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Policies for chronic disease management during the COVID-19 pandemic in Kenya and Tanzania: a desk review and views of decision makers.

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3 Policies for chronic disease management during the COVID-19 pandemic in Kenya and
4 Tanzania: a desk review and views of decision makers.
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Abstract

Background: The COVID-19 pandemic caused disruptions in care that adversely affected the management of non-communicable diseases (NCDs) globally. Countries have responded in various ways to support people with NCDs during the pandemic. This study aimed to identify policy gaps, if any, in the management of NCDs, particularly diabetes, during COVID-19 in Kenya and Tanzania to inform recommendations for priority actions for NCD management during any future similar crises.

Methods: We undertook a desk review of pre-existing and newly developed national frameworks, policy models and guidelines for addressing NCDs including type 2 diabetes. This was followed by 13 key informant interviews with stakeholders involved in NCD decision making: six in Kenya; seven in Tanzania. Thematic analysis used to analyse the documents.

Results: Seventeen guidance documents identified (Kenya = 10; Tanzania = 7). These included pre-existing and/or updated policies/strategic plans, guidelines, a letter, a policy brief and a report. Neither country had comprehensive policies/guidelines to ensure continuity of NCD care before the COVID-19 pandemic. However, efforts were made to update pre-existing documents and several more were developed during the pandemic to guide NCD care. Some measures were put in place during the COVID-19 period to ensure continuity of care for patients with NCDs such as longer supply of medicines. Inadequate attention was given to monitoring and evaluation and implementation issues.

Conclusion: Kenya and Tanzania developed and updated some policies/guidelines to include continuity of care in emergencies. However, there were gaps in the documents and between policy/guideline documents and practice. Health systems need to establish disaster preparedness plans that integrate attention to NCD care to enable them to better handle severe disruptions caused by emergencies such as pandemics. Such guidance needs to include contingency planning to enable adequate resources for NCD care and must also address evaluation of implementation effectiveness.

Word count: 297

Key words: Non-communicable diseases, NCDs, diabetes, East Africa, care continuity, care disruption, Sub-Saharan Africa

What is already known?

- The COVID-19 pandemic caused disruptions in care that adversely affected the management of non-communicable diseases (NCDs) globally.
- Countries introduced various strategies to support people with NCDs including diabetes during this pandemic.

What are the new findings?

- This review revealed that prior to the COVID-19 pandemic, both countries did not have comprehensive policies/guidelines that addressed the management of NCDs during pandemic/emergency situations.
- Several policies and guidelines were developed during the COVID-19 pandemic and measures were put in place to address the needs of patients with NCD and T2DM but inadequate attention was given to assessing implementation effectiveness.

What do the new findings imply?

- Public health emergencies will continue to occur; therefore, there is a strong need to develop disaster preparedness plans that include attention to NCD care, to better cope with future emergency situations and to strengthen health systems' resilience to multiple shocks.
- Health systems need to be better prepared to handle disruptions in care by establishing emergency preparedness plans and, adequately resourcing implementation efforts.

Introduction

The COVID-19 pandemic caused disruptions in care that adversely affected the management of non-communicable diseases (NCDs) globally. Government restrictions implemented in various countries to curb the spread of COVID-19 such as lockdown directives and mobility restrictions impacted management of NCDs by individuals and health systems.¹ A rapid assessment conducted by the World Health Organisation (WHO) across 163 countries revealed that NCD health services including rehabilitation services, hypertension management, and diabetes management, were partially or completely disrupted by the pandemic.² These disruptions are likely to have ongoing negative impacts on the management of chronic diseases and progress toward achieving Sustainable Development Goal (SDG) targets. Studies reported that patients with NCDs such as hypertension and diabetes were more likely than those without these comorbidities to be affected by COVID-19 and suffer worse health outcomes if infected.^{3,4}

Despite most countries prioritizing services for four major NCDs (diabetes, hypertension, cancer, and cardiovascular disease) during the COVID-19 pandemic,² maintaining routine care for NCDs is a major challenge due to barriers at various levels of healthcare systems. Patients with Type 2 diabetes (T2D) may need continuous and regular blood glucose monitoring and optimal compliance with ongoing drug treatment.⁵ Healthcare providers reported that diabetes was the most affected condition by the reduction in healthcare resources.¹ The WHO assessment found that 66% of countries surveyed included the continuity of NCD services in the national COVID-19 plans.²

Countries have used various strategies to support people with NCDs including diabetes during this pandemic,⁶ primarily switching from routine care visits to virtual healthcare visits and communications.¹ Despite these adjustments in service delivery for NCDs, most global healthcare resources focused on the COVID-19 emergency response,⁷ particularly in Sub-Saharan Africa (SSA) where healthcare personnel and health resources are inadequate.⁸ This resource reallocation disrupted care for patients with NCDs.⁹

In this review, we synthesise policy evidence regarding T2D management during COVID-19 and identified policy gaps, if any, in management of T2D and other NCDs to inform T2D management actions during COVID-19 in Kenya and Tanzania. Our research questions:

(1) Are there pre-existing national frameworks, policy models (priorities, strategies, and directions) and guidelines (instructions) for addressing T2D /NCDs? If so, did they cover

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3 pandemic/emergency situations? How have existing frameworks/models (includes formal
4 framework/models and informal statements) been modified for pandemic/emergency situations
5 (e.g., COVID-19) OR how have framework and policy models been created during COVID-19
6 (including those in development)?
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11 (2) What do the national frameworks, policy models or guidelines tend to include with regards to
12 priority setting (access to care and medical supplies, resource allocation and monitoring and
13 evaluation tools) for management of T2D /NCDs in pandemic/emergency situations?
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17 (3) What are the policy/guideline gaps for the management of T2D during the COVID-19
18 pandemic (e.g., addressing existing disparities such as socioeconomic status and urban/rural status,
19 addressing health service staff, financial resources for health management, implementation,
20 communication/dissemination), and what are the opportunities to improve the management of
21 T2D/NCDs?
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26 27 **Methods**

28 We conducted a systematic search of policy documents and guiding frameworks on NCDs
29 with a particular focus on T2D in Kenya and Tanzania from October 2021 to March 2022. Our
30 review included pre-existing national frameworks, policy models or guidelines, noting whether
31 these had been modified to include pandemic/emergency situations, as well as new ones developed
32 during the COVID-19 pandemic. Identified documents were assessed to ascertain policy/guideline
33 gaps, if any, and opportunities to improve the management of T2D or other NCDs during periods
34 where there are disruptions in care such as the COVID-19 pandemic. While the primary interest
35 was T2D, we also included policy documents which broadly covered NCDs and reviewed their
36 applicability to T2D.
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44 This review was further supplemented by Key Informant Interviews (KIIs)¹⁰ conducted
45 between March and August 2022. The aim of the interviews was to understand how the Kenyan
46 and Tanzanian governments addressed the management of NCDs including T2D during COVID-
47 19, with specific focus on: policy formulation during COVID-19, policy implementation during
48 COVID-19, and gaps noted in the management of NCDs and T2D during COVID-19. Data from
49 the review and the key informant's interview were analyzed separately and then triangulated.
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56 **1. Document review**

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Eligibility criteria

For inclusion in this review documents had to meet four criteria: (1) policy frameworks, policy statements, government statements/pronouncements, publications, emergency preparedness plans, strategies, laws, and operational guidelines for diabetes during COVID-19 (this also included policies under development); (2) specifically mentions NCDs or diabetes or pandemic/emergency or COVID-19; (3) printed in English/Kiswahili; and (4) references Kenya or Tanzania.

Search Strategy

A team of seven researchers (Kenya = 4; Tanzania = 3) with backgrounds in medicine, public health, and social sciences conducted the searches and reviewed the documents. All received training on conducting desk reviews. The team coordinator assigned each researcher a different database to search for relevant documentation.

We searched using key text words such as 'Diabetes' AND 'COVID-19', AND 'Healthcare' AND 'Policies' AND 'Kenya' OR 'Tanzania'. Appendix 1 describes the specific terms used in the search. Using these terms, researchers searched scientific databases (PubMed/Medline, Embase, and Web of Science), Ministry of Health (MOH) websites, local/international resources such as the WHO, and government social media such as the MOH Twitter and Instagram accounts, supplemented with Google searches. We also contacted existing networks and experts in the NCD field through a call for information which was sent via email and WhatsApp groups to ask for any other relevant policy documents.

All retrieved documents were catalogued in an online excel database which facilitated a standardised approach to data extraction from each document. The document characterisation included a unique document number for tracking the title of the document, source of the document (e.g., social media, MOH), and basic information about the document (e.g., year document was produced). The team held weekly "Coding clinics" to ensure consistency in coding of the included documents.

2. Key informant interviews (KII)

Design and participants

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3 The results from the document review were used to inform development of the interview
4 guides for the KIIs. In both Kenya and Tanzania, key informants (KIs) were purposively selected
5 based on their experiences and participation in NCD related policy formulation and
6 implementation processes.
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10 11 ***Data collection procedures***

12 A semi-structured interview guide was used to explore and understand: a) what
13 policies/guidelines/frameworks had been developed during COVID-19; b) who and which sectors
14 had been involved in the policy development and implementation; c), challenges in the formulation
15 and implementation; d) gaps that still exist; and e) recommendations.
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20 Interviews were conducted by two experienced qualitative researchers who were familiar
21 with the NCDs/T2D policy documents. Interviews were conducted in English in Kenya and in
22 Kiswahili in Tanzania. Participants chose between in-person or remote interviews, to ensure
23 convenience and mitigate risk. The interviews lasted approximately 45 minutes. All interviews
24 were audio-recorded and complemented by handwritten notes.
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30 31 ***Data management and analysis***

32 We used content analysis¹¹ to identify the nature of included documents, the content of the
33 documents, what the documents included regarding priority setting (access to care and medical
34 supplies, resource allocation and monitoring and evaluation tools) and the gaps and opportunities
35 within each document. The information from the desk review was triangulated with the key
36 informants' information to ensure a more in-depth understanding of the synthesised documents
37 and to provide further insights into policy recommendations for NCD management for future
38 emergency situations. The transcripts were coded manually in Word. Two independent
39 researchers, experienced in qualitative data analysis, double coded two transcripts in each country
40 to ensure coding consistency. We obtained a percent agreement of 82%. Disagreements were
41 resolved by rereading the transcripts, discussion and a consensus was reached. In Tanzania, on
42 request from the Tanzania NCD Alliance, a further narrative synthesis of the findings was shared
43 with an NCD expert to identify if there was any important information that was left out,
44 misinterpreted, or missed during the search.
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55 56 ***Patient and public involvement***

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination of the research. Results of the study were presented to study participants and stakeholders.

Results

Figure 1 describes the search results. After excluding duplicates and records that were not relevant based on title and abstract screening, we identified 34 policy/guidance documents for full text review. After full text review, 17 documents were further excluded because they did not contain information on managing T2D in a pandemic or emergency situation, leaving 17 documents that were included in this review.

Among the included documents, ten were from Kenya and seven were from Tanzania. In Kenya, we found three interim guidelines, two updated guidelines and a letter from the Director General of Health. In Tanzania, two modified guidelines, one policy brief, and one report were included in the review. Each country had one pre-existing national health policy, one pre-existing NCD strategic plan, and an updated NCD strategic plan.

In total, 13 key informant interviews (Tanzania = 7; Kenya = 6) were conducted with policy actors between March and August 2022. All participants were in the health sector and had different backgrounds in medicine, epidemiology, strategic management, and nutrition. Most of the participants served in various capacities within the MOH. Table 1 provides the characteristics of the KIs interviewed.

Table 1: Characteristics of Key Informants

| | Kenya | Tanzania | Total |
|--------------------------------------|--------------|-----------------|--------------|
| Category | | | |
| Government | 6 | 4 | 10 |
| Bilateral organizations/NGOs | 0 | 3 | 3 |
| Years served in that capacity | | | |
| Less than 1 year | 3 | 0 | 3 |
| 1 – 5 years | 3 | 7 | 10 |
| Total | 6 | 7 | 13 |

The findings are presented by research question.

