



LSTM

NEGLECTED TROPICAL
DISEASES



***LSTM covers the whole
research trajectory:
From laboratory
based research...***

Liverpool School of Tropical Medicine and Neglected Tropical Diseases

It is estimated that over one billion people from the world's most disadvantaged and poorest communities suffer from at least one neglected tropical disease (NTD), which can significantly impact upon their physical and emotional wellbeing.

Close to 60% of the world's children are expected to reside in the tropics by 2050. Whilst progress to address these diseases is being made only 0.6% of Official Development Assistance (ODA) for Health in the UK is allocated to NTDs. Health challenges such as the ongoing Ebola outbreak, together with the wider impact of conflict, environmental degradation, climate change and the frequency of natural disasters put the progress made against NTDs under significant threat. Yet NTDs are markers, agents and drivers of poverty. Controlling and eliminating NTDs can make a proportionately greater contribution than any other investment – more health for less money.

Ever since its founding in 1898, Liverpool School of Tropical Medicine (LSTM) has been at the forefront of providing policy makers with the scientific evidence and programmatic success to articulate relevant science into policies and guidelines. Within that process important questions are being asked concerning approaches to the control and elimination of NTDs. While scaling up access to preventive chemotherapy for NTDs is a priority, effective treatment coverage alone is not enough to achieve the current 2020 NTD targets as laid down in the London Declaration in 2012 and further emphasised in Paris in 2014.

LSTM is working to identify and overcome critical bottlenecks through its research and implementation activities whilst evaluating

alternative strategies to overcome the existing barriers to control and elimination. In addition, the WHO recommends complementary strategies to accelerate transmission interruption, including vector control, the provision of sanitation and hygiene, health awareness and capacity building.

In response, LSTM has reorganised itself by focussing on a multidisciplinary approach and establishing a cross cutting theme in NTDs, building on the particular strengths of its research departments. This draws together a broad range of existing projects but will also encompass a raft of new programmes.

Overseeing and leading this is LSTM's Emeritus Professor David Molyneux. He will advocate for a better understanding of what he has termed the 'chronic pandemic of NTDs and their debilitating impact and for effective sustainable elimination and control programmes'.



Professor Janet Hemingway
Director LSTM

The 17 Neglected Tropical Diseases and LSTM's involvement

The neglected tropical diseases result from four different causative pathogens:

Virus

Dengue »

Rabies

Protozoa

Chagas »

Human African Trypanosomiasis »

Leishmaniasis »

Helminth

Cysticercosis/Taeniasis »

Dracunculiasis (guinea-worm disease) »

Echinococcosis »

Foodborne trematodiasis »

Lymphatic filariasis »

Onchocerciasis (river blindness) »

Schistosomiasis »

Soil-transmitted helminthiasis »

Bacteria

Buruli ulcer

Leprosy (Hansen disease) »

Trachoma

Yaws

In addition to the listed 17 NTDs above, the WHO also lists:

Other neglected conditions

Chronic suppurative otitis media (CSOM)

Mycetoma »

Nodding Syndrome (NS)

Podoconiosis »

Scabies

Snakebite »

Strongyloidiasis »

LSTM involvement is defined by recent scientific publications where the lead author has declared an affiliation with LSTM

Source:



...to (clinical) field trials...



LSTM & Neglected Tropical Diseases: cross-sector expertise

Onchocerciasis and Lymphatic Filariasis

Fundamental research on *Wolbachia* and disease pathogenesis; translational drug discovery and development research against human filariasis – the parasitic worm infections that cause river blindness (onchocerciasis) and elephantiasis (lymphatic filariasis). In addition, Mass Drug Administration (MDA); morbidity management and in-country operational research.

Schistosomiasis

Control of schistosomiasis in sub-Saharan Africa particularly focusing on infants and pre-school children who are particularly susceptible to infection.

Soil Transmitted Helminths

The control of whipworms, roundworms and hookworms.

