

Hunters' Tropical Medicine, 2012

Chapter on Traditional Medicine

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KEY FEATURES:

- Traditional medicines are used by many patients in all countries.
- Although in part a profession, traditional medicine is often a home-based, familial practice.
- Some traditional treatments are safe, some are unsafe or have adverse effects.
- Some have been proven effective through controlled clinical trials; some have been shown ineffective.
- An open-minded, critical and respectful perspective on traditional medicine is fundamental for a good professional partnership with the patients and the population.
- In resource-poor areas, traditional medicines may not be a choice, but the only accessible form of healthcare. Such local resources may have a positive impact on the population health.

DEFINITION. The local health traditions of developing countries and of indigenous communities are commonly referred to as *traditional medicine*. Since most have a theoretical basis, materia medica, a range of therapeutic modalities, an empirical approach to treatment, and a tradition of training, a more appropriate term is *traditional health systems*. **GENERAL PRINCIPLES.**

This chapter presents an overview of the question: how a modern, Western-style health professional can deal today with the major health traditions of regions in which tropical and traditional health systems interface? Survey chapters typically provide breadth of coverage at the expense of depth. However, the bibliography lists publications that provide deeper coverage of the traditions, their treatment modalities, and their efficacy.

Why is it important for physicians in the tropics to know about Traditional Medicine?

1. Traditional Medicine is widely used

What has become clear since the publication of the World Health Organization Global Atlas on Traditional Complementary & Alternative Medicine in 2005, is that the majority of the population in most developing countries rely on traditional medicine for their everyday health needs, often integrating it on an ad hoc basis with modern medicines (Bodeker et al 2005).

Considerable use of traditional medicine exists in many developing countries: 40% in China and Colombia, 71% in Chile, while utilization in some African countries is estimated at 80% and above (Kasilo et al., 2005). It can be sometime difficult to differentiate what is traditional medicine and what is not, as in the example of the “kangaroo mother care” for preterm babies: although a “low-technology” method, it is actually a recent treatment modality (Charpak et al, 2005).

2. Traditional Medicine is often the first treatment used

There are many reasons why patients use traditional medicine: First, they may be in a remote location where modern medicine is simply not available when they need it. For cultural reasons, they may prefer traditional medicine - for example, in an attempt to have fewer side effects. They may also have experienced a failure with a modern treatment and want to try a traditional one. Modern health facilities are sometime avoided because they are perceived as expensive, dangerous, unfriendly or run with corruption. And patients may fear the fact that many modern medicines sold on the market are counterfeit or 'fake' drugs.

3. Traditional Medicine may interact with modern treatment

Some traditional treatments have known interactions with modern treatment. An example is St-John's wort (*Hypericum perforatum*) that has become one of the most prescribed anti-depressants, but must be used with caution by patients taking other drugs, such as contraceptive pill and some antiretroviral drugs, among others.

So it is prudent for physicians to discuss traditional medicine use with their patients. It is also useful to have some background in the safety, benefits and herb-drug interactions that may be involved, as well as familiarity with databases which provide such information.

4. Traditional Medicine may in some cases be a valuable option

Most physicians are unaware that a considerable amount of clinical research has already been conducted and published on traditional medicine. It is therefore incorrect to state that there is 'no evidence of effectiveness'. As a matter of professional ethics, doctors do need to know the present state of this knowledge through a regular check of the literature. If a treatment has a proven effectiveness and a good safety profile, this also must be known. In the same manner, if a treatment (e.g. a herbal tea) has potential secondary effects, doctors need to know this (see Box 1: **Databases on Complementary and Traditional Medicine**)

Effectiveness

1. Can the effectiveness of traditional medicine be evaluated?

Traditional medicine can be evaluated as any other medicine. In most cases, it is possible to use a standard research method. For example, it is straightforward to organise a randomized controlled trial (RCT) of an herbal treatment, provided one can make a placebo. For acupuncture trials, a "placebo acupuncture" (called "sham acupuncture") has been developed for control groups in clinical studies. Even very individualised treatments, such as complex mental techniques, can be evaluated through a prospective randomised controlled trial. Sometime blinding (which makes it impossible to know whether the "real" treatment is given or the placebo) is impossible, just as for surgery research, but non-blinded studies can still be of high value.

Contrary to a commonly held myth, clinical studies (even RCT) can be conducted at relatively low cost, if the researcher works with local/regional research institutes and with doctoral students, focusing on meaningful clinical measures rather than sophisticated laboratory analyses.