Table 2: Description of the documents included in the desk review for Kenya and Tanzania

| Type of Document | Name of Document | Country | Dates | Content Description |
|-------------------------------------|--|----------|-------------|---|
| 1. Policy ¹² | Tanzania Health Policy 2007 | Tanzania | 2007 | The policy provides direction on the development of NCD guidelines that will provide guidance on the provision of health service, equity in service provision, capacity building, and raising awareness on the management and prevention of NCDs. |
| 2. Policy ¹³ | Kenya Health Policy 2014-2030 | Kenya | 2014 | The document provides overall directions to ensure significant improvement in the overall status of health in Kenya, the country's long-term development agenda, Vision 2030 and global commitments including halting and reversing the rising burden of NCDs in the country. |
| 3. National Framework ¹⁴ | National Strategy for the Prevention and Control of NCDs 2015 -2020 | Kenya | 2015 - 2020 | The document emphasizes an integrated approach towards addressing NCDs in order to reduce the preventable burden, avoidable morbidity, mortality, risk factors, and costs due to NCDs. It provides evidence based NCD prevention and control interventions to ensure optimal health throughout the life course for sustainable socioeconomic development. |
| 4. National Framework ¹⁵ | Health Sector Strategic Plan (HSSP IV) | Tanzania | 2015-2020 | The document clarifies the importance of integrating NCD clinics into the health care system to enhance access to care. It also describes NCD prevention and early detection of the NCD and start of medication. |
| 5. National framework ¹⁶ | Strategic and action plan for the prevention and control of NCDs in Tanzania 2016 – 2020 | Tanzania | 2016-2020 | The document advocates for NCD prevention and control at a national level and it emphasizes strengthening leadership, governance, multisectoral collaboration, and accountability for the prevention and control of NCDs and promoting preventive curative and rehabilitative services. |

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| 6. Guideline ¹⁷ | National guideline of clinical management and infection prevention and control of novel coronavirus (COVID-19) | Tanzania | April 2020 | This guideline educates the public on COVID-19 preventive measures and emphasizes the provision of accurate information for people with NCDs to protect them from COVID-19. |
| 7. Guideline ¹⁸ | Interim Guidelines on Management of COVID-19 in Kenya | Kenya | April 2020 | The guidelines combine both preventive and clinical management of diseases during COVID-19. The updated version (2021) contains the latest guidelines for the clinical management of COVID-19 and includes case definitions, infection prevention and control, diagnosis and management of COVID-19, and ending isolation for COVID-19 patients. |
| 8. Guideline ¹⁹ | Updated version: Guidelines on Case Management of COVID-19 in Kenya | | July, 2021 | |
| 9. Letter ²⁰ | Non-Communicable Diseases Clinic During COVID-19 Outbreak | Kenya | Mid-April 2020 | This document is a national directive for NCD clinics to remain operational in all counties during the COVID-19 pandemic. |
| 10. Guideline ²¹ | Guidance on the provision of NCD and mental health services in the context of the COVID-19 outbreak in Tanzania | Tanzania | May 2020 | This guideline targets strengthening NCD service provision during COVID-19 including capacity building for health workers, health promotion for NCD/T2D patients, health facility re-structuring for COVID-19 prevention, and access to care and continuity of essential health services. |
| 11. Guideline ²² | Interim Guidance on Continuity of Essential Health Services during the Covid-19 Pandemic. | Kenya | May 2020 | These documents provide guidance for healthcare providers on immediate actions that should be considered to reorganise the health system to ensure continuity of health services during the COVID-19 pandemic for all services including NCD services. |
| 12. Guidelines ²³ | Updated version: Guidance on Continuity of Essential Health Services during the COVID-19 | | July 2020 | |

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|--------------------------------------|---|----------|----------------------|---|
| | Pandemic | | | |
| 13. Guideline ²⁴ | Interim Guidance on Provision of Services for NCDs during the COVID-19 Pandemic | Kenya | July 2020 | The document highlights specific COVID-19 related challenges on NCDs including severity among high-risk persons, COVID-19 actions/responses jeopardising access to care and disrupting lifestyle approaches, disruption of funding and supplies, and the general management of NCDs. |
| 14. Report ²⁵ | Flash appeal for COVID-19 Tanzania | Tanzania | July – December 2020 | The document discusses strengthening capacity building for health workers, ensuring continued mentorship on NCD and COVID-19 health management, and disseminating information materials and guidelines. It also recommends health promotion and public health intervention strategies for quality-of-life improvement for those with complications associated with NCDs. |
| 15. Policy Brief ²⁶ | Tanzania NCD Alliance (TANCDA) policy brief on the inclusion of NCDs on universal health coverage in Tanzania | Tanzania | March 2021 | The document recommends various actions to ensure access to quality NCD care, appropriate health financing strategies, multisectoral collaboration on prevention and control of NCDs, and health awareness creation during the COVID-19 pandemic. |
| 16. Policy ²⁷ | Kenya Emergency Medical Care Policy 2020 – 2030 | Kenya | July 2021 | This document was developed to provide guidance including necessary structures, resources, regulations and standards needed to establish an emergency medical care system in Kenya. It aims to reduce morbidity and mortality caused by medical emergencies, including those emergency conditions caused by NCDs. |
| 17. National framework ²⁸ | National Strategic Plan for the Prevention and Control of Non-Communicable Disease 2021/22 - 2025/26 | Kenya | August 2021 | The document provides direction on strengthening sectoral and multi-sectoral coordination, leadership and governance for prevention and response to NCDs at all levels. It highlights the importance of sustainable NCD management, promotion of NCD research, and strengthening surveillance, monitoring and evaluation of NCDs to inform decision making and health planning. |

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3 ***Research Question 1: What national frameworks, policy models and guidelines for addressing***
4 ***Type 2 Diabetes/NCDs pre-existed and which ones were modified or developed during the***
5 ***COVID-19 pandemic?***
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10 *Pre-existing documents*

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12 There were five documents in Kenya and Tanzania that addressed NCDs or emergency
13 situations prior to the COVID-19 pandemic but none specifically provided guidance on NCD
14 preparedness in an emergency situation. Table 2 provides a brief description of the included
15 documents. The pre-existing documents include: the Tanzania health policy 2007,¹² the Kenya
16 health policy 2014,¹³ the Kenya NCD strategic plan 2015-2020,¹⁴ the Tanzania Health Sector
17 Strategic Plan (HSSP IV) 2015-2020¹⁵ and the Tanzania NCD strategic plan 2016-2020.¹⁶ The
18 Tanzania health policy 2007¹² aims to provide guidance about provision of health services for
19 people with NCDs but does not include any advice regarding emergency preparedness actions in
20 relation to NCDs. The Kenya Health Policy¹³ provides general guidance on health system response
21 to national disasters, emergencies, and disease outbreaks, however, it does not provide specific
22 guidance in relations to NCD management. The Health Sector Strategic Plan in Tanzania¹⁵
23 reinforced the importance of integration of NCD clinics into the health care system to enhance
24 accessibility of care but emergency care for NCD was not addressed. The Kenya NCD strategic
25 plan 2015-2020¹⁴ and Tanzania NCD strategic plan 2016-2020¹⁶ addressed NCDs. Both
26 documents promote preventive, curative and rehabilitative services and advocate strengthening
27 leadership and governance, and multi-sectoral collaboration with an emphasis on accountability
28 for the prevention and control of NCDs. However, these strategic plans do not refer to NCD care
29 during emergency situations.
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44 In both countries, participants identified policies, national frameworks, and guidelines for
45 managing NCDs including T2D, which corroborates the findings from the review. KIs also noted
46 that the documents did not cover aspects of care during a pandemic/emergency situation.
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50 *“Kenya didn't have guidelines that govern diabetes and COVID-19 [pandemics or*
51 *emergencies] but there were general guidelines for the management of both type two and*
52 *type one diabetes.” **Policy Actor_1905_KE***
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56 *Modified documents*
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There were two documents; one from each country that had been modified during the pandemic to adjust for changing circumstances. In both countries, the NCD strategic plan documents were expiring hence the pandemic situation created an opportunity to highlight emergency situations in the lapsing NCD strategic plans.^{26 28} The pre-existing NCD strategic plans^{14 16} were modified to include NCD care during the COVID-19 pandemic. KIs confirmed that there were gaps in the previous NCD strategic plans. They described that the COVID-19 pandemic caught them unprepared as there were no plans for continuity of care for NCD patients during this period and this necessitated the modification of the NCD strategic plans during the COVID-19 period.

“...Before the onset of COVID-19, I would want to say that we did not have policies or guidelines to manage diabetes [during emergencies] and therefore when COVID-19 came it presented us with some challenge. It was also an eye opener as far as the management of the NCDs is concerned during emergencies or during when we have natural disasters.”

Policy Actor_1511_KE

“We had the strategic plan for the years 2016 until 2020, which itself was inclusive, so when COVID-19 occurred, we found that since it affects patients living with non-communicable diseases. We should only develop a guideline that will be different from the previous one, because the previous one was on leadership and awareness matters but it [NCD strategic plan 2016-2020] had not described the COVID-19 pandemic” ***Policy Actor_0002_TZ***

New documents developed during the pandemic

We identified ten new documents that were developed during the pandemic to manage NCD patients: seven from Kenya and three from Tanzania. These included: one policy (Kenya)²⁷ and seven guidelines (five in Kenya^{18 19 22-24} and two in Tanzania^{17 21}) and two other documents which include a government directive in Kenya,²⁰ and a report in Tanzania.²⁵ All these documents were created to provide specific guidance on the provision of essential health services and clinical management of NCDs during the pandemic. These documents also provided NCD patients with information on how to manage NCDs during the pandemic.

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3 ***Research Question 2: What do the national frameworks, policy models or guidelines include for***
4 ***management of Type 2 Diabetes/NCDs in pandemic/emergency situations?***
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8 In both countries, most of the documents reviewed included aspects of national priority
9 setting for managing NCDs in pandemic/emergency situations. The subsequent sub-sections
10 highlight the content of the documents.
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14 *Content of the documents*

15 In Kenya, the first interim guidelines for COVID-19 case management were released in
16 April 2020.¹⁸ The guide provided advice on both preventive and clinical management of COVID-
17 19 in Kenya. The interim guidelines were adapted from various international recommendations
18 including from the WHO. An updated version of the guideline was later released in July 2021,¹⁹
19 and it contains the latest guidelines for the clinical management of COVID-19 in Kenya.
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25 Another interim guideline for essential health services during COVID-19 was released in
26 May 2020.²² This document was targeted toward healthcare managers and healthcare workers to
27 ensure that people continued to receive essential health services. This was followed by the release
28 of an updated version of the guideline in July 2020.²³ The latter provided guidance for healthcare
29 providers on immediate actions that should be considered to reorganise the health system to ensure
30 continuity of health services during the COVID-19 pandemic for all services including NCD
31 services.
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38 Also in July 2020, another interim guidance on the provision of services from NCDs during
39 the COVID-19 pandemic²⁴ was released. This document highlighted specific COVID-19 related
40 challenges on NCDs including severity among high-risk persons, COVID-19 actions/responses
41 jeopardising access to care and disrupting lifestyle approaches, disruption of funding and supplies,
42 and the general management of NCDs.
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47 A letter from the Director General of Health in Kenya²⁰ to the County Executive
48 Committee members for health was also among the first few documents released in mid-April
49 2020 to request continuity of NCD care amidst the disruption to NCD care provision during the
50 COVID-19 outbreak. This directive instructed NCD clinics to remain operational in all counties
51 during the COVID-19 pandemic.
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3 In addition, a new Emergency Care Policy²⁷, distinct from the preceding guidance was
4 issued in July 2021 to provide a roadmap for emergency services to all who need it including those
5 with NCDs. Lastly, in August 2021, the new Kenya National NCD Strategic Plan²⁸ was launched;
6 it highlighted the disruption to healthcare caused by the COVID-19 pandemic and the need for
7 resilient health systems during health emergencies. It further describes the NCD strategic plan
8 being sensitive to public health emergencies, such as the COVID-19 pandemic but it does not
9 provide guidance on how to better prepare for future emergencies.
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16 In Tanzania, two documents were developed in the early phase of the pandemic. The first
17 was a set of guidelines focused on educating the public on COVID-19 prevention measures,
18 released in April 2020, and it emphasized the need to provide accurate information about the
19 COVID-19 pandemic for patients with NCD.¹⁷ In May 2020, the MOH in Tanzania released
20 another guideline on the provision of NCD and mental health services in the context of the COVID-
21 19 outbreak.²¹ This guideline sets out plans for maintaining access to quality health care for NCDs
22 and mental health services during and beyond the pandemic and for strengthening access to
23 COVID-19 pandemic education. It emphasises the importance of protecting people with chronic
24 NCDs, such as T2D patients, from COVID-19 and providing recommendations for doing so,
25 including: hand hygiene, maintaining glycaemic control, staying in touch with healthcare
26 providers, refilling medications before running out and going to health facilities if experiencing
27 COVID-19 symptoms. Additionally, it provided healthcare providers in Tanzania with
28 information on how to manage COVID-19 infection and comorbidities including the major NCDs.
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40 Between July to December 2020 a report on COVID-19 was released in Tanzania to
41 strengthen the capacity of health workers to manage NCDs and COVID-19.²⁵ In March 2021, the
42 MOH in Tanzania in collaboration with the Tanzania NCD Association (TANCDAs) issued a
43 policy brief²⁶ instead of updating the NCD strategic plan¹⁶ to inform the care aspects of NCDs
44 including diabetes during a pandemic situation. This policy brief reinforced the importance of
45 improving diabetes and NCD management during COVID-19 by empowering NCD patients to
46 take charge of their health, engaging different multi-sectoral groups to support NCDs health
47 services financially, and to promote health awareness.
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54 *Access to care and medical supplies*
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3 The documents reviewed described various approaches to care such as modifications to
4 regular practice, workforce issues, how to respond to care disruptions, and health education. In
5 Kenya, several documents were developed during the pandemic to minimise disruptions in care
6 for patients with NCDs due to COVID-19.²²⁻²⁴ These documents provided mitigation measures
7 such as provision of adequate supply of drugs to patients, patient virtual support (through
8 telemedicine, use of community health volunteers (CHVs) and helplines), counselling, provision
9 of personal protective equipment (PPE) for healthcare providers, and maximum social distancing
10 during facility visits. The Kenya Health Policy¹³ provides the long-term development agenda,
11 Vision 2030²⁹ and global commitments. One of its objectives is to halt and reverse the rising
12 burden of NCD. Access to care and supplies of medicines are discussed but it is not specific to
13 NCDs. The letter by the Director General for Health to all NCD clinics in Kenya noted that access
14 to NCD care was hampered by the closure of the NCD clinics early into the pandemic.²⁰ This
15 directive addressed the NCD access issue during the pandemic by instructing NCD clinics to
16 remain operational in all counties during the COVID-19 Pandemic. The interim guidance on the
17 provision of services for NCDs during the COVID-19 pandemic²⁴ provided specific information
18 to ensure care continuity for key NCDs by informing patients of their increased risk of COVID-
19 19, supporting patients to self-manage when appropriate, increasing patients' home supplies of
20 medication and stock needed for their monitoring devices, providing counselling on healthy diets
21 and physical activity, ensuring maximum social distancing during their visits, modifying their
22 routine clinical review frequency and means/mode of delivery. This guideline further provided a
23 section on how to manage diabetes during the COVID-19 pandemic. The document provided
24 advice on strategies people with diabetes can adopt to reduce their risk of COVID-19. This
25 document further acknowledged that there may be instances when the limited healthcare resources
26 could be diverted to care only for those with COVID-19. Some of the documents reviewed
27 encouraged the adoption of virtual consultations and digital diagnostic platforms.^{18 23 24 28}

