Tuberculosis remains a challenge despite economic growth in Panama [Notes from the field]

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Tuberculosis remains a challenge despite economic growth in Panama

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SUMMARY

Tuberculosis (TB) is a disease associated with inequality, and wise investment of economic resources is considered critical to its control. Panama has recently secured its status as an upper-middle-income country with robust economic growth. However, the prioritisation of resources for TB control remains a major challenge. In this article, we highlight areas that urgently require action to effectively reduce TB burden to minimal levels.

Our conclusions suggest the need for fund allocation and a multidisciplinary approach to ensure prompt laboratory diagnosis, treatment assurance and workforce reinforcement, complemented by applied and operational research, development and innovation.

KEY WORDS: gross domestic product; diagnosis; therapy; biomarker research; control programme

PANAMA still faces challenges in overcoming infectious diseases, including tuberculosis (TB). In 2011, the incidence of all forms of TB remained at 38.6 per 100 000 population.[1] A steep decrease in the TB mortality rate has been observed since 2009; however, Panama remains one of two countries with the highest TB mortality rates in Central America (Table 1).[1] Panama successfully reduced the percentage of new multidrug-resistant TB (MDR-TB) cases in 2011 to 0.45%.[1] Most TB cases, excluding patients co-infected with the human immunodeficiency virus (HIV), are located in areas with low socio-economic development, including Panama City, Colon City and indigenous populations.[2,3] The main age category affected is those aged 25–49 years. However, this reality is in contrast with the country's economic growth.

Dramatic economic growth has propelled Panama forward over the last 10 years; it is now the fastest growing economy in Central America.[4] This growth has been possible due to the expansion of the Panama Canal and enormous investments in infrastructure by both the public and private sectors.[5] Foreign investment has also increased due to Panama's strong banking system and its strategic position as a trading hub with major logistic assets, including ports and duty-free zones. The yearly average gross domestic product growth for the 2007–2011 period was 9%, and it is estimated to continue to increase at 6% over the next 5 years (Table 2).[5] These economic growth indicators are expected to positively impact the country's development in terms of education, health and safety. However, control of TB remains a major challenge yet to be addressed.

ASPECT OF INTEREST

TB control has major limitations in Panama. Although the TB field has seen advances in disease diagnosis over the last few years, laboratory diagnosis can take weeks, particularly in high-incidence locations. For example, the laboratory turnover time for acid-fast bacilli (AFB) smear results reached up to 6 months in Colon City in early 2011. Remote areas such as indigenous territories lack facilities even minimally equipped to perform AFB smear microscopy. There is only one AFB laboratory in Guna Yala Comarca, which serves 32 500 people living along nearly 100 km of coastal rural settlements, with limited accessibility. Moreover, there are frequent interruptions in anti-tuberculosis drug supplies. During 2010–2012, the cities of Colon and Panama experienced intermittent availability of first-line combined drugs; however, drug loans from other countries and provinces helped alleviate this need. This situation favours late anti-tuberculosis treatment initiation and reduced adherence to the DOTS strategy.

While MDR-TB is not a major issue, recent studies have demonstrated high transmission levels of

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Table 1   Annual tuberculosis mortality rate (incidence rate) in Central America, 2002–2012*

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Belize	6.8 (40)	5.9 (40)	2.8 (40)	2.2 (40)	5.6 (40)	2.8 (40)	5.3 (40)	4.1 (40)	4.3 (40)	4.3 (40)	4.3 (40)
Guatemala	4.1 (67)	3.7 (66)	3.4 (65)	3.3 (65)	3.0 (64)	2.6 (63)	2.9 (63)	2.5 (62)	2.3 (62)	2.2 (61)	2.1 (60)
El Salvador	2.5 (38)	1.7 (33)	2.2 (32)	1.8 (39)	1.2 (34)	2.0 (33)	1.6 (32)	1.4 (30)	1.2 (28)	1.1 (27)	1.0 (25)
Honduras	4.5 (102)	4.2 (91)	4.0 (81)	3.8 (73)	3.7 (66)	3.5 (60)	3.4 (57)	3.2 (55)	3.1 (54)	3.0 (54)	2.9 (54)
Nicaragua	5.0 (62)	5.8 (59)	5.3 (56)	5.4 (53)	4.3 (51)	4.1 (49)	3.3 (46)	3.3 (44)	4.5 (42)	3.3 (40)	3.1 (38)
Costa Rica	1.8 (30)	1.7 (28)	1.6 (25)	1.4 (23)	1.2 (21)	0.8 (19)	1.2 (17)	1.1 (16)	0.9 (14)	0.8 (12)	0.8 (11)
Panama	6.0 (51)	7.1 (50)	5.8 (51)	6.3 (49)	5.9 (48)	4.9 (46)	5.7 (45)	6.3 (43)	5.1 (42)	4.3 (43)	5.2 (39)†

