**What to do, "Where There Is No Doctor"?:** A systematic evaluation of the book, "Where There Is No Doctor"

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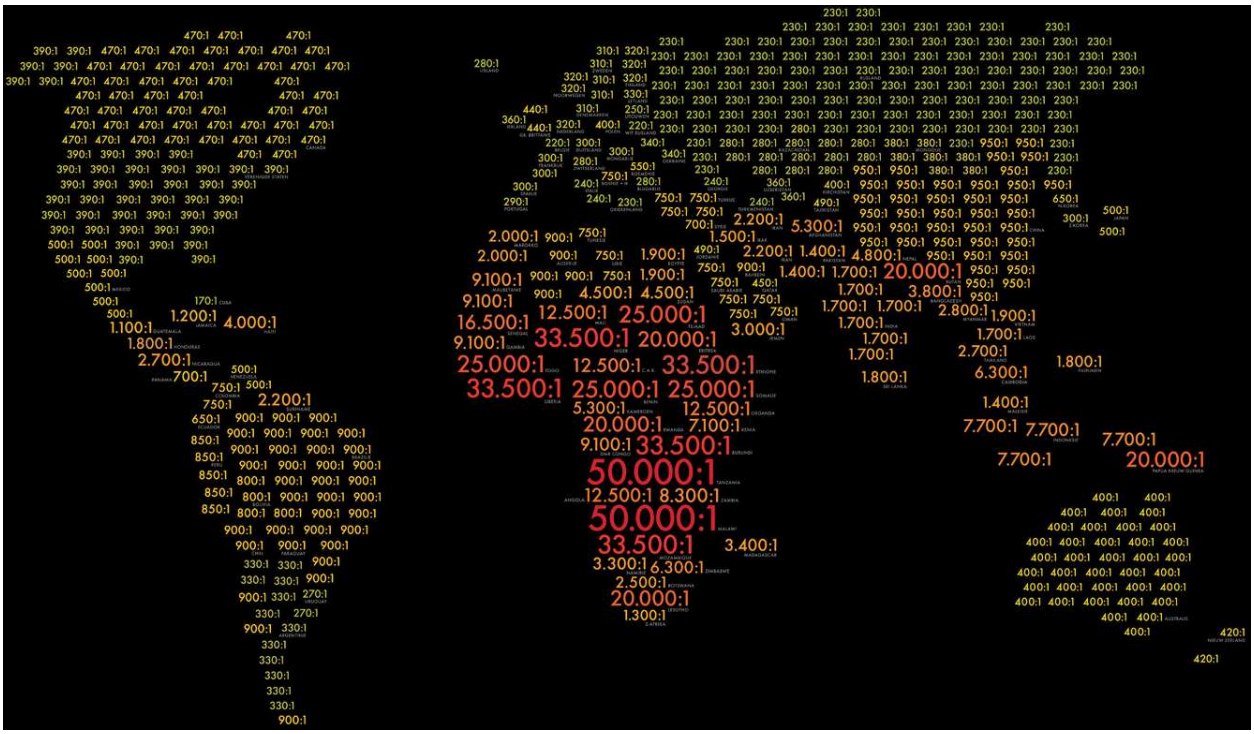
***A short summary of the opinions derived from this systematic review were previously published in book review format in JAMA (Babu and Eisenberg 2010).***

**Summary:**

Most of the world does not have enough doctors and other medical personnel to serve the basic needs of patients—many of whom suffer from high infectious disease loads. However, increasing the number of medical personnel is not thought to be a feasible option. The book, “Where There Is No Doctor” is widely used and respected in resource poor conditions where medical doctors are unavailable. However, the book has not been publically and systematically evaluated. Here we evaluate a sample of the book and find that while it might be a great resource, it also contains considerable problems in its diagnostic and treatment recommendations. Perhaps more importantly, it remains unclear how effective the book is at improving health outcomes for non-medically trained users. Methods of dispersing medical information such as drug dosing and diagnosis methods, normally received for professional use only, must be considered and systematically evaluated.

