

Universities in transition to improve population health: A Tanzanian case study

Journal of Public Health Policy (2012) 33, S3–S12. doi:10.1057/jphp.2012.52

Introduction

This special issue addresses the role of universities in promoting population health, particularly through the education of health professionals. The papers are set in Tanzania and describe activities that arose from a collaboration between the Muhimbili University of Health and Allied Sciences (MUHAS) in the United Republic of Tanzania and the University of California San Francisco (UCSF) in the United States, through the Academic Learning Project (ALP) supported by the Bill & Melinda Gates Foundation.¹

The hypothesis underlying our work is that academic institutions can work with health systems to provide health professionals with adequate pre-service and continuing education to prevent and reduce the disease burden of populations; and that collaboration between academic institutions can provide opportunities to develop and share best practices, for example, in curriculum development, teaching and assessment methods, and faculty development.

The emphasis in these papers is on the training of health professionals because their shortage in Tanzania is disproportionately high compared with other types of health workers. Traditionally, Tanzania has relied on mid-level health workers trained by the Ministry of Health and Social Welfare – to the extent that Tanzania is among African countries with the highest proportion of such workers.² Thus, in addition to an extreme shortage of all types of health workers, Tanzania urgently needs qualified supervisors for all elements of the health system (community level protection and prevention as well as medical care) and specialists to whom patients can be referred by primary care clinicians.

Many Tanzanians living in rural areas have limited access to and expectations of adequate care with the result that morbidity and mortality rates are high. For example, in Tanzania, for every 1000 births approximately five women die of pregnancy-related conditions and

26 children die before reaching 1 month of age;³ malaria accounts every year for the deaths of 60 000 people of whom 80 per cent are under 5 years of age;⁴ and 1.4 million people live with HIV and about 40 per cent of those who need anti-retroviral treatment receive it.⁵

The health system needs: qualified public health specialists to plan and implement community-wide programs to prevent malaria, malnutrition, and tuberculosis; medical doctors to run hospitals that are able to prevent mothers from suffering postpartum hemorrhage, babies from dying of birth asphyxia, children dying from asthma, and patients experiencing sepsis after surgery; and nurses to provide ante-natal care to pregnant women who may deliver at home, and to make timely and appropriate referrals of patients from dispensaries to hospitals.

To fulfill its vision of 'access to basic, equitable affordable and quality health services for all', the Government of Tanzania is calling on universities to rapidly scale up their output of health professionals – doctors, nurses, dentists, pharmacists, public health workers, and others.⁶ Building on its long experience as a college of the University of Dar es Salaam, MUHAS gained its charter in 2007 with a mission to prepare the best health professionals to run the country's health system.⁷ We describe MUHAS's early efforts to introduce educational innovation to meet national development targets and to fulfill its mission.

By focusing on one institution in one country, the papers in this supplement demonstrate the challenges involved in massive university transitions to better contribute to improving health. The lessons learned in this collaboration will interest staff of universities and ministries in other countries challenged to improve health and to provide better care for all of their people.

Approach and Process

The 3-year ALP was packed with activity for the MUHAS–UCSF Partnership. MUHAS's urgency to revise its curricula, and to make other institutional changes, put pressure on already over-worked faculty and administrators. Although we did not set out for this to be a research project, we did intend to document what we did. In March 2011, in Dar es Salaam, we brought together key ALP contributors (representing different sets of ALP activities), and asked them what they would like to write about. Natural writing teams emerged and began drafting papers; along the way, some papers merged with each other, some did not

come together, and others emerged. After completion of the project in October 2011, with significant editorial advice from Phyllis Freeman, we worked closely with the 56 authors to complete the writing and submit the papers by the end of August 2012. We shared each paper, with the exception of commentaries, with reviewers who had published in the same field, and we ensured that most reviewers had experience either in Tanzania or in other parts of Africa. Our reviewers were exceptionally responsive, providing insights that enabled us to revise and improve the papers. Sarah Macfarlane, Phyllis Freeman, and our copy-editing team edited all papers for consistency and quality and to comply with *JPHP* standards.

