

## The contributions of Steve Lawn to the science, advocacy and policy of HIV-associated TB

IT IS WITH GREAT SADNESS that we learned about the death of Steve Lawn. To commemorate his groundbreaking and influential work on human immunodeficiency virus (HIV) associated tuberculosis (TB), we aim to highlight several of his most notable contributions to research and advocacy.

Professor Lawn will be remembered for his trailblazing work on improving the diagnosis of HIV-associated TB. Given the ‘irreversible cost of delayed diagnosis of TB in PLHIV [people living with HIV]’,<sup>1</sup> he argued for ‘stretching diagnostics to their limits’<sup>2</sup> and refused to accept the status quo of ‘outdated technologies that are blunt and ineffective tools’ for the diagnosis of TB in PLHIV.<sup>3</sup> Through rigorous studies, he evaluated current and new diagnostics for their accuracy and impact on important clinical outcomes among these most vulnerable patients. Based on sound evidence, he supported the systematic use of culture,<sup>4</sup> and later Xpert® MTB/RIF,<sup>5</sup> in the screening for TB in PLHIV eligible for antiretroviral treatment (ART), even among those without classical TB symptoms. He was also a tenacious advocate for the use of lipoarabinomannan (LAM) for the diagnosis of TB in PLHIV, publishing 20 papers describing the underlying pathophysiology and documenting the clinical usefulness of LAM-based tests. His work on LAM started with the evaluation of a serum test in Ghana in 1997,<sup>6</sup> evolved to descriptive studies<sup>7,8</sup> and a still ongoing clinical trial,<sup>9</sup> and culminated in the World Health Organization policy guidance for use of lateral flow urine LAM for the diagnosis and screening of active TB in PLHIV. While recent promising developments in TB diagnostics may have eroded the sense of urgency to do more, Prof Lawn provided a steadfast voice in support of the importance of continued investment in the developmental pipeline for rapid, accurate, affordable and implementable point-of-care diagnostic tests.<sup>10</sup>

Prof Lawn was deeply committed to the prevention of the hundreds of thousands of HIV-associated TB deaths occurring each year in sub-Saharan Africa, and used his influential position to challenge the lack of urgency in the global response to this crisis. He asked pointedly ‘when will we act?’<sup>11</sup> and wrote that ‘the need for action was no less urgent now [in 2014] than it was 25 years ago’.<sup>12</sup> Prof Lawn was one of the first to highlight that the DOTS strategy alone was insufficient to control the HIV-associated TB epidemic.<sup>13,14</sup> By wondering ‘will ART do it?’, he advanced the debate on the role of ART in controlling the TB-

HIV epidemic in sub-Saharan Africa, and advocated to ‘shut the stable door early’ through implementation of treatment as prevention and test and treat strategies.<sup>15</sup>

We will miss Steve’s intelligence, scientific integrity, passion for public health, and vision for a better life for those living with HIV and TB. His mission to improve the public health response to HIV-associated TB remains an unmet goal. We believe that Steve’s work and tenacity serves as a template for how we can advance both science and policy in support of a brighter future.

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