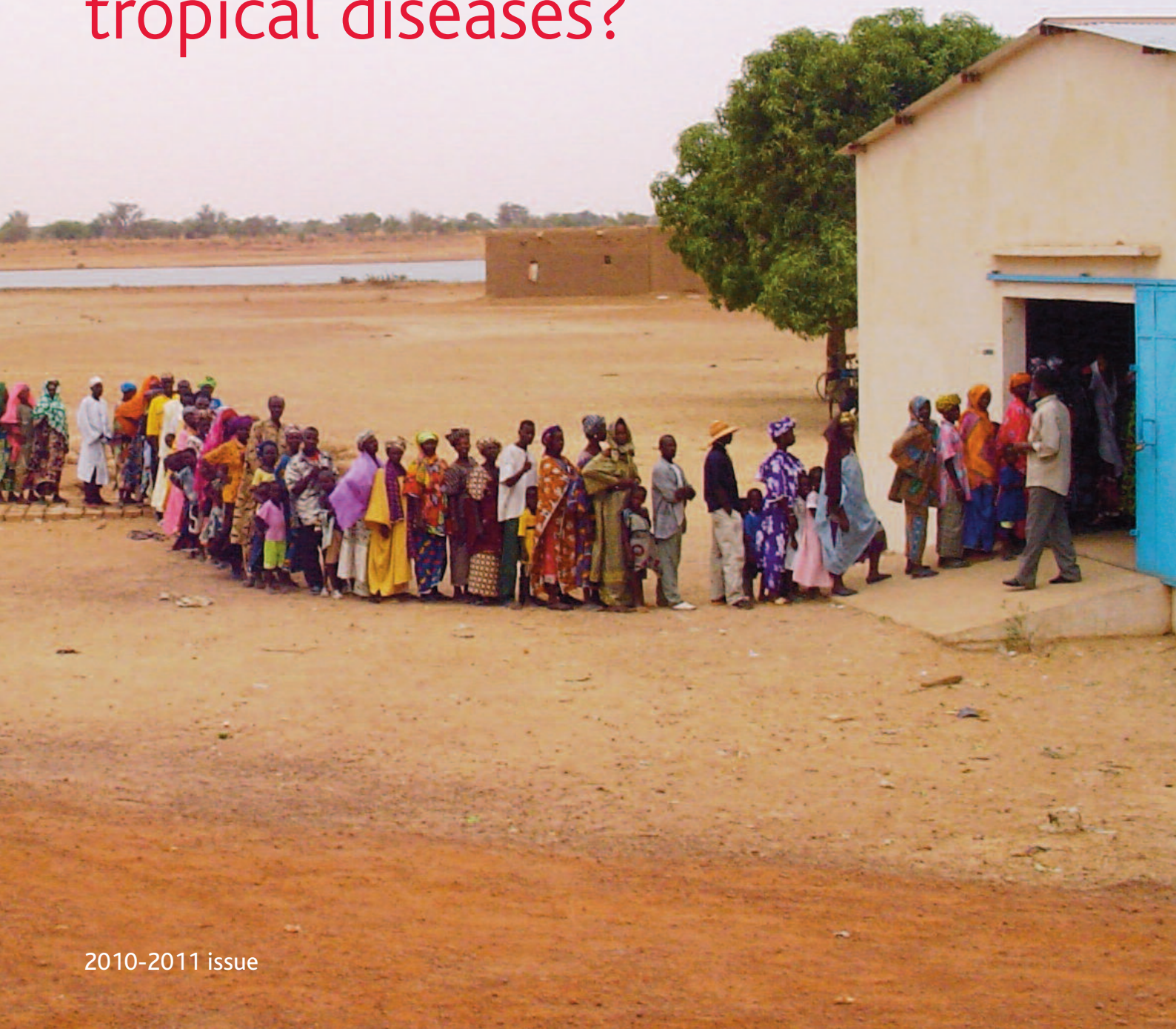


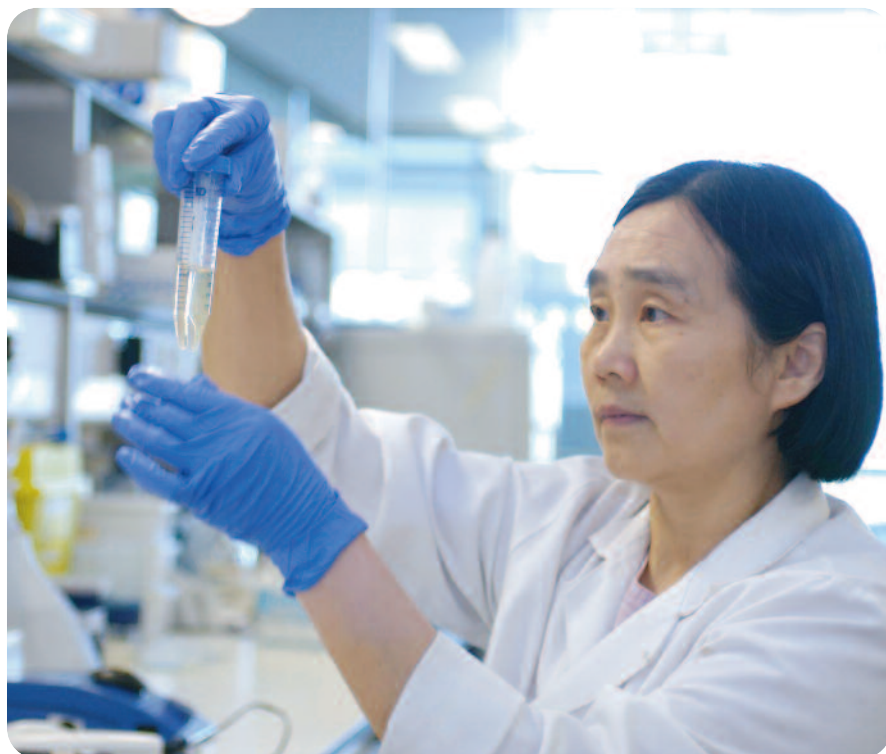
tropical

no longer **neglected** tropical diseases?



Viewpoint:

LSTM Senior Research Associate Dr Yang Wu



How does your job shape your view of the world?

There are still so many people suffering from tropical and infectious diseases in the world. I need to work hard to help them based on the spirit of humanity and one world. This job has taught me that I have to be a life-long learner to make progress along with our ever changing world.

What do you hope will be the greatest achievement of your career?

I always work in the hope that my research results can throw light on the mechanisms of a disease which can lead to control and cure. I believe that is what I have done and continue to do. The greatest achievement of my career would be to have some breakthrough discoveries. I know that it is not easy, I have to be lucky enough, smart enough and work hard enough to find and seize the opportunities.

Why did you choose to specialise in parasitology and biochemistry?

Parasites and microbes are interesting organisms with intricate abilities to survive inside the human body and cause diseases.

Biochemistry is such a reliable and versatile research tool to discover and answer the questions relating to parasite survival, pathogenesis and eradication.

Is there an individual who, beyond all others, has inspired you?

