



UNIVERSITY
of York

ANNUAL NEWSLETTER

TB Multimorbidity (TBMM) Working Group: THE UNION

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TB Multimorbidity (TBMM) Award: A network dedicated to addressing comorbid conditions in TB services

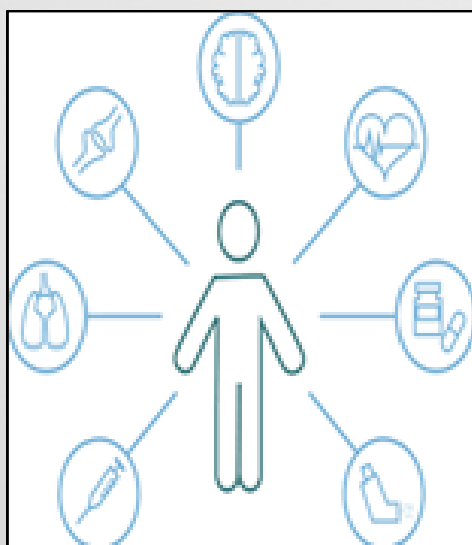
TBMM network is dedicated to revolutionizing healthcare in Low and Middle-Income Countries (LMICs) by highlighting the unique challenges faced by LMICs in addressing the TB multimorbidities.

TBMM Network:
A platform for research partnerships
and a vehicle for improving services



Graphical distribution of Members

Multimorbidity (MM) is the occurrence of 2 or more chronic health conditions in the same individual (World Health Organization). 1 out of 4 adults across Low and Middle-Income Countries (LMICs) may have multimorbidity.



TBMM- Membership

- The University Of York
- Khyber Medical University, Pakistan
- Institute Of Psychiatry, Rawalpindi Medical University, Pakistan
- Aga Khan University, Pakistan
- The Epidemiological Laboratory “Epilab” Sudan
- The National Institute For Medical Research “NIMR” Tanzania
- Liverpool School Of Tropical Medicine, UK
- King’s College, London, UK
- The UNION
- NIHR IMPALA Unit (9 African countries)
- Common Management Unit, TB, HIV/AIDS, malaria, Pakistan
- National Diabetes Task Force, PAKISTAN
- Pakistan Endocrine Society
- Pakistan Psychiatric Society
- ARK Foundation, Bangladesh
- HERD, Nepal
- Centre for Injury Prevention Research, Bangladesh
- Global Public Health Division, Public Health England

TB Multimorbidity (TBMM) Award: A network dedicated to addressing comorbid conditions in TB services

★ TBMM-Goals

To set up a community of practice in TB-multimorbidity, aiming to develop and promote strategic research, awareness, advocacy, policy agenda and initiatives on physical and mental multimorbidity in Tuberculosis care.

Exploring TB Multimorbidity: Research Endeavors of TBMM Working Group:

1. The pattern and burden of MM in adults with TB and NCDs in LMICs

In a cross-sectional survey by TBMM working group in 48 LMICs, we delved into the connection between TB and Non-Communicable Diseases (NCDs).

What did we find?

- Nearly 2/3 of TB patients had more than one NCD, in comparison to the ~1/3 in non-TB cases.
- TB risk surged exponentially with NCDs, reaching levels up to 20 times higher.
- Years Lived with Disability (YLD) in TB with Multimorbidity were triple that of those without, with 1/3 attributed to NCDs.
- The most common NCD combinations were angina & depression and angina & arthritis.

Tuberculosis and Non-Communicable Disease Multimorbidity: An Analysis of the World Health Survey in 48 Low- and Middle-Income Countries

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	Angina	Arthritis	Asthma	Diabetes	Depression	Edentulism	Hearing problems	Schizophrenia
Arthritis	14.64							
Asthma	10.72	8.18						
Diabetes	2.71	2.51	2.27					
Depression	15.32	9.65	8.89	1.61				
Edentulism	4.71	3.3	3.8	1.35	2.67			
Hearing problem	4.28	3.51	2.69	0.8	2.86	1.4		
Schizophrenia	2.72	2.16	1.97	0.3	2.71	0.72	0.67	
Visual impairment	1.29	0.76	0.42	0.63	0.91	0.21	0.55	0.25

Exploring TB Multimorbidity: Research Endeavors of TBMM Working Group:



2. Mapping the Prevalence & risks of TBMM in LMIC: a Meta-review



Our meta-review, encompassing 7557 search results across LMICs, focused on the prevalence and risks of TB multimorbidity.

