

Towards effective control of bovine tuberculosis in Africa: A case for public engagement in science

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The present paper summarizes a presentation given at the first stakeholder meeting on bovine tuberculosis held in Addis Ababa in June 2007. Reflections refer to animal health as a whole but are particularly applicable to the case of bovine tuberculosis in Africa.

Innovation in research requires open spaces to evolve. Numerous examples show us that it is often the unexpected detail, observed by a prepared mind that leads to discoveries and innovative approaches to problem solving (1). This is not disputed and remains also a principle for applied research and for development oriented projects. On the other hand we face a huge gap between increased research capacity in Africa and persistent pressing problems of poverty, disease and hunger (2). There appears to be an evident disconnection between research and development action. At least some research should reflect the actual needs of society and produce outcomes that can be applied fast. This is increasingly recognized and existing initiatives require to be assessed for their effectiveness.

One such example is the REACH policy initiative between Kenya, Uganda and Tanzania (www.idrc.ca/geh/ev-101251-201-1-DO_TOPIC.html) aiming at the development of an evidence brokerage for health policy in East Africa. The REACH initiative recognizes the current failure on the one hand of research to reach the level of policy making and the development of effective interventions, and on the other hand of policy problems which are not taken up by research. Its approach is to create a cyclical process involving scientists and policy makers, connecting policy and practice questions via research and development questions, advocacy for evidence, new research agendas, policy-relevant research funds to research action. At the same time research studies are synthesized to summarize evidence and package it for policy development by appropriate advocacy. In turn new policies may undergo another iteration of scrutiny, producing new sets of policy relevant research questions. This process however requires active involvement and brokerage, negotiating actual priorities.

Another comparable approach has evolved in the framework of the National Competence Centre for Research North-South (NCCR North-South) on research for health services to nomadic pastoralists in Sahelian countries of Africa. Thereby a trans-disciplinary process (connecting science and society) established continuous dialogue between researchers, the concerned population and government authorities, which validated iterative cycles of research and pilot interventions leading to the formulation of a new integrated policy for nomadic pastoralists in Chad (3).

What now is the potential of the above examples to work towards effective control of bovine tuberculosis in Africa? Bovine tuberculosis is still largely unknown or under-diagnosed in many African countries. Its cost to livestock production and its impact on public health are not known, or limited to only a few countries (4). Control strategies are mostly limited to the inspection of carcasses at slaughterhouses. Effective compulsory “test and slaughter” strategies are virtually non-existent in most countries of the continent. Governments are not able to compensate for slaughtered animals, which is a central condition for the successful elimination of bovine tuberculosis in many industrial countries. Diagnosis of tuberculosis relying essentially on sputum microscopy cannot identify human *Mycobacterium bovis* infection. Since national governments do not have sufficient capacity and means, effective action against bovine tuberculosis needs participation and ownership by all the public and private stakeholders involved.

A participative stakeholder process involving livestock holders, veterinary and public health authorities and decision makers started in 2007 with initial funding from the Wellcome Trust Livestock of Life initiative. It aims to strengthen efforts of capacity building and policy development to assess and control BTB in Africa as North-South and South-South networks. Currently over 25 countries have participated in two workshops in Bamako and Arusha with the specific objectives: (a) to identify and collate all available data on *M. bovis* in both human and animal populations in each country, (b) determine on-going diagnostic capacity and protocols in each country, together with national policies and strategies relating to the treatment, prevention and control of disease in human and animal populations, (c) develop capacity in diagnosis and epidemiology and control policy, (d) initiate surveillance of BTB with the aim of establishing the burden to the livestock production and human health in order to assess the cost of disease to society, (e) raise awareness of *M. bovis* as a potential zoonotic component of the human tuberculosis epidemic and the consequences for disease control and prevention, (f) establish a policy dialogue between African countries with a view to identifying locally adapted control policy options and (g) determine future research and evaluation needs to identify the most cost-effective locally adapted interventions. Participating countries engage in identifying funding for research and policy development.

The documented public health component of bovine tuberculosis in Nigeria, Tanzania and Uganda justifies efforts to make it part of current global programs and initiatives on tuberculosis control [5,6](). Recognition of these facts ought to result in applications by affected countries to the Global Fund to Fight AIDS, TB and malaria (GFATM) [7]. Furthermore International bodies like OIE, FAO and WHO should foster support to Africa, establishing standards for zoonoses surveillance and control. This is also part of the WHO International Health Regulations that came into force in mid-2007 and that require all countries to do a better job of disease surveillance for diseases that can spread between countries (www.int/gb/edwha/pdf_files/WHA58-REC1/english/Resolutions.pdf). In conclusion, bovine tuberculosis in Africa cannot be controlled without extensive public engagement in animal health research. This calls for a rethinking of research and control efforts and its economic consequences as bovine tuberculosis still goes unrecorded in most cases.

Reference

1. Schwabe C W. *Veterinary medicine and human health*. Williams & Wilkins: Baltimore (USA), 1984.
2. Gathura G. Kenya: So much research, so little benefit. *The Nation*. Nairobi. 2007;19-2-2006.
3. Zinsstag J. Animal health research. *Science* 2007;315:1193.
4. Ayele, W. Y., Neill SD, Zinsstag, Weiss, M. G., and Pavlik, I. Bovine tuberculosis: an old disease but a new threat to Africa. *Int.J Tuberc.Lung Dis* 2004;8(8):924-937.
5. Cadmus S, Palmer S, Okker M, Dale J, Gover K, Smith N, Jahans K, Hewinson R G, Gordon S V. Molecular analysis of human and bovine tubercle bacilli from a local setting in Nigeria. *J.Clin.Microbiol.* 2006;44: 29-34.
6. Mfinanga S G, Morkve O, Kazwala R R, Cleaveland S, Sharp J M, Shirima G, Nilsen R. The role of livestock keeping in tuberculosis trends in Arusha, Tanzania. *Int.J.Tuberc.Lung Dis.* 2003;7:695-704.
7. Zinsstag J, Schelling E, Roth F, Bonfoh B., de Savigny D., Tanner M. Human Benefits of Animal Interventions for Zoonosis Control. *Emerging Infectious Diseases* 2007;13:527-531