

Where techno-science meets poverty: Medical research and the economy of blood in The Gambia, West Africa

James Fairhead^b, Melissa Leach^{a,*}, Mary Small^b

^a*Institute of Development Studies Brighton, East Sussex, UK*

^b*Institute of Development Studies, University of Sussex, UK*

Available online 21 April 2006

Abstract

This paper considers how internationally supported medical research is understood and interpreted by its actual and potential study subjects, exposing the limits to bioethical discourses amidst economic inequalities and contrasting socio-cultural worlds. It focuses on the Medical Research Council (MRC) Laboratories in The Gambia and particularly their Pneumococcal Vaccine Trial (PVT) that was conducted jointly with the Gambian government during 2001–2004. In many respects this was an exemplar of international best practice in trial communication and informed consent procedures. Yet ethnographic and survey research finds that Gambian parents' perspectives on participation are shaped not by trial specificities, but by broader, historically shaped views and experiences of the MRC as an institution. There is a pervasive view that the MRC offers good, free medication to participants, but that it also 'steals blood'. Widespread concerns with blood-stealing emerge from local frames of understanding in which blood is treated as a tradeable good, in which blood accumulation and depletion in bodily processes relates to its exchange in hospital and medical research practices, and in which transactions can be more or less (un)reasonable. Yet such thinking, rooted in an 'economy of blood', has been overlooked by medical research staff and indeed by historians and anthropologists of Africa whose analyses of blood-stealing have been overly transfixed on rumour and the occult. This paper argues that such cultural framings, which guide local critical commentary on trans-national research orders, require serious attention and need to inform open dialogues between scientists and the public if medical research in resource-poor settings is to continue to be sustainable and politically legitimate.

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Keywords: Gambia; West Africa; Bioethics; Blood; Medical research; Culture; MRC

Introduction

The compound fence of the UK Medical Research Council (MRC)'s field station at Basse in the east of The Gambia divides and defines a world of

extremes. Inside, the laboratories, offices, accommodation and international staff inhabit an oasis of Euro-American funding in an impoverished region. The contrast across the fence is a tangible microcosm of the global economic inequalities in which trans-national medical research throughout most of Africa is now being conducted. As Farmer rightly characterises, 'researcher and subject are living in two different worlds'(2002, p.1266).

The inside world of the researcher is heavily orchestrated by 'the trial'. Most staff recruitment,

*Corresponding author. Tel.: +44 1273 678685;
fax: +44 1273 621202.

E-mail addresses: j.r.fairhead@sussex.ac.uk (J. Fairhead),
m.leach@ids.ac.uk (M. Leach), marygamco@yahoo.co.uk
(M. Small).

line management, financing, administration, work practices, ethical conduct, accountability and so on are organised around particular trials and their protocols. For researchers, connectivity with the world outside is regulated by the globalised institutions and practices of biomedical ethics, also focused on ‘the trial’. Connectivity turns on internationally recognised ‘best practices’ in communicating trial aims and procedures to the community (by radio, traditional media, and public meetings), and to potential research subjects (through information sheets and the regulated way front-line research staff explain the trial) who can on this basis give their ‘informed consent’. The assumption is that subjects’ interpretations of what researchers are up to can be strongly determined by such trial-by-trial communication.

This paper examines how people living in the operational shadow of a research station encounter and understand research practices and procedures. Prevailing views, we find, focus on the institution, and its historical reputation sedimented through many engagements, not particular trials. Moreover they focus on the MRC as a health provider more than as a research institution. Specifically, there is a widespread view that the MRC offers good and often free medication to those registered with it, but that the MRC steals good, African blood that, people speculate, they send to Europe or America for transfusions and to make medicines. This fear of ‘blood stealing’ shapes what the MRC can do and how it plans its trials. It shapes the experience of Gambian fieldworkers who broker the trial-configured world of research with wider Gambian society, and whose morale and community relations are soured by the need to take blood and public ideas about this.

In considering how the trans-national ordering and economy of medical research is experienced and interpreted in a particular social and cultural world, this is therefore a study of post-colonial technoscience (Anderson, 2002; Fairhead & Leach, 2005). Yet these issues are not only interesting for academics discerning the place of science in unfolding contemporary global orders. They are also critical for the sustainability of medical research in Africa: for achieving the levels of participation by study subjects to make it feasible, and the community relations and political legitimacy necessary for its continued operation. We thus speak to wider debates about public engagement with science, where many now argue that the legitimacy of

scientific institutions requires greater dialogue with publics in setting agendas, negotiating conduct and dealing with risks (Fischer, 2003; Irwin & Wynne, 1996; Wilsdon & Willis, 2004). This must appreciate that wholly different framings often divide scientists and publics, rooted in their different cultural worlds and material concerns (Jasanoff, 2003; Leach, Scoones, & Wynne, 2005; Stirling, 2005). In the contexts of globalisation and inequality that now pervade medical research in Africa, such dialogue becomes an ever more necessary yet difficult part of the ‘complex and difficult process of linking research in resource-poor settings to the services demanded by poor people’ (Farmer, 2002, p. 1266).

