



Commentary

Key stakeholders' perspectives on prioritization of services for chronic respiratory diseases (CRDs) in Tanzania and Sudan: Implications in the COVID-19 era

Elizabeth Henry Shayo^{1,2}, Uzochukwu Egere², Stella Mpagama³, Nyanda Elias Ntinginya⁴, Lilian Ishengoma⁵, Asma El Sony⁶, Rachel Tolhurst², Jane Ardrey², Miriam Taegtmeier², Chakaya Jeremiah⁷, Kevin Mortimer⁷, Tom Wingfield⁷, Martha Chinouya⁸

¹Policy Analysis and Advocacy, National Institute for Medical Research, Dar es Salaam, Tanzania, ²Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ³Medical Department, Kibong'oto Infectious Diseases Hospital, Kilimanjaro, ⁴Mbeya Medical Research Centre, Mbeya, ⁵Department of Community, National TB and Leprosy Programme, Dodoma, Tanzania, ⁶The Epidemiological Laboratory, Khartoum, Sudan, Departments of ⁷Clinical Sciences, ⁸Education, Liverpool School of Tropical Medicine, Liverpool, United Kingdom.

***Corresponding author**

Elizabeth Henry Shayo,
Policy Analysis and Advocacy,
National Institute for Medical
Research, Dar es Salaam,
Tanzania.

Elizabeth.Shayo@lstmed.ac.uk

Received: 02 August 2021
Accepted: 03 December 2021
EPub Ahead of Print: 25 January 2022
Published: 28 January 2022

DOI
10.25259/JPATS_27_2021

Quick Response Code:



ABSTRACT

Key Messages

- Despite significant morbidity and mortality and socioeconomic consequences, chronic respiratory diseases (CRDs) are underprioritized in public health programs, especially in low-and middle income countries (LMICs)
- COVID-19 is compounding this lack of prioritization and negatively impacting CRD-related (and other) health-care access, diagnosis, and management
- Risk factors for exposure to untreated COVID-19, other respiratory infections, and CRDs overlap and could be addressed in concert
- Prioritization of COVID-19 within the health system is likely to last for years, potentially allowing advocates to reframe the prioritization of CRDs as part of the pandemic preparedness and integration of health care. This includes advocating for approaches that integrate CRDs into existing programs and services systems strengthening.

Keywords: Chronic respiratory diseases, COVID-19, Prioritization, Stakeholders

BACKGROUND

Chronic respiratory diseases (CRDs) are a group of diseases that include chronic obstructive pulmonary disease, asthma, bronchiectasis, and occupational diseases affecting the airways and other lung structures. CRDs are among the third leading cause of death worldwide.^[1,2] In LMICs, there are a range of risk factors, including high rates of indoor air pollution due to the use of biomass fuels for cooking and lighting and the increasing prevalence of tobacco smoking.^[1,3,4,5] In this commentary, we reflect on the experience in Northeast and East Africa, Sudan, and Tanzania, respectively, where both countries have well-functioning

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2022 Published by Scientific Scholar on behalf of Journal of the Pan African Thoracic Society

tuberculosis (TB) program but underprioritized¹ CRD programs despite the substantial burden of CRD-related morbidity, mortality, and socioeconomic consequences. Priority setting is a challenge in many LMICs due to the absence of, or insufficient data and coexistence of communicable and non-communicable diseases within constrained health systems. Importantly, when the disease burden is either unknown or insufficiently recorded in routine Health Management Information Systems, as in the case of CRDs in most LMIC, opportunities for resource allocation may be missed.

