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1. **About Shoulder to Shoulder Global**

Ecuador is about the size of Oregon and is located in western South America. The population is estimated to be 14 million. Santo Domingo is the fourth largest city in Ecuador with a population of over 300,000. It is located along the main route of transportation between the coast and Quito. Rapid growth and urban crowding has resulted in the formation of “cooperativas or barrios” or slums generally located on the outskirts of the city. Many of these barrios lack electricity, improved water sources, sanitation and access to medical care. Additionally, they have the burden of crime and gang violence.

Shoulder to Shoulder Global (STSG) seeks to improve the health and well-being of impoverished and underserved communities globally through primary health care, public health, dental care, nutrition and education. The initial focus of STSG was in the peri-urban neighborhoods of Santo Domingo, Ecuador where a community clinic, Centro Médico Hombro a Hombro (CMHH) was established in April 2007 in partnership with Fundación Acción Social Caritas (FASCA), a local charitable foundation. The CMHH provides primary care, prevention services, mental health, oral health, and school-based services in the community. In addition to bringing access to medical care, STSG partners with the communities in this area to address other determinants of community health including improved water sources, sanitation, education and economic opportunities.

CMHH is located in the cooperativa Carlos Ruiz Burneo on a dirt road that is about 20 minutes from the center of Santo Domingo. It is accessible by taxi and private vehicle and bus stops a few blocks away from the clinic. The clinic serves about 20,000 people from the barrios of Carlos Ruiz Burneo, Plan de Vivienda and Luz del Día. The front grounds have a garden and serve as the general waiting area. There are three rooms that are available for medical exams, a dental room with a dental chair and lights, an office and a lab / pharmacy. The building is concrete and has electricity, running water and sanitation disposal to a septic tank. The clinic has some basic equipment including a few medications that are dispensed to patients, blood pressure cuffs, stethoscopes, an EKG machine, nebulizer, hematocrit centrifuge and a microscope. An autoclave is available for the dental/surgical tools and specula. Gauze, alcohol and some bandaging equipment is also kept in the clinic.

Consultations for procedures or specialty care must be coordinated through the public hospital in Santo Domingo or the Ministerio de Salud clinic Los Rosales. The difficulty of this is that patients may spend an entire day waiting for a ticket to make an appointment. Many services are available at no cost, however patients may still be charged for equipment (slides for pap smears, needles, syringes, etc) so they are not entirely free of charge. The hospital is generally crowded and understaffed. Private services are available but unaffordable for most patients in this area. The Ministry of Public Health (MSP) has community health centers or “subcentros” where patients may also be seen for primary care.

STSG also has partnerships with the Tsáchila community, an indigenous group from the Santo Domingo area who live in small, isolated rural communities outside the city limits, and with a community health center in Salasaka. Preventive and acute care services are provided at these locations through inter-professional service learning brigades.
2. Cultural Aspects of Care

The majority of the population is descended from Spanish colonists and native indigenous groups, commonly referred to as “mestizo”. Spanish is the official language, however, thirteen indigenous languages are also spoken, the most common of which is Kichwa (pronounced Keécha). The citizens take great pride in being Ecuadorian and refer to themselves as Ecuatorianos(-as). There is no word resembling indio (“indian”) in indigenous languages, and the use of that term is deeply resented. In Spanish, the term for indigenous person (indigena) is preferred.

Socially, the family is a key feature. The basic domestic unit focuses on the mother and children with the father as provider. The mother nurtures the children and manages the household; the father usually provides for the family and the home, although there is a rising trend of working women head of households. Children are cherished, and socialization focuses on the granting of respect to parents, siblings, other relatives, the community, the nation, God, and those who lend a helping hand.

*Respeto* (respect) is the key to etiquette across all of the class and ethnic divisions and between men and women. All Ecuadorians expect respect in their interactions, and conflict occurs when disrespect is observed or inferred. Each patient encounter is a cross cultural interaction. Women are the ones who usually take children to the doctor. Health providers, especially doctors have a high status in the society. During an encounter, shaking hands is appropriate. Greet first the elderly or the oldest in the group. Older patients may avoid eye contact; it can be a manifestation of respect to you more than shyness. During medical encounters and interaction with locals they may offer you food or gifts. It is encouraged to accept them and thank them. Rejection can be seen as sign of disrespect. If not sure about the safety of the food, do not eat it, express that you will save it for later.

Religion, shamanism, and home remedies are very important resources in health care. Kichwa and Tsáchilas shamans are considered to be powerful healers. Western health-care systems exist across Ecuador except in isolated indigenous communities like the Tsachilas. While there are exceptions, hospitals are places where people go after trying many possible cures for illness. Pharmacists do a big business in diagnosis and prescription; they usually are not professionals as in the US. Almost any drug or medication can be purchased over the counter, except for narcotics or psychotropic medications which require prescription. Most people believe that natural remedies are generally better; however there are times when a disease is more serious and they need to go to a doctor. During an encounter, acknowledge home remedies and assess their safety.

Mental health issues are not commonly discussed and should be approached with tact. Patients with mental illness may be discriminated against or labeled as “crazy”. The main social support system is the family. Other sensitive topics include women’s health issues, especially for older women. Acceptance of contraception differs among populations and is more common among women at CMHH than the Tsachila due to cultural norms of family planning.

