



New drugs to fight malaria in pregnancy

2009-2010 issue



LSTM Director Janet Hemingway gives her viewpoint

Do you see any parallels between the challenges that you face today and those faced by Professor George Holt, LSTM's first Dean? Our mission to improve health in the tropics has not changed and many of the consequences of staff needing to work and build capacity in resourcepoor settings still remain. Another parallel is that LSTM continues to operate on a very lean financial model, relying largely on the resourcefulness of staff to bring in research grants and other donations to cover activities and running costs.

What is the next landmark in the pursuit of LSTM's mission to improve health in developing countries?

The landscape is changing rapidly: hence there is no single major landmark. For example, we are aiming to catalyse the process of developing new drugs and public health pesticides for several major diseases such as malaria. We are also working closely with many countries to try and sustainably improve their health systems and health services and we are developing more effective methods to monitor and evaluate activities.

What one thing would most improve the lives of people in developing countries the most? The alleviation of poverty.

You travel all over the world with your job. Is there a person or place that's stayed with you long after you've returned - and why? Part of the fascination of this job is the opportunity that it provides to interact with so many different cultures and individuals, seeing these not as a tourist but developing long standing relationships around mutual interests in improving health. I continue to be astonished by the kindness and openness with which so many people in so many countries welcome me and my staff and I would have to write a book rather than a paragraph if I were to really do justice to this question.

How has the current global economic downturn affected LSTM? We have yet to see the major effects.

Many of our funders have reduced income from which to provide grants, but our success rate at generating grants remains high.

What inspired you to pursue a career in tropical medicine?

The ability to bring together in a single role my love of travel, experiencing cultural diversity, a wish to work in research of direct relevance and entrepreneurial spirit.

What would you like to be remembered for?

Making things happen in a format that benefitted our many stakeholders in the tropics.

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A National HIV/AIDS Strategy for Libya

Liverpool School of Tropical Medicine (LSTM) in collaboration with consultancy arm Liverpool **Associates in Tropical Health** (LATH) is leading a project to provide technical assistance to the Government of Libya (GoL) to finalise the development of a national HIV strategy and programme of support. Between 2009 and 2013 LSTM and LATH, in partnership with Libyan institutions and Harvard University Biostatistics (HUBD), will produce updated and comprehensive information on the current epidemiology of HIV infection in the country to be able to produce an effective national HIV strategy. The project is supported by a €1 million grant from the **Delegation of the European** Commission to Libya.

Libya is faced with the challenge of controlling HIV and the provision of appropriate treatment, care and support to children and adults with HIV and AIDS. The problem of the provision of quality care to HIV infected children is compounded by the need to control a concentrated HIV epidemic affecting mainly persons most at risk for which there is limited epidemiological data. The disease is still the object of stigma and fear and there is little known about the drivers of the epidemic among most at risk persons as well as the perception of risk or knowledge of HIV among other important sectors of the community such as religious leaders or the youth.

A skilled and diverse team of experienced consultants will: formulate a national HIV strategy that addresses Libya's priority issues for HIV prevention and care; obtain critical biological, social and behavioural estimates to guide and assess the strategy; analyze the data and draw evidence based conclusions from them; develop policies and procedures to effectively promote best practice, evidence-based harm minimisation activities amongst key high risk groups (intravenous drug users, female sex workers, men who have sex with men), especially in prisons and

coordinate the dissemination of key HIV strategy messages and policies.

The studies of Knowledge, Attitudes and Practices (KAP) will be designed to learn about knowledge and misconceptions about HIV transmission and prevention, attitudes associated with stigma and discrimination and high risk behaviours. Survey instruments will be based on international instruments already field tested but adapted to the Libyan context. LSTM's Professor Valadez, nominated Key Expert, is one of the pioneers of Rapid KAP methods having applied them on numerous occasions for assessing HIV programmes throughout the world. The results of the KAP will be used to determine how to improve training and capacity building among health facility workers, religious leaders and young people.

To sustain the work of the national HIV strategy, the project will reinforce core technical capacities including stewardship, policy framework, accountability and empowerment. Formal training will be conducted in various technical aspects of HIV prevention and control as well as in cross cutting functional capacities related to the management of HIV policies and programmes. This will increase the capacity of organisations working in Libya at all levels engaged in the fight against the HIV epidemic. LSTM, LATH and HUBD have developed new approaches for using

specimen pooling to rapidly detect acute HIV infection using polymerase chain reaction methods at a lower cost. Dr Lusine Mirzoyan, Global HIV/AIDS Monitoring and Evaluation Team, will be responsible for overall management and coordination of the project. She will be the principal contact with partners in the country and will work on a daily basis with the GoL to establish a functioning national HIV Task Force to mobilise and coordinate a standing team comprised of the Head of the National Centre for Infectious Diseases Control, the Head of the Department of HIV and AIDS, and the Medical Coordinator of the Benghazi Action Plan IV. Professor Valadez will be in charge of Monitoring and Evaluation as well as provision of epidemiological expertise to the field team.

"This project will establish an overall HIV strategy for the nation of Libya and provide it with a framework for making important decisions about how to control HIV. It will also allow Libya to join the other countries of North Africa who have HIV strategies who participate in the international UNAIDS community. We hope this project will also allow us all to better understand how HIV is progressing in North Africa and hopefully provide us with information about how to better control it," said Professor Valadez.



Maternal, Newborn and Child Health Initiative



Behind India and China, Nigeria has the third highest birth rate in the world. The latest United Nations inter-agency estimates place the 2005 average national maternal mortality ratio at 1,100 deaths per 100,000 live births and the lifetime risk of maternal death at 1 in 18. In particular the Northern Nigeria states of Katsina, Zamfara, Jigawa and Yobe were identified as being the worst affected.

The UK-Norway Northern States Maternal, Newborn and Child Health Initiative (MNCH) is a four year programme that aims to reduce these rates. The programme is one of a series of activities jointly supported by the UK and Norwegian governments in support of the Millennium Development Goals to reduce child and maternal mortality.

LSTM's international health consultancy arm Liverpool Associates in Tropical Health (LATH) are the lead partners on the technical matters relating to improved delivery of MNCH services via the Primary Health Care (PHC) system and Human Resource Development. LATH's main objective is to improve the availability and quality of skilled birth attendance and emergency obstetric care in the target states. In Human Resources, LATH will support the creation of an intermediate cadre of Skilled Birth Attendants (SBAs), look at financial allocations to increase intake of a new SBA cadre and existing nursemidwifes and Community Health Extension Workers, in addition to improving the governance of primary health care systems.

LATH has a track record of project delivery in Nigeria and has a permanent office in Nigeria's capital Abuja, within the premises of Zankli Medical Centre.

Top: maternity ward in Nigeria **Below:** maternity unit in Nigeria



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Insecticide resistance in Nigeria



The mosquito Anopheles gambiae transmits the malaria parasite that is responsible for over 1 million deaths each year. Scientists at LSTM face a continuing struggle to combat mosquito resistance to the insecticides developed to help protect those most vulnerable to the spread of malaria.

In recent years there has been an increase in the distribution of insecticide-treated nets (ITNs) in Nigeria, an approach complemented by indoor residual spraying (IRS) programmes. The sustainability of these insecticide-based interventions relies on the continuing susceptibility of Anopheles mosquitoes to the few available insecticides. Historically, the first report of insecticide (DDT and dieldrin) resistance in African Anopheles mosquitoes came from Nigeria. The number of reports of resistance to insecticides have since increased, but insecticide resistance monitoring is considered a low priority in the mainstream of the national malaria control programme.