THE INTERNATIONAL MULTIDISCIPLINARY PROGRAM TO ADDRESS TB AND LUNG HEALTH IN AFRICA (IMPALA)

IMPALA aimed at strengthening CRD management using an integrated approach within the health systems in Tanzania and Sudan. To understand the perceived importance of CRDs in these settings, we interviewed a total of 27 key stakeholders (13 – Tanzania and 14 – Sudan) comprising of policy-makers from the national level and implementers from regional and district levels. These stakeholders were purposively selected based on their roles and experiences in policy formulation and implementation (more details are found in Mulupi's paper⁽⁶⁾). The interviews, conducted before the COVID-19 pandemic, explored policy-makers' perspectives of CRD prioritization within the health systems. Briefly, the interviews revealed that national key stakeholders in both countries have, in the past, prioritized TB, HIV, and malaria as these diseases have short-term impacts, are internationally recognized, interventions are more efficacious, and benefit the large population. CRDs were, therefore, lowly prioritized.

Due to low prioritization in Tanzania and Sudan, CRD appropriate management is limited by lack of data, diagnostic technologies, and CRD knowledge, consequently leading to under/misdiagnosis, and inappropriate use of medicines as noted in other LMICs.^[7,8] These findings are summarized in [Figure 1] – upper section on reporting, recognition, rehabilitation, and research. We reflect on the implications of these findings within the pandemic era of COVID-19 by asking the following question: *How does the emergence of, and lessons from COVID-19, influence CRDs management in Tanzania and Sudan?*

Tanzania health-care services are provided from dispensary to national hospital level, while in Sudan, the health system is organized in three layers comprising the Federal Ministry of Health, the State Ministry of Health, and the Local Health System.^[9] Sudan has strong demonstration sites offering integrated services focusing on asthma while in Tanzania,

there is a strong community-based referral system for TB. In Tanzania, prioritization operates within decentralized health-care systems, guided by the essential health-care package with allocation for interventions dependent on disease burden, based on existing data.^[10]

COVID-19 IN TANZANIA AND SUDAN

By May 2020, most African countries were experiencing the first wave of COVID-19 with 509 confirmed cases and 21 deaths recorded in Tanzania while Sudan reported 2592 cases and 108 deaths.^[11,12] Cases are potentially underreported due to the limited availability of mass testing. Many African countries are now experiencing a third wave, which started in early May 2021: Reported new cases reached 204012 in early July 2021, exceeding the figures observed at the peak of the second wave.^[13] COVID-19 will likely continue to be a key public health issue, with responses to successive waves of the pandemic limited by other determinants of health. The pandemic requires concerted efforts from all pillars of the health system, including service delivery, finance, workforce, medicines/technologies, and leadership/governance to effectively mitigate its impact on community health. In LMICs, scarce resources are being channeled toward COVID-19 emergency responses, including prevention and management, at the expense of other diseases including CRDs.

COVID-19 AND CRDS: LESSONS LEARNED IN SUDAN AND TANZANIA

Due to its high global profile, policy-makers in Tanzania and Sudan accorded COVID-19 much higher priority than other diseases. Within the short time frame of the COVID-19 pandemic, substantial resources have been invested in prevention, identifying, and promoting non-clinical and clinical measures.

The prioritization of COVID-19 had a significant impact on CRD management. During the first wave (2020), for example, patients presenting at health facilities with symptoms such as fever, cough, and chest problems, were required to undergo quarantine and COVID-19 tests.^[11] Furthermore, in Tanzania, although the IMPALA project provided spirometry and peak flow meters to health facilities, diagnostic work using the equipment was suspended for infection control reasons. Some health-care providers reported that they stopped operating a recently started CRD clinic as resources were refocused to potential COVID-19 patients and to control infection. This potentially further reduced access to services for people with CRDs. The pandemic presents new challenges to already overwhelmed health systems. It has been documented that potential CRD patients such as those with symptoms suggestive of TB are reluctant to attend health facilities.^[14,15] For instance, in Dar es Salaam, the number of

1 Priority setting in health is the process of fair allocation of scarce resources in accordance with the need and burden of disease