Approach all patient encounters with the principle of “*first do no harm*”. Focus on what you can do with the available resources; use your clinical acumen and your physical diagnosis skills. Listen closely to your patients, learn about their day to day life and try to understand how their illness affects them. Examine your patients thoroughly as this is often your only diagnostic tool in this setting. Think and ask about the logistics of treatments you offer – think about how your recommendations will impact the patient in this cultural context. Ask them to “teach back” to make sure they understood the treatment plan. Remember that quality of care and attention to patient safety are paramount, as patients here will have less opportunity for follow-up than patients in the US.

Providing care during service learning trips does have specific challenges due to the location, available resources and climate - not to mention the logistical difficulties of working through interpreters, being sensitive to and adapting to different cultural norms. Often lack of privacy is also a concern. Remember that you can learn something from everyone. Most importantly – know your limitations! If you wouldn’t do it at home, don’t have the supplies to do it well or aren’t sure who will take care of the complications, then don’t it at all. Remember that supervision of care is still required – students and residents must review cases and treatment plans with an attending physician, accordingly with their level of training and complexity of the case. Follow the guidelines reviewed in this handbook.

For more information about Ecuador and its culture, can visit:

- [http://www.everyculture.com/Cr-Ga/Ecuador.html](http://www.everyculture.com/Cr-Ga/Ecuador.html)
- [http://sitemaker.umich.edu/fm_cultural_competence_ecuadorian/](http://sitemaker.umich.edu/fm_cultural_competence_ecuadorian/)
3. **Most Common Pediatric Problems**

**Healthy Child**<sup>(1)</sup>

**Growth Charts**: use WHO growth charts to screen for possible abnormal or unhealthy growth for children 0 to 5 years old.

**Screening Developmental questions**: Key milestones are highlighted

<table>
<thead>
<tr>
<th>Age</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 m</td>
<td>Holds head up – Smiles</td>
</tr>
<tr>
<td>4 m</td>
<td>Holds head up steady – coos – Rolls over from tummy to back</td>
</tr>
<tr>
<td>6 m</td>
<td>Sits with support – <strong>Rolls over in both directions</strong></td>
</tr>
<tr>
<td>9 m</td>
<td><strong>Sits without support</strong> – mama, papa : combines syllables</td>
</tr>
<tr>
<td>1 y</td>
<td>Mama/papa – stands alone? – Walks with help</td>
</tr>
<tr>
<td>18 m</td>
<td><strong>Walks without help</strong></td>
</tr>
<tr>
<td>2 y</td>
<td><strong>Combines 2 words</strong> – runs well</td>
</tr>
<tr>
<td>3 y</td>
<td><strong>3 word sentences</strong> – washes hands</td>
</tr>
<tr>
<td>4 y</td>
<td>All speech understandable – hops on one foot</td>
</tr>
<tr>
<td>5 y</td>
<td>All speech understandable – balances on foot x 5 sec</td>
</tr>
</tbody>
</table>

**Intervention**: If concern during the developmental milestones screening, refer patient for PT/OT evaluation.

**Screening Physical Exam**: Check all patients for:

- Skin: rashes
- ENT: TMs, Teeth
- Neck: mass
- Chest: auscultate lungs/heart
- Abdomen: mass, HSM
- Check all children under 6 m for Barlow and Ortolani for DDH

**Prevention**: Can give Children’s MVI x 1 month to all healthy children < 5 years old. Micronutrient deficiency is endemic.

**Anemia**<sup>(2)(3)(4)(5)</sup>

**Definition**:
- For individuals living at sea level: Santo Domingo (1984 f/604 m)

<table>
<thead>
<tr>
<th>Age</th>
<th>Hgb</th>
<th>Hct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children (0.50–4.99 yrs)</td>
<td>&lt; 11</td>
<td>&lt; 33</td>
</tr>
<tr>
<td>Children (5.00–11.99 yrs)</td>
<td>&lt; 11.5</td>
<td>&lt; 34.5</td>
</tr>
<tr>
<td>Children (12.00–14.99 yrs)</td>
<td>&lt; 12</td>
<td>&lt; 36</td>
</tr>
<tr>
<td>Non-pregnant women (&gt;15.00 yrs)</td>
<td>&lt; 12</td>
<td>&lt; 36</td>
</tr>
</tbody>
</table>

- For individuals at high altitude: Quito/ Cotacachi/Salasaca (7824 f/ 2800 m) WHO reference adjusted to altitude (hemoglobin < 12.3 g/dl/) [Hct <37]

**Screening**: All children 1 to 6 years, girls >12 years old.

**Treatment**: 3-5 mg elemental iron/kg/day QD – administer with water/juice between meals – do not administer with milk.

**Scabies**<sup>(5)(6)</sup>

**Diagnosis**: Intensely pruritic, erythematous papular eruption. Itching is worse at night. Predilection for inter-digital folds, flexor aspects of wrists, extensor surfaces of elbows, anterior axillary folds, waistline, thighs, navel, abdomen, inter-gluteal cleft and buttocks. In younger than 2 years eruption can be vesicular and appear in head, neck, palms and soles. Excoriations are common. It can have granulomas and nodules, and secondary bacterial infection. – check the mother and other siblings for lesions.

**Treatment**: Benzyl Benzoate lotion: apply from neck down at night and remove by bathing 8 – 14 hours later. All
household members should be treated. Bedding and clothing worn 3 days before therapy should be washed in hot water. Treat secondary infection with antibiotics.

**Head Lice**

**Diagnosis:** Scalp itchiness is the most common symptom. Check for adult lice or eggs behind the ears and near the nape of the neck. Excoriations and crusting caused by secondary bacterial infection may occur and often are associated with regional lymphadenopathy.

**Treatment:** Permethrin cream rinse 1% - apply to the scalp and hair for 10 minutes after washing and towel drying the hair. Reapply second treatment 7 to 10 days after first one. Treat secondary infection with antibiotics.

