



Tuberculosis: a persistent global health challenge

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GLOBAL
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PROGRAMS

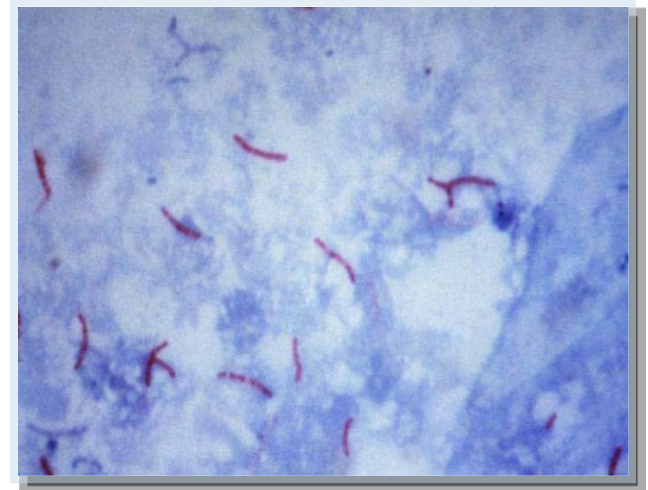
What is TB?

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*

- Active TB: sick and contagious

Most infected people do not develop the disease

- These people are not contagious
- We call this 'latent infection'



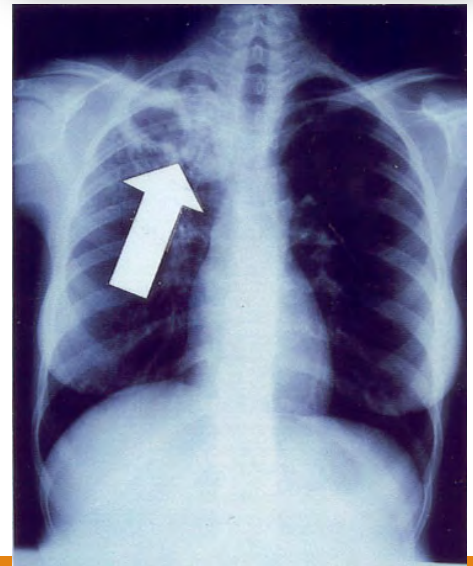
Clinical manifestations of TB

General

- Fever, weight loss, weakness
- “Consumption”, “Phthisis”

Organ specific

- Lungs: cough, spitting up blood
- Others:
 - Scrofula: swollen lymph nodes
 - Spine: ‘hump-back’
 - Etc.



“Youth grows pale and spectre thin and dies”



TB killed Keats at the age of 25.

TB was nearly always fatal before the advent of anti-TB drugs



Tuberculosis throughout History: Famous PEOPLE

ELEANOR ROOSEVELT

Eleanor Roosevelt was the longest-serving First Lady of the United States, holding the post from 1933 to 1945 during her husband Franklin D. Roosevelt's four terms in office. In April 1960, Roosevelt was diagnosed with aplastic anemia. In 1962, she was given steroids, which activated a dormant case of bone marrow tuberculosis. Roosevelt died of resulting cardiac failure at her Manhattan home on November 7, 1962, at the age of 78.



ALEXANDER GRAHAM BELL

Alexander Graham Bell was born in Scotland in 1847. He was an eminent scientist, inventor, engineer, and innovator who is credited with inventing the first practical telephone in 1876. In 1888, Bell became one of the founding members of the National Geographic Society. When he was in his early 20s, his two brothers died of tuberculosis. Bell also had tuberculosis, and his father moved the family to Canada looking for a better climate in which to live. Bell eventually

VIVIEN LEIGH

Vivien Leigh was an English actress best known for her performances as Scarlett O'Hara in "Gone with the Wind" (1939) and Blanche DuBois in "A Streetcar Named Desire" (1951), winning the Academy Award for Best Actress for both. She suffered recurrent bouts of chronic tuberculosis, first diagnosed in the mid-1940s, which ultimately claimed her life at the age of 53 in 1967.



YUSUF ISLAM

Yusuf Islam (born Steven Demetre Georgiou), commonly known by his former stage name Cat Stevens, is a British singer-songwriter, multi-instrumentalist, humanitarian, and education philanthropist. When he was 19, Islam contracted tuberculosis and was hospitalized. He says this period of illness and recovery forced him to re-evaluate his lifestyle.

DESMOND MPIOLO TUTU

Desmond Mpiilo Tutu is a South African social rights activist and retired Anglican bishop who rose to worldwide fame during the 1980s as an opponent of apartheid. He was the first black South African Archbishop of Cape Town. A former tuberculosis sufferer, Tutu champions tuberculosis research and care, and he is the patron of the Tygerberg Children's Hospital. The Desmond Tutu TB Centre is an academic research center at Stellenbosch University's Department of Pediatrics and Child Health, Faculty of Health Sciences.



Nelson Mandela
John Keats
Bronte sisters
Jane Austen
Franz Kafka
Anton Chekhov
George Orwell
Frederic Chopin
DH Lawrence...



Tuberculosis, Man, and Society

René and Jean
Dubos

With a new
Foreword by
David Mechanic
and a new
Introductory
Essay by
Barbara Gutmann
Rosenkrantz