**The problem: NOT ENOUGH DOCTORS**

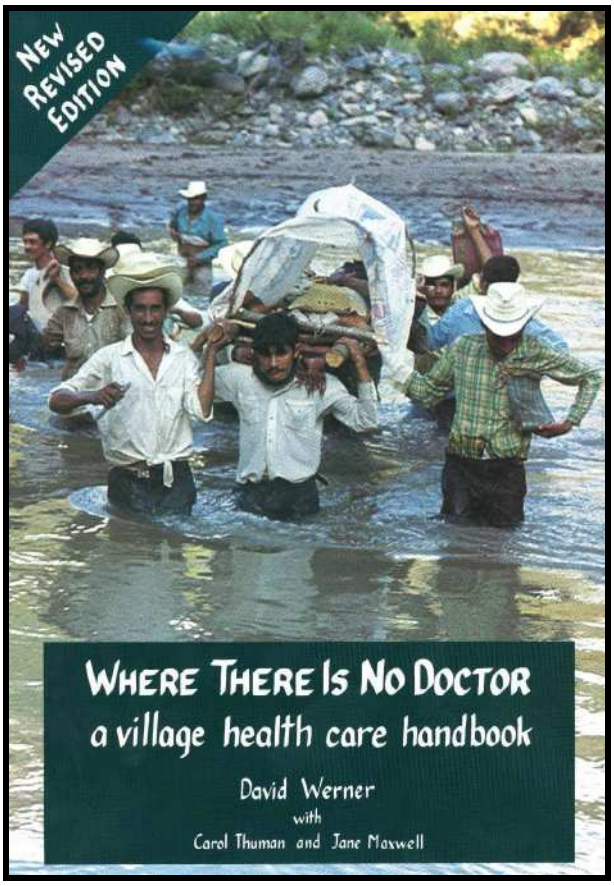
The global shortage of medical doctors is a massive problem which particularly effects poor countries (Joint Learning Initiative 2005). Many people around the world have little to no access to trained medical care. This deficit in doctors has a considerable relationship to health (Anand and Bärnighausen 2004). A prominent network of global health leaders recently concluded that in many countries improving health by increasing the numbers of doctors and nurses is simply not feasible (Joint Learning Initiative 2005). Given these conditions, people do what they can to survive and care for their friends and families. In many of these communities medications are available for purchase without prescriptions and people try their best to use these powerful medications to heal. People living in poverty often see that medications are used by people who are far wealthier and healthier than themselves and they do their best to emulate this. Unsurprisingly, there is rampant misuse of medications. Undoubtedly, new anti-biotic resistant strains of bacteria are being bread from the improper use of antibiotics. One of us (DTAE) was recently in a small isolated village in the Amazon rainforest when agents of a well-known Non-Governmental Organization “generously” donated a large box of medications, including powerful injectable antibiotics to villagers who had little idea of how to use them appropriately.



**NUMBER OF INHABITANTS PER DOCTOR.** Data from The World Health Report 2006. Modified version of image produced by EuroRSCG Amsterdam for Dokters van de Wereld/Médicins du Monde Netherlands (used with permission). This figure and the text discussion do not take into account that most doctors work in urban centers and that having a doctor that one cannot afford to get care from does one no good.

**A small solution: LET KNOWLEDGE FREE**

In the 1970s, recognizing this harsh reality, but also the inherent intelligence and self-interest that poor villagers have to maintain their own health and the health of their families and their friends, David Werner, a biologist and public health worker, set out to improve the situation. Werner, in consultation with community members (including medical professionals) in rural Mexico wrote a book entitled, "Where There Is No Doctor" (hereafter referred to as WTIND). The book is written in simple language and intended for villagers who may have little to no medical education. Nonetheless, the book contains extensive information on how to recognize and treat (including medication dosages) a wide range of medical conditions. Initial scholarly reviews of the book by the World Health Organization (WHO), United Nations Children's Fund (UNICEF) and Christian Medical Commission were generally critical of WTIND, "saying it gave far too much information to relatively unschooled people to be able to use, and that it was therefore unrealistic, foolhardy and dangerous (Eng 1999; Werner 2008)." Over time these critics changed their opinions and actually began to promote and finance translations of WTIND (Werner 2008). It has since undergone many revisions and been translated into 90 languages (Werner, Thuman et al. 2007; Werner 2008). Currently, WTIND is widely considered by the WHO, UNICEF, anthropologists, Peace Corps, missionaries and travel advisors to be the authority on medicine under conditions "where there is no doctor" (Kay 1977; Gottlieb 1992; Saloojee 1998; Eng 1999; Wallis and Lee 1999; Dawood 2002; Hellin 2002; Kolanad 2003; Everett 2004).



