

Innovative strategies to improve human resources for health in Africa: The SURMEPI story

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The US President's Emergency Fund for AIDS Relief (PEPFAR) has responded to the need for the upscaling of Africa's health workforce by investing in medical education on the African continent. The Medical Education Partnership Initiative (MEPI) aims to: enhance the quality of medical education and quantity of medical graduates; facilitate retention of medical faculty and graduates; and enhance locally relevant research. Stellenbosch University Rural Medical Education Partnership Initiative (SURMEPI) strives to develop, implement and evaluate innovative, workable and effective medical education models, in order to strengthen medical education and health systems within rural and resource-constrained environments. The purpose of this forum piece is to describe the SURMEPI project as background to the research articles emanating from SURMEPI in this *AJHPE* edition. SURMEPI's overall focus is on innovations and interventions in high schools, undergraduate medical education, postgraduate and continuing medical education, e-learning and collaborations, of which some highlights and challenges are described here.

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In Africa the number of doctors and nurses required to provide essential health services will be deficient by an estimated 800 000 in 2015, resulting in the crippling of an already compromised health system.^[1] Much has been written about the need for adequate numbers of healthcare workers to address the health challenges facing the people of Africa.^[2,3] At the same time, there is considerable international focus on transforming and scaling up health professionals' education and training, calling for sustainable and contextual reforms which will strengthen health systems and improve population health outcomes.^[4] The World Health Organization's building blocks for effective health systems include a well-performing health workforce that is equitably distributed and responsive to the needs of the population.^[5] The health workforce will thus need to be not only clinically competent, but hold competencies, skills, knowledge and behaviours on how to function within a resource-constrained environment as socially responsible change agents that make a difference to their communities.^[4,6,7]

The Medical Education Partnership Initiative (MEPI) is a US President's Emergency Fund for AIDS Relief (PEPFAR)-funded response to improving human resources for health in Africa and focuses on three aims, namely:

increasing human resource capacity through enhancing the quality of medical education and quantity of medical graduates; facilitating the retention of medical faculty and graduates; and enhancing locally relevant research.^[6] Thirteen African medical schools received programmatic awards and an additional 17 African and 18 US medical schools are involved in building communities of practice and creating sustainable solutions.

The Faculty of Medicine and Health Sciences (FMHS) at Stellenbosch University (SU) is one of two medical schools in South Africa (SA) funded by MEPI. SA faces similar human resource challenges to other African countries. Between 2002 and 2010, 12 000 doctors graduated nationally with only 4 400 choosing to work in the public sector.^[8] The situation is particularly critical in rural areas, where 43.6% of the population reside, but are served by only 12% of doctors and 19% of nurses.^[8] This has resulted in poor infant mortality rates in rural areas of 80/1 000 live births compared with 54 in urban areas.^[8] MEPI at SU therefore focuses on improving the human resources for health in rural areas. This article describes the Stellenbosch University Rural Medical Education Partnership Initiative (SURMEPI) as background to the research articles in this *AJHPE* edition, and its response to the challenges as outlined above, from the perspective

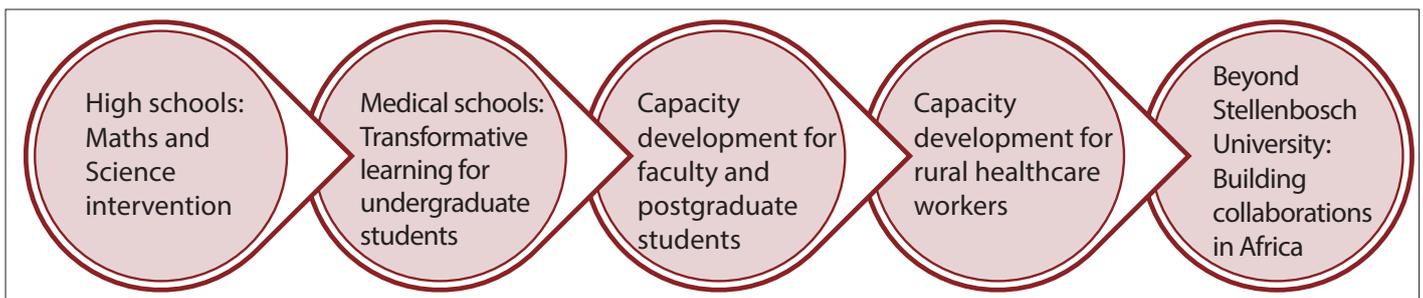


Fig. 1. The SURMEPI pipeline.

of the author and co-author. Permission to publish was provided by the funders and project management.