Themes and Focus of the Special Journal Issue

The supplement opens with four commentaries that set the scene for the subsequent articles. In the first paper, *Partnering on education for health*, Kisali Pallangyo, Haile Debas, and colleagues introduce the partnership between MUHAS and UCSF, providing the background for why we set out to work together. They differentiate the way we worked from how more traditional research collaborations function, as the ALP involved many participants and worked closely across schools at both institutions. Two commentaries by Gideon Kwesigabo and colleagues provide the Tanzanian context in which the work was set, in *Health challenges in Tanzania: Context for educating health professionals* and *Tanzania's health system and workforce crisis*. Tanzania's population of about 45 million struggles to live in healthy environments without substantial threats to health from mosquitoes or dangerous transportation; and to gain access to quality care, suffering high disease burdens. Mothers and children die unnecessarily, and people live with HIV/AIDS, malaria, and tuberculosis while also suffering from increasing prevalence of heart disease and cancers. About 70 per cent of the population live in rural areas and have limited access to adequate health facilities. The health system depends on a range of health-care workers of whom skilled health workers are in the minority. Hence, it is all the more important for universities to educate health professionals to lead the health system in providing protection from avoidable threats to health, and preventive and curative care. In *Emergence of a university of health sciences: Health professions education in Tanzania*, Charles Mkony traces the origins of MUHAS back to the formation of the United Republic of Tanzania. He

reflects on the early drive by Tanzania's first President, Julius Nyerere, to make education available to all, and for health services to reach the most rural areas, marking the start of education for the medical, dental, pharmacy, public health, and nursing professions in Tanzania; and Mkony comments on the challenges facing MUHAS as it becomes a university, alongside several other newly emerging health professions schools in Tanzania.

Educational transformation to meet Tanzania's health challenges

In the first five original articles, members of the ALP team explain the process by which MUHAS revised its curricula and the contributions made by both MUHAS and UCSF to that process. In the first paper, *Curricular transformation of health professions education in Tanzania*, Olipa Ngassapa, Ephata Kaaya, and an inter-disciplinary group of colleagues from MUHAS and UCSF describe how, over a 3-year period, MUHAS transformed its educational approach – from teaching students content, or knowledge, to facilitating them to learn how to integrate knowledge, skills, and attitudes for application in workplaces to perform well as professionals in Tanzania. The curriculum is now characterized by 'competencies' each student is to demonstrate as the basis for graduation (competency-based education). In *New curriculum in dentistry for Tanzania*, Peter Loomer, Joyce Masalu, and colleagues describe what this educational transformation meant for dental education in Tanzania – MUHAS having the only school of dentistry in Tanzania. In *Clinical pharmacy to meet the health needs of Tanzanians*, Sharon Youmans, Olipa Ngassapa, and Mhina Chambuso show how the MUHAS School of Pharmacy used this opportunity to begin to evolve the role of pharmacists from providers of drugs to become partners in patient care teams and contributors to public health programs. In *Emergency care capacity in Africa: A clinical and educational initiative in Tanzania*, Teri Reynolds, Juma Mfinanga, and colleagues working in the newly renovated Emergency Department at Muhimbili National Hospital (MNH) highlight the importance of trauma care in Africa and describe how the MNH, in collaboration with MUHAS, is training the first emergency care physicians in Tanzania. Finally, in *First steps towards interprofessional health practice in Tanzania*, Sebald Leshabari, Lindsey Lubbock, and colleagues describe an educational experiment where faculty asked students from pharmacy, nursing, medicine,



and public health to work in interprofessional teams in a rural district, considering patient care and the public health context from each other's perspectives.