To choose a health related career I was greatly inspired by Li Shi-Zhen (1518-1593), the greatest physician in Chinese history. His encyclopaedia of medicinal herbs, *Bencao Gangmu*, and his guide to pulse diagnosis, *Binhua Maixue*, are still standard texts of traditional Chinese medicine even today. I always want to learn his diligence and spirit of hard work.

Do you have any personal philosophies that help you through tough times?

I am inspired by proverbs such as: 'no pain, no gain', 'where there is a will there is a way' and 'failure is the mother of successes'. The one I always tell myself is: 'never give up' especially when it is a tough time. I am confident in assessing and understanding my strengths and limitations.

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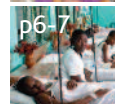
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LSTM 'Wellcomes' three new fellows



Focus on India



Haiti: One man's story



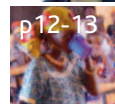
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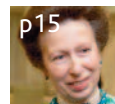
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No longer **neglected** tropical diseases?



International Health Links Centre



The Royal Patronage of LSTM



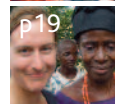
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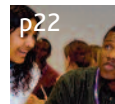
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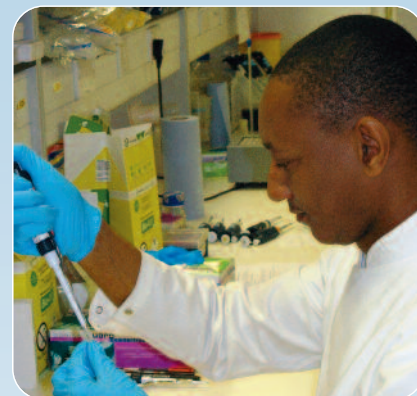
Funded by the Wellcome Trust, Deo Maliti, Dennis Massue and Kija Ng'habi are LSTM Masters Training Fellows from Tanzania

wellcometrust

Deo Maliti

"Malaria is a major public health problem in my country, Tanzania. The parasite accounts for 30 percent of the national burden of disease and loss of productivity. Controlling the *Anopheles* mosquitoes that transmit the disease is one of the most effective means of malaria control and this generally involves the application of insecticides, either to treat bednets or to coat inside walls of houses, the preferred resting places of the major malaria mosquitoes.

Unfortunately insecticide resistance is a continual threat to malaria control activities. Once resistance arises in a population, it can spread very rapidly. In this study, I will investigate the presence and potential for the spread of genes causing insecticide resistance. I will do this by collecting mosquitoes from throughout Tanzania and the coastal islands and use molecular techniques to determine their genetic relationships and to predict the level of resistance to insecticides. This information will greatly assist the planning of malaria control activities in Tanzania."



Kija Ng'habi

Kija is a post-doctoral training Fellow based at the Ifakara Health Institute (IHI) in Tanzania. IHI is a leader in providing research, training and services to address Africa's greatest health challenges and has a particularly strong track record in research relating to health systems and population health, as well as the treatment and prevention of malaria.

Kija has a strong background and publication record on mosquito ecology and population genetics relating to malaria vector control. He is currently looking at the evolutionary and ecological selection pressures imposed by insecticide-treated bednets on major African malaria vectors, using a novel system for maintaining free-flying self-propagating mosquito populations in captivity, which he has developed himself.

In 2005, Kija and his fellow researchers discovered the use of natural microbes

that kill malaria-transmitting mosquitoes, where mosquitoes are infected with fungi before they suck human blood, which greatly reduces the transmission of the parasites.

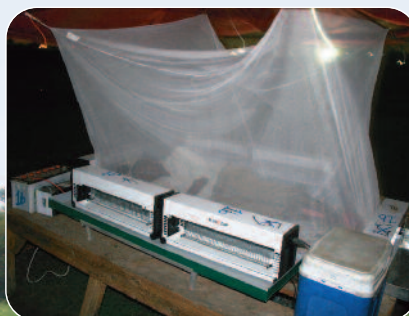


Dennis Massue

Dennis Massue from the National Institute for Medical Research, Tanzania, is working with LSTM's Dr Hilary Ranson and Dr Gerry Killeen to investigate insecticide resistance and avoidance in African malaria vectors. Dennis explains:

"Mosquitoes have a nasty habit of avoiding the insecticides we humans use to defend ourselves against them. In Africa most malaria transmission has historically been mediated by a small number of mosquito species adapted to feed on people indoors and at night when we are asleep and vulnerable. Now that increasing numbers of people are protected by sleeping under insecticide-treated nets or living in houses which are

sprayed with long-lasting insecticide, these mosquitoes are adapting to avoid these measures by biting outdoors. The only currently available means to measure such behavioural traits have relied upon direct observation of mosquito feeding behaviour using humans as baits. Here I am using a new set of mosquito traps so that human participants can be used to attract mosquitoes and quantify their feeding behaviours without being exposed to potentially life threatening bites. This will allow national programmes in Africa to monitor changing



patterns of mosquito behaviour and susceptibility to insecticides so that we can respond to the adaptations of mosquitoes as fast as they adapt to insecticides."



The burden of malaria in pregnancy in Madhya Pradesh

Malaria in pregnancy (MiP) is a major public health problem in India affecting both mothers and their babies. Overall the burden of MiP in Asia is less well defined than in Africa; malaria transmission is low, and unlike Africa, there is no recognised framework for the prevention and control of MiP.

Previous information mainly from hospital-based studies in India has shown that the severity of the disease increases in pregnant women compared to non pregnant women. LSTM's Malaria Epidemiology Section of the Child and Reproductive Health group has undertaken MiP burden studies in Central India to add to existing information and help to develop a control policy for the region.

One of these studies involving the National Institute of Malaria Research (NIMR) India, the Centers for Disease Control in the US and LSTM determined the contribution of the malaria parasites *P.falciparum* and *P.vivax* to the burden of MiP in Madhya Pradesh. The state has a large population of women at risk of malaria, with an estimated 200,000 women affected by MiP.

For one year cross-sectional surveys were conducted in three clinics enrolling pregnant women from the antenatal clinics and delivery units of primary, secondary and tertiary health care facilities in rural (Maihar), semi-rural (Katni) and urban areas (Jabalpur). Maternal and placental malaria was detected using finger prick and placental blood samples.

Malaria prevalence was found to be low in 1800 women recruited at antenatal clinics and 2,700 women at delivery, 4.5% and 1.6% respectively. *P.falciparum* infection was the predominant parasite species (80%) and malaria infection was highly seasonal, with the majority of infections occurring between October and December. *P.vivax* rates remained low (<1%) throughout the year.

The majority of infections were symptomatic, with fever reflecting low background immunity in pregnant



women. This may explain why age and gravidity were not determinants of malaria risk in this population and contrasts with findings in most malaria endemic regions of sub-Saharan Africa with higher transmission, where asymptomatic infections are much more common.

Although malaria prevalence in pregnant women was low, the impact of infection on women and their infants was substantial, with a significant decrease in maternal mean haemoglobin and a doubling of the risk of maternal anaemia and of delivering a low birth weight (LBW) baby. Babies born to *P.falciparum* infected women were nearly half a kilogram lighter compared with uninfected women.

