

A Guide for Visiting Clinicians to Guatemala: Common Presenting Symptoms and Treatment

WILLIAM H. CHICKERING, MD, MPH
McGuire VA Hospital, Richmond, VA

For volunteer clinicians from North America and Europe, treating patients for the first time in remote areas of Guatemala can be a challenge. Radiology and laboratory facilities are usually lacking, and the cultural and linguistic barriers are huge. This article provides clinicians working in Guatemala with a description and ranking of the most common presenting complaints, as determined from a chart review of 1,500 patients. Unfamiliar diagnoses, empiric treatment, and pertinent cultural factors, including the fading but still-present hot-cold paradigm, are also included.

Keywords: Guatemala; manual or guide; symptoms; diagnosis; treatment; developing countries; culture; hot-cold paradigm

Each year, hundreds of volunteer clinicians from North America and Europe visit Guatemala to provide care to the medically underserved. These visits, called *jornadas*, usually last 2 to 3 weeks and consist of dawn-to-dusk encounters with large numbers of patients. Located in remote areas, *jornadas* often lack laboratory or X-ray facilities. Local standards of modesty can preclude a good physical examination. The history becomes all important to making a diagnosis; however, communication is through interpreters, sometimes across three languages, and almost every patient seems to have multiple complaints that are either exotic or opaque. Providing good health care under these conditions is a challenge.

This article acquaints the clinician with the most common presentations, as identified by a retrospective chart review of

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TABLE 1
Presenting Symptoms in Guatemala,
in Descending Order of Frequency, as Observed in
1,500 Patients During a 10-Month Period

1. Musculoskeletal pain
2. Abdominal pain^a
3. Cough and upper respiratory symptoms
4. Headache
5. Weakness/fatigue/dizziness
6. Skin lesions and/or itching
7. Anorexia and/or weight loss
8. Diarrhea
9. Eye and/or vision complaints
10. Menstrual and/or vaginal complaints
11. Psychiatric symptoms, or probable cultural symptoms not included in other categories
12. Symptoms of urinary tract infection (*mal de orina*)
13. Pregnancy related complaints
14. Pure fever and/or chills as a presenting complaint
15. Ear and/or hearing complaints
16. Chest pain
17. Male genitourinary complaints

NOTE: a. The author's intermittent use of ultrasound may have increased this symptom's frequency.

1,500 patients who were seen by the author in rural Guatemala during a 10-month period. Approximately two thirds of the patients were female. Totals were obtained by counting all of each patient's clearly separate symptoms or symptom complexes, up to three per patient, then summing. Table 1 ranks the most common symptoms in decreasing order of frequency.

The aims of this clinician's guide are to highlight what is likely to be unfamiliar to a North American practitioner, to assist in "decoding" or translating symptoms, and to guide decision making for empiric treatment. Cultural and situational factors that affect the clinician's task are also described. Differential diagnoses include only the most likely entities, whereas the more unusual conditions have been excluded. Parasitic infections are so common and so treatable that a clinician's first tenet should be *think parasites!*

TABLE 2
Comparison of Characteristics of Malaria and Dengue

<i>Either Malaria or Dengue</i>	<i>Malaria</i>	<i>Dengue</i>
History of having been in the lowlands	Lowland exposure can be as long as 4 years before (if a relapse)	Lowland exposure must have been within 2 weeks
Fever and whole body pain	Fever gradually builds, eventually cycling into an every-other-day pattern	Sudden onset of high fever
	Important sign(s): splenomegaly, sometimes hepatomegaly	Important sign: rash
	Treatable with chloroquine 250 mg; Tabs 4 by mouth initially, then 3 by mouth the next a.m., then 3 by mouth the following day for a total of 2.5g (1.5g base). No follow-on primaquine unless there is a very low chance of recontracting	Untreatable
	Rarely fatal	Occasional fatalities due to hemorrhagic transformation, usually children who have had it before

A number of texts are available on tropical medicine, with *Manson's Tropical Diseases* by Cook and Zumla (2003) the most consistently useful. More immediately helpful are therapeutic handbooks for use in developing countries; however, because these handbooks are intended for use worldwide, they do not address cultural or situational issues specific to Guatemala or even to Central America. Appendix A lists a number of these references.