Building the capacities of faculty to lead institutional transformation

Authors of the next three original articles tackle the challenges facing faculty in supporting their institutions through major educational transition. In *Teaching and educational scholarship in Tanzania*, Charles Mkony, Patricia O'Sullivan, and an inter-disciplinary group of colleagues outline MUHAS's strategy to build faculty capacity to teach the new competency-based curricula; the authors also provide a comprehensive list of educational resources to assist other institutions planning to introduce faculty development programs. In *Health professions educators as agents of change in Tanzania*, Doreen Mloka, Selma Omer, and colleagues present how MUHAS and UCSF cultivated a group of MUHAS junior faculty to become an interprofessional group of educators. They, in turn, are developing similar skills among other faculty and postgraduates at MUHAS – concentrating on skills to teach and assess competency-based education. Finally, in *Focusing university expertise in Tanzania on national health priorities*, Joyce Masalu, Muhsin Aboud, and colleagues describe MUHAS's development of its first institutional research agenda that encourages faculty to direct their expertise toward national health priorities. Recognizing the link between research and education, MUHAS chose health professions education as one of ten priority research themes.

The issue concludes with two reflective pieces. In their viewpoint, *Tracking university graduates in the workforce*, Senga Pemba, Sarah Macfarlane, and colleagues highlight the gap in information between graduation, professional registration, and employment of health professionals; they emphasize the benefits to universities in cooperating with ministries, professional bodies, and others collecting human resource data – obtaining feedback about the education they provide and its relevance to the workplace. Finally, in *An opportunity for student fieldwork in global health academic programs*, Molly Fyfe, a student of public health who became a member of the ALP team, relates her capstone experience working with the ALP and suggests that participation in educational projects provides valuable insights for students of global health.

Conclusions

In 2010, after we had begun our work together, the *Lancet* published the findings of a commission on education of health professionals for the twenty-first century.⁸ The commission and others observed that little is written about the processes of health professions education; especially true for Africa. We hope that by describing our preliminary work in the *JPHP*, we can engage the public health and higher education communities in identifying how to critically assess and strengthen the link between the education of health professionals, best practices, and health outcomes.

We suggest that a critical mass of well-educated and competent health professionals can influence the health system in which they work and improve health outcomes, through the public health programs and clinical care they provide, and by raising standards through good practice and appropriate supervision. However, the ability of these health professionals to perform depends on the adequacy of the health system to employ and facilitate them to practice what they have learned. It is crucial that universities, and ministries of education and of health work together long term to document and evaluate educational reforms such as those we have described, and that universities recognize and promote research that links the performance of both the health and education systems.

Acknowledgements

The Bill & Melinda Gates Foundation provided financial support for the activities we describe in this supplement, including its preparation. We are enormously grateful to the following people without whom there would be no supplement:

- Phyllis Freeman and Anthony Robbins who, as the editors of *JPHP*, provided their professional advice and encouragement through the development and writing of the papers;
- Neil Henderson and Dave Williams from Palgrave Macmillan who patiently and graciously oversaw the quality and timing of the final product;
- Phyllis Freeman who, as a consultant to the ALP, worked endlessly and tirelessly with authors inspiring us to stretch our writing styles



beyond our scientific comfort zones, and to make the material readable to a broad audience;

- Patricia O’Sullivan, a senior member of the UCSF ALP Educational team, who read most of the papers and provided constructive advice and encouragement especially as we reached our deadline;
- Lucy Honig, Will Hector, and Victoria Ruddick who provided skilled and insightful editorial advice and assistance;
- Lindsey Lubbock, Mercy Mpatwa, Gary Koehler, and Atour Malko who so efficiently organized the start of the writing process.

