



# Cape CARES

## Central American Relief Efforts

### Medical Assessment Guidelines

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This guide defines basic medical assessment skills needed when care is provided in a resource-constrained environment in Central or South America. This guide will assume that simple tests like a blood glucose by finger stick and urinalysis for heme and WBC are available. Since many medical engagements are one-week visits in remote communities, many patients will note even minor symptoms during a routine visit, as their opportunities to access health care are often quite limited. There also tends to be a bit of a tendency for patients to get as many things as possible from the pharmacy during a visit. In part this is to have a supply at home of commonly used medications, like ibuprofen and multivitamins. But there is also a cultural aspect since there are many patients waiting to be seen mingling with many patients who have just been served. Most of the people will be from the same communities, so those leaving let others know what they got from the pharmacy. In the case of reading glasses and sunglasses, people waiting may learn from others the symptoms they complained about which led to their getting glasses, and then all of a sudden, everyone you see has those same complaints.

To manage the issue of multiple problems, some providers will limit they number of issues to 1 or 2 primary complaints, and basically not do anything for items 3, 4 and 5 on their list. Other providers may attempt to manage all issues in some detail. The problem with this is that it often leads to rapid depletion of the pharmacy. A middle approach is to try and address as many issues as possible, during the usually brief amount of time spent face to face (5-10 minutes is typical). Treatment can be scaled to the severity of the findings. So, a patient with severe GERD may get a 30d supply of Omeprazole, while someone with minor intermittent symptoms may get TUMS. Even someone with moderate GERD may get a smaller supply of Omeprazole (eg 15 instead of 30 capsules), to help ensure sufficient pharmacy supplies on the last day of the stay.

Here are issues a provider commonly confronts:

#### **Abdominal Pain:**

First define if upper or lower abdominal pain. Gastroesophageal reflux (GERD) is associated with upper tract (epigastric pain) symptoms. Most parasitic related disorders will affect the mid-abdomen (small bowel largely refers pain to periumbilical region) or lower abdomen (large bowel largely refers to the suprapubic region).

If upper tract symptoms, want to know if also have: 1) Nausea, 2) Vomiting, 3) sense of reflux, which is traditionally a rising, burning sensation below the sternum, 4) alleviation of symptoms with food (acts as a buffer to acid). If symptoms (sx) are more severe and concern of an ulcer exists, may ask about pain which awakens pt at night, or any blackening of the stool (melena/occult blood), which may indicate covert GI bleeding.

For lower tract pain, want to know if colicky (ie increases in intensity over minutes to potentially severe level, and then gradually abates over next 10-15 minutes, only to recur again later) or a sense of heaviness (without severe pain). Both of these may be related to GI parasites. Colicky pain may also occur with obstructive processes, but usually there will be associated nausea and vomiting in those cases. Associated symptoms to ask for with lower tract pain are: 1) Abdominal distention (visible or affects tightness of clothes around the waist), 2) Diarrhea, especially if profuse and watery or bloody, 3) are parasites, like worms, visible, 4) constipation.

Upper GI tract symptoms, especially reflux and heartburn are common. Some areas have high coffee consumption, so that may be a factor. Many patients will discuss H Pylori hx or treatment, and may even have a lab test (usually blood) for this agent. However, treatment of H Pylori would not be apt to manage such symptoms, and the only rationale for H Pylori treatment in a country like Honduras would be to decrease risk of gastric cancer. The incidence of gastric cancer is 5 times the rate of the US, and is in the top five worldwide. Treating H Pylori in this context would be a public health issue, and would require treating many patients who would never contract gastric cancer, even without treatment. In addition, the antibiotics required for a typical one-week trip would exceed the cost of all other medications needed.

Since GERD is a common cause of upper tract symptoms, and PPI (eg Omeprazole) are superior to H2-blockers (eg ranitidine) in this context, they are often first line treatment, when patients have significant symptoms. On the other hand, ranitidine is much cheaper, and may be sufficient for milder disease. For pt with minor, intermittent symptoms, TUMS (calcium carbonate), may be appropriate. Usually the only abdominal finding is epigastric tenderness.

#### GERD

Omeprazole 20mg QD PRN (limit to 30 capsules)

Alternate – Ranitidine 150mg BID PRN (limit to 60 tablets)

Alternate – Calcium Carbonate (antacid) 500 mg bid PRN

Most lower tract disease will be related to parasites. Common GI complaints are abdominal pain, often after eating and post-prandial abdominal distention. The abdominal pain may be colicky, or a heaviness felt in the mid to lower abdomen. The fact that symptoms are often worse 1/2 hour after eating is in contradistinction to acid reflux, where food acts as a buffer, and alleviates symptoms. Presumably the bolus of food acts as a caloric bolus to the parasites, which may produce gas, and hence distention. Diarrhea or visible parasites in their stool, may occur with higher parasite burdens, especially the latter. Sometimes, children will have chronic

anorexia. They end up not eating due to the post-prandial symptoms they experience, so the only clue is anorexia and generally, small stature. The history of when a pt was last treated for parasitic worms is important. Usually for kids over 2, they are treated every six months with Mebendazole or Albendazole. If a patient has recurrent symptoms, even if they have had therapy in the past month or two, consideration of a mixed parasitic infection should be considered (ie one of the three common worms with concomitant Giardia or Ameba). Abdominal findings are often minimal in these cases. Bloody diarrhea would raise concern for Giardia or Amebic infection, and might be associated with a tender abdomen. An abdominal mass associated with a parasite would indicate a high parasitic burden, and might be associated with visible parasites in the stool.