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47 In Tanzania, the guideline²¹ and report²⁵ recognise that the continuity of NCD care was
48 important because of how vulnerable people living with NCDs were during the pandemic. The
49 guideline also highlighted the importance of accessing care to minimise the disruptions in the
50 healthcare system. The guideline emphasized patients' access to essential services during the
51 pandemic and it recommended free provision of all preventive care medical supplies.²¹ The report
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3 also advocated for increased provision of essential medical supplies and access to essential
4 diagnostic equipment and treatment for NCDs during the pandemic.²⁵
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7 The KIs in both countries described how access to care was hindered during the pandemic
8 for several reasons including patients with NCDs not wanting to go to health facilities out of fear
9 of contracting the virus and limited skills of healthcare workers to handle NCDs and COVID-19.
10 KIs also confirmed that policies and guidelines were developed to address the access issues
11 experienced during the COVID-19 pandemic.
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17 *“You know, most of the health facilities were shut down, generally the whole country was*
18 *shut down including health facilities and so what remained were just facilities to respond*
19 *to the COVID. Because of that, several of our clients could not access the services that they*
20 *required. A letter was sent to the counties by the acting Director General for health to have*
21 *these clinics open. So that was one of the policies that was issued so that the clients would*
22 *be able to access the services.” **Policy Actor_1605_KE***
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28 *“NCD services were affected in some clinics. Service providers lacked skills, so they didn’t*
29 *know what to do to serve NCD patients. In some facilities, some providers stopped*
30 *providing services and some clinics were closed, and the patients were afraid to go to the*
31 *clinics. As a result, it was a challenge on patients’ and providers’ sides.” **Policy***
32 *Actor_0002_TZ*
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37 KIs also described that continuity of care for NCD patients was done using alternative
38 strategies. Healthcare providers were encouraged to ensure continuity of care by following up
39 with their NCD patients at the community level either physically with the help of CHVs or
40 virtually.
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45 *“...We encouraged the clinicians to do close monitoring and contact tracing with the help*
46 *of the community volunteers and in facilities which were more advanced, they did it*
47 *[followed up with patients] virtually.” **Policy Actor_0912_KE***
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51 *Monitoring and evaluation tools*

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53 There were three documents that provided monitoring and evaluation frameworks; the
54 Kenya Health Policy,¹³ the National Strategic Plan for the Prevention and Control of Non-
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3 Communicable Disease 2021/22 - 2025/26²⁸ and the Kenya Emergency Medical Care Policy 2020
4 – 2030.²⁷ The Kenya Health Policy includes progress indicators across eight domains and their
5 targets are based on the WHO statistics of the average value of four middle-income countries. One
6 of the targets is to reduce annual deaths due to NCDs by 27% in 2030. Some of the targets included
7 in the National Strategic Plan for the Prevention and Control of NCD 2021/22 - 2025/26²⁸ are to
8 increase the proportion of funding to NCDs from 48% to 60%, reducing the prevalence of high
9 blood pressure by 25% and reducing the rising burden of diabetes by 10% in 2025. The Kenya
10 Emergency Medical Care Policy 2020 – 2030²⁷ monitoring and evaluation framework had general
11 targets for emergencies with nothing specific to NCDs. Even though several documents reviewed
12 in Kenya had monitoring & evaluation frameworks, none were focussed on emergency/pandemic
13 care. In Tanzania, none of the documents reviewed mentioned monitoring and evaluation tools.
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23 ***Research question 3: What are the policy/guideline gaps for the management of Type 2 Diabetes***
24 ***during the COVID-19 pandemic, and what are the opportunities to improve the management of***
25 ***T2D/NCDs?***
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Gaps identified

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31 Several gaps were identified from the reviewed documents and the key informant interviews from
32 the two countries. These included limited resource allocation and the lack of comprehensiveness
33 of the documents with future preparedness and monitoring and evaluation tools inadequately
34 addressed.
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Resource allocation

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41 In both countries, resource allocation for the management of NCDs in
42 pandemic/emergency situations was not described in the guidance/policy documents. KIs noted
43 that this affected the development, dissemination, and implementation of the new
44 policies/guidelines.
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49 KIs stated that the development of the new policies/guidelines was affected by the COVID-
50 19 restrictions on gatherings. In the initial stages of COVID-19, all meetings for the
51 policy/guideline development were moved to virtual platforms. Participants said that the
52 technology needed to access virtual meetings (e.g., data bundles, modems) was under-resourced,
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3 making participation in the policy/guideline development meetings challenging and strenuous. KIs
4 also suggested that the virtual policy/guideline meetings struggled to reach consensus.
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8 *“Yes, there were challenges [...] The guideline was done quickly but it was still a tug of*
9 *war in people’s participation: sometimes other people delayed in responding, others did*
10 *not submit their input, or sometimes others submitted their input after the document has*
11 *already moved further steps, sometimes a person could participate today or tomorrow, and*
12 *he does appear [not participate again].” **Policy Actor_0003_TZ***
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18 *“We had no resources, so we bought our modems. We had to ensure that the [data] bundles*
19 *were always enough because the meetings were over and over through virtual meetings,*
20 *so like every other minute you had a virtual meeting. There was no direct resource to the*
21 *NCD department for COVID-19.” **Policy Actor_1905_KE***
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27 Dissemination of the new policies/guidelines was challenging due to inadequate resources
28 to cover all regions and the COVID-19 restrictions. Participants mentioned that not all the
29 healthcare workers received copies of the new guidelines. Others mentioned that many healthcare
30 workers were not trained on the new guidelines.
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36 *“I think the resources were available but probably not adequate. So, for instance, the*
37 *financial resources to support a full-fledged dissemination across the country...or to*
38 *support mentorship across all the counties was not adequate.” **Policy Actor_1401_KE***
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43 *“About the dissemination, you will remember during the COVID period, the matter of*
44 *calling people together was restricted, so the dissemination phase was not done properly*
45 *although I know there was training. For example, TANCDA trained people in Dar es*
46 *salaam and the Ministry of Health was also doing training in some regions... It was just*
47 *the distribution of the guideline [was inadequate]. We just shared this document on the*
48 *online platform” **Policy Actor_0003_TZ***
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3 In both countries, the implementation of the new guidelines was a challenge. Participants
4 described the monitoring and evaluation of the new guidelines as a gap due to the limited resources
5 allocated and the restricted movements due to COVID-19. KIs mentioned that they were not aware
6 of how the implementation was progressing.
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12 *“So, I may not be able to speak about implementation because I'm not sure what happened*
13 *after the guidelines were released and shared widely through emails and WhatsApp*
14 *groups. Whether the healthcare workers used the guidelines or whether they were*
15 *important or whether they were asking for a revision, or the guidelines were speaking to*
16 *them, I am not able to say anything about that. I don't know because we had no resources*
17 *to monitor the implementation.” Policy Actor_1905_KE*
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23 *“...since there was no follow-up done, we were not sure whether the printed 500 copies of*
24 *the guideline reached the respective health facilities” Policy Actor_0002_TZ*
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28 The reallocation of most healthcare funding to address COVID-19 meant there were no
29 funds to cater for the recommendation to give patients with T2D a longer supply of NCD medicines
30 as referred to in reviewed documents in Kenya.²²⁻²⁴ Interviews with the policy stakeholders in
31 Kenya and Tanzania further confirmed this. In Tanzania specifically, the health insurance coverage
32 was not adjusted to comply with the new guidelines, therefore, the implementation of the
33 recommendation to give patients with T2D a two-to-three-month supply of medications to limit
34 hospital visits was hampered.
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42 *“Other support resources are required, [for example,] if someone is to treat a patient ...*
43 *then you need those medicines in place. [However,] the main availability of NCD*
44 *medicines in the country is half of what is required; it's like 42% out of the targeted 80%....*
45 *therefore, there is an inadequate amount to enhance full implementation of these*
46 *guidelines” Policy Actor_1401_KE*
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51 *“I remember at one point we even asked the hospitals not to give longer provision of*
52 *supplies ... if for example, you give them three months' supplies it means that you are*
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3 *denying someone else, so we decided to go back to the one month supply of medicines and*
4 *then monitor the situation.” **Policy Actor_1905_KE***
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9 *Comprehensiveness of the new policies/guidelines*

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11 A gap identified in the review of the documents was the lack of tools needed to monitor
12 and evaluate the progress of the new policy/guidelines. In both countries KIs noted that the
13 guidelines developed lacked monitoring and evaluation tools.
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17 *“Sometimes we don't embed [monitoring and evaluation tools] in the supervision [of health*
18 *facilities], instead, they are included in the supervision tool. Okay, so these guidelines that*
19 *are disease-specific or aimed at patient management, we don't include them with the M&E*
20 *framework unless we have a separate framework for supervision.” **Policy Actor_0003_TZ.***
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25 None of the policy/guidelines in Tanzania included plans for managing T2D/NCDs in
26 emergency situations. Participants described this to be a gap even in the new policy/guidelines that
27 were developed during the COVID-19 pandemic.
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31 *“Another thing we have come to discover later is that the guideline was still not enough to*
32 *provide guidance on what to do in an emergency to care for patients with NCDs.” **Policy***
33 *Actor_0001_TZ.*
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36 *Opportunities identified*

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38 Participants were able to provide insights into what opportunities they took advantage of
39 to address some of the challenges. KIs in both countries mentioned that the pandemic created an
40 opportunity to establish online platforms to ensure information reached key people within the
41 healthcare sector.
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46 *“...in terms of monitoring or supportive supervision that happened maybe not to the*
47 *extent that we want... but one of the ways we are collecting feedback is [by] empowering*
48 *the counties and having an NCD focal person... Now we have a common platform both*
49 *through email [and] we have a WhatsApp group for them where we quickly disseminate*
50 *any required information...” **Policy Actor_1004_KE***
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3 In Tanzania, the COVID-19-pandemic presented an opportunity to use routine
4 supervision meetings as an avenue to disseminate the new policies/guidelines to health facilities.
5 The intention was that the information would be cascaded downwards to all health facility staff.
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9 *“...but we have also been able to disseminate in the sense of going with the guidelines*
10 *when we do supervision, this was done in the first group that I was involved in, when we*
11 *meet the regional health management team (RHMT) we take them through the NCD*
12 *guideline, but we also provide them with copies for them to distribute in the respective*
13 *health facilities, we did not go to all council health management team (CHMTs)”* **Policy**
14 **Actor_0001_TZ.**
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21 Participants also mentioned the importance of putting forth strategies to strengthen the
22 health system response towards managing NCDs including diabetes in general and during
23 emergency situations. This included prioritising NCDs, multi-sectoral action, multi-level
24 engagements and improved data and monitoring systems to ensure continuity of care.
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29 *“... [There] should be a multidisciplinary preparedness team which should keep on*
30 *meeting frequently and if need-be on monthly basis. [...] We [also] need to have a very*
31 *elaborate policy statement as far as management of NCDs during a pandemics is*
32 *concerned, and this policy should talk of resources strengthening of our systems,*
33 *monitoring and evaluation, surveillance, and research. [It should also be able to*
34 *strengthen the capacity of our healthcare providers.... It should also address the issue of*
35 *medicines and health technologies which are available such that even if the patient does*
36 *not go to a health facility they can seek service from where one is...”* **Policy**
37 **Actor_1511_KE**
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45 **Discussion**