CRD PRE COVID19 ↓	Poor recording of cases - Limited disease registries - Limited data - Limited policies ↓	- Silent at international landscape - Low prioritization - Poor resource allocation - Limited planning - No diagnosis pathways - HIV/TB, malaria prioritized ↓	- No staff dedicated for CRD management - Poor and difficult diagnosis - No screening services - Limited medicine availability - Poor follow-up - Limited patient networks ↓	- Limited understanding of risk factors - Limited evidence on effective management with in existing systems - CRD burden unknown ↓
CRD further de-prioritization	Reporting	Recognition	Rehabilitation	Research
↑ Within the Context of COVID19	↑ - Symptom confusion - Decline in health facility attendance - Patients fearing infection at health facilities - Decline in number of CRD cases presenting at facilities	↑ - Resources diverted to COVID for prevention and management - Limited resources for CRD further reduced - CRD clients stigmatized - CRD patients asked to quarantine - Health care workers not attending to CRD patients - Little attention to CRD-COVID19 co-morbidity	↑ - CRD clients ignored - CRD diagnostics technologies not used - No staff for CRD management - Delayed CRD management - Reduced support for CRD clients - Lose of hope for CRD clients - Possibility of increased severity for CRD clients - Health system overwhelmed	↑ - No documented evidence in these settings (Sudan and Tanzania) on CRD as risk factor to COVID19 - No evidence on COVID19 post recovery on CRD clients - No evidence on co-occurrence of CRD and COVID19

Figure 1: Summary of CRDs prioritization in pre and during COVID-19 focusing on 4 Rs.

TB patients notified between April and June 2020 declined by 30% compared to the same quarter in 2019.^[14]

It is important to note that poor lung health can lead to severe disease and even deaths for patients infected with COVID-19.^[16] Lack of care providers trained in CRDs countrywide, has made it difficult to clearly identify and differentiate key symptoms and signs of these diseases, which creates significant challenges for managing CRDs, COVID-19, and multi-morbidities. The likelihood that patients presenting with CRDs might be referred for COVID-19 treatment or to be admitted to isolation centers as has been reported elsewhere.^[17] With this scenario, some CRD patients may suffer undue delays to care, as they wait for the laboratory test results. The risk factors for severe COVID-19, other respiratory infections, and CRDs overlap and should be addressed in concert, that is, chronic respiratory conditions are risk factors for increased severity of COVID-19. Likewise, COVID-19 lung disease may progress into irreversible lung damage, increasing the burden of CRD in communities. If limited attention is paid

to the interactions between CRDs and COVID-19, there is a risk that the health of CRD patients will be negatively impacted. Strategies that address the possible cooccurrence of COVID-19 among CRD patients provide opportunities for the prompt attention to infection control and care provider training on the management of both diseases.

[Figure 1] (lower section) indicates the implication of COVID-19 on health systems functioning in terms of CRD prioritization and management. There is a chain of factors presented in 4Rs (Reporting in terms of availability of data, Recognition in terms of getting attention, Rehabilitation in terms of services, and Research in terms of evidence).

EFFORTS TO TACKLE THE IMPACTS OF COVID-19 WITHIN THE HEALTH SYSTEM

Tanzania and Sudan like other sub-Saharan African countries have well established, donor-funded TB programs that aim to ensure access to effective diagnosis and management of TB confirmed patients. IMPALA improved the existing CRD

algorithms at the community and health facility level to enhance the identification of potential COVID-19 patients so that a patient can enter the CRD pathway if laboratory tests for TB and COVID-19 are negative. This approach has been further advanced in Sudan, where mobile clinics have been introduced for diagnosing and managing COVID-19 and CRDs in the community. These strategies also helped identify the possible cooccurrence of COVID-19 in CRD patients, thus providing opportunities for the prompt attention to infection control and training of care providers on the main symptoms and management of these respiratory diseases.

Other efforts include the value of outreach work in infection control. As an example, in Sudan, community members were encouraged to stay at home with outreach services collecting samples from individuals suspected to have COVID-19. Health facility consultation was only encouraged in severe cases. These lessons suggest that to create resilient health systems, flexibility in service delivery is needed so that routine health services can be sustained during infectious disease pandemics that raise significant biosecurity concerns like COVID-19.

