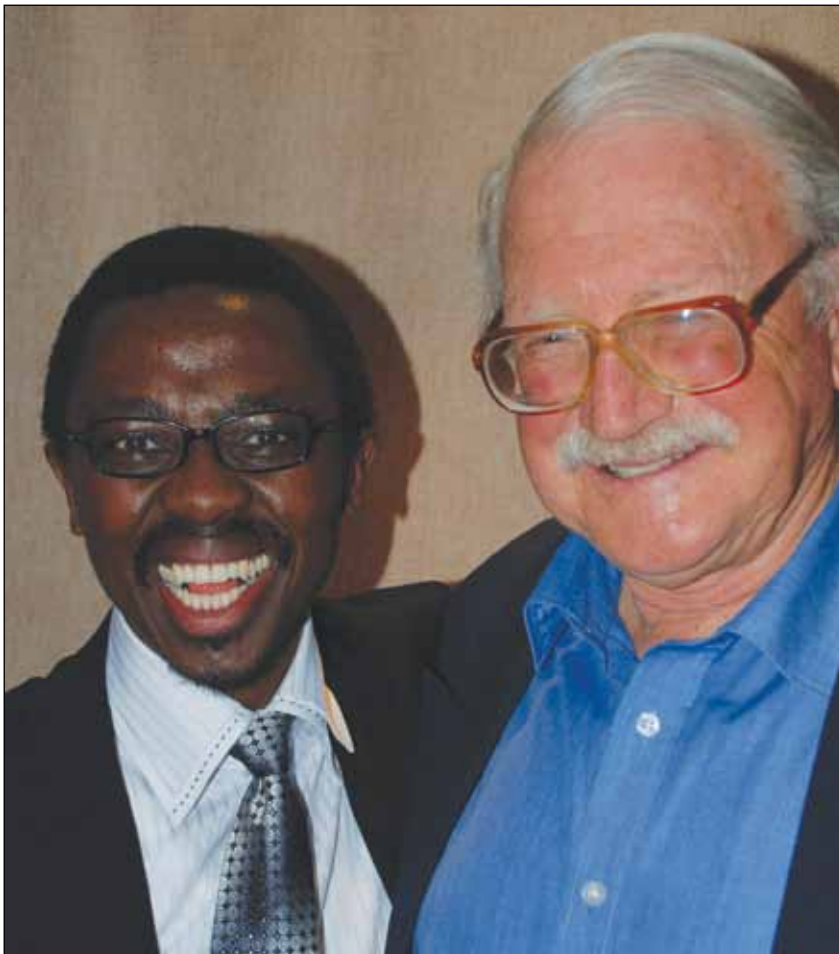


## SA's clinical research output in crisis



Professor Bongani Mayosi, Head of the Department of Medicine at the University of Cape Town (UCT) and campus colleague, Professor Wieland Gevers, former chief executive of the Academy of Science of South Africa (ASSAf).

Picture: Chris Bateman

**There are just five black African clinical research scientists with a strong publication record in South Africa – part of an ageing, shrinking and grossly under-funded academic cadre that creates the ongoing knowledge so vital to handle our debilitating epidemics.**

That is according to Professor Bongani Mayosi, Head of the Department of Medicine at the University of Cape Town (UCT), and Chief Specialist at Groote Schuur Hospital. Mayosi helped convene a workshop of the country's top health science educators to brainstorm curricular mechanisms to address the overall paucity and advise government. Speaking during the 15 July workshop, aimed at increasing both the quality and quantity of PhDs in the clinical sciences at South African and African medical schools, Mayosi said that while the principle of centralised

funding of academic health complexes had finally been accepted by the Minister of Health,<sup>1</sup> clinical research funding remained an alarmingly low government priority. 'South Africa is a predominantly black country. That we have five or less black African clinician scientists with a strong record of published papers – in other words real scholars – is pretty bad. Why? Well, we've simply not invested in

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### Font of knowledge creation drying up

Mayosi said less than 1% of all health care professionals in the country had a PhD as an addition to their professional degree, which meant that the crucible of South Africa's knowledge creation had insufficient capacity to help stem the regression of life expectancy to 1955 levels (from 70 years old in 1990 to 50 currently). This percentage of leaders, teachers and innovators were trained in how to create knowledge (as against using it), an aspect that had long been sorely neglected.

Mayosi described the Academic Medicine Project as like a 'holy trinity', with three joint, inseparable components. 'You have to have a clinical service upon which you are teaching and training doctors and nurses (two legs), but you also need to be producing new knowledge. We had a (provincial) funding governance mechanism that put health academia in no-man's land.<sup>1</sup> That has now been solved – at least in principle – by the acceptance of the need for central governance and funding of academic health complexes (as originally envisaged in the National Health Act of 2003). But the second problem is that, while there is clear funding for the health service and increasing money for clinical training, there is minimal funding for health research – so the overall holy trinity is being deprived of nutrition!'

A central aim of the country's top health educators is to cost the funding of health research so that academics in teaching hospitals are not just employed and paid by the relevant hospital but by a central authority so they can practise, teach and do research.