THE SETTING AND ITS POPULATION

Guatemala is located just south of Mexico and is about the size of Portugal or the State of Tennessee. The population of 13 million is divided between its original inhabitants, the Maya (~60%), and its peoples of European extraction known as *ladinos* (~40%). The Maya generally occupy the temperate rural highlands, and the *ladinos* occupy the cities and the hot, tropic lowlands. Although poverty can be found in both groups, it is more widespread among the Maya who lack political power. In the 1980s, Guatemala was torn by brutal confrontations between Right and Left in the Cold War, with resultant horror that is still faintly resonating. Today it is the arena of Latin America's most spirited competition between Catholicism and Evangelical Protestantism.

THE MOST COMMON PRESENTING SYMPTOMS

Musculoskeletal Pain

Most Guatemalans, whether *ladino* or Maya, live a hard life. Excessive toil, violence, malnutrition, disease, and child-bearing all take a toll. Aches and pains are the number-one complaint. Appendix B is a glossary of pain terminology. Multiple aches and pains are more common here than in the more developed world and should be less likely to set off a cli-

nician's "neurosis detector." Even whole body pain, almost pathognomonic of hypochondria in North America and Europe, can be a true symptom here because it is a culturally accepted way of describing multiple pains and because it is exactly how certain conditions, specifically malaria or dengue fever, feel to the sufferer. In fact, whole body pain with a history of fever should be considered malaria until proven otherwise. Dengue is less likely to be seen by *jornadas* because patients with dengue are usually too sick to leave their homes, whereas those with malaria are able to access care between attacks. Table 2 delineates the similarities and differences between malaria and dengue fever.

Abdominal Pain

Abdominal pain can be divided into epigastric and non-epigastric pain. The former is surprisingly common, approximately 40% of all abdominal pain presentations, and deserves emphasis because it usually responds to medical treatment for gastritis, worms, or chronic *Giardia*.

Presumed gastritis is so widespread that patients themselves use the word *gastritis*. If the history is convincing for dyspepsia, strong consideration should be given to treating empirically for *H. pylori* because of the high incidence of gastric cancer in similar populations (Halperin, 1988) plus recent evidence that treatment for *H. pylori* can reduce that incidence (Chun-Yu Wong, 2004). *Jornadas*, laden with free medications that would otherwise be prohibitively expensive, may be the only opportunity for many patients to receive treatment. However, a major effort is required with careful, repetitious explanation, ideally with drawings, to ensure that the three or four medications are taken simultaneously and correctly, not hoarded or misdirected.

Epigastric pain due to worms has two main causal agents: *Ascaris* (roundworm) and *Trichuris* (whipworm), whose

TABLE 3
Some Guatemalan Cultural Beliefs as to the Symptoms Caused by Intestinal Worms

<ul style="list-style-type: none"> • Thunder (<i>trueño</i>) noise in the stomach, usually in the epigastrium • Swelling (<i>hinchazón</i>) of the stomach, especially in the afternoon because the day's biggest meal is lunch • Chronic abdominal swelling (<i>panzudo</i>) in children • Ball-like mass (<i>bola</i>) in the stomach • Gas moving back and forth in the upper abdomen • Itchy nose • Pica: especially a desire to eat dirt, ashes, or paper • Loss of appetite • Sleeping prone (<i>embrocado</i>)
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TABLE 4
Treatment for Intestinal Roundworms

<ul style="list-style-type: none"> • Treatment for the common worms is albendazole, 400 mg PO \times 1 dose, or mebendazole 100 mg by mouth BID \times 3 days. Four caveats: <ul style="list-style-type: none"> During breast-feeding: use only mebendazole, NOT albendazole. During pregnancy, avoid treatment unless a woman is very symptomatic, then use levamisole. For children younger than age 1 year, use piperazine (5cc twice a day for 2 days). For children with presumed large worm burdens (e.g., toddlers with swollen bellies who have never been dewormed before), use piperazine or homemade <i>apazote</i> tea instead of albendazole/mebendazole because the latter agitates worms before killing them and may cause the worms to exit the mouth or nose. This does not happen with piperazine because it paralyzes worms before killing them. <i>Te de apazote</i>, a traditional herbal remedy for worms throughout Latin America, is reputed to do the same, though probably less effectively. • Mebendazole, which many <i>jornadas</i> bring, can be given as one single dose, 500 mg in adults; therefore, \sim 7-8 mg/kg prorated for children, but dosing for 3 days as above is better to kill any <i>Trichuris</i> or <i>Necator</i>.
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eggs are hardy enough to survive even in the coldest highlands. *Necator*, the anemia-causing hookworm is a distant third, and *Strongyloides* an even more distant fourth because they can only infect as larvae that penetrate the skin and require warm, humid, lowland conditions.