GENERAL REFLECTION AND RECOMMENDATIONS

COVID-19 is likely to impact health systems for years to come and this provides an opportunity to reframe the prioritization of CRDs as part of pandemic preparedness within an integrated care model. Health systems in many LMIC, including Sudan and Tanzania, are in the initial stages of integrating non-communicable and communicable diseases in the health systems. While COVID-19 has shifted focus back to communicable disease, comorbidities with CRDs strengthen the case for global and national prioritization of integrated care for CRDs within a wider health system strengthening approach. Other recommendations to foster CRD prioritization in the COVID-19 era are summarized in [Table 1].

Restructuring of health systems needs to both improve preparedness for emergencies such as pandemics as

Table 1: Summary recommendations on CRD prioritization in COVID-19 era.

- Restructure health systems for joint pandemic and chronic disease preparedness
- Prioritize CRD to avoid complications in case of COVID-19
- Increase investments in large-scale community health programs
- Partnership between private and public bodies
- Efforts to increase ownership to local agenda by local health-care teams (bodies)
- Restructuring of health systems by shifting investments from vertical to more integrated approaches

documented elsewhere^[18,19] and also addresses the emerging double burden of communicable and non-communicable diseases. Increased ownership of the local health agenda would enable countries such as Tanzania and Sudan to increase prioritization of CRDs as locally high burden diseases. Importantly, the outlined actions [Table 1] can potentially support a concerted effort to fight the stigma associated with the common symptoms of CRDs and COVID-19 and, in particular, “cough.” Fighting stigma is necessary to improve the effectiveness of disease control efforts, and correspondingly improved treatment and outcomes may reduce stigma.

The Tanzanian and Sudanese National TB Programs remain the melting pot of most chronic cough patients, the majority of whom turn out to be TB negative and require further investigation and management which are not often provided within the health system. Many TB-negative patients return to their communities without appropriate clinical care plans and continue suffering. This reduces trust in the health system and has wide-reaching socioeconomic consequences. The development of multiplex assays that test for both COVID-19/TB could streamline pathways for people with respiratory symptoms and also link people who are “negative for infection” (e.g., TB/COVID-19) to specific CRD/CLD pathways. An integrated health system would not only prevent the unnecessary loss from the care of people who potentially have CRD, COVID-19, and TB but also it will improve their management and quality of life.^[16,18]

CONCLUSION

The interaction of COVID-19 and CRDs is complex; while COVID-19 offers opportunities for integration, management, and prioritization of CRDs, there is also the risk that the pandemic can lead to further deprioritization of CRDs if there is limited integration within the health system. The COVID-19 pandemic influences the prioritization of other diseases, including CRD in overburdened health systems in LMIC. We, therefore, recommend an integrated approach through established prioritized local programs (e.g., TB programs) with clear care pathways that link people who are TB/COVID-19 negative to specific CRD management. The emergence of COVID-19 pandemic, therefore, presents “new” challenges to “old” public health problems that require innovation in configuring health systems to be resilient and prepared for future and ongoing pandemics within the context of neglected diseases such as CRDs.

Acknowledgment

We thank the National Institute for Health Research (NIHR) Global Health Research Unit on Lung Health and TB in Africa at LSTM – “IMPALA” for helping to make this work

possible. IMPALA (project reference 16/136/35) was funded by the NIHR using the UK aid from the UK Government to support global health research. The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR or the UK Department of Health and Social Care.