Those working for the MRC, whether as senior scientists from around Africa, Europe and the US, Gambian fieldworkers, nursing staff or drivers, usually consider worries about blood stealing to be unfounded and unfortunate rumours. They have sought to dispel them through participatory meetings in the villages where they work, backed up by senior Gambian cultural, religious and political figures, guided tours of the laboratories to explain and show what they are doing, and education more broadly. In their narratives, detailed elsewhere (Fairhead, Leach, & Small, 2006; Leach & Fairhead, 2005), people’s miscomprehension is linked to their misunderstanding and ignorance of medical research practices (such as dilution—apparent mixing—of blood), and the social, political and racial isolation of the laboratories, that is already being remedied by more inclusive employment strategies.

Historians and anthropologists have been critical of reducing blood stealing ‘rumours’—that have occurred across the continent and at least from early colonial times—to misinterpretation. For some scholars, these interpretations become credible within wider contexts of resistance: blood stealing in this sense provides an indigenous idiom of resistance to colonial oppression, to millennial capitalism, or indeed, to the potentially exploitative political economy of post-colonial technoscience (e.g., Comaroff & Comaroff, 1999). Yet such analysis can easily fall foul of the problem that Ortner (1995) identified more generically in resistance studies: the thing resisted is often of assumed but not demonstrated significance. Indeed, it would be hard to suggest that Gambian blood stealing ‘rumours’ are simply a response to (or resistance to) the experience of medical research in the

post-colony for two reasons. First, as the survey and ethnographic material below indicate, those worried by blood stealing understand the MRC less as a research institution than as a health provider. Second, accusations of blood stealing are not just levelled at scientists, but across the continent have also been directed at firemen, policemen and indeed, anthropologists (White, 2000).

Other works interpret blood stealing rumours less as resistance to, and more as meta-commentary on, the wider consequences of capitalism and globalisation. In this framing there is a strong temptation to consider these rumours as a dimension of ‘things occult’, and to see their resurgence (for which there might be anecdotal evidence) as part and parcel of the resurgence of witchcraft and sorcery that some have suggested for Africa (e.g., Comaroff & Comaroff, 1999). This locates analysis of blood stealing within debate concerning the (multiple) ‘modernity’ of witchcraft, and its causes. Blood stealing becomes linked with ‘stories of zombies, cannibalism and head hunting...[as] imaginative moral frameworks for making sense of wage labour, consumption, migration, productive regimes, structural adjustment programmes, development policies and the functioning of markets’ (Moore & Sanders, 1999, p. 15):

The preoccupation with the occult ... at one level [is] about the desire to plumb the secret of those invisible means [of rapid enrichment]; at another, it is concerned to stem the spread of a macabre, visceral economy founded on the violence of extraction and abstraction in which the majority are kept poor by the mystical machinations of the few (Comaroff & Comaroff, 1999, p. 293).

Similar critiques apply. Once again it is easier to assert that the ‘rumours’ are a meta-commentary on such things, than it is to evidence it. Moreover, social and conceptual worlds cannot easily be explained in terms of global processes without attention to more located, specific articulations. Ethnographies, such as in Moore & Sanders’ collection *Magical Interpretation* (1999) as well as those focusing specifically on blood stealing by Weiss (1998) and Geissler (2005), show how anything resembling meta-commentary on global forces is inflected by far more locally specific meanings and agency. Geissler (2005), for instance, argues that blood stealing has long been an enduring latent idiom (an ‘available rumour’) in parts of Kenya,

and traces the contingent situations in social process that render it credible or otherwise.

Perhaps the most influential analyst of vampire ‘rumours’, White, does not really seek to explain them at all, suggesting that ‘to reduce them to anxieties—about colonialism, about technology, about health—strips them of their intensity and their detail’ and would ‘turn them into mechanistic African responses’ (2000, p.5). In White’s hand, rumours reveal ‘the messy categories and meandering epistemologies many Africans used to describe the extractions and invasions with which they lived’ (2000, p.5). They reveal people’s differentiated experiences of colonial employment and related matters, and thus become tools with which to write colonial history.