Pinworm, roundworm, ascaris, hookworm

Mebendazole 100 mg bid for three days

(or albendazole 400 mg as a single dose)

Giardia or Amebiasis (higher dose for the latter)

Metronidazole 30-50 mg/kg/d in 3 divided doses x 10d (Adults 250-500mg tid x 10d)

Diarrhea - watery

Oral Re-hydration Solution (Provided by WHO for all clinics in Honduras)

¼ tsp NaCl, ¼ tsp KCl, ¼ tsp NaCO<sub>3</sub>, 6 tsp sugar in 1 L of clean water

Simpler version: ½ tsp NaCl, 6 tsp sugar in 1 L of clean water

If < 5 years, zinc 20mg/day x 10 days; if <6 months, zinc 10mg/day x 10 days

Diarrhea with blood (non-parasitic, eg Campylobacter or Shigella)

Adults – Cipro 500mg BID x 5 days

Alternate – TMP-SMX DS BID x 5 days

Peds - Cipro 15mg/kg/dose BID x 3 days

Alternate – TMX-SMX 25mg/kg BID x 5 days

When constipation is present, it is often due to low fiber and insufficient water consumption. Recommendation of fruit with high fiber (eg papaya) is apt, but at times, cost can be an issue. Also increasing fluid consumption may be a challenge due to cost and cleanliness. A stool softener like Colace, is often the first medical therapy, if the lifestyle factors are not able to be sufficiently addressed.

## Headache (HA):

This is a very common complaint. The most common causes are muscle spasm ("tension" HA) and dehydration. Fluid consumption is often limited due to poor access to potable water. In addition, in some areas, adding salt to food is not a common custom. Some patients may indicate they do not like salt, but still eat salty foods, like cuajado (curded cheese) or salt preserved meats (eg fish or beef). Thus, inquiry about fluid intake as well as salt intake, are imperative when assessing headache in Central America.

With a complaint of headache, questions to ask to define if an etiology other than muscle spasm or dehydration should be considered are: 1) unilateral location of HA, 2) Family hx of HA, 3) Photophobia (light worsening the headache) and 4) any type of aura (visual or focal weakness) before onset of the headache. Most of these will raise the consideration of a migraine HA. If a patient has a focal neurologic complaint (eg weakness) and an exam with fixed deficits (eg weakness of an extremity, facial droop, etc), existence of a focal lesion (eg AVM or mass) should be considered.

Pertinent PE exam would be: evaluation of cervical spine and trapezius/shoulder region for evidence of muscle spasm. Firm palpation of affected muscles shows a hard texture, often with pain on deep palpation of these areas. At times, muscle spasm can lead to focal nodular like lesion, often the size of an enlarged lymph node, which may be quite tender. Spasm of neck and cervical spinal muscles, especially when the tension extends to attachment at the occiput, are a common cause of HA.

Exam beyond the muscles would be limited to patients who had focal neurologic symptoms or a h/o a seizure. The exam should include extra-ocular muscle exam, with pupillary responses. Evaluation for palmar drift to assess for upper extremity weakness, and testing of the quadriceps and hamstrings for proximal lower extremity weakness. If there is any type of gait complaint, assessment of foot dorsiflexion and plantar flexion should be evaluated, as well as a Romberg test. DTRs should be checked at biceps, knee and ankle jerk. Light touch and proprioception evaluation may be apt at times, but less useful due to the subjective nature of sensory perception.

Management of dehydration would be adding salt to food and increasing fluid intake (could be a drink other than water like coffee, juice, etc).

Management of muscle tension is usually with ibuprofen or APAP (acetaminophen, Tylenol). It is often hard to achieve any type of life style change, which might alleviate the pressure (eg they still need to carry the water to their house every day).

Management of migraine headache may include early use of high dose NSAID (eg ibuprofen), especially if an aura is present. Prophylactic treatment with propranolol or valproate would be unusual, due to limited availability of these agents.

Management of HA with focal neural findings would usually require referral to a local healthcare organization.