Authors' contributions

EHS was involved in the finalizing the study design, collected data that informed the commentary, drafted, revised, and finalized the commentary for submission. UE and LI participated in data collection and edited several rounds of the commentary. JA reviewed the commentary. SM, NEN, AES, RT, MT, KM, TW, and The IMPALA consortium were involved from the conception of the study and reviewed several versions of the commentary. MC provided overall guidance in the writing up of this commentary.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

Financial support and sponsorship

National Institute for Health Research (NIHR) (IMPALA, grant reference 16/136/35) using UK aid from the UK Government to support global health research.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Soriano JB, Kendrick PJ, Paulson KR, Gupta V, Abrams EM, Adedoyin RA, *et al.* Prevalence and attributable health burden of chronic respiratory diseases, 1990-2017: A systematic analysis for the Global Burden of disease study 2017. *Lancet Respir Med* 2020;8:585-96.
- Meghji J, Mortimer K, Agusti A, Allwood BW, Asher I, Bateman ED, *et al.* Improving lung health in low-income and middle-income countries: From challenges to solutions. *Lancet* 2021;397:928-40.
- Pandey M. Domestic smoke pollution and chronic bronchitis in a rural community of Hill Region of Nepal. *Thorax* 1984;39:337-9.
- van Gemert F. Prevalence and Impact of Chronic Obstructive Pulmonary Disease in a Rural District of Uganda: FRESH AIR Methodology for Sub-Saharan Africa Groningen: Rijksuniversiteit Groningen; 2017.
- Rylance S, Masekela R, Banda NP, Mortimer K. Determinants of lung health across the life course in Sub-Saharan Africa. *Int J Tuberc Lung Dis* 2020;24:892-901.
- Mulupi S, Ayakaka I, Tolhurst R, Kozak N, Shayo HE, Abdalla A, *et al.* Perspectives of healthcare workers, national and regional policy stakeholders on the management of chronic lung disease in five Sub-Saharan African Countries: Tale of a vicious cycle of neglect. *SSRN Electron J* 2020;1-15.
- Hamzaoui AO, Ottmani S. Practical approach to lung health: Lung health for everyone? *Eur Respir Rev* 2012;21:186-95.
- Mortimer K, Cuevas L, Squire B, Thomson R, Tolhurst R. Improving access to effective care for people with chronic respiratory symptoms in low and middle income countries. *BMC Proc* 2015;9 Suppl: S3.
- Decaillat F, Mullen P, Guen M. Sudan Health Status Report. Washington, DC: World Bank/AFTH3. World Bank/AFTH3; 2003.
- URT. Comprehensive Council Health Planning Guidelines. 4th ed. Dar-es-Salaam, Tanzania: Ministry of Health and Social Welfare, Ministry of Health; 2011.
- URT. Corona Virus Situation. Tanzania: Ministry of Health Report; 2020.
- MoH S. Country Report on COVID19 Status; 2020.
- World Health Organization. Weekly Epidemiological Report. Geneva: World Health Organization; 2021. Available from: <https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---6-july-2021>. [Last accessed on 2021 Jul 14].
- NTLP. NTLP Data System, 2019-2020. NTLP; 2020.
- World Health Organization. Global Tuberculosis Report 2020. Geneva: World Health Organization; 2020.
- Wingfield T, Cuevas LE, MacPherson P, Millington KA, Squire SB. Tackling two pandemics: A plea on World Tuberculosis day. *Lancet Respir Med* 2020;8:536-8.
- Sockrider M. Managing your chronic lung disease during the COVID-19 pandemic, patient information sheet. *Am J Respir Crit Care Med* 2020;202:5-6.
- Brosnahan SB, Jonkman AH, Kugler MC, Munger JS, Kaufman DA. COVID-19 and respiratory system disorders: Current knowledge, future clinical and translational research questions. *Arterioscler Thromb Vasc Biol* 2020;40:2586-97.
- Saunders MJ, Evans CA. COVID-19, tuberculosis and poverty: Preventing a perfect storm. *Eur Respir J* 2020;56:2001348.

How to cite this article: Shayo EH, Egere U, Mpagama S, Ntinginya NE, Ishengoma L, El Sony A, *et al.* Key stakeholders' perspectives on prioritization of services for chronic respiratory diseases (CRDs) in Tanzania and Sudan: Implications in the COVID-19 era. *J Pan Afr Thorac Soc* 2022;3:51-5.