Works that focus on how, and how far, these rumours link with global processes often conflate blood stealing with body-part stealing, body capture, and murder. Shaw (2001), for example, tracks ‘cannibal’ and ‘vampiric transformations’ as ‘re-worked rumours’ from pre-colonial to post-colonial Sierra Leone. Such conflation is made possible within overarching analytics of ‘the occult’ and of ‘rumour’: catch-alls that give a single, skeletal meaning to what might perhaps be a very wide variety of experiences. If there is a specificity to blood stealing, it is lost. Indeed these works are surprisingly thin on the ethnography of blood, or the ethnography of stealing. As we hope to demonstrate in this paper, a thicker ethnographic focus on blood and the exchange relations implicating it helps discern more precisely Gambian experiences of the MRC, and their interrelationship with global processes, in ways which qualify attention to rumour and the occult.

Context and methods

The MRC established research laboratories in 1949 in colonial Gambia. The laboratories now conduct research addressing many tropical diseases. The coastal campus and three main field stations house advanced laboratories and orchestrate clinical trials that operate over much of the country. The MRC employs 750 staff and is thus the country’s third largest employer. The MRC also offers clinical services which provide ‘our public visibility and allow us to maintain our research activities’ (MRC, 2002, p. 6).

Our research focused on areas of Upper River Division (URD) that were covered by a

pneumococcal vaccine trial (PVT) against pneumonia and invasive pneumococcal disease.¹ We provide an ethnography of trial practices elsewhere (Fairhead et al., 2006). The PVT was a randomised, double-blind, placebo-controlled trial, which between 2001 and 2003 recruited 17,437 infants between 6 weeks and 51 weeks old, from a total population of about 380,000, covering nearly half the country (Cutts et al., 2005). The trial registered all births, and fieldworkers recruited babies at government infant welfare clinics, where the trial vaccinations (or placebo) were mixed with routine infant immunisations. Informed consent required a mother's signature, after discussing a take-home information sheet with others. Support to government vaccination infrastructure, trial conduct and monitoring involved a huge logistical presence. Notably, the trial conducted state-of-the-art communication involving radio, public meetings and 'traditional' media, as well as fieldworker-administered explanations and information sheets to assist informed consent. The trial did not involve taking blood samples, although this was necessary in a range of preparatory and associated studies, and in diagnosing certain ill children in this trial. Notably too, and in contrast with many other MRC studies, this trial did not officially offer free healthcare to study subjects and their families. Senior staff suggested that the MRC tried to help anyone with serious illness, irrespective of whether they were in the trial. In practice, however, the majority of fieldworkers and participants did consider free treatment as an entitlement linked to trial participation (Fairhead et al., 2006).

Our study combined ethnographic and survey methods. Ethnographic research focused on a village covered by earlier MRC research as well as by the PVT, and considered parents' understandings of the MRC in the context of their broader perspectives on child health and its protection. Methods included participant observation in settings where parents take infants and where people discuss the issues of the day; focus group discussions in the five areas of the village; observation of clinic interactions; interviews with frontline health professionals including MRC fieldworkers; interviews with healers, and 50 narrative interviews with mothers identified through participant observation. An interviewer-administered questionnaire survey

then considered the generalised significance of the key narrative themes amongst wider populations and in relation to social variables. The survey was a stratified random sampling of 800 mothers of children aged 12–24 months. It explored mothers' perspectives on engagement with MRC studies within their broader understandings and experiences of child health and its protection (Cassell, Leach, Fairhead, Small, & Mercer, 2006; Fairhead & Leach, 2005), and included many free text responses which supplement ethnographic evidence.

The survey showed that 58% of eligible mothers were invited to participate in the PVT, and of these, 15% declined. Of mothers who participated, only 44% said that they had been involved in the decision (either alone or jointly with others). The rest said their husband, compound head or other senior men had decided. The survey probed what people thought the study was about. Forty-five per cent of mothers invited to join said they did not know, were not told or had forgotten; 30% said it was for improved child health, and 18% said that it concerned free checking and treatment for their children. Only 6% mentioned pneumonia or the phrase 'pneumococcal vaccine trial'.

When asked about the benefits of 'having a child registered with the MRC' (a question which people could interpret in general or more trial-specific terms), 55% of those invited to join mentioned good treatment, and a further 26% specified that this was also free. A further 14% also mentioned free food and transport. When asked if they had heard any negative ideas about the MRC, 28% of the population said they had, with many mothers participating despite this. Virtually all those reporting hearing negative things about the MRC also saw benefits. The negative ideas, in all but one case where worry was expressed about an 'experimental vaccine', turned on the notion that the MRC 'takes' or 'steals' blood. Neither in the survey, nor in our ethnographic work, did people raise any other negative issues. The local language term—*sunya* in Mandinka—is also the general term for 'steal' in many other contexts.

To understand the nature and extent of these concerns with blood stealing, we now turn to ethnographic evidence from a particular study village. We consider how health is often conceived of as a 'struggle for blood', how blood is conceptualised, and how it has come to be transacted. This provides a basis for interpreting the concerns with the MRC expressed in the village and in the wider survey.