**Skin Infections**

**Diagnosis:** The most common skin infections will be impetigo, cellulitis and abscesses. Impetigo is characterized by erosions covered by honey-colored crust. Cellulitis is characterized by erythematous, hot, tender, ill-defined, edematous plaques accompanied by regional lymphadenopathy. Abscesses are erythematous, firm, acutely tender and fluctuant with defined borders. *Staphylococcus Aureus* and *Group A Streptococci* are common pathogens.

**Treatment:** Cephalexin 25-50 mg/kg/day QID x 10-14 days. If MRSA is suspected use Bactrim 10 mg TMP/kg/day BID x 10-14 days.

Impetigo can be treated topically if it is localized to a small area with antibiotic ointment TID x 10 days.

**Community Acquired Pneumonia**

**Diagnosis:** Think about this diagnosis if fever, cough and tachypnea. Physical exam: Tachypnea, retractions (intercostal, subcostal, suprasternal), wheezing, nasal flaring, grunting and crackles. Tachypnea is defined as: 60 breaths/min is < 2 months, 50 breaths/min at 2 to 12 months of age, 40 breaths/min at 1 to 5 years and, 20 breaths/min in children > 5 years; subtracting 10 if the child is febrile. Ask for tuberculosis exposure and immunization status.

**Treatment:** If the child looks toxic, has moderate to severe retractions or grunting, consider referring him/her to the hospital. If the child is < 6 months and suspect CAP refer him/her to the hospital. If the child is otherwise comfortable and able to tolerate PO, outpatient management can be done with Amoxicillin 90 mg/kg/day TID for 10 days. If at the CMHH refer him for follow-up in 2 days.

**Acute Otitis Media**

**Diagnosis:** Accompanying or precedent upper respiratory infection (URI) symptoms, earache/fullness, decreased hearing, fever (not required for the diagnosis), otorrhea. Infants may be asymomatic or irritable and may present with pulling/tugging of the ear. Diagnosis is made by visualization of an inflamed, bulging tympanic membrane with pus in middle ear.

**Treatment:** Use Amoxicillin 80-90 mg/kg/day PO divided BID x 10 days as first line treatment. In patients with history of non-anaphylactic allergy to amoxicillin and/or oral noncompliance use Ceftriaxone 50 mg/kg/day IM x 1 day.

**Headache**

**Diagnosis:** The most common primary headaches in pediatrics include migraine and tension-type headache. These 2 types of headaches can be episodic or considered chronic daily headache (if present 15 or more days per month for 3 or more months). Secondary headaches are the result of an underlying pathology (i.e. tumor, hydrocephalus, etc.) Pediatric migraines are often bilateral, and clear localization of the pain can be difficult to obtain from children. Migraines in children are often of shorter duration than in adults. Migraine with aura is seen in 14-30% of children with migraine. Typical auras are spots, colors, image distortions, or visual scotoma. Migraine without aura comprises most of childhood migraine headaches. They are frequently preceded by a behavioral prodrome with mood changes or withdrawal from activity.

Tension-type headaches are benign, described as a band-like sensation around the head, and may be associated with neck and/or shoulder pain. They may be described as “tiredness” in the head. These headaches are often worse as the day progresses, but can last for days and may be associated with stressful events at home or school. Sleep may relieve the
headache temporarily.
In females, check for symptoms of premenstrual syndrome. In all patients, check for depression.
Red flags of secondary headaches are: worsening in the morning and improve as the day progresses, aggravated by sneezing, coughing, or straining, associated with vomiting, any focal neurologic signs or symptoms, rapid progression.

**Treatment:** For primary headaches, reassure the parents and patient that the headache process is benign and not progressive. Review with them the headache pattern, associated symptoms such as nausea, dizziness, and photophobia, and the benign nature of the physical examination. Sleep, darkness, and a quiet room are essential in managing acute migraine and tension-type headache. Educate about appropriate hydration and avoidance of long hours of sun exposure. Acetaminophen (10-15 mg/kg/dose PO/PR q4-6h prn; not to exceed 2.6 g/d) and Ibuprofen (5-10 mg/kg/dose PO q4-6h prn pain; not to exceed 2.4 g/d) can be used as abortive therapy. If any red flags, refer patient to the local hospital. If depression suspected, assess suicidal/homicidal ideation, social support and refer to CMHH.

**Diarrhea** (5)(6)(13)(14)(15)

**Definitions:** When assessing a patient with diarrhea it is important to differentiate between acute and chronic. Diarrhea characteristics can help with the diagnosis. Large, voluminous watery stools are usually from small intestine (gastroenteritis); small amounts of soft stool with mucous are usually from colon (colitis). It is also important to ask for blood in stools, rashes in skin (purpura/petechiae), vomiting (bilious/bloody), severe abdominal pain and fever. Assess for hydration status, mental status and ability to tolerate oral intake.

**Acute diarrhea** is usually infectious. Viruses are the most common cause, among them Rotavirus. Rotavirus affects the small intestine, causing voluminous watery diarrhea without leukocytes or blood. Transmitted fecal-oral route with incubation time 24-48 hours. Usually self-limited, average duration is 6 days. Other viruses like Adenovirus can produce longer lasting diarrhea, average 11 days.