Recent studies on traditional medicine have begun to change perspectives on its effects and its role in the health of various populations. The safety and effectiveness of some traditional medicines have been studied, paving the way to better collaboration between modern and traditional systems.

Traditional medicines still remain a largely untapped health resource: they are not only sources of new leads for drug discoveries, but can also provide novel approaches that may have direct public-health and economic impact (Graz et al 2011).

BOX 1

Databases on Complementary and Traditional Medicine:

- *Cochrane Complementary Medicine Group*:
http://cochrane.org/reviews/en/topics/22_reviews.html
 - University of Maryland School of Medicine Cochrane CAM Field offers Summary of Findings tables ; Plain Language Summaries of CAM-related Cochrane Reviews:
http://www.compmed.umm.edu/cochrane_about.asp
 - *HerbMed* : scientific data on the use of herbs for health: www.herbmed.org
 - *MedicinesComplete*: on interactions, clinical evidence, mechanisms of action:
www.medicinescomplete.com
 - *Natural Medicines Comprehensive Database*: www.naturaldatabase.com . Contains The Natural Product/Drug Interaction Checker and The Natural Products Effectiveness Checker.
 - *Globinmed* : www.globinmed.com has a section related to intellectual property rights and the development of traditional medicine.
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2. Some examples of effective traditional treatments.

The number of traditional treatments that have been scrutinised through clinical studies is high (>1500 clinical studies in the last count).

MALARIA: From local practice to global solution

Cinchona and *Artemisia annua* have provided the basis for two of the three main classes of antimalarials (Willcox et al 2003; Willcox 2009), and many other plants contain antimalarial agents. Case study: It started with a “retrospective treatment-outcome” population survey in Mali, that showed that all patients using a decoction of *Argemone Mexicana* for uncomplicated malaria reported a complete cure, with very few side-effects (Diallo, 2006) . Subsequently, a dose – escalating prospective study showed a dose–response phenomenon (Willcox et al 2007). A prospective randomised controlled trial was organised in a remote village: the "control" treatment was the artemisinin combination therapy (ACT) artesunate-amodiaquine. Deterioration to severe malaria was 1.9% in both groups in children aged ≤ 5 years (with 0% had coma/convulsions), and there were no cases in patients aged >5 years.

The *Argemone mexicana* decoction could be proposed as a complement to standard modern drugs in high-transmission areas, in order to reduce the drug pressure for development of resistance to ACT. It may also constitute a first-aid treatment when access to other antimalarials is delayed (Graz et al 2010). A 3 month follow-up study confirmed that, even when all parasites were not eliminated, the

rate of severe malaria and anaemia remained low. Another plant of interest for malaria treatment is *Artemisia annua*. This plant provides the rough material for the production of ACT. It was reportedly used in China for a long time as a treatment for recurrent fevers. So the question arose: why not cultivate the plant on the spot and use the plant itself? (Willcox et al, 2003, 2007; Willcox, 2009). A first problem was that it does not grow everywhere. For example, it does not grow well in dry areas where *Argemone mexicana* grows -- which could make these two plants complementary, geographically speaking. Another problem was that the content of artemisinin is quite low, even in selected species. It was however hypothesised that several active constituents might work in synergy. Clinical studies showed promising results, although with relatively high recrudescence rate (Mueller, 2004; Blanke, 2008).

Figure 1: The traditional healer Thiemoko Bengaly and the plant *Argemone mexicana* used in his decoction against malaria (South Mali).



WOUNDS

Herbal treatments are widely used for wounds in non-industrial countries, as they are often more readily available and affordable, and may possibly be equally or more efficacious than the modern alternatives. Evidence indicates that a number of plant treatments are useful in a variety of dermatological conditions, including wounds.

Centella asiatica extract is one of the most widely studied plant-based wound treatments. It is used a number of tropical countries, including India, Malaysia, Madagascar and Sri Lanka. *In vivo* laboratory studies have shown its topical application to significantly accelerate wound healing, and *in vitro* studies of treated granulating tissues have demonstrated a significant increase in fibroblast activity, total DNA and collagen content.