Pyrethroids are the insecticides used to treat bednets and are often also used in IRS. With pyrethroid resistance particularly common in West Africa there is an urgent need to understand why some mosquitoes develop this resistance.

A study based at the Nigerian Institute of Medical Research (NIMR), looked at mosquito samples that were collected from two places in Nigeria: lpokia, where resistance to pyrethroids has been reported and Alakia, where they are still susceptible. The Nigerian team performed bioassays on both populations to determine the level of

resistance and then explored the mechanisms behind this, firstly using biochemical tests and enzyme inhibitors and later, during a sabatical period at LSTM, using molecular methods to identify the genes. They resistance in mosquitoes in Nigeria. The Alakia population had a high frequency of the 'kdr type' resistance mechanism that is widely distributed in West Africa. But the biochemical studies also indicated that the mosquitoes had developed 'metabolic resistance' whereby the mosquito is able to break down the insecticide before it reaches the target. To investigate this mechanism further, Dr Sam Awolola, from the NIMR, used the 'Detox Chip' developed by Dr Hilary Ranson and Dr Clare Strode at LSTM, to compare the gene expression in resistant and susceptible mosquitoes.

This work published online in the September 2008 issue of Transactions of the Royal Society of Tropical Medicine and Hygiene, identified several genes that may be responsible for the resistance observed in the Alakia population. In addition to increased insecticide detoxification the study provided preliminary evidence for a change in the property of the mosquito's cuticle which may reduce the uptake of insecticides.

The results also show that there are multiple pyrethroid resistance mechanisms and calls for much needed strategies to curtail the spread of this resistance in malaria vectors.

TB control in Kano



Tuberculosis (TB) is an airborne infectious disease that is preventable and curable. The burden of TB in Nigeria is the fifth largest in the world and estimated to have the highest number of TB cases in Africa. According to the World Health Organisation's 2008 Global TB Report there were 449,600 estimated new cases in 2006. The Federal Ministry of Health declared TB a national emergency in April 2006. Major changes to strengthen primary health care infrastructure have taken place, improving laboratory networks and diagnostic services.

LSTM is conducting several studies, in collaboration with the TB control Programme of Nigeria and Zankli's TB research laboratory in Abuja. These studies include a multicentre study, sponsored by the World Health Organisation (WHO) to optimise the collection of specimens for smear microscopy, which is expected to result in revised guidelines for the diagnosis of TB. We are also evaluating a new concentration method that does not require centrifuges, which may increase the sensitivity of sputum examination.

At the request of the Pathways for Transforming Health Systems (PATHS) programme, LATH has been providing support to the state TB control Programme in the Northern Nigerian State of Kano. PATHS was established to advance health systems at the federal and state levels and improve the health status of Nigeria's poorest and most vulnerable communities.

LATH provided two technical experts (one in programme management and one in laboratory systems) to facilitate the development of a five year strategic plan for TB control in this state with an emphasis on the decentralisation of TB services.

LSTM continues to support the mission of the Nigerian government to reach the target for TB control of 2015.

Photo: TB programme consultant Tushar Ray with Kano State EQA Officer

In conversation with LATH CEO Stewart Tyson

Dr Stewart Tyson was appointed as **Chief Executive Officer of Liverpool Associates in Tropical Health** (LATH) in September 2008. Stewart was previously Head of the Health Group at the UK's Department for International Development (DFID) where he led a diverse group of 60 advisers, providing expert advice on the strategic direction and quality of DFID's policies, research agenda and country support. He has worked in international health over the past 25 years including periods with UNICEF, the European Commission, Save the Children and the Government of Vanuatu.

You did your medical degree in Liverpool and completed the DTM&H and MCommH at LSTM in the late 1980s? Do you have fond memories of the City and LSTM?

In many ways I feel that I never left as my home was in the region until 2002 when I moved nearer to London and I returned often to see family and friends. I entered the medical school in 1969 so how do you summarise 40 years? Highlights have to include standing on the Kop when you could get a ticket, the Everyman theatre in its Bleasdale/Russell heyday and occupying the University Senate House (under the leadership of Jon Snow the broadcaster).

What challenges did you anticipate in your new role as CEO of LATH?

On a personal level adapting my long established public sector ways and gaining new skills in an intensely commercial world. Also, developing a better understanding of where LATH has come from and helping to take the organisation successfully into its third decade.

You joined LATH almost a year ago from DFID. What are the differences on being on the other side of the fence?

In many ways it is more straightforward as LATH responds to the agendas of the clients that fund technical assistance. It is about delivery in a number of well-defined areas of international health. My recent work at DFID was very much about advocacy, influence and best using the limited aid budget to maximum impact and a lot about politics.



Are there any specific plans for LATH in the next 12 months?

In short we need to win more business and deliver it better. The move to Anson House will provide a better team-working environment. We need to further develop the systems to build, manage and monitor the business. We will align LATH more closely with LSTM and will explore the merits of rebranding the organisation to better reflect that link. We need to look at ways to encourage more LSTM staff to provide technical assistance. I would like to see a modest increase in our technical cadre in LATH to service high demand technical areas. We need to continually invest in staff skills and keep the new structure under review.

As the consulting arm of LSTM, profits made by LATH are re-invested in the work of LSTM to improve global health.

Guiding better interventions against malaria

The IVCC is a Product Development Partnership hosted at LSTM. Established with a \$50.7 million award from the Bill & Melinda Gates Foundation, it facilitates the development of improved public health pesticides and funds the development of information tools to enable their more effective use.

One example is the Malaria Decision Support System (MDSS), developed by Colorado State University, LSTM and the Medical Research Council (MRC), South Africa. We spoke to Project Manager Mike Coleman, seconded to MRC from LSTM, just before the first full scale in-country testing:

"To control malaria effectively, programme managers need to have access to the most up to date information to monitor the burden of disease and best direct interventions such as indoor residual spraying and insecticide treated nets.

The MDSS manages and integrates data on a number of areas including disease incidence, parasite prevalence, and insecticide resistance. This data can then be queried and analyzed in real time and presented in a number of formats with automated alerts to ensure that outbreaks receive prompt attention.

The integration of several datasets makes it possible to cross analyze and compare different intervention strategies with impact on disease. The system is flexible and can cater for all transmission settings and users. IT infrastructure development is complete and in-country demonstration, user training and validation have just started. Any corrections and changes we need to make can then be addressed before we roll it out further."



Wellcome Expands Malawi Initiatives

LSTM in partnership with the University of Liverpool hosts several of the Wellcome Trust's key strategic initiatives aimed at resource-poor countries. The Malawi-Liverpool-Wellcome Programme (MLW) based at the University of Malawi's College of Medicine (CoM) in Blantyre, together with the Liverpool Wellcome Trust Tropical Centre (WTTC) are the centrepiece of this collaboration. The success of this partnership will see the three institutions working together to bring to fruition two projects funded by the Wellcome Trust that will boost much needed treatment and medical training for Malawians.



