Evidence-informed policymaking at country level: Lessons learned from the South African *Tuberculosis Think Tank*

Authors

RG White[1,2], S Charalambous[3,4,5] , V Cardenas[6], P Hippner[3], T Sumner[1], F Bozzani[2], D Mudzengi[3], RMGJ Houben[1,2] D Collier*[7], ME Kimerling[8], A Vassall[2], Y Pillay[9], G Churchyard[1,3 4,5]

e-mail: richard.white@lshtm.ac.uk and GChurchyard@auruminstitute.org

* independent project evaluator, paper incorporates findings from external evaluation

Journal: IJTLD Perspective

Running: South African Tuberculosis Think Tank

Words:

Abstract: 250

Body text: 3,364

Tables; 1

Figs: 1

Box: 1

Refs: 15

Keywords: analysis, modelling, policy, decision making, evaluation

[1] TB Modelling Group, LSHTM, London, United Kingdom

[2] TB Centre, LSHTM, London, United Kingdom
[3] Aurum Institute, Johannesburg, South Africa
[4] School of Public Health, University of Witwatersrand, Johannesburg, South Africa
[5] Advancing Treatment and Care for TB/HIV, South African Medical Research Council, Johannesburg, South Africa
[6] Aurum Institute, USA
[7] WhiteOx, Bristol, UK
[8] KNCV Tuberculosis Foundation, The Hague, Netherlands
[9] South African National TB Control Programme, Pretoria, South Africa

ABSTRACT

Background

National Tuberculosis Programmes(NTP) require specialist input to support the development of evidence informed policy and practice, typically against tight deadlines.

Aim

Describe lessons learned from establishing a dedicated Tuberculosis Think Tank(TT) to advise the South African NTP on Tuberculosis(TB) policy.

Intervention and evaluation methods

A national TB TT was established to advise the NTP to support evidence based policy. Support was provided for activities including: meetings, modelling, and regular calls with a wider network of unpaid expert advisers under an Executive Committee and Working Groups. Intervention evaluation used desktop analysis of documentary evidence, interviews, and direct observation.

Results

The TB TT evolved over time into three key roles, an 'Institution', a 'Policy Dialogue Forum', and an 'Interface'. Although enthusiasm was high, motivating participation from NTP and external experts proved challenging. Motivation of working groups was most successful when aligned to a specific need for NTP decision-making. Despite challenges, the TB TT contributed to South Africa's first ever TB&HIV investment case, and the decision to create South Africa's first ever ring-fenced grant for TB. The TB TT also assisted the NTP in formulating strategy to accelerate progress towards the WHO Targets.

Discussion

The TB TT, with partners, yielded major successes in supporting evidence-informed decision making, and garnered increased funding for TB in South Africa. Identifying ways to increase involvement of NTP staff & other experts, and keeping the scope of the TT well defined, could facilitate greater impact. TT initiatives could be replicated in other settings to support evidence-informed policymaking.

BACKGROUND

Tuberculosis (TB) presents a major health burden in South Africa (1). In response to this, and with considerable recent political support (2-4), South Africa's National TB Programme (NTP) has become an early adopter of innovation (5). However, resources are limited and the NTP requires specialist input to support development of policy and practice, typically against tight deadlines.

International bodies such as the World Health Organization (the WHO) provide global TB guidance documents and periodic country epidemiological reviews, but these global bodies cannot provide the rapid, bespoke advice that the South African, and other NTP's, often require (6).

As such, a dedicated 'TB Think Tank' (TB TT) was conceived by the NTP to fill the gap, drawing on existing national expertise and research capacity, and international networks. It was tasked with anticipating and responding to policy makers' requests for evaluation of evidence and quantitative analysis, and with improving TB data utilization.