We thank 31 reviewers from 12 countries, whose generosity with time and thought has been invaluable. We greatly appreciate their advice and contributions to improving the papers. The distribution of reviewers across countries is: Australia (2), Canada (2), Ghana (1), India (1), Malaysia (1), Mexico (1), South Africa (3), Sweden (2), Uganda (2), the United Kingdom (4), the United Republic of Tanzania (5), and the United States (7). The individuals to whom we extend our thanks are:

Claire Anderson, the United Kingdom; Mohamed Azmi, Malaysia; Hugh Barr, the United Kingdom; Brownell Anderson, the United States; Candice Chen, the United States; Peter Donkor, Ghana; Judith Fullerton, the United States; Heike Geduld, South Africa; Janice Gidman, the United Kingdom; Charles Grant, Canada; Thomas Hall, the United States; Mildred Kinyawa, the United Republic of Tanzania; Edward Kirumira, Uganda; Andrew Kitua, the United Republic of Tanzania; Beatus Leon, the United Republic of Tanzania; Anna Löfmark, Sweden; Malaquías López-Cervantes, Mexico; Colin McCord, the United Kingdom; Michelle McLean, Australia; Karen Novak, the United States; Celestino Obua, Uganda; Petro Pamba, the United Republic of Tanzania; Senga Pemba, the United Republic of Tanzania; Patricia Riley, the United States; John Ross, Canada; Willie Snyman, South Africa; Jill Thistlethwaite, Australia; Mandeep Viridi, India; Johan Von Schreeb, Sweden; Lee Wallis, South Africa; and LuAnn Wilkerson, the United States.

This partnership was inspired by the vision of Haile Debas, the Founding Executive Director of Global Health Sciences at UCSF, and Kisali Pallangyo, then Vice Chancellor of MUHAS. We recognize their energy and commitment to make this partnership work and thank them for their unceasing support. We also appreciate the continued support

for the partnership by Jaime Sepulveda, now the Executive Director of UCSF Global Health Sciences.

We thank and acknowledge the many energetic people who contributed to or supported the activities described in this supplement:

Core Academic Learning Project team: Molly Fyfe, Alex Goodell, Kate Gorman, Dominicus Haule, Joel Israel, Reena Gupta, Gary Koehler, Chloe LeMarchand, Lindsey Lubbock, Mariam Madiwa, Atour Malko, Mercy Mpatwa Masuki, Peter Mbago, Nana Nachene Mгимwa, Lucy Mngao, Margareth Mrema, Mussa Mrindoko, Cat Myser, Thomas Nagunwa, Zulfa Njalumbe, and Selma Omer. *Education:* Marcus Banks, Bobby Baron, Emily Christensen, John Friend, Sharad Jain, Steven Kayser, Sebalda Leshabari, Royce Lin, Helen Loeser, Peter Loomer, Judy Martin-Holland, Sirel Massawe, Susan Masters, Naboth Mbembati, Charles Mkony, Helga Naburi, Patricia O’Sullivan, Dorothy Perry, Carmen Portillo, Victoria Ruddick, Dean Schillinger, Kevin Souza, Chris Stewart, Stephanie Tache, Guy Vandenberg, and Sharon Youmans. *MUHAS Curriculum Committee:* Muhamad Bakari, Mhina Chambuso, Rashidi Heri, Deodatus Kakoko, Apolinary Kamuhabwa, Noel Kasanjala, Edmund Kayombo, Anna Kessy, Irene Kida, Emil Kikwilu, Thekla Kohi, Gideon Kwesigabo, Joseph Magandula, Catherine Malika, Khadija Malima, Karim Manji, Emanuel Mauga, Lilian Mselle, Naboth Mbembati, Zacharia Mbwambo, Omary Minzi, Charles Mkony, Doreen Mloka, Rehema Mtonga, Emeria Mugonzibwa, Elifuraha Mumghamba, Kennedy Mwambete, Amos Mwakigonja, Olipa Ngassapa, Anne Outwater, Sira Owibingire, Sose Senya, and David Urassa. *MUHAS Health Professions Education Group:* Deodatus Kakoko, Apolinary Kamuhabwa, Rodrick Kisenge, Germana Leyna, Magdalene Lyimo, Charles Mkony, Doreen Mloka, Ted Mselle, Patricia Munseri, Amos Mwakigonja, Helga Naburi, Marina Njelekela, Sira Owibingire, Dennis Russa, Phillip Sassi, and Edith Tarimo. *Metrics:* Alya Briceno, Brian Harris, Tara Horvath, Eliangiringa Kaale, Jim G. Kahn, Meleckzedek Leshabari, Alex Luo, Joyce Masalu, Rose Mpembeni, Margareth Mrema, and Ellen Stein. *Research:* Muhsin Aboud, Daima Athumani, Nina Agabian, Mainda Chanyika, Susanne Hildebrand-Zanki, Regnier Juardo, Limi Kahabi, Bakari Lembariti, Susan X. Lin, Erik Lium, Eligius Lyamuya, Joyce Masalu, Mariam Masandika, Nana Nachene Mгимwa, Hellen Mtui, Zoanne Nelson, Charles Smukler, Titus Tibenda, and Tija Ukondwa; and *Research Award Winners:* Lorna Carneiro, Gasto Frumence, Alphonce Kalula, and Alphonce Ignas Marealle. *Administration:* Charmaine Bautista, Ann Bourns, Katia Chikasuye, Natalie Collins, Geoffrey Daily, Francisca Eugene, Markay Hopps, Paula Issangya, Ruth Kitundu, Eric Kyejo,