The White Plague

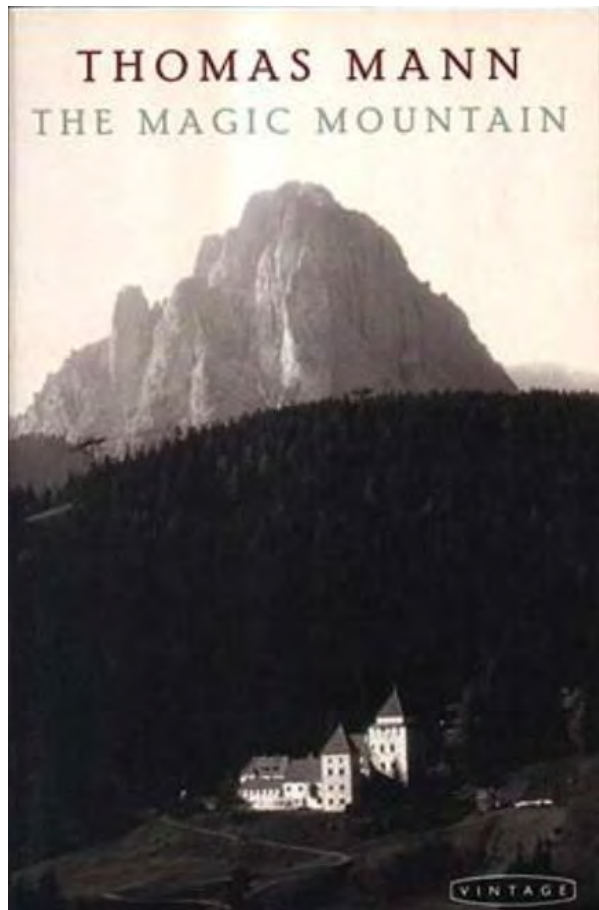
THE FORGOTTEN PLAGUE

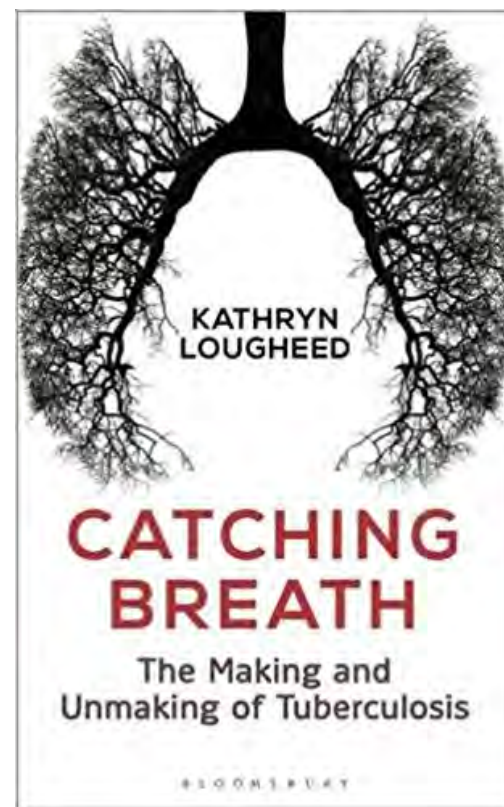
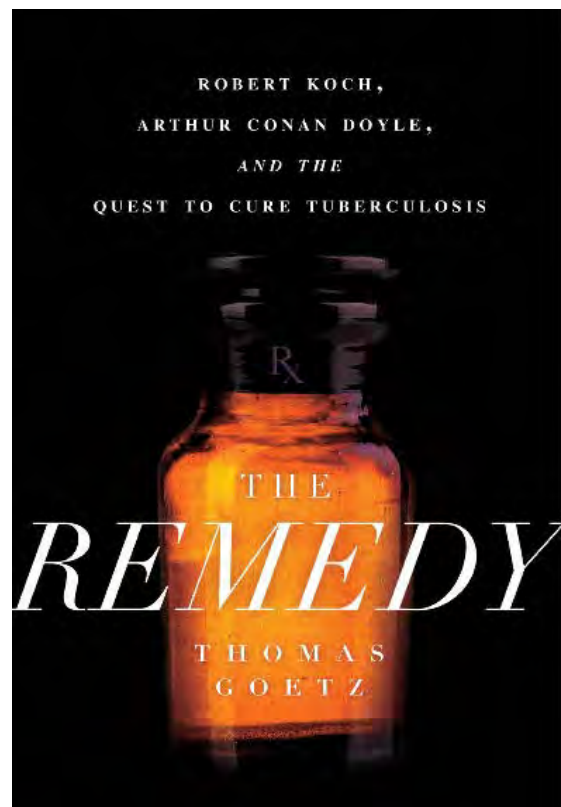
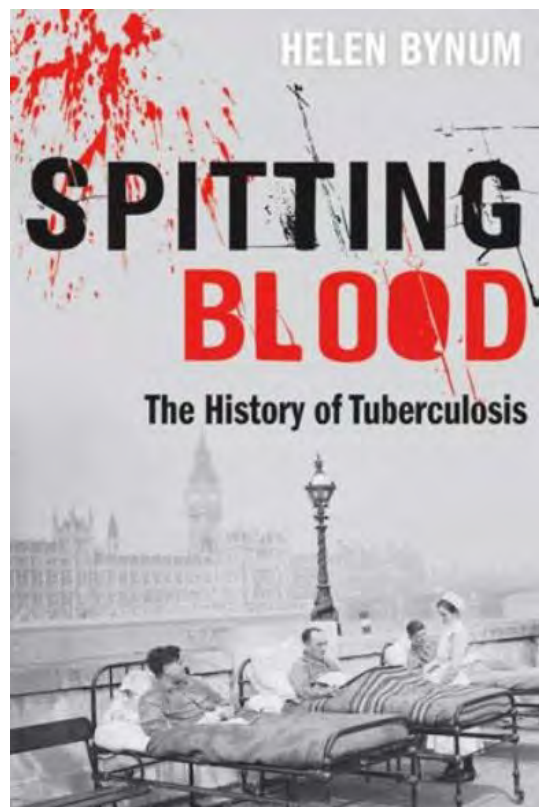
"Written at the pace of a mystery thriller
and styled as a psychodrama,
yet remarkably accurate in scientific detail."
—Wall Street Journal

HOW
THE BATTLE
AGAINST
TUBERCULOSIS
WAS WON
— AND LOST



FRANK RYAN, M.D.





TB is still a huge problem globally!

IN 2017



**1.6 MILLION
PEOPLE DIED
FROM TB**

INCLUDING
300 000 PEOPLE
WITH HIV

ONLY
ONE IN FOUR
PEOPLE HAD
ACCESS TO
MDR-TB
TREATMENT



OF THOSE TREATED ONLY
55% WERE CURED

**3.6
MILLION
GLOBAL
GAP**



**6.4 MILLION
WERE DETECTED
AND NOTIFIED**

**3.6 MILLION
PEOPLE WITH
TB WERE
UNDIAGNOSED
OR DETECTED AND
NOT REPORTED**

ONLY **36%**
OF PEOPLE NEWLY ENROLLED IN
HIV CARE WERE STARTED ON **TB**
PREVENTIVE TREATMENT



ONLY **23%**
OF **CHILDREN** UNDER 5 YEARS,
ESTIMATED TO BE ELIGIBLE FOR **TB**
PREVENTIVE TREATMENT WERE
STARTED ON IT.



WHO strongly recommends preventive treatment
for people living with HIV, and children under
5 years living in households with TB.

Drug-resistant TB

558000 people developed disease resistant to at least *rifampicin*—the most effective first-line TB drug.



BETTER PREVENTION, DETECTION AND CURE WILL ADDRESS THE MDR-TB CRISIS

What is the strategy for TB control?

In the absence of a good vaccine, “test and treat” is the key strategy for control

Detect TB cases (once patients become sick) and put them on 6 month, short-course, multidrug therapy, and ensure adherence

- Thereby reduce transmission to others

Packaged as the “DOTS” strategy

- 70/85 targets:
 - Detect 70% of smear-positive cases
 - Cure 85% of the cases identified

DOTS has saved lives, and cured many....



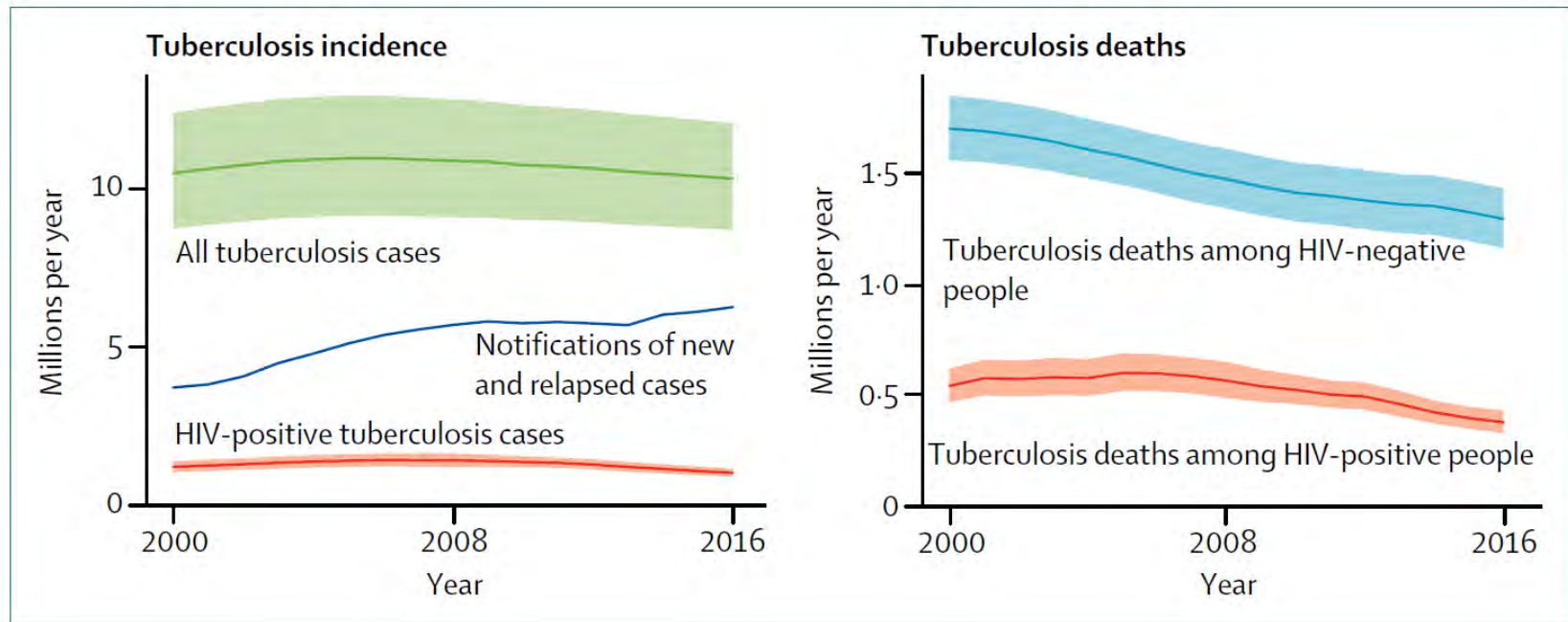
TARGETS ON TRACK

- ✓ Reduction in TB mortality rate of 45% since 1990
- ✓ 37 million lives saved since 2000
- ✓ 86% cure rate and 61 million patients cured, 1995-2013