* Source: World Health Organization, Tuberculosis Global Report, 2013,[7] and National Tuberculosis Control Programme in Panama.
† Estimated values for 2012.

resistant strains in the Panamanian population.[6] Similarly, the high turnover rate of health care workers limits development of the skills required to manage an integrated TB control programme. In 2012, Colon City reported up to four nursing staff changes at a given Social Security TB Clinic. Taken together, these factors have limited Panama's ability to take adequate steps towards achieving the Millennium Development Goal 6.C for TB control, i.e., to halve TB incidence and mortality by 2015, especially in minimising the TB mortality rate.

Financial commitment to TB control in Panama is still lacking. Limited success in reducing TB mortality has emerged from a lack of prioritised use of economic resources. Panama's domestic funding for TB decreased from US$1.8 million in 2008 to zero in 2013.[7] As a consequence, operations are inefficient in five areas of TB control, including anti-tuberculosis treatment and drugs, laboratory network and quality assurance, high-risk groups, TB-HIV co-infection and TB in children. The National Secretariat of Science, Technology and Innovation recently approved a grant to reinforce one TB laboratory in Colon City, and the University Research Co., LLC, Bethesda, MD, USA, is conducting a programme to strengthen both TB and TB-HIV responses in Colon City and Panama City. Such support remains insufficient to strengthen TB control across the entire country. In contrast, El Salvador has consistently assigned nearly US$4.0 million annually to its national TB control programme,[7] resulting in a steady decrease in TB mortality. El Salvador has also established routine drug susceptibility testing surveillance systems for all previously treated cases.[7] We believe that similar domestic fund-

ing commitments within Central American countries and Panama will help defeat TB in the region.

DISCUSSION

A strategy for controlling TB and minimising the TB mortality rate in Panama requires a few key steps that have already been identified but that need strengthening.[8,9] First, a decisive willingness to increase domestic and international funding for TB control through a multidisciplinary approach is necessary. If resources are granted, funding efforts should be directed initially to reinforce and expand the TB laboratory network in Panama; specifically, new laboratories are needed to perform AFB smear microscopy in Colon and indigenous territories. Second, novel strategies for TB drug purchasing and distribution should be implemented to sustain current treatments and treat both new TB cases and MDR-TB patients. Drugs should be purchased using a 3-year supply contract model to guarantee drug availability over longer periods. Third, an increase in the number of health care workers dedicated exclusively to local TB control programmes could strengthen their roles in active search, diagnosis, treatment, contact investigation and data management. In addition to the solutions proposed above, additional funding should come from collaborations between the private sector and governmental agencies to sponsor applied and operational research, development and innovation (RDI). RDI strategies will accelerate both improvements in TB diagnosis as well as the identification and correction of other issues that limit the operations of the TB control programme.[7] Studies on novel

Table 2   Annual estimated per cent change in GDP and absolute GDP (in billion USD) for Central American countries, 2002–2012*