Addressing the pipeline - SURMEPI vision and focus

SURMEPI strives to develop, implement and evaluate innovative, workable and effective medical education models, in order to strengthen medical education and health systems within rural and resource-constrained environments. This is in keeping with the South African Department of Health Human Resources for Health Strategy 2012/13 - 2016/17 which seeks to implement a rural health strategy to attract and retain health professionals in rural areas.^[8]

SURMEPI addresses the pipeline for developing human resources for health from high (secondary) school learners, undergraduate and postgraduate students, faculty staff, to practising healthcare workers. Fig. 1 shows the elements of the pipeline that are addressed by SURMEPI.

Strengthening the health system by addressing gaps in the pipeline

Recruitment of learners

Selecting medical students from rural and underserved areas is outlined as a strategy to improve human resources for health in rural areas as rural-origin students are more inclined to choose rural careers.^[9,10] However, learners from these areas perform poorly in gateway subjects such as Mathematics and Physical Science.^[11] The Stellenbosch University Area Health Education Centres (SU-AHEC) project focuses on preparing rural school learners from underserved communities for tertiary education in the health professions in these subjects as well as life skills development. It also supports teacher development in Mathematics and Physical Science. The project has enrolled more than 400 learners from grades 7 - 11 in rural areas of the Western Cape.

Undergraduate medical education

SURMEPI embraces the concept of training change agents in order to improve health systems and health outcomes.^[2,4,7] For undergraduate students, this is accomplished by changing what, how and where they learn. The curriculum has been revised to include more community-based education, primary healthcare and public health. Students learn to understand their patients' environments, social determinants of health and the poor functioning of health systems, which adversely affect these same

communities. They are encouraged to work towards improving health systems and health outcomes.^[12]

Results from our efforts in changing the context in which students are trained through early and progressive training at district and rural health facilities are yielding evidence of transformative learning experiences for students, staff and the faculty, examples of which are provided in SURMEPI publications.^[12-14] Selected medical, occupational therapy, and dietetics students spend a full academic year of their training at the rural clinical school (RCS). Students receive early, progressive and longitudinal exposure to rural and underserved communities throughout their training at SU.^[14,15]

SURMEPI is changing the way students are learning at the FMHS by developing a culture of e-learning. All lectures (approximately 4 000) from MB,ChB 1 - 6 have been podcast. This has proved extremely popular with students, as demonstrated in the research published in this *AJHPE* edition.^[16] Some lecturers are moving towards flipped classrooms where students view online pre-recorded lectures followed by in-class discussion and interaction as opposed to the traditional didactic-only lectures. Students reported that podcast lectures promoted their active learning as well as being a novel and fresh way to deal with content. The podcasts complement and provide ease of mind in students' preparation for examinations.^[16] Our work in e-learning generated interest from MEPI schools and other SA universities, leading to the development and implementation of an e-learning strategy at the FMHS. A user-friendly content management system (CMS) serves as a repository for the podcasts and other relevant resources for students. Secondly, a 'bring your own device (BYOD) system' for examinations was implemented to increase the number of students that can take online exams at the same time.

Building capacity for faculty, postgraduate students and rural healthcare workers

Capacity building is an essential part of any strategy to renew and align medical training. To this end SURMEPI is engaged in a wide variety of capacity-building efforts across a spectrum of activities, including a focus on leadership and management for rural clinical trainers, evidence-based healthcare, infection, prevention and control and research capacity for faculty and health workers. The model of training for healthcare workers employs online learning, as well as mentoring and coaching on site rather than removing staff from their duties. Bursaries are awarded to Masters and Doctoral students to support their studies in relevant rural fields.