**Pain** – Headache, Musculoskeletal and/or arthritis

Adult: APAP 500mg – 1g BID PRN

Alternate: ibuprofen 400-600mg BID PRN (limit to 60 tablets)

Pediatric: APAP 15mg/kg/dose BID PRN

Alternate: Ibuprofen 10mg/kg/dose BID PRN

### **Genito-Urinary Sx and Findings**

UTIs are very common, and there tends to be high level resistance to antibiotics (specific numbers from Central American countries are hard to come by, but resistance to Amoxicillin can exceed 50%, and resistance to TMP/Sulfa (e.g. Bactrim), fluoroquinolones (eg Ciprofloxacin) are also much higher than the States. However, since Nitrofurantoin is rarely used, resistance to it is much lower than the others (on the order of 10%). All patients with dysuria, urgency and steady lower abdominal pain, should have UTI validated by dipstick (positive leukocyte esterase), and not receive empiric therapy, due to the high level of background resistance. TMP/Sulfa is the usual first line agent, as it tends to be more available than Cipro. However, if renal involvement is suspected due to the duration of symptoms, and notable CVA tenderness is present, then a course of Cipro would be apt. Daily injections of Ceftriaxone are also quite effective, but supply and access to syringes may be problematic. However, it would be reasonable to treat a severe infection with several days of Intramuscular Ceftriaxone, dispensed in the clinic, and shifting to Cipro to complete a two-week course. Asymptomatic pyuria is common in pregnancy, and has a high incidence (eg 40%) of evolving into a UTI. Hence, treatment of a positive urine dipstick for leukocytes in this case is appropriate.

#### Urinary Tract Infection

Adult: TMP-SMX DS bid x 5 days

Alternate: Cipro 500mg bid x 5 days

Alternate (Pregnancy) – Amoxicillin or Cephalexin 500mg BID x 7 days

#### Pyelonephritis

Adult: Cipro 500mg TID x 7 days

Alternate: Ceftriaxone 1 gram IM x 3 days followed by Cipro 500 bid x 7 days

Peds: Ceftriaxone 50mg/kg x 3 days

Kidney stones (nephrolithiasis) are also regularly seen, but likely a tenth of the frequency of UTIs. Often there is a known history, but a pt could present with renal colic with no hx of nephrolithiasis. In that case, the location of their pain and the radiation pattern are important

to establish (classic description is from CVA (costovertebral angle) along lateral flank into the groin), as well of if pt has any hematuria. UA can confirm the hematuria. If sx are acute, and injectable ketorolac (Toradol) is available, this can be quite effective in alleviating the pain. Encouraging at least 4 liters of fluid daily until the stone passes is apt advice, with 2-3 liters daily as a minimum recommendation to someone with a hx of nephrolithiasis.

PID (pelvic inflammatory disease) should be a consideration in women with pelvic pain, or in women with persistent dysuria despite prior, repeated treatment with antibiotics for "UTIs". Information about a vaginal discharge, painful intercourse, fever/chills should also be sought. Exam should be done with the patient lying down, usually in a private area, with attempts to define tenderness and/or fullness in the adnexal areas. Request should be made to do a bimanual exam with a local chaperone, if possible, but may be declined, or not possible if sufficient privacy is not available.

#### PID treatment:

Cipro 500mg BID x 3 days + azithromycin 500mg qd for 7 days + metronidazole 400mg BID x 7d

Alternate: Pregnant – Ceftriaxone 250mg IM + metronidazole 400mg BID x 14d

Sexual partner information should be asked about, but patients may be hesitant to divulge, or not open up immediately on initial questioning. So even if the initial answer is less than informative, it may be useful to ask again, later during the discussion. It may be hard to have a private conversation in some cases, but efforts should be made to do so. Treatment of the partner should be recommended as well. Since sun exposure can be a problem with doxycycline, patient should be made aware to minimize exposure, if possible, while on this medication.

Males with penile discharge or epididymitis are not unusual to see during a week. Testicular exam should be done in these cases, to palpate the epididymis, which would be swollen, often nodular, and exquisitely tender. Treatment is usually an injection of ceftriaxone with 1g of azithromycin given as a single dose, all in the clinic. Again, effort to reach out to partners should also be made.

#### Vaginal / urethral discharge / suspected STD

If STD suspected, Azithromycin 1 gram + ceftriaxone 250mg IM x 1; For women, add metronidazole 500mg x 7 d (Trichomonas)

If candidiasis suspected, fluconazole 100 mg daily x 2 days

If vulvar involvement, add clotrimazole cream bid x 7 days

Alternate (non-STD): miconazole 2% acceptable but studies show slower response

BPH (benign prostatic hyperplasia) with symptomatic obstructive urinary symptoms are occasionally seen. They may have some suprapubic distention and pain on palpation. Treatment is usually with an alpha 1 blocker (eg doxazosin) or a selective agent like Flomax (Tamsulosin). Usually Foley catheters are not available to decompress an obstructed bladder, and in such cases, technical expertise is required to thread a Foley.

### **Constitutional Symptoms (Sx)**

The focus here is on chronic or persistent symptoms. While acute onset of fever, anorexia and weight loss are clinically important, they are less diagnostically challenging than chronic symptoms. If acute fever is associated with severe joint and/or bone pain, then consideration should be given to Dengue and Chikungunya.