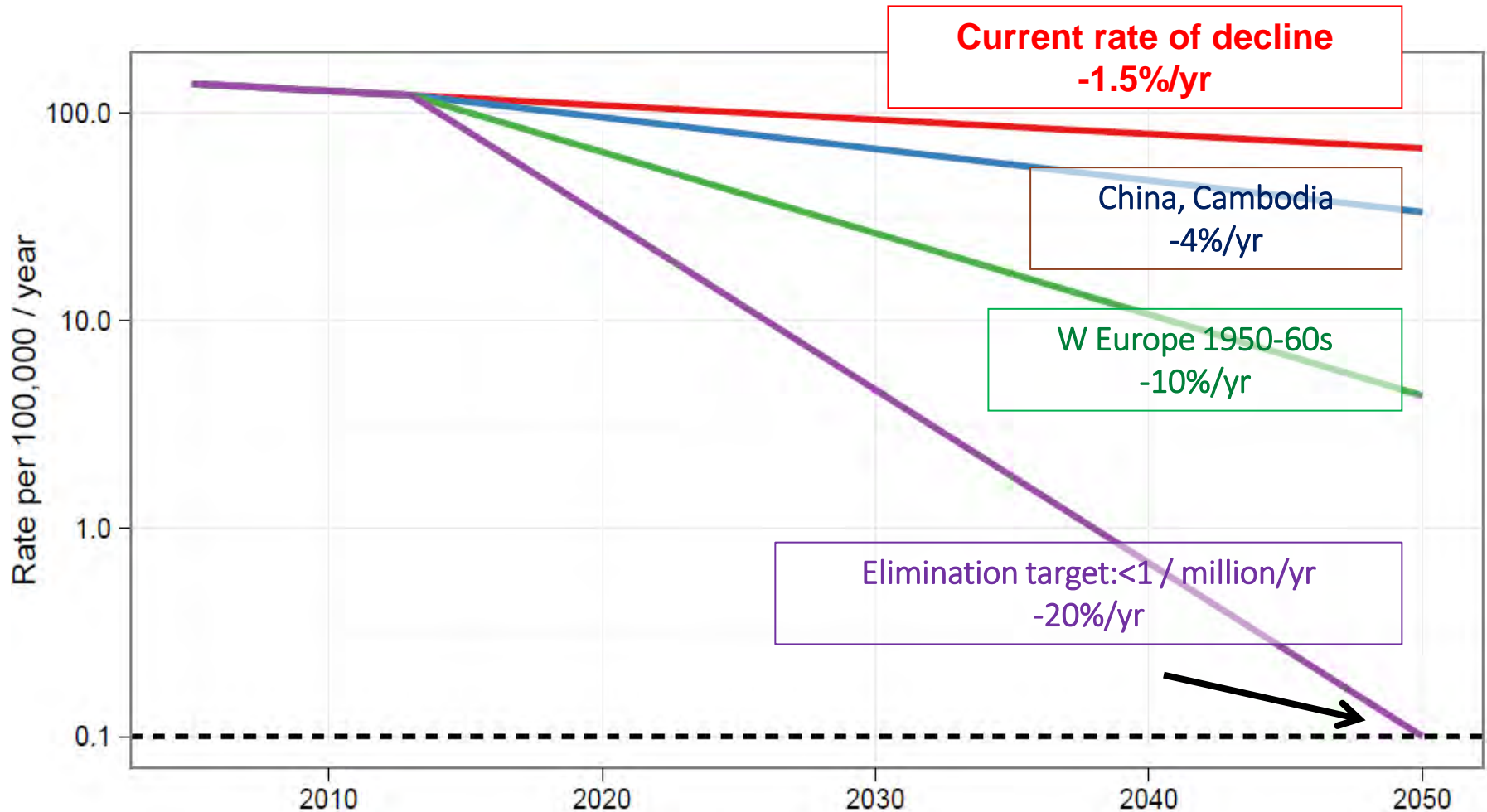
BUT....

Ref: Global TB Control Report 2014

TB cases and deaths in **slow decline**, 1990-2016



Full implementation of Global Plan: 2015 MDG target reached but TB not eliminated by 2050



MDR-TB is a crisis in some areas



Percentage of new TB cases with MDR-TB

Ref: Global TB Control Report 2014



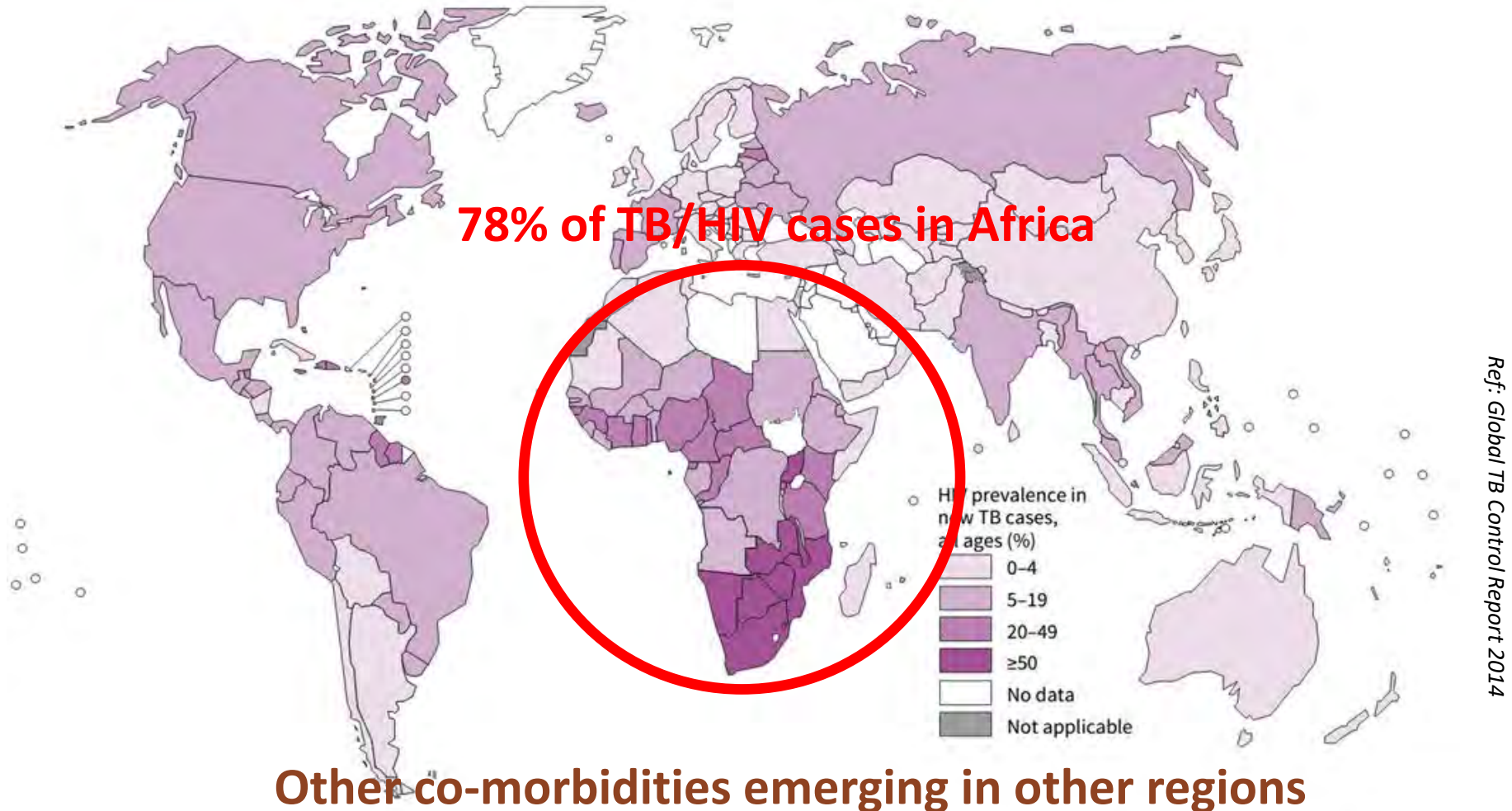
Highest % in the former USSR countries

**India, China, Russia, Pakistan and Ukraine
have 60% of all MDR-TB cases**

TB/HIV is a huge problem in Africa



Estimated HIV prevalence in new TB cases, 2013



FUNDING GAPS IMPEDE EFFORTS TO END TB

FUNDING GAP

TB CARE AND PREVENTION:



**FUNDING GAP OF
US\$ 2.3 BILLION
IN 2017**

RESEARCH & DEVELOPMENT:



**FUNDING GAP OF
US\$ 1.2 BILLION
PER YEAR REQUIRED FOR THE
DEVELOPMENT OF NEW TOOLS**

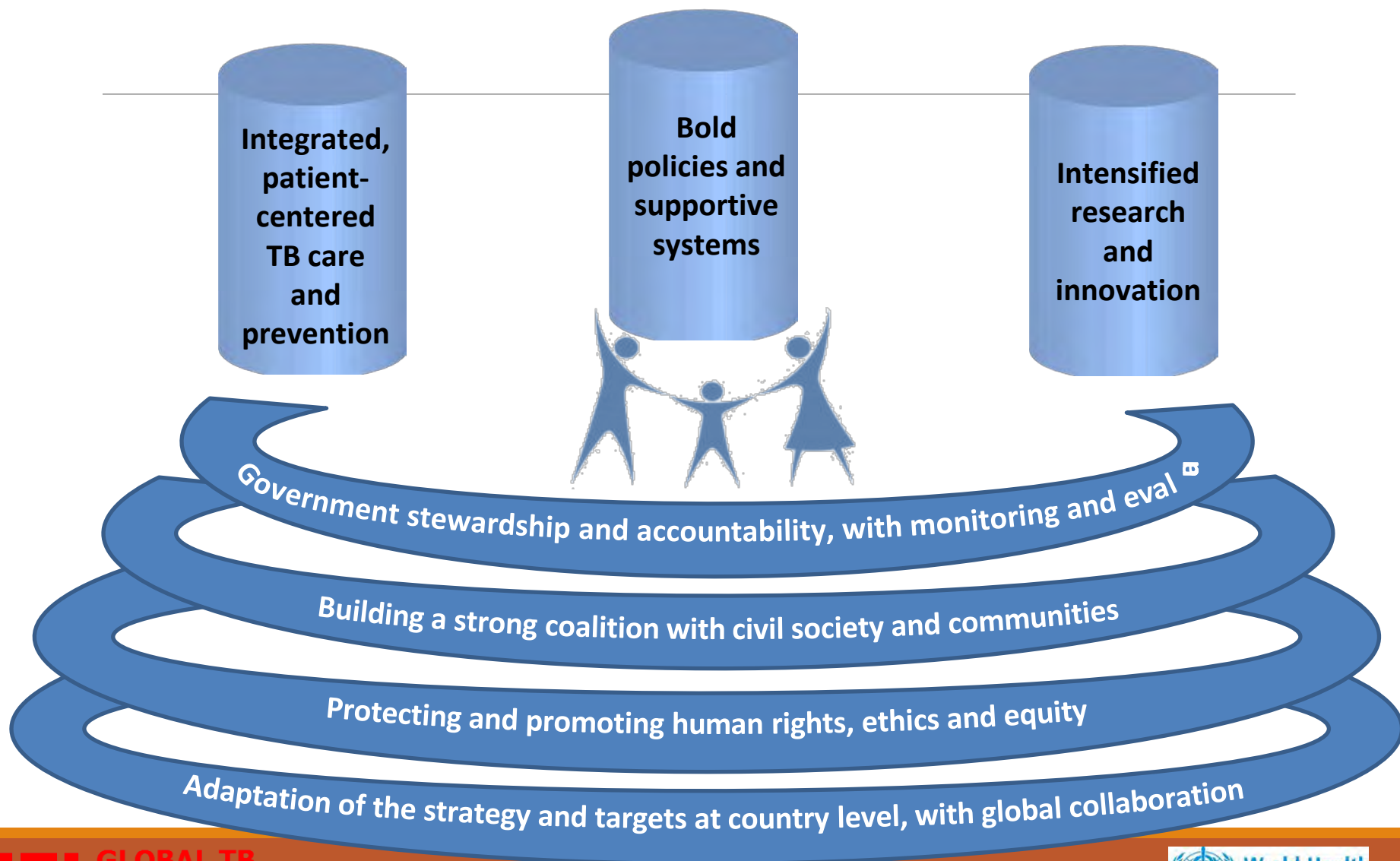
67th World Health Assembly, Geneva, May 2014