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47 This study provides a comprehensive review of policies/guidelines that exist to manage
48 NCDs in Kenya and Tanzania during emergency situations with inputs of key NCD stakeholders
49 involved in decision making. This review revealed that prior to the COVID-19 pandemic, both
50 countries did not have comprehensive policies/guidelines that addressed the management of NCDs
51 during pandemic/emergency situations. However, several measures were put in place during the
52 COVID-19 period to address the needs of patients with NCD and T2DM. These measures
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3 included: updating and developing strategic plans; development of new care guidelines; and
4 release of government directives that guided continuity of care strategies. However, insufficient
5 attention was given to implementation of the new policies and guidelines in both countries. There
6 was in adequate guidance and resources provided to enable effective monitoring and evaluation of
7 progress in relation to disaster preparedness.
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14 The need to develop new and update policies/guidelines in Kenya and Tanzania was similar
15 to other countries.² Our study found that the implementation of new policies/guidelines in Kenya
16 and Tanzania faced challenges, for example, inadequate resources hampered the dissemination and
17 training of healthcare workers. There were a lack of key performance targets and a lack of
18 monitoring and evaluation which resulted in poor implementation and reduced effectiveness of the
19 guidelines. A systematic review has revealed that NCD policy development and implementation
20 is often inadequate in Africa.³⁰ A possible explanation is that healthcare resources are already
21 limited and during the pandemic, these resources were diverted to address COVID-19 infections.⁷
22 Research conducted by the International Federation of Red Cross (IFRC)³¹ during the COVID-19
23 pandemic looking at the role of law and policy in public health emergency preparedness and
24 response found that the pre-existing policies and laws were inadequate to cater to the current
25 COVID-19 pandemic. This was similar to the finding of the study reported here. Due to the rapid
26 development of the new policies/guidelines, a weakness noted was that major components were
27 missed such as monitoring and evaluation and emergency preparedness tools in most of the
28 policies/guidelines.
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41 Some findings were similar across the two countries. For instance, in the initial phase of
42 the COVID-19 pandemic, KIs reported disruption to healthcare services for patients with NCDs
43 in both countries. Therefore, access, availability and utilization of NCD care services were
44 severely affected. The disruptions noted in Kenya and Tanzania were similar to disruptions
45 reported across multiple countries;^{2 32} e.g., a WHO report said 75% of countries experienced
46 disruptions to various NCD care services.² Supply of NCD medicines was a major issue at multiple
47 levels of the health system,³³ and many people living with NCDs lacked sufficient medicine
48 supplies to manage their conditions, therefore leading to worse health outcomes. There was further
49 evidence to show that LMICs especially countries in SSA were more likely than other countries to
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3 report disruption of care due to unavailability/stock-outs of medicines and reduced number of
4 healthcare providers at health facilities^{2 34} as was reported by KIs in the current study. The most
5 common reasons reported for not accessing care among people living with NCD in a recent study
6 conducted by Devi et.al were fear of contracting COVID-19 (36.5%), doctors' advice not to go to
7 the health facility (33.7%), and physical inaccessibility due to the lockdowns (27%).³⁵ This meant
8 that many patients with chronic diseases were not able to receive the care that they needed and
9 resonates with the findings presented here.
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17 The current study shows that both countries had gaps between what was stated in the policy
18 and what was occurring in practice and this was similar to findings from a previous study
19 conducted before COVID-19 looking at the development and implementation process of NCD
20 prevention policies in sub-Saharan Africa.³⁶ Despite the newly developed or updated
21 policies/guidelines highlighting the need for longer supply of medicines for NCDs, both countries
22 were unable to fully comply with these policies/guidelines due to low medication stocks. In
23 addition, healthcare systems in Tanzania failed to comply with the new policies/guidelines because
24 health insurance schemes were not aligning themselves with the new policies/guidelines.
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33 *Strengths and limitations*

34 A major strength in this study was the triangulation of data sources from the desk review
35 with qualitative interviews. Another strength is the use of a comprehensive approach to identify
36 relevant documents and extracting data in a standardised format. Key stakeholders involved in
37 NCD decision making further assisted us in retrieving documents not in the public domain.
38 However, the findings from this study are limited to information from documents that were
39 documented and accessible for review. Another limitation of this review is that we did not include
40 healthcare providers' perspectives, which would have been valuable in understanding the
41 implementation process of the new/updated policies/guidelines as well as the successes and
42 challenges in order to inform recommendations for improvement.
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51 *Recommendations*

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3 The COVID-19 pandemic created an opportunity for governments to review and update
4 their national disaster plans. Existing government national disaster plans should integrate NCD
5 management guidelines with national disaster preparedness plans. The plans should also have
6 adequate ring-fenced allocation of resources to ensure proper implementation and monitoring and
7 evaluation of effectiveness of guidelines during emergencies and future pandemics. Governments
8 should strengthen health systems and emergency preparedness by ensuring continuity of service
9 provision for patients with NCDs by offering innovative services such as online consultation
10 platforms, home delivery of diagnostics and ensuring adequate supplies of medication.
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18 **Conclusion**

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20 By comprehensively analysing the policy response to managing chronic diseases in Kenya
21 and Tanzania, we have identified the effect of the pandemic on continuity of care. Kenya and
22 Tanzania have developed and updated new policies/guidelines to include an emphasis on
23 continuity of care for people with NCDs. Public health emergencies will continue to occur;
24 therefore, there is a strong need to expand these policies and guidelines to cover future emergency
25 situations and to strengthen health system resilience to multiple shocks. This will minimise
26 disruptions in NCD care. Overall, the health systems need to be better prepared to handle
27 disruptions in care by establishing emergency preparedness plans and, adequate resources to
28 implement them.
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Authors' Contribution:

SFM, LK and IM extracted and synthesized data from the policies analysed qualitative data from both countries. SFM and LK jointly conducted the literature review and analysis and wrote the first of the draft manuscript. All the other authors reviewed the draft manuscript, provided input, critical comments and suggested additional analyses. SFM finalized the manuscript which was subsequently approved by all authors.

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None declared

References

1. Chudasama YV, Gillies CL, Zaccardi F, et al. Impact of COVID-19 on routine care for chronic diseases: a global survey of views from healthcare professionals. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2020;14(5):965-67.
2. World Health Organization - NCD Department. Final Results: Rapid assessment of service delivery for non-communicable diseases (NCDs) during the COVID-19 Pandemic, 2020.
3. Nikoloski Z, Alqunaibet AM, Alfawaz RA, et al. Covid-19 and non-communicable diseases: evidence from a systematic literature review. *BMC public health* 2021;21(1):1-9.
4. Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. *JAMA* 2020;323(20):2052-59. doi: 10.1001/jama.2020.6775
5. Vitiello A, Ferrara F. The impact of COVID-19 in diabetic patient. *Archives of Medicine and Health Sciences* 2020;8(1):167.
6. Schofield J, Leelarathna L, Thabit H. COVID-19: Impact of and on Diabetes. *Diabetes Therapy* 2020;11(7):1429-35.
7. Jordan RE, Adab P, Cheng K. Covid-19: risk factors for severe disease and death: British Medical Journal Publishing Group, 2020.
8. Gilbert M, Pullano G, Pinotti F, et al. Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study. *The Lancet* 2020;395(10227):871-77.
9. Sobngwi E, Ndour-Mbaye M, Boateng KA, et al. Type 2 diabetes control and complications in specialised diabetes care centres of six sub-Saharan African countries: the Diabcare Africa study. *Diabetes research and clinical practice* 2012;95(1):30-36.
10. Gill P, Stewart K, Treasure E, et al. Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal* 2008;204:291. doi: 10.1038/bdj.2008.192
11. Stemler S. An overview of content analysis. *Practical assessment, research, and evaluation* 2000;7(1):17.
12. Ministry of Health - Tanzania. Tanzania Health Policy (in Kiswahili) 23 Jul 2018 ed, 2007.
13. Kenya. Ministry of Health. Kenya Health Policy 2014-2030: Ministry of Health, 2014.
14. Ministry of Health. The Kenya National Strategy for the Prevention and Control of Non-communicable Diseases - 2015-2020, 2015.
15. Ministry of Health and Social Welfare. Health Sector Strategic Plan (HSSP IV) July 2015 - June 2020, 2015.
16. Government of the Republic of Tanzania, Ministry of Health CD, Gender, Elderly, Children. Strategic and action plan for the prevention and control of non communicable diseases in Tanzania 2016-2020, 2016.
17. Ministry of Health -Community Deveelopment G, Elderly and Children,. National Guideline of Clinical Management and Infection Prevention and Control of Novel Coronavirus (COVID-19).
18. Kenyan Ministry of Health (MOH). Interim Guidelines on Management of COVID-19 in Kenya, 2020.
19. Kenya Ministry of Health (MOH). Guidelines on Case Management of COVID-19 in Kenya, 2021.

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- 2
- 3
- 4 20. Ministry of Health - Office of the Director General. Non-Communicable Diseases Clinic During
- 5 COVID_19 Outbreak, 2020.
- 6 21. Ministry of Health CD, Gender, Elderly and Children,. Guidance on the provision of NCD and
- 7 mental health services in the context of the covid-19 outbreak in Tanzania, 2020.
- 8 22. Kenya Ministry of Health (MOH). Interim Guidance on Continuity of Essential Health Services
- 9 during the Covid-19 Pandemic. 2020
- 10 23. Kenya Ministry of Health (MOH). Guidance on Continuity of Essential Health Services during
- 11 the Covid-19 Pandemic, 2020.
- 12 24. Kenya Ministry of Health (MOH). Interim Guidance on Provision of Services for NCDs during
- 13 the COVID-19 Pandemic, 2020.
- 14 25. United Nations. Flash appeal for Covid-19 Tanzania, 2020.
- 15 26. Tanzania NCD Alliance (TANCDAA). Policy brief on the inclusion of NCDs on universal health
- 16 coverage in Tanzania, 2021.
- 17 27. Kenya Ministry of Health (MOH). Kenya Emergency Medical Care Policy 2020 - 2030, 2021.
- 18 28. Department of non-communicable diseases - Ministry of Health. National Strategic Plan for
- 19 the Prevention and Control of Non-Communicable Disease 2021/22 - 2025/26, 2021.
- 20 29. Government of Kenya. Kenya Vision 2030, 2007.
- 21 30. Kassa MD, Grace JM. Noncommunicable Diseases Prevention Policies and Their
- 22 Implementation in Africa: A Systematic Review. *Public Health Reviews* 2022;42:1604310.
- 23 31. International Federation of Red Cross (IFRC) Disaster Law. Law and public health emergency
- 24 preparedness and response: Lessons from the COVID-19 pandemic: International
- 25 Federation of Red Cross and Red Crescent Societies, 2021:174.
- 26 32. Formenti B, Gregori N, Crosato V, et al. The impact of COVID-19 on communicable and non-
- 27 communicable diseases in Africa: a narrative review. *Le Infezioni in Medicina*
- 28 2022;30(1):30.
- 29 33. Kiragu ZW, Gathecha G, Mwangi MK, et al. Access to Medicines for Non-Communicable
- 30 Diseases (NCDS) during COVID-19 in Kenya: A Descriptive Commentary. *Health Systems &*
- 31 *Reform* 2021;7(1):e1984865.
- 32 34. Owopetu O, Fasehun L-K, Abakporo U. COVID-19: implications for NCDs and the continuity of
- 33 care in Sub-Saharan Africa. *Global Health Promotion* 2021;28(2):83-86.
- 34 35. Devi R, Goodyear-Smith F, Subramaniam K, et al. The impact of COVID-19 on the care of
- 35 patients with noncommunicable diseases in low-and middle-income countries: an online
- 36 survey of patient perspectives. *Journal of Patient Experience*
- 37 2021;8:23743735211034091.
- 38 36. Juma PA, Mohamed SF, Matanje Mwangomba BL, et al. Non-communicable disease prevention
- 39 policy process in five African countries authors. *BMC Public Health* 2018;18(1):961. doi:
- 40 10.1186/s12889-018-5825-7
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53 Figures

54 Fig 1: Search strategy

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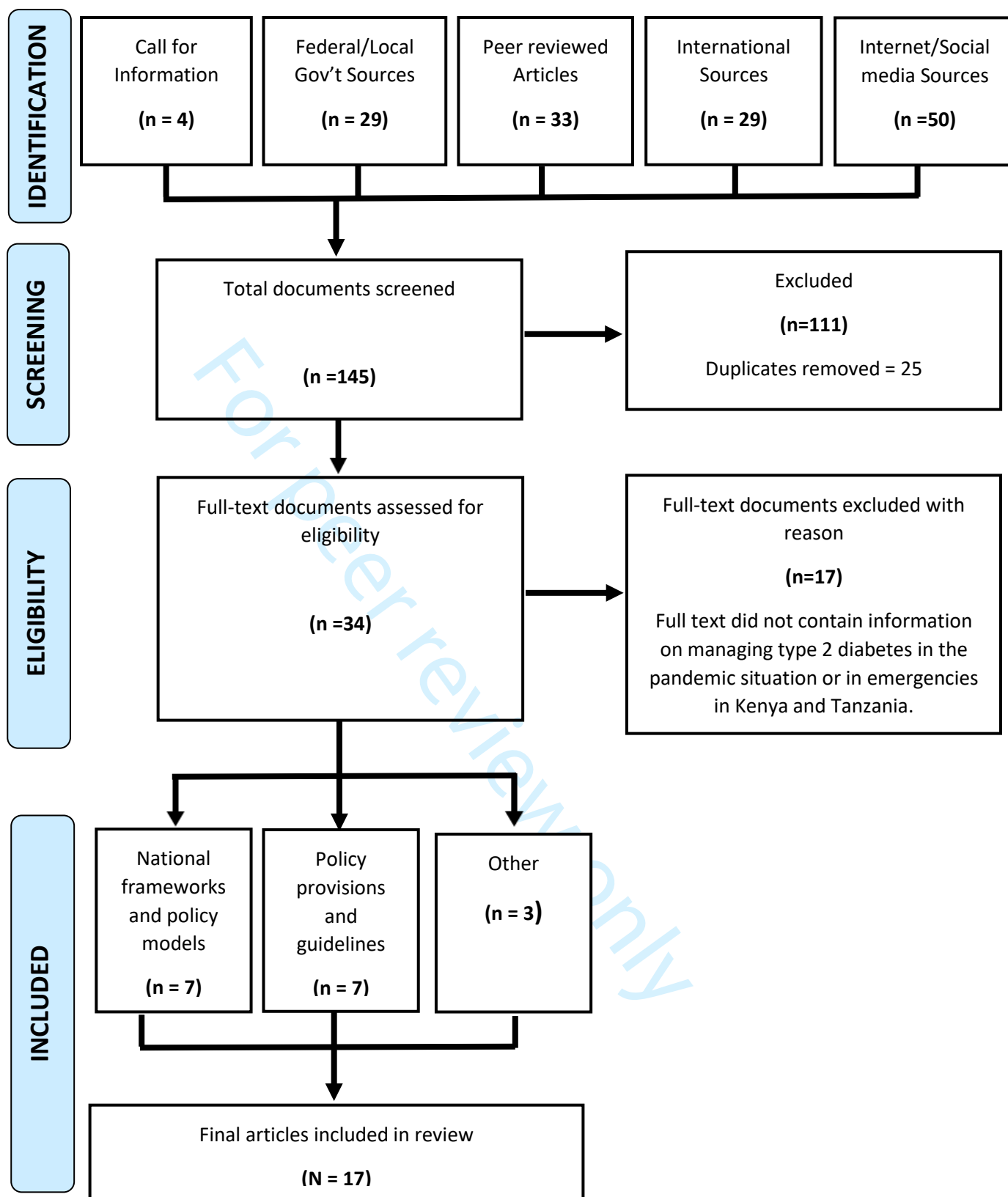