Many Guatemalans subscribe to traditional health beliefs about worms and their manifestations, listed in Table 3. There is little reason to disbelieve these symptoms, and no reason not to treat, unless the patient is pregnant or younger than age 1 year, in which case albendazole is contraindicated. Table 4 outlines the prescribed treatment regimens for worms.

Epigastric pain can also be caused by chronic *Giardia*.

Most causes of nonepigastric pain are the same as in North America; however, the percentage needing surgery may be smaller because of the greater number of infectious and/or parasitic causes for which preferred initial therapy is medical. Some of these are listed in Table 5, adapted from *Manson's* (Cook & Zumla, 2003). Although this knowledge cannot help

TABLE 5
Some Parasitic and/or Infectious Causes of Abdominal Pain

Symptom	Causation
Right upper quadrant pain	Worms in the biliary tract Amoebic abscess of the liver
Left upper quadrant pain	Malaria, with splenic enlargement Amoebic abscess of the liver (left lobe)
Right lower quadrant pain	Worms causing appendicitis Ileocecal tuberculosis Amoebomas of the colon
Generalized and/or mild abdominal pain	Malaria Typhoid
Obstruction	<i>Ascaris</i> , in large numbers

with individual diagnoses, it does indicate treating empirically for an array of possible parasites in any case where surgery is not immediately available or where it is unacceptable to the patient.

Cough (*Tos*) and Upper Respiratory Infections (*Gripe*)

A chronic or persistent cough can be a symptom of pulmonary tuberculosis (TB). Fever or night sweats or weight loss add to this suspicion, especially if there has been a case of TB in the household. Hints of the latter may be if anyone in the family, including the patient, ever took medicines every day for a long time (6 to 12 months) and/or received injections three times a week (streptomycin). The public health system in Guatemala is relatively effective in treating TB in its population. Thus, if a patient reports having given sputum samples, called *be-ka* (BK) but did not receive subsequent treatment, it is reasonable to assume that the samples were negative. It is important to note that small children may be infected with TB yet not have a cough. If a child looks chronically ill and does not have diarrhea, TB is probable, especially if there is a history of contact with another person with TB.

Causes of acute cough are generally the same in Guatemala as in North America, although two special situations deserve mention. Verminous pneumonitis, suggested by the clinical presentation of a toddler with acute bronchospasm and no previous history of asthma, is an allergic reaction to larvae migrating through the lung shortly after ingestion of *Ascaris* eggs. Treatment consists of short-course prednisolone, then 2 to 3 weeks later albendazole to kill the now-mature larvae. Steroids can worsen many conditions such as TB, *Strongyloides*, scabies, even *Malassezia*, but not if given in short courses. Typhoid can present with a mild, dry cough in its first week, along with headache, constipation, and rising fever, before any gastrointestinal symptoms appear and before the patient becomes really ill. Typhoid is unusual in Guatemala and tends to be diagnosed late as part of a cluster of cases. Empiric treatment consists of azithromycin at double

dose, 1000 mg initially, then 500 mg orally once a day for 6 days (Gilbert, Moellering, Eliopoulos, & Sande, 2005).

Hospitalization for severe pneumonia, although desirable, may not be possible. Reasonable outpatient treatment, though without oxygen or intravenous (IV) hydration, can be achieved by arranging three or more daily injections of procaine penicillin G, with or without a single daily dose of gentamycin, at 5.1 mg/kg.

In Guatemala, albuterol, called salbutamol, is relatively inexpensive in oral form but, as an inhaler, costs roughly what one family can earn picking 250 pounds of coffee beans. Organizers of *jornadas* should consider the potential negative effects on compliance and self-reliance of handing out expensive medications for chronic conditions. However, one clear role for inhalers on *jornadas* is as an able stand-in for a nebulization treatment (8 to 10 puffs), under supervision.

Headache

Headache is much more common in Guatemala than in North America and is especially so among women. Anemia, which can cause headache, has a similar distribution. However, cultural factors must be playing a role as well. Women's exposure to unventilated carbon monoxide may be greater than that of men, from early morning hours at the corn mill to days spent in thick smoke from wood fires in windowless huts (Pineda, 1981). Women carry heavy loads on top of their heads, whereas men customarily do so on their backs or with forehead straps. Women work longer hours than men and have far less control over their lives, thus they suffer more psychosocial stress. And, finally, worms, which may be more common among women because of the role played by small children in worms' spread, can cause headaches.