The need for rapid, bespoke advice is not unique to South Africa or Tuberculosis. Advisory bodies and agencies have been created in many countries globally to fill this advice gap in low/middle (7-9) and high income counties (10). In South Africa itself, an HIV TT exists, tasked with *'providing a central place for all stakeholders [under Department of Health], to review epidemiological, routine monitoring and economic evidence related to the HIV epidemic, identify priority gaps, and establish consensus on appropriate next steps, including research projects and pilots of new programs and policies'* (11). However, very little has been written about the structure and effectiveness of health policy TTs (8, 12-14). Reviewing this literature, *Bennett et al* concluded that small number of key factors were key to the success of health policy TTs: production of timely, relevant, credible, trustworthy and actionable evidence, and close relationships with policy makers (12). In their in-depth analysis of six health policy TTs in Bangladesh, Ghana, India, South Africa, Uganda and Vietnam, *Bennet et al* also concluded that a supportive policy environment, some degree of independence from government, and strong links to policy makers were critical for effective policy engagement. A study on the formation of a TT-like institution in Indonesia identified challenges that included: longer-term financial support, a limited number of scientific publications, and difficulties in documenting TT impact on programmatic performance (9).

To contribute to this critical, but limited, literature, the aim of this paper was to describe the lessons learned from establishing a dedicated TB TT to advise the South African NTP on TB policy.

INTERVENTION AND EVALUATION METHODS

INTERVENTION

Mission and structure

The mission of the TB TT was to advise the NTP on TB treatment and prevention policy and programmatic implementation, to achieve the National Strategic Plan (NSP)/World Health Assembly targets for TB with focus on innovations. The TB TT's internal structure evolved over time and its current organizational structure is shown in Figure 1. The TT was co-chaired by the Deputy Director General for Health Strategy and the head of a SA research institute. The TT was created to include an Executive Committee and three expert working groups. The three expert working groups were each chaired by two or more co-chairs including: an individual from the NTP and another individual (or two) from domestic expert organisations.

- Working group 1: Modernising a national response to TB aligned to the Post-2015 Global TB programme Strategy, including
    - Know your epidemic (systematic analysis of data)
    - Define your interventions: e.g. access to care, and active case finding
    - Plan your response (including modelling and economics)
- Working group 2: Implementation and Delivery, including
    - Information and communication technologies, monitoring and evaluation, and surveillance
    - Forecasting and budgeting
    - Monitoring implementation of new policy
    - Human resources planning and training
- Working group 3: Research on diagnostics, drugs and vaccines

The SA Government Health and Finance departments were at the core of the TT, supported by South African and international research institutions, including the Department of Science and Technology, the South Africa Medical Research Council, London School of Hygiene and Tropical Medicine, technical support agencies, funders & WHO Global TB Programme and UNAIDS.

Objectives

The wider project supporting the TT had five main objectives: 1) Formalizing the TB TT; 2) Creating and applying epidemiological and economic modelling tools in order to identify cost-effective and affordable strategies to assess, and reach, NSP goals; 3) Promoting the use of

the quantitative evidence generated by these tools, to inform TB prevention and care policy and practice in South Africa; 4) Building capacity and sustainable systems to ensure the tools can be used within country to inform TB prevention and care policy and practice; and 5) Assessing the success of the project disseminating findings, and if successful, identifying funding to support systems beyond the end of project.

Activities and resources

The TB TT was designed to consider policy and implementation questions requiring evidence to inform policy by carrying out the following activities: 1) Collating, reviewing, synthesizing and evaluating evidence, 2) Requesting evidence, and if necessary, commissioning research, 3) Brainstorming innovations & making recommendations to the NTP for policy and implementation in the form of policy briefs, 4) Assisting NTP in developing operational guidelines, and 5) Advising NTP on key implementation activities in support of budget discussions with the National Treasury and as part of investment case development for new donor grants. The TT was set up with financial support from the Bill and Melinda Gates Foundation (BMGF). This funded quarterly face-to-face TT meetings, the dedicated epidemiological modelling and economic staff (~3.5 people), and convening of regular calls with a wider network of unpaid expert advisers in the Executive Committee and the three area Working Groups. The **Box** illustrates the TT activities for the example of childhood screening for TB.

Operating modes

The TT was established flexibly to operate through two modes: 1) to respond to specific, usually time limited, requests from the NTP and 2) to serve as thought drivers for large national strategy development processes such as the new five-year NTP Strategy.

