Diagnostics in the South - a matter of (mis)trust

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As a part of the diagnostic puzzle a test is only as good as the health system surrounding it. To make a good diagnosis, treating physicians have to be skilled in recognising the patterns of symptoms and prevalence in their populations. To verify their estimations, they need to have an arsenal of diagnostic tests and they need to know the indications, interpretations and strengths and weaknesses of these diagnostic tests.

They also have to trust both; the technicians producing the results and the results themselves.

To ensure this in high resource settings, medical students study laboratory practices. Doctors and the diagnostic testing laboratories also follow quality standards to ensure correct communication and understanding between them. In low-resource settings, however, this is far less common. Doctors are more often skeptical of laboratory results for a variety of reasons. In the case of diagnosing bacterial infection and prescribing the right antibiotics it is a problem that is adding to the public health threat of antimicrobial resistance. It also leads to misdiagnosis with doctors mainly associating fever with malaria, leaving the bacterial infections undetected. Through projects with our Southern partners focusing on hospital patient care, antibiotic stewardship and quality management systems, ITM is working to change this.

Leading the way is ITM's multidisciplinary Bacterial Infections in the Tropics (BIT) programme. It is dedicated to researching bacterial infections and their antibiotic resistance in low-resource settings.

BIT member Prof. Jan Jacobs talked to P3 about the current relationship between treating physicians and the laboratories in the South and how ITM is working with local partners to address this.

“What we see is that communication between the doctors and the laboratory is insufficient and even if the lab is there, it is often unexploited,” he says. “In low-resource settings microbiology labs are small; they often don’t have digital information systems; have the difficulties of stock rupture, power rupture, humidity, high temperatures, under-trained lab staff and a general lack in quality procedures. To this, you also need to add the cost of laboratory diagnosis and the reluctance of patients to sampling. This history makes doctors doubt lab results and refrain from the use of laboratory diagnostics.”

In May 2017, Jacobs co-authored an article ‘Implementation of quality management for clinical bacteriology in low-resource settings,’ published in Clinical Microbiology and Infection (Barbé B, et al). The research highlights how international programmes have strengthened reference laboratories in the control of tuberculosis, malaria and HIV and recommends similarly strengthening clinical bacteriology quality systems to ensure best practices in addressing antimicrobial resistance.

P³ article

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“The research proves the answer to better exploitation of the labs has to be multidisciplinary and locally owned. It shows, the best work we can do is in focusing on local hospitals and helping management to bring their quality systems up to scratch with accredited programmes. This includes working with national regulatory bodies and reference labs,” says Jacobs. Training of physicians and other hospital staff in good laboratory practices in clinical bacteriology is another critical ingredient in this work.

“By addressing the healthcare context in this way our projects look to increase quality standards and instate better working relationships. This should make for trustworthy results that doctors can use as pivotal tools in their diagnostic decision making. And in the case of bacterial infections this is good news as clinical lab results are crucial tools against antibiotic misuse.”

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Prof. Jan Jacobs

A SHINING EXAMPLE IN RURAL BURKINO FASO

Meet Issa Guiraud, a PhD student who is studying antibiotic resistance in the community of Nanoro, Burkina Faso. A medical doctor, Guiraud works at the Clinical Research Unit of Nanoro (CRUN). This research centre was set up by another illustrious ITM alumnus, Halidou Tinto. Tinto began the clinic in 2008 with ten staff, it now has over 200.

Guiraud is an excellent example of how educating doctors in laboratory practices can help. â€œWhen I did my studies at the National University of Burkina Faso and we received the lab results I would look at them but with next to no understanding. Even when you would go to the professors with the results they would tell you they werenâ€™t right,â€ he says with a slightly embarrassed smile.

At CRUN this is different â€“ they have implemented quality systems and are training physicians on the labs and the value and dependability of their results. This is supported by a sound infrastructure with mains water and power (including a generator and a solar back-up system) that are necessary for the often temperamental bacterial cultures involved in diagnosing bacterial infection.

â€œI have worked in clinics and laboratories in Tanzania where they didnâ€™t have confidence in the lab,â€ says Marjan Peeters, the microbiologist working with Giraud at the ITM reference lab in Belgium where he is verifying his research results. â€œCRUN is an exceptional local example. With its best practices it can have a lot of impact on other health clinics in its region.â€