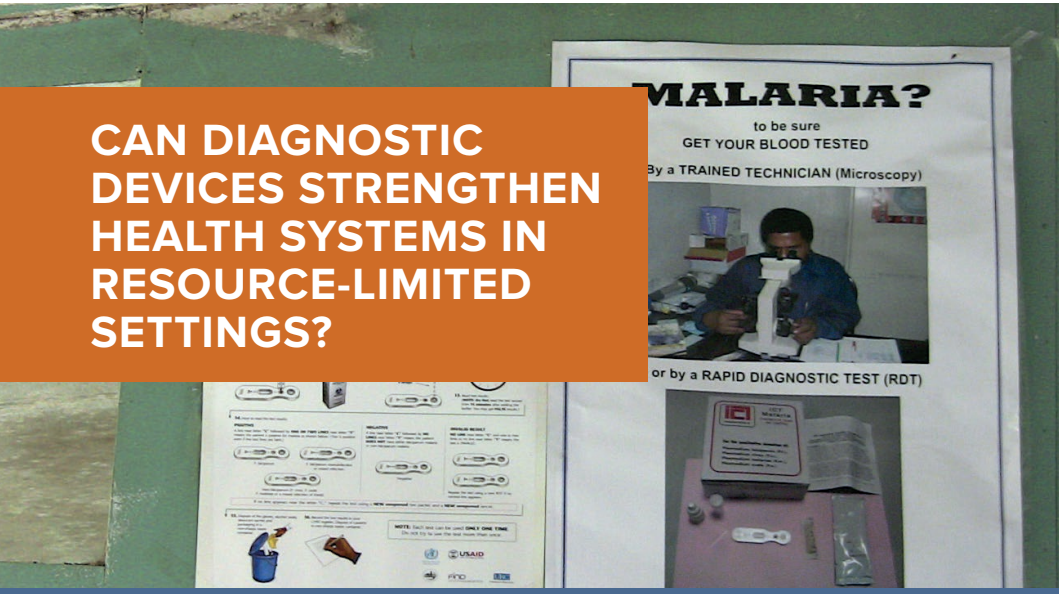
DiaDev

Investigating Diagnostics in Global Health

CAN DIAGNOSTIC DEVICES STRENGTHEN HEALTH SYSTEMS IN RESOURCE-LIMITED SETTINGS?



Point-of-care diagnostic devices for poverty-related diseases are widely recognised as critical to meeting global health priorities. Until recently laboratory infrastructures in many low and middle-income countries were limited to urban centres, and frontline health workers in rural health facilities depended on paper-based algorithms or clinical judgement to make treatment decisions. Today, a new generation of rapid and portable devices that detect the presence of pathogens and biomarkers in a drop of blood, sweat or urine, promise to extend this laboratory infrastructure far beyond the hospital laboratory and make universal access to accurate diagnostics possible.

The DiaDev project, *Investigating the Design and Use of Diagnostic Devices in Global Health*, explores the emergent role that diagnostic devices are playing in the transformation of global health partnerships and national health systems in low and middle-income countries. Drawing on novel conceptual and methodological tools from social anthropology, it investigates the social, cultural and technical processes involved in developing, deploying and using diagnostic devices in resource-limited settings. The goal is to improve our understanding of relationships between technological innovation and health systems strengthening, with a view to guiding global health policy.

DIAGNOSTIC STORIES

At the heart of the DiaDev project are stories of individual diagnostic devices and what they can tell us about the opportunities and challenges that accompany technological innovation in resource-limited health settings.

Over the course of five years, six researchers will embed themselves in meeting rooms, research laboratories, field-testing sites, rural health centres, hospitals, clinical and reference laboratories in the USA, Sierra Leone and India, working alongside the people who create, regulate, roll-out or use point-of-care diagnostic devices. They will employ interviews, observational research and qualitative mapping tools to investigate the social, cultural and technical processes that shape the design of diagnostic devices and their effects on health systems at the point of use.

DIAGNOSTIC THEMES

DiaDev asks critical questions about the role of diagnostic devices in global health. These fall under three interconnected thematic strands.