What did we find?

Depression (45%) was more prevalent, closely followed by HIV (32%) and diabetes (18% in Africa) as the primary comorbid conditions with TB.

3. Prevalence, clusters, and burden of complex TBMM in LMIC



Our another systematic review and meta-analysis in LMICs explored complex TB multimorbidity.

What did we find?

- Dominant co-occurring conditions in TB included depression & anxiety (15.3%), HIV & anxiety (15.2%), and HIV & PTSD (14.8%).
- Complex TB multimorbidity emerged as a common challenge, with mental disorders frequently clustering with HIV.

Exploring TB Multimorbidity: Research Endeavors of TBMM Working Group:

4. Addressing TBMM in policy & practice

Our TBMM working group conducted an online survey in high-TB-burden countries, engaging TB health workers, managers, policymakers, advisors, and advocates.

What did we find?

- The top concerns were HIV, diabetes mellitus, depression, and tobacco/alcohol use disorders.
- HIV received ample screening and management, but depression was often overlooked.
- Screening for diabetes and tobacco/alcohol use disorders was offered by about half of TB services only, but treatments were limited.
- Respondents were confident in screening and diagnosing comorbid conditions but less so in treating them.

PLOS GLOBAL PUBLIC HEALTH

RESEARCH ARTICLE

Addressing TB multimorbidity in policy and practice: An exploratory survey of TB providers in 27 high-TB burden countries

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Abstract

In people with TB, co-existence of long-term conditions (e.g., depression, diabetes and HIV and risk factors (e.g., alcohol misuse, malnutrition, and smoking) are associated with increased mortality and poor treatment outcomes including delayed recovery, TB treatment failure and relapse. However, it is unclear as to what extent these comorbidities are addressed in TB policy and practice. Between August and October 2021, we conducted an online cross-sectional survey in high-TB burden countries. We recruited a purposive sample of TB health workers, managers, policy makers, advisors and advocates from these countries. The survey enquired about the extent to which various comorbid conditions are: (a) mentioned in TB policies, plans, and guidelines; (b) screened, diagnosed, treated or referred to specialist services by TB healthcare workers. We summarised using descriptive analysis Of the 1100 potential respondents contacted in 33 countries, 543 responded but only 446 (41%) from 27 countries provided sufficient data for inclusion in the study. We found no notable differences between those providing insufficient data and those completing the survey. HIV, diabetes mellitus, depression and tobacco and alcohol use disorders were identified as the most common and concerning comorbid conditions in TB. HIV was screened for and managed by TB services in most countries. Screening for diabetes and/or tobacco and alcohol use disorders was offered by almost half of all TB services but only a few offered relevant treatments. Depression was rarely screened for, almost never treated, and only infrequently referred to specialist services. Most respondents felt confident in screening/ diagnosing these comorbid conditions but not in treating these conditions. With the exception of HIV, chronic comorbid conditions are only partially screened for and rarely managed

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Providing Optimised Tuberculosis and diabetes Integrated care in LMICs – POTENTIAL

Empowering Health, Enhancing Lives!

The comorbidity of TB and diabetes is a global health challenge. TB is among the top causes of deaths worldwide, while diabetes is also on the rise. When these two conditions converge, they create a significant burden on healthcare systems and individuals. In 2019, Pakistan reported 570,000 cases of TB and a 26% prevalence of diabetes among adults. Nearly a quarter of TB patients in Pakistan may also have diabetes. We're committed to bridging the gap in TB and diabetes care to empower vulnerable communities and enhance lives of the TB patients in Pakistan.

Our initiative isn't just about health; it's about equity, economic well-being, and setting a global healthcare precedent.

★ Our Vision

is to optimize diabetes prevention and management within TB care. We're crafting an all-encompassing care package that seamlessly integrates diabetes screening, prevention, and management into TB care.



POTENTIAL designed a culturally sensitive collaborative optimized tuberculosis and diabetes (Opt-TBD) care package designed to streamline healthcare delivery and improve outcomes for individuals affected by both conditions.