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Belize	5.2 (0.9)	9.3 (1.0)	4.6 (1.1)	2.6 (1.1)	5.1 (1.2)	1.2 (1.3)	3.8 (1.4)	−0.0 (1.3)	2.7 (1.4)	1.9 (1.5)	5.3 (1.6)
Costa Rica	2.9 (16.8)	6.4 (17.5)	4.3 (18.6)	5.9 (20.0)	8.8 (22.5)	7.9 (26.3)	2.7 (29.8)	−1.0 (29.4)	4.7 (36.2)	4.2 (40.9)	5.0 (45.1)†
El Salvador	2.3 (14.3)	2.3 (15.0)	1.9 (15.8)	3.6 (17.1)	3.9 (18.6)	3.8 (20.1)	1.3 (21.4)	−3.1 (20.7)	1.4 (21.4)	2.0 (23.1)	1.6 (23.8)†
Guatemala	3.9 (20.8)	2.5 (21.9)	3.2 (24.0)	3.3 (27.2)	5.4 (30.2)	6.3 (34.1)	3.3 (39.1)	0.5 (37.7)	2.9 (41.3)	4.1 (47.0)	3.0 (49.9)†
Honduras	3.8 (7.8)	4.5 (8.2)	6.2 (8.8)	6.1 (9.7)	6.6 (10.9)	6.2 (12.3)	4.2 (13.8)	−2.4 (14.5)	3.7 (15.8)	3.7 (17.7)	3.3 (18.4)†
Nicaragua	0.8 (5.2)	2.5 (5.3)	5.3 (5.8)	4.3 (6.3)	4.2 (6.8)	5.0 (7.4)	4.0 (8.3)	−2.2 (8.2)	3.6 (8.6)	5.4 (9.6)	5.2 (10.5)†
Panama	2.2 (12.3)	4.2 (12.9)	7.5 (14.2)	7.2 (15.7)	8.5 (17.1)	12.1 (19.8)	10.1 (23.0)	3.9 (24.2)	7.5 (27.1)	10.8 (31.3)	10.7 (36.3)

* Source: International Monetary Fund.[4]
† Estimated values for 2012.
GDP = gross domestic product; USD = US dollar.

biomarkers for TB diagnosis and treatment monitoring should also be implemented.[10]

CONCLUSION

A multipronged approach to further reduce the TB mortality rate in Panama will require increased and prioritised resources within the action areas proposed here. Domestic and international funding is urgently needed to reinforce laboratory case detection, ensure treatment and employ permanent health care workers for TB control. We believe that such a plan will favour the attainment of the Millennium Development Goal for TB within an accelerated timeline.

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_____ **R É S U M É**

La tuberculose (TB) est une maladie associée à l'absence d'équité et la lutte repose sur une utilisation judicieuse des ressources économiques. Le Panama a récemment obtenu le statut de pays à revenu moyen-supérieur avec une croissance économique solide. Cependant, la priorisation des ressources allouées à la lutte contre la TB reste un défi majeur. Dans ces notes émanant du terrain, nous mettons l'accent sur les domaines qui requièrent des efforts urgents afin de réduire efficacement le fardeau de la TB à son niveau le plus faible. Nos conclusions suggèrent qu'il est nécessaire d'allouer judicieusement les ressources et d'avoir une approche multidisciplinaire afin d'assurer un diagnostic de laboratoire rapide, une garantie de traitement et un renforcement du personnel, complétés par une activité de recherche, développement et innovation, appliquée et opérationnelle.

_____ **R E S U M E N**

La tuberculosis (TB) se asocia con la falta de equidad y se considera que una inversión razonable de los recursos económicos representa un factor primordial en el control de la enfermedad. En tiempos recientes, Panamá ha consolidado su posición como un país de recursos intermedios altos con un sólido crecimiento económico. Sin embargo, la priorización de los recursos destinados a la TB aun plantea dificultades importantes. En las presentes notas del terreno se pusieron de relieve las esferas que precisan medidas urgentes con el fin de disminuir eficazmente a un nivel mínimo la carga de la morbilidad por TB. Se destaca la necesidad de asignar recursos y establecer una estrategia multidisciplinaria que vele por el diagnóstico oportuno de laboratorio, la garantía del tratamiento y el fortalecimiento del personal, aunado a la investigación aplicada y operativa, el desarrollo y la innovación.