VISION	A world free of tuberculosis – zero deaths, disease and suffering due to tuberculosis
GOAL	End the global tuberculosis epidemic
MILESTONES FOR 2025	<ul style="list-style-type: none">– 75% reduction in tuberculosis deaths (compared with 2015);– 50% reduction in tuberculosis incidence rate (compared with 2015) (less than 55 tuberculosis cases per 100 000 population)– No affected families facing catastrophic costs due to tuberculosis
TARGETS FOR 2035	<ul style="list-style-type: none">– 95% reduction in tuberculosis deaths (compared with 2015)– 90% reduction in tuberculosis incidence rate (compared with 2015) (less than 10 tuberculosis cases per 100 000 population)– No affected families facing catastrophic costs due to tuberculosis
PRINCIPLES	
<ol style="list-style-type: none">1. Government stewardship and accountability, with monitoring and evaluation2. Strong coalition with civil society organizations and communities3. Protection and promotion of human rights, ethics and equity4. Adaptation of the strategy and targets at country level, with global collaboration	

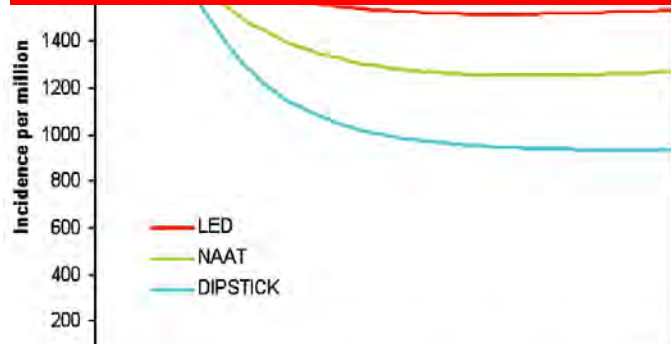


The End TB Strategy: 3 pillars and 4 Principles



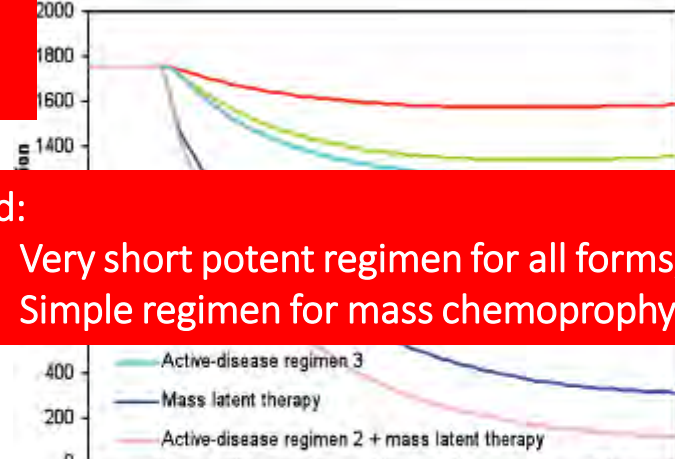
Mathematical modeling suggests that multiple interventions are necessary for impact

To eliminate TB:
A quick PoC test for disease and infection



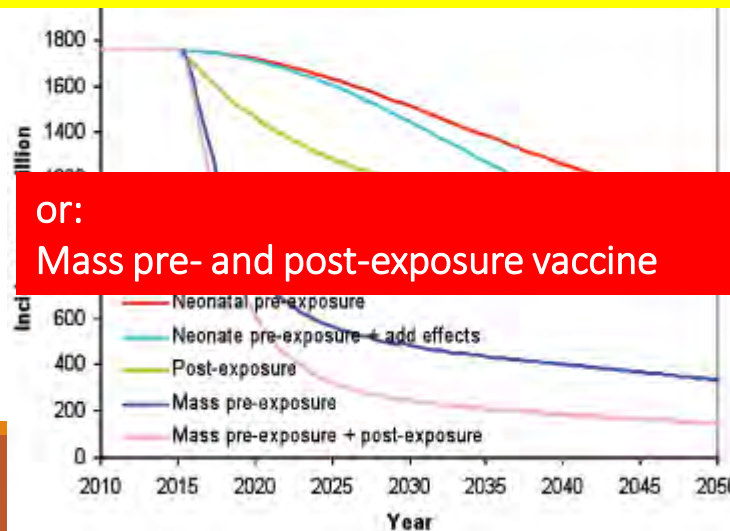
And:

1. Very short potent regimen for all forms, and
2. Simple regimen for mass chemoprophylaxis



Synergy of interventions !

Action on both transmission and reactivation pathways



or:
Mass pre- and post-exposure vaccine

Add. Effects = effects also on latency
and infectiousness of cases in vaccinated

TB in Canada

CMAJ

EDITORIAL

Tuberculosis in Nunavut: a century of failure

Noni MacDonald MD MSc, Paul C. Hébert MD MHSc, Matthew B. Stanbrook MD PhD



Stephen Lewis calls on Ottawa to step up as Nunavut grapples with TB 'crisis'

Founder of AIDS-Free World wrapped up trip to Nunavut to meet with people affected by disease

CBC News - Posted: Sep 11, 2017 / 7:37 PM CDT | Last Updated: Sep 11, 2017 / 7:37 AM CDT



Stephen Lewis, seen in this file photo, spoke in Igloolik this weekend about the federal government's handling of the TB 'crisis' in Nunavut. (Codie McLachlan/The Canadian Press)

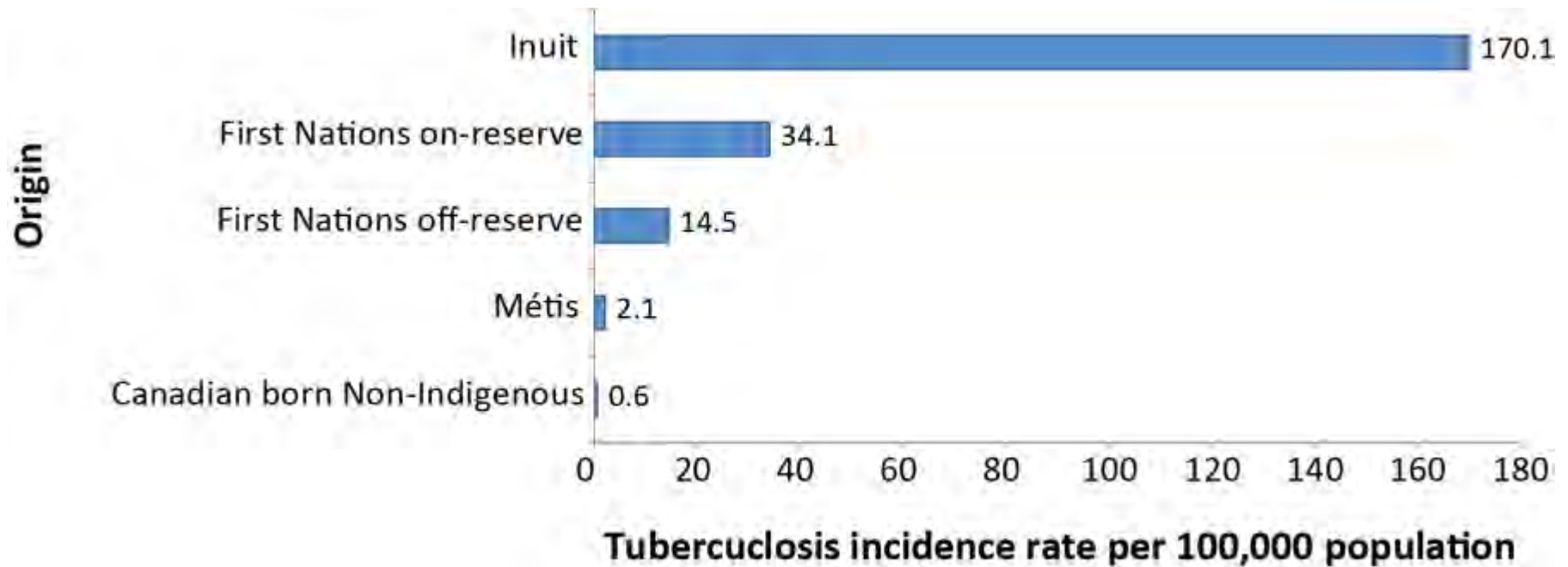
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Lewis said he had five points to make about the issue.