Figure 1: Search strategy

Appendices

Appendix A. Search Criteria for Peer-reviewed literature

1. **Diabetes terms:** diabetes, NCDs, disease management, Type 2 diabetes, diabetes mellitus, chronic disease, non-insulin dependent diabetes, 'type 2 diabetes' OR 'type II diabetes' OR 'diabetes mellitus' OR 'diabetes'
2. **COVID terms:** covid, coronavirus, COVID-19, SARS-COV-2, severe acute respiratory syndrome coronavirus 2, 2019-nCoV
3. **Healthcare:** healthcare, disruption, impact, health services provision, change, continuity of care, medical care
4. **Policies:** policy, guidelines, measurement/assessment/evaluation, strategies, recommendations, plans, impact, research, outcomes, result, approaches, care continuity, SOPs, procedures, frameworks, policy models, laws, bills, tools
5. **Countries:** Kenya, Tanzania

Appendix B: Table 1: Details of search strategy

| Source | Details |
|------------------------------------|--|
| Call for information | A call for information was disseminated via email and social media platforms (WhatsApp) to relevant networks/experts including Ministry of Health officials, National NCD department heads, County health departments, diabetes clinic heads, National COVID-19 task force leads; Technical working groups (national or county), Academic researchers who focus on COVID/diabetes care disruption, and NGOs. We first identified a list of potential stakeholders from relevant networks and sent out the call to them. In the call we requested that they share hard or soft copy documents by email or courier related to the management of T2D and other chronic diseases during COVID-19 or other emergency epidemic or pandemic situations. |
| Peer reviewed literature databases | We searched peer reviewed literature databases of PubMed/Medline, Embase, Google Scholar, Web of Science, OpenGrey using search criteria to identify articles and grey literature that describe diabetes, COVID-19 and health system responses (<i>see specific search criteria in Appendix A</i>). Due to time limitations, this was not a comprehensive systematic review, but rather a rapid review of the literature. |
| Local/International resources | Since international health agencies such as the World Health Organization have taken the lead both on COVID-19 responses and on management of NCDs, we reviewed documents from international resources, including the United Nations, World Health Organization, and relevant non-governmental agencies. We included WHO country profiles, WHO documents on COVID, and reports from NGOs working in diabetes in Kenya. |
| Policy documents/drafts from | We reviewed Kenya's health ministry websites including for all documents associated with national NCD strategies, policy documents and committee reports related to T2D and COVID-19, reports from meetings and events, and standard operating procedures. We searched websites including Ministry of health, and any COVID-specific working group, etc. for policies, |

| | |
|------------------------------|---|
| relevant national ministries | guidelines, measurement/assessment/evaluation, strategies, recommendations, plans, impact, research, outcomes, result, approaches, care continuity, SOPs, procedures, frameworks, policy models, laws, bills, tools. |
| Internet search | Given the extensive use of the internet to communicate during the pandemic, we conducted an internet search using google, Google Scholar and other search engines to identify patient support groups, diabetes association's/message boards, newspaper/media articles regarding T2D and COVID. |
| Social Media | Finally, given the speed with which governments needed to react to COVID-19 developments, many governmental individuals and offices disseminated information to the public on social media. We reviewed twitter pages of the country's Ministry of Health and other high-profile individuals/offices, presidential speeches or other speeches on social media and national NCD groups for information about T2D and COVID-19. |

BMJ Open

Policies for type 2 diabetes and non-communicable disease management during the COVID-19 pandemic in Kenya and Tanzania: a desk review and views of decision makers

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| Keywords: | COVID-19, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PUBLIC HEALTH, Chronic Disease, General diabetes < DIABETES & ENDOCRINOLOGY |
| | |

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3 Policies for type 2 diabetes and non-communicable disease management during the COVID-19
4 pandemic in Kenya and Tanzania: a desk review and views of decision makers.
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52 Word count - 6161

Abstract

Background: The COVID-19 pandemic caused disruptions in care that adversely affected the management of non-communicable diseases (NCDs) globally. Countries have responded in various ways to support people with NCDs during the pandemic. This study aimed to identify policy gaps, if any, in the management of NCDs, particularly diabetes, during COVID-19 in Kenya and Tanzania to inform recommendations for priority actions for NCD management during any future similar crises.

Methods: We undertook a desk review of pre-existing and newly developed national frameworks, policy models and guidelines for addressing NCDs including type 2 diabetes. This was followed by 13 key informant interviews with stakeholders involved in NCD decision making: six in Kenya; seven in Tanzania. Thematic analysis used to analyse the documents.

Results: Seventeen guidance documents identified (Kenya = 10; Tanzania = 7). These included pre-existing and/or updated policies/strategic plans, guidelines, a letter, a policy brief and a report. Neither country had comprehensive policies/guidelines to ensure continuity of NCD care before the COVID-19 pandemic. However, efforts were made to update pre-existing documents and several more were developed during the pandemic to guide NCD care. Some measures were put in place during the COVID-19 period to ensure continuity of care for patients with NCDs such as longer supply of medicines. Inadequate attention was given to monitoring and evaluation and implementation issues.

Conclusion: Kenya and Tanzania developed and updated some policies/guidelines to include continuity of care in emergencies. However, there were gaps in the documents and between policy/guideline documents and practice. Health systems need to establish disaster preparedness plans that integrate attention to NCD care to enable them to better handle severe disruptions caused by emergencies such as pandemics. Such guidance needs to include contingency planning to enable adequate resources for NCD care and must also address evaluation of implementation effectiveness.

Word count: 297

Key words: Non-communicable diseases, NCDs, diabetes, East Africa, care continuity, care disruption, Sub-Saharan Africa

Strengths and limitations of this study

- Triangulation of data sources from desk review and qualitative interviews.
- Comprehensive approach to identify and extract data in a standardized format.
- Engagement with key stakeholders in NCD decision-making to retrieve non-public documents.
- Findings limited to documented and accessible information.
- The absence of patient and healthcare provider perspectives may have hindered a comprehensive understanding of policy implementation, successes, challenges, to inform recommendations for improvement.

Introduction

The rapid spread of COVID-19 within a short timeframe resulted in a global pandemic, with a current toll of over six million deaths worldwide as of November 8th, 2023. [1] In Africa, the impact has been significant, with over 9 million confirmed cases and nearly 175,500 deaths reported in the three years since the initial detection of COVID-19.[1] While Africa's share of the pandemic's morbidity and mortality is comparatively lower than other regions, the region faced challenges due to its fragile healthcare system, existing comorbidities, and socio-economic factors. [2-4] The response to the pandemic varied among African countries. For example, Kenya implemented strict lockdown measures [5], while Tanzania opted not to impose such measures.[6] Many countries faced challenges in adequately preparing for the multifaceted challenges posed by COVID-19, putting additional strain on already stretched resources.[7] This necessitated a concerted effort for the development and implementation of measures to mitigate the pandemic's impact and strengthen healthcare systems to address both new and existing health challenges.[8]

The COVID-19 pandemic caused disruptions in care that adversely affected the management of non-communicable diseases (NCDs) globally. Government restrictions implemented in various countries to curb the spread of COVID-19 such as lockdown directives and mobility restrictions impacted management of NCDs by individuals and health systems.[9] A rapid assessment conducted by the World Health Organisation (WHO) across 163 countries revealed that NCD health services including rehabilitation services, hypertension management, and diabetes management, were partially or completely disrupted by the pandemic.[10] These disruptions are likely to have ongoing negative impacts on the management of chronic diseases and progress toward achieving Sustainable Development Goal (SDG) targets. Studies reported that patients with NCDs such as hypertension and diabetes were more likely than those without these comorbidities to be affected by COVID-19 and suffer worse health outcomes if infected.[11, 12]

Despite most countries prioritizing services for four major NCDs (diabetes, hypertension, cancer, and cardiovascular disease) during the COVID-19 pandemic,[10] maintaining routine care for NCDs is a major challenge due to barriers at various levels of healthcare systems. Patients with Type 2 diabetes (T2D) may need continuous and regular blood glucose monitoring and optimal compliance with ongoing drug treatment.[13] Healthcare providers reported that diabetes was the most affected condition by the reduction in healthcare resources.[9] The WHO assessment found

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3 that 66% of countries surveyed included the continuity of NCD services in the national COVID-
4 19 plans.[10]

5
6 Countries have used various strategies to support people with NCDs including diabetes
7 during this pandemic,[14] primarily switching from routine care visits to virtual healthcare visits
8 and communications.[9] Despite these adjustments in service delivery for NCDs, most global
9 healthcare resources focused on the COVID-19 emergency response,[15] particularly in Sub-
10 Saharan Africa (SSA) where healthcare personnel and health resources are inadequate.[16] This
11 resource reallocation disrupted care for patients with NCDs.[17]

12
13 In this review, we synthesise policy evidence regarding T2D management during COVID-
14 19 and identified policy gaps, if any, in management of T2D and other NCDs to inform T2D
15 management actions during COVID-19 in Kenya and Tanzania. Our research questions:

16
17 (1) Are there pre-existing national frameworks, policy models (priorities, strategies, and
18 directions) and guidelines (instructions) for addressing T2D /NCDs? If so, did they cover
19 pandemic/emergency situations? How have existing frameworks/models (includes formal
20 framework/models and informal statements) been modified for pandemic/emergency situations
21 (e.g., COVID-19) OR how have framework and policy models been created during COVID-19
22 (including those in development)?

23
24 (2) What do the national frameworks, policy models or guidelines tend to include with regards to
25 priority setting (access to care and medical supplies, resource allocation and monitoring and
26 evaluation tools) for management of T2D /NCDs in pandemic/emergency situations?

27
28 (3) What are the policy/guideline gaps for the management of T2D during the COVID-19
29 pandemic (e.g., addressing existing disparities such as socioeconomic status and urban/rural status,
30 addressing health service staff, financial resources for health management, implementation,
31 communication/dissemination), and what are the opportunities to improve the management of
32 T2D/NCDs?

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 **Methods**

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51 We conducted a systematic search of policy documents and guiding frameworks on NCDs
52 with a particular focus on T2D in Kenya and Tanzania from October 2021 to March 2022. Our
53 review included pre-existing national frameworks, policy models or guidelines, noting whether
54 these had been modified to include pandemic/emergency situations, as well as new ones developed
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3 during the COVID-19 pandemic. Identified documents were assessed to ascertain policy/guideline
4 gaps, if any, and opportunities to improve the management of T2D or other NCDs during periods
5 where there are disruptions in care such as the COVID-19 pandemic. While the primary interest
6 was T2D, we also included policy documents which broadly covered NCDs and reviewed their
7 applicability to T2D.
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10
11 This review was further supplemented by Key Informant Interviews (KIIs)[18] conducted
12 between March and August 2022. The aim of the interviews was to understand how the Kenyan
13 and Tanzanian governments addressed the management of NCDs including T2D during COVID-
14 19, with specific focus on: policy formulation during COVID-19, policy implementation during
15 COVID-19, and gaps noted in the management of NCDs and T2D during COVID-19. Data from
16 the review and the key informant's interview were analyzed separately and then triangulated.
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24 **1. Document review**

25 *Eligibility criteria*

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27 For inclusion in this review documents had to meet four criteria: (1) policy frameworks,
28 policy statements, government statements/pronouncements, publications, emergency preparedness
29 plans, strategies, laws, and operational guidelines for diabetes during COVID-19 (this also
30 included policies under development); (2) specifically mentions NCDs or diabetes or
31 pandemic/emergency or COVID-19; (3) printed in English/Kiswahili; and (4) references Kenya or
32 Tanzania. Documents were excluded from this review if they did not include information on
33 managing type 2 diabetes in a pandemic/emergency situation and if the documents did not
34 reference Kenya or Tanzania.
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42 *Search Strategy*

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44 A team of seven researchers (Kenya = 4; Tanzania = 3) with backgrounds in medicine,
45 public health, and social sciences conducted the searches and reviewed the documents. All
46 received training on conducting desk reviews. The team coordinator assigned each researcher a
47 different database to search for relevant documentation.
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51 We searched using key text words such as 'Diabetes' AND 'COVID-19', AND
52 'Healthcare' AND 'Policies' AND 'Kenya' OR 'Tanzania'. Appendix A describes the specific
53 terms used in the search. Using these terms, researchers searched scientific databases
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(PubMed/Medline, Embase, and Web of Science), Ministry of Health (MOH) websites, local/international resources such as the WHO, and government social media such as the MOH Twitter and Instagram accounts, supplemented with Google searches. We also contacted existing networks and experts in the NCD field through a call for information which was sent via email and WhatsApp groups to ask for any other relevant policy documents. Appendix B provides a detailed explanation of the search strategy for each data source of information.

