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Short-term Medical Missions: Some Quality of Care Issues

Abstract

This article considers some aspects of quality of care for short-term medical mission teams. Results of an intervention using patient care cards provide a basis for discussion of some cultural, missiological, and operational factors that may negatively impact quality of care. Consideration of some alternative styles for short-term health missions arise from a comparison of the underlying assumptions of short-term medical missions that are at odds with the current trends in health missions toward community-based, transformational development ministries. Responsibility for the quality of care and for understanding the relevant factors ultimately rests with the health professionals on the short-term teams.

Introduction

The short-term mission movement is well established and growing (Corwin 2000). Estimates from the year 2000 are that about 500,000 individuals participated in short-term (i.e. less than 2 months) cross-cultural mission trips that year (Butin 2001). Conservative estimates are that the cost for a typical short-term mission trip is at least US\$ 1,000 per participant. With a probable aggregate price tag of more than half a billion US dollars, short-term missions are a substantial (if not a primary) modern foreign missionary effort of US-based churches.

Perhaps a tenth of these short-term trips are medical mission trips.¹ Short-term medical mission teams offer a dramatic and very

tangible method of demonstrating Christ's love in the world. Typically, a traditional short-term medical mission is a fully equipped team of volunteers that includes health professionals who travel to a less developed country to provide medical or dental services to poor or needy populations for a week or two. The teams typically have patient encounters in which they take a brief history, perform a focused examination, make assessments, and dispense medicines. Participants may return with dramatic stories and claim (sometimes justifiably) that "this person would have died if we had not been there!" This type of anecdotal evidence is extremely powerful. Medical teams are popular with participants as well as with many of the receiving churches.

However, sponsoring groups and others involved have not systematically evaluated the health effects or mission value of these short-term medical trips, and this situation has not changed in the decade since the issue was raised previously (Montgomery 1993). Problem areas may include health and missiology concepts that are inappropriate or outdated (Atkins 1990; Shaffer 1990); cultural issues that interfere with the mission group's effectiveness (Montgomery 1993; Adeney 2000); and issues of medical competence and quality for practitioners who may be working in a foreign clinical environment with tropical diseases or other conditions that are outside of their usual areas of medical expertise. While discussions of the concepts of health ministries today may generate controversy, no one is likely to dispute that a Christian medical mission should at the least meet an acceptable quality of care without the appearance of double standards if it is to be an ethical and effective Christian witness.

Accordingly, this article considers some aspects of quality of care, as well as some general issues related to short-term medical mission teams in relation to current concepts of health ministries. In particular, the focus of this article is on those teams that are doing general medicine, rather than sub-specialty and surgical teams.

Short-term Medical Missions and Quality Issues

Short-term medical teams work under difficult conditions. Language barriers, sub-optimal physical examinations (while seeing patients on church pews or with poor lighting or with too much noise – or with all these and more), no laboratory testing, no ability for patient follow-up, and other limitations challenge the team members professionally and personally. In addition, teams often do not understand the language or the culture in which they come to work (Montgomery 1993; Van Engen 2000). Teams are frequently unfamiliar with the local health care system in the area in which they are working. Teams may be unfamiliar with accepted international guidelines for pharmaceutical and medical equipment donations (WHO 1999; Heimann, Issakov, and Kwankam 1997) and may be unaware of local laws regarding the importation of medicines and supplies that they bring along.

For reasons that are unclear, short-term general medical teams may neglect to collect basic medical history such as known medication allergies and current medicines. As an example, a short-term medical team saw a poor woman in her sixties with a complaint of chest discomfort. After the North American physician (with the help of an interpreter) completed the history and physical exam, a long-term missionary was asked to get involved to arrange urgent follow-up for suspected symptomatic heart disease. In

talking with the woman, the missionary discovered that she was already under medical care and had copies with her of her electrocardiogram, echocardiogram, consultation notes from her cardiologist, and a copy of her treatment plan (she had obtained all of these services through the public health clinics). The short-term team members were pleased (and perhaps reassured and relieved) that this information was available. When they reviewed it, they identified an apparent treatment error. To correct this, they recommended that she also take an aspirin a day in addition to the other medicines prescribed by her cardiologist. At the team's pharmacy, the woman refused the aspirin, explaining she had an allergy to "aspirin, ibuprofen, and those medicines."

