

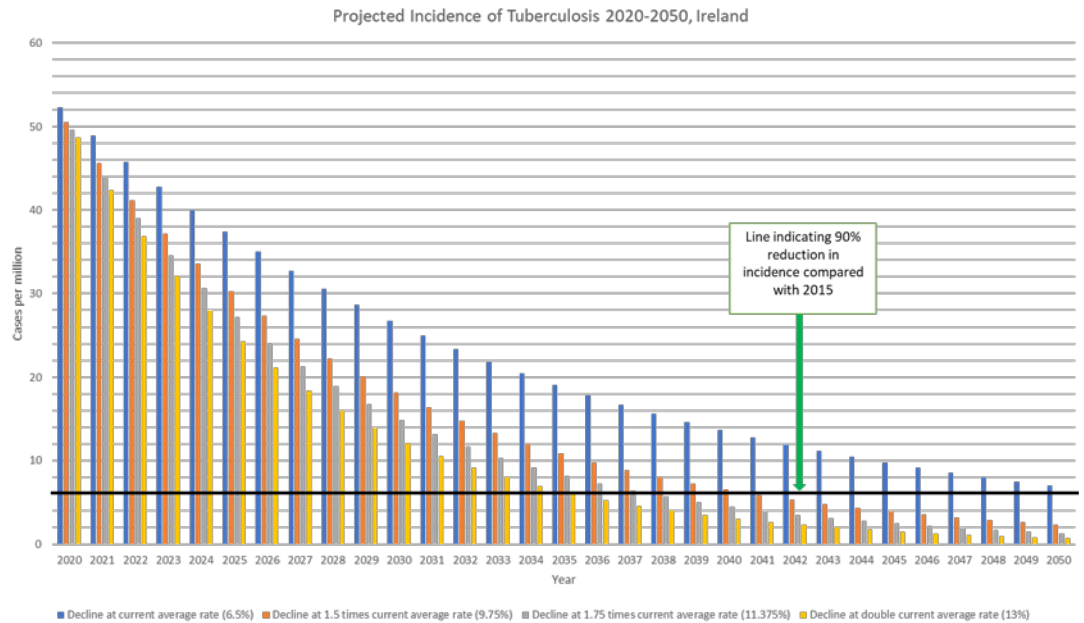


Quality Management - How Ending Tuberculosis in Ireland Could Be Approached - World Tuberculosis Day 2022



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The 2015 Sustainable Development Goals (SDGs) set out a shared global vision for a better, more sustainable future through 17 interlinked goals. Goal three is to ensure healthy lives and promote well-being for all and includes targets to end tuberculosis (TB). Despite being preventable and treatable, TB is a leading cause of global morbidity and mortality, with 10 million infected and 1.5 million TB-related deaths in 2020. To achieve the SDG and World Health Organisation End TB Strategy targets (Table 1), greater progress must be made. In 2020, only 59% of TB cases globally were

detected and treated, 13% less than in 2019. Finding the “missing millions”, most of whom are in 16 high-burden countries, is a major challenge to addressing TB. So too are drug-resistant TB and human immunodeficiency virus (HIV)-TB co-infection which, although comprising only a minority of infections globally, can be difficult to diagnose and treat.

Ireland is a high-income country with a low incidence of TB, drug-resistant TB, and HIV-TB co-infection. There are most probably few missing cases here annually, and upon diagnosis, drug

treatment is available and free. Most patients in Ireland are treated successfully for TB. Despite all this, even Ireland will fail to reduce the incidence of TB sufficiently to meet the WHO End TB targets (Figure 1). To stay on track, the incidence of TB will need to decline from 5.6 to 0.6 cases per 100,000 between 2019 and 2035. This would be an 89% reduction, substantially more than the 46% reduction in TB incidence seen in the 16 years prior to 2019. This is also assuming no detriment in TB control during the COVID-19 pandemic. In other high-income countries with a low incidence

Figure 1. Projected incidence of tuberculosis, Ireland, 2021-2050

Source adapted from: O'Connell J., *A Quality of Care Evaluation to Identify Priorities for Improving Tuberculosis Care in Ireland (Thesis)*, Dublin, Royal College of Surgeons in Ireland.

of TB, such as Italy, Spain and the United States of America, there were reports of delays in TB diagnosis, more severe disease at diagnosis and more TB infection among household contacts during the pandemic.

