

## ATTITUDES TOWARD CLINICAL AND TRADITIONAL TREATMENT FOR THE BURULI ULCER IN THE GA DISTRICT, GHANA

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### ABSTRACT

**Background:** Buruli ulcer (BU) is the third most common mycobacterial disease in the world, following tuberculosis and leprosy, and has many serious consequences. In 1998 the World Health Organization (WHO) established the Global BU Initiative to encourage research about the disease and its treatment.

**Methods:** HART conducted research on BU during the summer of 2001 in rural villages in the Ga district, about a forty-five-minute drive northwest of Accra, Ghana. Researchers used participant observation combined with open-ended interviews to collect data on basic demographics, social beliefs, cultural knowledge, and attitudes towards BU exhibited by the Ga people.

**Results:** Most indigenous people believe the disease is caused by supernatural factors (i.e. witchcraft), environmental factors (i.e. water, suggested by health educators), or both. More than 80 percent of villagers first seek traditional treatment because of its convenience, its low cost, and the reasonably high success rate of traditional cures for BU. Satisfaction with clinical treatment is not higher than with traditional medicine; people tend to turn to clinical medicine after traditional treatments fail. Few social stigmas result from the disease other than avoidance of the unsightly ulcer and the unpleasant smell, and among children, some teasing. The major concern expressed by villagers is the economic impact of the disease from reduced productive capacity.

**Conclusion:** The strong preference for traditional cures and their relatively high success rate coupled with the fact that traditional cures are not effective for advanced cases suggests that close cooperation between traditional healers and clinical staff might contribute to a better control of the disease.

Key Words: Buruli ulcer, Ghana, traditional medicine, clinical medicine

### INTRODUCTION

Buruli ulcer (BU) is the third most common mycobacterial disease in the world, <sup>13</sup> following tuberculosis and

leprosy, and has many serious consequences. In 1998 the World Health Organization (WHO) established the Global BU Initiative to encourage research about the disease

and its treatment.<sup>3</sup> Ghana is one of 3 West African countries with alarmingly high rates of the disease, and treatment of BU is one of the greatest public health challenges facing the country today. The suffering of the patients and their families due to the debilitating effects of BU is great and often economically crippling. Many different areas of the country are plagued with the spreading disease.

Within Ghana the Ga district has the highest recorded incidence of BU,<sup>3</sup> and in 1999 the Ga district assembly reported 702 cases in their area, as compared to 15 cases of schistosomiasis, 14 cases of tuberculosis, and no cases of leprosy.<sup>9</sup> The Amasaman and Obom sub districts of the Ga district show unusually high prevalence of BU, and in 1997 Amasaman officials began campaigns for increased awareness of BU. More patients are now reporting cases of the disease to the local health facilities.

The mode of transmission for BU is not established, though *Mycobacterium ulcerans* has been identified as the cause of the ulcer. Evidence suggests that the causative organism *M. ulcerans* flourishes in stagnant water environments, and the bacteria may enter the body through small open wounds.<sup>14</sup> The disease generally affects rural inhabitants because of contaminated water sources. Epidemiological evidence has not clearly supported person-to-person transmission.<sup>5</sup> Many questions as to the transmission of the disease exist, making it difficult to develop community education programs for prevention. Within the Ga district, most villagers recognize the distinguishing characteristics of BU - the yellowish-white necrotic edges and the malodorous scent - and have local treatments for the disease.

BU often begins as a painless nodule or plaque and in the later stages ulcerates into minor or severe sores that can lead to permanent disabilities and serious scarring.<sup>5</sup> Through clinical medicine, early treatment is relatively simple, involving the excision of the nodule and removal of the affected tissue, with the patient returning home the same day. Late treatment is much more complicated, often requiring massive excision and skin grafting, resulting in prolonged hospital visits.<sup>4</sup>

Little is known about the traditional treatments used to treat BU. Traditional treatments at any stage of the disease usually include wrapping the affected area with leaves, roots, or bark for extended periods of time, sometimes for several months. These treatments appear to be helpful in early stages of the disease but less so in later stages, where clinical treatment is preferred. The different herbs used seem to quicken the development of the nodule into an open ulcer, but villagers say they can prevent serious cases from spreading. However, these treatments seem to vary significantly from village to village. Because traditional treatments cannot prevent nodules from developing into open ulcers, the healing process is more likely to leave scars and deformities, especially when the ulcer involves joints. Clinical treatment in the early stages is preferable in these cases.