Photo: University of Malawi's College of Medicine

Learning and Training Centre

The Wellcome Trust Research Laboratory (WTRL) in Blantyre opened in 1999 and is the MLW lab base. Now crammed with offices, IT facilities and other non-lab activity, the facility is bursting at the seams. Wellcome has now funded a "Learning & Training Centre" (LTC) next to the WTRL. The LTC will provide much needed office space, meeting rooms, a computer laboratory, data and statistics facilities. It will feature a science communication exhibition space and enough room to accommodate expansion. The need for this extension is a mark of the success of the programme's activities over the last 12 years. The LTC will be an important focal point for MLW capacity building activities, providing

significant new interdisciplinary clinical research infrastructure and enhancing the training environment in close proximity to CoM. This facility will encourage collaboration between scientists and clinicians, thus enabling more research and providing a fertile learning environment for the research leaders of the future.

"A major focus of the Centre's work has been the training of local doctors and graduates – the people who will become the country's health leaders in both medicine and research," says Professor Malcolm Molyneux, former Director, Malawi–Liverpool–Wellcome Trust Clinical Research Programme.

Adult Emergency & Trauma Centre

The Wellcome Trust has also funded a desperately needed Adult Emergency & Trauma Centre (AETC) within the Queen Elizabeth Central Hospital where MLW is sited. The hospital is the largest service and referral health facility in Malawi. It also functions as the teaching hospital for medical students and a major centre for research, but it lacks a critical component of health care service delivery, an accident and emergency department. Despite numerous expansions since its construction in 1959, the hospital struggles to cope with the increasing numbers of critically ill patients, brought on by the threefold increase in population size and the devastating HIV/AIDS epidemic. As a result, patients who have life-threatening conditions often do not receive immediate, appropriate attention. The AETC will provide an environment where excellent medicine and clinical science can be conducted.

The new centre will be constructed at the front entrance of the hospital through the refurbishment and extension of the existing administration block. It is designed for 500-1000 medical and surgical attendances per day; immediate triage; a disaster preparedness facility that can cope with major incidents (airplane crash, contagious diseases); provision of specialist evaluation; resuscitation facilities close to entry

wellcometrust



Photo: Existing adult accident and emergency facility at QECH

point; isolation for contagious disease (outside an epidemic emergency); surgical facilities to provide for minor procedures and major emergencies and laboratory and X-ray provisions for immediately relevant investigations. The Centre will also house a dispensing pharmacy, areas for small group on-site teaching and group seminars and access for ambulances, as well as many more specialist services that will reduce the death rate among adult emergency admissions.

Rob Heyderman, Chair of the AETC Taskforce, Director of MLW and Professor of Tropical Medicine at LSTM says "Our vision is that MLW will be the region's leading laboratorybased health research institution and closely integrated within the CoM, led by Malawian and international scientists, inspiring the work of other institutions throughout the world."



FAST field kits being developed

In partnership with the US Centers for Disease Control and Prevention, Ghana's Biotechnology and Nuclear Agricultural Research Institute and Uganda's National Livestock **Resources Research Institute.** LSTM has been awarded a £1.1m grant by the US National Institutes for Health for the five year development of a Field Applicable Screening Tool (FAST) kit for resistance to public health insecticides. The kits will be designed to minimise the impact of insecticide resistance on malaria and filariasis.

The two principal methods for community-control of malaria in sub-Saharan Africa are the use of insecticide-treated bednets (ITNs) and indoor residual spraying (IRS) of insecticides. Scientists will be working in partnership to identify genes that render malaria carrying mosquitoes resistant to a range of insecticides that are used for IRS and ITN, to protect against malaria and filariasis. At present information on underlying genetic mechanisms of the two most important vectors is very limited.

Based upon this knowledge LSTM and partners will design, test and roll-out a rapid and cost effective DNA-based field applicable screening tool (FAST), for use by the staff of vector control programmes in the malaria and filariasis affected countries of sub-Saharan Africa. The new screening tools will provide information vital for predicting the success of IRS and ITN programmes. Without the data supplied by the kits it is not possible to know whether the potential for resistance has been eradicated.

Above: David Weetman attracts a crowd of interested school children as he collects mosquito larvae in Tororo District, Uganda.



Knitting to improve maternal health



Picture: Pattern designer and lead knitter Claire Wong and LSS-EOC & NC trainer Adetoro Adegoke working on the knitted wombs and placentas. Training doctors, midwives, skilled birth attendants and other health professionals in Life Saving Skills, **Essential Obstetric Care and** Newborn Care (LSS-EOC & NC), in resource poor settings, often involves improvisation. One solution to the lack of training aids to replicate wombs and placentas has been to produce models that have been knitted and stitched by a group of dedicated volunteers from LSTM. Supported by the Cheshire Federation of Women's Institutes, the group produce both wombs and placentas which are then used in conjunction with a pelvic model to demonstrate how to manually remove the placenta from the womb in a way that is safe for the mother.

The knitted models are currently used for training in Bangladesh, India, Kenya, Malawi, Sierra Leone, Somaliland and Zimbabwe, where maternal and neonatal mortality is highest. Obstetric complications result in the deaths of over 536,000 women and over four million babies each year in the developing world. Staff from LSTM's Maternal and Newborn Health Unit have successfully trained 971 health professionals and 137 national (local) trainers who have then gone on to scale up Life Saving Skills, Essential Obstetric Care and Newborn Care training within their respective countries.

If you are interested in supporting this initiative please email coordinator Sue Cain: **suecain@liverpool.ac.uk**

New Masters Programme in International Sexual and Reproductive Health

The Maternal and Newborn Health Unit at LSTM, in partnership with the Royal College of Obstetricians & Gynaecologists and the School of Reproductive and Developmental Medicine of the University of Liverpool, has developed a new one year Masters programme in International Sexual & Reproductive Health (SRH).

The programme runs from September 2009 to September 2010 and builds upon LSTM's experience of delivering an annual Diploma programme in Reproductive Health in Developing Countries (DRH). The new Masters programme includes maternal & newborn health, family planning, prevention, diagnosis and management of sexually transmitted infections, adolescent health, gender issues, gender-based violence, human rights and programme planning, service delivery and quality assurance of SRH services. In addition to the core course modules, students can choose from optional modules and in the third term will conduct a research project for their Masters dissertation.

The programme is a timely response to internationally recognised global health priorities. The 5th Millennium Development Goal (MDG-5) affirms maternal health as an important international health and development issue and reproductive health in general has been recognised as an important requirement in achieving several other MDGs.

Dr Monir Islam, Director of the 'Making Pregnancy Safer' department at the World Health Organisation remarked that "...in view of the challenges to achieve the maternal and reproductive health targets of MDG-5 in many developing countries, the new MSc programme at LSTM offers an important opportunity for capacity building and strengthening of leadership in this area, both for policy development and strategic planning as well as programme implementation and service delivery."



The Masters programme aims to:

- Increase awareness of the need for more effective use of knowledge and tools to impact on SRH and maternal and newborn health indicators.
- Strengthen health systems to facilitate the implementation and scale-up of good practice.
- Develop and apply new knowledge gained through research which meets local needs and directly informs policy.

Programme Director Dr Jan Hofman is a public health physician and lecturer in sexual and reproductive health at LSTM. He has more than 25 years working experience in developing countries in Africa. Before joining LSTM he was Senior Lecturer in Community Health at the College of Medicine, University of Malawi and Director of a safe motherhood and reproductive health project in Malawi.

Besides teaching Jan is currently involved in giving technical support to maternal and newborn health programmes in developing countries, is also Director of the DRH programme and has been conducting Life Saving Skills training for Emergency Obstetric and Newborn Care.

LSTM's SRH programme is open to

graduates of health-related disciplines with at least two years relevant working experience. Non-graduates with a suitable training background and extensive field experience, such as nurse midwives and clinical officers, are also welcome provided they can demonstrate successful further study and personal development as well as sufficient learning, analytical and communication abilities to benefit from the programme.