### UCT leading the way – but campus co-operation vital

Professor Arie Katz of the Division of Medical Biochemistry at UCT's Medical School said his campus was leading the way in producing clinical researchers by the introduction of research degree programmes (MB ChB/BSc (Med) Honours and MB ChB/PhD) to medical students in parallel with their medical studies. According to Mayosi, these programmes would provide a sustainable training conduit for cadres of young clinicians/scientists that would revitalise and increase clinical research capacity. He warned however that unless universities worked together instead of

devising their own degrees in silo fashion there would be little chance of achieving equity between campuses. Mayosi and Katz are spearheading the initiative and have received the UCT Vice-Chancellor's Strategic Fund Award to provide 'pump priming' for the initiative until 2013. A working committee from the workshop will be drafting a funding proposal that embraces the Wellcome Trust and other funders, and distils all contributions to achieve long-term goals and actually change current government policy.

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Ms Glaudina Loots, Director of Health Innovation in the Department of Science and Technology, said the recommendations of a 13-member study panel appointed by the Council of the Academy of Science of South Africa (ASSAf) had been approved.<sup>2</sup> (Many of the workshop members were part of the high-level panel.) 'The strategic goal-oriented outcomes have been discussed and approved across (government) portfolios, so we can stick our noses into different government departments and we're looking at strategies as a result of the report,' she said to chuckles in the room. An overall strategy would be tabled for discussion with the Department of Higher Education and Training, the Health Department and finally with Treasury to identify 'gaps needing filling'. Conceding there was a 'crisis' in clinical research, Loots said clinical trials had instead taken centre stage, hogging the limelight while generating R2 billion per annum in mainly external contract research with extremely limited indigenous trials. 'This is why we need to cost and ensure we can afford to put young students into PhD programmes to revitalise indigenous clinical science,' she added.

In his opening address Professor Danie Visser, UCT's Deputy Vice-Chancellor, said fellow academics at the Karolinska Institute in Stockholm (which appoints the laureates for the Nobel Prize in Physiology or Medicine) confided in him a year ago that if South Africa were to win a Nobel prize, it would probably be for TB research. This highlighted

huge existing potential which required only local investment 'to hand us back the agenda for clinical research and establish us as world leaders'. The co-incidence in South Africa of a high burden of disease coupled with high expertise in research made it 'a crime to ignore the possibility presented to make a difference in the world'.

### Supervision dilemma

Professor Eric Bateman, head of UCT's groundbreaking research-to-practice Lung Institute, warned of the 'enormous challenge' of sourcing mentors to train PhD students because of their low numbers and heavy clinical workloads.

A bibliometric analysis of research by Professor Michael Kahn, Research Fellow at Stellenbosch University's Centre for Research Evaluation of Science and Technology, showed that South Africa's overall research publication output went from 20 892 between 1990 and 1994 to 33 671 between 2004 and 2008. The output of research papers in medicine, general and internal, dropped from 2 280 between 1990 and 1994 to 1 556 between 2004 and 2008. A headcount of researchers in all fields stood at 30 000, putting South Africa at a level Korea was at 30 years ago. Between 1992 and 2007 full-time researchers in South Africa's business sector grew from 3 395 to 6 264, government (including the science councils) from 2 428 to 3 058, while higher education went from 3 631 to 3 672.

'The message here is we're in trouble both in the government and the higher education sectors,' Kahn said.

He said that, in general, the policy of substituting black clinical researchers for white male clinical researchers had not contributed to overall growth. The total national output of PhDs in the natural sciences (including health sciences) for 2006 stood at 518. Of those graduates, over 100 were 'our cousins' from the South African Development Community (SADC) countries. 'When they qualify (the locally funded "cousins"), they take all those years of effort with them to Hamburg and Houston – this has to be the most altruistic strategy one could possibly design – I don't know of any other country so hell bent on shooting itself in the foot,' he said caustically. Harking back to Professor Bateman's warning, he said the Department of Science and Technology was living a fantasy with its PhD growth target of 500%, because that would mean increasing the number of supervisors by a similar number. 'Sure, they know what needs to be

done, but they haven't thought about how,' he said. The extent to which academic clinical hospitals were disappearing from the radar in publishing academic papers was alarming, as was the precipitous drop in the overall published output of clinical research. Kahn highlighted one positive trend however – the rise by 500% of publications in infectious diseases and related immunology, virology, and public health.

Professor Wieland Gevers, described by Mayosi as the 'driving force' behind the pivotal ASSAf report,<sup>2</sup> said revitalising clinical research was in the national interest and required efficient and supportive management and encouragement 'at all levels'. A sustainable health care system required guidance by a critical mass of research-experienced clinicians and the continuous training of new generations of 'research-informed clinicians'.

The ASSAf report recommends several ways to address the declining size and increasing age of the clinical research workforce, plus the paucity of effective training programmes and unattractive career-pathing in the sector. It found the health care system unable to cope with the increasing demands of clinical service imposed by the colliding epidemics of infectious and non-communicable diseases. There was also no national plan to provide co-ordinated support for the training and development of clinical researchers, with grossly insufficient support for research professorships and training fellowships in clinical research. It suggests a target of 500 PhDs in clinical research over the next decade, with 30 Research Chairs earmarked for the clinical sciences and at least one state-funded clinical research centre for each of the eight academic health complexes.<sup>2</sup>

One mechanism for shortening the PhD qualification time which most workshop participants agreed upon was to conditionally shorten or do away with their period of obligatory community service – as a PhD graduate contributed hugely to community service through the production of new knowledge to overcome the major health challenges that face the people of South Africa.

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