The 2007 edition of WTIND (Werner, Thuman et al. 2007). Digital version available for free at http://www.hesperian.org/

**But we must not get complacent and accept this new authority without questioning**

Being the only book of its kind, WTIND is considered an unquestioned authority for those who live in or visit poor rural areas of the world. Over 90% of surveyed readers believe the information in the book is accurate (Davis, Liut et al. 2008). On multiple occasions when we have discussed WTIND with its users they have referred to it as "the bible", and when we called WTIND's validity into question, we have sometimes been met with vociferous and indignant defenses. While medical professionals have given qualitative positive impressions of earlier version of WTIND and suggested minor improvements (Kay 1977; Amegevie 1983; Reynolds 1996; Saloojee 1998), these evaluations have not been systematic. To our knowledge, no independent medical reviewer has in the 30+ years since WTIND's original publication ever given more than brief public qualitative reviews of the book. Without careful systematic evaluations, WTIND has a greater risk of giving ineffective and maybe even harmful medical recommendations.

We, together with the help of several colleagues, set out to systematically evaluate the accrued recommendations of WTIND. Here we briefly present our findings, recommended specific corrections (Supplement 1) and future directions. We intensively evaluated the top two most useful chapters of

WTIND, as rated by a survey of users of the book (Davis, Liut et al. 2008). These chapters include "Chapter 12: Prevention: How to Avoid Many Sicknesses" and "Chapter 10: First Aid". We used a questionnaire (Supplement 2) to remind ourselves of the factors which must be considered and rigorously evaluated and to make our analysis of the book's quality systematic. Chapter 12 was evaluated by three medical doctors (coauthor EB-an internist and fellow in infectious disease, an internist/cardiologist and a pediatrician—all with international health experience). Chapter 10 was only evaluated by coauthor EB. In all cases DTAE screened the filled out questionnaires for consistency, obvious errors, and as someone without significant medical training but experience in remote locations without doctors, attempted to translate medical speak into common language with relevance to conditions where there is no doctor. This resulted in extensive dialogue between DTAE and the physicians as we attempted to evaluate the book while also trying to understand how it might be used and interpreted on the ground by those without medical training or access to medical care. The 43 pages evaluated here represent over 13% of the medically relevant pages of the book, and are focused on the two most important chapters.

**Our findings: A great book in need of many updates and changes**[1]

Probably the most important and objective measure of WTIND that we could make was whether or not the treatments recommended in a WTIND section gave up-to-date medical advice as evaluated by physicians advising current and respected medical references (See supplement 2 for more detailed methods). The recommended treatments of a section were judged up to date in only 62% of cases in chapter 12. Probably reflecting the more basic nature of the subject matter in chapter 10 (First Aid), treatments were deemed up-to-date in 88% of sections in this chapter. We note that each section usually lists multiple treatment options for each condition, but we judged a section as not up-to-date if any of the treatments were not correct.

Problems with treatments in chapter 12 included some cases of the wrong medication being recommended, an outdated and dangerous medication being recommended and where additional medication options should be listed. For example tetracycline is not a good treatment for amebic dysentery, piperazine is a less effective medication for roundworms and pinworms and paromomycin should also be considered for treatment of amebic dysentery (see Supplement 1 for explicit corrections). With the exception of using honey on burns, we could not confirm the efficacy of any of the complementary and alternative medicine recommendations given in WTIND. Treatment recommendations generally did not give information about what to do if a treatment fails, or how to

[1] As we were drafting this manuscript we were informed that the publishers were printing an updated version of WTIND. We shared our preliminary findings with them and several of these corrections are now included in the 2009 edition (Supplement 1). Our corrections come from only two chapters of the book, and presumably the rest of the book contains similar problems to those noted here. As such this new edition does not nullify the larger caution that we not blindly accept WTIND as an authority.

assess the efficacy of a treatment and follow up. These latter problems must be balanced against the tradeoff of being succinct and readable—a major strength of WTIND.