As occurred in this example, some teams ask less than 15% of their patients about medication allergies prior to distributing pharmaceuticals through the teams' pharmacies (authors' observation). Such omissions place patients in jeopardy of avoidable medication reactions or interactions. This is a basic quality of care issue. The basic quality issues in the example – failure to ask about known medical conditions, previous medical care, and medication allergies – are within the abilities of all short-term medical teams to correct.

There is no practical way for local churches to assume responsibility for the quality of a visiting medical team. Healthcare quality assurance is likely outside of the local churches' area of expertise. Further, the churches would be made responsible for something over which they would have no effective control. Ultimately, the health care professionals on the short-term medical team are responsible for the quality of the care that they provide. A recent statement of professional standards of conduct for individual medical practitioners includes among other responsibilities a commitment to professional competence, a commitment to improving quality of care, and a commitment to the just distribution of finite resources (ABIM Foundation, ACP-ASIM Foundation, and European Federation of Internal Medicine 2002). These standards arise from individual responsibility and would follow health professionals into a short-term medical mission. However, depending upon the team's organization, it may be difficult to even determine which health professional may have seen a particular patient and who is taking responsibility for that patient's care.

While the quality of care is the teams' responsibility, mission agencies or the host churches and faith communities may be able to assist short-term medical teams with quality assurance. This article reviews the experience of providing short-term medical teams with simple, standardized forms printed on four by five inch cards (Figure 1) that could serve as reminders to complete an adequate history.

Methods

A consecutive series of five short-term general medical teams visiting la Iglesia Episcopal Dominicana from December 2001 through May 2002 were offered pre-printed four by five inch cards (Figure 1) for use by their teams. The front of the card included space for: patient's name, age, sex, today's date, allergies, chronic medical problems, current medications, the last time that the patient had seen a physician, and the reasons the patient had come to see the team that day. The back of the card included space for:

vital signs and weight, history, physical examination, observations/conclusions/diagnoses, prescriptions/patient instructions, caregiver's signature, and pharmacy notes.

Figure 1A

Front of card

Nombres (Apodos) Apellidos _____

Edad _____ Género: M F Fecha: ____ / ____ / ____
día mes año

Alergias? (especifique: _____)

Problemas crónicos: _____

Medicinas corrientes: _____

¿Cuándo ha visto un _____

Las razones que vie _____

Fi
gu
re
1B
Ba

PA: / Pulso: Resp: Temp: Peso: kg / libras

Historia médica: _____

Examen físico: _____

Observaciones y Conclusiones: _____

Recetas: _____

Firma: _____

Farmacia: _____

ck of Card

Teams were told that the cards were part of a quality assurance program during a short workshop (about 15 minutes) in which the cards were reviewed and interpreted. Items for the quality assurance review were chosen beforehand and included: allergies, current medications, and caregiver's signature. Teams were not told that the cards would be checked for the presence of this information. Cards were collected from each team and results collated. Cards from patients seen only by optometrists, audiologists, and other similar specialists were not included in the analysis. For allergies and current medications, any relevant notations or marks (such as Φ , \emptyset , \times , $-$, \checkmark , etc.) were accepted as evidence that inquiries had been made about those items. The purpose of the cards was to remind the team members to inquire about these areas and no attempt was made to determine the accuracy of the information collected regarding allergies or current medications. The presence or absence of the caregiver's signature was noted. In addition, the ages, sex, and days since last physician contact were also collated. The University of Cincinnati Medical Center Institutional Review Board approved this protocol.

Statistics are descriptive and comparative. One-way analysis of variance was used to compare numerical data and Chi square analysis was used for categorical comparisons among groups (Rosner 1990). All tests were two-tailed. Analyses were performed using a commercial statistics program (Statistix7. Analytical Software. Tallahassee, FL 32317).

Results

The five short-term general medical teams included two first-time teams (teams 1 and 2) and three experienced teams (teams 3, 4, and 5). Teams had from 2 to 6 health care providers seeing patients; providers included physicians, physician's assistants, nurse clinical specialists, and nurse clinicians. Teams worked in both urban and rural settings.