EVALUTION METHODS

This BMGF project was evaluated by an independent external evaluator (DC) based on desk-top analysis of documentary evidence, interviews, and direct observation.

The main audience was the project sponsors (the funder and the NTP) and other key stakeholders. However, the evaluation was also designed to provide the project team with regular constructive feedback to help improve the likelihood of a successful outcome. It recognised that the project's evolutionary nature and organisational change themes were often best supported though an 'appreciative inquiry' approach, focusing more on identifying and building on what was working well and less on correcting problems or deviations from the detail of the original proposal. The funder was amenable to this approach.

The evaluator's synthesis of the evidence and his conclusions and recommendations were published in his March 2017 Final Evaluation Report, which drew on:

- Baseline interviews during June-September 2014 with project team members and external stakeholders and a review of project documents (Interim Report 1).
- Project team interviews and a review of progress reports during July-December 2015 (Interim Report 2).
- Participant interviews and observation of the December 2015, April 2016, and August 2016 TB TT and NTP workshops (Interim Reports 2 and 4).
- An analysis of think tank models and evolving TB TT roles (Interim Report 5).
- Final evaluation interviews November-December 2016 with project sponsors, international and national stakeholders, project team members and an audit of project management documentation and procedures.

All interviews were non-attributable. The project team was invited to comment on factual accuracy before publication, but the evaluator retained complete discretion over their inclusion. The recommendations included in this paper were based on the findings from the evaluator's external evaluation.

RESULTS AND LESSONS LEARNED

Main achievements

The TT, with partners, yielded several major successes over the first three years (Table 1). Soon after the TT was launched, impact modelling, carried out by modellers supporting the TT, was used to help define the scope of a SA MRC/UK MRC funding call on operational research with a budget of R70m. In 2015, the TT supported the establishment of the National TB Research Plan and Investment Case for TB Research, by convening meetings and developing the initial concept note. Also in 2015, the TT provided evidence supporting the creation of SA's first ever joint TB & HIV Investment Case. This led to changes in NTP budgets for TB in 2016, and formed the basis of Intensified Case Finding recommendations in the new NTP strategy. In 2016, the TT provided evidence that led to SA's first ever TB conditional grant (ring fenced funds) for TB, and increased domestic funding for TB by R500m. Later that year, the TT provided evidence that informed the NTP decision to use '3HP' preventative therapy for people living with HIV and child contacts, instead of 'IPT'. Also in 2016, the TT provided evidence that supported the NTP decision to use Bedaquiline in the treatment of all multi-drug resistant TB patients. This evidence supported the recommendation in the NTP Strategic Plan that Bedaquiline be included in the MDR TB short-course regimen during the second phase of roll out (15). The Bedaquiline containing short course regimen will initially be implemented in centres of excellence under operational research conditions. The TT also took a leading role in supporting the NTP development of the new South Africa NTP Strategic Plan 2017-2021. The TT convened meetings on the Plan, compiled and verified information from experts, and created a first draft of the Plan for NTP finalisation. The Plan has yet to be formally released, but will shape the TB response in South Africa for the next 5 years. The TT also has representation on the South African National AIDS council (SANAC) Steering Committee, a body bringing together government, civil society and the private sector to create a collective response to HIV, TB and STIs. The TT provided TB evidence for the new SANAC NSP, ensuring alignment with the NTP TB department's Strategic Plan.

Main challenges and enablers

Although initial enthusiasm was high, motivating active and sustained participation from NTP and external experts proved challenging. From its initiation, it was evident that broad active participation of NTP staff was essential for the success of the TT. However, there were real constraints in terms of the amount of time that individual NTP staff could dedicate to the TT in the absence of a mandate from NTP leadership and/or provision of relief from other duties. The same was true of external experts. They were time constrained and were funded largely through grants and therefore the ability to provide substantial amount of unfunded time was limited. There was also a perception that the TT agenda was overly driven by key partners.

This then became the challenge to the Secretariat: to facilitate open and transparent TT calls and meetings that included robust and sustained NTP and external expert participation.