- The rate of tuberculosis in the territory is unacceptably high.
- There is a shortage of nursing staff who speak Inuktitut and specialize in treating TB.
- The lasting effects of colonialism are continuing and making the problem worse.
- Food insecurity and a lack of housing negatively affects health.
- The effects of the C.D. Howe medical ship, which took Inuit patients south for TB treatment in the 1950s and '60s, is still being felt.

TB incidence rates in Canada



<https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2018-44/issue-3-4-march-1-2018/article-1-tuberculosis-2016.html>

9392



Indigenous people await medical examination aboard the C.G.S. C.D. Howe at Coral Harbour, N.W.T. (now Coral Harbour/Salliq, Nunavut) in July, 1951. Throughout the 1950s and 60s, the Canadian Coast Guard ship made summer medical trips to the Eastern Arctic. If an infectious disease such as tuberculosis was found during the medicals, the infected individual was kept on board and not allowed to go ashore to collect belongings or say goodbye, before sailing south for treatment, which could take several years.

NATIONAL FILM BOARD OF CANADA / LIBRARY AND ARCHIVES CANADA

<https://www.theglobeandmail.com/opinion/article-out-in-the-cold-what-the-tb-crisis-in-nunavut-reveals-about-canada/>



https://en.wikipedia.org/wiki/The_Necessities_of_Life

SOCIAL & ECONOMIC INEQUITY IN INUIT NUNANGAT

Many Inuit face social and economic inequities that impact our health and wellbeing

INUIT NUNANGAT

\$23,485 The median individual income for Inuit in Inuit Nunangat¹

52% of Inuit in Nunangat live in crowded homes¹

34% of Inuit aged 25 to 64 in Inuit Nunangat have earned a high school diploma¹

70% of Inuit households in Nunavut do not have enough to eat²

30 The number of physicians per 100,000 population in Nunavut³

47.5% of Inuit in Inuit Nunangat are employed¹

72.4 years The average life expectancy for residents in Inuit Nunangat¹⁵

12.3 The infant mortality rate per 1000 for Inuit infants in Canada.⁶



ALL CANADIANS

\$92,011 The median individual income for non-Indigenous people in Inuit Nunangat¹

9% of non-Indigenous people in Inuit Nunangat live in crowded homes¹¹

86% of all Canadians aged 25 to 64 have earned a high-school diploma¹

8% of all Canadian households do not have enough to eat³

119 The mean number of physicians per 100,000 population in Urban Health Authorities⁴

60.2% of all Canadians are employed¹

82.9 years The average life expectancy for all Canadians⁵

4.4 The non-Indigenous infant mortality rate per 1000 for Canada.⁶

¹Should not be compared with preceding data for preceding years. Based on the availability of data, neither the dwelling nor enough bedrooms for the size and composition of the household. The previous figure was based on the number of persons per room (apartment).

²Should not be compared with previous life expectancy data. The figure is a national 2017 projection of life expectancy for Inuit. Previous figures were for 2006-2007 for all residents of Inuit Nunangat, including non-Inuit.

³Statistics Canada, 2016 Census. (crowded homes: 98-400 X2016163; high school diploma 98-400 X2016265; income: unpublished custom table provided to INK; employment: 98-400 X2016266).

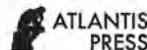
⁴Source: M. Rydman, Inuit Health Survey 2007-2008, Nunavut: the Arctic Circle, Ottawa, QC: Centre for Indigenous Peoples' Nutrition and Environment, May 2010: 12.

⁵Shawn Redmond and Emma Hawkins, Health at a Glance: Food insecurity in Canada (Ottawa, ON: Statistics Canada, March 25, 2015).

⁶Canadian Institute for Health Information, Supply, Distribution and Migration of Physicians in Canada, 2014 (Ottawa, ON: Canadian Institute for Health Information, September 2015).

¹⁵Figure based on Statistics Canada's Projections of the Aboriginal Population and Households in Canada, 2011 to 2036.

¹¹Shippard et al. 2017, "First outcomes among First Nations, Inuit and Métis populations." Health Reports Vol. 28, No. 11.



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<https://www.atlantispress.com/journals/egh>



The Enduring Plague: How Tuberculosis in Canadian Indigenous Communities is Emblematic of a Greater Failure in Healthcare Equality

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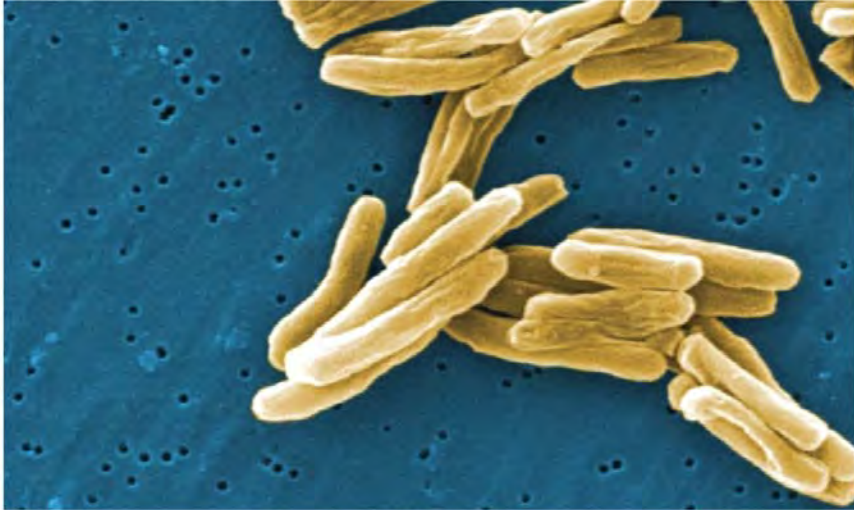
ABSTRACT

Despite global strides made in prevention and treatment, tuberculosis (TB) remains an acute problem for Indigenous people in Canada. TB affects Indigenous communities at significantly higher rates than the general Canadian population, for whom it is a disease of the past. This paper suggests how colonialism and its history of violence have shaped the face of TB in Canada, and thus how TB is a telling point of analysis for considering the lack of equity and equality in healthcare delivery in Canada.

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Government aims to eliminate tuberculosis in Canada's North by 2030



The Mycobacterium tuberculosis (TB) bacteria is shown in a 2006 high magnification scanning electron micrograph (SEM) image. (CDC / Janice Carr)

Federal government aims to eliminate tuberculosis in Canada's North by 2030

By The Canadian Press

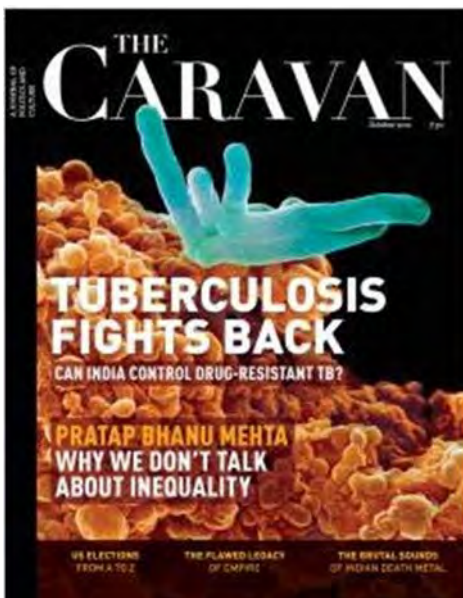
Comments 2 Facebook 73 Twitter Email Print ...



Indigenous Services Minister Jane Philpott (left) and Health Minister Ginette Petitpas Taylor (centre) look on as Inuit Tapiriit Kanatami (ITK) President Natan Obed addresses media in the Foyer outside the House of Commons in Ottawa on Thursday, Oct. 5, 2017.

THE CANADIAN PRESS/Sean Kilpatrick

Case study of India



THE WALL STREET JOURNAL. India in Race to Contain Untreatable Tuberculosis

BY GEETA ANAND

MUMBAI—India's slow response to years of medical warnings now threatens to turn the country into an incubator for a mutant strain of tuberculosis that is proving resistant to all known treatments, raising alarms of a new global health hazard.

"We finally have ended up with a virtually untreatable strain" of tuberculosis in India, said Dr. Zarir Udwadia, one of the country's leading TB authorities.