TABLE 1. Patient Characteristics

	Team 1	Team 2	Team 3	Team 4	Team 5	All Teams
Number of patients	209	414	704	897	562	2,786
Sex: female; male *	137; 70	284; 126	465; 236	594; 302	354; 208	1,834; 942
Age in years: Mean (median) †	26.6 (19)	22.5 (14)	28.0 (22)	24.4 (15)	23.2 (15)	25.0 (16)

* Numbers may not sum to expected totals secondary to missing values. † $p < 0.002$ for difference among teams

The teams saw a total of 2,786 patients (Table 1). Ages of patients ranged from newborns to 95 years of age (mean 25.0; median 16), with a significant difference among the teams ($p < 0.002$). Only Team 3 saw a group of patients with a median age

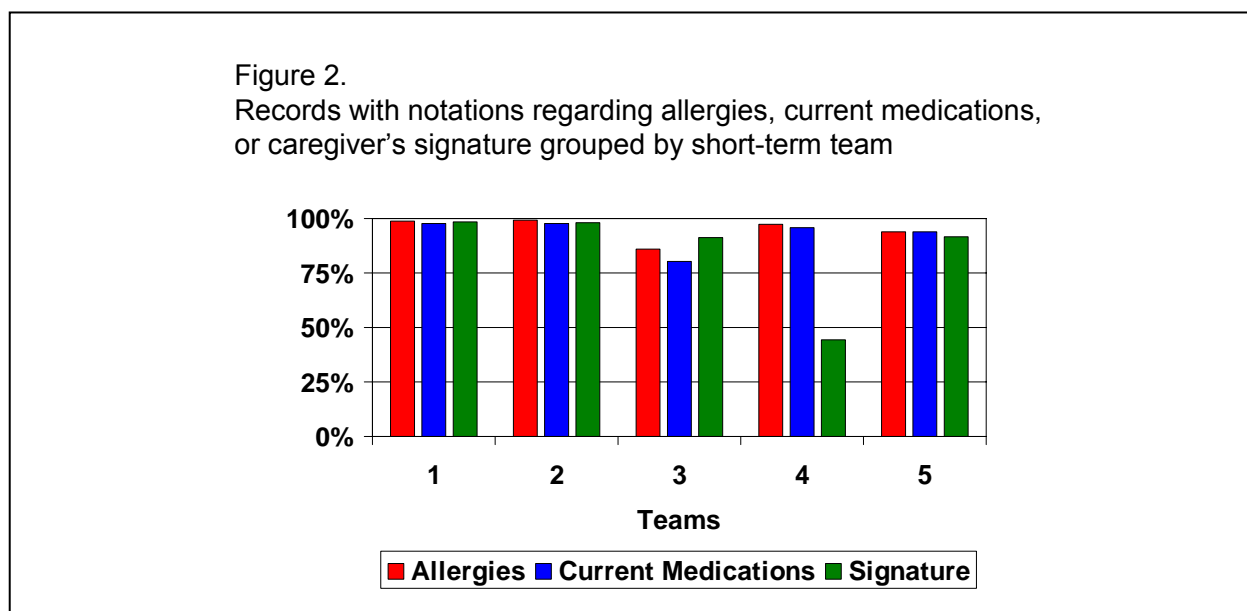
outside of the teen-age years. Overall, 66% of patients were female and 34% male. There were no differences in sex distribution of patients among the teams ($p = 0.37$).

TABLE 2. Records with notations regarding Allergies, Current Medications, or a Caregiver’s Signature

	Team 1	Team 2	Team 3	Team 4	Team 5
Number of Cards:	209	414	704	897	562
Number (%) with notation of:Allergies[‡]	207 (99.0%)	411 (99.3%)	606 (86.1%)	875 (97.5%)	527 (93.8%)
Number (%) with notation Current Medications[‡]	204 (97.6%)	404 (97.6%)	566 (80.4%)	860 (95.9%)	528 (93.9%)
Number (%) with signature[‡]	206 (98.6%)	406 (98.1%)	641 (91.0%)	399 (44.5%)	515 (91.6%)

[‡] $p < 0.001$ for difference among all teams; $p < 0.001$ for first-time teams (Teams 1 & 2) compared to experienced teams (Teams 3, 4, & 5).