**Chronic diarrhea** is defined as persistent diarrhea longer than 14 days. In developing countries, persistent diarrhea usually follows an acute episode and typically is associated with serial enteric infections without time to recover between episodes. Children are at risk of malnutrition (Zinc and Vitamin A deficiencies). Bacteria and parasites are the most common pathogens including Enteroaggregative E. coli (also known as enteroadhererent E. coli, EAEC), Enteropathogenic E. coli (EPEC) in infants younger than 6 months, Shigella, Cryptosporidium, Cyclospora and Giardia lamblia. Suspect Giardia if there is voluminous, odoriferous diarrhea associated abdominal distension, flatulence and greasy stools.

Acute bloody diarrhea are caused by Shigella spp (45-67% of cases), and Campylobacter (35-37% of cases). Entamoeba Histolytica is the most important non-bacterial pathogen but is responsible for < 3% of the episodes. These pathogens usually cause small-volume bloody stools with fever.

**Diagnostics:** In acute diarrhea there is no need for lab work. In chronic diarrhea, send Copro exam if at the CMHH. In infants and girls with diarrhea and fever, suspect urinary tract infections, perform urine dip.

**Treatment.** In acute diarrhea, anti-diarrheal medications are ineffective and are not recommended for children. Therapy is supportive with oral rehydration solutions (if patient does not have mental status changes).

**Oral Rehydration Therapy:** For each degree of dehydration, treatment is divided into two phases:

- **Rehydration phase** — Fluid deficit is replaced quickly over three to four hours, returning the patient to a eu volumic state. Administer oral rehydration solution (ORS) in frequent, small amounts by spoon or syringe. 5 mL, administered every 1 to 2 minutes, allows 150 to 300 mL/hour to be given. If the patient is breast-fed, breastfeeding continues during this phase as well as the maintenance phase.
- **Maintenance phase** — Maintenance calories and fluids are administered. Rapid re-alimentation begins after completion of the rehydration phase, with the goal to return the patient to an age-appropriate unrestricted diet.
- **During both phases,** losses from diarrhea and vomiting need to be replaced by ORS. 10ml/kg of ORS for every watery or loose stool and 2ml/kg for every emesis.

During the clinics, for patients with no evidence of dehydration, ORS are used to maintain hydration by replacement of stool losses. For patients with any sign of dehydration or not able to tolerate PO, refer them to the closest hospital to start ORT and observation. Patients even with mild dehydration should be monitored every 2 hours until rehydration phase is completed and maintenance phase is established.

**Diet:** Encourage breastfeeding in infants. Many infants and children with chronic diarrhea have secondary disaccharidase deficiencies, caused by damage to the intestinal epithelium. Consequently, a low-lactose diet and sometimes a diet also low in sucrose or total carbohydrates may be necessary. It is usually sufficient to reduce lactose by mixing milk with cereals such as rice or noodles and giving small frequent feedings. Egg or pureed chicken have been successfully used and are
palatable. Lactose-free formulas are an alternative if available. There is no need to limit fat intake; indeed fat can be beneficial because it provides useful calories. The WHO recommends zinc supplementation for children with diarrhea in developing countries, at a dose of 10 mg daily for infants up to 6 months of age, and 20 mg daily for older infants and children, for 14 days. Zinc supplementation 10-14 days reduces the severity and duration of acute and persistent diarrhea in children.

In *persistent diarrhea*, if at the CMHH, send Copro exam and follow up with physician to decide treatment. If at an indigenous community and Giardia is suspected can use empiric treatment with Metronidazole Oral: 15-30 mg/kg/day TID for 5 to 7 days. If Amebiasis suspected, treat with Metronidazole 35-50 mg/kg/day TID for 7 to 10 days.

*If bloody diarrhea*, refer the patient to the hospital for further work-up including renal function panel to ruled out hemolytic uremic syndrome (HUS).

In all cases of diarrhea, give children’s MVIs for 2 weeks (will have adequate amount of Zn and Vit A supplementation).

**Abdominal Pain**

**Diagnosis:** Ask about other gastrointestinal symptoms including diarrhea. In acute abdominal pain (<2 weeks) use physical exam to ruled out surgical conditions. If suspected, send to hospital.

In chronic abdominal pain (>2 weeks) consider the following differential: peptic disorders, including reflux esophagitis, gastritis, gastric or duodenal ulcers and *H. pylori* infection, especially if associated with heartburn, pain at night or pain awakening, early satiety and nausea; constipation, if pain during the evening time or at dinner; recurrent abdominal pain, abdominal migraines and inflammatory bowel disease.

Red flag symptoms and signs which require hospital referral for further work-up are: weight loss, bilious emesis, intermittent episodes of constipation and diarrhea, bloody diarrhea, arthralgias/arthritis, hepatosplenomegaly, dysphagia, respiratory symptoms.

**Treatment:** If peptic disorder suspected can start empiric therapy with ranitidine 5-10 mg/kg/day PO BID x 4 weeks with follow up with physician at the clinic.

**Parasitosis (Geohelminthiasis)**

High rates of infection have been reported in Quichua children in the Ecuadorean highlands: *Entamoeba Histolytica* or *Dispar* 57.1% (associated with dirt flooring), *Ascaris lumbricoides* 35.5%, *Entamoeba coli* 34%, *Giardia Intestinalis* (Lamblia) 21.1%.

**Diagnosis:** Giardiasis and Amebiasis are discussed in the diarrhea section.

Tapeworms (*Taenia Solium/Saginata*), Ascaris and Pinworms (*Enterobius Vermicularis*) can be visualized in the stool.

Tapeworm infection is usually asymptomatic, but can have non-specific GI symptoms like nausea, anorexia or epigastric pain.

Pinworms usually produce perianal itching especially at night. Worms can migrate to the genital tract in girls and produce vulvovaginitis.