Culture may be playing a direct role in the form of health-related beliefs. Guatemalans themselves, of all social classes, often attribute headache to either anger or sun exposure. These are cited by North American sufferers of headache too, but seldom to the same degree. For example, the amount of sun exposure considered sufficient by Guatemalans to cause a headache would in most cases be deemed negligible by North Americans. It is likely that the hot-cold paradigm is at work here as well.

Headache usually justifies treatment for anemia and/or worms. If headache is the chief complaint, then a measurement of blood pressure and a brief neurological assessment are indicated.

Weakness and/or Fatigue and Dizziness

As in North America, weakness and/or fatigue (*debilidad/cansancio*) and dizziness (*mareos, baidos, or tarantamiento*) can signal a serious underlying condition or can simply represent a cultural expression of stress. Culture is more likely to be playing a role if the patient also has sleepiness (*sueño*), or sensations of pins and needles (*hormigueos*), or hyper-awareness of aortic pulsations in the epigastrium (*brincazon*,

literally "jumping"). Of the serious physical causes, only infection and anemia are treatable in the *jornada* setting.

Anemia can result from chronic disease, like TB, or from parasitic infection, like hookworm or *Giardia* or malaria. It can result from childbirths too closely spaced. It can result from a diet low in iron and Vitamin C worsened by drinking a lot of coffee. These are all common in Guatemala, and synergistic. Anemia is thus very common. Patients with anemia often have an element of orthostasis, with dizziness (*mareos*) on standing up or on straightening up after having bent over. Asking about melena (*popo negro*) is worthwhile, though most people do not know what their stools look like because they use latrines. When an iron preparation is prescribed, instructions should be clear about keeping it out of reach of small children. Death from severe iron poisoning, essentially bloody diarrhea, would too closely mimic dysentery to be noticed in rural Guatemala.

Terminology related to weakness can be confusing to a North American. Among the Maya, the *lungs* are synonymous with *strength* and *stamina*, for example, "We built this road with 'pure lung'" (*puro pulmon*). Thus tiredness of the lungs (*cansancio de los pulmones*) does not imply dyspnea so much as weakness. On the other hand, *fatiga* in Spanish not only means "fatigue" but also has a respiratory meaning as well, suggesting asthma.

In North America, weakness and fever are constitutional symptoms, involving the entire body. In Guatemala, however, a patient can have weakness or fever in specific organs, for example, weakness in the stomach or weakness in the heart or fever in the head. Paradoxically, specifying an organ seems to make the symptom a little less organic. Weakness of the stomach (*debilidad del estomago*) is a self-diagnosed poor nutritional state with a felt need for vitamins. Weakness of the heart (*debilidad del corazon*) implies emotional upset.

Skin Complaints

The two most common reasons that patients present with skin problems are cosmetic concerns and itching. Skin spots (*manchas*) are usually because of the yeast, *Malassezia furfur* and respond to Selsun Blue shampoo applied overnight twice a week, or to ketoconazole 400 mg given orally in one dose. If the patient is Maya with access to a sweat bath (*temascal*), the ketoconazole can be given as a half-dose followed an hour later by a bath, which exudes the medicine evenly over the skin, then repeating the process in a week. Occasionally skin spots will also respond to a low-potency steroid cream.

Itching or pruritis can result from dry skin, fungi, scabies, worms, or AIDS. Dry skin is a frequent problem, often because of bathing with laundry soap. In the remote highlands, patients complain of itching and painful rashes of the face, neck, and arms, most likely because of the high altitude, sun, and wind. This may resemble pellagra; however, pellagra is rare in this population because lime is used in preparing

the tortillas eaten as a regular part of their diet. However, a multivitamin for this condition may be beneficial.

Fungal infections (tinea, *Malassezia*) are of the same nature as in the United States but occur much more frequently. Scabies is also common, aggressive, and should be suspected with any generalized, highly pruritic rash. Lofty prescriptions to wash all clothing and bedding in boiling water should be avoided because of the high cost of firewood. Heating a flatiron and ironing selected clothing may be a more feasible solution. Other practical solutions can be negotiated with the mother based on two facts: (a) mites die if alienated from the human body longer than 48 to 76 hours and (b) the need for treatment of fomites is not absolute (Gurevitch, 1985). An antihistamine should be given for prolonged posttreatment itching and an antibiotic to kill potential nephritogenic *Streptococci* if there is superinfection.

Worms of the tropical lowlands cause localized itching along the track of subcutaneous migration or at the site of entry such as the feet or buttocks. Any worm can cause generalized pruritis as an allergic reaction.