Human African Trypanosomiasis

Housing the widest breadth of skills (from basic research to vector control) on trypanosomiasis in the UK, LSTM is trialling a 'target' tool which will kill tsetse flies cost-effectively and thus prevent transmission of sleeping sickness.

Visceral Leishmaniasis

Working in South East Asia focusing on vector control, LSTM has developed new tools such as Insecticide Quantification Kits to improve the effectiveness of insecticides.

Cutaneous Leishmaniasis

A programme addressing the epidemiology, diagnostics development and vector control of Old World cutaneous leishmaniasis.

Snake Venom Research

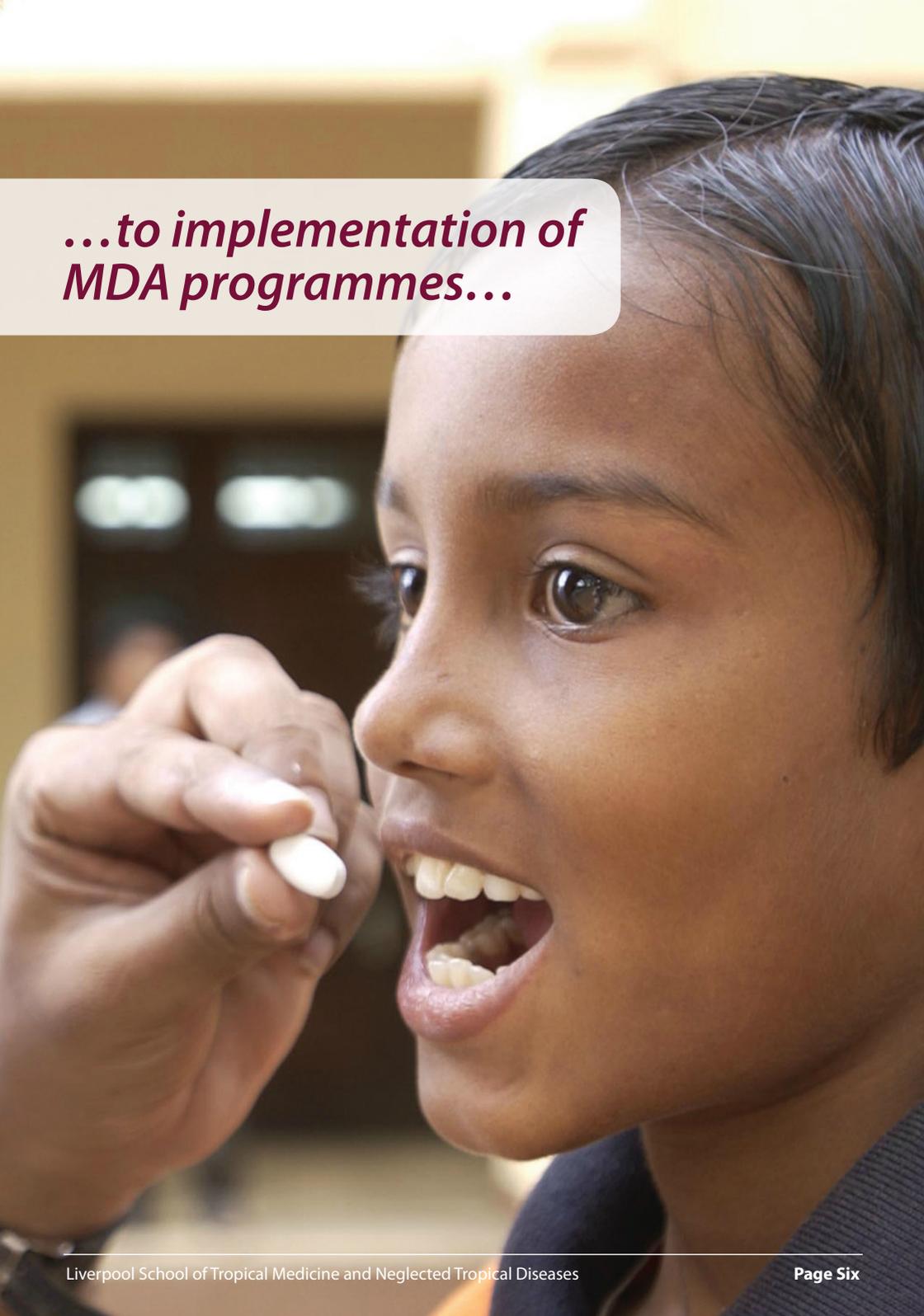
LSTM houses the largest and most diverse collection of tropical venomous snakes in the UK and leads pioneering research into a universal anti-venom and to improve the efficacy, affordability and safety of snakebite treatment.