Chronic Fever and/or night sweats. These generally will represent a chronic infection or an inflammatory process. In the context of Central America, conditions to consider are:

TB, HIV and visceral leishmaniasis. These are all conditions, which would require referral to a local health care organization (LHCO). TB may be extra-pulmonary, but a detailed lung exam is required. Suspected HIV should be assessed for rashes, extent of lymphadenopathy, and evidence for common chronic infections (TB, PCP, CMV). Visceral Leishmaniasis almost always has hepatomegaly. Treatment requires pentavalent antimony. Inflammatory conditions to consider should begin with connective tissue disorders, such as SLE (eg rash, oral ulcers, evidence of pericarditis/pleuritis).

Weight loss may be associated with the disorders above, but if more than 10% of prior body weight, also consider chronic parasitic infection of the GI tract and cancer. Weights may be available at the practice site, but baseline values are rarely available, so the amount of deviation from the current weight is subjective. Any evaluation for cancer should begin with evaluation of focal symptoms (eg cough, abd pain, ...). If suspected, referral to a local healthcare organization is appropriate. Guidelines for expected weights in Children are included at the end of this document.

**Fever** – treat fever only if over 100.4F (38C) 0-3 months, 102F (38.9C) if older

Adult: APAP 1gm QID PRN

Alternate: ibuprofen 400-600mg QID PRN

Pediatric: APAP 15mg/kg/dose QID PRN

Alternate: Ibuprofen 10mg/kg/dose QID PRN

## Skin Sx and Findings

Skin lesions are common as well. Some are acute infections like Impetigo (classically described as honey crusted lesions), others subacute like folliculitis (itchy papules). Both of these conditions would respond to a semisynthetic penicillin, such as dicloxacillin, but more commonly cephalixin (Keflex) is available, since it is cheaper).

Impetigo: Cephalixin – 500mg TID x 7 day

mupirocin (Bactroban) TID x 5 days

Peds: Cephalixin 90 mg/kg divided over 2-4 doses/day x 10 days

Even more common are tinea infections (capitis, cruris, pedis and corpus as well as versicolor). Most Tinea infections will be macular with fine scaling, often at the margins of the lesions. They may be round or have more serpentine borders. Versicolor is often seen as hypopigmented areas, sometimes looking almost as light as vitiligo. Since chronic sun exposure increases the risk of Pityriasis Alba, a condition with diffuse scaly, white spots, this should be considered as well as tinea versicolor.

All forms of Tinea would all respond to a weekly dose of fluconazole (eg 200 mg weekly x four doses) or every 3 day ketoconazole (200 gm). Such therapy would be apt if the pt had extensive lesions. For more limited cases, topical therapy with clotrimazole is appropriate.

Fungal – diaper rash – miconazole 2% cream BID x 14 days

Tinea miconazole 2% cream BID x 14 days

fluconazole 100 mg once weekly for 4 weeks

Skin infections due to staph are also seen as typical cellulitis, or superinfection of a wound, as skin trauma may be common in people who work in the fields. In the case of an abscess, drainage is required, but for superficial infections limited to the dermis, cephalixin is apt at the doses noted above for Impetigo. If cephalixin is not available, or the patient is allergic to penicillin, TMP/Sulfa 160mg/800mg TID for a week would be appropriate (for Peds, 15mg/kg/d (based on TMP) in 2 divided doses).

Less common skin lesions may be seen due to Leishmaniasis or chromomycosis. These tend to be painless, granular lesions, which have been around for a while, and often have had treatment, that was at best partially effective. Leishmaniasis tends to have heaped up edges, while chromomycosis can be limited or extensive. Chromomycosis often develops after an inoculum of the causative fungus enters the skin via a thorn, splinter, etc, so this history should be sought. Therapies are expensive, and often, not easy to access. The main importance is to distinguish it from something that is more treatable. Treatment for Leishmaniasis is pentavalent antimony compounds, while chromomycosis could be treated with fluconazole, but it would require daily doses of 200mg for a year.

Scabies is a mite infestation, often associated with severe itchiness, especially at night. Skin findings may be minimal, but are often small papules, and at times burrows of the skin. Inspect for scaly, erythematous lesions in the webbing between the fingers as well as the skin folds around the elbows, wrists and knees. Small children may have the face, scalp and palms affected. Lice are tiny, wingless insects, which can infest the hair of the scalp, body and/or pubis. Nits are often sought, which are tiny, translucent attachments near the base of a hair follicle, which are NOT easily dislodged (like dandruff would be).

Scabies – Permethrin 5% cream, contact time at least 8 hours. Repeat treatment after 7 days if persists.

Lice: - 1% permethrin lotion, leave on for 10 minutes and repeat in 10 days (due to unhatched nits)

### **HEENT Sx and Findings**

The most common eye lesion by far is a pterygium. There is sclera encroachment onto the cornea, at times with sx of irritation, and injection. Artificial tears help to alleviate symptoms, but may not be readily available. Sunglasses can be helpful when the pterygia are extensive, as the sunny, dusty climate are major contributors to the condition. This is a benign condition, so all treatment is symptomatic and partially preventive (sunglasses).

Infective conjunctivitis may be seen, especially in kids. Topical erythromycin is used in that case. However, conjunctivitis is most commonly seen in allergic disorders.