Through the design, implementation, and continuous refinement of the Opt-TBD care package, we are aiming to mitigate the impact of tuberculosis and diabetes on communities worldwide.



- **Our TB-Diabetes care package fortifies health system:**
- **Leadership and Governance:** Integrated care promotes leadership and make efficient health governance.
- **Healthcare Financing:** Resource efficiency thrives when we manage two major conditions under one roof.
- **Health Workforce:** Capacity building empowers healthcare providers to tackle more, boosting the workforce.
- **Medical Technology:** The care package leverages technology, aiding diagnosis and management.
- **Information Systems:** Data-driven decisions, better patient records - integration improves information systems.
- **Service Delivery:** Quality, patient-centered care emerges when two conditions become one focus.

So strengthening the Health System saves costs, offering a strong economic foothold for healthcare systems.

Work Package 1: Designing the Integrated Opt-TBD

We've gathered key experts, service providers and service users to create a robust care package based on WHO Guidelines and American Diabetes Association recommendations. With a participatory approach, we're ensuring the package meets the unique needs of our communities. This collaborative effort aims to deliver comprehensive and culturally sensitive healthcare solutions.



Work Package 2: Feasibility of implementing the Opt-TBD care

We've actively piloted the care package in four TB healthcare facilities, including a mix of primary, secondary and tertiary care centers, assessing feasibility, acceptability, and outcomes. Continuous refinement ensures that our care package adapts to real-world conditions, ultimately improving patient care and system efficiency.



Work Package 3: Implementation and Evaluation

We will be rolling out our optimized care package to 15 health facilities. Our approach will combine quantitative and qualitative data collection to ensure our strategies are both effective and sustainable.

Impact Beyond Borders: Changing Lives, Building Capacity

Our work doesn't stop at healthcare; it extends to building capacity and transforming communities. We are not only enhancing health outcomes but also empowering individuals and systems.

Capacity Development

We're empowering our research team and local experts to lead the charge in integrated TB-diabetes care, ensuring long-term sustainability.



Fostering Economic Growth

Our economic analysis isn't just about cost-effectiveness; it's about lifting communities out of poverty by improving health and productivity. By addressing the dual burden of TB and diabetes, we aim to reduce healthcare expenses and enhance overall quality of life.

Community Engagement and Involvement

Our community engagement and involvement projects are at the heart of promoting health and awareness globally. By conducting educational sessions and outreach programs, we empower local communities with vital knowledge about TB-diabetes comorbidity and the importance of early healthcare access.

Global Health Impact

By pioneering integrated care, we're contributing to global health discussions, setting a precedent for healthcare innovation worldwide.

Chronic Communicable Diseases Multimorbidity with Mental Illness



In collaboration with the University of York and funded NIHR.

"Tackling the Dual Challenge: TB and Depression in Pakistan"

Project Title

Integrating Depression care in Tuberculosis services in South Asia

Tuberculosis (TB) is a global health concern with significant socio-economic implications, particularly in low-middle-income countries like Pakistan. Pakistan is among the top 10 countries with the highest TB incidence rates, recording over 500,000 new cases annually and an estimated 58,000 TB-related deaths each year. The co-occurrence of depression among TB patients is a critical issue, contributing to inferior treatment outcomes, prolonged hospitalizations, and increased healthcare expenses.

★ Our Mission

Integrate depression care into tuberculosis services in Pakistan by exploring the feasibility of a co-designed depression care pathway, emphasizing coverage and acceptability among patients and healthcare staff.

Goals Achieved:

Addressing Treatment Gap:

Integration of depression care within TB services aimed to bridge the treatment gap for mental health issues among TB patients.

Reducing Disease Burden:

By addressing both physical and mental health needs, integration reduced the overall burden of disease, enhancing holistic patient care.

Improved Health Outcomes:

The integration strategy was designed to improve health outcomes for individuals with TB by addressing their mental health concerns, thus promoting overall well-being.

Integrating Depression care in Tuberculosis services in South Asia



In collaboration with the University of York and funded NIHR.

Enhancing Healthcare Delivery:

Leveraging the existing TB care infrastructure, the integration enhanced healthcare delivery methods, making services more comprehensive and efficient.