Four teams accepted the cards for their use; team 3, which had been using a similar card previously, printed and used their own cards with essentially the same format as the prototype in Figure 1. Only team 3 did not complete a workshop on the clinical cards before beginning to see patients. One caregiver was not present for the team 4 workshop, and only leaders attended the team 5 workshop. After their team’s workshops, people doing patient registration for teams 2, 4, and 5 asked for additional information about the use of the cards.



The percentages of the records for each team that had notations regarding medication allergies, current medications, and a caregiver’s signature are shown in Table 2 and Figure 2. The rates of completion of these three items were significantly different among the teams ($p < 0.001$ for each of the three items), and the two first-time

teams (Teams 1 and 2) were different than the experienced teams (Teams 3, 4, and 5) ($p < 0.001$ for each item).

Many records (approximately 700) had either no notation or no definite estimate concerning the time since the patient's last visit to a physician. Of the total 2,786 patients, the number of patients having seen a physician within the past week before coming to a team was 195 (7.0%); within the past month was 669 (24.0%); within three months was 1,171 (42.0%); and within six months was 1,497 (53.7%).

Discussion

The principle that health professionals are responsible for the quality of care they render dates at least from Hippocrates' directive: ". . . have two special objects in view with regard to disease, namely, to do good or to do no harm" (Hippocrates 400BC). In a broader sense, this concept admonishes all interventionists to take responsibility for both the intended and unintended consequences of their actions (Slimbach 2000). Perhaps it goes without saying that whatever we undertake as Christian missionaries, we should plan to do competently and well (Slimbach 2000).

The aphorism "something is better than nothing" does not apply to curative medical missions where the "something" carries a capacity to harm (WHO 1999, Adeney 2000). The transitory nature of the interactions during short-term medical trips may mitigate the sense of responsibility that the health professionals feel, and even lead to a feeling that those involved can escape the consequences of their actions (Slimbach 2000). Indeed, teams may be unaware of the consequences of their actions; for instance, most patients needing medical follow-up for adverse medication reactions will seek care from other physicians, while the short-term team that dispensed the medicine never realizes that anything adverse occurred (authors' unpublished data).

Team members may have the impression that they are the only source of medical care for the patients that they see, contributing to the "something is better than nothing" mentality. This impression may be confirmed and encouraged by local church contacts. While access to health care or traditional healers will be variable in different parts of the world, the time since the last physician visit indicates that this population was not without access to medical care. Because the denominator contains all patients, including those with no notation about their last physician visit, the reported percentages are minimal estimates. Of the patients in this report, at least 42% had seen a physician within the past three months. By comparison, 57% of patients of predominately Latino background who came to a public hospital emergency department in the United States with non-urgent medical problems had seen a physician at least once in the previous three months (Derose and Baker 2000). While medical teams may be motivated to treat those in greatest need (including those without easy access to medical care), other criteria such as safety considerations, local conditions, and local ministry goals may take precedence over the perceived "neediness."

Characteristics of the teams may have impacted their performance; five teams provide material for speculation, but not for conclusions. The best performers were the

two first-time teams (teams 1 and 2). This may indicate that they were more open to the quality of care message, more adaptable in their practice pattern, or more accepting of suggestion than the experienced teams. In addition, the first-time teams saw fewer patients with caregivers spending more time on average with each patient. Conceivably, teams oriented toward North American “idols” of speed, quantification (i.e., numbers of patients and prescriptions), and achievement (Montgomery 1993, Adeney 2000) may be less able to or interested in completely documenting their care. Members of teams 1, 2, and 4 worked together as a team at their worksites; teams 3 and 5 split themselves into sub-groups to cover two worksites most days. Possibly, by splitting a team, there is some breakdown in the registration and other systems when they are duplicated at another site. Team 3 had the lowest rates for asking about allergies and current medications and also saw the oldest overall group of patients, who might be more likely to already be on medicines or to have developed medication allergies during their lives.