Similarly in chapter 10, we found some worrisome errors and insufficient information on the treatments provided. Some examples include: improper treatment of dislocations, insufficient antibiotics suggested for treating infected wounds, and not enough cautions to seek medical attention for some very difficult to treat conditions.

Dosages of medications for children are often given by age rather than be weight in WTIND. Given the high frequency of stunting in the developing world (e.g. estimated to be 28% of children under 5 (Grantham-McGregor, Cheung et al. 2007)), this could easily result in overdoses. Overdosing can cause nausea, vomiting and other side-effects that are likely to cause people to discontinue the use of needed medicine. Overdosing can also cause organ failure and death.

More subjectively, but perhaps more importantly, the physician evaluators also assessed how likely each section was to lead to a proper diagnosis given the information in the book employed by a medically untrained reader. This is a difficult assessment to make because it requires the physician to put themselves in the shoes of very different people, ignore years of their own training that has become ingrained and implicit, and also to consider the wide range of confounding diagnoses one is likely to encounter in a variety of countries. Nonetheless, a correct diagnosis is essential in order to take appropriate treatment actions. In chapter 12, the raters found that: most (66.7% of) diagnostic techniques would only possible lead to a proper diagnosis, 18.5% of diagnostic techniques were rated as likely to lead to a proper diagnosis and 14.8% unlikely to lead to a proper diagnosis. Diagnosis for ailments in chapter 12 including helminthes, giardia, amebas and blood flukes are generally difficult without laboratory facilities or medical training. Some of the diagnostic criteria are incorrect and misleading (e.g. the erroneous statement that amebic dysentery should be ruled out if fever is present). Chapter 10, being on first aid presents much easier to diagnose problems that the book does a better job of. 81% of sections were rated as likely to lead to a proper diagnosis, 13% as possibly leading to a proper diagnosis and 6% were unlikely to lead to a proper diagnosis.

On the other hand, much of the book focuses on more public health oriented prevention techniques and basic health related information. In this respect WTIND seems to do much better. The prevention recommendations were excellent, with virtually no problems in either chapter 12 or 10 (in chapter 12, and chapter 10, 96% and 100% of sections respectively were rated likely correct).

**A little context**

Despite these seemingly harsh critiques, we should step back and see the value of WTIND and how its weaknesses are the result of a larger lack of focus on the health care problems of the common person. WTIND enters into an area where there is a vacuum of good health information and worse, many false ideas. It tries to tell laymen how to diagnose disease, a role that we normally reserve as the domain of

experts. Perhaps reserving diagnosis and treatment to experts is appropriate when experts can be expected to be available, but it is not if we are concerned with the health of much of the world.

**Future directions**

Our findings are not definitive. They are the results of the volunteer efforts of just a few physicians. However, these findings should lead us to be cautious about uncritically accepting the authority of well-respected texts. We believe that via critical engagement with WTIND, we can make it an even better resource. Major assumptions remain about the efficacy of WTIND as a tool. Ideally, WTIND should be tested in field based clinical trials. One way such a trial could take place is by having physicians ask presenting patients to first attempt to diagnose and articulate treatment for themselves. The control group of patients would have to come to their conclusion based upon only their prior knowledge, while the intervention group would be given WTIND to inform their diagnosis and treatment recommendations. These conclusions would be compared to physician assessments of the same conditions. We would then be able to derive some reasonable index of the impact of WTIND. The experiment could also serve as an opportunity for physicians to more actively engage and educate their patients. Without such assessments of WTIND, a major assumption of the book, that diagnostic and treatment information should be given to medically untrained individuals, remains untested.

The future research we propose might seem overly-ambitious. It is important that we understand why this research seems so ambitious. In fact, the costs of carrying such a research effort out would be relatively small (especially when compared to traditional biomedical research), and could depend on the expertise of people in the countries that primarily use WTIND. What differentiates the proposed research is *not* its potential to help people. Instead it is that there is no profit model in this work. It is that it does not have the potential to help people with lots of money. However, a life that was born into economic poverty deserves to live without disease just as much as a life born into economic wealth.