This study was conducted in conjunction with the HART project initiated in 1995 when a HART medical team first traveled to Ghana to work with local health professionals to surgically treat BU. The objective of this ongoing research is to explore causes of BU as perceived by the villagers in the Ga district and gather information concerning whom the disease affects, how it affects them, and what take in order to treat it. This information will help

HART actions victims volunteers, Ga district health authority and the National Buruli Ulcer Control Program in Ghana understand the impact of the disease on the population, the indigenous responses to the disease, and nature of care people seek for the disease and why. It is necessary to have guidelines for coordinating traditional and clinical treatment, which would make it possible for more BU patients to receive effective treatment.

### The Ga district

Most people in the Ga district are farmers living in small villages ranging from a few hundred to several thousand individuals. The average villager makes about 10,000 cedis per day (7000 cedis = U.S.\$1), and most commerce is done within the village setting. The people are predominantly Christian, with a considerable percentage practicing traditional beliefs.

Health facilities within the Ga district are poorly developed and lack the infrastructure for proper communication and transportation. The patient-to-doctor ratio is very high, with only a few doctors for more than a million people, and the district lacks laboratory facilities.<sup>9</sup> The increase in number of reported cases of BU since 1997 has put additional strain on the already taxed healthcare system, and local healthcare officials have declared the problem as one of their most serious health concerns. BU treatment costs at the hospital are generally unaffordable for almost any villager, and, because of understaffed and undersupplied hospitals, treatment with Western medicine is often not an option.

### METHODS

HART conducted research on BU during

the summer of 2001 in rural villages in the Ga district, about a forty-five-minute drive northwest of Accra, Ghana. Researchers used participant observation combined with open-ended interviews to collect data on basic demographics, social beliefs, cultural knowledge, and attitudes towards BU exhibited by the Ga people.

Members of the HART board in Ghana met with Ga district officials and the Amasaman Ministry of Health to select five villages with high incidence (past or current) of BU. In order to directly observe the sample population, we made arrangements with chiefs and village leaders to allow researchers to reside in local villages. Each pair of researchers lived with village members for six weeks in order to develop relationships of trust and observe patients' interactions with others.

The results reported in this paper come from interviews with affected BU patients, their family members, village residents, village leaders, and traditional healers. Formal and informal interviews were open-ended and conducted primarily with individuals affected with BU. We conducted interviews in the Ga language with the assistance of translators from the communities. For informants who spoke English, we conducted interviews without the translators. We asked each respondent to report all past and present cases of BU that had affected him or her or his or her children. Ten researchers collected data for 142 individuals with single or multiple lesions of BU and discussed a total of 195 separate BU cases. The sample included 77 cases involving males and 118 cases involving females. Twelve cases involved patients under the age of 6, and we investigated 78 cases in the 6–15 age group, 56 cases in the 16–25 age group, 22 cases in the 26–40 age group, and 27 cases

involving those age 41 or above. For each case, researchers discussed the perceived cause of BU and reaction to contracting the disease and recorded the course of action taken, the treatment sought (along with the reason why), and the outcome of the treatment. We also discussed general problems and stigmas associated with BU to learn about social and medical complications caused by the ulcer. In cases where we sought information regarding a child less than 15 years of age, we interviewed guardians of the child. We used information from open-ended discussions with village leaders and traditional healers to supplement information gathered in the more standardized interviews.

Following each interview, we logged the information into research data books that were kept according to a standard format. Members of the HART research team, subsequently coded and analyzed the data in the Anthropology department at the University of Utah.

## RESULTS/DISCUSSION

### Causes of Buruli ulcer as perceived by patients

Identifying people's perceived cause of BU is important because perceptions of cause affect people's healthcare decisions.<sup>6</sup> As seen in Table 1, perceived causes of BU varied considerably, but most responses can be grouped into the following categories: supernatural, environmental, and personal factors. Respondents often gave more than one cause, and in these circumstances we recorded both causes.

Villagers mentioned supernatural causes, primarily described as witchcraft, as the cause of BU in 39.5 percent of cases. In villages where we conducted more than 30 interviews, percentages of respondents giving

supernatural causes ranged from 22 to 42 percent.