Focus on Feasibility:

The study's focus on exploring the feasibility of a co-designed depression care pathway emphasized practical implementation, ensuring that the integration was viable and effective.

Ensuring Acceptability:

By evaluating coverage and acceptability among both patients and healthcare staff, the initiative ensured that integrated services were well-received and embraced by the community and healthcare providers alike.

Our Approach was Innovative and Ambitious:

Work Package 1: Identification of barriers and facilitators

Work Package 1 furnished the information that actively engaged stakeholders' thought processes in the development of the care pathway. It also detailed the staff members who could potentially participate in delivering the care pathway. The insights from the Work package played a crucial role in shaping the overall development strategy.



Integrating Depression care in Tuberculosis services in South Asia



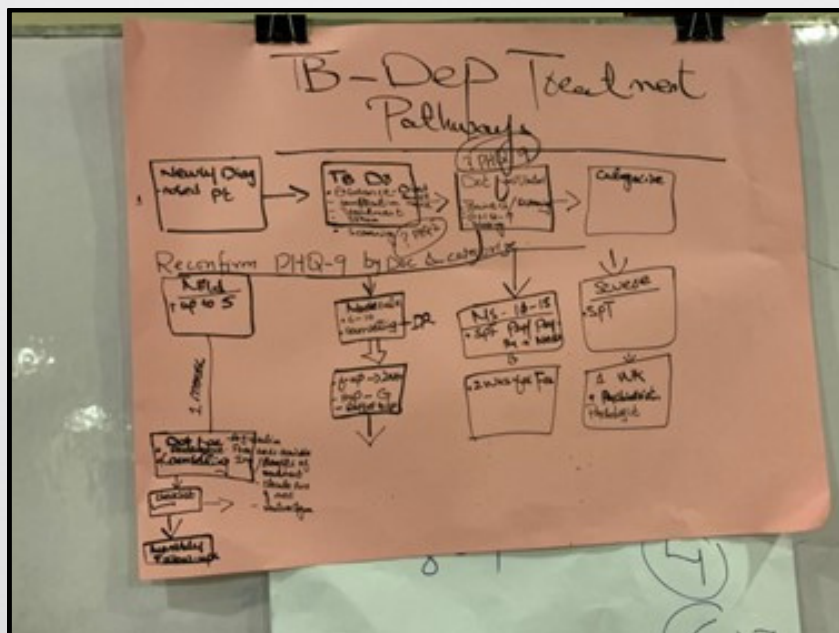
In collaboration with the University of York and funded NIHR.

Work Package 2: Codesigning of the Care pathway

Work Package 2 developed the integrated care pathway for managing TB and Depression within the framework of TB healthcare services. This pathway outlined the comprehensive approach to address both conditions, ensuring cohesive and effective management for patients with TB and Depression.



Participants sharing valuable insights during a co-design workshop for the development of a care pathway."



First draft of the Care-pathway designed by the workshop Participants in Peshawar, Pakistan.

Integrating Depression care in Tuberculosis services in South Asia



In collaboration with the University of York and funded NIHR

Work Package 3: Implementation and Evaluation

WS3 successfully implemented and tested the feasibility of the care pathways and procedures for depression case finding designed in workstream 2. This phase ensured the practical application and viability of the developed strategies.

Dissemination Events

The integration of depression care within tuberculosis (TB) services in Pakistan marked a significant milestone in enhancing holistic patient support. This achievement was further emphasized through targeted dissemination events held across various institutes and hospitals, as well as prominent national and international conferences. These events not only showcased the innovative approach taken to integrate mental health care into TB services but also fostered knowledge exchange and collaboration.

Barriers and facilitators to integrating depression care in tuberculosis services in South Asia: a multi-country qualitative study

Olamide Todowede ^{1 2}, Saima Afaq ^{3 4 5}, Anoshmita Adhikary ⁶, Sushama Kanan ⁷, Vidhya Shree ⁶, Hannah Maria Jennings ^{1 8}, Mehreen Riaz Faisal ¹, Zara Nisar ⁹, Ikram Khan ⁹, Geetha Desai ⁶, Rumana Huque ⁷, Najma Siddiqi ^{1 8 10}

Affiliations + expand

PMID: 37525209 PMCID: PMC10391993 DOI: 10.1186/s12913-023-09783-z [Paperpile](#)



IMPACT-CCD dissemination event at 22nd WPA World Congress of Psychiatry at Bangkok.