In the case of pruritis, HIV/AIDS (*SIDA*) must always be considered. The pruritis of HIV/AIDS has many treatable causes, such as scabies, fungi, seborrhea, dry skin, staphylococcal folliculitis, eczema, and psoriasis. Even eosinophilic folliculitis responds sometimes to nonsteroidal antiinflammatory drugs (NSAIDs). The more difficult challenge is to identify affordable modalities for continuous, long-term treatment. One possibility is the use of Vitamin C supplements, which through acidification may act in an antifungal capacity.

Anorexia and Weight Loss

As in North America, "she/he doesn't feel like eating" (*no tiene ganas de comer*) is a frequent complaint by parents of young children or by adult children of aging parents. Because poor appetite can result from worms or vitamin deficiency, both should be treated. Chronic *Giardiasis* is common and can cause poor appetite, even without diarrhea, and should be treated with metronidazole if there is another gastrointestinal symptom such as nausea or bloating (*embotamiento*).

If there is actual weight loss, TB must be considered and, increasingly, AIDS (*SIDA*) must also. In Guatemala, HIV is primarily transmitted by heterosexual intercourse. Men contract it in bars, women contract it from their infected husbands. Although still more prevalent in the *ladino* lowlands, *SIDA* has been spreading into the Maya highlands, mostly via men who are traders, soldiers, and police. Often the patient's weight loss is evident as soon as he or she enters the room. However, sometimes it is necessary to ask about whether the clothes are loose (*se queda floja la ropa?*), or even to check the belt. In the history, other symptoms suggesting *SIDA* are diarrhea, cough, or pruritis (with or without a rash); or pain on swallowing; or persistent unexplained fever, weakness, or

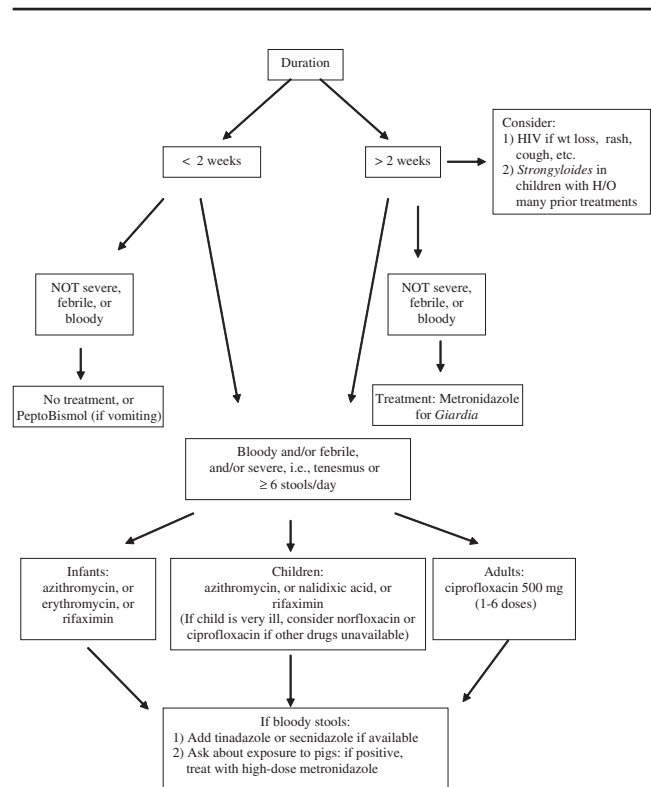


FIGURE 1. Therapeutic Approaches for Diarrhea

NOTE: HIV = human immunodeficiency virus; H/O = history of.

night sweats (*sudores nocturnos que empapan*). The physical examination should assess for thrush, rash, and/or extralinguinal lymphadenopathy. If the history or physical findings are suggestive of AIDS, the clinician should not hesitate to ask about risky behavior, specifically extramarital sexual relations (*relaciones ajenas del matrimonio*) or drinking at *barres* (bars), which feature sex workers, as opposed to *cantinas*, which do not. If AIDS testing and counseling are necessary, local physicians are knowledgeable about the processes and locations.

Diarrhea

Diarrhea (*asientos, chorio*) is so common that it can be signified wordlessly, by a gesture, a sideways pounding motion of the fist. More than for most symptoms, diarrhea must be specifically located in time. The clinician should ask exactly how many episodes occurred in the previous 24 hours, to avoid treating diarrhea from last week or last month. Figure 1 illustrates an algorithmic approach to this common problem.