In December, Dr. Udwadia reported in a medical journal that he had four tuberculosis patients resistant to all treatment. By January, he had a dozen cases, then 15.

A government backlash began immediately. Anonymous health-ministry officials denied the reports through media outlets. They accused Dr. Udwadia and his colleagues of starting a panic. A Mumbai city health official seized patient samples for verification in government labs.

In April, the government quietly confirmed the strain, according to internal Indian health-ministry

documents reviewed by The Wall Street Journal.

Spread of the strain could return tuberculosis to the fatal plague that killed two-thirds of people afflicted, before modern treatments were developed in the 1940s, said Mario Raviglion, director of the Stop TB Department of the World Health Organization. The WHO is now assisting India to combat the strain.

The number of known cases in India is small but geographically dispersed. Dr. Udwadia's patients are in Mumbai, at the P.D. Hinduja National Hospital & Medical Research Center. In the high-tech hub of Bangalore, St. John's National Academy of Health Sciences has seen six cases. And in New Delhi, the All India Institute of Medical Sciences has confirmed another two, said officials at the institutions.

"While this handful of cases is worrying, it's just the tip of the iceberg," said Dr. Soumya Swaminathan, of India's National Institute for Research in Tuberculosis. For treatments, Dr. Udwadia said, "We've got nothing."

Ashok Kumar, head of India's tuberculosis-con-

Please turn to page A12

COVERSTORY



How Fight to Tame TB Made It Stronger

The World Health Organization's long-standing strategy for fighting tuberculosis is showing deadly unintended consequences: By focusing for years on the easiest-to-cure patients, it helped allow TB strains to spread that are now all but untreatable by modern medicine.

By Geeta Anand in Mumbai
and Betsy McKay in Atlanta

The WHO and a growing chorus of global health experts are now calling for a significant overhaul in the way nations with widespread drug-resistant TB combat the disease. It amounts to a de facto acknowledgment that the WHO's TB strategy, and the countries that use it, failed to adapt quickly enough as the disease formed more powerful, resistant strains.

"The TB community has been too conservative" on a global scale, said Puneet Dewan, until recently a senior officer in the WHO's India tuberculosis program. "We should have pushed sooner for a more aggressive, comprehensive approach" toward drug resistance, he said this month in an interview. "There was a cost in failing to do that. We're paying that cost today."

The WHO played a particularly sizable role in designing the tuberculosis program in India, which has seen a steep decline in regular TB. But India and other poor countries are now in the midst of an epidemic of drug-resistant strains—deadlier and harder-to-treat varieties of one of the world's top infectious-disease killers.

G.R. Khatri, who headed India's TB program more than a decade ago, called the epidemic of resistant TB in Mumbai "a recipe

for disaster." The WHO should have known it was so bad and bears responsibility, he said. "What has the WHO been doing?"

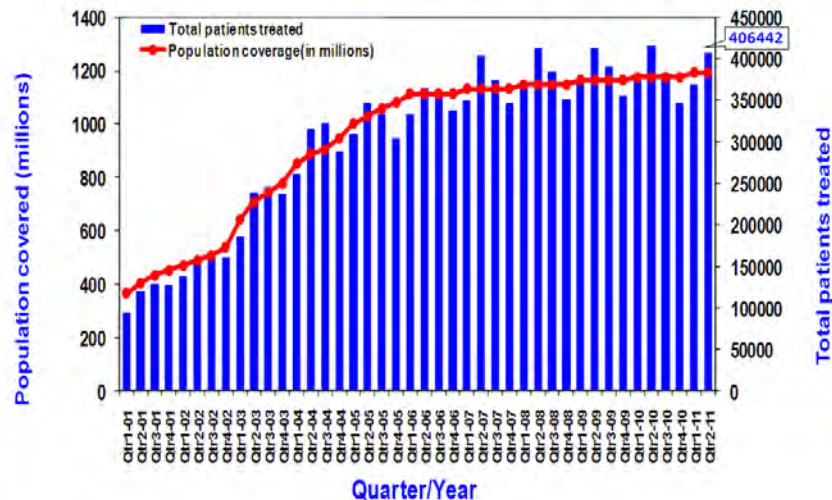
In pilot testing across India this year of a new diagnostic method, some 6.6% of untreated TB patients were drug-resistant—suggesting far higher rates than the 2% to 3% levels India and the WHO have cited for years. The test was a collaboration of international aid groups and India's government.

At one clinic in Mumbai, research showed more than one quarter of 566 TB patients tested in recent months were resistant to the most powerful treatment, according to data obtained by The Wall Street Journal through India's Right to Information Act. The results are preliminary, but in the absence of any nationwide survey they offer a sense of what India's drug-resistance rates might be.

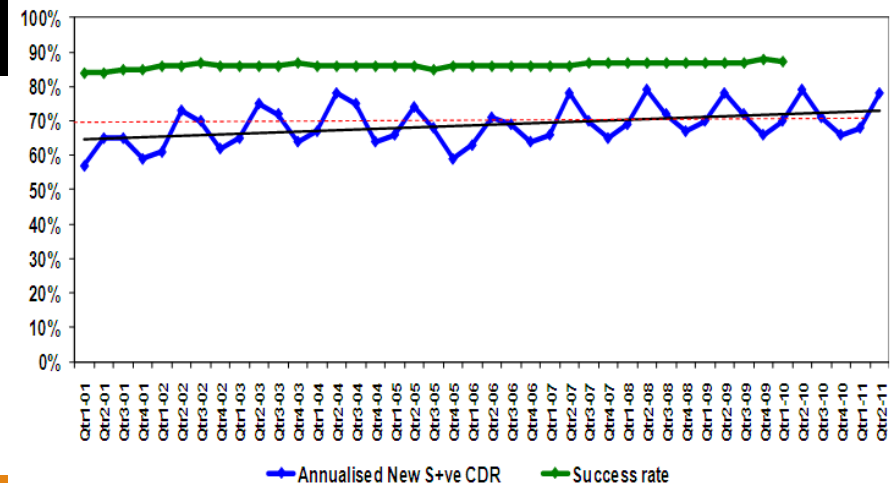
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Indian TB Programme: DOTS coverage is high (quantity is good!)

Population in India covered under DOTS and Total Tuberculosis Patients put on treatment each quarter



Annualized New Smear-Positive Case Detection Rate and Treatment Success Rate in DOTS areas, 2001 – 2011



•Population projected from 2001 census
•Estimated no. of NSP cases - 75/100,000 population per year (based on recent ARTI report)

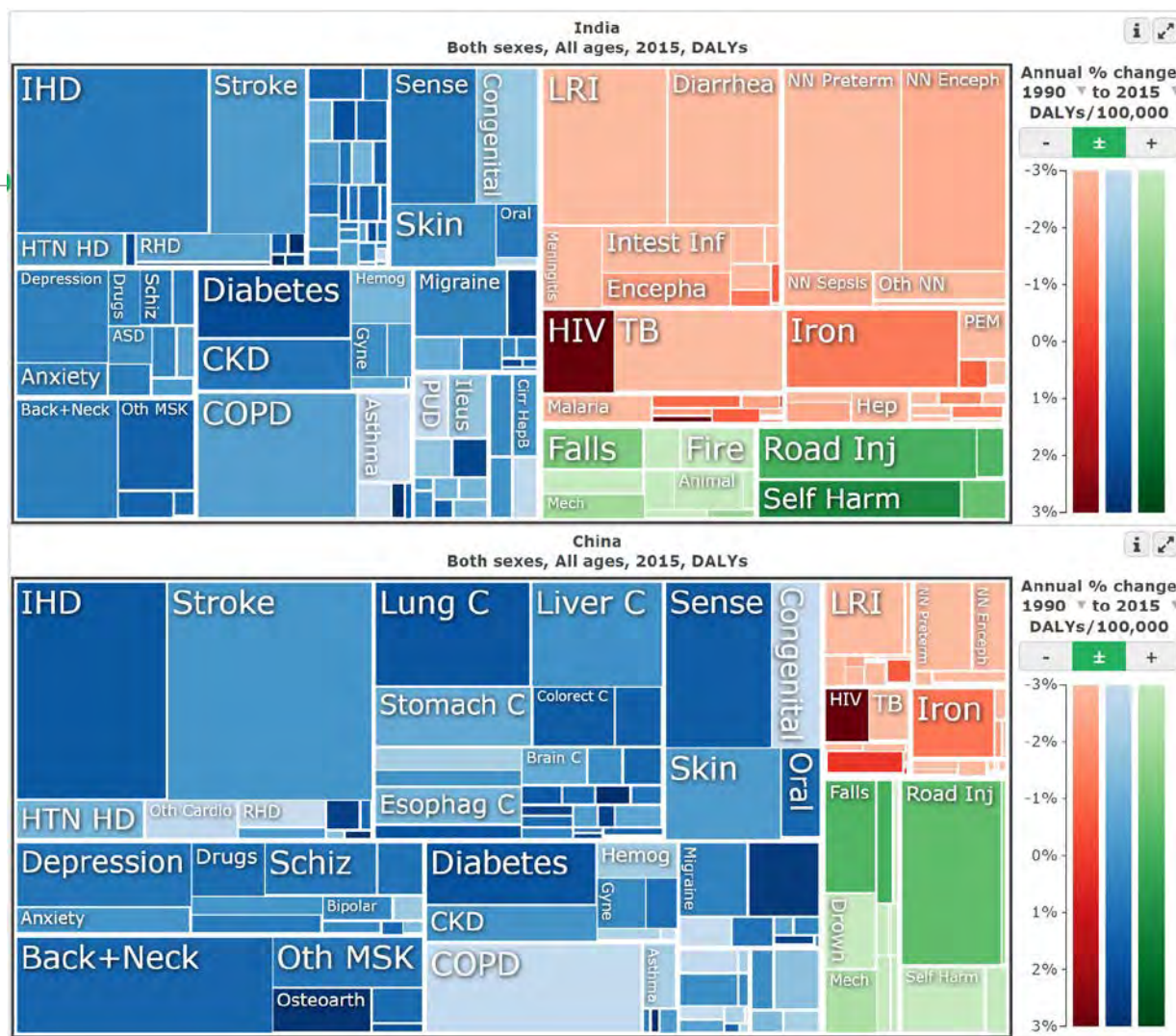
And yet...