**Acknowledgements:**

This work was inspired by a medical relief project conducted by DTAE and EB with the Tsimane' Amazonian Panel Study (TAPS) in lowland Bolivia under the partial sponsorship of William Leonard's discretionary funds from Northwestern University's Weinberg College of Arts and Sciences and DTAE's Northwestern University Summer Language Grant. Juyong Lee, M.D. and Karen Godoy, M.D. provided extremely valuable assistance in evaluating one of the chapters. Kathi J Kemper, M.D. provided advice on how to evaluate complementary and alternative/traditional medical treatments. Additional thanks to: the original author of WTIND, David Werner; Todd Jailer of the Hesperian foundation; William Leonard; Julie Cliff, M.D.; Ricardo Godoy; Jared Bragg; Michael Diamond; Matthew Fox; Nemer Narchi; Ronald D'Amico, MD; Nathan Eisenberg and the Northwestern University C2S Medical Anthropology

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**Supplements**

Supplement 1 – Recommended corrections to Where there is no doctor 2007 and 2009 editions, chapters 10 and 12.

Supplement 2 – Methodology and questionnaire used to assess each section and acknowledgments.

**Supplement 1. Recommended corrections of "Where There Is No Doctor" 2007 and 2009 editions chapters 10 and 12.** Supplement to review published in JAMA by Babu and Eisenberg.

*Readers should carefully consider all recommendations below and in the original book. Both are recommendations, not gospel. In ALL cases, better and safer medical diagnoses and treatments should be sought directly from medical professionals when possible.*

| # | Page | Section | Corrected recommendation/Addition | Included in 2009 edition |
|---|---|---|---|---|
| 1 | 76 | Fever | If person is confused or unconscious, seek medical help at once. If the fever is caused by exposure to hot weather, overexertion, or as a side effect from antipsychotic drugs (e.g. haldol or fluphenazine) the technique is different from treating any other fever- neither acetaminophen nor ibuprofen will be effective. The person needs to be cooled immediately. If the patient is on antipsychotic drugs the offending agent needs to be stopped. | Partially |
| 2 | 77 | Shock | Seek medical help fast (even if person is conscious) | Yes |
| 3 | 77 | Shock | If someone knows how, give IV solution of normal saline (regardless of person being conscious). | Yes |
| 4 | 78 | Loss of Consciousness | If there is a possibility of neck injury (someone with an injured neck might not be able to move their arms or legs, have neck and/or spine pain), do not tilt head. Do not pull things out of the throat blindly. | |
| 5 | 83 | How to stop nosebleeds | There is insufficient evidence for use of cardon cactus juice. Both cactus juice and hydrogen peroxide might irritate the person and cause them to sneeze which makes bleeding worse. | Yes |
| 6 | 83 | How to stop nosebleeds | Do not blow the nose gently--this is likely to make it take longer to stop the bleeding. | |
| 7 | 86 | Stitches | Stitches can be helpful for controlling bleeding in wounds that will not stop bleeding. If bleeding continues after stitching, get to a doctor as soon as possible. Use pressure to slow bleeding in the<br>mean time.<br>If the cut is superficial the worst thing that not stitching will result in is a scar. Stitching a wound can cause infection or a reaction to the thread. The needle can cause intense pain so it may be<br>more comfortable to inject lidocaine or benzocaine preparations to numb the area where the needle will puncture. | |
| 8 | 88 | Infected Wounds | Penicillin alone is not sufficient. Penicillin should be given along with Clindamycin 900mg intravenously every 8 hrs or Metronidazole 500mg orally every 8hrs. | Partially |