Table 1: Distribution of perceived causes of Buruli ulcer

Perceived cause	No. (%) n = 195
Environmental	
Water	60 (30.8)
Airborne	21 (10.8)
Insect	10 (5.1)
Cattle	7 (3.6)
Total	98 (50.3)
Supernatural	
Witchcraft	59 (30.3)
Spiritual	18 (9.2)
Total	77 (39.5)
Don't know	38 (19.5)
Personal circumstances	
Person to person	10 (5.1)
Genetic	9 (4.6)
Total	19 (9.7)

Many respondents gave more than one perceived cause. 19.0% of respondents gave more than one cause.

Witchcraft is often blamed in chronic and recurring cases of BU, and in 30.3 percent of all cases the respondent identified witchcraft as the most probable cause of the disease. A popular name for BU in Ga is *aya ahela*, which translates to "witch's disease." Among the Ga people, witchcraft is often blamed as the cause for any disease with unclear beginnings and serious consequences, such as BU. West Africans view witchcraft as often not intentional but rather the inadvertent result of jealousy or the negative feelings of others.<sup>8</sup> The witch is believed to slowly consume but not kill its victim. One BU patient explained that the course of BU raises suspicion of witchcraft because it frequently maims

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and permanently disables the victims, but it seldom kills them.

Individuals with serious cases or members of families with multiple BU patients often stated that because the disease seemed to afflict them specifically, witchcraft was to blame. In some cases, they attributed the witchcraft to a jealous neighbor, a co-wife, or even a family member who felt envious of the patient's prospects.<sup>6</sup> One woman who had suffered from BU in her youth was left with a severely deformed hand that she kept covered at all times. She explained that her BU case was inflicted by her jealous stepmother to ensure that when she was older, she would never be able to have a happy marriage. Nonetheless, most of the people who blamed their cases on witchcraft would not make specific accusations as to who the witch might be, though some admitted they believed the witch was likely someone in their own family or a close relative.

Those who believe a disease is caused by supernatural influences will often seek consultation from traditional healers. These healers will not make any diagnoses until they have had an opportunity to consult with the oracles (often cauldrons of water, small statues, and other small idols) to determine the specific nature of the cause.<sup>11</sup> One traditional healer explained that there are three types of BU: one caused by witchcraft, another by evil spirits, and another by the environment. According to this healer, if the environment caused BU, people could seek treatment for the disease either through him or the clinic. But if the disease was caused supernaturally, only he or another traditional healer could cure the disease. As observed by Kirby,<sup>11</sup> for those who believe that the disease was caused supernaturally, "the use of Western medicine...is out of the question since it

might bring about an even greater disaster."

Fifty percent of people believe that BU is contracted from the environment in which they live. Villagers in 30.8 percent of all cases mentioned contaminated water. Some villagers said they had learned that water was the contaminating agent from the local health clinic, while others learned it from village members. Because the water gathered from the rivers is often the main source of water for a village, even when people believed it was a contaminating agent for BU they had no reasonable alternative to water-related habits.

Other environmental causes such as cattle, air, and insects accounted for an additional 19.5 percent ( $n=38$ ) of explanations. *China asane*, or "cow's boil," is another common name for BU throughout the Ga district. Three to four percent of respondents directly blamed cattle as the cause of the disease suggesting that cattle had contaminated the rivers and other water sources. Nearly eleven percent believed the disease was airborne. One woman explained that her ancestors had taught her that people contract most diseases through the air, so BU would also most likely be contracted in this fashion. Only 5.1 percent of respondents believed that insects had anything to do with transmission. Thirteen percent of respondents mentioned a combination of both supernatural and environmental causes for the disease.

Personal circumstance, including contracting BU either communicably or genetically, accounted for only 9.7 percent of responses. People who contracted BU soon after a family member or who had experienced multiple cases of the disease were typically the ones who believed they had contracted BU from another person.

Others demonstrated this fear by not buying food from those associated with the disease.

In general, villagers used their own knowledge, the explanation of a neighbor, or a traditional healer to determine the cause of the disease. People who had been to the local clinic

also accepted the proposed causes given there, which were typically environmental explanations. Not surprisingly, 19.5 percent of respondents stated they did not know the cause of BU and seemed to be satisfied with any suggested cause.

