Measles is an acute viral disease caused by a paramyxovirus of the genus *Morbillivirus*. It is spread from one person to another by infected droplets from the mouth, nose and throat of an infected person. Its signs and symptoms include fever, cough, running nose, red and watery eyes and a generalised maculopapular erythematous rash (Kouadio et al. 2010). Measles is more severe in malnourished children and its complications include diarrhoea, middle ear infections, pneumonia, dehydration, stomatitis and encephalitis (CDC nd). The signs and symptoms of measles generally begin 10-12 days after contact with an infected person. Since the disease is contagious one week before and one week after the rash begins, it is during this period that measles is mostly transmitted. In the mid-1980s it was estimated that 2.1 million children in the world under the age of five years were dying annually from measles (Jeena and Coovada 2001). In 1998, there were an estimated 30 million cases of measles worldwide and about 900,000 deaths (WHO). This precipitous drop in measles-related fatality cases has largely been due to the Expanded Program on Immunisation, which has managed to vaccinate large numbers of children against measles. Although the virus causing measles was first isolated in 1954 by John Enders, the first measles vaccine was only licensed in the US in 1963 (CDC nd) and for developing countries such as Malawi the vaccine was made available much later.

In Malawi measles was also one of the major diseases causing mortality and morbidity in children under the age of five years (Ministry of Health and Population 1995). The World Health Organisation estimates that in the 1980s there were 4,000 to 10,000 cases reported each year in Malawi and special wards for measles patients were established (WHO 2000). In 1997 and 1998 10,845 and 3,501 suspected cases of measles were reported respectively (International Federation of the Red Cross and the Red Crescent Societies 2011). With the decline in poliomyelitis cases, in 1998 the Ministry of Health started implementing intensive measles immunisation campaigns to reduce measles morbidity and mortality. By 2000 measles deaths had been reduced
to zero and measles wards which existed in many hospitals in Malawi had also been closed. Follow up campaigns were held in 2002, 2005 and 2008 and the impact was a huge reduction in the number of suspected cases of measles reported.

Globally, it has been demonstrated that the measles vaccine, including the mass measles vaccination campaigns, is effective in the prevention of measles. For example in Uganda after the first mass measles campaign in 2001 it was found that the measles incidence dropped by 39%, measles admission by 60% and measles death rates by 63% (Odiit and Kiguli, 2008). Similar observations have been made in Malawi in that after the mass vaccinations reported cases of measles have been very low. However after 12 years without outbreaks of measles, in 2010 Malawi experienced an outbreak of measles: it started in Blantyre and Mangochi and later spread to all districts with an exception of Likoma Island situated on Lake Malawi. A total of 118,712 cases were reported and 241 deaths occurred with a case fatality rate of 0.21. As a response to the measles outbreak the Government of Malawi with support from WHO and other international organisations conducted a 5 day mass measles immunisation campaign during which a total of 6,785,428 children were vaccinated against measles (see WHO Malawi Office, 2010). This paper argues that prevailing cultural and religious beliefs and practices tend to delay the seeking of appropriate treatment at nearby health facilities. Since measles is transmitted quite quickly before and after appearance of rashes, prevailing beliefs and practices tend to contribute to measles outbreaks.

**About the Study**

This paper is based on a larger study that was conducted from June 2000 to July 2002 in the area of Traditional Authority Chikulamayembe in western Rumphi. This study was aimed at determining from an emic point of view the most important diseases that afflicted children under the age of 5 years, their perceptions about the aetiology, treatment and prevention of these diseases and how these perceptions had changed over the years. During the in-depth interviews with old men and women and young men and women with under-five children and key informant interviews with health workers, traditional healers, traditional birth attendants and community leaders, among other diseases, measles was one of the diseases that was mentioned as most prevalent and that it threatened the lives of these children. This paper, based on fieldwork conducted amongst the Tumbuka of western Rumphi, explores the Tumbuka’s conceptualisation of measles in children under five: its signs and symptoms, local terminologies, the aetiology, patterns of therapy-seeking behaviour and modes of prevention.