Allergic rhinitis may be a common disorder in some communities. Often patients complain of a cold (grippe), but on further questioning, you find they have recurrent colds, for days on end, with no real discrete illness like one would see with a garden variety URI. They tend to have swollen turbinates, but rarely is a discharge seen. They may have a chronic cough due to post nasal drip, and almost all of them have the finding of pharyngeal cobble stoning (bumps a few millimeters in diameter are seen on the oropharynx, often with much injection around them, but minimal erythema, as one might see with Strep). Visible mucus would be another common finding. The lungs should be clear on exam in the case of cough due to postnasal drip.

#### Allergic Rhinitis Treatment:

Loratadine (Claritin) 10mg tablets daily as needed (5mg daily for children 2-6 yo)

Diphenhydramine (Benadryl) 25mg at bed time (since so sedating) daily as needed

Peds (2-12yo): 1-2 mg/kg/twice daily as needed (may limit to bedtime)

Dental issues are common, and if a dentist is part of the health care team, they can assist when significant oral pathology exists. Diffuse gingival swelling can occur, and scaling of the teeth is the best treatment option for this. Extractions are the most common method to alleviate symptoms associated with decayed teeth.

Impacted cerumen is a common problem, especially in the elderly complaining of hearing loss. This is confirmed on otoscopic inspection, where the external auditory canal is completely occluded by earwax. Often the cerumen is dried out and hard. It may be softened with a

commercial preparation like Debrox or when available, the oil inside a Colace, stool softener capsule (the capsule is pierced by a needle, and the liquid is squeezed out into the ear). When applying a softener, a cotton wad is often used to keep the liquid from draining out, and the pt keeps their head partially tilted away from the affected side for 5-10 minutes. Flushing with room temperature water is best, to avoid vestibular system stimulation and resultant dizziness. Flushing may be done with an ear bulb, or a large syringe (eg 50cc). A curette may be helpful once the wax begins to loosen, to help pull out large chunks. Care needs to be taken when using a curette, as the external auditory canal can be quite sensitive. Generally persistent flushing under pressure is sufficient, but it may take up to 5-10 minutes of flushing to remove a difficult impaction.

Otitis media may be seen. Since antibiotics are not commonly used in the developed world for this condition any longer, use of ibuprofen/tylenol for pain, and a decongestant, if available (usually via cough syrup) may be sufficient. A significant infection with marked erythema and bulging still may warrant an antibiotic (Augmentin or TMP/Sulfa would be best, with Amoxicillin as the third choice).

Acute Otitis Media, Severe (otherwise analgesics, decongestant if available)

Amoxicillin 25mg/kg/dose TID x 5-10 days (Adult dose 500mg TID)

Alternate: TMP-SMX 24mg/kg/dose (based on TMP) bid x 5-10 days

(Adult dose 160/800 twice daily)

## **Pulmonary Sx and Findings**

Commonly seen conditions are bacterial pulmonary infections (bronchitis and pneumonia), asthma and COPD. The interesting thing about COPD is that it is usually not related to tobacco use, but women who have chronic smoke exposure due to cooking on wood fires in the home.

Pneumonia will be based on clinical diagnosis of significant productive cough, fever and potentially some dyspnea associated with findings of localized rales (fine crackles), tubular breath sounds (a resonant sound heard in the periphery like wind blowing through a hollow tube) or other evidence of consolidation (eg egophony or whispered pectoriloquy). Severe bronchitis will have a similar hx, but findings will not show consolidation, and crackles, if they exist, are coarser, and clear with coughing.

Pneumonia/Severe Bronchitis

Adult: Amoxicillin 500mg TID x 7 days

Alternate: TMP-SMX 160mg/800mg BID x 7 days

Alternate: Azithromycin 500mg daily x 5days.

Peds: Amoxicillin 40mg/kg/dose bid x 7 days

Asthma will be associated with typical wheezing on auscultation. Treatment is PRN albuterol by MDI (salbutamol is commonly used in Central America in lieu of albuterol). Often there will be some combination inhalers of an inhaled steroid (eg fluticasone) along with a long acting beta agonist (eg salmeterol), which can be used in pt with a hx of persistent symptoms. Liquid albuterol may be available, and useful as a supplement to MDI, which might be in limited supply. For asthma flares, prednisone is generally available. It isn't unusual to see a pt with a significant h/o asthma who takes prednisone on a regular basis, with little understanding of the long-term consequences. Epinephrine is usually available, and could be used subcutaneously in low doses (eg 0.3ml of 1:1000 epinephrine), if a pt had acute, profound respiratory difficulties.

COPD is a difficult management issue in this context. Patients usually present with some use of accessory muscles when breathing, and evidence of hyperinflation (eg barreled chest). Chronic phlegm production would be another presentation. The treatments available are the same as the asthma treatments noted above, which may have less efficacy in this condition. Also, removing the smoke problem from the home may not be easy, though there are groups who provide safe, wood burning stoves in developing countries.

