INTRODUCTION

This paper examines a healthcare project run by the Africa Medical Research Foundation (AMREF) in north west Turkana. It considers the importance of attempting to adapt to the lives of pastoralists, and asks whether providing Western medicine on a mobile basis is sufficient to produce improved health.

Pastoralists are among the most disadvantaged of the world’s poor, but continue to be regarded with dismay by development agencies who have seemed unable to adapt their notions of development to the realities of pastoralism. Pastoralists are not only challenged by harsh climatic and ecological conditions, but have also faced pressure from governments and the donor community to become sedentarised.

HUMAN ECOLOGY OF TURKANA

Turkana District lies on the floor of the Rift Valley in the north west corner of Kenya. The ecological conditions in Turkana are well summarised by Oba (1992). Rainfall variability is the single most important feature in the human ecology of the district. Rain falls in isolated storms usually on the higher ground, mostly during April through to May, possibly providing one locality with plentiful pasture, while areas nearby experience drought. The Turkana must be able to respond to the likelihood that every year there will be drought somewhere in Turkana, a district-wide drought is likely every 3 years, and a national drought every 10 years (Mbithi and Wisner in Swift 1985). Mobility is thus vital. In addition movements must be flexible enough to allow for factors such as the need to initiate young men at specific initiation sites in the district or for visits to the family’s ekwar\(^1\).

The north west of Turkana, where the AMREF project is based, receives a higher than average annual precipitation of 520mm when compared with other parts of Turkana. This falls mainly on the Moghilla, Songot and Pelekech Hills. Water drains via the seasonal Tarach River into the Lotikipi plains. There are springs along the foot of the Songot Hills. Otherwise water supplies come from pools during the rains, or wells dug into the dry river beds. The Ngikwatela group of the Turkana, the main group in the project area, tend to start moving out of the Lotikipi plains with their cattle at the start of the dry season. Every month they move further up the valleys into the hills, followed by sheep, camels

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\(^1\) A site with *Acacia tortilis* which provides fodder for animals.
and goats that browse the areas already grazed by the cattle, until the rains return and they move back to the plains in celebration to conduct wedding ceremonies, initiations, feasts and production of edodo (dried milk).

Insecurity is a problem both in the plains and hills, with well-armed Toposa and Dodoth putting large tracts of land along the borders with Uganda and Sudan out of use, thus making mobility on the remaining land an ecological imperative\(^2\). The failure of development projects to cater for this mobility is a serious oversight.

**INDIGENOUS HEALTHCARE AND TURKANA MEDICAL BELIEFS**

The provision of Western medicine, in some cases, has had a negative effect on the health status of nomadic pastoralists where it has supported a political and economic system that is the root cause of ill-health (Sanders 1985). If Western medicine is incompatible with indigenous health-seeking behaviour, this can also compromise its effectiveness. By adapting to the Turkana social and economic system and making medical facilities mobile, some of these negative effects can be prevented. In the case of AMREF’s mobile unit, patients can only receive treatment every six weeks at best, so most illness episodes will fall outside the period of an AMREF visit and the Turkana will continue to rely, to a large extent, on their own healthcare practices.

The Turkana divide illnesses into those caused by God (Ngidekesiney ka Akuj) and those caused by witchcraft (Ngidekesiney ka ekapilan). Most illnesses are seen as illnesses of God, and are part of the everyday natural world. Although they can be serious, they are considered manageable (Shelly 1985). Treatment occurs within the awi (nuclear home) and involves the use of elements from the natural world, in the form of ekitoi (pl. ngikito - literally tree) mainly plants used in an infusion to purge and cleanse the body of an intruding edeke (illness) through an orifice. Most adults, especially women, know a large number of such ekitoi. Western medicine is considered part of the natural world, and is designated ekitoi by the Turkana, though of a powerful kind due to its ability to relieve immediate symptoms rapidly. Drugs that induce vomiting and diarrhoea are considered particularly effective.

*Ngidekesiney ka ekapilan* are caused by a witch – an abnormal person who, by casting the evil-eye, can cause sickness, drought and death (Van der Jagt 1989). Treatment for *Ngidekesiney ka ekapilan* involves divination. Most Turkana men know how to ‘throw sandals’ but if this does not work they will go to an emuron. *Emuron* (pl. ngimurok) is the generic name for a religious specialist in Turkana. *Ngimurok* are not healers in the same way as doctors.