Within one year of TT formation, it became evident to the Secretariat that the required level of stakeholder input would be hard to achieve. Due to scant participation at its programmed monthly teleconferences, the Secretariat abandoned the monthly format in favour of quarterly face-to-face meetings.

Also evident was the need to flesh out robust agendas, to provoke vigorous discussion, and provide a platform for active decision making. There was a general perception that these quarterly TT meetings were to be different from typical TB conferences where researchers are asked to present their latest research work and findings to a general (TB) audience, with little required input from the audience. Rather, NTP staff and external experts demanded meeting agendas at which their targeted input was required in the form of yes/no votes on, for example, the implementation of Strategy A vs. Strategy B.

Thus, the Secretariat worked with the TT co-chairs to create meeting agendas that identified the 2-3 highest priority items facing the NTP, e.g. whether ultraviolet lamps should be used for infection control, and the value of serological tests for diagnosis of *Mycobacterium tuberculosis* infection and TB disease. Once chosen, the Secretariat reached out to experts, collated the evidence required for presentation to the TT, and organised the meeting with the goal of provoking vigorous debate, but also consensus building and decision making.

By reducing the frequency of the TT meetings to a quarterly format, and by focusing the agenda on 2-3 priority items requiring concrete input from its membership, the Secretariat could mobilise vigorous participation from both the NTP staff and external experts, and to channel this participation to result in concrete suggested paths of action for NTP strategy.

The roles and activities of the TT greatly expanded over time in response to the needs of the NTP. First as a science-based ‘Institution’ – providing robust and independent evidence for policy formation, usually in response to an NTP request for rapid evidence. An example was providing evidence on potential use of 3HP therapy for people living with HIV and child contacts (Table 1). Second, as a ‘Policy Dialogue Forum’ facilitating the wider engagement between NTP and stakeholders on TB Policy. An example was facilitating the development of the NTP National Strategic plan (Table 1). Finally, as an ‘Interface’ between the NTP and the

modelling/economics community, where resource constraints limited the NTP's ability to act as a critical consumer of research output.

In addition, other enablers included strong political support from the South African President and Minister of Health, for improving TB prevention and care, core funding for convening activities and analytical work, and, over time, improving communication channels between the NTP, modellers, economists & other experts.

Summary of independent evaluation, future directions and sustainability

The TT was set up to be both demand-and supply-driven (i.e. responding to requests originating in the NTP but also investigating issues originated by its working parties). However, over time, it evolved towards the demand end of the spectrum. In response, its remit and processes have developed to find a balance that matches the national need.

Key elements now need to be addressed to ensure the future sustainability and utility of the TT. Perhaps most importantly, decision makers and funders should consider the balance the benefits of continuing to use the TT in its three roles ('Institution', 'Policy Dialogue Forum', and 'Interface'), against the risk that its resources will be spread too thinly and it will fail to deliver fully against any of them.

Institutional role

In its 'Institutional' role, the TT placed more emphasis on responding to government needs rather than proactively promoting the TT members' analysis of key priorities. Under this model, the TT operated more as an integral part of the NTP policy development process; sponsored by it, but carrying out work at arm's length from ministers. Although there are, as yet, only a few completed examples (i.e. development of policy briefs) the TT has shown it can be an independent body, supporting decision making by advising on issues put to it by Government. Improvements can be made: feedback from the NTP on decisions eventually taken often did not reach contributing experts, so it is essential in future to maintaining engagement and to help Members keep their advice relevant. Some saw this reactive 'Institution' role as less valuable, but we propose this role may in fact be more critical over the long term, as it has the benefit of being aligned to the NTP's expressed needs, and build the NTP's trust and belief in the TT's utility. We propose that the Working Groups could still originate issues under an institutional model. In addition, to further strengthen the 'Institutional' aspects of the TT, it could be structured in a similar way to other 'arm's length' advice giving organisations like the National Institute of Clinical Excellence in the UK, and it may not want NTP 'ownership' which

may compromise its independence. Finally, for the 'Institution' to function more efficiently, we propose improved linkages between the TB TT and other TTs, particularly the HIV TT (11).