¹See Gambia pneumococcal vaccine trial: <http://www.niaid.nih.gov/dmid/gambia/background.htm> (11 April 2005).

Ethnographic perspectives from eastern Gambia

In the rural village of Marikunda² livelihoods are based principally around agriculture, trade and remittances. Although the village is very poor, it is far from globally isolated. Most men had travelled widely. Some were back from Europe to look after relatives, and some had been deported. Almost every compound had brothers, sisters or children living in Europe, Asia or America, as well as in the capital Banjul. All this is perfectly normal in this part of The Gambia. Elders nurtured ‘traditions’ (especially celebrations around marriage) as all the more important to attract, and to stem the outflow of, the village’s youth lifeblood. Global connectivity is maintained through mobile phones, with 37% of compounds having access to one.

The village is divided into ‘traditional’ quarters; the area for chiefly families, for griots (JallaKunda), for other ‘caste’ families, and for former slaves (DjonKunda). The latter still fetch water for the former. Compounds are divided between those backing the government, and those backing opposition parties. Discussions in men’s resting shelters often focused these strongly felt social and political divisions. The mosque helped dissipate them.

The struggle for blood

Many aspects of life in this region are conceived of as a ‘struggle for blood’. As Bledsoe (2002) describes elsewhere in Mandinka Gambia, women relate that they have only a restricted number of pregnancy chances, and strategise to ensure that each will lead to a healthy, surviving child. A major problem is to recuperate after each childbirth, to prepare for the next. This is conceived of as rebuilding strength, and often spoken of as recuperating blood.

People consider women’s lives to be fraught by blood loss: in the making of a child, in the events around childbirth, and in their arduous agricultural and domestic labour that hinders blood recuperation. Concerns with blood recuperation are focused in practices around blood donation. In the words of a poorer man, ‘Usually only men give blood. It is more dangerous for a woman because of a woman’s heavy workload. If a woman’s blood lessens it is

worse, as she still has to continue with her work.’³ There is a general reluctance to give blood, even to close family or friends. As Cham (2003) describes, men do not usually accompany women to hospital, as they fear they would be obliged to give blood. Women who accompany the sick, by contrast are usually found by hospital staff to be unfit to give blood; practices which one can assume interplay with local understandings of blood and gender.

Blood logic provides a way to understand not just gender difference, but also wider social difference. As we shall see, people differentiate Africans from Europeans partly through the idea that Africans have stronger blood—and they consider that Europeans seek it for this reason.

People associate blood depletion not simply with depleted strength and reproductive resilience, but also with susceptibility to other dangerous conditions. It is not the quantity of blood in the body alone that is important here, but also the balance between blood and other body ‘water’. An excess of water over blood is thought to predispose one to a serious condition called *fonyo*, associated with swelling, and for which it is futile, and indeed dangerous, to receive injections (see also Bierlich, 2000).

People often evaluate foods and medication for their impact on blood. Meat, certain leaf vegetables, red palm oil and now vitamin pills are sought after to build or replenish blood and strength.

The meaning of blood

Much ethnography relating to East Africa (Geissler, 2005; Weiss, 1998; White, 2000) suggests that blood is a principal substance of relatedness. Geissler, for example, writes that ‘Among people in Uhero, blood—of humans and of cattle—is identified with people’s relations and the ties between the living and the dead’ (Geissler, 2005). Audrey Richards writes of the importance of blood to the physiological understanding of matriliney among the Bemba (Richards, 1939). Weiss’ (1998) Haya informants indicated that pacts solidified by the mutual drinking of blood instituted subsequent clan exogamy.

In contrast, much of the ethnography of Mande and Islamic West Africa suggests that relatedness is

³Interview, Marikunda, 4 May 2003. Conversely, much East African ethnography suggests that women are said to have the most blood (e.g., White, 2000).

²A pseudonym.

not linked to blood, but to a different and contrasting circulatory system, sometimes referred to as ‘white blood’, linking semen, breast milk, foetal growth and through these, kinship (e.g., Cros, 1990; Fortier, 2001). Many people in Marikunda spoke in this way, describing how the spinal fluid is the origin of a man’s semen, how this helps constitute and build a foetus through continued sex during pregnancy, which also encourages the ‘rise’ of breast milk and gives it, and through it the baby, a man’s character and kinship identity. Thus otherwise unrelated children who have shared maternal milk (through wet-nursing) should not marry.

In contrast, red blood is associated with personal strength, and with the liver, the organ of self and of emotion. It is the stuff of life—the vital force of living things—but not the stuff of relatedness or identity. As the stuff of personal strength, blood is in turn linked to plumpness, considered a physical sign of a person’s health, power and material prosperity. Such associations between blood, plumpness and power inform aesthetics manifest, for example, in the region’s sculpture (e.g., Boone, 1986; Ferme, 2002).