Research on *Aloe barbadensis* has shown it to be a powerful wound-healing agent. Extracts from *Aloe barbadensis*, or *Aloe vera* as it is commonly known, have been found to penetrate tissue, have anaesthetic properties, have antibacterial, antifungal and antiviral properties, serve as an anti-inflammatory agent, and dilate capillaries and increase blood flow. (Grindlay & Reynolds, 1986; Tian et al, 2003)

Chen et al. (1994) studied the effects of ‘dragon’s blood’, sap from the bark of *Croton lechleri* used as a wound-healing agent in South America. The researchers found that *Croton lechleri* acts as a natural dressing which forms an occlusive layer with an antimicrobial environment and cell proliferative effects.

In Vietnam, research at the National Institute for Traditional Medicine in Hanoi has examined the mechanism by which *Cudrania cochinchinensis*, commonly used in Vietnam as a traditional wound-healing agent, produces a wound-healing effect. An extract of the plant was found to protect fibroblasts and endothelial cells against hydrogen peroxide-induced damage, leading to the suggestion that protection of cells against destruction by mediators of inflammatory processes may be ways in which this plant contributes to wound healing (Van Hien, Hughes & Cherry, 1997).

In studies at the Oxford Wound Healing Institute and Singapore General Hospital, Phan et al. studied the wound-healing properties of Eupolin, a topical agent produced from the leaves of *Chromolaena odorata*, and which is used widely for the treatment of burns and soft tissue wounds in Vietnam (Phan et al, 1996; 2001). Eupolin enhanced haemostasis, stimulate granulation tissue and re-epithelialization, and inhibit collagen contraction. These results suggest a mechanism for clinical reports on the effectiveness of Eupolin in reducing wound contraction and scarring, which are critical complications in post-burn trauma.

A comprehensive review of research by Burford et al (2007) on traditional medicine and wound healing presents information on utilization and research trends in this field.

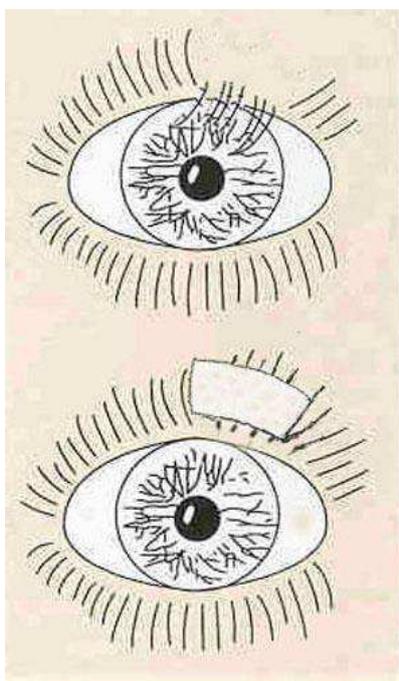
OPHTHALMIC CONDITIONS: A range of practices, from harmful to sight-saving

Traditional eye treatment (TET) has been the cause of much concern due to serious eye infections and injury associated with some traditional treatments. Public health programmes have focused on training traditional practitioners to refer patients for eye treatment. Following an interactive training programme with traditional healers in Malawi, based on a collaborative approach to eye care, it was found that among the 175 pre-intervention and 97 post-intervention patients, delay in presentation improved slightly (Courtright et al, 1996). In a multicentre RCT at the All India Institute of Medical Sciences, an Ayurvedic herbal eye drop formulation was significantly more effective in treating trachoma and chronic conjunctivitis than placebo. Research by the same group has found that an Ayurvedic herbal eye drop significantly improved dry eye syndrome (Biswas et al 1996).

Trachoma is among the most frequent causes of preventable blindness in the world. At the trichiasis/entropion stage, there is only one officially advocated treatment: lid surgery. There are, however, numerous reports of its limitations (late attendance, poor uptake, imperfect outcome and common recurrence of the disease). Valuable complement to the “lid-surgery only” strategy would be a non-surgical, easy-to-apply, inexpensive and safe treatment.

A traditional treatment for trichomatous trichiasis was observed in the Sultanate of Oman: Lashes contention. Based on the traditional treatment idea, a modern technique was devised (**Figure 2**): Once outside skin of the lid is clean and dry, malpositioned lashes are grasped with clean fingers and stuck on the outside skin with a small piece of sticking plaster. Check that eye opening and lid closure remain normal. Patient (or a friend or relative) is instructed to replace the sticking plaster when it falls off (this happens about once a week), for three months. This procedure was tested through a small prospective randomized clinical trial in China (Graz et al 1999). The results were that lashes contention with a sticking plaster was much more effective than epilation in relieving symptoms and correcting lashes -- and similar to lid surgery.

