Operational research on implementation of tuberculosis guidelines in Mozambique

Brouwer, Miranda

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Acknowledgements
My statement that I was doing a PhD for fun in my spare time was often met by surprise by fellow participants of the graduate school courses. Although I had my moments of doubt, conducting the research for this thesis has been fun and a great learning experience. Part of the fun and the learning was because I worked together with many nice and knowledgeable people to whom I am very grateful.

First I would like to thank my co-promotor Frank van Leth. Without your support I would not have managed to finalise this thesis. We started talking research and a PhD long before I formally started (often at Union conferences on the way back at Gare du Nord). From protocol development to the publication of the results, you helped with almost every step. You happily did most of the more complicated statistical analysis, and showed me how to use Zotero, which I have used ever since. Not only did we talk research related themes when we met, but also other aspects of life such as good books, films, dance shows to name just a few. The manner in which you supported me is the way I now try to support others. Most of your support towards the work in this thesis you did in your spare time. A visit to Scotland to taste some samples of the Scottish water of life is my way of thanking you. The sample size still needs to be calculated.

I started out the doctorate trajectory with Martien Borgdorff as promotor, who could not see it through to the end because of his move abroad. Frank Cobelens succeeded as my promotor. Thank you both for your stimulating support in my research and writing.

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We lived in Mozambique for four years. I thank all our friends and colleagues, from Mozambique and many other places in the world, for giving us a wonderful time over there. A special word of thanks goes to Luciana, who is a friend and a colleague and a co-advocate for improving TB infection prevention and control. Your Brazilian mother tongue was really helpful when my knowledge of Portuguese failed me.

Diederike was the one ‘calling’ me to Mozambique in the first place. We have much in common: same birth year, study in Groningen (you were ahead of me), working in Zambia (again ahead of me), stories of a stolen car, research, and much more. You proofread many of the papers in this thesis. Thank you and may we continue to share good moments.

The library of Tilburg University became the place where I could focus on my research. Without distraction from the Internet and phone it is a quiet place where all one can do is work. The library possesses several useful books on qualitative research and statistical analysis, which helped with those parts. I liked working there so much that I now use the library as my office away from home.

Heleen and Wieneke, thank you for being my paronyms. Since the start of my tropical career (Heleen) en my tuberculosis career (Wieneke), you both are part of my professional life, though often at a distance. We are friends as well as colleagues and have shared many good moments in several parts of the world. Wine sampling in Enschede, hill walking in Scotland, klaerverjassen in the Okavango delta, and tasting Ethiopian food, are just a few examples of the global fun I enjoyed with you.

I thank my family. My mother, long deceased, always encouraged me to become an independent person. I dedicate this thesis to her. My father taught me lots of useful business skills, which I use regularly now that I run my own business. My brothers have encouraged me all through my life even though they may not be aware of it. Thank you all.

Paul, how would I have managed the whole project without you? Not only your rich research experience assisted my work, you also easily found the missing comma in my R syntax. Much more importantly, you have been my companion on life’s journey for almost two decades. May this journey together continue for many years to come.
Portfolio
Curriculum Vitae

2011-present: Independent consultant

2007-2010: TB/HIV advisor to National TB Control Programme, Mozambique

1991-2006: Medical officer in The Netherlands, Zambia; specialist training Public Health; TB control medical officer The Netherlands, addiction services medical officer Scotland

1983-1991: Rijksuniversiteit Groningen, Medical School

Publications


Nabukenya MG, Kawuma HJS, **Brouwer M**, Mudiope P, Vassall, A. Tuberculosis retreatment 'others' in comparison with classical retreatment cases in regional hospitals, Uganda. Submitted.


**Conference proceedings**


**Postgraduate Courses**

**Academic Medical Centre Graduate School:**
- Advanced Topics in Clinical Epidemiology, 2014
- Computing in R, 2014
- Project Management, 2013
- Basic Course Practical Biostatistics, 2012
- Clinical Epidemiology, 2012
- Infectious Diseases, 2012
- Scientific Writing in English for Publication, 2012
- Crash course, 2011

**Other:**
- DR-TB Consultant Training Course. World Health Organization, 2011
- WHO Training course on implementing the new Stop TB Strategy: MDR/XDR, TB/HIV, PPM, Infection control and more. WHO collaborating Centre, Italy, 2009

**Teaching:**
- Supply Chain Management with a focus on TB, The UNION, 2013 & 2014
- TB infection control: training for managers at the national and subnational levels. WHO collaborating Centre, Italy, 2009

**Contribution to guidelines:**


Affiliations and contributions of co-authors
Chapter 2 The effect of Tuberculosis and antiretroviral treatment on CD4+ cell count response in HIV-positive Tuberculosis patients in Mozambique.

Chapter 3 Are routine tuberculosis programme data suitable to report on antiretroviral therapy use of HIV-infected tuberculosis patients?