Ascaris can produce non-specific GI symptoms like abdominal discomfort, anorexia, nausea and diarrhea. They also can produce a picture of abdominal obstruction and transient respiratory symptoms during the stage of larvae migration to the lungs.

**Treatment:** If parasites reported in clothing or stools by patient or parents treat accordingly.

*In the adult population, parasitoses are also highly prevalent and their presentations are similar to the ones described above for children. Follow diagnostics as above.*

**Treatment:** *Ascarisis and Tapeworms:* Albendazole 400 mg PO once.

**Pinworms:** Albendazole 400 mg PO single dose. Repeat dose in 2 weeks.

**Giardiasis:** Metronidazole 250 mg PO TID x 5 days.

**Amebiasis:** Metronidazole 500 mg TID PO x 7 – 10 days.
4. Most Common Adult Problems

Acute Complaints

Vaginal discharge and vaginitis (flujo, desecho, secreciones)\(^{(18)}\)\(^{(19)}\)\(^{(20)}\)

**Diagnosis:** Many women report recurrent or chronic vaginal discharge with or without “mal de orina” (see below.) Some women report vaginal cleansing practices, which include vinegar and water, herbs or herbal waters and sometimes household products. A high prevalence (31%) of bacterial vaginosis has been reported in adolescent populations. Ask all patients about sexual partners and practices (e.g. unprotected sex, history of STD’s.) Always consider possible pregnancy. If patient has lower abdominal pain and cervical motion tenderness, uterine tenderness or adnexal tenderness then treat empirically for pelvic inflammatory disease (PID). Trichomoniasis presents with green-yellow discharge, vulvar irritation and sometimes cervical irritation. Only 20-30% of trichomoniasis will be detected on wet mount. BV is thin, grey, homogenous, and often coats the vaginal walls – abundant clue cells will be evident on wet mount. Candidiasis will often have fungal elements or budding hyphae on KOH prep. Use pH paper if KOH prep not available to confirm pH < 4.5.

**Treatment:**
- **Bacterial vaginosis:** Metronidazole* 500 mg PO BID x 7 days.
- **Trichomoniasis:** Metronidazole* 2 g PO once – also treat partner
- **Candidiasis:** Clotrimazole vaginal 1% cream 1 app qhs x 7 days or Fluconazole 150 mg PO once if recurrent (non-pregnant).
- **PID (non-pregnant):**
  - ceftriaxone 250mg IM once
  - + doxycycline 100 mg PO BID x 14 days
  - + (if vaginitis) metronidazole* 500 mg PO BID x 14 days
  - Follow up within 72 hours
* Avoid Metronidazole in the first trimester.

**Dysuria (mal de orina)**\(^{(21)}\)\(^{(22)}\)

**Diagnosis:** Subjective complaint of turbid or foul smelling urine with or without burning on urination. Some patients report suffering from this chronically. Nitrituria on urinalysis is the primary diagnostic indicator of urinary tract infection. Leukocytes in the presence of dysuria are also indicative of UTI. In men, consider STDs, prostatitis. Do not treat empirically as this complaint correlates poorly with positive UA.

**Treatment:**
- **Uncomplicated:**
  - Non-pregnant: Ciprofloxacin 250 mg or TMP-SMZ DS BID x 3 days
  - Pregnant: Amoxicillin 500 mg PO Bid x 10 days and schedule follow-up
- **Complicated:** Ciprofloxacin 500 mg or TMP-SMZ DS BID x 5 – 7 days

**Dyspepsia (reflujo, acidez, agruras, ardor en el estomago)**\(^{(23)}\)

**History:** Many patients complain of burning or “inflammation” of the stomach. Consider that Ecuador has the 8th highest worldwide prevalence of gastric cancer and that chronic *H. pylori* infection is the most common cause. There is some evidence that zinc deficiency, which is also prevalent in this community, may exacerbate the effect of *H. pylori*-induced oxidative stress on the gastric mucosa. Up to 80% resistance to Metronidazole and 10% resistance for Clarithromycin have been reported, however the many strains found in Ecuador are still sensitive to amoxicillin and tetracycline.

**Diagnosis:** chronic gastritis, peptic ulcer disease. Assess for alarm symptoms such as unintended weight loss, persistent vomiting, progressive dysphagia, odynophagia, unexplained anemia or iron deficiency, hematemesis, palpable abdominal mass or lymphadenopathy, family history of upper gastrointestinal cancer, previous gastric surgery, jaundice. Think about the possibility of gastric malignancy if patient >55 years old.

**Treatment:** Elevate head of bed. Antacids often provide incomplete relief. If no alarm symptoms, treat empirically ranitidine 150 mg BID x 2-4 weeks. If alarm symptoms, especially in >55 y/o refer to hospital or follow up with physician for further evaluation.

Other relevant presentations:

**Dengue**\(^{(24)}\): A resurgence of dengue fever over the past decade has affected the Andean sub-region. Symptoms are
nonspecific but may include sudden onset of fever +/- frontal headache, retroorbital pain, myalgias, arthralgias, nausea/vomiting, weakness and rash. The disease is self-limiting and rarely fatal. Acute phase lasts 3-7 days but convalescence may last weeks. Generally there are no permanent sequelae and supportive care is all that is needed.

Hemorrhagic fever is more common in children less than 15 years old. Capillary leak syndrome leads to circulatory failure and skin hemorrhages. Patients experience rapid deterioration without IV fluids.