The actual patient caregivers (especially physicians) are a critical element for curative medicine teams, though sometimes they are difficult to recruit. Team 4 had two physicians who each traveled independently from other locations and met the rest of the team after arrival; team 5 had caregivers who came with the team as well as physicians who met the team after arrival. Health professionals who are not a part of the team building and trip planning could cause fragmentation on a team if mission goals and operations are not clear to everyone. The low signature rate for team 4 arose because one caregiver evidently did not sign any cards; this physician had missed the team’s workshop because of logistical problems getting everyone together after arrival.

The three experienced teams had been using data forms of some sort. While serviceable for a short-term medical visit, these forms often had a strong orientation toward the teams’ interests, such as increasing efficiency (pads of pre-printed “prescription blanks”), collecting information thought to be useful for planning next year’s trip (for instance, the types and amounts of medicines dispensed), or documenting the number of patients seen in order to demonstrate the team’s productivity and value to the church back home. While there is nothing intrinsically wrong with these ancillary activities, they should not take precedence over the strengthening of the local church’s ministry or ensuring that the patients receive quality medical care and have a positive experience with the short-term team.

In addition, teams may also be interested in recording patient information for their use on subsequent trips to ensure “continuity-of-care,” even though “short-term medical mission” and “continuity-of-care” is an apparent conceptual oxymoron. Nevertheless, the continuity-of-care concern has been sufficiently important to teams that some have gone to the extent of using notebook computers (obligating the local church to provide electricity or have a generator) to register patients and establish a database for the team’s use. The continuity-of-care issue may be a manifestation of confusion between short-term and long-term Christian mission activities.

A common expectation of short-term teams in general is that they serve and relate to the program and goals of an ongoing local ministry (May 2000). However, with

changes in the understanding of the theology of health and the subsequent changes in health ministries (Ewert 1990), the coordination between traditional short-term medical teams and newer long-term health ministries becomes more difficult.

A cultural manifestation (or perhaps more accurately a manifestation of Western medical culture) is that North American practitioners generally adhere to a narrow pathophysiological view of health (Atkins 1990). Emphasis is on disease, and its diagnosis and treatment. Non-Western cultures may have a more expansive, wholistic, and integrated concept of health that is less disease-oriented and closer to the Biblical understanding of health (Mosley 1990).

Other concepts follow from this Western disease orientation (Atkins 1990). Curative medicine may be more highly valued than preventive medicine or community health. Health care becomes an authoritative system with highly trained health specialists who control the health agenda and system. These concepts contribute to an approach to health in which the clinic or hospital (or visiting short-term medical team) assumes a position of primary importance in a facility-based, resource-rich, and technologically-oriented program.

In contrast, Christian health ministries are emphasizing community-based health and preventive medicine programs. This new emphasis may be the most important trend in health ministries today and contributes to the perspective that health is everyone's responsibility (Van Reken 1990). From this perspective, health ministries move from a disease-oriented, relief ministry to a development ministry in which people should have the knowledge and means to take control of their health. "It is where people live their lives, in the home . . . [that they] make the daily choices that determine their health" (Sox 2002).

Curative medicine ministries, including most short-term medical teams, providing medical care for free or at reduced costs to patients who are ill, generally fall into the category of relief ministries. Short-term medical teams are out-of-step with the trend in health ministries that are moving toward the development end of the scale.

Not only has the trend been toward development, but also it has been toward transformational development. Transformational development is "a deeply rooted change in people's economic, social, political, spiritual, and behavioral conditions resulting in their enjoyment of wholeness of life under God's ordinances" (Getu 2002). This trend is reflected in book titles regarding community-based health ministries, such as *Let's Build Our Lives* (Fountain 1990), as well as in statements such as, "In community-based health care, the development of *people* is much more important than the creation of programs or facilities" [Author's italics] (Shaffer 1990). The concept is even incorporated into definitions of health, such as this definition of "Total Health" from MAP International (MAP 2005): "The capacity of individuals, families and communities to work together to transform the conditions that promote, in a sustainable way, their physical, emotional, economic, social, environmental, and spiritual well-being."