The economy of blood in transfusion

Marikunda is about 10 km from the local hospital at Basse and 60 km from the regional hospital at Bansang. In these hospitals blood is rarely readily available for transfusion. Cham (2003) has examined the economy of blood provision at Bansang. He found that when blood is needed, relatives are told to ‘find blood’ for ‘their patient’ in one of three ways. First, they can give blood themselves if the blood group matches. Second, they can give their own blood to the blood bank, and draw out blood of the right group, if it is available. Last (but most usually), they can buy blood for cash. Patients’ families must pay up front to lab staff who act as intermediaries to obtain blood from ‘professional donors’. Cham found that patients and their escorts often complain that they pay for more blood units than they use, and accuse lab personnel of reselling the blood. This trade in blood is somewhat clandestine: Cham reports a patient saying that lab staff would sometimes call someone sitting inside the lab who pretends to be a commercial donor, in order to trick patients and make money from them. In the 14 cases of transfusion that he followed, blood cost about 150 dalasis (about £5)

per pint, and the average amount spent on a transfusion was 363 dalasis—or slightly more than a month’s salary for a menial worker. Blood has thus acquired a high cash value.

It could be hypothesised that the value accorded to blood in transfusions, as well as its centrality in local biomedical diagnostic practice and in the MRC’s work in the region, have interplayed with existing local framings to render blood so central to local ideas of health. While we do not have the historical evidence to track an evolving significance of ‘blood calculus’, that this is not as static as our brief presentation portrays is suggested by the emergence of what people talk about as new conditions such as ‘high blood’. This ailment resonates with popular and African clinical use of the term ‘hypertension’, but in village healers’ words, concerns the lightening and rising-up of ‘bad blood’ within the body, ‘just as a bad egg floats’.

Whatever their history, local ideas of blood calculus and economy are now inter-animating with a field of suspicion and imagination around the MRC’s interest in blood, as we now go on to show.

MRC and blood-taking: narratives

Free text responses in our survey included an array of similar statements, such as:

MRC takes blood from healthy people and sells it.

When one joins the MRC study, they will take much blood from your child and if you are not lucky the child may die.

I heard from people that MRC would treat your child until he/she grows older. Then they take his/her blood and give it to others.

I heard MRC steals and sells people’s blood.

MRC takes blood from those children that they claim to be helping and sell it to others.

I heard that MRC people take blood from their patients in large quantities continuously.

In a number of cases, people seem unsure whether to believe these ideas—suggesting that they are part of a field of uncertainty:

I used to hear MRC takes the children’s blood I don’t know if they sell it or not. I don’t believe it. I have no fear of MRC.

I heard when your blood is good MRC will steal it. I don’t know maybe they sell it. I cannot

believe it. I will not however join MRC. I fear they will steal my child's blood.

Narratives from Marikunda elaborate on these themes. Several of the earlier studies which the MRC had carried out in the village had involved venous blood-taking (even though the PVT proper did not). One man explained how he had registered his child with the MRC but later dropped out, unnerved by conversations in the men's resting shelter where his peers reported that the MRC would '*weede*h [empty, from the French *vider*] the child's blood'. When his child next became ill he instructed his wife to take him to the government clinic instead of the MRC.

Practices at the MRC laboratory also engendered worry. For example several women who participated in one of the PVT's preparatory studies were transported to the MRC field station where, as one described:

I witnessed an incident where a blood sample was taken from a baby, put in a small bottle and mixed with the *boro* [serum] in the laboratory. After it was mixed, the women who were present misinterpreted it to be whole blood withdrawn from the baby. This was circulated in the village and people were scared.

People's perceptions of MRC recruitment procedures in studies past and present played into their reflections. For instance:

They would also pick and choose those children to join and those not to join. If the intention is to protect children why do they accept some and reject others?

They are interested in healthy fat babies. Sometimes they go in for thin and beautiful babies. I remembered about six months ago two healthy, fat, handsome male children from different families joined the programme. Unfortunately they died. Their deaths followed each other, so MRC was responsible.

In the survey too, several mothers said 'I heard they look for healthy children and take their blood'.

People are unsure exactly what MRC does with the blood it takes. Their speculations on this include the notion that the small vials they collect (as blood samples) are amalgamated into quantities sufficient to make treatments and medicines: 'I heard that MRC people take blood from their patients, put that together and treat others with it'. People also

speculate that blood is exported for its qualities, becoming part of a trans-national economy. For example, and as originally recorded in our notes:

One man joined a trial several years ago. He thought that he had been chosen because his blood was amongst 'the best in the village'. He recalls how they tried to take a lot of blood, but after the first intravenous syringe-full he felt a pain in his chest and told them to 'stop or I will fight you'. He recalls no reason being given for the blood-taking, only that a promise of gifts of medicine failed to materialise: 'I received nothing, and felt very offended'. While he initially thought the blood was to help treat Gambians, as time went by he reflected that it was probably to treat Europeans, as 'African blood is stronger' than theirs.