Malaria (25): Presents with fever, chills, headaches, myalgias, arthralgias, weakness, vomiting, and diarrhea. Patients may have splenomegaly and anemia. Treatment with atovaquone/proguanil (Malarone) 2 tabs bid or 4 tabs daily x 3 days. This is not generally available through the brigade.

*If Hemorragic fever or Malaria are suspected, arrange immediate referral to the local hospital for further evaluation.

** Chronic Diseases **

**Hypertension** (26)(27)(28)

Diagnosis: Hypertension is a major contributor to total mortality and leading cause of death in Ecuador. Early diagnosis and treatment is essential in preventing complications and reducing mortality. Many patients may be receiving treatment intermittently or may not be aware of the need for regular follow up. See figure to the left for reference values.

Risk stratification by assessment of age, smoking status and history of cardiovascular disease or diabetes is an effective low tech method of predicting cardiovascular events. The following tool has been validated in patients in rural areas of Ecuador with a simple tool and has shown good correlation with the WHO-ISH method.

Management: Patients with a new diagnosis of hypertension or hypertensive patients not at goal should be assessed for additional cardiovascular risk factors and receive education about sodium reduction, moderation of alcohol, healthy weight and regular exercise. They should be scheduled to see a provider for long-term care within 4 weeks.

Patients with SBP > 180 or DBP > 120 mmHg and symptoms of chest pain, dyspnea, altered mental status, vomiting or syncope should be referred immediately for hospitalization.

**Diabetes Mellitus Type 2** (29)

Diagnosis: Diabetes is a growing concern with a prevalence of 7-8% in urban areas but only 1-2% in rural areas, likely due
to a lag in the shift of lifestyle habits.
Screen for DM2 with a random glucose in patients with symptoms of polyuria, polydipsia or polyphagia, and/or risk factors like family history of DM in a first-degree relative, gestational diabetes, hypertension and dyslipidemia. For adults without risk factors, screen at age >45 years. Diagnosis is by random plasma glucose ≥200 mg/dL or fasting glucose ≥126 mg/dL.

Treatment: Patients newly diagnosed with diabetes and those not at goal should receive education and counseling on lifestyle modification. Assess patients for medication adherence, adverse effects and for other cardiovascular risk factors. Newly diagnosed patients and those not at goal should be scheduled to see a provider within 2-4 weeks.

Body aches (Dolor de huesos, Reumatismo) (30)
Diagnosis: Assess daily activities including type of work and postures. During physical exam evaluate for multiple joint involvement, muscle spasms and trigger points. Differentiate between osteoarthritis, rheumatoid arthritis and repetitive use injury (acute.)
Treatment: Osteoarthritis can be treated with acetaminophen 1000mg up to three times a day (max 3000mg/day, maximum of 14 days) for moderate pain. More severe pain can be treated with ibuprofen 400mg every 8 hours (max 1200mg/day) or naproxen 500mg twice a day for pain control and to decrease inflammation – again maximum of 14 days of continuous treatment. Intraarticular cortisone injections may be available. For large joints use 1-2ml of triamcinolone 40mg/ml + 4-6ml Lidocaine 1% w/o epinephrine. Topical diclofenac is available without a prescription locally. Capsicum extract, menthol and ice are topical measures for inflamed joints. Heat and stretching for muscle spasm. Physical therapy for aerobic fitness, strengthening exercises and manipulation / stretching. May also require assistive devices, supports or braces and appropriate footwear. Refer to the PT team if available during the brigade.

Depression/Anxiety (Depresión, Nervios) (32)
Diagnosis: Screen adults for symptoms of depression with PHQ-2. If positive, inquire further with PHQ-9. Depression and anxiety are not commonly diagnosed or treated in these communities, possibly due to stigma or availability of mental health professionals. Inquire about somatic symptoms, assess for social support. Evaluate for risk factors including alcohol or drug use and domestic violence.
Treatment: Assessment severity and duration of symptoms. Provide education about depression and teaching on coping skills including breathing techniques for relaxation and using communication to establish support systems. Inquire about substance use. Inquire about current or past use of antidepressants or treatment in counseling. Always assess and refer for intent or plans for self-harm or harm to others. Schedule patients with active depression for follow-up within 2 weeks.
5. Formulary

**Antacids**
Calcium carbonate 500 mg chewable tablets
Ranitidine 150 mg tablets
Omeprazole 20mg capsules
Famotidine 20mg tablets

**Antibiotics/Antifungals/Antiparasitics**
Albendazole 200 mg tablets
Amoxicillin 250 mg/5 mL suspension
Amoxicillin 500 mg capsules
Ceftriaxone 500 mg for injection
Cephalexin 500 mg capsules
Doxycycline 100 mg tablets
Fluconazole 150 mg tablets
Griseofulvin 125 mg/5 mL suspension
Metronidazole 500 mg tablets
Sulfamethoxazole 800 mg/trimethoprim 160 mg tablets
Sulfamethoxazole 800 mg/trimethoprim 40mg/5ml susp

**Asthma**
Albuterol inhaler
Beclomethasone inhaler

**Cough/Cold/Allergies**
Loratadine 10 mg tablets
Loratidine 5 mg/5 mL suspension
Diphenhydramine 25mg capsules
Diphenhydramine 12.5mg/5cc solution

**Dermatological**
Benzyl alcohol lotion
Permethrin 1% lotion
Clotrimazole 1% cream
Hydrocortisone 1% ointment
Triple antibiotic ointment
Triamcinolone 0.1% cream
Miconizole 2% cream