Because pulmonary conditions are more common than heart failure, especially compared to practice in the States, one might auscultate a pt's lungs, expecting to hear focal findings, and recognize that they have bilateral rales. This leads us to cardiovascular disorders.

### **Cardiovascular Sx and Findings**

The usual atherosclerotic cardiac diseases we are accustomed to in the States are less common in Central America. There will be patients who complain of chest pain (CP), but most often, it will be musculoskeletal in origin (generally confirmed by palpation which reproduces the pain). Also, such pain is usually not exertional, which is the key question to ask when a person of apt age (eg over 40) complains of chest pain. Is it exertional, does it bother you climbing up a hill (most structures are single story), does it bother you when carrying a heavy load (eg water, wood, etc). Is it relieved by rest, if yes, how quickly. Generally, coronary ischemia is alleviated within minutes when resting. Sometimes the pain may be perceived as a heavy feeling associated with dyspnea. Questions about palpitations with their pain, and radiation may be confirmatory, but lack of them does not exclude the diagnosis if there is a good story for exertional CP/dyspnea. Treatment may include a trial of Nitroglycerin (use of sublingual NTG should be explicitly demonstrated, to ensure understanding) and a beta-blocker (atenolol is usually available). If the pt's resting HR is low (eg  $\leq 60$ ), consideration of a calcium channel blocker is apt (diltiazem is usually available). Patients with suspected angina are often seen again in follow up, if possible, later in the week.

#### Coronary Artery Disease (CAD) Treatment:

Aspirin 81 mg a day (alternative, Aspirin 325mg every other day)

Atenolol 50-100 mg a day (usually titrate to resting HR of 60, if tolerated)

Alternative: Diltiazem Long Acting 180-240mg twice daily

NTG 0.4mg (150 grains): 1 tablet sublingually to relieve symptoms

Heart failure is not common, but you will occasionally find a pt with unknown CHF. They often will have had symptoms for months or years. Orthopnea and PND (paroxysmal nocturnal dyspnea, where pt suddenly awakes, usually at least an hour or two after going to bed, and need to sit up to catch their breath) are usually present, though edema may not be a prominent feature. The associated cardiomyopathy may not be dilated, but due to defective relaxation. Exam should include assessment of the PMI, to see if evidence of dilation, auscultation of murmurs, which might be associated with regurgitation (eg holosystolic murmur at LLSB) should be sought. It may be difficult to hear an S3, but if the provider has sufficient experience, an effort should be made to appreciate if one exists. An S4 might be associated with defective relaxation. The jugular venous pressure (JVP) should also be measured. Often this can be done with the patient sitting upright, in which case the clavicle would be 10cm above the R atrium, and if the jugular venous pulse is visible, each cm above the clavicle would be added to the 10cm to define the JVP (jugular venous distention is when the JVP  $\geq$  10 cm). Furosemide (Lasix) is often available, and daily visits to the medical clinic can be helpful for defining the dose needed for effective diuresis. An ACE inhibitor (enalapril is commonly available) should be included if the BP can tolerate it, especially if there is evidence of cardiac dilation. Its potassium sparing effect can also be useful. Patients usually have access to high potassium foods like bananas and melons, so these should be encouraged in patients with CHF on daily diuretics.

#### CHF Treatment:

Furosemide (Lasix) 20-80 mg once daily (to achieve diuresis)

Enalapril 5-20 mg once daily (titrate to SBP in 100-110 range), alternative would be

Lisinopril at the same doses. Sometimes enalapril works better twice a day.

Hypertension (HTN) is commonly encountered, and moderate to severe HTN may be encountered several times during a week. Pt are often on meds, including some not commonly used in the States anymore (eg alpha methyl dopa, Aldomet). Atenolol and enalapril are usually available locally, once samples given run out, so these are preferred agents. HCTZ, commonly used in the States, should be avoided due to the tendency toward low fluid and potentially salt intake, in some parts of Central America. In addition, HCTZ increases the risk of kidney stones, which are also relatively common, and presumably due to the borderline dehydration many people live with daily. Diltiazem may be available, and may be useful when resting HR is low (eg  $\leq$  60). If efforts are made to augment a pt's pre-existing med, like Aldomet, 250 bid would be a starting dose for HTN, with 500 bid a moderate dose, and 500 tid considered a high dose. Generally, it makes no sense to treat mild hypertension, since the main benefit is decrease risk of stroke over a long period of time (usually decades), and pt rarely will have such consistent treatment or control over such a time period. However, the consequences of moderate to severe HTN will manifest over a period of years, so any pt with a DBP over 100 or SBP over 180 should be considered for treatment.

### Hypertension Treatment:

Atenolol 25-50 mg daily. Double dose at follow up, if response not sufficient.

Lisinopril 10mg day (20 mg/d if DBP > 105). Double dose at follow up, if response not sufficient.

### **Depression and Anxiety**

May present as mood complaints – sad, crying, or nervous - or may present as c/o insomnia, or even with physical sx, e.g. chest pain in the case of panic attacks.