Donna Langston, Daisy Leo, Esther Livoga, Georgina Lopez, Margot Mahannah, Godfrey Pascal Mallya, Joyce McKinney, Nuru Mkali, Jeff Mulvihill, Paula Murphy, Rashid Mweragi, Mussa Mzuzuli, Amos Nnko, Linda Sam, Kerstin Svendsen, and Ellyn Woo. *Students, residents and post-docs*: Renata Abrahão, Soraya Azari, Kelli Barbour, Bob Bell, Joy Bhosai, Radka Cahlikova, Tobias Chacha, Shuku Charles, Bonnie Chen, Jenifrida Chilala, Courtney Crane, Monique Dail, Simeon Enoch, Rose Gallus, Cathryn Haefele, Rabia Ismael, Mkinda John, Scholastica John, Achilles Kiwanuka, Sher-Ping Leung, Yue Liang, Albert Luciana, Patience Luoga, Mugara Mahungururo, E.Y. Masunaga, Linda Milahula, Baracka Morris, Goodluck Mrosso, Peter Mwadiga, Martha Nkya, Livuka Nsemwa, Gehres Paschal, Mdegela Petro, Chuom Ramadhani, Teri Reynolds, Mastidia Rutaiwa, Linda Sam, Andrew Saunders, Michael Selemani, Lindsay Stone, Arianne Teherani, Kulwa Valentine, Fahrhan Yusuph, and Lin Zhao. *National Intersectoral Partnership Taskforce*: Selmu Abdallah, Godfrida Clement, Ephata Kaaya, Eligius Lyamuya, Leonard Mboera, Gilbert Mliga, Hassan Mshinda, David Ngassapa, and Mayunga Nkunya. *National Health Professions Education Partnership Advisory Group*: Salum Abdallah, Catherine Hongoke, Eliangiringa Kaale, Ephata Kaaya, Grace Kibaya, Eligius Lyamuya, Crispin Magori, Augustine Mallya, Sirel Massawe, Charles Mkony, David Ngassapa, Pascalis Rugarabamu, and Eunice Siaty. *Consultants*: Phyllis Freeman, Will Hector, Lucy Honig, Edward Kirumira, Kelly Low, Terry Mandel, Neema Mattee, Sidney Ndeki, and Ina Warriner. *Advisors*: Claire Brindis, Eric Brewer, Craig Cohen, John Greenspan, Robert Hiatt, Phil Hopewell, Joe Kolars, Michael Reyes, George Rutherford, Paul Volberding, and Gene Washington. *University Leadership*: Mohamed Bakari, Haile Debas, Susan Desmond-Hellmann, Richard Feachem, Bakari Lembariti, Eligius Lyamuya, David Ngassapa, and Kisali Pallangyo.

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Continuing Education and Professional Development, he served as the MUHAS Principal Investigator of the Academic Learning Project.

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