Further information is available on the LSTM website, from the programme administrator (Istmregistry@liv.ac.uk) and from Director of Studies Jan Hofman (hofmanjj@liv.ac.uk)



Improving public health in Syria



مركز الدراسات الاستراتيجية الصحية CENTER for STRATEGIC HEALTH STUDIES





Top: Centre for Strategic Health Studies (CSHS) in Damascus, Syria.

Above: Masters in Public Health student Dr. Suzan Al Abyad Free health care is a right of every citizen within the Syrian Arab Republic, a right also awarded to the 1.2 million Iraqi and Palestinian refugees. All of this has contributed to a rapid increase in Syria's population, placing an unsustainable strain on the health system.

Supported by LSTM, the Centre for Strategic Health Studies (CSHS) in Damascus, Syria, was established in 2007 with the aim of becoming the main centre for advanced health studies in the Middle East. Responding to both the strain faced by Syria's public health system and a regional requirement for a centre of excellence for public health systems management, the European Union's Health Sector Modernisation Programme funded the development of the CSHS. LSTM's Senior Lecturer in Health Needs and Impact Assessment, Dr Amir Hassan, has been central to the development of the Centre in his role as Project Director on the LSTM side, working in conjunction with CSHS Director Dr Reem Akras to strengthen health management research and support Syria's health sector.

Through the provision of four Masters programmes, the CSHS is training health sector staff in health economics, hospital management, public health and health systems management, to strengthen the capacity of Syrian health professionals to improve the health of the population. The impact of the training will be most visible in Syria's hospitals and primary health care centres.

Following the establishment of the Centre, LSTM staff continue to work with CSHS staff and other partners to ensure that students have up to date knowledge and state-of-the-art skills in relation to their subject area of specialisation. In her welcome to the first intake of students, LSTM's Director Professor Janet Hemingway said: "A lot is expected of you following your successful graduation to advance the cause of health in your country and in the wider region. We are committed and will spare no effort to ensure you get the best learning opportunity possible that should be at par with the Masters courses offered internationally."

At the forefront of these advancements is Dr Suzan Al Abyad, a Masters in Public Health student at CSHS and one of 24 graduates in 2009. Dr Abyad was referred to CSHS by the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) who are allocated two fellowships by the Syria Ministry of Health every two years. "I work with UNRWA as a gyneacologist, which provides primary heath care to Palestenian refugees. Although the teaching styles were different to what most of the students were used to, I soon adapted. In the past my computer skills were very poor, now I can deal with many computer programmes alone. I can participate in the planning and evaluation of our programmes. The centre has expanded my knowledge about how health services can be improved. The centre's facilities, including the library, computer lab and availability of experts made study a lot easier."

Dr Abyad explains how she will be able to implement her training: "As I work with an agency which provides primary health care to Palestinian refugees, my knowledge about such services has been improved, I feel that I can participate in planning and evaluation of our programs. My understanding of any research findings is different from the past as I can now interpret many of the tests that are used. I have already had the opportunity to use my presentation skills in my role as a trainer in my job. I look forward to implementing what I have learned in order to improve the health status of Palestinian refugees in Syria."

First Malawian BSc in Medical Laboratory Technology

Russell Dacombe and Imelda Bates from LATH and LSTM have been supporting the College of Medicine in Blantyre, Malawi to develop and deliver a BSc in Medical Laboratory Technology. The request to set up this programme came from the Ministry of Health in response to recommendations from the Essential Medical Laboratory Services Project (1998-2002) which was carried out by LSTM. The four year BSc course has been designed to produce laboratory technicians with both technical and management skills who will be capable of running an effective district laboratory service. Tutor Russell Dacombe said "Having an effective district laboratory service will improve access to reliable diagnosis and lead to appropriate and effective treatment for many of the common diseases prevalent in Malawi."

Placing students in district laboratories to develop hands-on skills with supervision from College tutors is a crucial component of the four year programme. The College requested



assistance for the third and fourth years of the BSc because of the lack of local tutors with experience in the design and delivery of teaching that is work-based and therefore requires students to develop skills for independent and peer group learning. One final year student commented: "Students can actively learn if they are asked to contribute... I realized that this was the kind of teaching that my tutors were using."

The first intake of students, all experienced laboratory technicians, predominantly from the government service, graduated in 2008. Subsequent intakes have focused primarily on school leavers resulting in a need to adapt the curriculum to cater for their different backgrounds and skills. To host the BSc the College has set up a new Medical Laboratory Technology Department. With the expansion of the department, LATH and LSTM have been able to gradually reduce their inputs and in June 2009, at the end of the first BSc, complete responsibility for the whole course was taken over by College staff.

Above:

First cohort of graduates from the MSc in Medical Laboratory Technology, November 2008. with their tutors Humphreys Malata (bottom left), Isaac Shawe (bottom right) and Russell Dacombe (right, back row).

Winner of LSTM Photo Competition 2009

Professor Mark Taylor has won the LSTM Photo Competition 2009, with this amazing image of a line of patients participating in a field trial of antibiotics against onchocerciasis in Cameroon. The competition was judged by professional photographers McCoy Wynne, who commented "We felt it was the best composition with the snaking ribbon of colourful people. It clearly documents the scene whilst being aesthetically pleasing". Look out for details of the 2010 photo competition on LSTM's website.



malaria in pregnancy consortium



Looking for new drugs to treat malaria in pregnant women

Malaria in pregnancy is a major cause of severe maternal anaemia and preventable low birth weight in infants, which greatly increases the risk of infant death. In Africa, where malaria is endemic in most countries, its complications are responsible for as many as 100,000 infants and up to 25,000 mothers dying needlessly every year. The global spread of resistance to commonly used antimalarial drugs is an increasing threat to the world's population living in malaria endemic areas, and in particular to the most vulnerable groups such as pregnant women for which the arsenal of available drugs is very limited.

www.mip-consortium.org



The Malaria in Pregnancy (MiP) Consortium is a global research initiative of 41 research institutions, led by the Liverpool School of Tropical Medicine, which aims to find new drugs for the treatment and prevention of malaria in pregnancy. The Consortium is co-funded by the Bill and Melinda Gates Foundation, the European Union FP7 framework and the European and Developing Countries Clinical Trials Partnership.

One of the Consortium's key objectives is to identify new antimalarial drug combinations that are safe, effective and practical to use for the treatment of uncomplicated malaria in pregnancy in Africa, Asia and Latin America. Widespread resistance to the most commonly used anti-malarial in pregnancy, Sulphadoxine-Pyrimethamine (SP), and low adherence to other drugs such as Quinine - which remains effective but has to be taken frequently over several days - generates a considerable urgency for researchers to test and deploy newer, more effective and more practical drugs.

Of the new generation of drugs available today, artemisinin based combination therapies (ACTs) are the fastest acting and most effective antimalarials. ACTs are a new class of antimalarial drug based on Chinese artemisinins (ginghaosu) and its derivatives. Artemisinin was originally developed in China from the sweet wormwood plant which has been used by Chinese herbalists for more than a thousand years. The World Health Organisation (WHO) now recommends the use of ACTs for the first line treatment of malaria in endemic countries, and also recommends their use in the second and third trimesters of pregnancy. There is increasing evidence from the Thai Burmese border - an area experiencing high levels of multi-drug resistant malaria - that ACTs are safe



and effective, but there have been few formal studies in pregnant women in Africa. Although these drugs are now increasingly used by pregnant women, it is not yet known what the optimal dose should be and which of the available combinations is most effective, best tolerated, and most practical for pregnant women in Africa. It is also critically important to carefully document their use in pregnancy to obtain further reassurance about their safety at the population level.