Malaria-associated LBW and maternal anaemia contribute to infant and maternal morbidity and mortality in malarious countries. Given the large population of women of reproductive age at risk in Madhya Pradesh and the major adverse impact on maternal and newborn health, there is a clear case for controlling MiP in this population.





South Asian Cochrane Network & Centre



Successfully lobbying the Indian government for free access to the Cochrane Library for everyone in India is just one of Professor Prathap Tharyan's many achievements as Director of the South Asian Cochrane Network & Centre (SASIANCC) based in Vellore, India. Prathap helped establish the South Asian Cochrane Network in 2005 as part of The Cochrane Collaboration - an international not-for-profit organisation producing systematic reviews about the effects of health care.

The network includes 10 institutions in India, Pakistan, Bangladesh and Sri Lanka who produce systematic reviews relevant to the Millennium Development Goals. The network also disseminates reliable summaries of this evidence to contribute to healthcare policy making in the region.

SASIANCC is a partner of the Effective Health Care Research Consortium, a DFID funded research consortium coordinated from the International Health Group at LSTM. The Consortium funds the Cochrane Infectious Diseases Group, one of 53 review groups worldwide that make up The Cochrane Collaboration.

The Consortium is mandated to prepare and update Cochrane reviews about the effects of healthcare relevant to low and middle income countries, and uses dialogue and a pro-active communications strategy with research, policy, and practice communities to ensure decisions relating to the health sector are based on reliable evidence.

In addition to securing a national site license to the Cochrane Library in 2007 (the only middle-income country with nationally funded access) and renewing it in 2010 for a further three years, Prathap and his team have an excellent track record in producing Cochrane reviews and a dynamic training and support programme for authors of Cochrane reviews in the region.

They have worked tirelessly with medical journal editors to improve reporting requirements and worked closely with the Indian Council of Medical Research, the



National Institute of Medical Statistics and the WHO International Clinical Trials Registry Platform to help set up the Clinical Trials Registry - India (www.ctri.in) to ensure that trials conducted in India are available for research synthesis.

Prathap has strong links with the Indian Council of Medical Research and helps them undertake systematic reviews relevant to health policy; he is facilitating links between the WHO-initiated EVIPNet and the Department of Health Research of the Ministry of Health & Family Welfare, Government of India.

Prathap says "It is a privilege to work with people from around the world who give so much of their time, expertise and experience to ensure that the cumulative evidence from high quality research reliably informs decisions that affect the health and the lives of people worldwide."



www.cochrane-sacn.org

Haiti:

one man's story

It took only 35 seconds just before 5 pm local time on 12 January 2010 for the earthquake to destroy Haiti. In line with LSTM's commitment to the secondment of staff to other organizations, particularly in relation to disaster and humanitarian relief operations, Dr John Haskew, from LSTM's Centre for Neglected Tropical Diseases (CNTD), arrived in the aftermath at the request of the Red Cross to help with the health assessment. Here John reports on his experiences.

Our charter plane from Santo Domingo, Dominican Republic, took a little under one hour to reach Port-au-Prince. US military Humvees criss-crossed the airport and in the arrivals hall there was no immigration, no visa, just one lady who flicked through the passport and handed it back.

The Red Cross base camp was the largest operation the movement had ever undertaken, with more than 600 Red Cross workers based here. I looked for a place to pitch my tent, walking past row after row of nationalities: British, Spanish, Koreans, Israelis, Mexicans, Japanese... finally finding a pitch next to the Iranians. The Red Cross and its member national societies, in partnership with the Haitian Red Cross, had established two field hospitals, mobile health clinics, water and sanitation projects and relief distributions throughout the Port-au-Prince area.

I had received a call from Geneva four days earlier. The International Federation of Red Cross and Red Crescent Societies (IFRC) were sending a Recovery Assessment Team (with the affectionate acronym RAT) and I was requested as a team member to look at health needs over the next five years, beyond the emergency phase of the operation. Kindly, my Director at CNTD granted leave to go.

After a security briefing we made our first visit into the centre of Port-au-Prince, or what remains. The legacy of 12 January 2010 was everywhere. People walk over or around rubble and dust covers everything; walls are cracked and fragmented; buildings are disjointed.

Health infrastructure has also been destroyed and supply chains have been disrupted, severely compromising an already weak health system. Health professionals have died or been injured. In Port-au-Prince only 78% of health workers reported back to work.

Around 230,000 people died in those 35 seconds and more than 300,000 were injured, resulting in an estimated 4,000 new amputees in Haiti. The need for specialist post-operative care, physiotherapy, rehabilitative care and prosthetic services is huge and these needs will exist for years to come. There is not one physiotherapy training school in Haiti.

We visit the football stadium. Around 6,000 people are crammed in here. Some have tents, some tarpaulins, some made shelters from cardboard or plastic bags. There are around 315 spontaneous camps like this in Port-au-Prince alone, occupied by half a million people and over 90,000 families. Such population displacement and overcrowding increases the risk of transmission of communicable diseases associated with overcrowding, such as respiratory tract infections; water and sanitation, such as diarrhoeal disease; vector-borne diseases, such as malaria and dengue; and vaccine-preventable diseases, such as measles and polio. Scabies and skin irritation are common complaints among residents of these camps.

We travel seven hours by road to Les Cayes, the third city of Haiti, located on the south west coast. No buildings fell down here, but around 1.5 million people are thought to have left Port-au-Prince following the earthquake and more than 160,000 came to Les Cayes alone. Most are now living with families or friends and a few hundred live in a temporary camp on the outskirts of town.

The local hospital is full of orthopaedic patients. I met Rose on the ward. She was trapped for two days under the rubble before her husband, Andre, pulled her out. Tragically her two children, aged 10 and 13, who were buried under the rubble with her, did not survive. Andre and Rose travelled to Les Cayes by private vehicle after not being able to find any treatment

in Port-au-Prince. Rose subsequently needed a below the knee amputation due to the severity of her injuries and delay in treatment. Rose is not the only one. Around 1,000 surgical interventions have taken place in Les Cayes alone and the same story can be told in nearly every hospital across Haiti.

These stories started to build a picture of the scale of health needs across Haiti, both in earthquake-affected areas in and around Port-au-Prince, and in non earthquake-affected areas where large numbers of the population had moved to.

Those who are displaced and living with host families and friends, or living in temporary camps, need to be provided with appropriate health prevention and curative services to keep them healthy. Community-based programming forms the core of the Red Cross Community Based Health and First Aid (CBHFA) approach which aims to empower communities to prevent disease and promote healthy living themselves. Simple activities to prevent diarrhoea and dehydration, acute respiratory infections or malaria, such as handwashing, accessing safe water, hygiene and sanitation, or using mosquito nets significantly improves the health of communities.

Included in this list of community-based activities is the control of seven neglected tropical diseases (NTDs) through campaigns of mass drug administration. Elimination would save lives and keep communities healthy, increasing the employment and productivity needed to support the rebuilding of Haiti.