In infants and toddlers the most important consideration, as in North America, is dehydration. Thus, the most important treatment for young children with diarrhea in Guatemala is oral rehydration solution (ORS; *suero oral*). This is avail-

TABLE 6
Some Nonpainful Eye Disorders

<i>Disorder</i>	<i>Characteristics</i>
With vision loss	
Cataracts	<ul style="list-style-type: none"> • Criteria for surgical candidacy: Cornea must be clear with good pupillary response to light Vision must have decreased to 20/200 (unless blind in one eye, then to a degree where patient cannot walk unassisted) • Free surgery is available at Hermano Pedro Hospital in Antigua
Congenital toxoplasmosis	<ul style="list-style-type: none"> • Usually presents in adolescence • Retinal cotton-wool patches
Toxic optic neuropathy	<ul style="list-style-type: none"> • Due to ethambutol or isoniazid therapy in a patient with tuberculosis
Vitamin A deficiency	<ul style="list-style-type: none"> • Classical presentation: a toddler who starts bumping into things after dark • Less common in Guatemala today since the fortification of sugar with Vitamin A
Cosmetic	
Actinic allergy	<ul style="list-style-type: none"> • A benign condition in which the sclerae turn brown from sun exposure, resulting in a horizontal line on either side of the iris • No treatment available

able in premixed packets; however, for reasons of immediate availability, cost, and self-reliance, it is preferable to teach parents to make their own. Appendix C provides a recipe for making ORS.

Bloody diarrhea or febrile diarrhea or severe diarrhea all should be treated as shigellosis, not amoebiasis. By definition, severe diarrhea is either frequent (> 5 to 6 times per day) or painful (suspected in small children who cry on defecation). *Shigella* in Guatemala is moderately resistant to trimethoprim-sulfa. Thus, if patient follow-up is unlikely, the treatment of choice for adults is ciprofloxacin, and for children is rifaximin or nalidixic acid. Other alternatives for children are azithromycin if the illness is only mild and norfloxacin or ciprofloxacin if the illness is severe. Concern that empiric treatment of dysentery might result in hemolytic uremic syndrome is misplaced in the remote rural *jornada* setting, where enterohemorrhagic *E.coli* (EHEC) is unlikely (R. Oberhelman, personal communication, June, 19, 2002).

Entamoeba histolytica in Guatemala is responsible for only ~1% of cases of diarrhea (Instituto de Nutricion de Centroamerica y Panama [INCAP], personal communication, July 6, 2001). This low incidence, plus the inevitable low compliance with prolonged, high-dose metronidazole, argues against treating dysentery empirically for amoebas. Those clinicians who choose to do so should require a bit more evidence than just blood, for example, mucous (“white dysentery”), or a picture of chronic, frequent small stools, half-formed, and flecked with blood. Treatment consists of either secnidazole/tinadazole or shorter course, lower dose metronidazole. The cyst-passing state is not treated.

Diarrhea for more than 14 days merits a 5-day course of metronidazole for *Giardia*. In adults, persistent diarrhea raises the possibility also of HIV and should prompt questions as to weight loss, fever, sweats, rash, and social history. In children, but only in the tropical lowlands, persistent diar-

rhea that has received many failed treatments should raise suspicion of *Strongyloides*.

In the past, loperamide and diphenoxylate were used to inhibit diarrhea; however, they prolong the time it takes the body to clear the infection. In adults, these drugs may be used if there is a compelling need to suppress the diarrhea temporarily, such as a many-hour ride on Guatemala’s rural transport, the “chicken bus.” On the other hand, these drugs should never be used in children because they can cause fatal ileus. Bismuth subsalicylate has a role as a preventive, where it is moderately effective at a dose of 2 tabs by mouth 4 times a day.

Eye Pain and Other Problems

Sunlight, especially at high altitudes, and wind, dust, and household smoke contribute to eye pain in Guatemala either directly via conjunctival irritation or indirectly by stimulating growth of fleshy winglike pterygia (*carosidades*) at the rim of the iris. Treatment consists of lying down in a dark room and applying cool compresses over the eyes, ideally made with *té de manzanilla*. Patients frequently ask about surgery for pterygia; however, because long-term results are generally poor, surgery is performed only if the pterygium begins to encroach on the visual axis, more than halfway in to the pupil.

Dacrocystitis, also a cause of eye pain, is often manifested as pus coming out of the tear duct. It is usually chronic; however, a trial of dicloxacillin or cephalexin is warranted along with warm compresses and topical antibiotics. If these fail, free surgery can be arranged at Hermano Pedro Hospital in Antigua.

Trachoma is also painful, and exists in Guatemala but is unlikely to present to a *jornada* until it is too far advanced for antibiotics. See Table 6 for a list of nonpainful eye disorders frequently identified in Guatemala.