With the recent outbreak of measles in 2010 where over 200 people died, it is important to explore and understand the social, cultural and religious factors that affect the uptake of the measles interventions in Malawi which
consequently might exacerbate measles outbreaks. These issues need to be taken up by the Expanded Program on Immunisation (EPI) of the Ministry of Health and other stakeholders so that interventions can be designed and implemented that will address the prevailing cultural and religious practices and ensure that all eligible children are vaccinated both during the routine vaccination as well as during mass measles immunisation campaigns. In this paper, we use the results from a case study conducted in Rumphi and give some examples of other studies conducted in Malawi and elsewhere that reveal that seeking treatment for measles is delayed due to prevailing cultural and religious factors.

**Results**

In this section, the results of the study conducted in Rumphi are presented looking at the local terminologies used for measles and the accompanying challenges; the signs and symptoms of measles; seeking therapy for measles; and finally how communities try to prevent this disease. This will be followed by a discussion and a conclusion.

**Local terminologies for measles**

Tiyowyechi had a six year old daughter, Josephine, who was in Standard One. When she was three years old, she suffered from *chikhoso chakufuma*. Tiyowyechi explained that rashes came out all over Josephine’s body. The rashes were not small, but big vesicles. She was on her way to the health centre at Mwazisi when she was advised by her grandmother that it was not really necessary for her to go there because there was a traditional way of treating the disease. She was then told to give the child *nkhama*, okra and soil from demolished old houses. Okra was mixed with *nkhama* and soil and some water was added. After stirring properly, this was given to the child to drink and the child got well. Tiyowyechi did not go to the hospital after that. The purpose of giving this concoction was for the measles rashes to appear, which is necessary for the healing to take place.

In Tumbuka language, measles is known as *chikhoso chakufuma*. *Chikhoso* is a cough, while *chakufuma* means that which comes out. *Chikhoso chakufuma* therefore means the cough that comes out and in this context „coming out“ refers to the rashes that characterise measles. Health workers also use the term *chikhoso chakufuma* to refer to measles. Measles is also seen as a “type of cough” because it is accompanied by a cough. The use of *chakufuma* is also necessary as it distinguishes measles from the other types of coughs. During the first two months of my fieldwork in May and June 2000, whenever mothers mentioned *chikhoso chakufuma* without further questioning, I translated it as measles until Josephine’s mother mentioned that the rashes that appeared on her daughter were big ones. After enquiries from health workers at the local health centre, it was learnt that a child with
“big rashes” is not suffering from measles but chicken pox which was very prevalent in the area at the time of fieldwork.

The Tumbuka term *chikhoso chakufuma* is also used for chicken pox. In terms of terminology, it would seem that it is difficult (if not impossible) to differentiate chicken pox from measles as both of them are referred to as *chikhoso chakufuma* in Tumbuka. Biomedically, the best way of distinguishing chicken pox from measles is through symptomatology. After Josephine’s case, whenever a mother mentioned measles as one of the most dangerous childhood diseases, and that one of her children was suffering from this disease, I was able to probe further, asking particularly the size of the spots. If they were big, I would then conclude that it was not measles per se but chicken pox. According to clinicians interviewed as part of the study, chicken pox is a generalised rash with bigger vesicles which have pus or fluid inside. This rash covers the whole body from skull to foot. For measles the spots are very small, generalised and they also come out behind the ear. Unlike chicken pox, measles is a notifiable disease; hence whenever Health Surveillance Assistants (HSAs), who are health workers resident in communities and are the lowest cadre in the Ministry of Health in Malawi, notice that there is a case of measles, they have to report it immediately. From the discussions with women, it seemed that measles was just one type of *chikhoso chakufuma*; and will only differentiate it from chicken pox if asked about the size of the spots.

**Signs and symptoms of measles and its causes**

Both old and young mothers were able to recognise the signs and symptoms of measles; mainly the rash as has been mentioned above, the very high body temperature and coughing.

In addition to small rashes, very few informants mentioned that a child with measles is known by the redness of his or her eyes. Some mothers said that the disease is caused by inhalation of contaminated air, especially when the mother goes to crowded places with her child. In such places, if there is one child suffering from measles, a healthy child can contract the disease if he or she inhales contaminated air. Others felt that measles can be contracted through contact. As explained earlier, these are in fact also biomedical ways through which measles is transmitted. Unlike the Bambara of Mali who believe that the ultimate cause of measles is witchcraft (see Imperato et al., 1979), the Tumbuka do not generally associate measles with witchcraft or indeed any spiritual causal agent. This generally shows that mothers are aware of the signs and symptoms of measles and how this disease can be transmitted.