Policy dialogue convener role

The NTP encouraged the TT from the start to take on a significant 'Policy Dialogue Convener' role across initiatives and funders. In future, this could continue to be a major secondary benefit, but only if it is clear which organisation is responsible for which function or programme. This complementary policy dialogue role has proved very valuable to the NTP and National TB Strategic Plan stakeholders, including a wide variety of national institutions and NGOs, and deserves to be explicitly supported. However, if it is not covered explicitly in future funding agreements, we warn that the TT may end up doing the job anyway again, with consequences for both the quality of the dialogue and the TT's other work. In addition, to further strengthen this role of the TT, we recommend the NTP needs to be enabled to take an increased ownership for the TT by taking on (or being seconded) a dedicated member of staff responsible for the TT. We also recommend external experts are better enabled to contribute to the TT, perhaps by funding their time directly, or with citeable acknowledgment of their contribution to the NTP decision making. We recommend the TT is better integrated into the existing longer-term planning cycles in South Africa, as has occurred for the SANAC 2017-22 National Strategic Plan. There is also a need to change any perception that the TT agenda is overly driven by key partners, perhaps by diversifying the TT membership. Finally, the TT needs sustained funding, with a plan to transition to NTP funding over time.

Interface role

In its third role, the TT has also provided value as an 'Interface' between the NTP and modelling initiatives, and provided resources where constraints limited the NTP's ability to act as an 'intelligent customer' of analytical work. It helped the NTP formulate its requirements and interpreted/packaged modelling outputs for NTP use. However, TB modelling skills are extremely rare South Africa. As such we recommend that there is short term funding specifically to support TB modelling, until other South African institutions can maintain TB modelling expertise, so that the TT can draw on these skills when required for specific (usually short term) TT task. A grant commissioning management ability could also be included in the TT funding renewal to facilitate more engagement with a wider range of experts.

Comparison with other Think Tank initiatives

There are similarities between the challengers, and enablers, identified in previous research on health policy TTs (9, 12), and in our study. The SA TB TT was fortunate to have a supportive policy environment, some degree of independence from government, and strong links to policy makers, which facilitated effective policy engagement. Despite challenges, the SA TB TT also tended to provide timely, relevant, credible, trustworthy and actionable evidence to NTP, that further strengthened the relationship between the TT and NTP, over time. The SA TB TT was also fortunate that, so far, it has only suffered temporary shortfalls in financial support, unlike the longer-term shortfalls experienced by TTs in Bangladesh, India, and Uganda and Indonesia (9, 12).

Unlike the Indonesian TT (9), the SA TB TT's evaluation focussed on the strategic and process level pre-conditions for impact on TB control, rather than practice level impacts. This was a deliberate decision, taken during TT creation, because it was thought impact on practice was unlikely over the ~ 2 years of the initial funding. However, given that alleviating suffering from TB (via changes in practice), is the SA TB TT's ultimate goal, perhaps in the current funding cycle, the SA TB TT's impact on practice, as well as policy, could be evaluated.

We believe that the likely utility of this TT, and the contribution of other health policy TTs (9, 12), justify their wider application to support evidence-informed TB decision making. Some key characteristics for effective engagement and practical delivery have now been identified, and many aspects of the South African TT model could be replicated in other settings.

CONCLUSION

The TB TT, with partners, yielded major successes in supporting evidence-informed decision making, and garnered increased funding for TB in South Africa. Identifying ways to increase involvement of NTP staff & other experts, and keeping the scope of the TT well defined, could facilitate greater impact. TT initiatives could be replicated in other settings to support evidence-informed policymaking.

ACKNOWLEDGEMENTS

We thank the numerous NTP managers, experts and collaborating organisations involved in the TT, without which this initiative would not have been possible. RGW is funded the UK Medical Research Council (MRC) and the UK Department for International Development (DFID) under the MRC/DFID Concordat agreement that is also part of the EDCTP2 programme supported by the European Union (MR/J005088/1), the Bill and Melinda Gates Foundation (TB Modelling and Analysis Consortium: OPP1084276, and SA Modelling for Policy: #OPP1110334) and UNITAID (4214-LSHTM-Sept15; PO #8477-0-600). RMGJH is funded by the Bill and Melinda Gates Foundation (TB Modelling and Analysis Consortium: OPP1084276, and SA Modelling for Policy: #OPP1110334) and UNITAID (4214-LSHTM-Sept15; PO #8477-0-600).