Similarly, a man who became unhappy with the frequency and quantity of blood taken from his son during treatment at MRC facilities in the 1990s maintained that: 'MRC are attracted by my son's blood, because our blood is of higher quality than that of the white people'.

Many parents' narratives contain within them a sense of transaction. Sometimes these transactions are perceived as reasonable, but in other instances they are perceived as robbery. Some indicate a sense of fair transaction when blood-giving is reciprocated with free medication or indeed with what people have understood as blood-replenishing medicines (in most cases vitamins) given by the MRC. For example:

People are gradually accepting MRC now, because they offer good treatment. Whenever blood is taken, they ensure that enough medicines are given to replace the loss. They will never do what is bad.

However the exchange relationship can become unfair in many ways. One informant had the ill fortune see his child die in his arms and attributed the death to earlier MRC blood-taking intervention, here described as we originally noted it:

Initially, the child joined the MRC programme. They were supplying things to encourage people to join. They brought soap and other things during the naming ceremony. Later, the child fell ill and was taken to MRC by his wife. He heard that they took blood, and put it in a container. After returning home the child did not improve,

and he was taken back where some blood was again taken. The child died four days later. Since then, MRC have asked him to sign his children up to other trials, but he refuses. Known as a 'refuser', when MRC pass him by in a Land Rover they don't stop for him. This has made him furious. He has told his wife never to seek a lift but to walk even when offered. He has 'turned his back on MRC'.

Some people have become suspicious of blood-taking because they do not receive any results, in contrast with the blood taken for diagnosis in hospitals. For example:

They do not say what they do with the samples. They do not provide results about the blood taken to the person concerned (as the clinics do when one has a blood test). As this is not done, the rumour that is spreading about selling blood must be true, as we do not know what was done with the blood.

Without feedback, the taking of blood is likened to 'robbery'.

The tremendous resources of the MRC and especially their fleet of vehicles themselves engender suspicion of wider motives:

It is amazing to see a vehicle being fuelled to come all the way from Basse just to identify or transport one small infant. What is the rationale behind their action? This made us afraid of their programme.

This concern with the material wealth of MRC trials puts the value of any blood they might take into a different register: a sense that the little taken has a far greater value measured by the entire value of a trial and its logistical support. In turn, such speculation interplays with wider worry about 'white people' and their wealth more generally. As a spokesperson from a nearby village known for its reticence to join MRC studies described:

It shocked the villagers to see and hear white people coming to this part of the country saying they are offering services to promote health. Compared to Europe where conditions are favourable, Africa is quite the opposite. Why do they have to leave their comfort to stay in a hot humid environment? Why do they have to leave their mosquito free country to come to a place infested with mosquitoes and be taking prophylaxis regularly, is it worth it? I have

travelled to many parts of Europe and then settled down in Japan for 10 years. I am a living witness of what the white people do to the blacks. They are terrible. The whites would never do anything free of charge.

And another:

The whites would never do anything for free; they are after their self-interest. They make themselves the priority and overwork you. Sometimes they pretend to be nice or good but behind this they have a different motive.

Despite such disquiet, the vast majority of invited mothers have joined the PVT. As survey responses indicated, many balance their worries as against the benefits of joining the MRC—as a quid pro quo:

I heard MRC steals blood. I believe it. I saw them take blood from patients. I feared for my child to join but I had to hence she gets treatment there.

I have heard that MRC takes blood from their registered children but didn't pay heed to this, I just wanted to register my child with them for better treatment.

I used to hear MRC steals blood. I believe it. But I don't take it seriously.

Such narratives suggest that decisions to join the MRC (in this case the PVT) involve a balance of danger against benefit, played out in the social world of which mothers are a part. Parents balance fears about blood-taking with the advantages of what they perceive as reliable, good quality, convenient, free medical care and transport for their children, themselves and even other family members; a watchful eye and safety net for vulnerable infants. In this respect, the decision to join seemed more akin to registering a child with a health service, than to consenting to participate in a particular trial. Moreover it is registering with a health institution that offers much the same sort of biomedical services as do government clinics, but is perceived as more reliable in access, drug supply and accurate diagnosis, and as offering medicines free of charge. Officially, it should be recalled, the PVT neither took blood, nor offered treatment to study subjects.