If you suspect that the patient may be depressed, ask about s/s of major depression **SIGECAPS**:

**S**leep – may be increased or decreased

**I**nterest or pleasure – decreased

**G**uilt – about their condition

**E**nergy – decreased

**C**oncentration – decreased

**A**ppetite – decreased or increased; also ask about weight loss or gain as a gauge of severity

**P**sychomotor retardation or agitation – may be observed, or, if not, asked about

**S**uicidal ideation, intent, or plan – must explicitly ask about all

If 5 of 8 of the above are present, dx is Major Depression; otherwise may be Depressive d/o NOS (not otherwise specified)

If you believe anxiety is primary problem, may be useful to determine specific anxiety d/o, i.e. 1) Panic d/o = discrete episodes characterized by physical sx such palpitations, chest pain, lightheadedness, sweating, numbness & tingling in the extremities, and the belief that they're having an MI or will die.

2) Hypochondriasis and/or Somatization d/o = preoccupation with physical sx w/o or in excess of physiologic or medical basis, often accompanied by extreme anxiety.

3) Obsessive Compulsive d/o = repetitive thoughts and/or actions – yet illogical, even to the person who can't get the thoughts out of his/her head, or avoid performing the actions. These may be culturally specific. Examples include checking, counting, excessive handwashing, irrational fears of having done harm to someone.

4) Post-traumatic stress disorder = anxiety revolving around a specific traumatic event or events, w/ nightmares, flashbacks, insomnia, hypervigilance, exaggerated startle, irritability.

N.B. Often, when specifically asked when these problems began, there is a discrete time of onset, e.g. “May 25” or “7 yr. ago”. This can be confirmatory that the sx are psychological, which developed in reaction to a specific, usually traumatic event which occurred at that time.

It is useful then to ask the pt. What happened at that time?

Whether a primary **Depressive** or primary **Anxiety** disorder, the treatment of choice is the same: antidepressants:

Citalopram: start with 10 mg qhs x 1 week, then 20 mg qhs x 6 months

Dispense a 6 month supply whenever possible

### **IMPORTANT NOTE REGARDING MAJOR DEPRESSION MANAGEMENT**

1. Suicidality: Must be thoroughly assessed as the medication may increase motivation and energy prior to improving mood thereby increase propensity to act on suicidal ideation. So, if suicidal ideation is present, you must ask about intent; if this is positive, ask about plan. If this is positive, determine whether the patient has access to the proposed method AND whether he/she has attempted suicide previously. If these are positive, it is preferable to locate someone else, e.g. a medical student doing her/his social service in the clinic, to dispense the medication on a weekly basis for the first 4 weeks until its full benefits have taken effect. If no such staff is available, alternatively, a family member would ideally be enlisted to monitor the patient for signs of increased suicidality and maintain safety over the course of the first four weeks.
2. The patient should be informed that the medication takes 3-4 weeks to become effective, and therefore not to give up hope prior to that time, but to keep taking it. They should also be made aware that typically, a patient receives a minimum of one year of treatment for major depression, to minimize the risk of relapse.

### Treatment Recommendations for other conditions:

#### **Mastitis**

Cephalexin 500mg QID x 7 days

Alternate: azithromycin 500mg x 3 days

#### **Hyperglycemia/diabetes**

Metformin 1000-2000 mg/day (bid, tid if at max dose, eg 500 500 1000)

Glipizide 10-20 mg a day (bid at higher dose)

## Pediatric Information

Average Weights for Children in rural Central America:

6 months	5kg
1 yo	7kg
18 months	9kg
2 yo	10kg
4 yo	15kg

### Common Medication Doses for Children

Amoxicillin	80-90 mg/kg/d in 2-3 divided doses
TMP/Sulfa	10mg/kg/d (based on TMP) in 2 divided doses
APAP	15mg/kg/dose (every 4—6 hours)
Ibuprofen	8-10mg/kg/dose (every 8 hours)

Treatment for Pneumonia, Mastoiditis or Acute OM

Age or Weight	TMP/Sulfa (40mg/200mg per 5ml) BID	Amoxicillin (250 mg/5ml) q 8h
2 to 11 months (4-<10 kg)	5ml	3ml
1-4 years old (10—19 kg)	7.5ml	5ml

Treatment of Fever with APAP

Age or Weight	APAP Tablet (100mg)	APAP Liquid (100mg/5ml)
2-3 months old	One half	2.5 ml
4 months – 2 yrs (4-<14 kg)	1	5 ml
3-4 yrs (14-19 kg)	1.5	7.5 ml

Referral Guidelines:

Emergency services are often unavailable, even if the patient is sent to the hospital. Surgical services are usually available for life-threatening emergencies (e.g. acute appendicitis). Surgical services may not be available for elective procedures (e.g. inguinal hernia).

Sending a patient to Tegucigalpa involves expense for the entire family. The patient needs money for transportation, lodging and food, even for a clinic visit. A mother will often have to take all of her children with her. Thus, referrals for dermatology, allergy, pulmonary, GI, ophthalmology and non-emergent orthopedic procedures is rarely helpful.