REFERENCES

1. WHO. Global Tuberculosis Report 2015 (http://www.who.int/tb/publications/global_report/en/). 2015.
2. SA DoH. National Health Minister, Dr Aaron Motsoaledi, makes a call for the eradication of stigma on tuberculosis: http://www.kznhealth.gov.za/mediarelease/2016/National-minister-makes-call-for-eradication-stigma-TB-18072016.htm (Accessed: 2017_11_26) 2017
3. SA DoH. Minister Aaron Motsoaledi wins International USAID-TB award https://www.gov.za/speeches/motsoaledi-scoops-international-usaid-tb-award-18-mar-2016-0000 (Accessed: 2017_11_26) 2017
4. health24. How South Africa is combatting TB http://www.health24.com/Medical/Tuberculosis/News/how-south-africa-is-combatting-tb-20151207 (Accessed: 2017_11_26) 2017
5. Pai M, Palamountain K. New tuberculosis technologies: challenges for retooling and scale-up [State of the art series. New tools. Number 4 in the series]. The International Journal of Tuberculosis and Lung Disease. 2012;16(10):1281-90.
6. Pai M, Minion J, Steingart K, Ramsay A. New and improved tuberculosis diagnostics: evidence, policy, practice, and impact. Curr Opin Pulm Med. 2010;16(3):271-84.
7. Harvard Kennedy School. Harvard Kennedy School list of non-US think tanks (http://guides.library.harvard.edu/c.php?g=310680&p=2072555) . Downloaded 7th May 2017. 2017.
8. Stone D, Denham A, Garnett M. Think tanks across nations: A comparative approach: Manchester University Press; 1998.
9. Mahendradhata Y, Probandari A, Widjanarko B, Riono P, Mustikawati D, Tiemersma EW, et al. Embedding operational research into national disease control programme: lessons from 10 years of experience in Indonesia. Global health action. 2014;7(1):25412.
10. National Institute for Health and Care Excellence. National Institute for Health and Care Excellence (https://www.nice.org.uk/about/what-we-do) Accessed 12/6/2017. 2017.
11. Foundation for Professional Development. South Afria HIV Think Tank (http://www.foundation.co.za/think-tank) 2017
12. Bennett S, Corluka A, Doherty J, Tangcharoensathien V, Patcharanarumol W, Jesani A, et al. Influencing policy change: the experience of health think tanks in low- and middle-income countries. Health Policy Plan. 2012;27(3):194-203.
13. James S. Influencing government policy making. Banking on Knowledge: The Genesis of the Global Development Network. 2000:162-79.
14. Braun M, Cicioni A, Ducote NJ. Should think tanks do policy implementation in developing countries? Lessons from Argentina. Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento (CIPPEC) Buenos Aires. 2000.
15. South Africa National Department of Health. South Africa National Department of Health National Strategic Plan: 2017-2021 (Draft): https://drive.google.com/file/d/0B4OQRfW_g8PXS0FQUm5mODRLa2c/view). South Africa National Department of Health; 2017.

BOX, TABLES AND FIGURES

Box – Illustrative example of Think Tank Processes – Childhood screening for TB

In 2014, the TB Think Tank was requested by the South African National Department of Health to provide recommendations on whether screening of children in schools was an appropriate intervention. A policy brief was compiled, based on review of key publications, and input from experts from at least three different institutions:

1. The national data were reviewed to determine the proportion of notified TB cases nationally among children. It was determined that paediatric (<15 years) cases of TB made up 11% of notified TB cases, and that approximately 50% of these were in children under 5 years of age.

2. TB Prevalence studies, undertaken as part of TB vaccine studies, were reviewed to determine the TB prevalence in different child populations. It was determined that TB prevalence amongst adolescents was very low, at 0.3%, indicating that active case finding in this group would not yield a high number of TB cases. In infants, *M.tb* infection prevalence was around 5.3%.