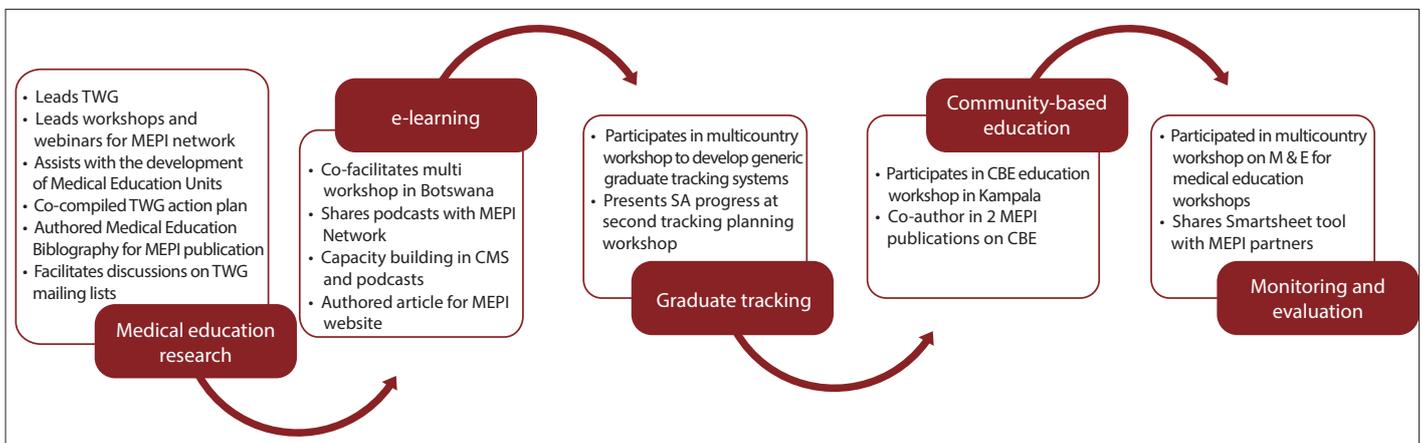


Fig. 2. SURMEPI contributions to MEPI Technical Working Groups (TWGs). (M & E = monitoring and evaluation)

Collaborations and partnerships

SURMEPI is committed to the sharing of our achievements beyond the FMHS not only through publications (31) and conference presentations (98, of which 26 were international presentations), but also through active knowledge and skills transfer. To this end, we have widespread collaboration with other MEPI schools including the University of KwaZulu-Natal, Makerere University (Uganda), the University of Botswana, the University of Zimbabwe, the University of Zambia, and Kenyatta University (Kenya). These collaborations include promoting primary healthcare models through the development of Family Medicine, building competency in biostatistics, evidence-based healthcare and through rural student electives.^[17] SURMEPI is also partnering with the Academy of Science of South Africa (ASSAf) in influencing national policy through a consensus study on transformative medical education in SA.

Being part of the MEPI network has been hugely rewarding for SU in fostering relationships with colleagues across Africa and in the USA. It enabled us to extend and cement our networks, collaborations and partnerships. We learnt from engaging with colleagues in different contexts and settings, and this enhances our work. SURMEPI's active engagement in the MEPI Technical Working Groups (TWGs) is an example of this (Fig. 2). The TWGs provide forums for development of equal partnerships that could foster the development of an emerging African voice in medical education scholarship.

Highlights and challenges

Designing and implementing complex medical education projects requires high-level management, governance and stewardship from the project leadership. Recruitment and appointment of the appropriate staff and alignment with funder regulations, processes and procedures was a steep learning curve as donor funding has not traditionally been awarded to medical education initiatives. Developing and discovering appropriate tools for monitoring and evaluation such as real-time online systems simplified our task.

If there is to be any lasting advantage of this large MEPI injection into medical education on the African continent, MEPI should be able to optimise impact through catalysing change and building sustainability. In the SURMEPI experience, curriculum renewal, transformative learning experiences, integration of innovations into the curriculum, e-learning, staff development, research, dissemination of evidence gathered, TWG participation and policy influences are all factors that contributed towards leveraging significant change in the FMHS.

The sustainability of the SURMEPI interventions has been supported through the institutionalisation of curriculum changes, a multidisciplinary

informed curriculum using faculty across boundaries such as departments and disciplines, health system strengthening activities entrenched into the health services, active collaborations and partnerships in-country and across Africa and extensive capacity building. Perhaps MEPI's lasting effect lies in our empowerment to change policy, curriculum and actions, actively addressing human resources for health challenges, in our particular context and environment.

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