CULTURAL CONSIDERATIONS

Clinicians must constantly be aware that there is a deficit, sometimes small, sometimes huge, in their comprehension of what is really going on with any given patient because of the language barriers and the enormous cultural gap. The typical *jornada* attracts patients from far and wide, most of them extremely poor. Some have walked 2 days and then waited another day to be seen by the “gringos” who are known to have extra-effective, free medicines. It is understandable that patients envision presenting with multiple symptoms and supplying themselves and their extended families with medicines for all current and anticipated maladies. At a minimum, everyone should leave with acetaminophen and vitamins because almost every patient arguably has at least some degree of pain or nutritional deficiency. On the other hand, too many medicines, even if necessary, increases the probability that none of them will be taken correctly. If more than two medicines are dispensed, careful explanation of the treatment regimen should be given, ideally with diagrams. If medicines should be taken simultaneously, this needs to be made very clear. Dosing should be written “every 12 hours” instead of “twice a day” to avoid problems if the patient interprets “day” as meaning only during the “daytime.” Instructions should be written on pads depicting sunrise-noon-sunset-night, ideally with color drawings of the specific pills being given out.

Because second visits cannot be relied on, it is imperative to make the diagnosis and prescribe treatment on the first encounter if possible, especially in the cases of serious illnesses. North Americans, as cultural outsiders, cannot begin to imagine the reasons a patient might not comply with follow-up instructions, even if the gravity of the situation is made clear. As one example of different worldviews, survival may not be the patient’s highest priority.

Pelvic exams are severe violations of Maya modesty, more so if the examiner is male. Such exams can be performed more readily as part of *jornadas*, presumably because the examiner is a stranger who will never be seen again, but they may still cause major psychic trauma.

Often, a mother cannot make decisions about the care of a sick child because she has to go home to consult with her husband. Sometimes he is away on the Coast working and is unreachable. Suddenly the practitioner is in an endless loop with a dying child and no recourse, no authority higher than the husband, therefore absolutely nothing that can be done.

Maya and *ladinos* possess health care beliefs that fall under the hot-cold paradigm of disease causation and treatment. However in the *jornada* setting, those beliefs seem muted. Some of this may be self-triage; they have learned to bring to *jornadas* only those problems amenable to antibiotics or surgery, and a broken ankle requires far less hot-cold explanation than does the evil eye. Some of it may represent a shift in belief during the past few decades to a pragmatic state

in which two contradictory beliefs are held simultaneously (a state not unknown to North Americans, either). Some of it may be that we are not listening hard enough.

According to the hot-cold paradigm, disease results from a disruption of the balance between hot and cold in the body. For example, washing one’s hands in cold water after working in the sun can bring on sickness, as can a breeze that strikes the face after one steps away from the stove. Small children, thought to be particularly prone to imbalance, are bundled up like Green Bay Packer fans in December to prevent air from entering their ears or, because heat can also be bad, to prevent sun from striking their heads.

Diseases are classified as hot or cold, as are remedies. Modern medicines have also been classified but *a posteriori*. Maalox is considered cold because it is known to cure a hot disease, gastritis. In general, cold conditions are more common. The main hot exceptions are gastritis, most of the serious febrile infections, and pregnancy. Remedies used to treat an illness must be of the opposite character. Cold diseases should be treated with a hot sweat bath or with any of the following, all thought to possess *fuera* (strength) and thus be hot: honey, sugar, chocolate, chiles, alcohol, dark meat, and intramuscular injections. Hot diseases should be treated with a cold bath or ingestion of substances thought to be cold such as citrus fruits, bicarbonate of soda, or penicillin pills. However, if the clinician gets it wrong, patients will often compensate, for example by converting one of our “inappropriately cold” pills to appropriately hot by downing it with chiles or a stiff drink. A neutral category seems to have emerged, noted as long ago as 30 years, of “elements [that] are neither hot nor cold and have no effect upon the body’s temperature balance” (Logan, 1973, p. 394).