In 2017, an estimated 2.7 million people developed TB disease, and over 400000 people died. So, India accounts for 27% of the global estimated cases, and 25% of the estimated deaths.

<https://naturemicrobiologycommunity.nature.com/channels/315-in-the-news/posts/38992-india-continues-to-bear-the-brunt-of-the-tb-epidemic>

TB is one of the top 5 causes of death at ages 30-69 in India



TB is one of the top 5 causes of death at ages 30-69 in India, whereas in China, TB is no longer one of the top 10 causes

Reducing global tuberculosis deaths—time for India to step up

As another World Tuberculosis Day passes by the outlook for tuberculosis control is far from optimistic, especially for India, the ground zero for the global epidemic. Last year, WHO declared that the tuberculosis epidemic was worse than previously thought, with an estimated 10·4 million new tuberculosis cases worldwide in 2015.¹ WHO estimated that globally 1·8 million people died from tuberculosis in 2015, of whom 0·4 million were also infected with HIV.¹ Although global tuberculosis deaths declined by 22% between 2000 and 2015, it is remarkable that tuberculosis today is responsible for more deaths than HIV and malaria combined, and continues to rank among the top ten causes of deaths worldwide.¹

WHO estimates that India accounts for 2·8 million (27%) of the 10·4 million new cases, and 29% of the 1·8 million deaths.¹ According to the Registrar General of India's Million Death Study, which documented causes of death in 1·4 million households, tuberculosis remained one of the top five causes of death among people aged 30–69 years.² By contrast, in China tuberculosis is no longer one of the top ten reasons for dying.³ Importantly, the declines in the age-standardised tuberculosis death rates in India mostly occurred between 2001 and 2007, with a slowing of the decline from 2008 to 2013.⁴ Most tuberculosis deaths in India continue to be among young adults in the economically productive age group, with high economic and social costs.⁴

Why are so many Indians dying of a curable infectious disease in 2017? There are several factors that contribute to India's enormous tuberculosis death toll. First, India has not adequately tackled key determinants of tuberculosis, especially malnutrition and tobacco smoking, which have been clearly linked with excess tuberculosis mortality.^{5,6} Second, India continues to underinvest in health, with governmental expenditure on health being one of the lowest in the world at 1·4% of the gross domestic product.⁷ This underinvestment is reflected in India's Revised National Tuberculosis Control Program (RNTCP) that has struggled to receive budgets commensurate with the scale of India's epidemic.

Third, implementation failures and a weak health system have led to suboptimal cascade of care in the public system. About half a million patients with tuberculosis in



MindContributor/Getty

**Madhukar Pai, Natasha Correa, Nerges Mistry, Prabhat Jha*

McGill International TB Centre and McGill Global Health Programs, McGill University, Montreal QC H3A 1A2, Canada (MP); Manipal McGill Centre for Infectious Diseases, Manipal University, Manipal, India (MP); Centre for Global Health Research, St Michael's Hospital and Dalla Lana School of Public Health, University of Toronto, Toronto, Canada (NC, PJ); and Foundation for Medical Research, Mumbai, India (NM)

Social determinants: poverty, malnutrition and TB in India

e4

THE NATIONAL MEDICAL JOURNAL OF INDIA VOL. 27, NO. 3, 2014

Original Article

Undernutrition and the incidence of tuberculosis in India: National and subnational estimates of the population-attributable fraction related to undernutrition

ANURAG BHARGAVA, ANDREA BENEDETTI, OLIVIA OXLADE, MADHUKAR PAI, DICK MENZIES

“The overall prevalence of undernutrition in the age group of 15–49 years was 36% among women and 34% among men. About half of all cases of active TB ... were attributable to undernutrition.”

OPEN ACCESS Freely available online

PLOS ONE

Tuberculosis and Poverty: Why Are the Poor at Greater Risk in India?

Olivia Oxlade¹, Megan Murray^{1,2,3*}

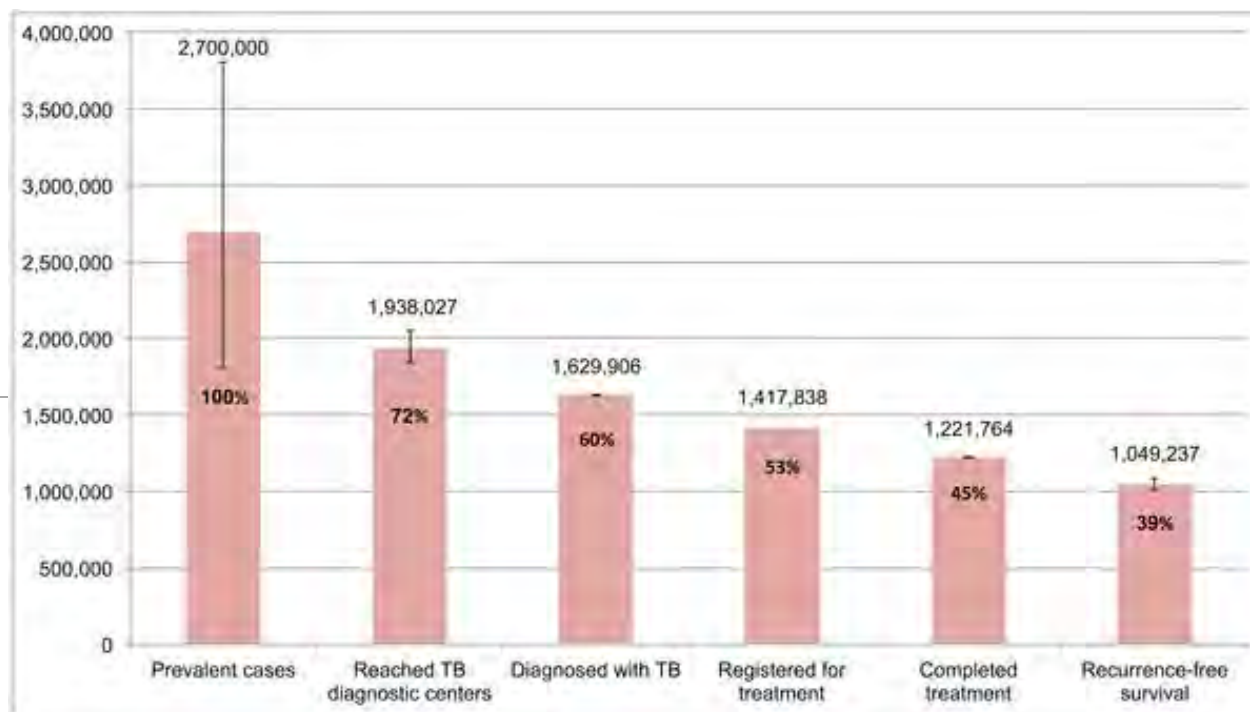
¹Department of Epidemiology, Harvard School of Public Health, Boston, Massachusetts, United States of America, ²Division of Global Health Equity, Brigham and Women's Hospital, Boston, Massachusetts, United States of America, ³Infectious Disease Unit, Massachusetts General Hospital, Boston, Massachusetts, United States of America

“TB control strategies should be targeted to the poorest populations that are most at risk, and should address the most important determinants of disease—specifically low BMI and indoor air pollution.”