Partnership

For a diagnostic device to reach and be effective in a primary health care setting requires that global health funders, policy-makers, industry, regulators, governments, advocacy groups, and health workers all are brought on board. Examining how the diverse interests and values of these stakeholders are negotiated and transformed in the process of diagnostic design and use will provide crucial insight into the opportunities and challenges that accompany global interventions in local health systems.

Infrastructure

Low infrastructural requirements are often a high priority for point of care diagnostic devices, enabling them to reach primary health care settings with limited transportation, energy or communication connections. But diagnostic devices are never autonomous technologies. For example, they depend on the expertise of health workers who draw on their results to make decisions, the procurement and supply systems that ensure the treatments they indicate are needed are available, and information systems to enable their results to feed into national level data-sets. DiaDev examines the infrastructures that are imagined and built into diagnostic devices, the everyday work of integrating devices with existing health systems, and the new infrastructures – such as for data connectivity – that are being built up around them.

Knowledge

Diagnosis stems from the Greek term 'diagignoskein', meaning to know thoroughly. The DiaDev project investigates the multiple ways in which diagnostic devices are used to generate knowledge. Traditionally, diagnostic devices have been designed to help inform clinical decision making. But the value and purpose of diagnosis are changing alongside technological developments. Advances in data connectivity mean that diagnostic devices now offer opportunities for the generation of population level data-sets, with potential applications in public health planning, programme evaluation, and emergent disease surveillance and tracking. DiaDev will follow the implications of these developments for altering meanings and expectations of diagnosis, and the changing place of diagnostic devices in health systems.

DIAGNOSTIC SITES

The DiaDev team will explore these themes across three distinct contexts of diagnostic development and deployment.

Emergency

Point-of-care diagnostic devices offer unprecedented opportunities for saving lives and improving surveillance in emerging disease outbreaks. But public health emergencies also pose distinct social, ethical and technical problems for the development, regulation, and use of diagnostic devices. In Sierra Leone, the DiaDev team will focus on the changing role diagnostic devices during the Ebola Virus Disease outbreak of 2014, its aftermath and in current preparedness planning.

Integration

How do point-of-care devices transform health systems over the longer term? In South India, where rapid diagnostic tests for malaria and dengue have been in circulation for several years, research will focus on the long-term effects of point of care diagnostic devices on the delivery of health services to hard-to-reach tribal communities.

Elimination

As disease control programmes lower prevalence rates, diagnostic devices are required for population screening and treatment/vaccine evaluation in addition to clinical management. DiaDev will focus on the changing role of diagnostics within elimination agendas, and the distinct challenges that this poses to product development and deployment.

Collaboration

DiaDev is a partnership between the University of Edinburgh, Kings College London, Kings Health Partners, and Public Health Foundation India. Over the course of the project we will work closely with stakeholders in the USA, Europe, Sierra Leone and India to refine and adapt the project design, solicit feedback on findings, and develop innovative solutions.

DiaDev Team

Dr. Alice Street | Principal Investigator

Dr. Alice Street, is a Senior Lecturer in Social Anthropology at the University of Edinburgh. Dr. Street is a medical anthropologist, whose research focuses on health systems strengthening, health management and the social life of mobile medical devices in global health.

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Dr. Ann Kelly | Collaborating Investigator

Dr. Ann Kelly, is a Senior Lecturer in Global Health and Deputy Director of the Global Health Institute at Kings College London. Dr. Kelly is a medical anthropologist, whose research has focused on public health interventions and disease control efforts in Sub-Saharan Africa, with a particular focus on the integration of experimental research with health care infrastructures.

Dr. Nandu Kishore-Kannuri | Collaborating Investigator

Dr. Nandu Kishore-Kannuri is Associate Professor at the Indian Institute of Public Health-Hyderabad, Public Health Foundation of India. His research has focused on socio-cultural and ecological determinants of health and wellbeing, mental health, health systems research, and Community based participatory research.

Project website: **www.diadev.eu**

Through the telling of diagnostic stories, the mapping of diagnostic infrastructures, and collaborations with stakeholders, DiaDev seeks to identity the lessons that can be drawn from the successes and failures of mobile diagnostic devices in the places where they are developed and deployed. It is hoped that the findings will help inform researchers, funders, policy-makers, governments and users as to whether, and how, these tests can strengthen health systems in resource-limited settings.

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