All retrieved documents were catalogued in an online excel database which facilitated a standardised approach to data extraction from each document. The document characterisation included a unique document number for tracking the title of the document, source of the document (e.g., social media, MOH), and basic information about the document (e.g., year document was produced). The team held weekly "Coding clinics" to ensure consistency in coding of the included documents.

2. **Key informant interviews (KII)**

Design and participants

The results from the document review were used to inform development of the interview guides for the KIIs. In both Kenya and Tanzania, key informants (KIs) were purposively selected based on their experiences and participation in NCD related policy formulation and implementation processes.

Data collection procedures

A semi-structured interview guide (Appendix C) was used to explore and understand: a) what policies/guidelines/frameworks had been developed during COVID-19; b) who and which sectors had been involved in the policy development and implementation; c), challenges in the formulation and implementation; d) gaps that still exist; and e) recommendations.

Interviews were conducted by two experienced qualitative researchers who were familiar with the NCDs/T2D policy documents. Interviews were conducted in English in Kenya and in Kiswahili in Tanzania. Participants chose between in-person or remote interviews, to ensure convenience and mitigate risk. The interviews lasted approximately 45 minutes. All interviews were audio-recorded and complemented by handwritten notes.

Data management and analysis

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3 We used content analysis[19] to identify the nature of included documents, the content of
4 the documents, what the documents included regarding priority setting (access to care and medical
5 supplies, resource allocation and monitoring and evaluation tools) and the gaps and opportunities
6 within each document. The information from the desk review was triangulated with the key
7 informants' information to ensure a more in-depth understanding of the synthesised documents
8 and to provide further insights into policy recommendations for NCD management for future
9 emergency situations. The transcripts were coded manually in Word. Two independent
10 researchers, experienced in qualitative data analysis, double coded two transcripts in each country
11 to ensure coding consistency. We obtained a percent agreement of 82%. Disagreements were
12 resolved by rereading the transcripts, discussion and a consensus was reached. In Tanzania, on
13 request from the Tanzania NCD Alliance, a further narrative synthesis of the findings was shared
14 with an NCD expert to identify if there was any important information that was left out,
15 misinterpreted, or missed during the search.
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26 **Patient and public involvement**

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28 Patients or the public were not involved in the design, or conduct, or reporting, or
29 dissemination of the research. Results of the study were presented to study participants and
30 stakeholders.
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35 **Results**

36
37 Figure 1 describes the search results. After excluding duplicates and records that were not
38 relevant based on title and abstract screening, we identified 34 policy/guidance documents for full
39 text review. After full text review, 17 documents were further excluded because they did not
40 contain information on managing T2D in a pandemic or emergency situation, leaving 17
41 documents that were included in this review.
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45 Among the included documents, ten were from Kenya and seven were from Tanzania. In
46 Kenya, we found three interim guidelines, two updated guidelines and a letter from the Director
47 General of Health. In Tanzania, two modified guidelines, one policy brief, and one report were
48 included in the review. Each country had one pre-existing national health policy, one pre-existing
49 NCD strategic plan, and an updated NCD strategic plan.
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In total, 13 key informant interviews (Tanzania = 7; Kenya = 6) were conducted with policy actors between March and August 2022. All participants were in the health sector and had different backgrounds in medicine, epidemiology, strategic management, and nutrition. Most of the participants served in various capacities within the MOH. Table 1 provides the characteristics of the KIs interviewed.

Table 1: Characteristics of Key Informants

| | Kenya | Tanzania | Total |
|--------------------------------------|--------------|-----------------|--------------|
| Category | | | |
| Government | 6 | 4 | 10 |
| Bilateral organizations/NGOs | 0 | 3 | 3 |
| Years served in that capacity | | | |
| Less than 1 year | 3 | 0 | 3 |
| 1 – 5 years | 3 | 7 | 10 |
| Total | 6 | 7 | 13 |

The findings are presented by research question.

Table 2: Description of the documents included in the desk review for Kenya and Tanzania

| Type of Document | Name of Document | Country | Dates | Content Description |
|----------------------------|--|----------|-------------|--|
| 1. Policy [20] | Tanzania Health Policy 2007 | Tanzania | 2007 | Guides development of NCD guidelines, emphasizing health service provision, equity, capacity building, and awareness on NCD management and prevention. |
| 2. Policy [21] | Kenya Health Policy 2014-2030 | Kenya | 2014 | Provides overall direction for significant health improvement, aligning with Kenya's long-term development agenda and global commitments to address the rising burden of NCDs. |
| 3. National Framework [22] | National Strategy for the Prevention and Control of NCDs 2015 -2020 | Kenya | 2015 - 2020 | Emphasizes an integrated approach to reduce the burden of NCDs, providing evidence-based interventions for sustainable socioeconomic development. |
| 4. National Framework [23] | Health Sector Strategic Plan (HSSP IV) | Tanzania | 2015-2020 | Advocates for integrating NCD clinics into the healthcare system, emphasizing access to care, NCD prevention, and early detection. |
| 5. National framework [24] | Strategic and action plan for the prevention and control of NCDs in Tanzania 2016 – 2020 | Tanzania | 2016-2020 | Advocates for NCD prevention and control at the national level, emphasizing leadership, governance, multisectoral collaboration, and accountability. |
| 6. Guideline [25] | National guideline of clinical management and infection prevention and control of novel coronavirus (COVID-19) | Tanzania | April 2020 | Educates on COVID-19 preventive measures, emphasizing accurate information provision for people with NCDs. |
| 7. Guideline [26] | Interim Guidelines on Management of COVID-19 in Kenya | Kenya | April 2020 | Combines preventive and clinical management guidelines for COVID-19, updated version includes the latest clinical management guidelines. |
| 8. Guideline [27] | Updated version: Guidelines on Case Management of COVID-19 in Kenya | | July, 2021 | |

| | | | | |
|-----------------------------|---|----------|----------------|---|
| 9. Letter [28] | Non-Communicable Diseases Clinic During COVID-19 Outbreak | Kenya | Mid-April 2020 | National directive for NCD clinics to remain operational during the COVID-19 pandemic. |
| 10. Guideline [29] | Guidance on the provision of NCD and mental health services in the context of the COVID-19 outbreak in Tanzania | Tanzania | May 2020 | Targets strengthening NCD service provision during COVID-19, including capacity building, health promotion, facility restructuring, and continuity of essential services. |
| 11. Guideline [30] | Interim Guidance on Continuity of Essential Health Services during the Covid-19 Pandemic. | Kenya | May 2020 | Provides guidance for reorganizing the health system to ensure continuity of health services during the COVID-19 pandemic, including NCD services. |
| 12. Guidelines [31] | Updated version: Guidance on Continuity of Essential Health Services during the COVID-19 Pandemic | | July 2020 | |
| 13. Guideline [32] | Interim Guidance on Provision of Services for NCDs during the COVID-19 Pandemic | Kenya | July 2020 | Highlights COVID-19-related challenges on NCDs and their management. |
| 14. Report [33] | Flash appeal for COVID-19 Tanzania | Tanzania | July–Dec 2020 | Discusses capacity building for health workers, mentorship on NCD and COVID-19 management, information dissemination, and health promotion strategies. |
| 15. Policy Brief [34] | Tanzania NCD Alliance (TANCDA) policy brief on the inclusion of NCDs on universal health coverage in Tanzania | Tanzania | March 2021 | Recommends actions for quality NCD care, health financing, multisectoral collaboration, and health awareness during the COVID-19 pandemic. |
| 16. Policy [35] | Kenya Emergency Medical Care Policy 2020 – 2030 | Kenya | July 2021 | Provides guidance, structures, resources, regulations, and standards for establishing an emergency medical care system, addressing emergency conditions caused by NCDs. |
| 17. National framework [36] | National Strategic Plan for the Prevention and Control of Non-Communicable Disease 2021/22 - 2025/26 | Kenya | August 2021 | Provides direction on sectoral and multi-sectoral coordination, leadership, and governance for NCD prevention, research promotion, and surveillance enhancement. |

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3 ***Research Question 1: What national frameworks, policy models and guidelines for addressing***
4 ***Type 2 Diabetes/NCDs pre-existed and which ones were modified or developed during the***
5 ***COVID-19 pandemic?***
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10 *Pre-existing documents*

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12 There were five documents in Kenya and Tanzania that addressed NCDs or emergency
13 situations prior to the COVID-19 pandemic but none specifically provided guidance on NCD
14 preparedness in an emergency situation. Table 2 and Appendix D provides a brief description of
15 the included documents. The pre-existing documents include: the Tanzania health policy 2007,[20]
16 the Kenya health policy 2014,[21] the Kenya NCD strategic plan 2015-2020,[22] the Tanzania
17 Health Sector Strategic Plan (HSSP IV) 2015-2020[23] and the Tanzania NCD strategic plan 2016-
18 2020.[24] The Tanzania health policy 2007[20] aims to provide guidance about provision of health
19 services for people with NCDs but does not include any advice regarding emergency preparedness
20 actions in relation to NCDs. The Kenya Health Policy[21] provides general guidance on health
21 system response to national disasters, emergencies, and disease outbreaks, however, it does not
22 provide specific guidance in relations to NCD management. The Health Sector Strategic Plan in
23 Tanzania[23] reinforced the importance of integration of NCD clinics into the health care system
24 to enhance accessibility of care but emergency care for NCD was not addressed. The Kenya NCD
25 strategic plan 2015-2020[22] and Tanzania NCD strategic plan 2016-2020[24] addressed NCDs.
26 Both documents promote preventive, curative and rehabilitative services and advocate
27 strengthening leadership and governance, and multi-sectoral collaboration with an emphasis on
28 accountability for the prevention and control of NCDs. However, these strategic plans do not refer
29 to NCD care during emergency situations.
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44 In both countries, participants identified policies, national frameworks, and guidelines for
45 managing NCDs including T2D, which corroborates the findings from the review. KIs also noted
46 that the documents did not cover aspects of care during a pandemic/emergency situation.
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49 *“Kenya didn't have guidelines that govern diabetes and COVID-19 [pandemics or*
50 *emergencies] but there were general guidelines for the management of both type two and*
51 *type one diabetes.” **Policy Actor_1905_KE***
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56 *Modified documents*
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3 There were two documents; one from each country that had been modified during the
4 pandemic to adjust for changing circumstances. In both countries, the NCD strategic plan
5 documents were expiring hence the pandemic situation created an opportunity to highlight
6 emergency situations in the lapsing NCD strategic plans.[34, 36] The pre-existing NCD strategic
7 plans[22, 24] were modified to include NCD care during the COVID-19 pandemic. KIs confirmed
8 that there were gaps in the previous NCD strategic plans. They described that the COVID-19
9 pandemic caught them unprepared as there were no plans for continuity of care for NCD patients
10 during this period and this necessitated the modification of the NCD strategic plans during the
11 COVID-19 period.
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19 *“...Before the onset of COVID-19, I would want to say that we did not have policies or*
20 *guidelines to manage diabetes [during emergencies] and therefore when COVID-19 came*
21 *it presented us with some challenge. It was also an eye opener as far as the management*
22 *of the NCDs is concerned during emergencies or during when we have natural disasters.”*

23 ***Policy Actor_1511_KE***

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29 *“We had the strategic plan for the years 2016 until 2020, which itself was inclusive, so*
30 *when COVID-19 occurred, we found that since it affects patients living with non-*
31 *communicable diseases. We should only develop a guideline that will be different from the*
32 *previous one, because the previous one was on leadership and awareness matters but it*
33 *[NCD strategic plan 2016-2020] had not described the COVID-19 pandemic”*