**FORMULARY MEDICATIONS - PREGNANCY AND LACTATION GUIDELINES**

MEBENDAZOLE/ALBENDAZOLE –

Pregnancy – risk unknown

Lactation – safety unknown

ALBUTEROL/SALMETROL –

Pregnancy – caution advised during labor and delivery

Lactation – caution advised; possible infant tremors and agitation

APAP –

Pregnancy – safe: drug of choice for analgesic/antipyretic

Lactation – safe: drug of choice for analgesic/antipyretic

AMOXACILLIN –

Pregnancy – no known risk; safe

Lactation – no known risk though may cause infant diarrhea, rash, urticaria, thrush, somnolence.

ATENOLOL –

Pregnancy – weigh risks/benefits, especially 2<sup>nd</sup> & 3<sup>rd</sup> trimesters; possibly teratogenic; risk of intrauterine growth restriction & neonatal bradycardia & hypoglycemia.

Lactation – possibly unsafe

AZITHROMYCIN –

Pregnancy – may use; no known risk

Lactation – may use; conflicting data on possible risk of infantile hypertrophic pyloric stenosis.

CEFTRIAXONE –

Pregnancy – may use; drug of choice for gonorrhea; may cause kernicterus & agranulocytosis but no known risk of teratogenicity.

Lactation – may use while breastfeeding.

CEPHALEXIN –

Pregnancy – safe; no known risk

Lactation – safe; no known risk though may cause infant diarrhea

CIPROFLOXACIN –

Pregnancy – weight risk/benefit; no known risk of teratogenicity based on human and animal data; some risk of bone/cartilage damage based on animal studies.

Lactation – consider avoiding breastfeeding 3-4 h. after dose; possible risk of infant c. diff-assoc. diarrhea; no human data to assess effects on milk production

CITALOPRAM –

Pregnancy – caution advised esp. in 3<sup>rd</sup> trimester; risk of fetal harm low, though risk of neonatal withdrawal sx or serotonin syndrome based on human data; risk of neonatal persistent pulmonary HTN or autism inconclusive.

Lactation – consider alternative while breastfeeding though may cont. if used during pregnancy; low risk of infant harm based on human data; effects on milk production inconclusive.

DIPHENDYDRAMINE –

Pregnancy – safe; may use

Lactation – probably safe, limited information

DOCUSATE –

Pregnancy – may use

Lactation – safety unknown

LISINAPRIL/ENALAPRIL –

Pregnancy – avoid use

Lactation – probably safe, limited information demonstrates no risk

FLUCONAZOLE –

Pregnancy – caution advised; possible teratogenicity including heart defects and spontaneous abortions.

Lactation – may use; no known risk though possible infant GI upset and diarrhea.

FLUTICASONE FUROATE & FLUTICASONE PROPIONATE –

Pregnancy – “benefits outweigh risks”; possible fetal adrenal suppression

Lactation – may use

FUROSEMIDE –

Pregnancy – caution advised; possible decreased placental perfusion

Lactation – safety unknown

GLIPIZIDE –

Pregnancy – consider stopping > one month prior to delivery due to risk of prolonged severe fetal hypoglycemia at birth

Lactation – consider alternative; inadequate data to assess

IBUPROFEN –

Pregnancy – caution first trimester; avoid starting at 30 weeks; avoid in women trying to conceive.

Lactation – no known risk

KETOROLAC –

Pregnancy – caution advised in 1<sup>st</sup> trimester; avoid starting at 30 weeks; contraindicated during L&D; risk of embryo-fetal toxicity low in 1<sup>st</sup> trimester; risk of fetal harm, incl. premature fetal ductus arteriosus closure starting at 30 wk, risk of altered fetal circulation and uterine contraction inhibition during L&D. Caution advised in female pts trying to conceive.

Lactation – may use during breastfeeding though caution advised if parenteral use.

LORATIDINE –

Pregnancy – may use

Lactation – probably safe; limited information. demonstrates no/minimal risk

METFORMIN –

Pregnancy – may use

Lactation – may use

METRONIDAZOLE –

Pregnancy – contraindicated 1<sup>st</sup> trimester for trichomoniasis – possible teratogenicity; otherwise okay in pregnancy

Lactation – safety may vary with population or dosing

OMEPRAZONE –

Pregnancy – caution advised; possible teratogenicity based on conflicting human data

Lactation – probably safe; limited information demonstrates no/minimal risks; caution advised

PREDNISONE –

Pregnancy – caution advised, especially 1<sup>st</sup> trimester; risk of low birth weight, premature birth, teratogenicity, fetal adrenal suppression.

Lactation – may use; consider breastfeeding 4 hr. at least, after hi dose prednisone (> 20 mg/day)

RANITIDINE –

Pregnancy – safe

Lactation – probably safe; limited information

TMP/SMX –

Pregnancy – avoid: TMP – possible teratogenicity + cardiovascular defects; SMX: 3<sup>rd</sup> trimester risk of kernicterus

Lactation – caution; theoretical hyperbilirubinemia in hi risk infants.