RESEARCH ARTICLE

The Tuberculosis Cascade of Care in India's Public Sector: A Systematic Review and Meta-analysis

Ramnath Subbaraman^{1,2*}, Ruvandhi R. Nathavitharana^{3,4}, Srinath Satyanarayana^{5,6},
Madhukar Pai⁵, Beena E. Thomas⁷, Vineet K. Chadha⁸, Kiran Rade⁹,
Soumya Swaminathan¹⁰, Kenneth H. Mayer^{3,11}



Diagnostic delays & long pathways

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<http://dx.doi.org/10.5588/ijtld.13.0585>
E-published ahead of print 9 January 2014

Delays in diagnosis and treatment of pulmonary tuberculosis in India: a systematic review

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An average TB patient in India is diagnosed with TB after a delay of **2 months**, and is seen by **3 healthcare providers** before diagnosis

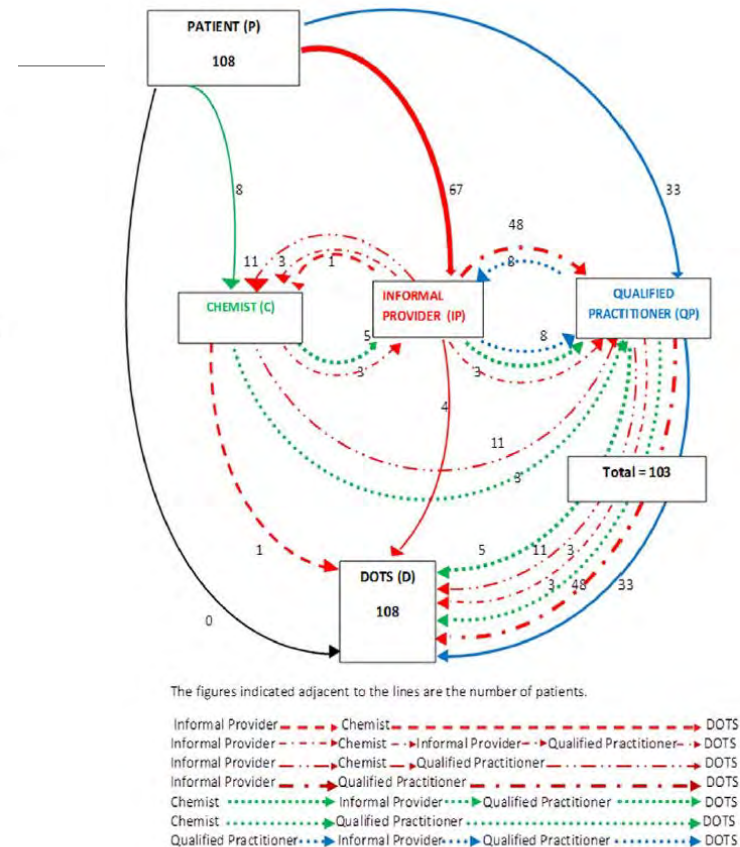


Figure 1. Pathways undertaken by the patients to reach the RNTCP (DOTS) Facilities, Delhi, India. doi:10.1371/journal.pone.0042458.g001

Kapoor et al. PLoS ONE 2012

Simulated patient studies in India show that most primary care providers do not manage TB well



Use of standardised patients to assess quality of tuberculosis care: a pilot, cross-sectional study



Jishnu Das, Ada Kwan, Benjamin Daniels, Srinath Satyanarayana, Ramnath Subbaraman, Sofi Bergkvist, Ranendra K Das, Veena Das, Madhukar Pai

Use of standardised patients to assess antibiotic dispensing for tuberculosis by pharmacies in urban India: a cross-sectional study



Srinath Satyanarayana, Ada Kwan, Benjamin Daniels, Ramnath Subbaraman, Andrew McDowell, Sofi Bergkvist, Ranendra K Das, Veena Das, Jishnu Das*, Madhukar Pai*



RESEARCH ARTICLE

Variations in the quality of tuberculosis care in urban India: A cross-sectional, standardized patient study in two cities

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Tuberculosis: treatment failure, or failure to treat? Lessons from India and South Africa

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ABSTRACT

Tuberculosis (TB) remains an enormous public health concern globally. India and South Africa rank among the top 10 high TB burden countries with the highest absolute burden of TB, and the second highest rate of TB incidence, respectively. Although the primary drivers of TB transmission vary considerably between these two countries, they do indeed share common themes. In 2017, only 64% of the global estimated incident cases of TB were reported, the remaining 36% of 'missing' cases were either undiagnosed, untreated or unreported. These 'missing TB cases' have generated much hype for the challenges they present in achieving the End TB Strategy. Although India and South Africa have indeed made significant strides in TB control, analysis of the patient cascade of care clearly suggests that these 'missed' patients are not really missing—most are actively engaging the health system—the system, however, is failing to appropriately manage them. In short, quality of TB care is suboptimal and must urgently be addressed, merely focusing on coverage of TB services is no longer sufficient. While the world awaits revolutionary vaccines, drugs and diagnostics, programmatic data indicate that much can be done to accelerate the

Summary box

- In 2017, only 64% of the global estimated incident cases of tuberculosis (TB) were reported worldwide, the remaining 36% of 'missing' cases were either undiagnosed, untreated or unreported.
- Analysis of the patient cascade of care in India and South Africa suggests that these 'missed' patients are not really missing; most are actively engaging the health system (public and private) but not adequately managed.
- National TB control programmes need to identify gaps and weaknesses along the entire patient care cascade, addressing barriers to appropriate diagnosis, linkages to treatment postdiagnosis while strengthening both public and private healthcare sectors, and bridging the gap between provider knowledge and practice.
- Integration of TB services within universal health coverage is critical for identifying and managing missing patients with TB.

On 1 Feb 2017, India announced TB elimination by 2025!





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Budget 2017 | Govt committed to eliminating black fever, filariasis, leprosy, measles: Arun Jaitley

Wed, 1 Feb 2017-03:00pm , ANI

The government is also targetting the elimination of tuberculosis by 2025.

But Indian government is not spending enough on TB!



<https://theconversation.com/indias-ambitious-new-plan-to-conquer-tb-needs-cash-and-commitment-84821>

Health itself is not a priority for India

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Punching Below Its Weight: India's Progress Towards Health-Related SDG Goals

BY MADHUKAR PAI ON 21/09/2017 • LEAVE A COMMENT

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It is time for India to fully fund and implement its ambitious health policies, and translate them into better health outcomes for its millions. Without health, little else matters.



India is majorly underperforming in health. Credit: Reuters

India ranks 127 out of 188 countries in progress towards health related SDG goals!

India spends <1.5% GDP on health, less than all other BRICS countries!

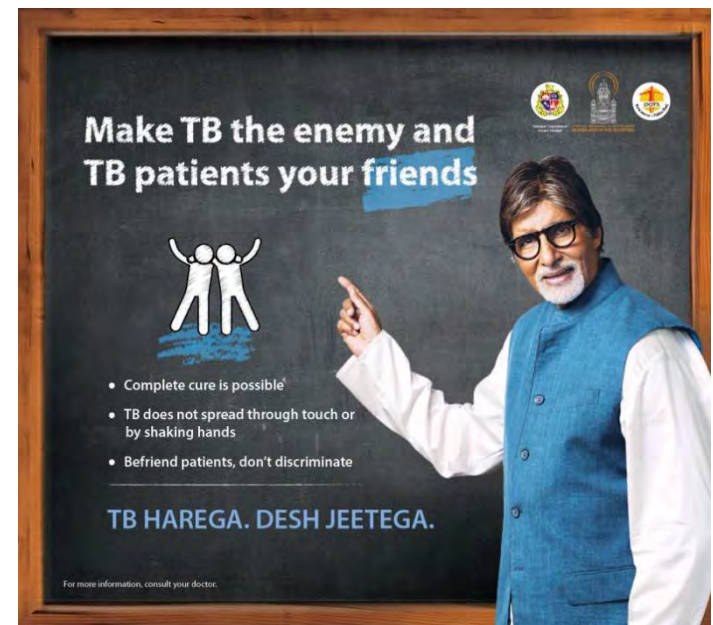
<https://thewire.in/179865/punching-well-weight-india-progress-towards-health-related-sdg-goals/>

This is where advocacy is critical

TB - The Ticking Time Bomb



<http://www.satyamevjayate.in/tb-the-ticking-time-bomb/episode-4watchvideo.aspx?uid=s3e4-ev-v1&lang=hindi>



https://www.youtube.com/watch?v=znyXf_4hQC0

Can TB patients demand better services?

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They Survived TB. Here Are Their Stories - Everylifecounts.NDTV.com

The patients of tuberculosis need more than just medicines. They need acceptance and care. With this common understanding in mind, TB surviv...

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<http://www.survivorsagainsttb.com/>



BMJ 2017;356:i6344 doi: 10.1136/bmj.i6344 (Published 2017 February 08)

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PRACTICE

WHAT YOUR PATIENT IS THINKING

Fighting TB requires empowered patients

In this article from India, Deepti Chavan describes the differences in health outcomes when patients are able to access the information they need

Deepti Chavan

INDIA REAL TIME

Indian Woman Wins Right to Use Last-Resort Tuberculosis Drug

Family of 18-year-old suffering from drug-resistant TB had petitioned court



A security woman stands guard outside the Group of TB Hospitals in Mumbai, in a September 2015 photo. PHOTO: DANISH SIDDIQUI/REUTERS

Experts Speak On Patna Teen Girl's Fight For TB Drug

Written By: **Snigdha Basu** January 17, 2017



The teenager who is battling tuberculosis is 18 years old and weighs 24 Kgs.

TWO COUNTRIES, TWO CHOICES

India, South Africa, and the Struggle against Multi-Drug-Resistant Tuberculosis

A film by AIDS-Free World



TB has a lot to learn from the HIV movement...



<https://www.sciencedirect.com/science/article/pii/S2405579418300342>



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<https://gh.bmj.com/content/2/4/e000515>