Post-2015 agenda strategies for tuberculosis control in Brazil: challenges and opportunities

Ethel Leonor Noia Maciel[1]

[1]Universidade Federal do Espírito Santo, Laboratório de Epidemiologia, Vitória-ES, Brasil.

Tuberculosis (TB) is a classical poverty-related disease. Among the neglected diseases, TB strikes the poorest, the most vulnerable, and the excluded individuals, who have carried the biggest burden of this disease for centuries. Nowadays, 134 years after the identification of the bacillus that causes TB, the disease still kills more people than any other infection worldwide.[1] Despite of decades of scientific progress, with so many discoveries that make us feel optimistic, we still need many others to end the human suffering caused by TB.

In February 2012, the World Health Organization (WHO) and the London School of Hygiene and Tropical Medicine conducted a meeting with a group of researchers from different countries who study the social determinants of TB, in order to understand that the way we live, grow up, work and get old also have a role in social stratification and poverty.[2] In Brazil, we can add other social determinants that may be additional difficulties, such as the unequal access to food security, to adequate living conditions and to healthy environments, besides the financial, geographic, and cultural barriers to receive the benefits offered by health services. All these factors influence the four stages of TB pathogenesis: (i) exposure, (ii) infection (iii) progression of the disease among the exposed individuals (iv) health care for these individuals, whether it is in the diagnosis phase, treatment or case monitoring until it is closed.[3] Although the scenario in the country favors the advance of TB, researchers, government authorities and the civil society have worked together to propose approaches and strategies for disease control.

In 2012, during the *V National Conference on Tuberculosis*, for the first time the topic on social determinants for TB was discussed, as an important factor to manage the disease indicators.[4]

In the following year, in São Paulo University, the World Health Organization, in a partnership with the Brazilian Ministry of Health and the Tuberculosis Research Network (*Rede-TB*), conducted a conference with the topic 'Elimination of the Economic Burden of Tuberculosis: Universal Coverage of Health and Social Protection Opportunities'. This conference aimed at uniting researchers and government officials from countries where TB burden is high, multilateral and bilateral agencies, and civil society organizations, to cooperate in the development of a post-2015 agenda for TB control, in order to eliminate the economic burden related to TB treatment and discuss strategies for social protection for individuals infected with TB and their relatives.[5]

In June 2013, at WHO headquarter in Geneva, Switzerland, a proposal of a new agenda post-2015 for TB control, based on an audacious strategy to eliminate TB until 2050 was discussed.[6] In January 2014, this proposal was approved by WHO executive committee, and a resolution of this committee approved their presentation in the World Health Assembly to be performed in May, 2013.

In May 2014, Brazil was chosen to present its strategy at the World Health Assembly. WHO's invite occurred due to the Brazilian experience in universal coverage in public health services, through its National

Correspondence:
Ethel Leonor Noia Maciel - Av. Marechal Campos, No. 1468, Maruípe, Vitória-ES, Brasil. CEP: 29043-900
E-mail: ethel.maciel@gmail.com

Health System, and to the fact that the country has the biggest cash transfer program in the world, the *Bolsa Família*. After hearing 54 countries, the 'Global strategy and targets for tuberculosis prevention, care and control after 2015' – or 'End of TB' strategy – was approved by the plenary, meaning a global agreement to end pandemic TB, which is expressed in the targets established to reduce the incidence to less than 10 cases per 100 thousand inhabitants and reduce mortality due to TB in 95% until 2035.[6] Undoubtedly, that moment represented a historical reference for all the TB scientific community: adding and enhancing global efforts to control the disease.

The WHO 'End of TB' strategy broadens the control actions for the disease, which are based on three pillars:
1) Integrated, patient-centered care and prevention.
2) Bold policies and integrated information systems, including actions of social protection to patients and recommendation to universal access to health.
3) Intensify researches and innovation actions, and the inclusion of new technologies.

The challenges are enormous. In Brazil, for the last ten years, the number of cases has been reducing in an average of 2% per year. In order to achieve the target proposed by WHO, the rate indicator should be reduced in 10% per year, during the next 20 years. This, certainly, leads to the proposition of new strategies.

A great advance in this sense was the experience of building the *Rede-TB* in Brazil, which made WHO designate the country as a model of articulation among the Academy, Government, Industry and the civil society to control TB.[8] In 2015, the *Rede-TB* presented a national agenda for research that aims to integrate pillar 3 – the new WHO strategy – with pillars 1 and 2 aforementioned. Many gaps were identified in the new agenda, among them, the need to intensify the researches on host-pathogen interaction, including studies on genetic, molecular and immunological markers, and the conduction of clinical and operational researches. The national agenda on TB research differs from other actions because the work is integrated among the various institutions that are part of *Rede-TB*, creating a platform that goes from the development and discovery of new substances with potential to be transformed into new drugs, to test with humans in phase IV of research, as well as subsequent evaluation of the services and their impacts in the cost-effectiveness for incorporating the product.[9]

Considering that the new WHO strategy of projecting its actions focuses in a long-term period (2016-2035), it is important to highlight that essential changes have been going on and other changes, concerning health services and care of TB patients, will also take place. Some advances can be highlighted, such as the implementation of a rapid molecular testing for TB (*TRM-TB*), allowing a fast and safe diagnose of the disease, including its most resistant forms. However, it is important to expand the diagnosis network for TB by performing sensibility tests to drugs for all the patients.