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|---|---|---|---|---|
| 9 | 93 | Acute Abdomen | A Physical exam should be conducted (see pages 35-36). Usually in child bearing women with lower abdominal pain near the pubic bone you have to think of ruptured ectopic pregnancy. Other considerations are pelvic inflammatory disease if the woman is having vaginal discharge (if you suspect this give ceftriaxone and Azithryomycin- see page 360). If the pain is in the left lower quadrant think of early appendicitis or kidney stones. If you suspect a kidney stone and there are no signs of infection then give hydration. If you suspect a kidney stone and there is infection present then give Gentamycin 3-5mg/kg and get the person to a hospital fast. If there is pain in the right lower quadrant think appendicitis or kidney stones. If the pain is in the right upper quadrant think cholecystitis (infection of the gall bladder). If the pain is in either the left or right quadrant it could be torsion of the ovary in women and torsion of testicle in men. | Yes |
| 10 | 94 | Obstructed gut | Other common causes that should be considered include peritonitis (lower down on page 94) and pelvic inflammatory disease (page 243). | |
| 11 | 94-95 | Appendicitis | For appendicitis give Ceftriaxone + Metronidazole (500 mg metronidazole 3 times a day). | |
| 12 | 96 | Burns | Some people have itching as the healing process occurs - they should try not to itch the effected area, because this this will slow healing. For itching try bicarbonate soda broths and moisturizing lotions to ease the discomfort. Also wear loose clothing. If burn might be 2nd or 3rd degree give a tetanus shot. If the heart rate is above 100 or the person does not urinate as normally the person is getting dangerously dehydrated. | |
| 13 | 100 | How to move a badly injured person | If person complains of neck or spine pain or can not move their arms or legs, be particularly careful and do not tilt their head. | |
| 14 | 101 | Dislocations | A follow up X-ray would be good to ensure that the position is ok. Use a sling for a day or two NOT for 30 days as noted. The patient should be encouraged to start using the joint and even doing some exercises to strengthen the muscles surrounding the joint. | Partially |
| 15 | 102 | Strains and sprains | If medical attention is not sought the problem might be made worse (e.g. if there is a tendon rupture or ligament tear). | |
| 16 | 103 | Poisoning | Ipecac should not be used in patients with heart problems and do not use the Ipecac extract which is more potent and more toxic. | |

| | | | | |
|---|---|---|---|---|
| 17 | 105 | Snakebites | Give tetanus antitoxin. If person has not already received the full tetanus vaccine series, they should also get this. | Yes |
| 18 | 106 | Scorpion Sting | Give tetanus antitoxin. If person has not already received the full tetanus vaccine series, they should also get this. | Yes |
| 19 | 106 | Black widow and other spider bites | Give tetanus antitoxin. If person has not already received the full tetanus vaccine series, they should also get this. | Yes |
| 20 | 141 | Roundworm | Piperazine is less effective, more dangerous and should be avoided | |
| 21 | 141 | Roundworm | Insufficient evidence for use of papaya. Might be dangerous because it will delay treatment. | |
| 22 | 141 | Pinworm | Piperazine is less effective, more dangerous and should be avoided | |
| 23 | 141 | Pinworm | Insufficient evidence for use of garlic and it use might be dangerous if it delays effective treatment. | |
| 24 | 142 | Hookworm | Snake-like itchy red marks might appear where the hookworms enter on the feet | Yes |
| 25 | 142 | Hookworm | Mebendazole, Albendazole or Pyrantel pamoate are all suitable treatments. | Yes |
| 26 | 143 | Tapeworm | Praziquantal is first line drug, and niclosamide should be used if praziquantal fails or is unavailable | |
| 27 | 144 | Trichinosis | Remove Thiabendazole and add Albendazole. | Yes |
| 28 | 145 | Amebic dysentery | Someone with amebic dysentery **will** often have a fever | Yes |
| 29 | 145 | Amebic dysentery | tetracycline should **NOT** be given | Yes |
| 30 | 145 | Amebic dysentery | Paromomycin (dosage 10mg/kg three times a day for 7 days) is another option to give with metronidazole instead of diloxanide furoate. | |
| 31 | 145 | Amebic dysentery | If signs of peritonitis (see page 95) are seen, seek medical help immediately. | |
| 32 | 145 | amebic abscess | should be page 369 for dosing of chlorquine (not 366) | |
| 33 | 145 | Giardia | current treatment is correct, but another option for treating "Acute Giardia" is to give a single 2g dose of Tinidazole (50 mg/kg for children) and Albendazole orally once daily for 5 days (400 mg in adults or 22.5 mg/kg for children). | |