Table 2: Problems resulting from BU

	No. of individuals responding (%)					
	Age group reporting problems (yrs)					
	< 6 (n = 12)	6 - 15 (n = 78)	16 - 25 (n = 56)	26 - 40 (n = 22)	41+ (n = 27)	Total (n = 195)
<b>Economic</b>						
Discontinue school	1 (8.3)	28 (35.9)	26 (46.4)	5 (22.7)	1 (3.7)	61 (31.3)
Permanent disability	2 (16.7)	24 (30.1)	18 (32.1)	2 (9.1)	8 (29.6)	54 (27.7)
Financial problems	3 (25.0)	19 (24.4)	14 (25.0)	2 (9.1)	1 (3.7)	39 (20.0)
Discontinue work	1 (8.3)	0 (0.0)	11 (19.6)	9 (40.1)	7 (25.9)	28 (14.4)
Cannot sell food	2 (16.7)	11 (14.1)	0 (0.0)	0 (0.0)	4 (14.8)	17 (8.7)
Ruin future job prospects	1 (8.3)	2 (2.6)	5 (8.9)	3 (13.6)	0 (0.0)	11 (5.6)
<b>Social</b>						
Unsightly appearance	4 (33.3)	26 (33.3)	27 (48.2)	6 (27.3)	8 (29.6)	71 (36.4)
Smell	4 (33.3)	28 (35.9)	17 (30.4)	3 (13.6)	5 (18.5)	57 (29.2)
Teasing	5 (41.7)	32 (41.0)	8 (14.3)	0 (0.0)	1 (3.7)	46 (23.6)
Fear of communicability	0 (0.0)	2 (2.6)	5 (8.9)	2 (9.1)	1 (3.7)	10 (5.1)
<b>Personal</b>						
Impaired limb movement	4 (33.3)	38 (48.7)	33 (58.9)	11 (50.0)	9 (33.3)	95 (48.7)
Residual pain	5 (41.7)	27 (34.6)	32 (57.1)	11 (50.0)	2 (44.4)	77 (39.5)
Create worry for family	4 (33.3)	29 (37.2)	16 (28.6)	1 (4.5)	2 (7.4)	52 (26.7)
Keep wound covered	3 (25.0)	23 (29.5)	16 (28.6)	4 (18.2)	6 (22.2)	52 (26.7)
Social withdrawal	4 (33.3)	4 (5.1)	22 (39.3)	8 (36.4)	7 (25.9)	45 (23.1)
Cannot perform housework	2 (16.7)	12 (15.4)	16 (28.6)	6 (27.3)	8 (29.6)	44 (22.6)
Strain on family	1 (8.3)	0 (0.0)	6 (10.7)	1 (4.5)	0 (0.0)	8 (4.1)

Interviews with children ages 15 and younger were conducted with their parents and thus responses reflect parental attitudes and concerns. Multiple responses are given by each respondent.

The perceived causes explained here should be considered preliminary results, and further research should focus more directly on cause. Witchcraft may have been a stronger element than people were willing to communicate to foreign researchers. Additionally, respondents may have given answers of water and other environmental causes because they associate those types of answers with a more Western way of thinking.

### Problems associated with the Buruli ulcer

We asked respondents what kinds of problems BU caused and encouraged them to mention as many problems as they felt were pertinent and to explain the direct effect of the problems on them personally, their families, and their communities. The problems mentioned by those interviewed can be categorized into economic, social, and personal problems.

Economic problems, described both directly as payment for treatments and indirectly as the inability to work, were the most noteworthy consequences stemming from BU. The inability of individuals to work and attend school due to BU impaired the economic progress of a village. One cashew farmer explained that he preferred to hire young adults ranging from 14–24 years of age to work on his farm but that he had to turn down those with BU or deformities from BU because they are not effective workers. When women or their children had contracted severe BU, others in the village were hesitant to purchase food they had prepared out of concern that the food could be unsanitary; a woman unable to sell food successfully is a significant economic burden on her family.

Permanent disabilities (deformities and residual pain), mentioned by 27.7 percent of respondents, particularly

those aged 16–25, inhibited productive activities and caused economic problems. Deformities range from minor scarring to contractures, inhibiting movement of the arms and legs<sup>12</sup> and preventing the victim from being an effective worker. Though excision of pre-ulcerative Buruli lesions in the early stages of the disease is typically efficacious in preventing deformities,<sup>2</sup> villagers typically do not seek this treatment until later stages when deformities have already occurred. Treatment and rehabilitation for deformities in village settings are rare, and thus many people are left permanently impaired (Dadzie, 2001, unpublished data).