**Treatment for measles**

When it is recognised that a child is suffering from measles, he or she should be given a mixture of *nkhama* and *dolomu* because it is believed that
this facilitates the appearance of the rash. Tiyowoyechi, in the case presented above, administered this concoction to her daughter, Josephine, after being advised by her grandmother. *Dolomu* is a type of okra and because it is slippery or slimy its purpose is to clean or wash the alimentary canal. *Nkhamâ*² is considered to be a cool substance and when drank it cools one inside, thus forcing the rash to come outside instead of developing inside. A little bit of *nkhamâ* is added to *dolomu* and given to the child to drink. Some of this mixture is also put in the nose and ears of the child. It is put in the ears to prevent the child from becoming deaf and in the eyes to protect them from being spoilt by the rash. Some informants suggested that some of this mixture is rubbed on the child's skin. If this medicinal preparation is not given, mothers said that the child's body temperature will continue to rise until the rash appears and may even die once the measles attacks the heart.

According to informants, a child suffering from measles is not bathed until such a time as mothers are convinced that all the spots have appeared. The child may not be bathed for a period up to 5 days. Although the Tumbuka say that they do not see any problem inherent in this practice, health workers say that this makes the child vulnerable to other infections. If the child is bathed, then the spots might not appear and even the ones that had appeared might disappear back into the body and the child might even die. This is why some mothers objected to the rubbing of the indigenous medication for measles on the body of the child as this would prevent the rash from appearing. It is the traditional medicine that facilitates the appearance of the rash and the bathing of the child would lead to the disappearance of the rash.

While the avoidance of bathing and the use of medicines can bring about the rash, some informants said that on their own these medicines may not be all that useful. There is a need for harmony in the home because it is alleged that quarrelling, fighting and ill-feelings among family members may impede the appearance of the rash, a characteristic qualifying use of many traditional medicines in Africa (see Bujis, 1995). The avoidance of the bathing of children suffering from measles seems to be widespread in Africa. For example the Bambara of Mali only re-institute the bathing of the measles stricken children when the rash begins to fade (see Imperato *et al.*, 1979b; see also Munthali 1999 for similar beliefs among the Yao of southern Malawi; Chilowa and Munthali, 1999). This is in contrast to biomedical conceptualisations which encourage the bathing of children suffering from measles.

Before the rash appears the child may only have fever and a cough. Some mothers said that in order to treat the fever they buy either panadol or aspirin from the nearby shops and that they also buy bactrim for the treatment of the cough. It is when these drugs are administered that the spots appear and they then know that it was measles which made the child to have high fever and the cough. As far as measles is concerned, informants said that they
use both indigenous and biomedical treatment. This is because they felt that hospitals do not have the medicines which are able to speed up the appearance of the measles rashes. Others felt that the indigenous treatment for measles is adequate, and that it is only when such treatment fails that they take the child to the health centre for treatment. One young mother said that people trust the traditional way of treating measles, because sometimes when they go to the hospital for treatment they are only given aspirin and they know that measles cannot be cured by aspirin.

Hence when children suffer from measles the disease is first of all treated in the home, using traditional forms of treatment which facilitate the appearance of the spots, while at the same time accompanying coughs and fevers are treated with western medicines purchased from nearby shops. It is only when measles cases worsen that children are brought to the health centre for treatment. Health workers said that measles is a viral infection and that as such it does not have any cure and that symptomatic treatment is the approach used by the health centres. Nkhama is a red substance and once it is rubbed over the child’s body it is unlikely that such a child will be brought to the attention of a clinician for fear of being reprimanded. One health worker who came from the study area and had grown up in this cultural setting, confirmed that when the nkhama is rubbed on the child’s body such cases are not brought to the health centre for treatment. The promotion of bathing children suffering from measles by health workers and the perception that the indigenous treatment for measles is efficacious are some of the factors that deter women from seeking therapy at the health centre when their children suffer from measles.

**Prevention of measles**

There are a number of ways in which children can be protected against measles. While nkhama is used to enhance the emergence of the rash, it can also be used for the prevention of measles. When there is an outbreak of measles in the surrounding villages, some informants said that the child can drink nkhama and that in their opinion, this works, although at the same time they know that it does not give lifelong protection as the child may suffer from measles again at a later stage in his or her life. In cultures where it is believed that measles is caused by spiritually related factors amulets are worn as preventive measures (Imperato et al., 1979b). In some quarters it has been reported that measles cannot be prevented as every child has to suffer from this illness at one stage (Munthali, 1999).