The United Nations "International Donors' Conference Towards a New Future for Haiti" took place in New York on 31 March 2010 during which time \$11.5 billion was immediately pledged over the next three years, with \$34.4 billion to follow over 10 years.

It would cost around \$49.4 million to eliminate LF from Haiti by 2020. We must make sure this fight is not forgotten.



Sexual Violence legislation in sub-Saharan Africa: healthcare



e and legal links

Sexual violence in sub-Saharan Africa remains an under-researched and under-resourced area, despite evidence that it is widespread throughout the continent. Of the 45 countries that make up sub-Saharan Africa, only six currently have laws on sexual violence. Eight others have provisions on sexual violence in other legislation. Effective legislation requires functioning linkages between the medical and legal systems to enable the effective provision of both justice and health services for survivors of sexual violence.

LSTM and Kenyan-based Liverpool VCT Care & Treatment and The Center for Legal Information and Communication, have conducted a review of existing data on sexual violence in sub-Saharan Africa, the content of sexual violence legislation in the region and the strengths and weaknesses of existing medico-legal linkages, including an in-depth review of the situation in Kenya. LVCT has been a leader in providing post-rape care and researching gender-based violence since 2002.

The review drew on the output from the first conference on "Strengthening linkages between reproductive health and HIV/AIDS in Africa: the sexual violence nexus" in Nairobi in September 2008, which was attended by more than 300 delegates from 14 African countries.

The aim of sexual violence legislation is to protect the fundamental rights of individuals to bodily integrity by prosecuting perpetrators, thereby discouraging further attacks and demonstrating to survivors that justice has been done, which is a key part of responding to their needs.

The health sector has a key role to play in ensuring that such legislation meets its aims. Health services are a key point of contact for survivors of sexual violence. As part of what is commonly known as 'post-rape care', they should provide not only immediate clinical treatment (including referrals to HIV and reproductive health services) but also psychological support, information and advice.

They also have a key role to play in collecting, storing and analysing evidence of sexual violence, and delivering this evidence securely to the criminal justice system, which is critical for a criminal trial.

Legislation cannot therefore effectively deliver either justice or effective support and care to survivors without functioning linkages between the legal and medical systems.

Many sub-Saharan African countries do not yet have comprehensive post-rape care services, nor substantial co-ordination between HIV and sexual and reproductive health services, the legal and judicial systems, sexual violence legislation and supporting legal instruments.

This means that survivors have to contend with recounting their experiences to varied providers as they access the health and justice systems. Medical evidence may not be collected, analysed or stored in line with the standards of the criminal justice system and survivors may also face

procedural, cultural and bureaucratic hurdles to access care.

For example, survivors in South Africa are required to report to the police as a pre-condition for receiving health care, which can discourage them from doing so.

There is an urgent need to strengthen co-ordination between the health, legal and community service sectors, which needs to include:

- standardised guidelines and protocols – such as Kenya's development of a detailed form for health providers
- common referral pathways and cross-referrals between legal, health and community service sectors
- harmonised medico-legal procedures and information
- common training approaches across the different sectors
- common indicators and sharing of information between institutions to better understand the needs of and outcomes for survivors of sexual violence.

Further research to test and evaluate models for a comprehensive approach across the medical and legal sectors in policy and service delivery is needed to inform improvements in policy and practice.

LSTM staff and students are working with LVCT and other developing country partners who are leaders in this area to develop research on sexual and gender-based violence, which is vital to help realise the potential of legislation to prevent sexual violence, provide necessary care, and to see justice done for survivors.

Liverpool VCT
www.liverpoolvct.org

The Centre for Legal Information and Communication in Kenya
www.click-kenya.com

Making it Happen for Maternal Health

The Making it Happen Programme (MIH) run by LSTM's Maternal and Newborn Health Unit has been praised by the Department for International Development who said "the overall scoring is extremely positive and weighted according to the importance of the inputs/outputs and we were impressed with the progress the project has made."

In partnership with the Royal College of Obstetricians and Gynaecologists, 'Making It Happen' is contributing to a reduction in maternal and newborn mortality and morbidity in Kenya, Sierra Leone, Zimbabwe, Bangladesh and India, increasing the availability and improving the quality of Essential (Emergency) Obstetric and Newborn Care (EOC&NC) by delivering a country adapted competency based training package to improve health care providers' capacity to deliver EOC and early NC. This model is sustained by training in-country trainers and through supportive supervision within the workplace.

MIH is measuring the impact on individual health care providers' clinical practice and behaviour, on facility functionality and on maternal and newborn health outcomes using a newly developed education framework. The MIH programme will inform policy and strategy at both national and international levels.



The Making of a Medical Entomologist

Mike Service developed an early interest in natural history, receiving a microscope for his fifteenth birthday, and spent many happy hours studying microorganisms from pond water. His interest was maintained by a crush he had on his biology mistress and led to the publication of his first paper "Rearing Caterpillars" in the school magazine.

Mike's early hobbies included an unlikely mix of ice skating and boxing, but it was his early interest in photography which was to complement his future scientific career, with a number of his photographs being published in journals and added to image libraries.

Enrolling at Imperial College, London, in 1952, Mike studied zoology and applied entomology. After graduating he was recruited by the Nigerian Ministry of Health as a medical entomologist within the Malaria Service. Arriving in Lagos in December 1955, he toured the country surveying anopheline vectors and in 1957 he was joined by his wife Wendy, who helped with mosquito collections. One mosquito they caught was a new species, which he named *Aedes wendyae*.

Moving in 1960 to Kaduna, Northern Nigeria, he pursued an external PhD with London University, studying the taxonomy and ecology of the mosquito *Aedes vittatus*. Despite intrusion by curious baboons in his field site he nevertheless managed to collect and describe two new species of moth found feeding on plants growing in water-filled rock pools. He also published non-mosquito papers on stink bugs (*Carbula pedalis*) and a vesicant beetle commonly called the Nairobi fly.

In October 1963 Mike, Wendy and their two children left Nigeria and returned to the UK. His first UK-based job was working for the Dorset Naturalist's Trust on Brownsea Island, Poole Harbour, Dorset. Mike's research while on Brownsea has greatly contributed to the understanding of the ecology of British mosquitoes, which at the time was quite limited. On one occasion a local school group came to the island to participate in 24-hour human bait collections of mosquitoes.

Then in 1967, Mike joined the Natural Environment Research Council's largest research facility, Monks Wood Experimental Station, near Cambridge, to further research British mosquitoes and other biting flies. While at Monks Wood, Mike was invited by LSTM to apply for the post of Senior Lecturer. Arriving in Liverpool in April 1973, Mike, as is common today, soon found his time divided between teaching, research and overseas travel. For the first time he was lecturing on all aspects of medical entomology to postgraduate students requiring knowledge on the transmission of diseases by mosquitoes, flies and ticks.

One of the greatest impacts Mike has made in this field is the PhD students that he supervised. Recently returned former student Professor Moses Bockarie, now the Director of the Centre for Neglected Tropical Diseases, said "Professor Service continues to influence current thinking on global strategies for the control of mosquito-borne diseases through his frequently cited publications and former students who are now well positioned to influence decisions at the international level. Dr Melanie Renshaw, UNICEF Senior Health Advisor for Malaria, and I were his PhD students in the early 1990s. I am also a member of the Executive Group of the Global Alliance to Eliminate Lymphatic Filariasis. We maintain regular contact with our mentor."