| | | | | |
|---|---|---|---|---|
| 34 | 145 | Giardia | If symptoms of giardia last for more than 6 months, the condition is considered chronic and treated differently. First, sometimes drinking milk can cause similar symptoms. If it is not milk, then begin one of the following treatments: Metronidazole, or Metronidazole + Quinacrine, or Albendazole + Metronidazole (dosages are different than for non-chronic, see changes below) | |
| 35 | 146 | Blood Flukes | Chronic pain might also occur in upper right part of belly along with enlarged liver and spleen. | Yes |
| 36 | 147 | Vaccinations | Don't give measles vaccine if individual has HIV or is pregnant | Partially |
| 37 | 147 | Vaccinations | HepB vaccation: At least 4 weeks between dose 1 and 2, 8 weeks between dose 2 and 3 and at least 16 weeks between dose 1 and 3. | Yes |
| 38 | 369-370, 374-375 | Dosages for Metronidazole, Quinacrine, and albendazole | Add subsections for chronic giardia: Metronidazole 750mg three times daily for 10 days or a combination of metronidazole + quinacrine for 14-21 days (metronidazole 250 mg three times daily + quinacrine 100 mg three times daily) or albendazole + metronidazole (one dose of Albendazole 400mg + Metronidazole 500mg three times daily for 5 days). | Partially |
| 39 | 374 | Mebendazole | Add that for trichinosis 200-400mg should be given three times a day for 3 days then 400-500mg daily for 10 more days. Same amounts for children as adults. | Partially |
| 40 | 374 | Albendazole | Add that for trichinosis give at a dose of 400 mg twice daily for 10 to 15 days. For children give 7.5mg/kg/day twice a day. Give no more than 800mg/day. | Yes |
| 41 | 375 | Piperazine | Note that piperazine is less effective and more dangerous than alternative medications. | |
| 42 | 376 | Pyrantel | Should be 11 mg/kg not 10mg/kg | |
| 43 | 376 | Niclosamide | Dosing by age might be dangerous for children who are short and/or low weight for their age (this is common in poor countries). Instead give 1000 mg for children that weigh 11-34 kg and 1500 mg for children that weigh more than 34 kg. | |
| 44 | | Drug pages | Add section for Paromomycin - dosage 10mg/kg three times a day for 7 days. | |

**References for each correction#**

1[1]; 2[1]; 3[1]; 4[2]; 5[3, 4]; 6[5]; 8[1]; 9[1]; 10[1]; 11[1]; 12[1]; 16[6]; 17[1]; 18[7]; 19[1]; 20[8:pages 218-219]; 21[3]; 22[1];23[3]; 24[1]; 25[1]; 26[1]; 27[1]; 28[1, 9]; 29[1]; 30[1]; 31[1]; 32[10]; 33[1, 8]; 34[1]; 35[1]; 36[1]; 37[8]; 38[1]; 39[1]; 40[1]; 41[8, 11-13]; 42[1]; 43[1, 14]; 44[1, 8].

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**Supplement 2 – Methodology of evaluation of "Where There Is No Doctor" and Acknowledgements**

We evaluated the two chapters of the 2007 edition of "Where There Is No Doctor"(Werner, Thuman et al. 2007) rated by readers as the "most useful"(Davis, Liut et al. 2008). The 43 pages evaluated here from these two chapters represent over 13% of the medically relevant pages of the book. These chapters are: Chapter 12: Prevention: How to Avoid Many Sicknesses and Chapter 10: First Aid. Chapter 12 was evaluated by three physicians (EB, KG and JL), while chapter 10 was only evaluated by one physician (EB). EB is a United States trained internist, with clinical hospital experience in diverse settings including low income New York City, high income New York City, Nepal, Haiti and household-level care in lowland Bolivia, currently training as a fellow of infectious disease. KG is a pediatrician who, before becoming a physician, lived in a highland Bolivian village and used an earlier edition of WTIND. JL is a South Korean-trained internist and cardiologist with extensive clinical experience in Bangladesh and is currently in a U.S. residency for internal medicine.