Although low-income countries are disproportionately affected by TB, global elimination will require action by all countries, consistent with the vision of the SDGs and the principles of the End TB Strategy. High-income countries, such as Ireland, must develop more robust approaches to TB prevention and control, both nationally and internationally. With regard to ending TB, an approach by Ireland can begin by considering just four questions- what? who? why? and how?

Table 1. Tuberculosis targets according to the Sustainable Development Goals and End Tuberculosis Strategy

Indicator	Sustainable Development Goals 2030	End TB Strategy 2035
Reduction in number of TB deaths compared with 2015 (%)	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	80%	90%
TB-affected families facing catastrophic costs due to TB (%)	Zero	Zero

What is needed to end TB?

Provided health care is accessible, TB-related morbidity, mortality, transmission, and other undesirable outcomes should be avoidable for most patients, particularly in high-income countries. However, TB care is complex due to patient-related factors (e.g., a lack of awareness of symptoms, vulnerable population groups), disease-related factors (e.g., prolonged non-specific symptoms, the association between TB treatment outcomes and depression, TB and cardiovascular disease or chronic lung disease, TB and malnutrition), health programme-related factors (e.g., lack of knowledge and awareness of TB among health care providers) and diagnostic and treatment-related factors (diagnostic tools are lacking and prolonged courses of multidrug therapy). For this reason, it is increasingly recognised that TB care must be of high-quality and accommodate for these factors to bridge the gap between accessing care and achieving desirable outcomes (Figure 2).

High-quality TB care cannot be assumed. From the prior experiences of New York city and London, where TB had resurged after decades of retreat, it is clear a declining burden of TB

Figure 2. Conceptual model to describe the role of high-quality health care for TB.

Source: O'Connell J., A Quality of Care Evaluation to Identify Priorities for Improving Tuberculosis Care in Ireland (Thesis), Dublin, Royal College of Surgeons in Ireland.

disease is not confirmatory of high-quality TB care. Instead, as the burden declines, there is a risk of low-quality care emerging because prevention and control activities may become deprioritised, services may become under-funded and health care providers' knowledge and awareness of TB may decline. To counter this, quality should be defined, measured, monitored, and improved as part of a quality management programme (Table 2).

Within the literature, many widely used definitions of quality are derived from the health care providers' perspective, but quality is in the eye of the beholder. How quality is defined will vary, depending on the perspective of who is defining it and where they are located in the system of care. Ensuring patient perspectives on quality of care are recognised is extremely important if healthy lives and well-being are to be achieved. Where their perspectives are not accommodated with sufficient priority, health care services may fail to provide care that meets patient needs and expectations, despite otherwise trying to improve care. Once defined, quality should be measured to identify low-quality care that must be rectified. Traditional metrics applied in TB care are outcome measures such as incidence, mortality and treatment outcomes and process measures such as drug-susceptibility testing, laboratory confirmation of disease and HIV testing. However, quality measures should be derived from a consensus of stakeholders that have considered patient needs and expectations. Such measures may include quality of life, patient reported outcomes

and user experience. Measures of user experience may be valued by patients and could refer to facility or organisational aspects of their care such as the ease of access, affordability or patient centeredness aspects such as the providers' respect for privacy, confidentiality, and dignity. Monitoring quality can then identify initiatives that have led to sustained improvement, and if not, identify the need for further action.