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\(^2\) Oba (1992) quoting an Ecosystems (1985) report estimates 35% of the District is devoid of livestock.
They are diviner, healer, religious leader, magician and witch-doctor rolled into one (Van der Jagt 1989, Muller 1989, Lamphere 1976). Turkana treat themselves for the diseases that are seen as ‘natural’, not dissimilar to a Western model of etiology, but Ngimurok act in a world outside Western science. The category of ngidekesiney ka ekapilan does not overlap with Western medicine – serving a more social role than a medical one.

Turkana beliefs co-exist with Western medicine despite the fact that medical anthropology has frequently discussed the components of exotic medical ‘systems’ as if they were self-contained units (see Kleinman 1980). ‘Pluralistic’ models accept that patients can rationalize an illness episode in terms of more than one explanatory model and hence accept treatment from two contradictory medical traditions. ‘Systems’ do not always work out neatly in practice, and people are often willing to experiment outside their local ‘system’ (Reynolds Whyte 1989). The Turkana will simply re-categorise an illness if a specific therapy is seen to fail (Ohta 1984). Indigenous medicine is often used by pastoralists before Western medicine, and indigenous medicines will be used if what is received from a clinic fails or is perceived to be taking too long. Herbal remedies, while sometimes medically beneficial, also have an important function in preventing a feeling of dependence on Western medicine. What takes place is not an indigenisation of Western medicine itself, but a ‘cultural and social appropriation of the therapeutic technology’ (MacCormack in Janzen 1992).

WESTERN MEDICAL FACILITIES AND NOMADIC PASTORALISTS

The provision of services to nomads is hampered by low population densities, poor communications and the unpredictable movements of nomads. Consequently costs are high (Sandford 1978, reviewed in Swift et al. 1990) and nomads are commonly neglected. Geographical remoteness makes the political costs of failing to provide services lower than, for example, failing to provide services for the urban population. Health care programmes for nomadic peoples have been implemented in Africa but have generally been where nomads are sufficiently numerous to reduce costs per individual treatment such as in Sudan and Niger; where they demand sufficient political attention, as in Somalia, or where they live in relatively affluent countries such as Kenya (Swift et al. 1990).

The objective of service provision should be to provide ‘reasonable service provision at a reasonable cost’ (Sandford 1990). There is little doubt that mobile services reach more people than static ones. Cachia (1960) provides attendance figures for the Maasai, finding that in the first 12 months of operating a mobile clinic in pastoral areas, 12 400 people had received treatment, compared with 1100 at the district hospital.

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3 Good and Good (1980) write that ‘the therapist’s ability to influence the patient’s reality, combat demoralisation and construct new realities is a powerful healing force’.
However, the high costs involved are an obvious disadvantage. Wolfenden (1960) estimated a cost of 3 Kenyan shillings per patient treated by a mobile unit working among the Pokot, compared with 2.50 Kenyan shillings for those seen at hospital. Most of this extra cost was fuel. Swift quotes figures from Mali where immunisation costs were 10 times the figure for a sedentary population (Swift et al. 1990). Medical problems include poor follow-up of patients and patients not returning for second doses of a vaccination. Figures for 1991 in Turkana show that more than 83 per cent of patients at clinics were ‘new’ patients.

AFRICA MEDICAL RESEARCH FOUNDATION

The African Medical Research Foundation (AMREF) was started in 1957, providing curative services to isolated parts of East Africa through the medium of one ‘flying doctor’. By 1991 AMREF had 8 aircraft and 3 flying doctors, and had expanded its operations to cover curative and preventative services on the ground as well as in health education and total annual expenditure was $14 million (AMREF 1992).

AMREF’s work with nomadic peoples goes back to the early 1960’s when mobile clinics were intermittently conducted to provide treatment and immunisation for the Maasai in Kenya and Tanzania, becoming more regular after 1966. The focus was mainly on immunisation, but sick patients were also treated and health education and a mobile laboratory were later added. Thus the approach to nomadic peoples has had over 25 years to evolve. Isolated parts of Kenya such as the northern coastal area and north central Kenya are now covered either by AMREF’s Medicine by Air programme, by the Specialist Outreach Programme scattered throughout northern Kenya, or thirdly by the Nomadic Health Programme which covers Maasailand and Turkana.