All the young mothers with children under the age of five years said that measles can also be prevented by vaccinating children against the disease. Only a few knew that the measles vaccine is given at the age of 9 months. Most mothers complained that experience has shown that, though children may be vaccinated against measles, such children still suffer from measles.
Similar findings have been reported in India where mothers said that vaccination does not work for measles, as children still experience the disease even though they are vaccinated (Nichter, 1995). From these findings it can be seen that mothers perceive the vaccination as necessary, but that it is not a sufficient condition for the prevention of measles. As Nichter has argued, "vaccinations may be directly or indirectly associated with local illness categories that are much broader than the biomedically defined diseases for which the vaccine was intended" (Nichter, 1990:208). *Chikhoso chakufuma* is a broader term which the Tumbuka use to refer to measles, chicken pox and other children's rashes. Hence it can be seen that when informants said that children still suffer from measles even if they are vaccinated this is because the local Tumbuka term uses the word for measles to include illness episodes that are not clinically measles (see Nichter, 1990 and Brown, 1983).

Mothers gave a number of reasons why children may still suffer from measles even after being vaccinated namely: (i) that the vaccine may not be all that effective; (ii) suspicion that the health workers may sometimes be diluting the vaccine; and (iii) that the dosage that was being given was inadequate. What needs to be clarified in such circumstances is that the measles vaccine does not in fact confer lifelong protection against measles. Children who have been vaccinated against measles may still suffer from the disease at a later stage, but they suffer from milder attacks while those who are not vaccinated suffer from more virulent attacks. Only a few mothers were able to say that for vaccinated children *chikhoso chakufuma chikwiza na nkhongono yayi* (they do not suffer from serious forms of the disease). This is the message that the health workers need to bring to clients of vaccination programs because otherwise they (clients) may not bring their children for vaccination.

Measles is also recognised by the Tumbuka as a contagious disease; hence some mothers felt that it is important that a child suffering from measles should not come into contact with other children. If a parent or guardian wants to visit a friend should just leave her children at home. Though at the health centres they are advised that the child should be isolated from others whenever he or she has measles, most informants said that this is a very difficult practice, which is why when there is a case in the household the other children under the age of five will also suffer from the disease. This generally shows that while mothers are aware of vaccination and avoiding contact with children suffering from measles as ways of preventing measles, there are also other traditional ways that they use such as the use of *nkhama* during outbreaks of measles.

**Discussion**

In general the demand for vaccination services in Malawi has been increasing: it was quite low at the launch of the Expanded Program on Immunisation in 1979 by the first President of independent Malawi. The measles
vaccine is given at 9 months or any first contact with the health centres after that. The coverages for DPT II, DPT III and Polio II and Polio III are always lower than DPT I and Polio I, respectively. In most cases the coverage of measles has always been the lowest among the antigens and this implies that the older the child grows the more likely will he or she miss some antigens. The coverage of the measles vaccination for the first time in 2010 reached 93%. Between 1992 and 2004 it hovered between 79% and 82% (National Statistical Office, 2011). It can be argued that one of the factors that led to the increase from 78% in 2004 to 93% in 2010 was the mass immunisation campaign that was conducted in August 2010 during the massive outbreaks of measles.

In order to prevent outbreaks of vaccine preventable diseases including measles there is a need to maintain herd immunity and when the outbreaks do occur, there is a need to ensure that cases are identified quickly and treated. Measles is one of the diseases that can be transmitted quite quickly in the population and hence the need for cases to be identified and treated quickly. The case study in Rumphi, although conducted over some years ago, generally shows that there are delays in seeking care for treatment by members of the community: (i) they treat children using traditional medicines and during such times it is difficult for them to go to the hospital because of the reddish medicines that are rubbed on the child’s body hence they fear that health workers will shout at them; (ii) the prevailing belief that at the hospital there are no medicines that would enhance the appearance of measles rashes; and (iii) there are no effective medicines for measles as children are just given aspirin which they believe will not cure measles.