Over the next five years, the Malaria in Pregnancy Consortium is undertaking seven multicentre trials in Africa, Asia and Latin America to identify new drugs for the treatment and prevention of malaria in pregnancy, including three multicentre trials comparing different ACTs.

One essential first step is to establish whether the standard dose used in adults is adequate for use in pregnant women. This is particularly important since several previous studies indicated that pregnancy significantly changes the disposition of many drugs, which can lead to clinically significant lower blood concentrations than expected. This is a consequence of the physiological changes associated with pregnancy, particularly in the more advanced stages of pregnancy. Inadequate concentrations of a drug in blood may translate into treatment failures and persistence of malaria in the placenta that will continue to adversely affect the mother and foetus. Low drug levels also encourages drug resistance by failing to eliminate all parasites.

In its first year of activity, the MiP Consortium has conducted a number of pharmacokinetic studies in order to determine whether the adult antimalarial treatment doses for a range of drugs requires adjustment for use during pregnancy.

A recently concluded study in Burkina Faso aimed to establish the pharmacokinetics of one of the drug candidates for the case management of malaria in pregnancy – Mefloquine/Artesunate (MQ/AS).

The study was conducted by Dr Halidou Tinto from the Centre Muraz in Bobo-Dioulasso, Burkina Faso, in collaboration with the Institute of Tropical Medicine in Antwerp, Belgium, the Wellcome Trust research laboratories in Bangkok, Thailand and LSTM. A group of 24 pregnant women and a control group of 24 non-pregnant women, all suffering from malaria, were enrolled in the study. They were administered with a treatment of MQ/AS and followed closely for 42 days to determine the



treatment response and the drug profile in the blood. The field work was completed in March 2009 and the Mefloquine drug levels in blood sera samples were analysed in the laboratory of Professor Steve Ward at LSTM. The Artesunate assays are being conducted in Bangkok. Preliminary analyses are encouraging, suggesting that no dose adjustment is necessary in pregnancy for MQ/AS.

A similar study on MQ/AS is about to start in Brazil (coordinated by the Centers for Disease Control and Prevention, US), a country which exhibits a very different pattern of malaria transmission and levels of drug resistance to parts of Africa.

Over the next few months, similar pharmacokinetic studies with other candidate drugs coordinated by the Wellcome Trust Unit in Bangkok will also have been completed. This data will then be used to define the dosing strategies to be used in each of the three multicentre clinical treatment trials using ACTs that are scheduled during the later part of 2009. The information will also be used to help with the design of trials to prevent malaria in pregnancy.

The secretariat at LSTM also hosts a centralised database to capture/track/monitor data on drug safety during the trials.

More information about the MiP Consortium can be found at www.mip-consortium.org or by contacting the Secretariat Manager, Jenny Hill, +44 151 705 3216 or j.hill@liv.ac.uk

NTD expedition to Sierra Leone... 110 years after Ronald Ross



In June 1899 Ronald Ross, who later received the Nobel prize for Medicine for showing that mosquitoes transmit malaria, led the first LSTM expedition overseas. His destination was Freetown. Sierra Leone and his mission was to identify mosquitoes responsible for the transmission of malaria. In April 2009, 110 years after his visit, LSTM's Professor Moses Bockarie and Dr Phillip McCall led a **Neglected Tropical Diseases (NTD)** expedition to Sierra Leone. The expedition involved four MSc students: Simon Jackson, James Prichard, Anna Wamsley and Nsa Dada. In collaboration with Dr Joseph Koroma of the Ministry of Health and Sanitation, Sierra Leone, the mission this time was to identify mosquitoes responsible for the transmission of parasites that cause lymphatic filariasis (LF), a disease also known as elephantiasis, and determine the prevalence of certain other NTDs.

In West Africa, LF is only transmitted by the same Anopheles mosquitoes that carry malaria, although it is well documented they are less efficient as carriers of the filarial parasites than other mosquitoes.

The first anti-larval measures for mosquito control were initiated by Ross in Freetown in 1899. His intensive mosquito control measures over the next three years greatly reduced the density of mosquitoes and probably interrupted transmission of LF. The momentum was maintained for over ten years, reinforced by the colonial mosquito ordinance which made the presence of mosquito larvae in any compound a punishable offence. Similar mosquito control efforts over such a long period are known to result in the interruption of the transmission of LF.

His lesser known strategy for malaria control was highly controversial and its value still debatable. Believing that the indigenous population were more



attractive to mosquitoes and served as the main reservoir for the malaria parasites, he proposed segregation of white expatriates. In 1904, the colonial government built Hill Station on a plateau about 750 feet above sea level. To ensure maximum ventilation and protection from mosquitoes, the residential bungalows uniformly faced north and were raised high above the ground on columns. The area beneath each house was paved with cement to prevent mosquito breeding.

An up to date knowledge of the local mosquito fauna in any current or potential endemic area is an important factor when considering the range of vectors available and the possible role of vector control in prevention of infection.

Between April and June 2009, James Prichard visited Hill Station, which today is inhabited mostly by indigenous Sierra Leoneans, to evaluate the current mosquito situation. James found that the malaria carrying anopheles mosquitoes are as common there as they are in downtown Freetown.

The Freetown peninsula was investigated by sampling four different locations, representative of the range of environments of this area. Mosquito numbers were high regardless of the method of mosquito protection used, although houses with more people inhabiting them were found to have higher mosquito numbers.

James found that the malaria carrying anopheles mosquitoes are as common there as they are in downtown Freetown. His study will form a basis for future surveys that are planned as part of the mass drug administration programmes promoted by the Global Programme to Eliminate Lymphatic Filariasis (GPELF).



Filariasis transmission following the civil war



Simon Jackson investigated if filariasis was still being transmitted in Freetown, following the civil war. During the 10 years of civil conflict that started in 1991, 47% of the pre-war population were internally displaced. Most of the internally displaced persons (IDPs) were in camps and in urban centres where security and assistance were more certain than in rural areas. At the height of the conflict in 1997, Freetown was home to about 1.2-1.5 million people more than the pre-war population of about 750,000. An LF survey conducted in seven IDP camps in Freetown in 1997 revealed an LF prevalence rate of 14.5% among IDPs. A LF mapping exercise carried out in two sites in 2007 to determine if the Western Area Province, including Freetown, gualified for mass drug administration revealed no carriers of the infectious blood stages of the parasite. However a few were shown, by serology, to harbour the parasite in the lymphatic system. The Ministry of Health has to decide whether to proceed with a mass drug administration campaign for the whole of the Western Area Province which would require treatment of an additional one million people.

This is an enormous task, which without evidence of ongoing transmission in an originally non-endemic area, may be totally unnecessary. Simon's work, with further lab analyses currently underway at LSTM, will provide tangible evidence on which this decision can be based.