Thirty percent of affected women compared to nine percent of affected men mentioned that BU inhibits performance of household tasks. In Ghanaian society, women perform the majority of household chores<sup>4</sup> and are also responsible in part for tending to the fields. For those with deformities due to BU, they are often prevented from being able to carry water, wash dishes or clothes, cook, or perform other important household duties. The children attend school and perform small chores as time allows, while the men are gone during the day working the fields or fulfilling other duties.

Another common problem, mentioned by 26.7 percent of respondents, is worry and anxiety felt in a household when a member contracts BU. Many parents worry about finding sufficient money, time, and other resources for treatment and feel that caring for an afflicted child detracts from their other responsibilities. In general, families are supportive of a stricken member, but time spent caring for the inflicted often comes at the expense of other economic and social necessities. Moreover, the family members with BU are not able to do their part to help

support the family and thus become an economic burden.

Social problems associated with BU seem to be minor, as the Ga society appears to accept those with BU and other diseases. One quarter of all patients reported no social stigma resulting from BU; others reported mild stigmas that we discuss below. People do not typically socially ostracize members of their village who have contracted BU; rather, they view it as an important obligation to attend to their afflicted relatives. However, the unpleasant physical symptoms often associated with BU, such as smell and ooze, cause avoidance by village members in certain circumstances.

Social stigmatization was most evident in the 6–15 age group. Forty-one percent of respondents in this age group complained of teasing by others, such as playmates making emotionally hurtful references to the ulcer.<sup>17</sup> As the majority of the BU population is in this age group,<sup>10</sup> this is a noteworthy reaction. According to one village translator, those with BU “avoid...social contact because they are shy and embarrassed... They are afraid that people will laugh at them.” Only 14.3 percent in the 16–25 age group and less than 4 percent of the older age groups reported such problems.

In the category of personal problems, the most common reaction to BU, mentioned by 26.7 percent of respondents, was to cover the affected area in an attempt to keep it out of sight and also to treat the wound. Some people said they could not bear to look at their own wounds, and so they would use rags, handkerchiefs, or leaves to cover their sores. A few people said they kept their wounds covered as protection from the “evil eye,” believing the wound would get worse if somebody with bad intentions looked at it.

Social withdrawal was mentioned by 23.1 percent of individuals with BU. Often the embarrassment over BU's bad smell caused voluntary removal from school and other social activities. One young patient commented that he did not go to school when the wound smelled bad; another young woman commented that because of the smell, her friends and her brother avoided her, and she in turn stayed away from others. Isolation also occurs among children who avoid play for fear of injury and pain.

Many patients complained of impaired limb movement due to the effects of BU that limited participation in social events. Sufferers often became depressed and unable to eat or sleep well. Respondents made 95 separate complaints about not being able to move around freely, walk unassisted, play sports, or dance. One boy with a deformed foot expressed concern that he would never again be the soccer player he once was. Respondents expressed that the pain and disabilities resulting from BU prevented sufferers from functioning as fully productive members of society.

### **Actions taken for treatment of diseases**

When seeking healthcare treatment for BU, patients must choose from several different options. They can use their own personal or familial herbal remedies, they can go to a traditional healer (either in their village or in a neighbouring village), or they can go to the local health clinic or hospital. Most BU patients interviewed tended to be fairly young, and so parents of patients represented the majority of healthcare seekers. Neighbors and friends who had experienced BU in the past were very influential in the decision of which treatment to seek. One young boy's mother related that when she and her

family first moved into the community, they had never seen BU before. Members of the community noticed an ulcer forming on her son's leg and explained to her that the disease was BU. They showed her how to use the

local plants that they had experienced to be effective healing agents for the disease. Consequently, she decided that this would be the most efficacious treatment for her son.