AMREF set up a laboratory in north west Turkana in 1977 to investigate the high incidence of hydatid cysts associated with *Echinococcus* tapeworms. A survey carried out by French and Nelson (1982) estimated an annual incidence of 198 cases per 100 000 people for north west Turkana compared with 17 per 100 000 in the south of Turkana. The person:dog ratio for this area is 1:0.36 compared to 1:0.12 in the south. Dogs and jackals are the most likely link to humans in the life cycle of *Echinococcus granulosus*, human infection being caused through the ingestion of faeces from dogs and jackals which have become infected with adult tapeworms when scavenging on livestock carcasses with hydatid cysts. Dogs also clean up the vomit and faeces produced by children, and such intimate contact in the domestic setting may explain the high

\[4 \text{ ‘New’ patients include those that have failed to bring their health card, so figures will be over-estimates.}\]
incidence among women. Another, though as yet unestablished, route may be via canine faeces deposited around water holes.

Control of the disease has only been partially successful. The use of albendazole to treat hydatid cysts has had greater success than expensive surgical treatment to remove the cysts. Attempts to treat dogs with the drug praziquantel and attempts to introduce changes in Turkana behaviour with regards to dogs have also been less successful. However the main causes of morbidity and mortality among nomads are those tropical diseases common to poor people throughout the third world such as diarrhoea, malaria, measles and neonatal tetanus (Bonfiglioli 1992). Swift et al. (1990) identify five main factors which can cause health differences between nomads and sedentary peoples:

1) Proximity to animals;
2) Problems related to a diet rich in milk;
3) Nomadic mobility and dispersion, and the consequent difficulties in getting and maintaining treatment;
4) Factors related to the special environment occupied by nomads;
5) Socio-economic and cultural factors which encourage particular kinds of complaint.

Thus Swift et al. (1990) identify high levels of brucellosis and anthrax due to proximity to animals, anaemia due to diet, measles and whooping cough due to mobility, eye infections due to dust, and respiratory infections due to lack of protection from the elements. Other factors depend on attributes of the specific group studied such as the importance and skill of indigenous healers.

Table 1 gives figures for diseases treated during AMREF’s first full year of operation as a mobile unit in north west Turkana. The figures shown mask the seasonality of both attendance and pattern of occurrence of diseases such as malaria. The influence of seasonal nutritional status is also hidden. In a survey of 953 children seen at the clinic between August and December 1991, 31.8 per cent of the boys and 32.4 per cent of the girls were found to be less than 80 per cent of median weight for their age (i.e. wasted) or less than 90 per cent of median height (i.e. stunted) (AMREF 1992). The numbers of patients attending the mobile unit fell away markedly at the end of August as people retreated into the hills.
Table 1. Diagnoses of patients’ symptoms during the first year of operation of AMREF’s mobile unit (1991).

<table>
<thead>
<tr>
<th>Diseases/symptoms</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worm Infestation</td>
<td>1631</td>
</tr>
<tr>
<td>Upper respiratory tract infections</td>
<td>1563</td>
</tr>
<tr>
<td>Malarial infections</td>
<td>1514</td>
</tr>
<tr>
<td>Myalgia (Malaise/Fatigue)</td>
<td>1324</td>
</tr>
<tr>
<td>Constipation</td>
<td>1280</td>
</tr>
<tr>
<td>Others</td>
<td>799</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>671</td>
</tr>
<tr>
<td>Hepatosplenomegaly (Spleen/Liver)</td>
<td>287</td>
</tr>
<tr>
<td>Amoebiasis</td>
<td>278</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>205</td>
</tr>
<tr>
<td>Aches (Head/Back)</td>
<td>167</td>
</tr>
<tr>
<td>Urticaria (Hives)/ Allergies</td>
<td>166</td>
</tr>
<tr>
<td>Hydatidosis</td>
<td>134</td>
</tr>
<tr>
<td>Wounds (General)</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,119</strong></td>
</tr>
</tbody>
</table>

Comparison of AMREF’s Maasai and Turkana mobile units

Fig. 1 gives numbers of patients treated by AMREF mobile units working with the Maasai and in Turkana. Figures for worm infestation rates in Turkana should be treated with caution. The high numbers and broad category of worm infestation is due in part to the paucity of diagnostic and laboratory facilities during the first year of operation. However the figures for upper respiratory complaints are interesting and the higher figures for the Maasai perhaps relate to higher rainfall, and greater proximity to urban centres such as Nairobi. Also of interest are the figures for conjunctivitis. The Maasai often live in low smoke-filled huts which can cause conjunctivitis as effectively as the wind and sand of Turkana. Figures are thus high for both groups.
The Turkana mobile unit

The mobile unit operating in north west Turkana is in the ‘field’ for a 25 day period, followed by a few days of administration and 13 days of leave. A schedule is made at the beginning of the year incorporating eight safaris, leave and a training period for staff held in Nairobi. The team makes the 1500km trip to Nairobi at the end of every safari, dropping off staff along the way.