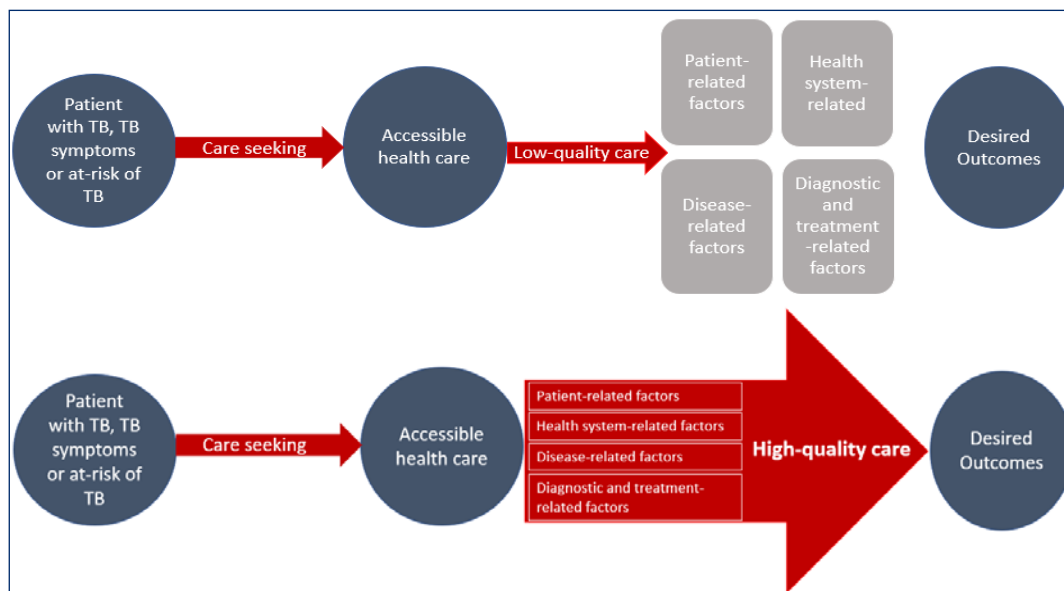
A quality management programme could help strengthen TB prevention and control in Ireland, where TB care is decentralised. Many deficits in TB care quality in Ireland are a result of system-wide problems that may be better solved at a system level through a quality management programme rather than at a local level alone. Integration of a TB quality management programme into the national quality management structure may allow for the TB programme to engage those whose practice does not directly or frequently involve TB, e.g., general practitioners or pharmacists. This is important because high-quality care is necessary across the health programme, not just in TB services. For example, high-quality TB care at first presentation in primary care is equally important as high-quality TB care in dedicated tertiary TB clinics. Quality management programmes can be a means of progressing integration of the care provided between primary and tertiary care services, while ensuring the quality of care does not diminish during the process of integration. Additionally, a quality management programme could enable centralized collection of standardized data that could be analysed and

interpreted to be informative for local as well as national quality improvement initiatives.

Within TB care, quality management is not a new concept. Other countries with a low incidence of TB, such as Canada, England and the United States of America, are applying a quality management approach to latent and active TB care. However, internationally, quality management in TB care has not expanded beyond traditional metrics of care quality to form holistic measures that will identify what is needed to end TB. Globally, TB prevention and control programmes are highly dependent on learning from the experiences of other programmes on how best to reduce the burden of TB. By developing a patient-centered TB quality management programme, the national TB programme in Ireland could be a world first and demonstrate its merits and weaknesses.

Who is affected by low-quality TB care and why?

TB care quality should be equitable, but often it is not. To develop effective quality improvement initiatives, it is not enough only to identify low-quality care, but those who are affected most by it must be characterized and the reasons why understood. For example, delayed presentation among those with symptoms of TB is a problem common in both high and low-incidence settings. Some patients may be affected more than others e.g., those with HIV, co-existing lung disease, low access (geographical or sociopsychological barriers), old age, immigrants or those with alcoholism and substance abuse. Consider cough among people presenting with TB in Ireland. How do people behave when they have a cough and why? How does this behaviour differ according to patient characteristics? Perhaps those with substance abuse chose not to seek health care, and the reasons for this behaviour may be complex, such as a lack of trust in health care providers or previous poor experiences of care. What about economic immigrants in Ireland? Perhaps many engage with a primary care provider, or a pharmacist when they develop a cough, but maybe during initial presentations to health care providers language or cultural differences, or a lack of awareness of TB symptoms among health care providers leads to delays in TB diagnosis. These are only suppositions generalised from the international literature, but demonstrate that where low-quality care is evident, whatever the measure, knowledge of the characteristics of those affected,





and the underlying reasons why, must be established if it is to be addressed. To do this, qualitative research that seeks to understand patients' and health care providers' experiences and behaviours will be important.

How will low-quality TB care be improved?

When considering medicine in the modern era, TB care has not advanced as it should have.

