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Global Health Diagnostics: Workshop Summary

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By Shona Lee

On January 17th, 2018, participants from the UK, Europe, and India gathered in Edinburgh for “*Investigating Diagnostic Devices in Global Health*”, a workshop that also marked the launch of the ERC funded [DiaDev project](#). Hosted by the DiaDev team, [Alice Street](#), [Ann Kelly](#), [Nanda Kannuri](#) and [Eva Vernooij](#), the multi-disciplinary workshop invited short presentations from scholars, practitioners, and students working in the field of diagnostics in global health.



For critical global health researchers, the DiaDev project signposts the centrality of diagnostics to technology-oriented global health interventions today. For others, who have worked in global health and diagnostics for decades, it marks a gear change in the role of technology in diagnosis and the commodification of care. The careers and experiences of the participants span a transformative period in global health, many beginning their fieldwork when hospital laboratories were so poorly resourced that practicing medicine was less a matter of identifying and confirming disease using tests, than of aligning symptoms with medication. Since then, landscapes of care in the Global South have changed dramatically. With the development and expansion of portable lateral flow Rapid Diagnostic Tests (RDTs), which work in a similar way to over-the-counter pregnancy tests, there has been increased interest in funding diagnostics and increasing the reach of diagnostic tools into village and community

settings. In response to this, the DiaDev workshop sought to identify and address a suite of questions. Principally, it enquired into how this new generation of testing devices is transforming health systems, and how a focus on diagnostics shapes priorities in global health. The workshop aimed to identify the critical questions posed by this emerging field, and how scholars from the social sciences and humanities can and should study the emerging diagnostic paradigm in global health.

Participants were invited to present an image of choice to illustrate their key points and encouraged to raise the important questions this posed for their own research and for the field. These ranged from the implementation of sophisticated and relatively expensive multiplex platforms such as GeneXpert for largescale interventions, to stripped back, simplistic rapid diagnostics, Guthrie cards, and cheap open source PCR machines.

The development of tools in laboratory workbenches in the Global North, and their transposal into markedly different locales was a recurrent feature of many presentations. The unanticipated complexities of introducing sophisticated diagnostic multiplex platforms such as GeneXpert into remote settings, where insufficient funding or technical support to sustain their integration drew attention to the adaptability of diagnostics across spaces. Both Prof Ian Harper and Dr Emma Harding-Esch pointed out the need for specific testing panels at community-level for effective active screening, but questioned their utility outside of vertically funded programmes and research projects where they could not feasibly circumvent infrastructural gaps in the ways that more mobile, rapid diagnostic tests (RDTs) can. Dr Louise Bezuidenhout's presentation on the *openPCR* machine highlighted the locality and mutability of diagnostic technologies, and the need for a comparative discussion on developing equipment for the Global South by the Global South.

The capability of RDTs for plugging these gaps were contested by participants, who noted their limited capacity to innovate around structural paucity. While affordable and nimble, these accessible features are frequently rendered inapt, as test results conflict with further follow-up tests (Shona Lee) or clinical expertise (Fred Martineau) that can have profound effects on public and professional trust in diagnostic technologies. Even so, the enthusiasm for developing rapid test kits is palpable and frequently un-checked. Rebekah Thompson described concerted efforts of international research institutes to design a rapid test for zoonotic porcine cysticercosis, and questioned the practical utility of a test with no logical implementation point along pork value chains that frequently circumvent regulatory points of contact. The nature of the infrastructures and the expertise built into diagnostics therefore became a key focus of discussion.

The practical and ethical implications and meanings of diagnoses were emphasised by Ilana Löwy in her account of how cheap obstetric echography machines in Brazil facilitate the first meeting and socialisation of the baby in a society where abortion is forbidden. Here, the results from the ultrasound device poses uncomfortable dilemmas; “If you see something wrong, what do you do next?” Steve Sturdy’s talk pressed further the social effects of knowledge produced by diagnostics. His presentation on the neonatal heel-prick ‘Guthrie test’ for Phenylketonuria (PKU), and increasing concern over large collections of biological samples necessitates critical reflection on ethical and legal considerations. Both Sturdy and Löwy’s examples presented the workshop with the often overlooked but crucial questions; What social, ethical, and legal effects do results have? And can a diagnosis do more harm than good?

The workshop was accompanied by a public keynote lecture, delivered by Dr Clare Chandler, on “social science perspectives on diagnostics and antimicrobial resistance”. Drawing from her long term research on malaria programmes in East Africa and more recent research on the [anthropology of antimicrobial resistance \(AMR\)](#), Chandler showed that in places where care has been stripped down to the provision of medicine, patients may experience diagnostics as reducing access to care. Like many of the workshop presentations, Dr Chandler noted that diagnostics are often regarded as replacing infrastructure. However, rather than being simple and mobile technologies circumventing infrastructural deficits, in many cases we find they require more infrastructure (resources, supply chains, community health workers, the information required to make it work). Building on her finding that diagnostic devices make the need for health infrastructure more, rather than less, visible, Chandler’s current research project shifts focus to an enquiry antimicrobials as infrastructure, and seeks to go beyond the localisation of problems and solutions for AMR in the individual.



Following Clare Chandler's lecture, the event concluded with a final round of talks reflecting the structure of DiaDev's three project streams, with Dr Ann Kelly, Dr Nanda Kishore Kannuri, and Dr Alice Street presenting on diagnostics in the contexts of emergency, integration, and elimination, respectively. Based on these presentations and the questions raised throughout the workshop, participants then arranged themselves into break-out groups for each stream and discussions about the key issues and research questions for future exploration. From these and prior discussions, it was possible to deduce several thematic areas for future enquiry:

- **The location and 'spacialisation' of diagnostics**, their positionality in socio-technical systems, and how diagnostics transform spaces of care, including the relationships people build around these spaces.
- **The unpredictable and destabilising effects of introducing new diagnostics** on health systems across different settings, in terms of public trust in diagnostic and referral systems, or health workers' trust in the performance and reliability of diagnostic tests.
- **The expertise built into diagnostics**, and the value of the information produced by them across settings. This included assumptions surrounding authoritative claims on biomedical knowledge, and epidemiological landscapes of evidence.
- **The ethical and regulatory implications of test results** and the knowledge produced in terms of prognosis, concerning what action is to be taken from certain diagnoses.

Many of the short presentations on diagnostic devices, along with several new entries, will appear as part of this series, and will later be collected

into a diagnostic catalogue.

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[Diagnostic stories](#) follows the emerging world of devices, instruments, protocols and machines that make up the world of global health diagnostics. Through the telling of stories about specific technological artefacts it traces the rise of diagnosis as a global health concern and offers a critical perspective on the device-focused approach of many attempts to improve diagnostic infrastructure in the Global South. The series is edited by Alice Street.

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