IMPACT-CCD-TB team at WPA International Conference Lahore.

Integrating Evidence-based Care for Common Mental Disorders in TB Services in Pakistan

TBMM network is dedicated to revolutionizing healthcare in Low and Middle-Income Countries (LMICs) by highlighting the unique challenges faced by LMICs.

Project Title

Integrating Evidence-based Care for Common Mental Disorders in TB Services in Pakistan

In Pakistan, TBMM network is making waves by integrating evidence-based care for common mental disorders (CMDs) in TB services. This integration of CMDs in TB care is a beacon of hope for Pakistan's 510,000 new TB cases annually; offering a comprehensive support for TB and CMDs comorbidity, improving treatment outcomes, and saving lives.

Breaking Barriers in TB Services: Integrating Mental Health Care in TB care in Pakistan

★ Project Goal

We're embarking on a journey to integrate evidence-based care for common mental disorders, particularly anxiety, into TB services in Pakistan by uncovering perceptions of psycho-social management for TB patients.



Principal Investigators: Dr. Saima Afaq
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Depression care integration in tuberculosis services: A feasibility assessment in Pakistan

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Integrating Evidence-based Care for Common Mental Disorders in TB Services in Pakistan

We conducted in-depth interviews with TB patients, caregivers, health professionals, and service managers in three healthcare facilities in Peshawar, Khyber Pakhtunkhwa, Pakistan.

Focused on creating context-appropriate materials and delivery pathways, catering to all genders and age groups.

A Consensus Workshop:

- with the TB stakeholders,
- with TB patients,
- with the caregivers of TB patients,
- with the health professionals.

Focus on creating context-appropriate materials and delivery pathways, catering to all genders and age groups.



Capacity Building of our team

We have been diligently working to enhance the research capabilities of our team by providing training in qualitative research, data management, topic guides development, in-depth interviews, transcription, and data analysis from experts. We believe that a strong foundation in these areas is crucial to achieve our goal.

Future Plans

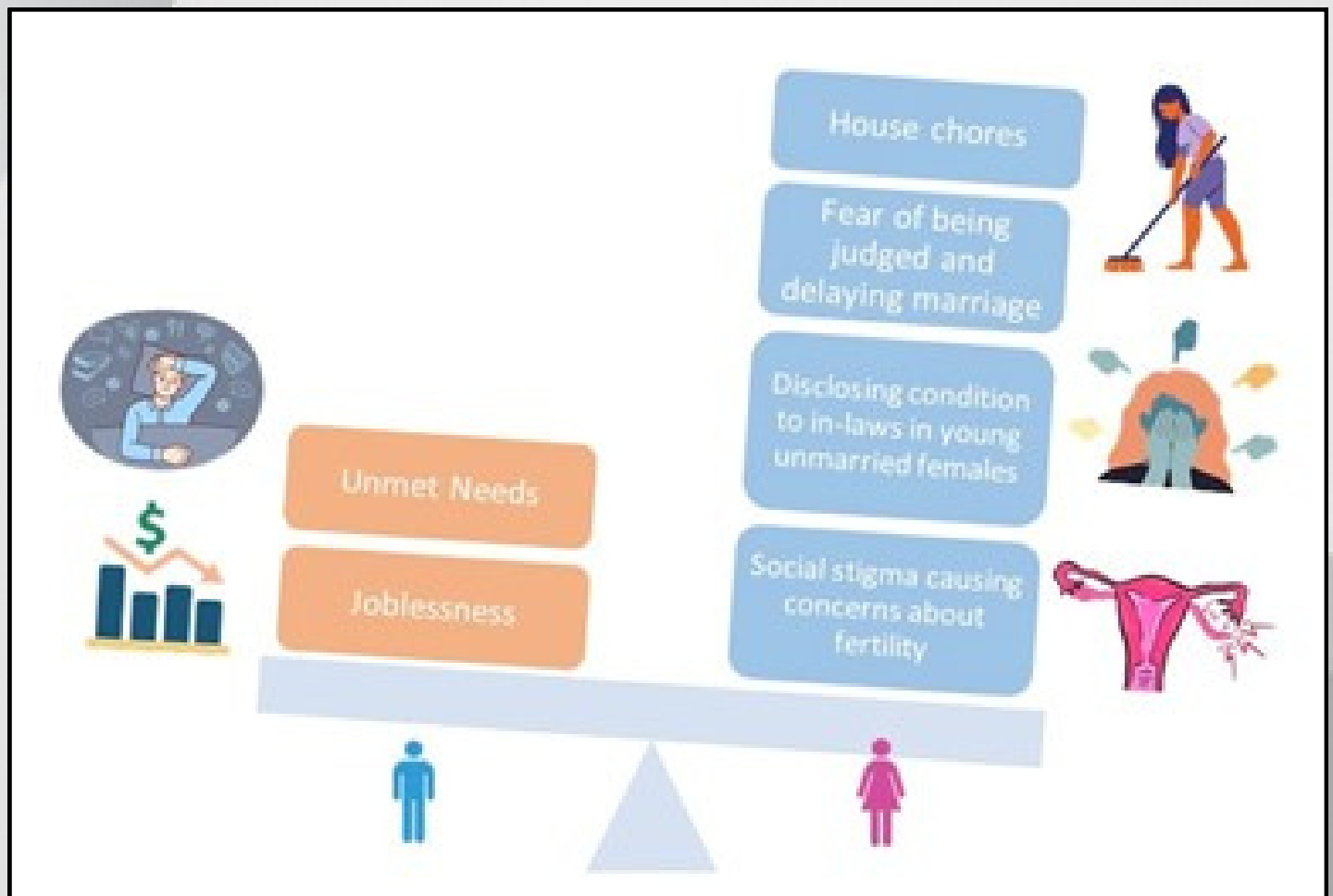
- Scaling up integrated TB-CMD care package through grant applications.
- Community events, policy briefs, and academic publications to share insights.