As relief ministries based in Western concepts of curative medicine, traditional short-term medical teams might have trouble fitting into local models of long-term transformational health missions. The recent observation that “we in the West are still learning the difference between acts of charity and the more difficult task of changing a person’s self-perception” may apply (Yancey 2001).

The desire to provide continuity-of-care on the part of short-term medical teams represents the substitution of a repetitive short-term, curative-medicine, and relief-oriented mission for a long-term transformational health ministry strategy. While on-going relationships between a short-term team and a church or community may have ministry and program benefits, an annual or semi-annual visit by a short-term medical team should not replace continuing efforts to improve the indigenous capacity for curative, preventive, and community health, nor supplant the work addressing systemic problems of poverty, hygiene, illiteracy, and subsequent poor health. Short-term teams should be helped to appreciate the nature and value of short-term missions, and the ways in which they can be helpful when properly integrated with long-term ministries.

There is no data demonstrating that traditional short-term medical teams by themselves have much impact on improving the health status in a community, and past concerns about their possible deleterious effects remain (Montgomery 1993). They may even be counterproductive to development programs in general because of their relief orientation that may undermine local initiative and assumption of responsibility. Development considerations aside, a short-term team may disparage local authority as in the example in which the team told the patient that she was being mistreated when most probably her cardiologist had intentionally and appropriately omitted daily aspirin from her treatment plan because of her allergy to it.

Short-term teams in support of long-term health development missions may look quite different than a traditional short-term medical team. A “health mission team” supporting a long-term potable water program may join local work teams to dig wells or lay pipe. A team working with a community-based health promotion ministry may assist with a community survey to determine prevalent health problems or document program results. A team assisting with a Dengue Fever program might provide logistical support and accompany local workers on a house-to-house campaign to rid the community of mosquito breeding areas. Besides being more consistent with transformational development goals, such teams’ coming in support of long-term health ministries may well cost less and promote more lasting health benefits compared to short-term medical teams.² Participants might even find more opportunities to develop relationships and to learn more about local culture and life than afforded by the patient encounters of short-term medical trips.

In this study, the cards from the patient encounters with optometrists, audiologists, and other similar specialists were not included in the analysis. However, review of these cards revealed that many of these patients received pharmaceuticals, as well. Patients may have had midriatic agents to dilate the pupil of the eye or local anesthetics for dental procedures, for instance. Many also received take-home

medicines such as analgesics or a medicine unrelated to the specialty area (such as a decongestant/antihistamine “cold medicine” ordered by the health professional seeing them). The quality of care issues related to dispensing medications may be very similar for these patients compared to the “medical” patients. Under these circumstances, the same standard for obtaining an adequate history should apply.

A summary of the results consisting of bar graphs with some explanatory comments was sent to the team leaders. Team leaders were informed which bar graphs corresponded to their team, but did not know the identities of the other teams. With this information, team leaders could compare their team’s results to the others. Within health care quality improvement activities, this reporting technique has helped to re-enforce the behavior of those who are doing well and motivated others to improve their performance.

The performance of all five teams in collecting relevant information and taking responsibility for the care given (as indicated by a caregiver signature) was much improved over the levels observed anecdotally among all medical teams the previous year. While the quality of care issues pertain to all medical teams, the cards used in this program were designed for general medical teams and may not be appropriate for all short-term medical teams. The first-time teams were better at signing the records and checking for allergies and current medications, implying that a different approach may be necessary to help experienced teams to achieve results comparable to the first-time teams.

While simple devices such as the cards described in this study may improve quality of care, cross-cultural issues may always limit the ability of short-term teams to provide the desired quality of care. As mentioned earlier, cross-cultural considerations for short-term medical teams include naive realism, ethnocentrism and cultural bias, a tendency to seek a “quick fix” solution, and valuing high productivity (Montgomery 1993; Adeney 2000). These characteristics may impede the teams from interacting constructively at their chosen destination and from being cognizant of the underlying causes of poverty and the well-described relationships to ill health (PAHO 2002). Also, while medical teams are generally cognizant of the importance of language translation as they talk with and treat patients, they may be less aware of the need for cultural interpretation.