In the field the unit is arranged into a diagnostic section, immunisation section, antenatal care, laboratory facilities and a dispensary. The most serious cases are referred to Kakuma mission hospital. Immunisation totals are impressive, and few Turkana have reservations about its value. Despite this, only
about half of the vaccinations for polio and diphtheria are for the second dose. The main purpose of the antenatal facility is to ensure that women have a tetanus vaccination as traditional birthing includes severing the umbilical cord with an unsterilised spear or knife. Further health education sessions are practised on an informal basis.

In the field there is daily radio contact between the mobile unit and the base camp and at intervals a vehicle returns to base to fetch spares for the vehicles and fill the water-bowser. After arriving in the field, the unit spends about half a day setting up tents and will treat people who arrive in an afternoon session. Usually though, word of the mobile unit’s arrival does not get around until the next day, so the busiest day is normally the second followed by a steady decline; outreach clinics will then be run up to 10km from the camp on subsequent days, until the decision is made to move to an area with more people. The unit has a general idea of where people will be at any month of the year, but searching for people takes days of bone-crunching driving each safari. This is a major added cost. There are two major reasons for this. Firstly a nomadic strategy is unpredictable and depends on being able to move quickly and spontaneously. The Turkana cannot therefore always keep AMREF informed about where they will be. Secondly, it suggests that while a large number of people, especially urgent cases and those who are based very close come initially, others are ambivalent about using the facilities. The government chief in a village of newly-settled pastoralists at AMREF’s base camp, criticised the fact that the clinic had to go off to find people while ignoring those on its doorstep. It would seem therefore, that if the clinic is there, nomadic pastoralists will use it, if not they are will use indigenous medicine. Furthermore for 15 per cent of their time they are almost inaccessible when they leave the plains and herd animals in the hills.

AMREF sees little point in speaking out against indigenous practices because contact is so brief and such an effort can have marginal impact when nomads return to their awi’s. Few practices are explicitly health-threatening, though they do postpone any visit to a clinic. Children would turn up with emunyen (ritual clay application) on their faces, and mothers would have the blood of a freshly-slaughtered goat in their hair. One patient had performed amok (a ritual using the stomach contents of a slaughtered goat) on her return from an operation to remove a hydatid tapeworm cyst. Nor did they feel in any way that their being at the clinic was contradictory.

Most of the indigenous healers I spoke to were, however, keen to co-operate with AMREF, especially to make a joint effort to tackle hydatid. Two in particular co-operated with AMREF. One was a healer (emuron a ngipian), while the other was a kind of emuron known as ekataman (a Great Diviner - or dreamer). An understanding is also necessary of the local attitudes to medicines
handed out by AMREF. During the diagnostic stage of the clinic three features were notable. Firstly, the person might not be ill, but might be describing the symptoms of someone at the awi who actually was ill. Secondly they might describe the symptoms of an illness they have had in the past, and, anticipating a relapse, want to have drugs to deal with it. A third possibility was that people might be getting the drugs to treat their animals, or sell to Somali shopkeepers in the area. Certainly one could never be sure what people did with the dispensed drugs. They were dispensed by a trained Turkana who explained when to take them with pictures of the sun and moon on the containers. However medical efficacy was probably compromised by not being sure if a course of treatment would be completed.

**CONCLUSIONS**

Over 10 000 patients were treated in 1991. They are probably people who would not otherwise have used Western-type medical facilities and this is an important improvement for diseases such as malaria. Therefore the health of the Turkana is substantially improved by the mobile unit, while at the same time they maintain the lifestyle which makes nomadic Turkana more healthy than those that have settled.

The AMREF Project has been running for three years so far. By being a ‘mobile’ unit, it has succeeded in providing healthcare in an accessible way, moving physically with the nomads and also siding symbolically with their lifestyle. As well as adapting to the mobility of the Turkana the mobile unit seems to be compatible with the medical beliefs of the Turkana - providing an alternative when indigenous therapy fails, but not dislodging the notion that the Turkana are responsible for their own healthcare. Medical effectiveness is certainly compromised by seeing patients so rarely, and being unable to carry out effective follow-ups. However patients are seen who would probably never make it to static facilities. Mobile units are not a cheap way of providing healthcare and because of their cost they are not replaceable everywhere; however mobile medical (Western) facilities undoubtedly improve the health of the Turkana, while not creating a dependence on these facilities for their everyday needs.
REFERENCES