Another important point, maybe the main challenge – and action opportunity – of Public Health towards TB reality is its prevention. The BCG vaccine which is available nowadays prevents from severe cases of the disease, but shows low efficacy against pulmonary TB.[10] Finding new candidates to a more effective vaccine is, surely, a necessary action for the new strategy. Another point to consider – not less important – concerning prevention is a large scale offer of treatment for latent infection. Currently, the services that care for patients with TB have been focusing on this demand, over the examination of the patients' contacts. There is an average estimative of four contacts per patient, reason why the services should be reformulated so the staff and structure would be available to receive, at least, a demand four times higher than the current one.[11,12]

In Brazil, there is no information system for diagnosing and monitoring of cases of latent infections. Even in the United States, where there is already a consolidated system, a recent study has identified some difficulties for its achievement:
a) although its recommendations for all contacts with latent infection for TB, more than a third of these individuals did not go under treatment, possibly mistaken on the risks and benefits offered;
b) one in five contacts were not tested; and
c) more than half of the infected contacts did not complete the program to prevent the disease.

The main problem identified by that North American study was the time and the kind of program adopted in the current treatment with the isoniazid.[13]

Nevertheless, there is no global indicator that specifically targets prevention of cases, or targets with successful endings of the treatment for latent infection. This is one of the gaps observed on TB studies. In order to have a real innovation to celebrate, the pillar 3 –

research and innovation – must be the main target for all the persons involved on TB control, assuming that the current tools do not allow the indicator to advance in a different path from the one that has been reached. At the same time, effort should be done in order to prevent poverty and social inequality, introducing policies of cash transfer and social mobility; actions that correspond to pillar 2. And finally, conducting the necessary changes in programmatic actions, focused on prevention and promotion of TB control – pillar 1 of the current strategy.

If the image adopted by the post-2015 agenda for TB control, based on the three strategy pillars of WHO is capable of impacting the indicators of incidence and mortality in the next years, it may conduct us to the end of pandemic tuberculosis up to 2035.

Referências

1. World Health Organization. Global tuberculosis report 2015 [Internet].Geneva: World Health Organization;2015 [cited 2016 Feb 26].Available from: http://apps.who.int/iris/bitstream/10665/191102/1/9789241565059_eng.pdf?ua=1

2. London School of Hygiene and Tropical Medicine. Action on the social determinants of tuberculosis: are social protection interventions the way forward [Internet]; 2012 Feb 15;London.London:London School of Hygiene & Tropical Medicine; 2012[cited 2016 Feb 26].Available from: http://tbsymposium.lshtm.ac.uk/presentations-2/

3. Hargreaves JR,Boccia D,Evans CA,Adato M,Petticrew M,Porter JDH.The social determinants of tuberculosis: from evidence to action.Am J Public Health. 2011 Apr;101(4):654-62.

4. Maciel ELN.A promoção à saúde e os determinantes sociais da tuberculose: elementos para a ação.In: Landin FLP,Catrib AMF,Collares PMC.Promoção da Saúde na diversidade humana e na pluralidade de itinerários terapêuticos. Campinas: Saberes; 2012. p. 429-48.

5. World Health Organization.Eliminating the catastrophic economic burden of TB: universal health coverage and social protection opportunities [Internet]; 2013 Apr 29-May 1;São Paulo.São Paulo: Medical School of the University of São Paulo; 2013 [cited 2016 Feb 26]. Available from: http://www.who.int/tb/Brazil_TB_consultation.pdf?ua=1

6. World Health Organization.Strategic and technical advisory group for tuberculosis (STAG-TB): report of the 13th meeting [Internet]; 2013 Jun 11-12; Geneva.Geneva: World Health Organization;2013[cited 2016 Feb 26].Available from: http://www.who.int/tb/advisory_bodies/STAG_report2013.pdf

7. World Health Organization.Global strategy and targets for tuberculosis prevention, care and control after 2015 [Internet].Geneva: World Health Organization;2013[cited 2016 Feb 26].Available from: http://www.who.int/tb/post2015_TBstrategy.pdf

8. Rede TB: rede brasileira de pesquisas em tuberculose [Internet].Rio de Janeiro: Rede TB: rede brasileira de pesquisas em tuberculose; 2016[citado 2016 jan 18]. Disponível em: http://redetb.org/

9. Kritski AL, Barreira D, Junqueira-Kipnis AP, Moraes MO, Campos MM, Degrae W, *et al*. Brazilian response to world health organization´s 'end tb strategy': national tuberculosis research agenda.Rev Soc Bras Med Trop. In press 2016.

10. Pereira SM,Dantas OMS,Ximenes R,Barreto ML.Vacina BCG contra tuberculose: efeito protetor e políticas de vacinação.Rev Saude Publica.2007 set; 41 supl 1:59-66.

11. Freire DN,Bonametti AM,Matsuo T.Diagnóstico precoce e progressão da tuberculose em contatos. Epidemiol Serv Saude. 2007 jul-set;16(3):155-66.

12. Hartwig SV,Ignotti E,Oliveira BFA,Pereira HCO,Scatena JH.Avaliação da vigilância de contatos de casos novos de tuberculose no Estado de Mato Grosso – Brasil. J Bras Pneumol.2008 maio;34(5):298-303.

13. Young KH,Ehman M,Reves R,Maddox BLP,Khan A,Chorba TL, *et al*.Tuberculosis contact investigations:United States of America, 2003-2012. MMWR Surveill Summ.2016 Jan;64(50):369-74.