Mike's enjoyment of lecturing led him in 1980 to write a student-orientated text book on medical entomology, of which a later edition was translated into Madarin and published in China. The most recent English edition was published in 2008. His many achievements during his career culminated in his appointment as President of the Society for Vector Ecology, receiving the Sir Rickard Christophers' Medal from the Royal Society of Tropical Medicine and Hygiene in 1997, and in 2002 the Harry Hoogstraal Medal from the American Society for Tropical Medicine and Hygiene. It is clear that Mike has enjoyed having the opportunity to travel: "My work has allowed me to visit 55 countries, the most memorable were China, Cuba, the Democratic Republic of Congo, El Salvador, Gabon, Iran, Nepal and Panama, but the most colourful was Guatemala."



Mike retired from LSTM in 1997 as Emeritus Professor and in time-honoured tradition continues to return on occasion to teach a class, sit on the archive committee, use the library and generally keep in touch with colleagues, who appreciate the wealth of knowledge provided by this medical entomologist.

Mike says that when he first came to LSTM he lectured wearing a suit, then a tie and jacket and eventually with neither a tie nor jacket. He welcomes the informality and the greater interactions lecturers now have with their students. He has seen LSTM grow in size and become an institute at the cutting edge of tropical medicine.

Mike was the first medical entomologist to have his life and work published in the *Annual Review of Entomology*, volume 55, January 2010, which was entitled "The Making of a Medical Entomologist". This short account is adapted from this article.

No longer neglected tropical diseases?

Having played a role in helping to coin the term Neglected Tropical Diseases (NTDs) and working constantly since then to raise their profile on the world stage, we asked LSTM's Centre for Neglected Tropical Diseases if the title is still wholly applicable?

Now extensively used in the global health community, the term NTD arose from a series of meetings co-hosted by the World Health Organization (WHO) and the German Development Agency held in Berlin in 2003 and 2004. LSTM's Professor David Molyneux and Professor Harold Townson participated in those meetings that 'packaged and branded' the NTD concept and resulted in a change in policy and the establishment of a department for the Control of Neglected Tropical Diseases at WHO.

A series of papers by a group of committed NTD experts published in *The Lancet*, the *British Medical Journal*, *PLoS Medicine* and other high impact journals advocated the scientific case for translating knowledge into action. It soon became apparent, particularly with committed pharmaceutical donations from major companies, that many of the diseases of the NTD group - onchocerciasis (river blindness), lymphatic filariasis (elephantiasis), worm infections, trachoma and schistosomiasis (bilharzia) - can be controlled or even eliminated. The only need was to find adequate donor resources for upscaling; the convincing argument to support the case was that unit costs of programmes which provide annual treatment could be less than 50 US cents per person per year. In south east Asia, the figure could be less than 10 cents, making NTD intervention amongst the 'best buys' in public health.

The combination of policy change and advocacy by WHO induced a reappraisal by policy makers about the part that action against NTDs should play in the global mix of health issues, especially as their control directly contributes to achieving many of the Millennium Development Goals pertaining to health. The Director General of WHO, Dr Margaret Chan, identified NTDs as a "perfect rainbow" of interventions and opportunity and has frequently emphasised their importance as

causes of – and their control as a means of lifting afflicted individuals out of – poverty.

In 2006, USAID committed \$100 million to NTDs over a five year period and in 2008, the US commitment was reinforced by President Bush announcing that \$350 million would be made available for NTD programmes. Following the Bush announcement, the G8 meeting in Japan mentioned NTDs in its communiqué for the first time and the then UK Prime Minister Gordon Brown committed £50 million from the UK Department for International Development (DFID).

This announcement coincided with the arrival of Professor Moses Bockarie as Director of LSTM's Centre for Neglected Tropical Diseases (CNTD), formerly the Lymphatic Filariasis Support Centre, following the retirement of Professor David Molyneux. The commitment to increase funding and an external review led to DFID awarding a new grant of £9.5 million from 2009-2014 to CNTD, focusing on up-scaling and expanding Lymphatic Filariasis (LF) activities.

CNTD has worked with many partners to advocate for NTD investment through USAID which has resulted in NTDs being mentioned by President Obama and included in the President's Global Health Initiative package before Congress. The budget for NTDs from Senate and Congress has resulted in an increase in annual funding from \$35 million in 2009 to \$55 million in 2010 with a proposal under consideration of \$155 million annually to 2014, of which LF would be a significant recipient.

At the time of writing, continuing advocacy efforts are ongoing to maintain the momentum as members of the US legislature consider the Global Health Initiative, but the economic climate and the perception of 'foreign assistance' makes the 'ask' to the Hill a challenging task, even though the amount for NTDs is relatively small compared with that for other global health agendas.

The continued advocacy of G8/H8 leaders plays an important part in sustaining the interest in NTDs. David Molyneux spoke at



roundworm larvae



WHO's invitation at a "Health 8" representatives meeting in Rome last year during the Italian Presidency of the G8. Representatives from Canada (this year's G8 Chair) were lobbied as were delegates from France, Germany, Japan and Italy. The US and UK are already committed but are hopeful that there will be more overt engagement from other G8 and G20 countries. Only continued advocacy for the benefits of NTD control, emphasising the importance of simultaneously achieving MDG targets and alleviating poverty, will secure what is now recognised as a 'best buy' in public health.

In a series of four papers published in The Lancet in January 2010, edited by David Molyneux, the associated comment article emphasised that the NTD cause was beyond the "tipping point". This is particularly relevant in terms of equity for the world's poorest as only 0.6 % of global health assistance is currently devoted to the control of these diseases which affect over 1 billion people worldwide.

Cost-effective, cheap interventions for poor people can now be delivered and the NTD community is engaging with the malaria and HIV communities to look at the interactions between these diseases and NTDs.



The proposals before the US legislators, if passed, will provide the required financing for a huge expansion in treatment. The UK is committed to 2014. The future for NTD control for the world's poorest billion people is being written right now and it is just possible to say that, for some NTDs at least, the time when they will no longer be considered 'neglected' is within reach.



List of 15 NTDs as classified by the World Health Organization

1. Buruli Ulcer
2. Chagas disease
3. Dengue fever
4. Guinea worm disease
5. Fascioliasis
6. Human African trypanosomiasis
7. Leishmaniasis
8. Leprosy
9. Lymphatic filariasis
10. Onchocerciasis
11. Schistosomiasis
12. Soil transmitted helminthiasis (hookworm, roundworm, whipworm)
13. Snakebite
14. Trachoma
15. Yaws

www.cntd.org



Promoting effective health partnerships worldwide

The goal of the International Health Links Centre (IHLC) is to enhance access to health care in the developing world by promoting international partnerships that will increase the number and skills of the health workforce.



The IHLC is hosted by the Liverpool School of Tropical Medicine and funded by the Department for International Development.