People's particular circumstances, as related to intra-household, intra-village and even party politics, influence how they weigh up these dangers and benefits, leading at times to strong differences

within families. For instance those linked with the party in power sometimes expressed a view that the Gambian government would protect them from MRC:

When MRC first came, some people were scared, saying that MRC will take people's blood. But others said the MRC and the government had discussed this a lot, and that the government does not sell its people. They will not sell their children's blood. After assessing the situation, I became brave enough to accept. The Gambian government will never allow someone to trick its citizenry.

PVT registration was also an issue of tension between husbands and wives. While husbands more often expressed concerns around MRC's motivations and blood-taking, sharing these with others in the men's resting shelter, women more often relegated such fears to the background in relation to their prior concern with day-to-day infant care:

One thing I know is that it offers good treatment leading to good health, and my stepmother's children [registered with the trial] are doing well. I have registered with MRC and have seen the benefits. One good thing about it is that there is no money involved. Relatives also benefit. Drugs are so expensive and are not available in government hospitals so some have to accept the services of MRC that have been provided.

Taken together, all these narratives indicate how far joining the MRC involves transactions, and a balance of possible cost and benefit in an uncertain context. Some come to view this as a fair trade, while for others, the MRC's failure to honour their side of a perceived bargain of one sort or another suggests they are stealing.

Conclusions

The transactional logic apparent here among those deliberating whether to join the MRC was not apparent to the MRC staff, who generally perceived trial participation as a matter of people and entire villages 'understanding' or 'misunderstanding'. Thus in Marikunda all but one eligible infant was registered for the trial. MRC fieldworkers and senior staff alike had come to consider the village to be 'accepting', its parents presumed to have 'understood' and to have taken on board MRC assurances, following communication and

consent practices. There was therefore some surprise when an attempt to recruit participants for a follow-up immunogenicity study (that required blood-sampling) encountered significant numbers who refused to participate. What the MRC had understood as 'acceptance' evidently did not reflect a transformed mentality, but a calculus in 'joining MRC' that had gone one way, and was now going the other.

Here, we have tried to show why blood calculus makes sense to Gambian villagers, and has become the dominant way in which they reflect on trial participation. The 'struggle for blood', the significance of its accumulation in the body, its capacity to be extracted, transformed or transfused, and its relative independence from relational physiology, all make it a remarkably easy product to consider as transactable. Moreover, ideas about transactions in blood relate understandings of the body rather seamlessly to understandings of the economy. Blood reasoning enables those in Marikunda to link their evaluation of bodily process, health and health chances to economic success/hardship and lifestyle. Through blood accumulation, one can make 'savings' (or lose out) in one's very body.

In recent years Martin (1994) has argued that in the United States, comprehension of personal health and wider economic status has come to be configured through common metaphors of flexible specialisation, and personal genetics, that interanimate each other. Martin's *Flexible Bodies* explores how the metaphors through which modern Americans reflect on and refract bodily experiences are metaphors that also make sense of economic experiences, dealing at once with understandings of economic resilience through flexible specialisation in the market, and medical resilience (immunity) based on flexibly specialised cells. Napier has gone further, arguing that we have entered an 'age of immunology', one effect of which is to constitute the self in radical separation to the other in ways that encourage 'self-sufficiency' rather than mutual interdependence. Neo-liberal economic ideas of the individual in relation to the market and state are thus inscribed into the body (Napier, 2003).

Yet whereas the path to good health in contemporary America (and Europe) is often construed as a build-up of immunity, in West Africa it is a build-up of blood. Those in Marikunda could be understood as living in an 'age of blood'. This interrelates bodily processes and wider economic processes, through understandings of accumulation

and depletion that both take place within and transcend the body. Moreover, the relations between economy and body do not need to be seen so much as ‘metaphoric’ as substantive. Martin’s focus on metaphor connotes both a likeness in health and economic reasoning, but at the very same time, separateness. In this paper, we have tracked a more substantive relation that does not produce such a radical distinction between the body and the economy, but rather, connects these.

To understand why people view the MRC as stealing blood it has been important to consider local practices fostering health in which blood calculus is involved, as well as their intersection with technological and trial practices, as interpreted through locally embedded meanings of blood. Nevertheless, people’s decisions are taken in a field of uncertainty and speculation in which wider confidence (e.g., in the Gambian government, or in Gambian field workers) or worries (e.g., about the duplicitousness of white people) are relevant. Discussion and reflection on such broader issues become focused in deliberation about whether to join the MRC. Ideas of stealing, when an anticipated transaction unfolds as unreasonable or unjust, provide a potent way of expressing wider concerns with political economy and justice. Yet blood stealing only has this power as a lens to reflect and refract wider experience because of its grounding in localised understandings and experience of technological and trial practices. Blood stealing is thus more an available interpretation in a field of transactions, than it is an ‘available idiom’ for understanding something else, although other things are reflected on through it. Viewed thus, we can see that blood stealing is certainly not an unrooted ‘rumour’ circulating out of nowhere, credulous somehow to minds befuddled by contradictory modernity.

