PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Service readiness for the management of non-communicable diseases in publicly financed facilities in Malawi: findings from the 2019 Harmonized Health Facility Assessment census survey
AUTHORS	Ahmed, Sali; Cao, Yanjia; Wang, Zicheng; Coates, Matthew M.; Twea, Pakwanja; Ma, Mingyang; Chiwanda Banda, Jonathan; Wroe, Emily; Bai, Lan; Watkins, DA; Su, Yanfang

VERSION 1 – REVIEW

REVIEWER	Sapkota , Bhim Prasad Ludwig-Maximilians-Universitat Munchen Center for International Health
REVIEW RETURNED	27-Apr-2023

GENERAL COMMENTS	The study has analyzed the service readiness by assessing the listed equipments and medicines. The service readiness would be affected by the other factors as well: availability of skilled health workers, financial resources to purchase/maintain the equipments/drugs, government's priority about these equipments/medicines etc. The study has not explored these aspects of service readiness.

REVIEWER	Kaur, Prabhdeep National Institute of Epidemiology, Division of Noncommunicable Diseases
REVIEW RETURNED	20-May-2023

GENERAL COMMENTS	• The strength and limitation section is heavy on limitations. Please add a few strengths as well and keep only relevant limitations. • The methods section needs a better structure with appropriate subheadings. – Study setting, sampling strategy and sample size, operational definitions, data collection, data analysis, human subjects protection. • Under operational definitions – clarify the level and functions of various health facilities. To assess preparedness, it is important to understand if a given type of facility is expected to provide the service. For example, – heart failure service may not be relevant at lower-level health facilities. As per appendix Table 1- Type I diabetes treatment is expected at all levels, which seem unrealistic. Does Malawi Health dept have any guidelines as to what was expected ? • Similar question – at least three antihypertensive drugs at primary care level seem unrealistic in low-resource settings. More than 90% hypertensive can be treated with 2 drugs. • Results need to be organised better. Text is very hard to follow due to lack of sequence and flow

	• The first para should mention the number of facilities surveyed by type and if any facilities could not be surveyed or partially surveyed. Any missing data to be mentioned. • Results should limit to the current survey; comparisons with the 2015 survey can be included in the discussion. • Was the Bp apparatus sphygmomanometer or digital? • Figure 1 is tough to follow. Consider splitting the information for clarity. • Figure 1 – Service readiness green bars can be removed as Figure 2 has the same data. • Summarise the key results by disease in text highlighting important components which were available as per figure 1. • I feel it will be better to have a table split by equipment/drugs for clarity. • Discussion should be better organised. It might be better to interpret it in terms of what was consistently missing compared to 2015. Need to mention which components have improved. • Also, refer to the situation in other African countries with similar socioeconomics

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. Bhim Prasad Sapkota , Ludwig-Maximilians-Universitat Munchen Center for International Health
Comments to the Author:
The study has analyzed the service readiness by assessing the listed equipments and medicines. The service readiness would be affected by the other factors as well: availability of skilled health workers, financial resources to purchase/maintain the equipments/drugs, government's priority about these equipments/medicines etc. The study has not explored these aspects of service readiness.

Response: Our study focuses on service specific readiness which is the readiness of basic equipment and medicines to diagnose and treat thirteen NCDs. We focused our analysis on functional facilities according to the HHFA and excluded 14 non-functional facilities (Table 1). In our analysis, we omitted other dimensions of facility readiness, like infrastructure and human resources, but we plan to explore the potential of using the HHFA survey to address these dimensions in future research.

We add in the Introduction section that “Service readiness is assessed by measuring whether equipment and medicines required to provide NCD services are available and functional in this study, and we plan to further measure facility status (in terms of availability of clean water, electricity, and toilet) and provider competency in future studies.”

Reviewer: 2
Dr. Prabhdeep Kaur, National Institute of Epidemiology
Comments to the Author:
- The strength and limitation section is heavy on limitations. Please add a few strengths as well and keep only relevant limitations.

Response: Thank you for your comment. We have revised the strengths and limitations section accordingly.
- The methods section needs a better structure with appropriate subheadings. – Study setting, sampling strategy and sample size, operational definitions, data collection, data analysis, human subjects protection.

Response: We have updated the methods section and included clearer headings and subheadings. We revised the operational definition sections and added a more explicit statement about human subjects protection.

- Under operational definitions – clarify the level and functions of various health facilities. To assess preparedness, it is important to understand if a given type of facility is expected to provide the service. For example, – heart failure service may not be relevant at lower-level health facilities. As per appendix Table 1- Type I diabetes treatment is expected at all levels, which seem unrealistic. Does Malawi Health dept have any guidelines as to what was expected ?

Response: We categorized healthcare facilities in two levels: primary healthcare (PHC) facilities as well as secondary and tertiary care (STC) facilities. Both health centers and rural community hospitals were considered as PHC facilities. All district hospitals and central hospitals were in the category of STC facilities.

In terms of expected availability of the NCD services by level, we consulted local partners in the Ministry of Health in Malawi. (Appendix Table 1) According to the MOH Malawi Diabetes, type 1 and 2 services are expected to be provided at the Primary and Secondary levels. The essential health package (EHP) developed by the MOH of Malawi included the management of diabetes type 1 and 2 as interventions to be provided as free services at the point of care at primary and secondary levels.