Each physician evaluator used a standardized evaluation form to evaluate each section of the chapter individually (see Figure 1). Sections on public health practices, community organizing and other general information were not evaluated here because they do not correspond well to the main areas of expertise of medical doctors. Evaluators carefully considered their critiques of non-standard medical protocol on their own evidence based merits. The baseline of care with which WTIND was evaluated were considered to be those standards set by the online resource, UpToDate (UpToDate Inc. 2009), Harrison's Principal's of Internal Medicine, 17th edition (Fauci 2008), the Red Book (American Academy of Pediatrics. Committee on Infectious Diseases. 2006) and for matters of infectious diseases, Mandell, Douglas, and Bennett's principles and practice of infectious diseases, 6th edition (2005). For complementary and alternative medicines we consulted evidence based databases (Therapeutic Research Faculty). If a medical recommendation in WTIND was not contained in these sources a search for relevant primary literature was conducted. The standard medicine given in affluent countries might not be a reasonable recommendation if the medication is prohibitively expensive or unavailable in other contexts. As such, we considered the price and availability of medicines using the findings listed in the WHO Model List of Essential Medicines (World Health Organization 2007) and WHO Model List of Essential Medicines for Children (World Health Organization 2007).

More subjectively, but perhaps more importantly, the physician evaluators also assessed how likely each section was to lead to a proper diagnosis given the information in the book employed by a medically untrained reader. This is a difficult assessment to make because it requires the physician to put themselves in the shoes of very different people, ignore years of their own training that has become ingrained and implicit and to consider the wide range of confounding diagnoses one is likely to encounter in a variety of countries. Nonetheless, a correct diagnosis is essential in order to take appropriate treatment actions. Since an accurate causal diagnosis is not always necessary to properly treat a problem, we attempted to rate how diagnostic the symptoms were for the given treatments.

DTAE screened the physician-completed questionnaires for consistency and obvious errors. Additionally, as someone without significant medical training but experience in remote locations without doctors, he

attempted to translate medical speak into common language with relevance to conditions where there is no doctor. This resulted in extensive dialogue between DTAE and the physicians as we attempted to evaluate the book while simultaneously trying to understand how it might be used and interpreted on the ground by those without medical training or access to medical care.

While the assessment was underway, we shared our corrections (Supplement 1) with the editors of WTIND (Hesperian Foundation). Many of these recommendations were incorporated into the 2009 reprint of WTIND and when this is so we note it in Supplement 1. Aside from these changes there were few other substantial changes between the 2007 and 2009 reprints of WTIND. As such, the general conclusions contained in our review remain applicable to the 2009 reprint.

**Figure 1.** Evaluation form used to evaluate each section.

| | Question | Answer |
|---|---|---|
| | Chapter | |
| **1** | Section Title | |
| **2** | Page(s) of section | |
| **3** | Other relevant pages and sections consulted (including medication pages) | |
| **4a** | How likely is it that this Dx technique described will lead to a proper diagnosis. | 1. Likely to lead to a proper diagnosis; 2. Possible will lead to the proper diagnosis; 3. Unlikely to lead to the proper diagnosis |
| **4b** | How might having medical training influence ability to make this Dx | |
| **4c** | Likely Dx confusion/misdiagnoses: | |
| **4d** | Suggested Improvements/Comments | |
| **5a** | Is Rx up to date?: ***y****es/****n****o* | Yes; No |
| | **if NO answer: 5b, 5c and 5d below** | |
| ***5b*** | Do drug prices/availability likely play a role in Rx recommendation (consult WHO lists)?: | Yes; No |
| ***5c*** | *Drug price comments* | |
| ***5d*** | *How likely is the Rx to be effective?* | 1. likely to be effective; 2. possibly will be effective; 3. unlikely to be effective |
| **5g** | How might success of Rx be influenced by medical training? | |
| **5h** | Likely side-effects, dangers and other problems | |
| **5i** | Comments *(if poor treatment, please address how it compares to doing nothing. Also consider if additional follow up information/treatment should be included, such as if the treatment fails.)* | |
| **6a** | How likely is prevention recommendation/general health info to be correct: | 1. likely is correct; 2. possibly is correct; 3. unlikely to be correct |
| **6b** | Suggested improvements/Comments | |
| **7** | Additional comments about section in general *(include how cultural milieu, poverty, lack of resources, etc might particularly be important here, impact of recommendations, etc)*: | |
| **8** | What is basis for your opinions? (You need to list specific UpToDate Article) | |

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