**Diabetes  (To leave at CMHH- not for brigade use)**
Pioglitazone 30mg tablets
Metformin 500 mg tablets

**Nutrition**
Ferrous sulfate 15 mg/1 mL infant drops
Ferrous sulfate 325 mg tablets
Prenatal vitamins
Multivitamin children’s chewable tablets
Multivitamin infant’s drops with iron

**Ophthalamic**
Artificial tears
Ciprofloxacin 0.3% ophthalmic drops (to use in ears)
Polymyxin B/trimethoprim ophthalmic drops

**Otic**
Ciprofloxacin 0.3% ophthalmic drops to be used in ears

**Pain/Fever**
Acetaminophen 160 mg/5 mL suspension
Acetaminophen 80mg chewable
Acetaminophen 500 mg tablets
Ibuprofen 200 mg tablets
Ibuprofen 100mg/5cc suspension
Naproxen 375mg tablets
Naproxen 500 mg tablets
Triamcinolone 40 mg/ml for injection (10 ml vial)
Lidocaine 1% (no epi) for injection

**Other**
Prednisone 10 mg tablets
Loperamide 1mg/5ml solution
Nitroglycerine transdermal patches
Triamcinolone 40mg/1 mL injectable
6. Quick Reference

Anemia:

<table>
<thead>
<tr>
<th>Age</th>
<th>Hgb (sea level)</th>
<th>HCT</th>
<th>Hbg (high altitude)</th>
<th>HCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 6m+</td>
<td>&lt;11</td>
<td>&lt;33</td>
<td>&lt;12.2</td>
<td>&lt;36.6</td>
</tr>
<tr>
<td>5 yo +</td>
<td>&lt;11.5</td>
<td>&lt;34.5</td>
<td>&lt;12.7</td>
<td>&lt;38.1</td>
</tr>
<tr>
<td>12 yo +</td>
<td>&lt;12.0</td>
<td>&lt;36</td>
<td>&lt;13.2</td>
<td>&lt;39.6</td>
</tr>
<tr>
<td>Non-pregnant &gt;15y+</td>
<td>&lt;12.0</td>
<td>&lt;36</td>
<td>&lt;13.2</td>
<td>&lt;39.6</td>
</tr>
</tbody>
</table>

Tx: 3-5 mg elemental iron/kg/day QD - administer with water/juice between meals – do not administer with milk

Parasitosis:

Ascariasis and Tapeworms: Albendazole 400 mg 400 mg PO once.
Pinworms: Albendazole 400 mg PO single dose. Repeat dose in 2 weeks.
Giardiasis: Metronidazole 250 mg PO TID x 5 days.
Amebiasis: Metronidazole 500 mg TID PO x 7 – 10 days.

Blood Pressure Risk Assessment:

<table>
<thead>
<tr>
<th>WHO-ISH method</th>
<th>Blood pressure (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No other risk factor or history of disease</td>
<td>&lt;140/90</td>
</tr>
<tr>
<td>1-2 risk factors*</td>
<td>140-159/90-99</td>
</tr>
<tr>
<td>3 risk factors* or target organ damage† or diabetes</td>
<td>160-179/100-109</td>
</tr>
<tr>
<td>Associated clinical conditions‡</td>
<td>≥180/110</td>
</tr>
</tbody>
</table>

| Essential method                                   | <140/90                |
| No other risk factor or history of disease         | 140-159/90-99          |
| Ageing‡ or smoking                                 | 160-179/100-109        |
| Diabetes                                           | ≥180/110               |
| Associated clinical conditions‡                    |                        |

*Age (men >55 and women >65), smoking, total cholesterol >6.47 mmol/l
†Evidence of left ventricular hypertrophy on electrocardiogram, proteinuria, or raised plasma creatinine (106.08–176.80 μmol/l)
‡Past or current symptoms of coronary disease, heart failure, cerebrovascular disease, vascular disease, renal disease
§Men >55 and women >65
7. Growth Charts

![Head circumference-for-age BOYS graph]

Birth to 2 years (percentiles)

WHO Child Growth Standards
Weight-for-age BOYS
Birth to 5 years (percentiles)
Length/height-for-age BOYS
Birth to 5 years (percentiles)

WHO Child Growth Standards
Head circumference-for-age GIRLS
Birth to 2 years (percentiles)

WHO Child Growth Standards
Weight-for-age GIRLS
Birth to 5 years (percentiles)

WHO Child Growth Standards
8. Educational Handouts

a. Diarrhea (How to treat it / ORS and Symptoms of dehydration)

¿Qué hacer?

Sí

• Darle mucho, mucho líquido: (agua fresca y hervida, caldo y agua de arroz).
• Continuar con el pecho.
• Si ya come, ofrecerle alguno de estos alimentos:
  - arroz bien hervido con aceite y sal.
  - polenta bien hervida con aceite y sal.
  - carne de pollo (sin piel) o carne de vaca bien cocida.
  - huevo, manzana (rallada o en compota).

No

• NO suspender el pecho.
• NO darle yuyos ni remedios caseros.
• NO darle poca agua en la comida.
• NO tenerlo muy abrigado ni en lugar caluroso.

¿Cómo se usan las sales?

Como las indique el médico. Hasta la consulta, las podemos usar así:

1. Le damos la mezcla con sales apenas empieza la diarrea.
2. Si el chico tiene menos de 1 año le damos 1/2 taza.
3. Si tiene más de un año le damos 1 taza.
4. Si vomita esperamos y le volvemos a dar poco a poco, o con cucharitas.

¿y si no tenemos las sales?

Hasta que consigamos las sales, preparamos suero casero:

1 litro de agua hervida
4 cucharadas al ras de azucar
1 cucharadita al ras de sal

Mezclamos todo en una jarra limpia. Revolvemos bien con una cuchara limpia. Le damos igual que las sales de rehidratación.