Equally, in explaining the hold of ideas about blood stealing, no recourse need be made to ‘things occult’. In considering representations of blood stealing as rumour, fading into ideas of the occult, anthropologists and historians have often felt free to gloss over the specific (and contrasting) ways that blood and other body parts are understood. Yet our ethnography has emphasised that blood has distinct, particular meanings which are central to the ideas of blood stealing that now circulate. While people’s narratives clearly display a sense of transaction, there is no need to consider these within the realm of any ‘occult economy’. The

perception of a European desire for African blood is a projection of blood reasoning onto Europeans whom, it is thought, benefit financially and medically from the medications presumed to be based on it. Appreciation of this more ontological relation between blood and economy thus helps reinterpret phenomena that have in anthropological debate been considered in the realm of the occult.⁴

Indeed for those who see the rise in expressed anxieties about blood stealing as part of a resurgent belief in ‘occult economies’, we can also offer a rather less mystified reading. Any rise in concern about blood stealing could reflect perceptions of a rising value of blood to others (as medical research proliferates, blood-based pharmaceuticals develop and blood transfusion technologies spread) amidst poverty. Impoverishment accentuates the material inequality between the world of medical researchers and the world of potential study subjects: between those perceived to want blood and those who have it in their bodily reserves. Poverty also makes it more difficult to replenish blood; in the Gambia a pint of blood has only recently come to represent half a month’s salary.

This discussion carries implications for medical research practices, whether linked to ethical discussions around informed consent, or communication practices intended to enhance public engagement with (and the legitimacy of) research. First, this case indicates how wide is the gap between the trial-by-trial focus of the research community, and the longer-term reflections—on the MRC as an institution—of those who become its research subjects. Second, it challenges the view—held by many MRC staff—of blood stealing rumours as pre-rational, and thus likely to be vanquished by proper understanding of science. This is the logic underlying organised visits by villagers to the laboratory to see what scientists do with their blood, and of communication practices aimed at inculcating an appreciation of research, and the idea of a modernist trial participant. In these biomedical and bioethical discussions centred on the demystification of science, it is easy to overlook the very real political economy of the global medical and medical research industry, and of blood within it. Current bioethical

⁴Interestingly, Geissler (2005), appears to recognise this in a footnote: ‘It seems to me, ... as if the *kachinja*-[blood stealing] idiom in Uhero had another, economical rather than magical, thrust: people were not concerned that the blood could be used by sorcerers, but that their children would be drained of their blood for somebody else’s benefit’.

framings of public engagement with medical research, and their ascendancy in contemporary ideas of the good/ethical medical researcher and the good/enlightened research subject (which cannot in reality be upheld), are, in this sense, serving to silence discussion of these economic processes and the global inequalities in which they are embedded (cf. Sharp, 1994).

The transactional, commodity-focused thinking that emerges from Gambian social worlds provides valid commentary on and critique of prevailing medical research orders. Rather than focus only on education, demystification and the creation of the modernist research subject, then, the scientific community needs also to acknowledge such thinking and the social worlds it emerges from more seriously, and to take these into account in developing dialogues with communities. This would be in line with contemporary perspectives on public engagement with science that advocate dialogue open to local framings (Stirling, 2005)—such as those around the economy of blood that we have indicated here.

Approaches which do not appreciate such radically different framings can lead to misunderstandings and to counter-productive participatory engagements. Thus medical researchers may think that what they take from subjects is a gift rather than part of a transaction, and thus act in ways that from the other side appear to be stealing. Participatory lab visits may be interpreted less as demystifying what is done with blood than showing what is done with something stolen. In the Gambian context, more productive approaches might address more explicitly the socio-economic relations between people and researchers, as understood by each side, and develop dialogue about the sorts of exchange that seem reasonable in this context.

Acknowledgements

James Fairhead and Melissa Leach jointly conceived, researched and wrote this paper. Mary Small conducted further fieldwork and oversaw the study survey. We also acknowledge Jackie Cassell who helped develop the survey and oversaw the statistical analysis of its findings in conjunction with Catherine Mercer. We thank the Medical Research Council staff and scientists who provided logistical support and useful comments at various stages of the research, and staff of the Gambia Committee on

Traditional Practices (Gamcotrap) Bakau for their assistance. We are grateful to the joint Gambian Government/MRC Ethics Committee for granting ethical clearance for this study, and to the funding organisations which have supported it: the UK ESRC Science in Society research programme, and the UK Department for International Development's Committee on Social Science Research. The views expressed in this paper are those of the authors, and not of these support or funding organisations. Any errors of fact or interpretation are ours alone.

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