Table 3: Treatment sought by those with BU

Treatment sought	No. (%)		
	1 <sup>st</sup> treatment n = 182	2 <sup>nd</sup> treatment n = 64	3 <sup>rd</sup> treatment n = 21
Self-treatment	57 (31.3)	11 (17.2)	5 (23.8)
Healer in village	64 (35.2)	7 (10.9)	5 (23.8)
Healer in other village	27 (14.8)	12 (18.8)	4 (19.0)
Clinic/hospital	28 (15.4)	34 (53.1)	6 (28.6)
Nothing	6 (3.3)	0 (0.0)	1 (4.8)
Total	182 (100.0)	64 (100.0)	21 (100.0)

Traditional treatment was the most common first action taken by victims of BU, including 81.3 percent of BU patients. Victims used a local healer or a healer in a neighboring village as the primary resource for health care in 50.0 percent (N=182) of the cases. Thirty-one percent of the cases involved self-treatment or treatment by another family member using traditional treatments. Less than 16 percent of the patients initially attended a local health clinic or hospital. Another 3.3 percent of respondents said they took no action to treat the ulcer.

Patients prefer traditional medicine for a number of reasons. First, it appears to be effective. In each case, we asked patients if the treatment they used healed the ulcer completely and if they were satisfied with the treatment. Satisfaction rates generally coincided with healing rates, though some people said they were satisfied with the treatment even when they were not healed completely. Of those treating the ulcer themselves or being treated by a

family member (n=44), 43 percent said they were healed and 55 percent said they were not (2 percent were undetermined). For those using a healer in their own village (n=50), 44 percent reported being healed and 50 percent said they were not (6 percent were undetermined). For those using a healer in a neighboring village (n=19), 84 percent said they were healed and 16 percent said they were not. For those going to the clinic or hospital (n=22), 41 percent said they were healed and 59 percent said they were not. These statistics are interesting because, with the exception of healers in neighboring villages who were likely visited because they had reputations as BU specialists, the success rates of the treatments administered by traditional healers and clinics were about the same. Clinical treatment actually had the lowest reported success rate, and traditional healers in neighboring villages had the highest success rate (though the sample size was small). Thus, in the face of diverse forms of treatment, the Ga

people generally sought what they perceived to be the most effective treatment.

Second, traditional methods are not only perceived as effective, but they are time-tested and familiar. Villagers often have to travel considerable distances to seek treatment from a clinic, and when they arrive they are unfamiliar with the community, physicians, and attending nurses. This creates unease that is only compounded when healthcare providers are insensitive to the feelings of the patient. Numerous patients complained of the intimidating staff at the healthcare clinics. Staff members often spoke harshly to patients because they came to the clinic only after the ulcer had already worsened. Moreover, patients were unsure of what to expect at the clinic. Many respondents said they would not go to the clinic to receive treatment for BU because they feared that foreign treatments such as injections could lead to death.<sup>7</sup> In contrast, local healers and their treatments are generally regarded as familiar and trustworthy.

Third, traditional medicine often treats supernatural and social problems while clinical medicine does not.<sup>1</sup> Traditional healers are typically more aware of the personal surroundings and circumstances of their patients, and when treating a patient, many healers make an effort to treat these other aspects and restore balance in the patient's life. Often, traditional treatments take place within the village and the other villagers are aware of the treatment and are more intimately involved in the healing process.

Fourth, villagers choose traditional medicine because of convenience. Even the simplest clinical treatment requires almost a day of traveling and waiting at the clinic, a problem compounded when treatment necessitates multiple visits per week. Transportation to the clinic is

expensive at 1,000–3,000 cedis (nearly one-third of a villager's typical daily wage), and long lines and hours of waiting are common upon arrival. The free treatment for BU patients advertised by the clinics, including surgical procedures is often not available (largely due to a shortage of supplies), and more often than not the clinic doctor is not available to see the patient. Typically the only treatment offered to the patient is dressing, for which the patient usually has to pay. Dressing the ulcer is a slow treatment requiring multiple visits to the clinic and in many cases has an unfavorable outcome. While seeking treatment for BU at a Western-style clinic either for them or their children, adults are kept from their duties in the house and on the farm and require outside assistance. With traditional remedies, family members or local healers within the patient's village or in a neighboring village perform the treatments, and parents (typically mothers) are still able to perform their normal tasks while receiving care for their child.