For instance, a common belief in the Dominican Republic is that the presence of blanching skin lesions indicates that someone has intestinal parasites, though there is no medical pathophysiological connection. When presented with a child whose mother complains of these skin lesions, a North American physician is likely to evaluate and treat the skin infection, while unaware of the mother’s concern about parasites. A language interpreter from North America is likely unaware of this cultural understanding; the cultural knowledge is likely so ingrained that a Dominican interpreter does not consider that the visiting North American physician (who is often assumed to be better trained and more competent than the local physicians) is unaware of this connection. Consequently, as the mother is going to the team’s pharmacy with only a prescription for an anti-fungal skin cream, she may be wondering why her primary concern (i.e.,

intestinal parasites) was not addressed and whether the North American physician just does not care. The adequacy of cultural interpretation is just one aspect of the cross-cultural considerations for short-term medical teams that may ultimately limit their ministry and the quality of their work.

Conclusion

While serious questions persist about the overall value and appropriateness of cross-cultural short-term curative medical teams as related to the Biblical understanding of health and to the current concepts in long-term health ministries (Montgomery 1993; Van Engen 2000; Van Reken 1990; and Mosley 1990), the short-term team movement in general is unlikely to abate in the near future. Short-term mission trips are acknowledged to have an “unmatched power . . . to effect personal and communal transformation in those who participate” (Butin2001), and this serves as a strong incentive for short-term missionaries. In the face of the short-term mission movement, there may be a responsibility to at least respond constructively to maximize the benefits and minimize the harm of all short-term teams, including medical teams (Corwin 2000). Within the team’s desires to do good and benefit spiritually from the trip, care should be taken to ensure that the professionalism and quality of the medical care on short-term medical trips is the best possible (Slimbach 2000).

Simple devices, such as the patient care cards in this study, may provide a way to raise quality issues and to begin these discussions. There are many simple quality issues that can be targeted for improvement. For instance, one simple quality check would be to have a knowledgeable local person review the medication labeling and patient directions to ensure that they are clear, unequivocal, and in a language and vernacular understandable to patients and to local health care personnel (this can be particularly important if medication reactions arise after the short-term team has left).

Broader medical issues, such as what medical problems the team intends to treat (for instance, how do they plan to approach chronic conditions) and how extensive and complicated (and subsequently more potentially harmful) a pharmacy the team will have, are related to the team’s philosophy and understanding of their mission. In considering these issues, it may be helpful for the health professionals to consider what they would be willing to do in their usual practice situations if: the physical environment is sub-optimal and may limit clinical practice; the present and past medical history may be unreliable secondary to language and cultural barriers; they are seeing the patient for the first (and only) time; no laboratory or other testing is available; and there will be no follow-up to assess response to therapy or adjust management.

Professionals participating in short-term medical missions (who are ultimately responsible for the quality of care delivered) ought to take steps, perhaps even a formal quality improvement program, to ensure that best practices and quality care are intrinsic to their mission activities. However, simply assuming that the quality of care is good because the trip participants are licensed and board certified professionals is not a sufficient safeguard. Mission agencies and local churches (both senders and receivers) should be explicit and unequivocal in expecting that professional standards should be

upheld to encourage better quality of care, improved patient safety, and the best Christian witness.

Notes

1. The ten percent figure was offered as a reasonable estimate several times, though no one was willing to go on record because the estimates are so tenuous. Whatever the percentage, the number of medical mission teams is substantial. One organization alone, MAP International (Brunswick, Georgia), provided medications for 880 separate medical teams with a total of 15,840 participants in 2001 (personal communication, Sandra Rice).

2. The economic analysis of health ministries can be extremely complicated. The economic impact of preventive medicine programs can be difficult to estimate, balancing the costs of the programs against such factors as the economic value arising from years of quality-adjusted life saved by deaths prevented and the cost savings accrued through treatment that was not given because of illness that was prevented, for instance. Similarly, expenses for short-term medical teams may have to be weighed against the benefits for the participants and sending churches as well as the results achieved by the mission projects themselves. Also, a popular belief is that the local churches receive secondary benefits as trip participants and their churches become involved and send financial support later, though in many cases there is no data to support these assertions. At any rate, it may simply be inappropriate to directly compare short-term medical trips and long-term Christian health ministries on a financial basis alone.

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