Figure 2 : Based on a traditional method from the Arabic Peninsula, a non-surgical treatment of trachoma at the trichiasis stage was found safe and effective: lashes contention with a sticking plaster.



Safety of traditional medicine

1. Regulatory development:

Regulatory requirements for herbal and traditional medicines vary from country to country depending on their history. Countries such as China and Vietnam, with millennia of actual use and more than fifty years of official modern health sector incorporation of traditional medicine, safety and regulatory standards are highly developed. In other countries where traditions may be centuries old but official recognition is still absent or only recent, safety standards may not yet be fully developed.

Indonesia's Health Law Act, for example, classifies traditional medicines (*jamu*) into two groups: (1) traditional medicines produced by individual persons or by home industries, which do not require registration; (2) traditional medicines produced and packed on a commercial scale, which do require registration, including submission of data on safety, composition, dosage, efficacy, claimed indications and quality control.

2. Counterfeit or 'Fake' Medicines

The World Health Organisation (2003) has estimated that the annual earnings from the sales of counterfeit and substandard medicines are in excess of US\$ 32 billion globally.

Traditional medicines do not escape the plague of counterfeit products. Irregularities have been detected in traditional preparations, including adulteration, substitution, contamination (e.g. with heavy metals or fungi), misidentification and incorrect preparation (Yee et al 2005).

Attempts are being organised to control products, with identification of constituents and assessment of product quality problems, be it intentional or not – and to trace back the source of inadequate products. Activities of drug quality control involve the International Criminal Police Organisation (INTERPOL), the World Health Organization, national authorities and NGOs.

Improving the control of traditional preparations may in turn increase the level of public confidence in these products.

Traditional and modern health systems – The need for cooperation.

It is important for physicians, whether in private practice, working in a hospital, a research institute or in health administration, to keep a close and lively relationship with the population that they are supposed to serve. Traditional medicine is one of the many community health factors that physicians need to know about and take into account. If a professional perspective is maintained along with a well-informed, constructive and non-judgemental attitude towards all health practices, community members will acknowledge this as a sign of respect and the outcome can be very rewarding in terms of relationship with the population.

Examples:

In a Refugee Population;

In a number of studies among refugees, it was found that Western physicians and treatments were not able to address cultural disease constructs or traditional practices, in some cases resulting in false diagnoses and inappropriate or ineffective care (Mollica et al. 2002, Dhooper 2003, Bodeker et al. 2005). These lapses in understanding and care can and have compromised refugee health. Such oversight of cultural perceptions and practices has also deterred refugees from seeking timely and often vital Western health services for fear of misunderstandings or stigma attached to traditional practices.

When working in a refugee camp, it can be helpful to seek out those refugees interested to help set up and maintain the best possible interim health system, given the difficult situation that this population faces. There may be physicians and nurses who can readily work with the expatriate teams; there may be paramedics who will be ready to help in preventive interventions; and there might be traditional practitioners, who should be contacted for, at very least, safety reasons. Because of their displacement, they may well be unfamiliar with local flora and could be at risk of providing unsafe preparations. Meetings between displaced and local traditional healers can be organised, if possible with a botanical outing, for refugees to learn to recognise local plants and avoid dangerous ones.

Many studies on psychosocial and primary health practices among refugees validate the effects of integrating traditional practices into refugee care. One of the first examples of such integration efforts was seen in the 1980s, when Dr. J.P. Heigel of the International Committee for the Red Cross (ICRC) helped Cambodian refugees in Thailand set up Traditional Medicine Centres. Western clinicians and traditional practitioners cooperated to build a dual treatment system with effective, mutual referral procedures (Hiegel 1990).

Another leading example is seen in Cambodia, where the Harvard Center for Refugee Trauma has shown that refugee trauma can be reduced by re-introducing traditional healing systems to dislocated communities (Mollica et al. 2002). Work with Karen refugees and internally displaced persons at the Thai-Burma border has included training of refugee community health workers clinic staff in herbal medicine; research on refugee patients' use of and belief in traditional medicine and spiritual practices; and initial work on the development of networks of herbalists in the Thai-Burma border region (Bodeker et al, 2005; Neumann & Bodeker, 2007). Training programmes were found to have contributed to stimulating several grassroots initiatives and to the development of herbal clinics along the border region.

These examples of integrating and supporting traditional health resources within refugee interventions highlight the need for increased international awareness regarding existing health resources within refugee populations.