3. Further evidence for screening of children among TB household contacts was reviewed to determine the most appropriate intervention for identifying TB.

4. All additional considerations were listed such as:
    - Higher prevalence of more severe TB types such as TB meningitis among children
    - Difficulty in diagnosis of TB in children
    - Reduced transmission from children therefore limited public health benefit.

The recommendation to the National TB department was that TB in children accounts for a small proportion of the national burden of TB. There was little evidence to suggest that school based education and active case finding in schools will impact on the national TB epidemic.

The National TB department then decided to focus their case-finding interventions on creches (children under five), rather than schools.

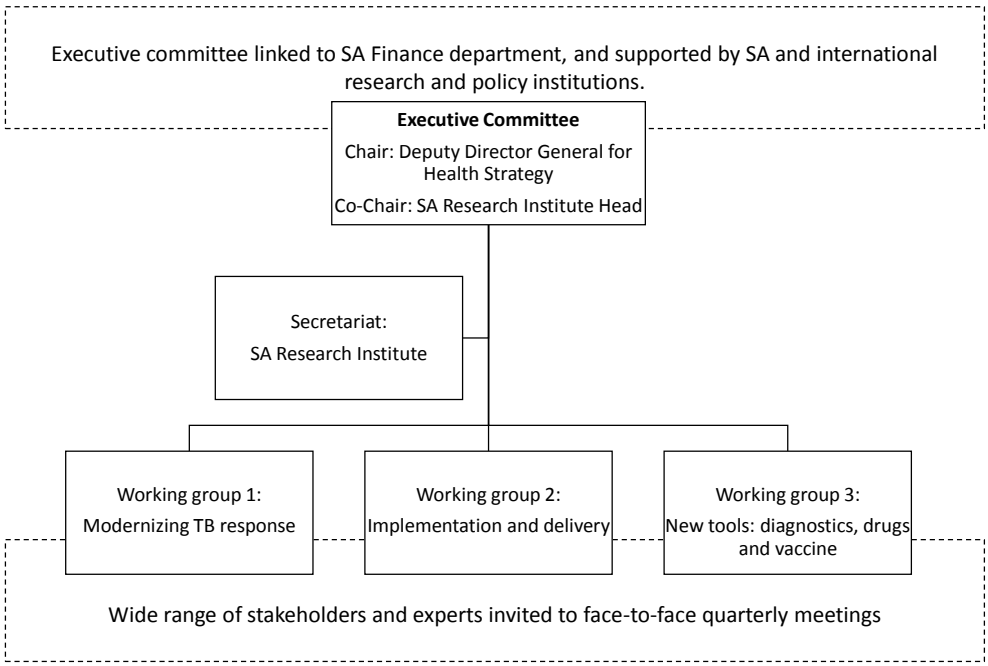

Fig 1 Current organizational structure of the South Africa TB Think Tank. SA = South Africa. TB = tuberculosis.

TABLE 1 Examples of likely policy influence of TB Think Tank 2014-16. TT = Think Tank. SA = South Africa. TB = tuberculosis, MRC = Medical Research Council, NTP = National Tuberculosis Programme, UNAIDS = Joint United Nations Programme on HIV/AIDS, ICF= Intensified Case Finding, IC = Investment case, 3HP = Once-weekly isoniazid and rifapentine for 3 months, IPT = Isoniazid preventive therapy, PLWHIV = People Living with HIV/AIDS, BDQ = Bedaquiline, MDR = Multi-drug-resistant, WHO= World Health Organization, NTP = National TB Programme, NICD = National Institute for Communicable Diseases , URC = University Research Co, SAMRC = South Africa MRC, NHLS = National Health Laboratory Service, SANAC = South African National Aids Council, USAID = U.S. Agency for International Development, CDC = Centers for Disease Control and Prevention, NGO = non-governmental organization.