Fifth, traditional treatments are typically more affordable. Cost is generally kept low since most people either apply the medicines themselves or go to a healer within their own village. However, cost is not the only reason people choose traditional treatments because in some cases patients pay large sums of money or are asked to give extravagant gifts, such as goats, chickens, alcohol, or cloth. One man reported paying a one-time fee of 100,000 cedis (a considerable fee for a villager) to a traditional healer in a neighboring village for weekly treatment of his daughter. In two of the villages, a distant healer named the *Nipa Hia Mmoa* ("Man Needs Help") had developed a reputation for being able to treat BU, and the people from these villages were willing to travel far

distances and pay high fees (20,000 cedis per week) for his services. His traditional practice was more than an hour from the villages, but because of his reputation the villagers were willing to make the sacrifice in order to travel there. Some of the villagers who went to the *Nipa Hia Mmoa* saw their cases improve throughout the course of their treatment, but his medicine did not successfully treat the more serious cases. This demonstrates that people are willing to pay significant medical fees if they have confidence and belief that the treatments will be successful.

For any type of treatment, traditional or clinical, if the treatment didn't appear to work for them the first time, patients were unlikely to try it again. Second actions for treatment (N=64) were recorded for 17.2 percent (n=11) of those who treated themselves or were treated by a family member, 29.7 percent (n=19) of those who had used a traditional healer, and 53.1 percent (n=34) of those who had gone to the clinic. Those who self-medicated the ulcer were equally likely to choose another self-medication, go to a traditional healer, or go to the clinic as a second action. Of those who went to the healer for the first action, 69 percent went to the clinic for the second action, while only 21 percent chose to go to another traditional healer. For those who went to the clinic, 50 percent chose to go to a traditional healer for second treatment. Some sought clinical medicine in desperation when all other options were exhausted or when the condition was viewed as life threatening.

<sup>11</sup> In many instances, villagers and most healers recognized that larger and more serious cases of BU required more intensive treatments than most traditional healers were able to offer; so advanced treatment was sought at the hospital and not at the local clinic.

Both clinical medicine and traditional treatments for BU have positive and negative sides and roughly equal success rates for cases not involving joints. Traditional medicine is the preferred treatment for many Ghanaian villagers because its perceived benefits outweigh those offered by clinical medicine. It is chosen because Africans have practiced it for thousands of years and patients are familiar with the healers and their methods. Traditional medicine extends beyond the physical treatment and treats the supernatural causes and social problems surrounding the ulcer. It is more convenient for patients, and in most cases it is less costly.

Scientifically little is known about traditional treatment and its benefits and drawbacks. The experiences of patients and the statistics in this report suggest that while many herbal remedies do not heal the ulcer, other herbal remedies are effective healing agents in the treatment of BU. Research needs to be done on the leaves, roots, and barks used by patients and traditional healers to treat BU in order to determine which plants are beneficial and which are doing harm. Certain healers have reputations for having high success rates in their method of treating BU, and an investigation into their healing methods could help develop a treatment for BU that would be successful and accessible for larger percentages of the population. Patients need to be aware of which plants are harmful as medicines. Advertising campaigns about the disease should be geared toward revealing the economic implications of the disease to those at risk.

Villagers generally accept clinical medicine as the preferred treatment in serious cases of BU where traditional treatments have failed; however, clinical treatments also have serious limitations. Many of the areas affected with BU are

poor and have struggling healthcare systems. The preferred clinical treatments involve excision in the primary stages of the disease and debridement and grafting in the later stages of the disease. While these treatments are generally simple, they require trained personnel and medical supplies that are typically not available in the clinics or, if they are available, are very costly. Even with these treatments, recurrence rates are high in post-operative patients.<sup>15</sup> Other clinical treatments, including dressing the wound regularly, have an undetermined outcome. Clinical treatments are beneficial especially when the ulcer forms at a joint where progression of the disease makes it highly likely that serious limiting deformities will occur. Education programs should offer explicit explanations about the risk of using traditional treatments to heal ulcers associated with joints.

In order to accomplish successful treatment of BU in Ghana and other regions, efforts need to be made to cross-educate individuals about the benefits and drawbacks of both clinical and traditional medicine. Clinical treatments requiring regular patient visits could be augmented by traditional healers trained about the benefits of sanitary, regularly changed dressings, and further investigation could be made to determine if the traditional dressings are actually beneficial. Clinical staff should understand the beliefs people have about BU and their social and economic constraints and need to be educated about how to be sensitive to these issues in prescribing and administering treatments. Efforts need to be made to encourage cooperation of these two systems of medicine in order to ensure that all patients can receive the most effective and convenient low-cost treatment.

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