In a Health District

Patients typically undertake their own self-referral, with few errors. They choose when they need to go to the modern medical system and when to turn to their traditional health practices. In the modern health centre the most frequent diagnoses (i.e. the 'case-mix') are typically infant and childhood diarrhoea, pneumonia and malaria. In the traditional practitioner clinic, patients present with chronic

and congenital disorders, mental problems, functional and terminal diseases. These diagnoses represent a challenge for modern medicine which often has little to offer in resource-poor settings. Patients can be counselled and supported in making their choices, in order to minimise mistakes.

Development of New Drugs and Treatments; Intellectual Property Rights.

In the classical research process, many substances are selected through field studies (ethnobotany or ethnopharmacology), but very few are eventually found safe and effective in human studies. The selection process itself is questionable (Heinrich, 2009), as it is hard to find any treatment that has been found through this process in history. Conventional drug development is slow and expensive. The finished products are often unavailable and unaffordable to the poorest patients in remote areas, unless they are part of a heavily subsidized scheme.

In contrast, phytomedicines made out of products available locally can, if proven safe and effective, become useful complement to imported drugs if they are cheaper and more available. The development of local phytomedicines of proven safety and effectiveness can be conducted through a relatively cheap and fast process called “reverse pharmacology” (Willcox et al, 2011)

Exploitation of traditional medical knowledge for drug development without the consent of customary knowledge holders is not acceptable under international law (UN Convention on Biological Diversity (CBD), 1993). Under the CBD, State parties are required to “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles ...and promote involvement of the holders of such knowledge and practices encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices.”

The International Society of Ethnobiology (2006) has developed a comprehensive set of ethical guidelines for researchers working on traditional medicine, which can be accessed at :
<http://ethnobiology.net/code-of-ethics/>

The World Health Organization’s Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property, 2008, gives priority to research in this field and supports drug research and development in traditional medicine systems in developing countries. (http://apps.who.int/gb/ebwha/pdf_files/A61/A61_R21-en.pdf)

Clinical pearls:

1. A traditional bone-setter in Mali

After 9 hours of bumpy roads on the Dogon plateau in Mali, this visiting doctor was incapacitated for any further work, thanks to an attack of low back ache. His local colleague proposed visiting a well-known bone-setter. Once inside the courtyard the patient (as the doctor was then) removed his shirt and was submitted to a series of energetic pulls and twists of trunk and limbs eliciting distinct crackling sounds. Five minutes later, he stretched, sprung up, and found that he could walk again, the back pain almost gone. In such a case, there is no need for sophisticated clinical studies to conclude that we have observed a case of rapidly effective treatment for acute low back pain.

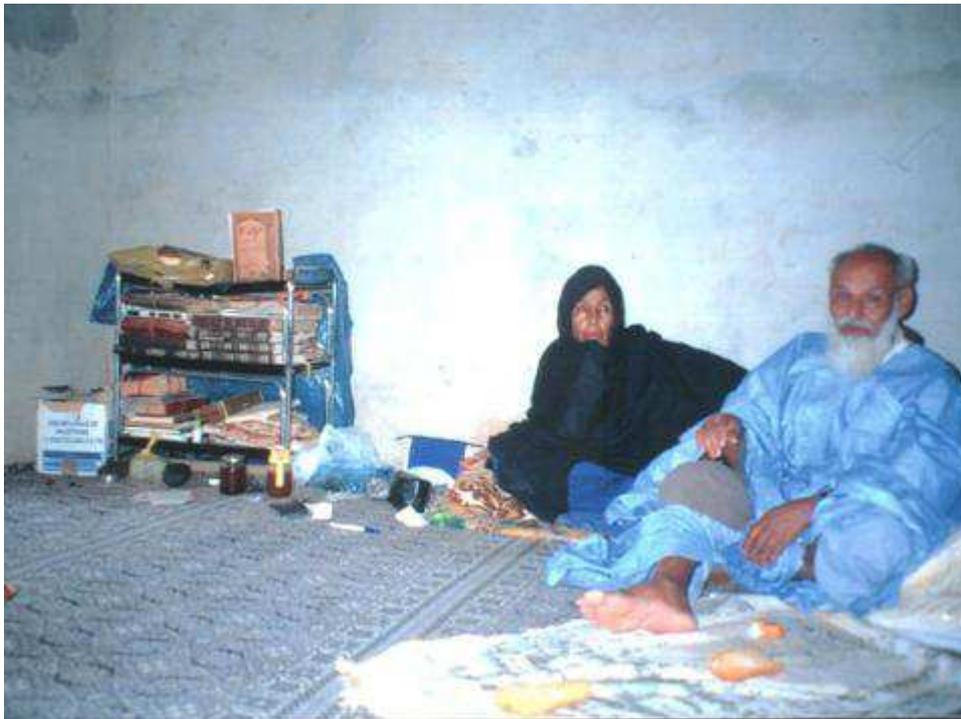
Figure 4: A traditional bone-setter in Mali taking care of a patient with acute low back pain.