Knowledge of the hot-cold paradigm is still helpful. First, awareness may help avoid cultural errors, like insisting that a mother expose the whole child when a sick baby needs examination. The baby can be effectively examined in glimpses, patch by patch of laboriously exposed skin. If this is not done and too much cold air strikes the baby, there is a small but real possibility that the mother might never seek *jornada* care again. Second, awareness of hot-cold beliefs enables us to more sensitively field end-of-visit questions about *dieta* (meaning diet and activity, such as “Can I bathe?” or “Can I eat chile?”). Patients are pleased to have these questions recognized as hot-cold concerns. Third, the paradigm can be used to explain and enhance therapy. For example, skin spots are considered cold, so it makes more sense to the patient if taking ketoconazole is coupled with a hot steam bath, as described previously. Likewise, a patient with gastritis will better remember to avoid taking NSAIDs like ibuprofen for pain if he thinks of them as a hot medicine inappropriate for his hot condition; or he will more likely accept oral antibiotics for pneumonia, considered a cold condition, if he can be persuaded that they are just as hot as an intramuscular injection;

or a postpartum patient will be more likely to take iron if she sees it as a hot medicine to counteract her cold state. Perhaps most important, awareness of the hot-cold paradigm can insure maximal use of ORS. Mothers need to understand that ORS should be used for not just the bloody kind of diarrhea, considered hot, but all the nonbloody kinds as well, which are considered cold. To this end, classes in ORS preparation should emphasize that it is a special medicine, in the neutral or bivalent category mentioned above, capable of combating the hot and the cold kinds of diarrhea.

CONCLUSION

The principal diagnostic challenge facing North American clinicians working for the first time in Guatemala is not the existence of exotic diseases, or even the lack of X rays or lab tests in *jornadas*, but how to interpret what patients are really saying. Linguistic interpreters exist; however, there is usually no help bridging the cultural and clinical gaps. This clinicians' guide is an attempt to do so, a clinical version of a traveler's guidebook. May it help those who wish to do good do well.

APPENDIX A Therapeutic Handbooks for Use in Developing Countries

- Bergstrom, S., Lillstrand, J., & Tunnell, R. (1994). *Perinatal health care with limited resources*. London: Macmillan Education.
- King, M., King, S., & Martodipoero, S. (1983). *Primary child care: A manual for health workers*. Oxford, UK: Oxford University Press. Very basic with treatment very outmoded but uniquely helpful in ideas for communicating with patients.
- Medecins Sans Frontieres* [Doctors Without Borders]. (2005). *Clinical guidelines, diagnostic and treatment manual* (7th ed.). Paris: Author.
- Schwab, L. (1990). *Eye care in developing nations* (2nd ed.). Oxford, UK: Oxford University Press.
- Vanderkooi, M. (2000). *Village medical manual: A layman's guide to health care in developing countries* (5th ed.). Pasadena: CA. William Carey Library. For use by lay missionaries in isolated settings, very basic but with tropical differential diagnoses and a frontier pragmatism that can occasionally be very helpful.
- Werner, D., Thurman, C., & Maxwell, J. (2003). *Where there is no doctor*. Berkeley, CA: Hesperian Foundation.
- Wolf, C., & Palmer, D. (1999). *Handbook of medicine in developing countries*. Bristol, TN: Paul Tounier Institute, Christian Medical & Dental Society. For use by hospital-based physicians, especially those unfamiliar with general practice, thus containing more than is applicable or necessary to the *jornada* setting.

APPENDIX B Glossary of Pain Terms

- pain in the bones (*dolor de los huesos*): usually means whole body pain
- pain in the shins (*dolor de las canillas*): pain in the legs
- waist pain (*dolor de cintura*): low back pain, also *dolor de los riñones* (kidney pain)
- pain at the mouth of the stomach (*dolor de la boca del estomago*): epigastric pain
- heart pain (*dolor del corazon*): usually epigastric pain, though it can also mean true chest pain. "Heart pain that climbs to the head" is probably gastro-esophageal reflux
- cramps (*calambres*): normally just muscle aches as opposed to spasm-type pains and are associated with carrying heavy burdens; some Maya use the term *horse-pain* instead.
- air (*aire*): almost always a migratory pain. In the abdomen, it is familiar to North Americans as gas pains; however, in Guatemala it also refers to muscular pains that move from one spot to another, for example, from low back to shoulder
- lung pain (*dolor de pulmon*): upper back and/or posterior shoulder pain and is usually musculoskeletal rather than pulmonary

APPENDIX C Recipe for Oral Rehydration Solution (ORS)

- One liter of water (if the dehydration is life threatening, use the cleanest water at hand; if not, use boiled or bottled water)
- 8 level teaspoons of sugar (better than "4 tablespoons" because tablespoons come in differing sizes)
- 1 level teaspoon of salt
- Optional: a pinch of baking soda, known as *bicarbonato*
- Just enough juice squeezed from an orange or lemon (depending on season) to provide flavor and potassium.
- Tell parents to taste it to make sure it is no saltier than tears.

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