Policy area	Policy output	Timeframe of influence	Key actor (other stakeholders)	Key Think Tank activities	Impact	Evidence for Impact
SA MRC research funding	Funding call	2014/5	SA MRC, MRC UK	Data analysis, modelling, call & presentation to SA MRC	TT provided evidence that helped define scope of SAMRC/ UKMRC funding call on operational research (R70m)	Presentation to SAMRC Funding call on SAMRC website
NTP TB screening policy	Childhood TB screening policy brief	2014/5	NTP, Researchers	Development of Policy Brief	Change in strategy with regards TB screening for children	Active case-finding practice in under 15s
SA funding for research	NTP decision to support	2015+	SA MRC, NTP	Meeting convening	TT asked to convene meetings & develop concept until NTP supported National TB Research Plan and Investment Case for TB Research. Now MRC led.	Meeting notes

Policy area	Policy output	Timeframe of influence	Key actor (other stakeholders)	Key Think Tank activities	Impact	Evidence for Impact
NTP TB funding	SA TB & HIV Investment Case (first ever)	2015+	UNAIDS (SANAC, NTP NTP, Treasury)	Analysis, modelling and report preparation	TT provided evidence that led to change in NTP budgets for TB in 2016. IC phase II results form the basis of ICF recommendations in NTP strategy 2016.	IC Phase I report on SANAC website IC overview presented to Dr Lindiwe Mvusi Key IC Phase II findings for NTP, presented to TT
NTP TB funding	SA conditional grant (ring fenced funds) for TB (first ever)	2016+	UNAIDS (SANAC, NTP NTP, Treasury)	Analysis, modelling, presentation to the NTP to inform parliamentary budget bid	TT provided evidence that led to SA's first ever TB conditional grant (ring fenced funds) for TB and increased domestic funding for TB (R500m). TT has assisted with collecting information on current TB expenditure and supplying unit costs for conditional grant provincial business plans.	Cost model NTP presentations Budget bid Letter from Deputy Director General for Health Strategy
NTP TB treatment policy	Policy and NTP strategy	2016+	National Health Committee	Developed 3HP component of the National TB Strategic Plan and co-led the development of the NTP Strategic plan	TT provided evidence to support NTP justification to use 3HP, instead of IPT, for PLWHIV/ child contacts	3HP included in the NTP Strategic Plan (draft). Letter from Deputy Director General for Health Strategy
NTP TB treatment policy	Policy and NTP strategy	2016+	NTP, National Health Committee	Convened an expert working group to review the evidence from the Bedaquiline (BDQ)	TT provided evidence that supported the NTP decision to use Bedaquiline in the treatment of all multi-drug resistant TB patients.	SA Data from BCAP and National rollout program presented to WHO by TT, to be included in the individual

Policy area	Policy output	Timeframe of influence	Key actor (other stakeholders)	Key Think Tank activities	Impact	Evidence for Impact
				clinical access programme and the national rollout data to evaluate the effect of BDQ on mortality. Facilitated engagement with WHO. Facilitated inclusion of BDQ in the short course MDR TB in the National Strategic Plan	This evidence supported the recommendation in the NTP Strategic Plan that Bedaquiline be included in the MDR TB short-course regimen during the second phase of roll out. The Bedaquiline containing short course regimen will initially be implemented in centres of excellence under operational research conditions	level meta-analysis of BDQ effectiveness and safety commissioned by WHO. TT also facilitated inclusion of BDQ in the short course regimen in the NTP Strategic Plan (draft). Meeting minutes. Letter from Deputy Director General for Health Strategy
National TB prevention and care strategy and resource allocation	NTP Strategic Plan, 2017-2021	2017-2021	NTP, NICD, URC, SAMRC, NHLS, SANAC, USAID, CDC	Meeting convener, note taker, document writing, sub-group hosting, compiler and verifier of information.	Forthcoming	Meeting report: 19-20/4/16 NTP costing analysis NTP Strategic Plan (draft) Letter from Deputy Director General for Health Strategy
National TB prevention and care strategy and resource allocation	SANAC national strategic plan document	2017-2022	SANAC, NTP, Civil Society Development, Partners, NGOs	Representation on NSP Steering Committee Participation at NSP consultation meetings and workshops	Forthcoming	SANAC final report Letter from Deputy Director General for Health Strategy

461