2. Last hope after an open fracture

In a clinic in the desert near Nouakchott, Mauritania, two traditional practitioners, brother and sister, hold their consultations together on a carpet in a cool adobe house. Their practice is based on the Greco-Arabic tradition dating back to Avicenna and Hippocrates (Graz, 2008). A boy of about 15 is brought in by his parents. All three are in tears and despair: the boy, after an open fracture of the tibia, was taken to the National hospital where it was declared that his leg was deeply infected and must be amputated. The practitioner examines the leg and proposes a therapeutic trial. For several days, every morning he fills the purulent sinuses with powdered resin from a local tree (we learned later that this is a local variety of myrrh, *Commifora africana*). Three weeks later, we find the boy playing football in the courtyard. We took the resin to a microbiology lab for an antibiogram; the result was zero observed anti-biotic properties. The effect -- if there was any -- remains of unknown nature. All we know is that subsequently we observed several other deep infections successfully treated with the same resin.

Figure 5: Traditional healers in the Sahara, practicing Greco-Arabic medicine (Mauritania)



3. Tackling water-borne disease the traditional way.

The ancient texts of Ayurveda in India recommend the use of metals such as gold, silver and copper for water purification and, traditionally, Indian homes stored drinking water in copper and silver pots. In recent years this practice has been replaced by the use of steel and plastic containers, as copper and silver have become expensive.

Ayurvedic physicians, to the perplexity of the modern world, have argued that rising levels of childhood diarrhoea and water borne diseases are linked to this shift.

In a number of rural villages of India, water that contained *E. coli*, *S. Typhi* and *V.cholerae* was stored in copper pots or in glass containers along with a simple four-inch coil made of pure copper.

As expected by the Ayurvedic physicians, and to the considerable surprise of the modern medical research community, after 16 hours of storage, there was no growth of bacteria after overnight incubation with the copper pots or copper device, whereas control bottles without the device showed more than a 30-fold increase in *E. coli* counts and more than a four-fold increase in *S. Typhi* and *V. cholerae*. At the same time, the pH and levels of copper in the test containers were well within the permissible limits set by WHO (Sudha et al, 2008).

This is part of ongoing evaluation of traditional health practices conducted by the Foundation for Revitalization of Local Health Traditions in Bangalore, India (www.frlht.org)

CONCLUSION

The majority of the population of most tropical countries continue to use traditional medicine as a primary source of healthcare.

Accordingly, physicians in the tropics need to understand what traditional medicines and traditional therapeutic approaches their patients are using, in order to best advise on issues of herb-drug interactions, possible benefits and harms of traditional medicine and to work with local health practitioners on appropriate cross-referrals.

The tropical medicine practitioner may be faced with the negative effects of traditional medicine practice, but should not forget that only failures are seen (and the reverse is true: traditional healers only see the failures of modern medicine).

In view of the trust of local communities in traditional medicine and its practitioners, a policy of partnership with traditional health practitioners is warranted, based in mutually respectful exchange. In addition to enhancing a patient centred approach to clinical practice, this will build a constructing relationship and credibility within the wider community.

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Acknowledgements:

The Global Initiative for Traditional Systems (GIFTS) of Health, Oxford, UK (www.giftsofhealth.org) and the Research Initiative on Traditional Antimalarial Methods (RITAM) (www.gifts-ritam.org); The Swiss Cooperation and the Organisation Antenna Technologies (Geneva) for their support; Merlin Willcox, Jacques Falquet and Jean-Claude François for their pictures; populations and authorities in the many tropical countries where the authors have gained experience: India, China, Vietnam, Thailand, Laos, Malaysia; Erytra and Ethiopia; countries in East & Southern Africa, particularly Kenya, Tanzania, Uganda and South Africa; Madagascar; Mauritania, Mali, Oman, etc.