Dengue Vectors

Evaluation and development of effective insecticide-based tools suitable for vector control in high density urban zones; using vector population monitoring to predict dengue outbreaks. Understanding the role of *Wolbachia* in vector competence.

Mosquito Vector Control

The successful global elimination of LF could hinge upon the addition of insecticide treated bednets to complement the current MDA strategy.



*...to implementation of
MDA programmes...*

LSTM & Neglected Tropical Diseases: cross-sector expertise

Support Systems

Validating and implementing innovative monitoring and evaluation tools to support informed decisions for the control and elimination of NTDs

Capacity Strengthening

Diverse activities to strengthen capacity at the level of individuals, institutions and nationally/regionally-laboratory networks and in-country programme related training workshops.

Mathematical Modelling

LSTM and collaborators at University of Warwick are central to a new international initiative to coordinate efforts on NTD modelling to inform policy.

Pre-clinical NTD Models for the Evaluation of Next Generation Therapeutics

With a focus on priority helminth NTDs, LSTM has in-house capability to rapidly test novel curative drugs and anti-morbidity therapeutics to facilitate their development into clinical candidates.

Diagnostic Tool Development and Evaluation

With a specific focus on Cutaneous and Visceral Leishmaniasis and Human African Trypanosomiasis LSTM's Research Centre for Drugs and Diagnostics has a portfolio of activities in NTDs

Social Science

LSTM's social scientists examine social, political and economic factors affecting NTD MDA programmes to produce a more holistic approach to NTD control and prevention to meet the elimination targets of the global NTD community.

'NTDs are a chronic pandemic having a debilitating impact on over a billion people which require effective, sustainable elimination and control programmes across the globe'

Emeritus Professor David Molyneux

*...to evaluation
and evidence
based reviews...*





Cross sector initiatives hosted by LSTM



A-WOL's academic and industrial partners aim to develop new drugs against onchocerciasis (river blindness) and lymphatic filariasis (elephantiasis).
www.a-wol.net



The Global Alliance to Eliminate Lymphatic Filariasis (GAELF) is hosted by LSTM and coordinates activities of partners and concentrates on political, financial and technical support.
www.filaria.org



IVCC is a not-for-profit public-private partnership. Its mission is to save lives, protect health and increase prosperity in areas where disease transmitted by insects is endemic.
www.ivcc.com



CNTD supports national NTD programmes; provides technical assistance; strengthens the evidence base to inform policy makers and identifies and prioritises interventions that will eliminate lymphatic filariasis and reduce the burden of other neglected tropical diseases.
www.cntd.org



COUNTDOWN investigates cost-effective, scale-up and sustainable solutions, necessary to control and eliminate the seven most common Neglected Tropical Diseases by 2020.
www.countdownnntds.org



The Effective Health Care Research Consortium (EHCRC) focuses on evidence by preparing and updating Cochrane Reviews about the effects of health care relevant to low-income and middle-income countries. LSTM hosts the Cochrane Infectious Disease Group.
www.evidence4health.org and
www.cidg.cochrane.org



The Research Centre for Drugs and Diagnostics (RCDD) works with industry, academia and NGOs to discover, develop and deliver novel therapies and diagnostics against a range of pathogens. The Centre offers flexible models of collaboration from open access to commercial service provision.
www.rcdd.org.uk

...resulting in research uptake benefiting patients worldwide.





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