For further information and membership registration, please visit the IHLC website: www.ihlc.org.uk or contact us
ihlc@liverpool.ac.uk
Tel: +44(0)151 705 3273

The Royal Patronage of LSTM



Britain's Royal Family is known the world over for its committed patronage of charitable organisations. In honour of the 60th birthday of the current Patron, Her Royal Highness The Princess Royal, we look back over LSTM's Royal patronage.

LSTM's relationship with the Royal Family began in January 1905 when Her Royal Highness Princess Christian visited LSTM and gave an address on the subject of "The Progress of Tropical Medicine." As a result of this visit and her obvious interest in the field, the Princess was invited to become Honorary President.

At this time royalty were not expected to spend much of their time in public, however Princess Christian was particularly active. She was one of the founding members of the Red Cross and President of the Royal British Nurses' Association.

Following her death in June 1923, a letter of condolence was sent from LSTM to the Royal Family. The reply read: "Princess Christian took as you know, the deepest interest in the work of Liverpool School of Tropical Medicine, and it was always a source of great pleasure to Her Royal Highness to feel that she was associated with a body which had achieved most magnificent results for the safeguarding of human life and health."

LSTM respectfully invited His Royal Highness the Duke of York to take over as Honorary President in 1924.

HRH was educated at the Royal Naval College at Osborne and Dartmouth and became one of the first officers of the

Royal Air Force in 1918, rising to squadron leader in 1919. With his accession to the throne in 1936 he became His Majesty King George VI. In honour of this, His Royal Highness became the first Patron of LSTM.

For his period as Patron, events that shaped LSTM were also those that greatly affected his reign. The Second World War and the transition from empire to commonwealth redirected much of LSTM's work both in Liverpool and overseas. The King's death in 1952 saw his daughter Elizabeth become Queen and her husband HRH Prince Philip become the next LSTM Patron.

Originally Prince Philippos of Greece and Denmark, HRH Prince Philip left his naval career when Elizabeth became Queen to act as her consort, allowing time for public engagements. Having always had a special interest in scientific research and development, HRH Prince Philip was always intrigued by the advances made by LSTM's scientists.

During the 1980s Her Royal Highness The Princess Royal (Princess Anne) visited LSTM on a number of occasions in place of HRH Prince Philip. Visiting twice in 1986 she toured many of the laboratories and teaching areas and was guest of honour at the Vice Presidents dinner.

In 1991, having been Patron of LSTM for 38 years, His Royal Highness handed over the patronage to Her Royal Highness The Princess Royal. On 13 November 1998, to celebrate LSTM's centenary, Her Royal Highness accepted the Freedom of the City of Liverpool and bestowed upon LSTM admission to the Freedom Scroll of associations and institutions of the City of Liverpool.

The Princess Royal described LSTM at the time as "a very special institution which has maintained a constant exchange of information and expertise between research scientists and health workers in the field, promoting a greater awareness of health issues, and assisting in a practical as well as an intellectual way in the creation of similar institutions overseas."

Her Royal Highness is associated with over 200 charities and organisations in an official capacity, to all of which she devotes a large part of her working life. LSTM sits alongside other major international health and development organisations including Save the Children and The Royal College of Obstetricians and Gynaecologists that the Princess is associated with.

When LSTM and the Royal Liverpool University Hospital teamed up to provide the region with an innovative tropical and infectious diseases unit at the Hospital, The Princess was more than happy to open the new ward.

In 2008 Her Royal Highness carried out more than 500 engagements in the UK and overseas, coming to LSTM on 28 July as part of a visit to Merseyside, to perform the official opening of the Centre for Tropical and Infectious Diseases, the largest ever expansion of LSTM's research facilities. After touring the new facilities, the Princess paid tribute to LSTM's "astonishing workforce" and looked forward to the new advances in the fight against tropical and infectious diseases that many of the projects in the new building hope to achieve.

Gene silencing sand flies

Leishmaniasis is a disease caused by a protozoan parasite that is spread by the bite of the female bloodsucking phlebotomine sand fly. Leishmaniasis is categorised as a neglected tropical disease by the World Health Organization, meaning that it persists in the poorest and the most marginalized communities having been largely eliminated elsewhere and thus forgotten. There are several different forms of the disease but the most serious visceral form will kill the patient if left untreated. It occurs throughout tropical regions including Central South America, Asia, Middle East and Southern Europe. There are thought to be at least 80,000 deaths with 1-2 million new cases per year but the disease is under reported. With no vaccine or preventative drugs and treatments being complex and expensive, controlling the disease by preventing spread by the insect vector is still a priority.

LSTM's Dr Rod Dillon is working on the tiny sand fly and how it transmits the *Leishmania* parasite, understanding this will

help in the development of more effective disease control efforts. The work of his group covers basic research on molecular interactions between the parasite and the insect vector through to field research on the role of animals such as chickens in the spread of the disease. The team at LSTM are the first group worldwide to develop gene silencing technology for use with sand flies. By knocking out individual genes this technology is being used to work out why the parasite successfully survives in the gut of the sand fly and how it escapes being killed by the insect's immune system.

The group is also leading the effort to sequence the genome of the Brazilian sand fly *Lutzomyia longipalpis*; over 10,000 flies were produced to provide the DNA for the sequencing. Work is also underway on a Leverhulme Trust funded project to examine the other microbes present in the sand fly and its environment with the aim of developing novel ways of preventing *Leishmania* development in the sand fly.

There seems to be a great lack of knowledge and awareness of leishmaniasis in the UK in contrast to other insect borne diseases such as 'sleeping sickness' and 'yellow fever' yet amongst the parasitic diseases, morbidity and mortality caused by leishmaniasis are surpassed only by malaria and lymphatic filariasis. Recent publicity about the case of TV personality Ben Fogle has increased awareness of the disease that now seems to be increasingly labelled in the press as 'the flesh eating bug'. A couple of years ago Rod realised the need to educate the public about this condition and increased his public engagement work, this continued recently in the recording of a feature for BBC's The One Show about leishmaniasis and sand flies. Rod is also engaging with artists to bring science research out of the lab and into the public domain through a series of collaborations with artists including LSTM's artist in residence Gina Czarnecki, who creates films and installations about human relationships to infection and disease.



POW Magician visits Pensby High School

Magician and former Far Eastern Prisoner of War (FEPOW) Fergus Anckorn MIMC visited Pensby High School for Girls to take part in a cross curricular workshop. Fergus, the longest serving member of the Magic Circle, shared his unique experiences with the Pensby schoolchildren as part of a FEPOW education project developed by LSTM. When Fergus left home aged 18 to join allied forces in World War II, he was the youngest member of the Magic Circle and today, aged 91, he is the oldest member.

He told the students how he used his vanishing tricks to encourage the guards to give him food and of the awful conditions the men endured. Some FEPOW turned to art to capture their experiences and many of these sculptures, sketches and paintings, often made from found materials, have survived to the present day. Suitably inspired, the schoolchildren set about creating their own artworks which were incorporated into an exhibition at the Williamson Art Gallery, Wirral, and a garden at the Royal Horticultural Society Show at Tatton Park in July 2010.