Cuando un chico está deshidratado corremos al médico. Pero mientras tanto, usamos las sales con agua para rehidratar.

La diarrea se presenta en cualquier época del año pero es más frecuente en verano.
La diarrea se produce por la contaminación de la comida, chupete, lache, agua, etc... con gérmenes. Los gérmenes no se ven y los utensilios pueden parecer limpios y tener gérmenes igual.

- Todos los alimentos (leche, fruta, pan, etc.) y todos los utensilios (chupetes, cucharas, biberones, cacerolas, etc.) si están al aire libre, en lugares húmedos o en contacto con insectos, pueden estar contaminados y producir diarrea.
- Las manos sucias son el primer transmisor de gérmenes.
- La mejor manera de proteger a los bebés, es darle el pecho el mayor tiempo posible.
- Cuando un niño tiene diarrea es importante consultar a un médico.
- En los menores de dos años, la diarrea puede producir fácilmente deshidratación y es necesario que el médico lo controle cuanto antes.
- Es importante no usar remedios caseros (tés, yuyos) y consultar cuanto antes al médico.
- Los niños mayores de dos años, que tienen diarrea, pero se sienten bien, deben tomar abundante líquido y cuando no tienen vómitos basta con seguir las indicaciones del desplegable.
- Siempre que hay moco, sangre o pus en la materia fecal (no importa la edad que tenga el chico) hay que consultar inmediatamente al médico.

¿Cuándo vamos al médico?
- Si el chico hizo caca líquida y tiene menos de 2 años.
- En los chicos más grandes, si hacen caca con moco, sangre o pus.
- Cuando además de hacer caca seguido, vomita.
- Siempre que tengamos duda.

El mayor riesgo de la diarrea es la deshidratación.

¿Cómo sabemos que un chico está deshidratado?

Si su hijo tiene síntomas de deshidratación consulte URGENTE al médico quien seguramente le recomendará sales de rehidratación.

¿Qué son las Sales de Rehidratación oral?
Son un polvo que viene en un sobre y sirve para preparar el suero de rehidratación. Pídalo en su Centro de Salud.

¿Cómo se preparan?

1. Antes que nada nos lavamos bien las manos con agua y jabón.
2. Hiervimos un poco más de 1 litro de agua.
3. Dejamos enfriar y medimos justo un litro o 5 tazas. La ponemos en un jarro limpio.
4. Le agregamos las sales, revolvemos bien con una cuchara limpia.

¡y ya está!
b. Diabetes (Risk factors and Symptoms)

Factores de riesgo para la diabetes
(Risk Factors for Diabetes)

1. Sobrepeso, especialmente si se tiene el peso adicional alrededor de la cintura
(Overweight, especially extra weight around the waist)

2. Miembros de la familia que tienen diabetes
(Family members with diabetes)

3. Descendencia latina, afroamericana, nativa americana, asiática americana o de las Islas del Pacífico
(Are Latino, African American, American Indian, Asian American, or Pacific Islander)

4. Haber tenido diabetes durante el embarazo (diabetes gestacional)
(Had diabetes during pregnancy [gestational diabetes])

5. Presión arterial alta
(High blood pressure)

6. Niveles de colesterol que no son normales
(Cholesterol levels that are not normal)

7. Falta de actividad física
(Physically inactive)

Síntomas de la diabetes
(Diabetes Symptoms)

- Cansancio
(Feeling tired)

- Mucha sed
(Increased thirst)

- Orinar frecuentemente
(Frequent urination)

- Mucha hambre
(Increased hunger)

- Pérdida inexplicable de peso
(Unexplained weight loss)

- Heridas o llagas que no se curan
(Sores that do not heal)

- Piel muy seca
(Very dry skin)

- Hormigueo en los pies
(“Pins and needles” feeling in the feet)

- Visión borrosa
(Blurry vision)

- Irritabilidad
(Feeling irritable)
c. Cardiovascular Risk Factors and Myocardial Infarction Symptoms

Factores de riesgo para las enfermedades del corazón
Risk Factors for Heart Disease

1. Presión arterial alta (High blood pressure)
2. Nivel alto de colesterol en la sangre (High blood cholesterol)
3. Hábito de fumar (Cigarette smoking)
4. Diabetes (Diabetes)
5. Sobrepeso (Overweight)
6. Falta de actividad física (Physical inactivity)

Síntomas de un ataque al corazón

Presión en el pecho (Chest discomfort)
Molestia o incomodidad en el brazo, espalda o estómago (Arm, back, or stomach discomfort)
Molestia o incomodidad en el cuello o en la mandíbula (Neck or jaw discomfort)
Dificultad para respirar (Shortness of breath)
Sensación de mareo o de sudor frío (Feeling light-headed or breaking into a cold sweat)
Malestar en el estómago o náusea (Nausea or feeling sick to your stomach)
d. Iron Deficiency Anemia (Symptoms and Food rich in Iron)
e. My Plate  (Example of a Meal and Portion sizes)

- Proteínas como carnes, pescados, huevos o pepas (frijoles, lentejas, blanquillos, habas)
- Carbohidratos como arroz, yuca, plátanos y pastas
- Frutas como guava, naranja o papaya
- Verduras y vegetales frescos; y leche o productos lácteos como avena o yogurt

Ejemplo de una comida:
- 1 taza y media de ensalada
- 1 taza de papaya
- 1 muslo de pollo
- 1 taza de arroz
- 1 vaso de yogurt
9. References


