechial rash occurs on days 4-7, begins on the axilla and trunk and spreads peripherally except for the face, palms, and soles.
- rigors, myalgia's, malaise, and CNS symptoms (ranging from mental dullness to coma)
- bradycardia or tachypnea and cough
- lymphadenopathy
- eschar at the site of the arthropod bite, occurs in up to 60% of cases
- mild splenomegaly or mild hepatomegaly may occur.

### Treatment

#### Doxycycline

- Adult: 200 mg p.o./IV bid for 3 d, then maintenance dose 100 mg p.o./IV bid
- Pediatric: ≥8 years: administer Doxycycline as in adults <8 years

Azithromycin 10 mg/kg p.o. (max 500 mg) on day 1; then 5 mg/Kg p.o. (max 250 mg) on days 2-5

#### Chloramphenicol

- Adult: 0.5-1 g IV q6h; not to exceed 4 g/d
- Pediatric: 80-100 mg/kg/d IV divided q6h

### **VIT A DEFICIENCY (VAD)**

#### Signs and Symptoms

- Bitot spot (on white part of eye)
- night blindness
- dry skin, dry eyes, dry hair, pruritus, broken fingernails
- corneal perforation
- follicular hyperkeratosis

### Treatment

Supplemental Vit. A (Aquasol A, Palmitate-A)