34 ***Policy Actor_0002_TZ***

35 36 37 38 39 40 *New documents developed during the pandemic*

41 We identified ten new documents that were developed during the pandemic to manage
42 NCD patients: seven from Kenya and three from Tanzania. These included: one policy
43 (Kenya)[35] and seven guidelines (five in Kenya[26, 27, 30-32] and two in Tanzania[25, 29]) and
44 two other documents which include a government directive in Kenya,[28] and a report in
45 Tanzania.[33] All these documents were created to provide specific guidance on the provision of
46 essential health services and clinical management of NCDs during the pandemic. These documents
47 also provided NCD patients with information on how to manage NCDs during the pandemic.
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3 ***Research Question 2: What do the national frameworks, policy models or guidelines include for***
4 ***management of Type 2 Diabetes/NCDs in pandemic/emergency situations?***
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8 In both countries, most of the documents reviewed included aspects of national priority
9 setting for managing NCDs in pandemic/emergency situations. The subsequent sub-sections
10 highlight the content of the documents.
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13 *Content of the documents*
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15 In Kenya, the first interim guidelines for COVID-19 case management were released in
16 April 2020.[26] The guide provided advice on both preventive and clinical management of
17 COVID-19 in Kenya. The interim guidelines were adapted from various international
18 recommendations including from the WHO. An updated version of the guideline was later released
19 in July 2021,[27] and it contains the latest guidelines for the clinical management of COVID-19
20 in Kenya.
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26 Another interim guideline for essential health services during COVID-19 was released in
27 May 2020.[30] This document was targeted toward healthcare managers and healthcare workers
28 to ensure that people continued to receive essential health services. This was followed by the
29 release of an updated version of the guideline in July 2020.[31] The latter provided guidance for
30 healthcare providers on immediate actions that should be considered to reorganise the health
31 system to ensure continuity of health services during the COVID-19 pandemic for all services
32 including NCD services.
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39 Also in July 2020, another interim guidance on the provision of services from NCDs during
40 the COVID-19 pandemic[32] was released. This document highlighted specific COVID-19 related
41 challenges on NCDs including severity among high-risk persons, COVID-19 actions/responses
42 jeopardising access to care and disrupting lifestyle approaches, disruption of funding and supplies,
43 and the general management of NCDs.
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49 A letter from the Director General of Health in Kenya[28] to the County Executive
50 Committee members for health was also among the first few documents released in mid-April
51 2020 to request continuity of NCD care amidst the disruption to NCD care provision during the
52 COVID-19 outbreak. This directive instructed NCD clinics to remain operational in all counties
53 during the COVID-19 pandemic.
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3 In addition, a new Emergency Care Policy[35], distinct from the preceding guidance was
4 issued in July 2021 to provide a roadmap for emergency services to all who need it including those
5 with NCDs. Lastly, in August 2021, the new Kenya National NCD Strategic Plan[36] was
6 launched; it highlighted the disruption to healthcare caused by the COVID-19 pandemic and the
7 need for resilient health systems during health emergencies. It further describes the NCD strategic
8 plan being sensitive to public health emergencies, such as the COVID-19 pandemic but it does not
9 provide guidance on how to better prepare for future emergencies.
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16 In Tanzania, two documents were developed in the early phase of the pandemic. The first
17 was a set of guidelines focused on educating the public on COVID-19 prevention measures,
18 released in April 2020, and it emphasized the need to provide accurate information about the
19 COVID-19 pandemic for patients with NCD.[25] In May 2020, the MOH in Tanzania released
20 another guideline on the provision of NCD and mental health services in the context of the COVID-
21 19 outbreak.[29] This guideline sets out plans for maintaining access to quality health care for
22 NCDs and mental health services during and beyond the pandemic and for strengthening access to
23 COVID-19 pandemic education. It emphasises the importance of protecting people with chronic
24 NCDs, such as T2D patients, from COVID-19 and providing recommendations for doing so,
25 including: hand hygiene, maintaining glycaemic control, staying in touch with healthcare
26 providers, refilling medications before running out and going to health facilities if experiencing
27 COVID-19 symptoms. Additionally, it provided healthcare providers in Tanzania with
28 information on how to manage COVID-19 infection and comorbidities including the major NCDs.
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40 Between July to December 2020 a report on COVID-19 was released in Tanzania to
41 strengthen the capacity of health workers to manage NCDs and COVID-19.[33] In March 2021,
42 the MOH in Tanzania in collaboration with the Tanzania NCD Association (TANCDA) issued a
43 policy brief[34] instead of updating the NCD strategic plan[24] to inform the care aspects of NCDs
44 including diabetes during a pandemic situation. This policy brief reinforced the importance of
45 improving diabetes and NCD management during COVID-19 by empowering NCD patients to
46 take charge of their health, engaging different multi-sectoral groups to support NCDs health
47 services financially, and to promote health awareness.
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54 *Access to care and medical supplies*
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3 The documents reviewed described various approaches to care such as modifications to
4 regular practice, workforce issues, how to respond to care disruptions, and health education. In
5 Kenya, several documents were developed during the pandemic to minimise disruptions in care
6 for patients with NCDs due to COVID-19.[30-32] These documents provided mitigation measures
7 such as provision of adequate supply of drugs to patients, patient virtual support (through
8 telemedicine, use of community health volunteers (CHVs) and helplines), counselling, provision
9 of personal protective equipment (PPE) for healthcare providers, and maximum social distancing
10 during facility visits. The Kenya Health Policy[21] provides the long-term development agenda,
11 Vision 2030[37] and global commitments. One of its objectives is to halt and reverse the rising
12 burden of NCD. Access to care and supplies of medicines are discussed but it is not specific to
13 NCDs. The letter by the Director General for Health to all NCD clinics in Kenya noted that access
14 to NCD care was hampered by the closure of the NCD clinics early into the pandemic.[28] This
15 directive addressed the NCD access issue during the pandemic by instructing NCD clinics to
16 remain operational in all counties during the COVID-19 Pandemic. The interim guidance on the
17 provision of services for NCDs during the COVID-19 pandemic[32] provided specific information
18 to ensure care continuity for key NCDs by informing patients of their increased risk of COVID-
19 19, supporting patients to self-manage when appropriate, increasing patients' home supplies of
20 medication and stock needed for their monitoring devices, providing counselling on healthy diets
21 and physical activity, ensuring maximum social distancing during their visits, modifying their
22 routine clinical review frequency and means/mode of delivery. This guideline further provided a
23 section on how to manage diabetes during the COVID-19 pandemic. The document provided
24 advice on strategies people with diabetes can adopt to reduce their risk of COVID-19. This
25 document further acknowledged that there may be instances when the limited healthcare resources
26 could be diverted to care only for those with COVID-19. Some of the documents reviewed
27 encouraged the adoption of virtual consultations and digital diagnostic platforms.[26, 31, 32, 36]
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47 In Tanzania, the guideline[29] and report[33] recognise that the continuity of NCD care
48 was important because of how vulnerable people living with NCDs were during the pandemic. The
49 guideline also highlighted the importance of accessing care to minimise the disruptions in the
50 healthcare system. The guideline emphasized patients' access to essential services during the
51 pandemic and it recommended free provision of all preventive care medical supplies.[29] The
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3 report also advocated for increased provision of essential medical supplies and access to essential
4 diagnostic equipment and treatment for NCDs during the pandemic.[33]
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8 The KIs in both countries described how access to care was hindered during the pandemic
9 for several reasons including patients with NCDs not wanting to go to health facilities out of fear
10 of contracting the virus and limited skills of healthcare workers to handle NCDs and COVID-19.
11 KIs also confirmed that policies and guidelines were developed to address the access issues
12 experienced during the COVID-19 pandemic.
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17 *“You know, most of the health facilities were shut down, generally the whole country was*
18 *shut down including health facilities and so what remained were just facilities to respond*
19 *to the COVID. Because of that, several of our clients could not access the services that they*
20 *required. A letter was sent to the counties by the acting Director General for health to have*
21 *these clinics open. So that was one of the policies that was issued so that the clients would*
22 *be able to access the services.” **Policy Actor_1605_KE***
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28 *“NCD services were affected in some clinics. Service providers lacked skills, so they didn’t*
29 *know what to do to serve NCD patients. In some facilities, some providers stopped*
30 *providing services and some clinics were closed, and the patients were afraid to go to the*
31 *clinics. As a result, it was a challenge on patients’ and providers’ sides.” **Policy***
32 *Actor_0002_TZ*
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38 KIs also described that continuity of care for NCD patients was done using alternative
39 strategies. Healthcare providers were encouraged to ensure continuity of care by following up
40 with their NCD patients at the community level either physically with the help of CHVs or
41 virtually.
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45 *“...We encouraged the clinicians to do close monitoring and contact tracing with the help*
46 *of the community volunteers and in facilities which were more advanced, they did it*
47 *[followed up with patients] virtually.” **Policy Actor_0912_KE***
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51 *Monitoring and evaluation tools*

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53 There were three documents that provided monitoring and evaluation frameworks; the
54 Kenya Health Policy,[21] the National Strategic Plan for the Prevention and Control of Non-
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3 Communicable Disease 2021/22 - 2025/26 [36] and the Kenya Emergency Medical Care Policy
4 2020 – 2030.[35] The Kenya Health Policy includes progress indicators across eight domains and
5 their targets are based on the WHO statistics of the average value of four middle-income countries.
6 One of the targets is to reduce annual deaths due to NCDs by 27% in 2030. Some of the targets
7 included in the National Strategic Plan for the Prevention and Control of NCD 2021/22 -
8 2025/26[36] are to increase the proportion of funding to NCDs from 48% to 60%, reducing the
9 prevalence of high blood pressure by 25% and reducing the rising burden of diabetes by 10% in
10 2025. The Kenya Emergency Medical Care Policy 2020 – 2030[35] monitoring and evaluation
11 framework had general targets for emergencies with nothing specific to NCDs. Even though
12 several documents reviewed in Kenya had monitoring & evaluation frameworks, none were
13 focussed on emergency/pandemic care. In Tanzania, none of the documents reviewed mentioned
14 monitoring and evaluation tools.

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25 ***Research question 3: What are the policy/guideline gaps for the management of Type 2 Diabetes***
26 ***during the COVID-19 pandemic, and what are the opportunities to improve the management of***
27 ***T2D/NCDs?***
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29 30 31 *Gaps identified*

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33 Several gaps were identified from the reviewed documents and the key informant interviews from
34 the two countries. These included limited resource allocation and the lack of comprehensiveness
35 of the documents with future preparedness and monitoring and evaluation tools inadequately
36 addressed.
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41 42 *Resource allocation*

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44 In both countries, resource allocation for the management of NCDs in
45 pandemic/emergency situations was not described in the guidance/policy documents. KIs noted
46 that this affected the development, dissemination, and implementation of the new
47 policies/guidelines.
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51 KIs stated that the development of the new policies/guidelines was affected by the COVID-
52 19 restrictions on gatherings. In the initial stages of COVID-19, all meetings for the
53 policy/guideline development were moved to virtual platforms. Participants said that the
54 technology needed to access virtual meetings (e.g., data bundles, modems) was under-resourced,
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3 making participation in the policy/guideline development meetings challenging and strenuous. KIs
4 also suggested that the virtual policy/guideline meetings struggled to reach consensus.
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8 *“Yes, there were challenges [...] The guideline was done quickly but it was still a tug of*
9 *war in people’s participation: sometimes other people delayed in responding, others did*
10 *not submit their input, or sometimes others submitted their input after the document has*
11 *already moved further steps, sometimes a person could participate today or tomorrow, and*
12 *he does appear [not participate again].” **Policy Actor_0003_TZ***
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18 *“We had no resources, so we bought our modems. We had to ensure that the [data] bundles*
19 *were always enough because the meetings were over and over through virtual meetings,*
20 *so like every other minute you had a virtual meeting. There was no direct resource to the*
21 *NCD department for COVID-19.” **Policy Actor_1905_KE***
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27 Dissemination of the new policies/guidelines was challenging due to inadequate resources
28 to cover all regions and the COVID-19 restrictions. Participants mentioned that not all the
29 healthcare workers received copies of the new guidelines. Others mentioned that many healthcare
30 workers were not trained on the new guidelines.
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36 *“I think the resources were available but probably not adequate. So, for instance, the*
37 *financial resources to support a full-fledged dissemination across the country...or to*
38 *support mentorship across all the counties was not adequate.” **Policy Actor_1401_KE***
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43 *“About the dissemination, you will remember during the COVID period, the matter of*
44 *calling people together was restricted, so the dissemination phase was not done properly*
45 *although I know there was training. For example, TANCDA trained people in Dar es*
46 *salaam and the Ministry of Health was also doing training in some regions... It was just*
47 *the distribution of the guideline [was inadequate]. We just shared this document on the*
48 *online platform” **Policy Actor_0003_TZ***
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3 In both countries, the implementation of the new guidelines was a challenge. Participants
4 described the monitoring and evaluation of the new guidelines as a gap due to the limited resources
5 allocated and the restricted movements due to COVID-19. KIs mentioned that they were not aware
6 of how the implementation was progressing.
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12 *“So, I may not be able to speak about implementation because I'm not sure what happened*
13 *after the guidelines were released and shared widely through emails and WhatsApp*
14 *groups. Whether the healthcare workers used the guidelines or whether they were*
15 *important or whether they were asking for a revision, or the guidelines were speaking to*
16 *them, I am not able to say anything about that. I don't know because we had no resources*
17 *to monitor the implementation.” **Policy Actor_1905_KE***
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23 *“...since there was no follow-up done, we were not sure whether the printed 500 copies of*
24 *the guideline reached the respective health facilities” **Policy Actor_0002_TZ***
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28 The reallocation of most healthcare funding to address COVID-19 meant there were no
29 funds to cater for the recommendation to give patients with T2D a longer supply of NCD medicines
30 as referred to in reviewed documents in Kenya.[30-32] Interviews with the policy stakeholders in
31 Kenya and Tanzania further confirmed this. In Tanzania specifically, the health insurance coverage
32 was not adjusted to comply with the new guidelines, therefore, the implementation of the
33 recommendation to give patients with T2D a two-to-three-month supply of medications to limit
34 hospital visits was hampered.
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41 *“Other support resources are required, [for example,] if someone is to treat a patient ...*
42 *then you need those medicines in place. [However,] the main availability of NCD*
43 *medicines in the country is half of what is required; it's like 42% out of the targeted 80%....*
44 *therefore, there is an inadequate amount to enhance full implementation of these*
45 *guidelines” **Policy Actor_1401_KE***
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51 *“I remember at one point we even asked the hospitals not to give longer provision of*
52 *supplies ... if for example, you give them three months' supplies it means that you are*
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3 *denying someone else, so we decided to go back to the one month supply of medicines and*
4 *then monitor the situation.” **Policy Actor_1905_KE***
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9 *Comprehensiveness of the new policies/guidelines*