Prevelance of NTD's amongst children

LSTM MSc students Anna Wamsley and Nsa Dada worked with Dr Mary Hodges of Helen Keller International to determine the prevalence of other NTDs including schistosomiasis and soil transmitted helminths in other parts of Sierra Leone. They examined stool samples collected from 9-14 year old children resident in the Eastern, Northern and Southern provinces. Preliminary analysis back at LSTM, under the supervision of Dr Guy Barnish, has revealed infection with several parasites including schistosomiasis (~ 80%), hookworm (~ 45%), trichuris & ascaris (~4%) and strongyloides (~2%). The prevalence of schistosomiasis is very high and may be attributed in part to the many innocent childhood activities involving contact with standing pools of water where schistosomiasis is contracted through the skin, as observed by Anna and Nsa when they visited the Eastern and Southern provinces. They also noticed that most of the children were bare foot which places them at high risk of contracting soil transmitted helminths like hookworm.

Conversely, the low prevalence of roundworm/Ascaris and whipworm /Trichuris may be due to the annual mass drug administration of ivermectin and albendazole for the control of lymphatic filariasis which started in 2007, as these drugs are effective against both LF and geohelminths.

The expedition was supported by LSTM and the UK Department for International Development (DFID). The exercise would not have been successful without the valuable assistance of Paul Conteh, Khali Kamara, Manfred Morovia (Ministry of Health and Sanitation, Sierra Leone), Mr. Jusufu Paye (HKI) and Mrs Florence Bockarie. It is our hope that this work will form the first steps of many future studies on these NTDs and other diseases in Sierra Leone, maintaining LSTM's long legacy of research and capacity strengthening in Sierra Leone, which dates back to the very beginning of tropical medicine.



LSTM's Maternal and Newborn Health Unit

A recent development within LSTM's Child and Reproductive Health Group has been the introduction of the Maternal and Newborn Health (MNH) Unit. The unit consists of six technical staff: Nynke van den Broek (Head of Unit), Jan Hofman, Charles Ameh, Adetoro Adegoke, Emma Hulme, Joanna Raven (Clinical Lecturers) and three support staff: Gillian Blackman (Programmes Manager), Kristian Godfrey (Administrator) and Sue Cain (Administrator and PA). The work of the unit can be broken down into four key strategic areas:

Skilled Birth Attendance

Provision of Skilled Birth Attendance is one of the key international strategies to reduce maternal and newborn mortality and morbidity. The World Health Organization (WHO) commissioned a study to map out the different models for training Skilled Birth Attendants and mechanisms for providing the supportive enabling environment (together these make up Skilled Birth Attendance) that are used internationally. A selection of countries in sub-Saharan African and Asia with medium and high maternal and perinatal mortality and morbidity were chosen for this study.



With the move to advocating for a trained professional as a Skilled Birth Attendant such as a nurse-midwife or doctor, the role of the Traditional Birth Attendant (TBA) has become unclear and is likely to change in many countries. A study to explore if and how the TBA can function to provide effective support for skilled birth attendance is planned to be undertaken by the MNH Unit for 2010. Countries to be included are Malawi, Zimbabwe and Somaliland.

Essential Obstetric and Newborn Care

The SRH Group has successfully developed a Rapid Assessment Tool to assess the availability and functioning of Maternal and Newborn Health Services. This tool was applied in four districts in Kenya, six districts in Malawi and three states in northern Nigeria (covering a combined total population of over 17 million). Analysis of data has shown that in general there are facilities in place for maternal and newborn health, but that functioning of such facilities is suboptimal. Minimum UN coverage especially for basic Essential Obstetric Care is not achieved and in many districts no facility is available to provide all eight signal functions for comprehensive Essential Obstetric Care. It is also apparent that in many cases the available staff lack the clinical expertise to deliver such services.

The MNH Unit has together with the Royal College of Obstetricians and Gynaecologists (RCOG) and the Department of Making Pregnancy Safer at WHO, developed a new intervention to improve health care provider capacity in developing countries. The Life Saving Skills -Essential Obstetric Care and Newborn Care Package which has been successfully introduced in seven sub-Saharan African and two Asian countries has been adapted for scale up nationally in the Republic of South Africa and in Malaysia. Among healthcare providers (nurse midwives, doctors, clinical officers and specialists) knowledge about the diagnosis and management skills to deal with complications of pregnancy, childbirth and newborn care has significantly increased.

A new Monitoring and Evaluation framework has been specifically designed and applied. Behaviour change has been documented via log books and focus group discussions. Longer term studies are ongoing to



evaluate the effect on societal outcomes (maternal and newborn health UN process indicators). In the coming years the training package will be complemented with supportive supervision to improve coverage of EOC and NC and will be demonstrated in selected target countries in sub Saharan Africa and South East Asia.



Quality of Care

Quality of care (or lack of) is one of the main determinants of the uptake of maternal and newborn health care. What constitutes good quality care and how this can be implemented have been a focus area for research in China (with LSTM's International Health Group) and Malawi. The specific quality improvement tools used in Malawi include standardsbased audit and maternal and perinatal death audit. Standards are designed in-country using a multidisciplinary approach and are based on current evidence-based practice. The MNH Unit contributes to the work of the WHO Technical Working Group on classification of cause of maternal and perinatal deaths. A new classifications system for maternal death has been tested on data from Malawi, Zimbabwe, Kenya and Nigeria.

Pregnancy Outcome

Ultimately our aim is to improve the health of mothers and babies and to test and document which interventions are most effective in doing so.

In Malawi a large Randomized Controlled Trial - the APPLe Trial (Azithromycin for Prevention of Preterm Labour) was successfully completed with 2,300 women attending antenatal care in four rural health centres recruited into the study and followed up. Analysis of data on infection and nutritional status during the antenatal period, pregnancy outcome (maternal mortality, perinatal mortality and child development) and incidence of preterm birth was commenced. This work was funded by the Wellcome Trust. A study on assessment of pregnancy related morbidity has also been completed.

The MNH Unit will be able to increase the number of skilled health professionals providing high quality maternal and neonatal care and generate more demand for these services amongst women, as well as improving data on maternal and newborn health to influence policy at national and international levels.





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Improving TB care for new arrivals to Merseyside

Tuberculosis (TB) in the UK is a resurgent public health problem that follows patterns of migration. As a government dispersal centre for refugees and asylum seekers, Liverpool has a number of migrant communities at risk of TB and who may require care and treatment. In a recent project a group of TB experts from LSTM set out to explore the access to TB services for people who have arrived in Merseyside within the last three years and who originated from countries with high TB prevalence to make recommendations to local service providers on how to optimise services.

Individual interviews were conducted with TB patients and a structured workshop was held with policymakers, doctors and community nurses. A wide range of experiences (both positive and negative) were found. It became clear that there were a number of different ways that patients reached TB services amongst the different groups of new arrivals, such as migrant workers, students, refugees and asylum seekers. Participants indicated that they feared presenting to services for lots of reasons such as stigma, concerns over their right to remain in the UK and uncertainty on whether they would have to pay for services. Negative experiences of language interpretation services were reported by those with poor English and increased mobility between regions (both voluntary and enforced by the authorities) of the majority of new arrivals within the UK posed a threat to individual and public health. TB nurses in Liverpool and Southport were very key to holding things together as overall the service providers lacked a coordinated, streamlined approach to TB services for new arrivals.

Continuity of care is vital for control of TB as an infectious disease of public health importance. Without it, diagnostic processes may be disrupted, leading to increased TB transmission and treatment courses may be interrupted leading to the development of drug resistance. National policies that reduce mobility between regions of individuals on TB treatment would improve continuity of care, and might be further enhanced by the increased use of patient-held records. Active outreach to formal community groups, employers, gang masters and informal groups would require additional resources and time but might deliver benefits in terms of earlier case detection. Engagement of local networks in Merseyside that expand beyond the infectious disease and chest physicians to include occupational health, Universal Care 24, prison and student services would allow for a more coordinated approach with less overlap. A subcommittee of the Merseyside and Cheshire TB Group could be created with a specific remit to focus on service delivery for new arrivals.

