

Interdisciplinary AMR Research
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UNDERSTAND

The Social Production of AMR

- | Creating Drug-Resistant TB in India
- | Configuration of Drug-Resistant TB in India
- | Global Policy Transfer: Strategies for Policy Change



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Creating Drug-Resistant TB in India

Understand the Social Production of AMR

In the nineteenth century, Tuberculosis (TB) was a leading cause of death. Until World War II it was incurable, but after the war three antibiotic drugs became available: **Streptomycin, INH** and **PAS**. Treatment with these drugs over 12 to 18 months could cure TB. To have an impact in countries like India, it was crucial that the antibiotic drugs were efficacious without hospitalization. In 1959, this was confirmed by a clinical trial: **Long-term treatment with antibiotics could cure TB!**

Tuberculosis in 1950s India

In 1950 India was one of the areas worst affected by TB in the world:

- 2.500.000 infective cases of TB
- 500.000 annual deaths caused by TB
- 6.000 hospital beds assigned for TB patients

Domiciliary Chemotherapy, or long-term treatment with antibiotics in the patient's home, was essential to any meaningful attempt to control TB in India.

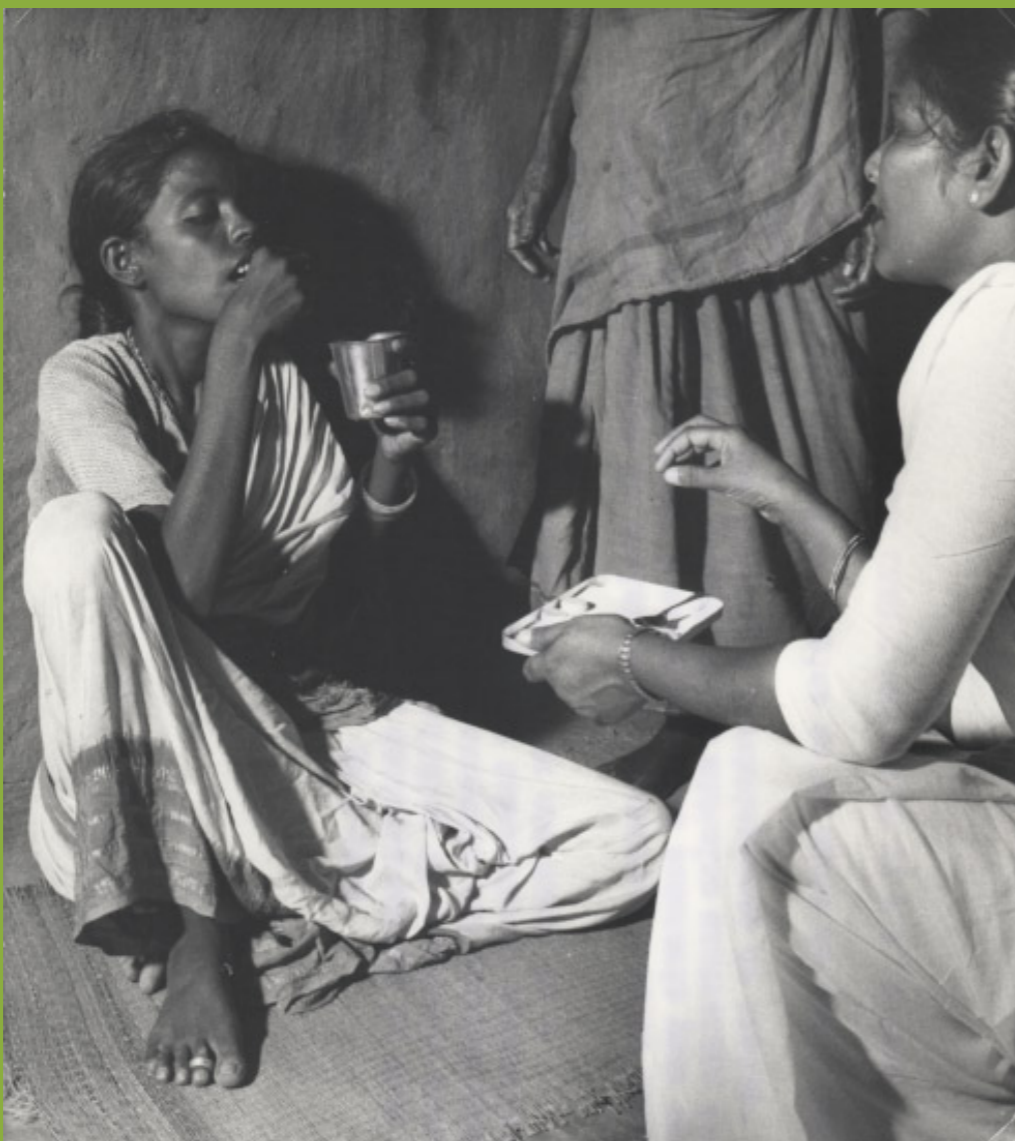


Photo: WHO/Pierre A. Pittet, 1959

WHO: Optimism

In 1958, the World Health Organization concluded: "The possibilities for developing a tuberculosis control programme based on measures which, when applied in a public health programme, will prove effective, acceptable to the population, and not too expensive for use on a mass scale, are today, *for the first time in history*, really very great."

The Tuberculosis Programme of WHO, 11. February 1958, p. 8

1962-93: India's National Tuberculosis Programme

- Passive case-finding
- Free combination therapy (INH and PAS)
- Self-administration of drugs

Reality:

Patients often failed to take drugs regularly over the 12-month course. 50% or more of all patients did not complete their treatment course.

→ Resistance

Reality:

Erratic supply and high costs meant that Indian patients received mono-drug therapy with the cheapest drug, INH. Combination therapy was 10 times costlier than mono-drug treatment.