The belief in traditional medicines to cure measles is widespread: the use of nkhamá (known as ngamá among the Yao of southern Malawi) and okra to facilitate the appearance of measles rashes has also been reported in other cultures in Malawi (see Munthali, 1999; Chilowa and Munthali, 1999). In Ntchisi District in central Malawi it has also been reported that mothers also rub coca cola on the skin of the child suffering from measles to facilitate the appearance of the rash and some of it is drank by the patient (see Chilowa and Munthali, 1999). The Luo of Kenya also believe that modern medicines hasten the death of children suffering from measles as the injections that they give make the disease hide in the stomach with fatal consequences. Like the Tumbuka, the Luo also recommend that herbal medicines should be given to such children in order to speed up the appearance of the skin rashes (see Kawango, 1995:87). The delays in seeking care resulting from traditional beliefs about treatment of measles as is the case in Rumphi can result into epidemics as cases are brought into the health centres quite late.

Apart from prevailing cultural beliefs and practices, in 2010 there were quite a number of reports from different parts of the country which showed that members of some religious organisations, notably the Zion and Seventh Day Apostolic Churches, did not want their children to be vaccinated. Ngozo
reports that in a village in Dowa District the Malawi Police had to be called in order to force members of the Zion Church to have their children vaccinated. Members of this church complained that they were forced to have their children vaccinated against their church doctrines as reported by Ngozo’s informant in her article who was a father of three children who were vaccinated by force:

“It is against my church’s doctrine to go to the hospital and receive any kind of medication, but government is now forcing us to sin by bullying us into having our children vaccinated” (Ngozo’s informant, a resident of Chankhungu Village, Dowa).

And he continued to say:

“We believe in divine intervention. We know that God will heal us and that no man has power over any illness. We believe that our children will be protected by God and not vaccines,” said Malili.

The Zion Church actually rounded up its members who were suffering from measles and kept them in hiding. Such cases were saved by the members of the Malawi Police. The leadership of the Zion Church was arrested and charged with child neglect under Section 165 of the Penal Code. In Mulanje District in southern Malawi children whose parents were members of the Seventh Day Apostolic Faith who had measles were also hidden and rescued by the Malawi Police. The Zion and Seventh Day Apostolic Faith Churches do not allow their members to go for treatment as they believe in the fact that God will heal and protect them from diseases. Those who go against this doctrine are excommunicated from the church (see Ngozo, 2010). While Ngozo reports that there were quite a number of deaths, a 2010 study also shows that members of the Zion Church claimed that in December 2009 the Zion Prophetess in the area prophesied that there would be an epidemic of measles in the area and gave members amulets to wear and also prayed and that none of the members died of measles; they relied on prayer (see Munthali and Makupe, 2011). In Rumphi none of the informants reported that they refused vaccination because of religious reasons. In Ntchisi District in central Malawi an earlier study also reported that members of the Zion Church refused vaccination for religious reasons (see Chilowa and Munthali, 1999).

Conclusion

This study was conducted in order to determine the most dangerous diseases that afflicted children in western Rumphi and explore people’s perceptions about the causes, treatment and prevention of these childhood diseases. As has been mentioned earlier measles was mentioned by informants as one of the diseases that affected children. While measles was one major public health problem in the 1980s and 1990s, the introduction of the measles vaccine brought this disease under control. Mass measles immunisation campaigns conducted over the years have demonstrated effectiveness in terms of massive reduction in measles morbidity and mortality (e.g. Odiit and Kiguli, 2008).
this paper we have argued that while effective measles vaccine is available and that it is acceptable among Malawians as demonstrated by high coverage, there are challenges when it comes to seeking treatment for children suffering from this disease. Seeking treatment at health facilities is delayed because of prevailing cultural and religious factors. In some cases especially for the Zion and the Seventh Day Apostolic faith Churches, their members are not allowed to seek treatment when they are ill and they are also not allowed to be immunised as they believe that God will protect them from diseases and that when sick God will heal them. Because measles spreads very fast delays in seeking care because of cultural and religious reasons may contribute significantly towards exacerbating the measles outbreak such as what happened during the 2010 epidemic; hence the need for aggressive civil education to address these factors.

NOTES

1. All names used in this paper are pseudonyms in order to protect the identity of respondents.
2. *Nkhama* is a red powder that is made by collecting reddish material that floats on water and burning it.

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