About nine million new cases of TB, and nearly two million deaths from TB, are estimated to occur around the world every year. TB is the leading cause of death among curable infectious diseases. Coordinated by the Centre for Research on Equity and Systems for TB and HIV/AIDS (CRESTHA) LSTM is at the forefront of the worldwide fight against TB.



Above: Pulmonary tuberculosis.

The Legacy of a Pioneer in Community Health

It is with great sorrow that friends and colleagues have paid tribute to the late Rev Dr Patricia Nickson. She was a truly inspirational person whose life of sacrifice, commitment and achievement can be compared to few others.

Following in the footsteps of her parents, Pat decided to become a missionary. She trained as a nurse at the Central Middlesex Hospital, then as a midwife at Brighton General, Luton and Dunstable hospitals before applying to the Church Mission Society (CMS), where she was a mission partner for 34 years.

Pat came to LSTM to build upon her training as a nurse, gaining the Certificate of Community Health in 1979, a Masters of Community Health in 1981 and a PhD entitled: 'The Implementation of Primary Health Care in North East Zaire', published in 1989. Her academic achievements and her missionary work in Australia, Bangladesh, Afghanistan and the Democratic Republic of Congo (DRC) led to her becoming an international expert in community health and an advisor to the World Health Organisation. Pat was able to return to LSTM in 1990 as Lecturer then Senior Lecturer in International Community Health until her retirement in 2005. Training community health professionals from the poorest countries at LSTM was always balanced with putting her own training into practice in DRC and her work as founder and Director of the Pan

African Institute of Community Health (IPASC).

Experience had taught Pat that before she could give people the treatment they needed, she would have to understand their culture. In DRC, the role of the family and religion are important to medical treatment and many people expect prayer to be part of medical care. In 2003 Pat was ordained at Chester Cathedral and in 2004 became curate at St Mary's Church, Upton, Wirral. In 2005 she was awarded the OBE for services to community health. Although she continued to visit DRC, Pat increasingly devoted herself to parish ministry at St Mary's and in 2006 she resigned as a CMS mission partner. In 2007 Pat was diagnosed with abdominal cancer but she refused to let her illness stop her working, instead using it as an opportunity to reach out to more people through pastoral ministry.

The Rev Dr Patricia Nickson, community health expert, missionary and priest, was born on July 7, 1944 and died on April 26, 2009, aged 64.

Friends of IPASC Trust is a UK Charity that is dedicated to support IPASC in DRC. If you would like to make a donation, please contact IPASC, 24 Brooklet Road, Barnston, Wirral CH60 IUL.

Pictured below:

Pat Nickson with Bishop Henri Kahwa Isingoma and staff of Boga diocese.





A tribute to Pat from IPASC

"Pat Nickson changed the lives of many that she touched in the Congo with her commitment and courage. One of our most vivid memories of her was at the time of the violent civil war, when staff had to leave Nyankunde. We all evacuated, leaving at night on foot through the tropical forest to Beni, 150km away. Pat rushed to Beni to join staff - she was coming into the country from the UK, when other foreigners were leaving because they feared for their own lives."

"Pat founded IPASC, a unique training college located in three sites in Eastern DRC. She was a very close friend to each staff member, senior as well as junior. She never liked us to call her "Boss", contrary to the custom in our society. She was 100% biologically British and 100% socially Congolese; two identities not easy to cope with."

"Pat was a fearless visionary, leader and inspiration to us all. She pioneered the community health practices throughout Africa, not only using experts (nurses, physicians, etc.) but also with the community, by the community and for the community."

Dear Patricia,

You have built people's lives in DRC; You have built structures; You have built relationships;

You are a living rock; You are a hero. You will always be in our everyday lives as we will see you in every single part of lives: at home, at work, with our degrees, and in our thoughts.

From Louis Paluku Sabuni, BSc, MPH, PhD, Director, and Amuda Bab, BA, MPH, Academic Dean, Institut Supérieur Panafricain de Santé Communautaire de Bunia

Far Eastern Prisoners of War Education Project

LSTM has been awarded a grant by the UK's Heritage Lottery Fund to further develop the Far Eastern Prisoners of War (FEPOW) oral history project by the creation of a website that will tell the story of LSTM's unique association with ex-FEPOW. The project is led by LSTM's Professor Geoff Gill. LSTM has a longstanding relationship with FEPOW dating back to the end of the Second World War and in the 1970-80s researchers conducted ground-breaking research into the diagnosis and treatment of conditions such as strongyloidiasis. In all more than 2,000 ex-FEPOW have been treated at LSTM.

The website will feature details of the oral history project including extracts from some of the sixty interviews that have been recorded with British FEPOW in which they shared memories of their experiences both during and after their captivity. The group of 60 surviving veterans of up to four years in captivity in the Far East, are now in their late 80's and are keen to create a legacy for future generations.

A group of Year 10 Wirral schoolchildren will have the opportunity to meet and interview a former FEPOW. Through specially designed workshops facilitated by the Wirral-based Learning Lighthouse, they will be able to record the encounter and this material, together with the work that is generated from it, including a scheme of work for future use in schools, will also contribute to the development of the website. This website will eventually be promoted to



the public, education professionals, researchers, family historians and to FEPOW history research groups.

Working Men, painting by FEPOW Jack Chalker, 1943



Artist in Residence

Communicating scientific research and health systems management is more effective when done in an engaging way. Explaining science through artistic interpretation encourages new ways of thinking and is rapidly gaining popularity as a successful way to communicate scientific issues. The UK's largest charity, the Wellcome Trust, are in the vanguard of this movement and have provided funding for an artist in residence position at LSTM. International digital and new media artist Gina Czarnecki will work in collaboration with LSTM to investigate and interpret the relationships between the spread of infection, the transmission of behaviours and changing climatic, economic and social conditions. Gina is collaborating with scientists, writers, producers, historians and health researchers to develop, test and make a new body of artwork that explores the notion of what is 'foreign', and the effect of newcomers in living systems.

One area of research that will feed into two installations involves sand flies Lutzomyia longipalpis. Certain species of the female Phlebotominae sand fly carry a parasite which spreads the disease leishmaniasis, producing skin ulcers and lesions. These can cause disability and permanent scarring, often resulting in stigma and serious social prejudice among those affected. LSTM scientist Dr Rod Dillon is unravelling the interactions between the sand fly and the parasite that it transmits. The sand flies originate from South America where they are the main vector of visceral leishmaniasis (the most serious form of the disease), in both forested and domestic environments.

A major project currently under development is an LSTM-inspired tropical community garden in the Garston area of South Liverpool. As well as being the founder of LSTM, Sir Alfred Lewis Jones also founded a hospital in Garston. As part of a major redevelopment of the hospital, the tropical garden will offer patients, visitors and the public a sensory oasis, housing sonic experiments and light sculptures. Gina will be working with Rod and Professor Cheng-Hock Toh, Science Director at the NIHR Biomedical Research Centre in Liverpool, to produce a kinetic

sculpture that imitates a mosquito proboscis – the protruding mouth parts used for feeding. Work from Gina's residency will feature in a solo show at the Bluecoat Arts Centre in Liverpool, planned for mid 2011. Running alongside the exhibition will be a conference examining the issues and impacts of the artwork.