Chapter 4 Benchmarking to assess potential under-diagnosis of smear-negative and extrapulmonary tuberculosis. A case study from Mozambique.

For chapter 2 – 4 the co-authors are:

Paula Samu Gudo (PSG) - Ministry of Health, National TB Control Programme, Maputo, Mozambique
Chalice Magé Simbe (CMS) - Ministry of Health, Provincial Directorate, Manica, Mozambique
Paula Perdigão (PP) - Independent chest physician, Maputo, Mozambique
Frank van Leth (FL) - Department of Global Health, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands; KNCV Tuberculosis Foundation, Den Haag, The Netherlands
Miranda Brouwer (MB), PSG, PP and FL conceived the study; MB, PSG and CMS developed the study tools; MB and CMS coordinated the data collection; MB, PSG, PP and FL analysed the data. MB drafted the first versions of the manuscripts, and all co-authors provided comments and suggestions towards the final manuscripts.

Chapter 5 Health care Workers’ Challenges in the Implementation of Tuberculosis Infection Prevention and Control Measures in Mozambique.

Eliana Coelho (EC) - Ministry of Health, National TB Control Programme, Maputo, Mozambique
Carla das Dores Mosse (CDM) - Ministry of Health, Provincial Directorate, Tete, Mozambique
Luciana Brondi (LB) - Independent Consultant, Edinburgh, United Kingdom
Laura Winterton (LW) - Social Anthropology, University of Edinburgh, United Kingdom
Frank van Leth (FL) - Department of Global Health, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands
Miranda Brouwer (MB), EC and FL conceived the study; MB, EC and LB developed the study tools; MB and EC conducted the focus group discussions; MB, EC, CDM, LB and LW analysed the data. MB drafted the first version of the manuscript, and all co-authors provided comments and suggestions towards the final manuscript.

Chapter 6 Implementation of Tuberculosis Infection Prevention and Control in Mozambican health care facilities.

Eliana Coelho (EC) - Ministry of Health, National TB Control Programme, Maputo, Mozambique
Carla das Dores Mosse (CDM) - Ministry of Health, Provincial Directorate, Tete, Mozambique
Frank van Leth (FL) - Department of Global Health, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands
Miranda Brouwer (MB), EC and FL conceived the study; MB and EC developed the study tools; MB, EC, CDM and FL analysed the data. MB drafted the first version of the manuscript, and all co-authors provided comments and suggestions towards the final manuscript.
About the author
Miranda Brouwer was born in Winschoten, The Netherlands. She attended secondary school in Haren and received her *gymnasium beta* diploma in 1982. After a gap year in Switzerland, she started medical school in Groningen in 1983. She wanted to do her practical years on the island of Curaçao, but a lottery decided differently: Diaconessen hospital Groningen. An overseas alternative presented itself in the form of an elective period at the University Teaching Hospital in Lusaka, Zambia (1990). This was a decisive step in her career, and ever since, Zambia and Africa have been close to her heart.

After graduating from medical school, Miranda started the tropical doctor training programme. Equipped with obstetric and surgical skills, a diploma from the Royal Tropical Institute on tropical diseases, and lots of enthusiasm and common sense, she returned to Zambia in 1994 to work at Our Lady's Hospital Chilonga. She learned to provide medical services under challenging circumstances such as shortage of staff and materials, power cuts and lack of running water. Moreover, she practised public health in addition to clinical medicine.

Upon returning to The Netherlands early 1998, she briefly started a career in obstetrics and gynaecology, but decided that public health was more appealing. In 1999 the opportunity arose to join the Dutch TB control world, again a major decisive moment in Miranda's career. She trained as a TB doctor at the Municipal Health Services in Tilburg and the Netherlands School of Public Health in Utrecht, and qualified as a specialist in 2001.

Going overseas had great attraction and in 2004 she moved to Edinburgh, Scotland. She worked part-time as medical officer in the homeless addiction team in Glasgow and in the remaining time Miranda developed the first TB control handbook for The Netherlands.

Africa still pulled hard and when in 2006 the request 'why don't you join us' came from a friend in Mozambique, she learned Portuguese and moved. First to Chimoio in central Mozambique where she worked with the provincial TB and HIV programmes on TB/HIV collaboration and integration. Later she moved to Maputo and assisted the National TB Programme as a technical advisor. During this time she conducted most of the research of which the results are presented in this thesis.

In 2011 she returned to Tilburg, The Netherlands. She started her own consulting agency working mainly in TB and HIV high burden countries. She works as an independent consultant supporting TB and HIV programmes, as well as the wider health care system to further improve their activities. She works with large international organisations and small local organisations and enjoys both. She supports the development of national strategic plans, funding proposals and policies and guidelines, undertakes research projects and evaluates numerous projects. She would like to continue this work for many years to come.