LSTM's longstanding relationship with ex-FEPOW dates back to the end of the World War II. Many of these men were stationed in Merseyside prior to travelling to the Far East and returned to the UK via Liverpool. Those suffering from tropical diseases were admitted to LSTM's tropical ward and treated by specialists. In all more

than 2,000 prisoners are being treated, enabling ground-breaking research into the diagnosis and treatment of conditions such as *strongyloidiasis* still affecting some over thirty years after infection.



Kits for Kids

During a trip to Malawi, LSTM's Finance Manager Dave Thomas learned that the children at the Kuunika Foundation didn't have a real football or any kit to wear when they played the game that they had come to love so much. Returning to Liverpool, Dave involved the team that he coaches, Marshalls FC, to donate their old kits and a couple of balls and pumps. Having got the equipment together, Dave enlisted the help of colleague Lynn Abernethy in raising funds for postage. A Christmas card amnesty, a raffle and general donations have all contributed towards the success of 'Kits for Kids'. A year on and football kits, boots, footballs and soft toys have all been donated by Liverpoolians, who know the importance of football to a thriving society.

Kuunika is making an impact on children's rights and welfare, to benefit the education and health of children and promote gender

equality and economic empowerment in local communities.

In the region where Kuunika operates, the HIV/AIDS rate is more than 20%, which has resulted in huge numbers of children being orphaned. Each year more than 60,000 orphans are added to the cumulative total of 700,000 children currently in Malawi that have lost one or both parents to HIV/AIDS. Kuunika cares for some of those children until they can find suitable Malawian foster homes for them. For more information on the Foundation and its works, please visit www.kuunika-foundation-malawi.org



A Himalayan medical practice

LSTM is no stranger to medical practices in remote locations and the ridge of the Himalayan mountains provides as dramatic a backdrop as you are likely to find.

Dr Christopher Hillman (seen wearing the brown hat in the image) is one of LSTM's diverse and far reaching alumni. In 1999 he took the Diploma in Tropical Medicine & Hygiene and returned the following year to undertake the Diploma in Reproductive Health in Developing Countries. Dr Hillman said "I have a medical practice providing medical services for the people living in the mountains of the Himalayas (from western to eastern ridge). I would be interested to hear from physicians, alumni and LSTM graduates who would like to spend a month or so at my practice. It would be ideal for those wishing to sharpen their skills in international medical services. I am open to all ideas and time schedules." To find out more email Christopher at gandhi192245@yahoo.com



NEW SHORT COURSES

Essentials of TB Epidemiology, Clinical Management & Control
18-19 October 2010

HIV Epidemiology, Clinical Case Management and Strategies in Resource Poor Settings
20-22 October 2010

These courses have been designed to run as a 5 day programme together, they are suitable for medical practitioners, prescribing nurse practitioners and clinical officers in a wide range of medical disciplines including primary care, public health, medical microbiology, radiology, respiratory medicine, infectious diseases and HIV medicine.

Full details available on website — www.lstmliverpool.ac.uk

Best of the blogs

Blogging has become an essential communication tool for those either working in remote areas or wanting to communicate with the widest possible audience. Here we focus on two blogs that are effectively raising awareness of projects involving LSTM.

www.zoevowles.blogspot.com

Zoe is a midwifery tutor working for Health Poverty Action training Traditional Birth Attendants in safe motherhood and basic emergency obstetric care, through a training course designed by LSTM's Maternal and Newborn Health Unit and implemented in collaboration with the Ministry of Health of Sierra Leone. Zoe's blog has provided her followers with an insight into her daily life and the wider issues facing maternal health workers in a country with one of the highest maternal and infant mortality rates in the world.

Following many years of civil war the country's health system is still recovering, and in the short term Sierra Leone is dependent on international organisations to help deliver healthcare. Improvements are happening - in April, healthcare became free for pregnant and breastfeeding women and children under five. As Zoe explains, "I am hopeful that reducing this financial barrier in conjunction with training midwives to work in rural areas will mean that outcomes for women and babies in Sierra Leone will gradually begin to

improve." The increased pressure on hospitals and health centres has increased the demand for the training of Skilled Birth Attendants.

Updating her blog whenever internet access permits, Zoe is able to acknowledge the support that the training project receives, from Gladys in Bo Government Hospital, who made sure everybody was well fed, to the roles that LSTM, Health

Poverty Action and the Royal College of Obstetricians and Gynaecologists play in delivering an extremely comprehensive course aiming to equip health workers with the skills to recognise complications and effectively manage maternal and newborn emergencies in order to reduce the high number of deaths of mothers and babies.



www.malariaworld.org/blog/



Malaria World, with over 5000 members, provides free and unrestricted access to information on malaria, independent of geographical locality or socio-economic status. The website's blog is run by medical entomologist Dr Bart Knols (pictured) of Wageningen Agricultural University.

One of Bart's main questions is whether social media can impact upon disease control? Being a firm believer that it can,

he recently led a campaign supported by LSTM to ban the sale of a brand of ineffective electronic mosquito repellents. The campaign was launched on the blog, received an immediate surge in interest and led to British Airways and KLM withdrawing the product.

Bart's blog contains interviews with leading scientists, news alerts, job opportunities and conference information all relating to malaria and was recently selected to feature in the European Journalism Centre's widely acclaimed international blogging competition series.

Informing and inspiring through creative media

Bringing together artists, scientists, educators, performers and the public can produce an explosion of new ideas and approaches to the way we work and the environment we live in. LSTM's collaborations with arts groups aim to inform people about science, medicine and world health issues and inspire them to approach problems from different angles.

Tropical Garden



Environmental artwork has become increasingly popular and relevant to society. The tropical art-garden under construction in the grounds of the Sir Alfred Jones Hospital in Garston, Liverpool brings a taste of the tropics to this community.

The garden will offer a sanctuary from a clinical environment and will promote questions about our contemporary view of nature - human, plant and animal.

In describing her work, LSTM Artist in Residence Gina Czarnecki said: "Gardening is one of the most ancient examples of human cultivation of 'nature'. Through transforming our experience of humidity, light, temperature, sound, smell, feel and architecture, this garden creates a tropical synthesis – a surprising twilight world

that will lift the spirit, reduce anxiety and engage the mind, providing an alternative focus to take us to another place."

Gina has been working with LSTM staff to develop installations and plans for future events and activities within the garden.

The project is part of the reinvigoration of the community through the innovative linking of allotments, the Garston market and the Hospital's community café with educational projects which will provide a ground breaking trans-generational opportunity for health and wellbeing education, economic regeneration and tourism for one of the most deprived wards of the UK.

Tropical Tales

Following in the footsteps of Ronald Ross, who was known as an artist and poet as well as a scientist, LSTM's Dr Rod Dillon brought together a group of 45 artists, performers, writers, musicians, staff and students for an evening of storytelling and dance.

As part of Liverpool's 2010 Year of Health & Wellbeing, the event featured Bisakha Sarker from Indian dance group Chaturangan, who performed a story using dance, inviting people to join in.