Scholars from Malawi University stated "Insulin was only available at secondary and tertiary facilities." It was based upon the 2015 Standard Treatment Guidelines for Malawi.

See: Banda, Chimwemwe Kwanjo, Mina C Hosseinipour, Johnstone Kumwenda, Ndaziona Peter Kwanjo Banda, Prosper Lutala, Martha Makwero, and Admason Sinjani Muula. “Systems Capacity To Conduct Non-Communicable Disease Focused Implementation Research In The Malawian Health Sector: A National Needs Assessment.” Preprint. In Review, May 26, 2021. https://doi.org/10.21203/rs.3.rs-496152/v1.

In HHFA survey, insulin for type 1 diabetes and Metformin or Glibenclamide for type 2 diabetes were expected at health centers in the survey design. Data showed that insulin was available at 7% of PHC facilities (i.e., 3% of health centers and 48% of rural and community hospitals). Only 14 health centers had insulin available, probably in urban areas.

We agree with the reviewer that heart failure service is irrelevant at health centers, and we analyze availability for chronic heart failure at Rural and community hospitals only (Appendix Table 1).

We added links to the MOH Malawi resources below.

Health Sector Strategic Plan II

- Similar question – at least three antihypertensive drugs at primary care level seem unrealistic in low-resource settings. More than 90% hypertensive can be treated with 2 drugs.

Response: The essential health package (EHP) developed by the MOH of Malawi included the management of hypertension as interventions to be provided as free services at the point of care at primary and secondary levels. Commonly used antihypertensive classes, such as ACE inhibitors, are associated with adverse events that might limit their use in a substantial subset of the target population. Hence, the availability of 3 drugs will provide patients with hypertension with the drug combination that suits their response and any adverse events they might experience.

In HHFA survey, at least three out of four (i.e., calcium channel blocker, ACE inhibitor, thiazide, atenolol) were surveyed at health centers. Availability of antihypertensive is low in PHC facilities, with only 17.5% having functional “at least three or more antihypertensive classes” medication and only 37% having at least two, compared to 75% and 88% in STC facilities.

We added links to the MOH Malawi resources below.

Health Sector Strategic Plan II

- Results need to be organised better. Text is very hard to follow due to lack of sequence and flow

Response: Thank you for your comment. To ensure clarity and flow of sequence in the results section, we reorganized the results under three main headings:

1.NCD service readiness

2. Services availability and functionality

3. Permanently unavailable items

- The first para should mention the number of facilities surveyed by type and if any facilities could not be surveyed or partially surveyed. Any missing data to be mentioned.

Response: We included an introductory paragraph detailing the number and type of health facilities in our analysis.

“We included 564 facilities (i.e., 512 PHC facilities and 52 S&T facilities) in our analysis. There were 14 non-functioning health centers and 1 specialized tertiary hospital missing from our analysis. According to the guideline and missing data investigation, we assumed that the following services were not expected at health centers: heart failure, chronic RHD, acute asthma, acute diabetic events, acute epilepsy, and injuries. Except for the missing data of conditions at health centers, all other variables have less than 25% missing data.”

- Was the Bp apparatus sphygmomanometer or digital?

Response: The question in the HHFA questionnaire is as follows:

Please tell me if the following basic equipment and supplies used in the provision of client services are available in this facility today: Blood pressure apparatus (may be digital or manual)/ sphygmomanometer with stethoscope). We consider the facility to be equipped with a blood pressure apparatus if it has any of the types mentioned above.

- Results should limit to the current survey; comparisons with the 2015 survey can be included in the discussion.

Response: We move comparison with the 2015 survey to the Discussion section.

- Was the Bp apparatus sphygmomanometer or digital?

- Figure 1 is tough to follow. Consider splitting the information for clarity.

Response: Thank you for comments. We have revised the figures to ensure clarity.

- Figure 1 – Service readiness green bars can be removed as Figure 2 has the same data.

Response: Thank you for your feedback. We have revised the figures to enhance clarity and have omitted the service readiness information, as you correctly pointed out that it has already been addressed.

- Summarise the key results by disease in text highlighting important components which were available as per figure 1.

Response: We have summarized the key results by disease in the text on the third paragraph of the results section under the heading "Medicine and equipment availability and functionality "

- I feel it will be better to have a table split by equipment/drugs for clarity.

Response: We have introduced a new Figure (Figure 4) that separates equipment and medicines for enhanced clarity. Additionally, they have been listed alphabetically for improved organization.

- Discussion should be better organised. It might be better to interpret it in terms of what was consistently missing compared to 2015. Need to mention which components have improved.

Response: Thank you for the comment. We have organized the discussion section and identified the results consistent with the 2015 analysis and the services that have improved.

- Also, refer to the situation in other African countries with similar socioeconomics

Response: We included a paragraph to compare the results with the situation in other African countries.

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COI statements:

Reviewer: 1
Competing interests of Reviewer: No, any competing interest.

Reviewer: 2
Competing interests of Reviewer: No competing interests.

VERSION 2 – REVIEW

REVIEWER	Kaur, Prabhdeep National Institute of Epidemiology, Division of Noncommunicable Diseases
REVIEW RETURNED	27-Oct-2023

GENERAL COMMENTS	All the comments have been addressed

VERSION 2 – AUTHOR RESPONSE