Integrating Evidence-based Care for Common Mental Disorders in TB Services in Pakistan

What we discovered?

- No guidelines or proper referral and reporting mechanisms exist in the current TB Control Program for CMDs (particularly anxiety) in Pakistan.
- The healthcare providers lack training in addressing anxiety of TB patients.
- All the participants supported the integration of CMDs (anxiety) care into TB care.
- Gender differences exist in terms of anxiety levels among TB patients.



Gendered Dimension of Anxiety in TB patients

The nature of tuberculosis multimorbidity in South African adults and the impact on mortality and coping strategies

A partnership between the Perinatal HIV Research Unit (PHRU) in Soweto, South Africa, and the Liverpool School of Tropical Medicine, UK.



We are working to understand the prevalence and pattern of tuberculosis multimorbidity in South African adults and its impact on mortality. We plan to expand this work to characterize multimorbidity in household members and its impact on TB transmission.

What do our interim results show?

- Multimorbidity is highly prevalent and influenced by age, sex and province
- Undernutrition is most prevalent in the young, HIV in middle age and diabetes in older adults
- Cumulative TB multimorbidity is associated **with increased mortality**, significantly driven by HIV and undernutrition
- A higher proportion of households whose index case was affected by TB multimorbidity sold livestock or another household asset to afford care and, at 15-month follow-up, were more likely to have a household member go to bed hungry, than households whose index case had no comorbidities.

What does this mean?

- **Multimorbidity in TB is the norm in South Africa and drives mortality** -> health policy needs to be sensitive to this
- **Proactive identification and treatment of multimorbidity** is necessary to end TB -> screening for the WHO 5 key comorbidities is relatively low burden to implement with potentially significant gain
- TB multimorbidity is associated with differing financial coping strategies and socioeconomic outcomes
- Age, sex and rural or urban living influence prevalence and pattern of multimorbidity and need to be considered in the development of **integrated, person-centred interventions to end TB.**

Analysis is ongoing and we welcome opportunities to discuss further and share results.

**Senior Contributors: Dr Tom Wingfield, LSTM; Prof Neil Martinson, Director of PHRU; Prof Peter MacPherson, University of Glasgow, Dr Emily Webb, LSHTM and teams.
Fellow: Dr Greta K Wood. Masters student: Alice Wood.**