Children from Matthew Arnold Primary School have been invited to explore the relationship between science and art and in doing so contribute their own stories to the project.

All of these tales are being gathered together to produce resource materials to be used by local schoolchildren. Selected material will be published as story cards and via innovative digital media, which will initially be available in Well Travelled Clinics and local NHS waiting rooms during 2011.



Education and Training Programmes

2009 – 2010

Masters Programmes

Masters in Tropical & Infectious Diseases

11 students attended from September 2009, from seven countries: Ethiopia (1), Japan (2), Kenya (2), Myanmar (2), Saudi Arabia (1), Spain (1), UK (2).

Masters in Medical Microbiology

6 students attended this programme which started in September 2009 from two countries: Malawi (1), UK (5).

Masters in Biology & Control of Parasites & Disease Vectors

14 students attended this programme which started in September 2009 from eight countries: Canada (1), China (1), Colombia (1), Cyprus (1), Italy (1), Tanzania (1), Uganda (1), UK (7).

Masters in Molecular Biology of Parasites & Disease Vectors

8 students attended this programme which started in September 2009 from four countries: Tanzania (1), Saudi Arabia (4), UK (2), Zambia (1).

Masters in International Public Health

12 students attended this programme which started in September 2009 from six countries: China (1), India (1), Japan (1), Nigeria (5), Spain (2), UK (2).

Masters in International Sexual & Reproductive Health Programme

4 students attended this programme which began in September 2009 from Nigeria (1), Canada (1), Sierra Leone (1) and Vietnam (1).

Masters in Humanitarian Studies

11 students attended this programme which began in September 2009 from five countries: Australia (1), Denmark (1), France (1), UK (7), Zimbabwe (1).

Masters in Humanitarian Programme Management

11 students attended this programme which began in September 2009 from eight countries: Chad (1), France (1), Germany (1), Italy (2), Japan (1), Spain (1), Sudan (1), UK (3).

Masters in Tropical Paediatrics

4 students attended this course which began in September 2009 from three countries: Ethiopia (1), Spain (2), USA (1).

Diploma Programmes

Diploma in Tropical Medicine & Hygiene (DTM&H)

86 students attended this programme which began in September 2009 from 18 countries: Australia (4), Cameroon (1), Canada (1), Czech Republic (1), Germany (6), Ghana (1), India (1), Ireland (2), Italy (2), Malaysia (1), Nigeria (1), Norway (3), Poland (1), Spain (1), St Lucia (1), Sudan (1), UK (55), USA (3).

Diploma in Tropical Medicine & Hygiene (DTM&H)

78 Students attended the DTM&H programme which began in February 2010 from 20 countries: Australia (4), Bahamas (1), Brazil (2), Canada (2), Ethiopia (1), Germany (6), Hong Kong (1), Ireland (2), Italy (2), Netherlands (1), Norway (4), New Zealand (1), South Korea (1), South Africa (1), Spain (2), Sri Lanka (1), Sweden (1), Switzerland (2), UK (42) and USA (1).

Diploma in Humanitarian Assistance

16 students attended this programme which ran from February to April 2010. Students came from 6 countries: Bangladesh (1), Canada (3), South Africa (1), Uganda (1), UK (9), Zimbabwe (1).

Diploma in International Community Health Care

12 candidates attended this programme which ran from April to July 2010. Students came from six different countries: Canada (1), Netherlands (1), Norway (2), Uganda (1), UK (6), and USA (1).

Diploma in Project Design and Management

26 students attended this programme which began in September 2009. Overseas programme based in Kumasi, Ghana.

Diploma of Health Systems Management

21 Students attended this programme which began in September 2009. Overseas programme based in Damascus, Syria.

Diploma of Epidemiology & Medical Statistics

15 Students attended this programme which began in September 2009. Overseas

programme based in the Kingdom of Saudi Arabia

Diploma of Health Systems and Quality Management

9 Students attended this programme which began in September 2009. Overseas programme based in the Kingdom of Saudi Arabia.

Research students

94 students from 31 countries were registered as research students in May 2010: Belgium (1), Canada (2), Colombia (1), Egypt (1), France (1), Germany (2), Ghana (2), Italy (1), Kenya (1), Malawi (5), Malaysia (8), Maldives (1), Mali (1), Mexico (1), Mozambique (1), Netherlands (1), Nigeria (1), Palestine (1), Portugal (4), Saudi Arabia (6), Sierra Leone (1), Switzerland (1), Syria (7), Tanzania (2), Thailand (2), Uganda (1), UK (30), USA (2), Venezuela (1), Yemen (3), Zambia (2).

Short Courses

124 students attended LSTM and LATH short courses for 2009-2010

Prizes

From the DTM&H September 2009 Prizes were awarded to the following students:

Stephen Aston

- Milne Prize in Tropical Medicine

Julia Tapsfield

- Blacklock Prize in Parasitology and Medical Entomology

Richard De Butts

- Warrington Yorke Prize in International Community Health

From the DTM&H February 2010 Prizes were awarded to the following students:

Fiona Cresswell

- Milne Prize in Tropical Medicine

Tamsin Cockayne

- Blacklock Prize in Parasitology and Medical Entomology

Ailsa Stott

- Warrington Yorke Prize in International Community Health

David Smith Prize awarded to

Oluwseun Akinyemi, Masters in Public Health

David Romero Lado, Masters in Humanitarian Programme Management

Fundraising Appeals

As a registered charity the Liverpool School of Tropical Medicine relies heavily upon donations of all sizes in order to undertake existing work and to react to new developments. The support of individuals, charitable trusts, governments and companies underpins every aspect of our work.



LSTM refurbishment

A rolling programme of refurbishment is underway. You will be helping to provide modern facilities for researchers and students, and for the administration staff who keep everything in LSTM running smoothly.



Far Eastern Prisoners of War (FEPOW)

LSTM is undertaking research on the health effects of imprisonment under the Japanese in the Far East during World War II, in particular infections with the worm *Stongyloides Stercoralis*. Donations are required to continue this research and present this information via a website.



Support for scholarships

Although the quality of students wanting to come to LSTM is always exceptional, their resources can often be far scarcer. LSTM's Scholarship Fund endeavours to bridge that gap. By supporting the scholarship fund you can help to develop a career that will be dedicated to preventing disease and suffering.



Foreign currency appeal

Please have a look at home and in work for any foreign currency that you have from your last trip abroad. Even if the currency is no longer in circulation please send it to LSTM.

Details of how to make a donation and information on other ways of supporting LSTM can be found on our website

www.lstmliverpool.ac.uk





LSTM Mission Statement

As a centre of excellence, the Liverpool School of Tropical Medicine, through the creation of effective links with governments, organisations and institutions and by responding to the health needs of communities, aims to promote improved health, particularly for people of the less developed countries in the tropics and sub-tropics by:

1. providing and promoting high quality education and training;
2. conducting first-class research and disseminating the result of that research;
3. developing systems and technologies for health care and assisting in their transfer and management;
4. providing appropriate consultancy services; in fulfilling this mission the Liverpool School of Tropical Medicine also provides a clinical service of acknowledged excellence.