Progress in developing new TB vaccines has been slow. There are less than twenty candidate TB vaccines in development, none of which have moved beyond phase three trials. Besides the century old Bacillus Calmette- Guerin vaccine, other vaccines to help end TB will not be available in the near future. Diagnostic and treatment developments are in the pipeline that could fulfil patient and health care provider expectations of high-quality care. Regarding diagnostics, the needs of high-incidence low-income and low-incidence high-income settings differ. In the former, finding the missing millions is a priority and decentralised testing will be key to doing this. This will require the replacement of hub and spoke models comprising smear microscopy and referral-based centralised GeneXpert testing with onsite less costly next generation GeneXpert Edge testing that may be reliably used in resource-constrained clinics. This could reduce missed TB diagnoses, reduce the time taken for diagnosis and ensure they

receive appropriate same-day treatment. In high-income, low-incidence settings, improving latent tuberculosis diagnostics will be necessary to eliminate TB. Current latent tuberculosis screening tools (interferon-gamma release assay and tuberculin skin test) cannot distinguish with high enough accuracy those latently infected who will develop active TB from those who will not. As a result, where latent tuberculosis screening is scaled programmatically, many patients are treated to achieve a population level benefit in TB control when they personally may accrue no benefit. This is particularly relevant for countries such as Ireland, where the population is ageing, because the risk-benefit ratio of latent tuberculosis treatment becomes less favourable with age. Fortunately, the identification of biosignatures that may reliably identify those most likely to benefit from treatment is rapidly evolving. Regarding TB treatment, prolonged courses of multidrug therapy are still necessary for active TB, but a recent trial published in the New England Journal of Medicine suggests treatment duration for patients with pulmonary TB may be reduced from 6-months to 4-months using a rifapentine-based regimen. However, the limited availability and high cost of rifapentine in some parts of the world will hinder its use. Directly-observed therapy has been a cornerstone TB treatment support since

the 1990s. Although today its relevance is greatest for TB care in high-burden settings, in low burden settings, it still has a role for patients at risk of treatment non-adherence. In recent years, video-observed therapy has been developed to be a more acceptable, effective, and cheaper option than traditional directly-observed therapy. In addition to video-observed therapy, smart pillboxes and medication labels that enable patients to communicate with their health care provider that they have taken their medication are being evaluated in randomised trials in high burden settings. When implementing new rapid diagnostics and treatment supports, a quality improvement approach should be taken to strengthen supporting processes and maximize benefit.

This article has sought to describe how quality management could be a beneficial approach to addressing TB in Ireland, consistent with the vision of the SDGs and the End TB Strategy. According to Dr Tedros Adhanom Ghebreyesus, Director General of the WHO, "Quality is not a given" and takes "vision, planning, investment, compassion, meticulous execution, and rigorous monitoring, from the national level to the smallest, remotest clinic". However, given the challenge cross-border migration poses to ending TB globally, efforts to

ensure TB care is of high-quality should not end within national borders. Instead, countries such as Ireland must collaborate internationally, particularly with countries with a high burden of TB, to improve care quality and end TB.

Useful Resources

- McGill, Quality of Tuberculosis Care ebook
https://www.mcgill.ca/tb/files/tb/quality_tb_care_ebook.pdf
- Podcast: High-quality Care for Tuberculosis Elimination with Dr. Hannah Alsdurf
<https://resident360.nejm.org/curbside-consults/high-quality-care-for-tuberculosis-elimination-with-dr-hannah-alsdurf>
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- Reza, T.F., Nalugwa, T., Farr, K. et al. Study protocol: a cluster randomized trial to evaluate the effectiveness and implementation of onsite GeneXpert testing at community health centers in Uganda (XPEL-TB). *Implementation Sci* 15, 24 (2020). <https://doi.org/10.1186/s13012-020-00988-y>

Components	Description
Quality programme	A characterization of the programme's leadership, accountability structures, membership, roles and responsibilities of technical working groups and oversight committee, and expectations for communicating program updates and activities.
Quality statement	A brief mission statement that characterizes the aims of the quality management programme.
Performance measurement system	A description of which performance measures will be tracked as part of the quality management programme, and how, when, and by whom they will be routinely collected and reported.
Goals	A set of targets around which the programme will seek to prioritize and structure quality initiatives.
Stakeholder and patient participation	A description of how staff, providers, patients, communities, and other stakeholders will be involved in the programme.
Evaluation	A plan for evaluating the performance of the programme, including progress in meeting stated improvement goals, organizational effectiveness of current programme committees, and robustness of existing quality improvement work plans.
Annual quality improvement work plan	A detailed roadmap of implementation, which changes annually, that specifies improvement priorities and quality improvement activities that will be advanced as part of the programme's activities.

Table 2. Components of a quality management programme

Source adapted from: Ikeda, D. J., Basenero, A., Murungu, J. et al. (2019). *Implementing quality improvement in tuberculosis programming: Lessons learned from the global HIV response. Journal of clinical tuberculosis and other mycobacterial diseases*, 17, 100116.