→ Resistance

Evolving Estimates of DR-TB in India

1968: 20% resistance to INH among patients in Bangalore

Brimnes N., *Languished Hopes. Tuberculosis, the State and international Assistance in Twentieth-Century India*. New Delhi: Orient Blackswan 2016, p. 257.

1992: 61% resistance to INH and Rifampicin (MDR-TB) among previously treated patients in Delhi suburbs.

Tuberculosis Programme Review India. September 1992, p. 14 (WHO/TB/95/186)

1996: 40% resistance to INH and Rifampicin (MDR) among patients in Mumbai

Udwadia, Z.F., Hakiniyan, A., Rodriguez, C. et. Al., 'A profile of drug resistant tuberculosis in Bombay, *Chest* 110 (228), 1996 [Chekct Engel p. 117!!]

WHO: Underestimation

In 1974, the World Health Organization wrote: "... it was at one time feared that primary drug-resistant disease ... might become a problem that would assume epidemiological importance ... there is evidence that as the standards of chemotherapy improve the level of primary resistance becomes stabilized ... the importance of initial drug resistance as a cause of treatment failure has been much overrated."

WHO Expert Committee on Tuberculosis, Ninth Report, 1974



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Configuration of Drug-Resistant TB in India

Understand the Social Production of AMR

Whereas the biological process of antimicrobial resistance takes place at the intra-cellular level, social science shows how the circumstances that have caused AMR to assume epidemic proportions are entirely man-made. The concept of 'configuration' has been developed at the 'Centre for Cultural Epidemics' at Aarhus University to understand under what social and societal circumstances AMR thrives. Drug-Resistant Tuberculosis constitutes a third of all AMR.

Background

A third of the world's population is infected with TB, and 5-10% will develop active TB disease. India is home to 1/4 of the global TB burden. The spread of drug-resistant TB (DR-TB) is a global crisis that threatens TB control achievements as new strains continue to emerge. DR-TB may develop in the individual patient or spread in the population. Early and correct diagnosis remain a challenge. Whereas TB treatment takes 6 months, for DR-TB it typically takes 2 years, often causing vomiting, fatigue, neurological symptoms and hearing loss. Depression and suicide attempts are not uncommon among DR-TB patients.

"Sometimes after having the medicines I vomited; and like this till night I vomit; and due to this the taste of my mouth changed. I only had the bitter taste in my mouth. I felt like my head was spinning, then weakness, then the pain in my body was so much that I was not able to walk on my own. I got so irritated that I didn't want to listen to or see anything. Everything feels like poison"

'Diya', 22yrs, single.

"They [the doctors] have told me to do the tests [for around INR 2000 (USD 32)]. Its now 3 days. I don't have money, so I am not doing that. Lets see what I will do. [...] My chest is paining [...] sometimes I cant breathe, I just sit in bed like this for half an hour, one hour, feeling weak. Then also when I cough my chest aches [...] they told me to come within one hour but now its three days...they are calling, but what can I do, I don't have money...If I had money, I would have done it...I don't have money even to have medicine"

'Batuk', 22yrs, married, father of 2yr old daughter



Poverty and Social Support

TB is a social disease, spreading along the fault lines of poverty, with poorer patients being at the highest risk of DR-TB. In turn, the disease worsens poverty and often leads to catastrophic costs in spite of free treatment policies. Long treatment duration, adverse reactions and a lack of food force poor patients to prioritise work over treatment. Insufficient household resources for the patient's support can also result in demotivation and an inability to complete treatment. Financial support, care and help with the daily intake of medicines are essential for successful treatment.

TB Health System in India

The Indian government offers free DR-TB treatment to all patients, but government hospitals are over-burdened. TB specialists in government facilities may refer patients to their own private practice. Eighty per cent of all healthcare and 70% of TB treatment is provided in the private sector, where substandard treatments are often the cause of drug resistance. Out-of-pocket payment for diagnostic tests and ancillary treatment to alleviate side effects may make it difficult for poor patients to adhere to their prescribed treatment plan.

Global Policy Transfer: Strategies for Policy Change

Understand the Social Production of AMR

We invest significant resources to update global policy guidance in line with scientific progress on AMR; but why does so little of that guidance make it to member state policy, and why does it take so long? Following reports of major delays in policy uptake, this qualitative investigation sought to understand the drivers and barriers to the global governance of drug-resistant Tuberculosis (DR-TB).



TB killed over 1.3 million people in 2016, including many in the European Union.



National policies are dangerously out of date with international recommendations.



Drug-Resistant Tuberculosis is a growing threat, with 600,000 new cases in 2016.

Global Policy Status Survey

In-Depth Interviews

Participant Observation

Analysis & Dissemination of Findings

Policies out of Step

Among responding countries, national policies are dramatically out of date, with average transfer times ranging between 1 and 6+ years. Funding, epidemiology and political factors **do not** adequately explain country-to-country variation in degree of speed of update. This raises the question:

What processes and practices lead to more efficient DR-TB policy transfer?

Identifying Strategies for Policy Change

Interviews and participant observation with national and international policymakers led to the identification of key strategies that catalyse or hinder policy change.

The key finding; in overlooked policy areas, technical experts must also become politicians, advocating for change outside of formal governance structures by building and deploying their technical, social and professional capital to effect change. In a community where this is not yet the standard, tools for political analysis and strategy formulation need to be disseminated more proactively.

- ✓ Coalition building
- ✓ Network trust
- ✓ Maximizing flexibility
- ✓ Targeted communication
- ✓ Concrete political strategy
- ✗ Focus on content alone
- ✗ Formal communication
- ✗ Structure & rule bound
- ✗ Bureaucratic process
- ✗ Programmatic focus