Image: One week old adult sand flies in a breeding cage at LSTM.



Education and Training Programmes 2008 – 2009

Masters Programmes

Masters in Tropical & Infectious Diseases

12 students attended from September 2008, from eight countries: Bangladesh (1), Ethiopia (2), Malawi (1), Mexico (1), Nigeria (4), Saudi Arabia (1), Spain (1) and Zimbabwe (1).

Masters in Medical Microbiology

11 students attended this course which started in September 2008 from six countries: Botswana (1), Canada (1), Cyprus (1), Saudi (3), Sudan (1), UK (4).

Masters in Biology & Control of

Parasites & Disease Vectors 11 students attended this course which started in September 2008 from five countries: Canada (1), Ireland (1), Malaysia (1), Nigeria (2) (one Certificate only), UK (6).

Masters in Molecular Biology of

Parasites & Disease Vectors 5 students attended this course which started in September 2008 from two countries: Saudi Arabia (3), UK (2).

Masters in Veterinary Parasitology

4 students attended this programme, which started in September 2008, all from the UK.

Masters in International Public Health

11 students attended this programme, which started in September 2008, from seven countries: China (1), Malawi (1), Nigeria (5), Sierra Leone (1), Sudan (1), UK (1), USA (1).

Masters in Humanitarian Studies

7 students attended this programme which began in September 2008, two countries: France (1), UK (6).



Masters in Humanitarian Programme Management

10 students attended this programme which began in September 2008, from six countries:

Australia (1), Canada (1), France (1), Nigeria (1), Tajikistan (1), UK (5).

Masters in Tropical Paediatrics

13 students attended this programme which began in September 2008, from eleven countries:

Brazil (1), Ghana (2), India (1), Italy (1), Japan (1), Libya (1), Malaysia (1), Nigeria (1), Spain (1), USA (1), UK (2).

Certificate & Diploma Programmes Certificate in Tropical Community Medicine & Health

2 students attended this programme which began in September 2008, from two countries:

Germany (1) and UK (1).

This programme was replaced in April 2009 by the Diploma in International Community Health Care, with most applicants transferring to that Diploma.

Diploma in Tropical Medicine & Hygiene

87 students attended this programme which began in September 2008, from twenty three countries: Australia (2), China (1), Germany (4), Ghana (1), Greece (1), Hong Kong (1), India (1), Ireland(2), Italy (3), Japan (1), Nigeria (2), Norway (10), Pakistan (1), South Africa (1), Spain (1), Sudan (1), Sweden (1), Switzerland (1), Tanzania (1), Uganda (1), UK (45), Ukraine (1) and USA (4).

Diploma in Tropical Medicine & Hygiene

59 students attended this programme which began in February 2009, from twenty two countries:

Australia (4), Austria (1), Botswana (1), Cameroon (1), Canada (1), China (2), Germany (5), Hungary (1), India (4), Indonesia (1), Ireland (1), Italy (2), Japan (1), Mozambique (1), New Zealand (1), Nigeria (4), Norway (3), Spain (3), Sweden (1), Switzerland (1), UK (19) and USA (1).

Diploma in Humanitarian Assistance

16 students attended this programme which began in February 2009, from ten countries:

Germany (1), India (1), Ireland (1), Japan (1), Netherlands (1), Senegal (1), Sudan (1), UK (6), USA (2), Yemen (1).

Diploma in International Community Health Care

14 students attended this programme which began in April 2009, from nine different countries: Canada (1), China (1), Hong Kong (1), Malawi (1) Nigeria (2), Spain (1), Sudan

(1), Switzerland (1) and UK (5).

Diploma in Reproductive Health

7 students attended this programme which began in April 2009, from five countries: Ghana (1), Kenya (1), Nigeria (3), Uganda (1), UK (1).

Diploma in Project Design and Management

22 students attended this programme which began in September 2008. Overseas programme based in Kumasi, Ghana.

Diploma of Health Systems Management

29 students attended this programme which began in September 2008. Overseas programme, based In Damascus, Syria.

Diploma of Epidemiology & Medical Statistics

15 students attended this programme which began in September 2008. Overseas programme, based in the Kingdom of Saudi Arabia

Diploma of Health Systems & Quality Management

12 students attended this programme which began in September 2008. Overseas programme, based in the Kingdom of Saudi Arabia

Research students:

92 students from 30 countries were registered as research students in May 2009:

Belgium (1), Botswana (1), Canada (2), Egypt (1), France (1), Germany (1), Ghana (3), Ireland (1), Italy (1), Kenya (3), Libya (2), Malawi (8), Malaysia (4), Maldives (1), Mexico (2), Netherlands (1), Pakistan (1), Palestine (1), Portugal (4), Saudi Arabia (2), Sri Lanka (1), Switzerland (1), Syria (5), Tanzania (2), Thailand (4), Uganda (1), United Kingdom (29), Venezuela (1), Yemen (6), Zambia (1).

In addition, 109 people attended LSTM & LATH short courses 2008 – 2009.

Medals and Prizes

Masters in Applied Parasitology Jervis Prize Erin Dilger

Most improved student Colin Bullough Prize **Ronnie Asino**

Matthew Lukwiya Prize Lalith Wijedoru

John Hey Prize Nara Cavalcanti

Glen Williams Prize Nyaradzai Sithole

Fundraising Appeals

As a registered charity LSTM relies heavily upon private donations of all sizes to undertake existing work and to react to new developments. Funding ranges from in kind support from local business suppliers to large donations from individual benefactors. Further support is required to fund projects that typically do not appeal to major grant-makers.

Library Improvements Appeal

We have a programme of ongoing enhancement to LSTM's library and computing services so that students are always provided with up to date facilities.

Changes to access, layout and electronic services require funding to make them happen. Donations of any amount will contribute to the overall programme of development.





Business Support

If your business is interested in supporting LSTM, you could make a donation, sponsor a student or an entire lecture theatre. If budgets are tight, providing goods or services in kind is also a valued form of support. Please contact the Development Office to discuss how supporting LSTM is good business.

Kits for Kids

Please donate any children's football kits no longer needed. We will send the kits along with footballs and pumps to children across Africa via LSTM projects and partners. We also require corporate support to ship these items overseas.

Neglected Tropical Diseases (NTD's)

LSTM's Centre for NTD's require regular donations to tackle the group of parasitic and bacterial infections that affect about one billion people, contributing to much of the developing world's poverty, a relationship that has made the control and elimination of those diseases crucial to realising the Millennium Development Goals.





Foreign Currency Appeal

LSTM accepts donations of foreign currency (coins or notes) of any amount. Please have a look at home and in work to see if you have foreign currency that you have left over from an overseas trip. Even if the currency is no longer in circulation we can still exchange it for funds that will improve people's lives.

If you would like to support any of these appeals or another aspect of work at LSTM please contact Billy Dean via the details below. Billy Dean, Development Officer, LSTM Pembroke Place, Liverpool, L3 5QA, UK Email: william.dean@liv.ac.uk Tel: +44 (0)151 705 3272 Fax:+44 (0)151 705 3743 www.liv.ac.uk/lstm/about/fundraising_alumni/index.htm





Support for Students

LSTM needs extra funds to provide new scholarships and basic hardship funding for students who have scarce resources of their own. Donations of any amount can contribute to training the doctors, scientists and health professionals who are fighting to control diseases of poverty and to develop more effective systems for health care. Scholarship support is particularly required for the DHA Africa Programme.





























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.

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