

## Network building and knowledge exchange with telemicrobiology

Despite increasing awareness of the effect of bacterial infections and the global threat of antimicrobial resistance, laboratory capacity in bacteriology is a weak and neglected pillar of health systems in low-income and middle-income countries. Although training of laboratory staff in technical laboratory procedures seems fairly easy, the typically brief encounters in which such training is usually provided do not allow staff to become sufficiently experienced to undertake and interpret such procedures independently and to guarantee sustainable quality of activities. There is a general shortage of teaching and training capacity in microbiology.<sup>1,2</sup>

We would like to draw your attention to the interactive telemicrobiology programme, which was conceived to ensure sustainable training efforts, quality management systems, and interactions between clinicians and microbiologists. In telemicrobiology, a digital camera designed to produce high-resolution images of bacterial cultures with dedicated software is used to share images of primary cultures and susceptibility test results through the internet, to prompt discussion of these images in the context of a clinical case with use of Skype and TeamViewer free software. These virtual laboratory rounds are supported by tailor-made digital microbiology courses, which can be accessed online and offline. The telemicrobiology concept provides a means for continuous education and interaction between peers to discuss and share findings of daily routine bacteriological work, including test results, interpretation, and reporting. By contrast with typical electronic learning programmes, the telemicrobiology concept is highly interactive, demand driven, and continuous, at low sustainability costs.

We assessed the feasibility and short-term effect of the telemicrobiology programme in Vietnam and the Netherlands. Four clinical microbiology laboratories in Ho Chi Minh City and provincial southern and central Vietnam, and one in the Netherlands, collaborated for 2 years to develop the infrastructure and digital education courses for a 6 month pilot of bi-weekly interactive virtual laboratory rounds (figure). Focus group discussions during and after the 2 year programme showed immediate improvements of laboratory practices and increased interaction between microbiologists and clinicians. Proficiency panels showed improvement of performance. Virtual laboratory rounds are continuing today after termination of the programme in 2012, emphasising the sustainability of this approach. More hospitals in southeast Asia are now joining the network.

Provision of direct peer-to-peer interaction with digital learning and imaging techniques fulfills a need among professionals working in clinical microbiology. Telemicrobiology provides the means for education, communication, and exchange of laboratory results to improve technical skills and clinical decision making in a sustainable way.

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- 2 Petti CA, Polage CR, Quinn TC, Ronald AR, Sande MA. Laboratory medicine in Africa: a barrier to effective health care. *Clin Infect Dis* 2006; **42**: 377–82.



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For more on telemicrobiology see <http://www.rockhopper.tv/films/detail/identifying-bacteria-on-video-link>



Figure: Interactive laboratory round with participants in Ho Chi Minh City, Vietnam (A), and Amsterdam, the Netherlands (B)