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11 A gap identified in the review of the documents was the lack of tools needed to monitor
12 and evaluate the progress of the new policy/guidelines. In both countries KIs noted that the
13 guidelines developed lacked monitoring and evaluation tools.
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17 *“Sometimes we don't embed [monitoring and evaluation tools] in the supervision [of health*
18 *facilities], instead, they are included in the supervision tool. Okay, so these guidelines that*
19 *are disease-specific or aimed at patient management, we don't include them with the M&E*
20 *framework unless we have a separate framework for supervision.” **Policy Actor_0003_TZ.***
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25 None of the policy/guidelines in Tanzania included plans for managing T2D/NCDs in
26 emergency situations. Participants described this to be a gap even in the new policy/guidelines that
27 were developed during the COVID-19 pandemic.
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31 *“Another thing we have come to discover later is that the guideline was still not enough to*
32 *provide guidance on what to do in an emergency to care for patients with NCDs.” **Policy***
33 *Actor_0001_TZ.*
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36 *Opportunities identified*

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38 Participants were able to provide insights into what opportunities they took advantage of
39 to address some of the challenges. KIs in both countries mentioned that the pandemic created an
40 opportunity to establish online platforms to ensure information reached key people within the
41 healthcare sector.
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46 *“...in terms of monitoring or supportive supervision that happened maybe not to the*
47 *extent that we want... but one of the ways we are collecting feedback is [by] empowering*
48 *the counties and having an NCD focal person... Now we have a common platform both*
49 *through email [and] we have a WhatsApp group for them where we quickly disseminate*
50 *any required information...” **Policy Actor_1004_KE***
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3 In Tanzania, the COVID-19-pandemic presented an opportunity to use routine
4 supervision meetings as an avenue to disseminate the new policies/guidelines to health facilities.
5 The intention was that the information would be cascaded downwards to all health facility staff.
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9 *“...but we have also been able to disseminate in the sense of going with the guidelines*
10 *when we do supervision, this was done in the first group that I was involved in, when we*
11 *meet the regional health management team (RHMT) we take them through the NCD*
12 *guideline, but we also provide them with copies for them to distribute in the respective*
13 *health facilities, we did not go to all council health management team (CHMTs)”* **Policy**
14 **Actor_0001_TZ.**
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21 Participants also mentioned the importance of putting forth strategies to strengthen the
22 health system response towards managing NCDs including diabetes in general and during
23 emergency situations. This included prioritising NCDs, multi-sectoral action, multi-level
24 engagements and improved data and monitoring systems to ensure continuity of care.
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29 *“... [There] should be a multidisciplinary preparedness team which should keep on*
30 *meeting frequently and if need-be on monthly basis. [...] We [also] need to have a very*
31 *elaborate policy statement as far as management of NCDs during a pandemics is*
32 *concerned, and this policy should talk of resources strengthening of our systems,*
33 *monitoring and evaluation, surveillance, and research. [It should also be able to*
34 *strengthen the capacity of our healthcare providers.... It should also address the issue of*
35 *medicines and health technologies which are available such that even if the patient does*
36 *not go to a health facility they can seek service from where one is...”* **Policy**
37 **Actor_1511_KE**
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45 **Discussion**

46
47 This study provides a comprehensive review of policies/guidelines that exist to manage
48 NCDs in Kenya and Tanzania during emergency situations with inputs of key NCD stakeholders
49 involved in decision making. This review revealed that prior to the COVID-19 pandemic, both
50 countries did not have comprehensive policies/guidelines that addressed the management of NCDs
51 during pandemic/emergency situations. However, several measures were put in place during the
52 COVID-19 period to address the needs of patients with NCD and T2DM. These measures
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3 included: updating and developing strategic plans; development of new care guidelines; and
4 release of government directives that guided continuity of care strategies. However, insufficient
5 attention was given to implementation of the new policies and guidelines in both countries. There
6 was inadequate guidance and resources provided to enable effective monitoring and evaluation of
7 progress in relation to disaster preparedness.
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14 The need to develop new and update policies/guidelines in Kenya and Tanzania was similar
15 to other countries.[10] Our study found that the implementation of new policies/guidelines in
16 Kenya and Tanzania faced challenges, for example, inadequate resources hampered the
17 dissemination and training of healthcare workers. There were a lack of key performance targets
18 and a lack of monitoring and evaluation which resulted in poor implementation and reduced
19 effectiveness of the guidelines. A systematic review has revealed that NCD policy development
20 and implementation is often inadequate in Africa.[38] A possible explanation is that healthcare
21 resources are already limited and during the pandemic, these resources were diverted to address
22 COVID-19 infections.[15] Research conducted by the International Federation of Red Cross
23 (IFRC)[39] during the COVID-19 pandemic looking at the role of law and policy in public health
24 emergency preparedness and response found that the pre-existing policies and laws were
25 inadequate to cater to the current COVID-19 pandemic. This was similar to the finding of the study
26 reported here. Due to the rapid development of the new policies/guidelines, a weakness noted was
27 that major components were missed such as monitoring and evaluation and emergency
28 preparedness tools in most of the policies/guidelines.
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41 Some findings were similar across the two countries. For instance, in the initial phase of
42 the COVID-19 pandemic, KIs reported disruption to healthcare services for patients with NCDs
43 in both countries. Therefore, access, availability and utilization of NCD care services were
44 severely affected. The disruptions noted in Kenya and Tanzania were similar to disruptions
45 reported across multiple countries;[3, 10] e.g., a WHO report said 75% of countries experienced
46 disruptions to various NCD care services.[10] Supply of NCD medicines was a major issue at
47 multiple levels of the health system,[40] and many people living with NCDs lacked sufficient
48 medicine supplies to manage their conditions, therefore leading to worse health outcomes. There
49 was further evidence to show that LMICs especially countries in SSA were more likely than other
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3 countries to report disruption of care due to unavailability/stock-outs of medicines and reduced
4 number of healthcare providers at health facilities[10, 41] as was reported by KIs in the current
5 study. The most common reasons reported for not accessing care among people living with NCD
6 in a recent study conducted by Devi et.al were fear of contracting COVID-19 (36.5%), doctors'
7 advice not to go to the health facility (33.7%), and physical inaccessibility due to the lockdowns
8 (27%).[42] This meant that many patients with chronic diseases were not able to receive the care
9 that they needed and resonates with the findings presented here.
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17 The current study shows that both countries had gaps between what was stated in the policy
18 and what was occurring in practice and this was similar to findings from a previous study
19 conducted before COVID-19 looking at the development and implementation process of NCD
20 prevention policies in sub-Saharan Africa.[43] Despite the newly developed or updated
21 policies/guidelines highlighting the need for longer supply of medicines for NCDs, both countries
22 were unable to fully comply with these policies/guidelines due to low medication stocks. In
23 addition, healthcare systems in Tanzania failed to comply with the new policies/guidelines because
24 health insurance schemes were not aligning themselves with the new policies/guidelines.
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33 *Strengths and limitations*

34 A major strength in this study was the triangulation of data sources from the desk review
35 with qualitative interviews. Another strength is the use of a comprehensive approach to identify
36 relevant documents and extracting data in a standardised format. Key stakeholders involved in
37 NCD decision making further assisted us in retrieving documents not in the public domain.
38 However, the findings from this study are limited to information from documents that were
39 documented and accessible for review. Another limitation of this review is that we did not include
40 patients 'and healthcare providers' perspectives, which would have been valuable in understanding
41 the implementation process of the new/updated policies/guidelines as well as the successes and
42 challenges in order to inform recommendations for improvement.
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51 *Recommendations*

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3 The COVID-19 pandemic created an opportunity for governments to review and update
4 their national disaster plans. Existing government national disaster plans should integrate NCD
5 management guidelines with national disaster preparedness plans. The plans should also have
6 adequate ring-fenced allocation of resources to ensure proper implementation and monitoring and
7 evaluation of effectiveness of guidelines during emergencies and future pandemics. Governments
8 should strengthen health systems and emergency preparedness by ensuring continuity of service
9 provision for patients with NCDs by offering innovative services such as online consultation
10 platforms, home delivery of diagnostics and ensuring adequate supplies of medication. Additional
11 research on this topic has the potential to offer valuable insights on future developments.
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20 **Conclusion**

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22 By comprehensively analysing the policy response to managing chronic diseases in Kenya
23 and Tanzania, we have identified the effect of the pandemic on continuity of care. Kenya and
24 Tanzania have developed and updated new policies/guidelines to include an emphasis on
25 continuity of care for people with NCDs. There is a pressing need to develop disaster/emergency
26 preparedness plans that encompass NCD care and allocate sufficient resources to ensure their
27 effective implementation. This is crucial for effectively managing future emergency situations
28 while strengthening the resilience of health systems to withstand multiple shocks. There is also
29 need to promote and build capacities for implementation research in Kenya and Tanzania.
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Authors' Contribution:

SFM, LK and IM extracted and synthesized data from the policies and analysed the qualitative data from both countries. SFM and LK jointly conducted the literature review and analysis and wrote the first draft manuscript. All the other authors (IM, FSM, JPW, CB, CG, PK, RS, CK, SM, PB & GA) reviewed the draft manuscript, provided input, provided critical comments and suggested additional analyses. All authors contributed substantially to the development, revision, and finalisation of the manuscript. SFM finalized the manuscript, which was subsequently approved by all authors.

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Data availability statement:

Qualitative data are available upon reasonable request. All other documents reviewed for this article are publicly available.

Ethics Approval:

This study was approved by the Ethics and Scientific Review Committee at AMREF Health Africa in Kenya (ESRC P900-2020) and the National Institute for Medical Research (NIMR/HQ/R.8a/Vol.IX/3806) in Tanzania.

Competing interests:

None declared

References

1. World Health Organization. *WHO Coronavirus (COVID-19) Dashboard*. 2023 November 8th, 2023 [cited 2023 November 15th,]; Available from: <https://covid19.who.int/>.
2. Bouba, Y., et al., *The determinants of the low COVID-19 transmission and mortality rates in Africa: a cross-country analysis*. *Frontiers in public health*, 2021. **9**: p. 751197.
3. Formenti, B., et al., *The impact of COVID-19 on communicable and non-communicable diseases in Africa: a narrative review*. *Le Infezioni in Medicina*, 2022. **30**(1): p. 30.
4. Okonji, E.F., et al., *Understanding varying COVID-19 mortality rates reported in Africa compared to Europe, Americas and Asia*. *Tropical Medicine & International Health*, 2021. **26**(7): p. 716-719.
5. Haider, N., et al., *Lockdown measures in response to COVID-19 in nine sub-Saharan African countries*. *BMJ Global health*, 2020. **5**(10): p. e003319.
6. Mfinanga, S.G., et al., *Tanzania's position on the COVID-19 pandemic*. *The Lancet*, 2021. **397**(10284): p. 1542-1543.
7. Tessema, G.A., et al., *The COVID-19 pandemic and healthcare systems in Africa: a scoping review of preparedness, impact and response*. *BMJ global health*, 2021. **6**(12): p. e007179.
8. Kraef, C., et al., *The COVID-19 pandemic and non-communicable diseases—a wake-up call for primary health care system strengthening in sub-Saharan Africa*. *Journal of primary care & community health*, 2020. **11**: p. 2150132720946948.
9. Chudasama, Y.V., et al., *Impact of COVID-19 on routine care for chronic diseases: a global survey of views from healthcare professionals*. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 2020. **14**(5): p. 965-967.
10. World Health Organization - NCD Department, *Final Results: Rapid assessment of service delivery for non-communicable diseases (NCDs) during the COVID-19 Pandemic*. 2020.
11. Nikoloski, Z., et al., *Covid-19 and non-communicable diseases: evidence from a systematic literature review*. *BMC Public Health*, 2021. **21**(1): p. 1-9.
12. Richardson, S., et al., *Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area*. *JAMA*, 2020. **323**(20): p. 2052-2059.
13. Vitiello, A. and F. Ferrara, *The impact of COVID-19 in diabetic patient*. *Archives of Medicine and Health Sciences*, 2020. **8**(1): p. 167.
14. Schofield, J., L. Leelarathna, and H. Thabit, *COVID-19: Impact of and on Diabetes*. *Diabetes Therapy*, 2020. **11**(7): p. 1429-1435.
15. Jordan, R.E., P. Adab, and K. Cheng, *Covid-19: risk factors for severe disease and death*. 2020, British Medical Journal Publishing Group.
16. Gilbert, M., et al., *Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study*. *The Lancet*, 2020. **395**(10227): p. 871-877.
17. Sobngwi, E., et al., *Type 2 diabetes control and complications in specialised diabetes care centres of six sub-Saharan African countries: the Diabcare Africa study*. *Diabetes research and clinical practice*, 2012. **95**(1): p. 30-36.
18. Gill, P., et al., *Methods of data collection in qualitative research: interviews and focus groups*. *British Dental Journal*, 2008. **204**: p. 291.
19. Stemler, S., *An overview of content analysis*. *Practical assessment, research, and evaluation*, 2000. **7**(1): p. 17.

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- 2
- 3 20. Ministry of Health - Tanzania, *Tanzania Health Policy (in Kiswahili)* 2007.
- 4 21. Kenya. Ministry of Health, *Kenya Health Policy 2014-2030*. 2014, Ministry of Health.
- 5 22. Ministry of Health, *The Kenya National Strategy for the Prevention and Control of Non-*
- 6 *communicable Diseases - 2015-2020*. 2015.
- 7
- 8 23. Ministry of Health and Social Welfare, *Health Sector Strategic Plan (HSSP IV) July 2015 -*
- 9 *June 2020*. 2015.
- 10
- 11 24. Government of the Republic of Tanzania, C.D. Ministry of Health, Gender, Elderly, and
- 12 Children, *Strategic and action plan for the prevention and control of non communicable*
- 13 *diseases in Tanzania 2016-2020*. 2016.
- 14 25. Ministry of Health -Community Deveelopment, G., Elderly and Children,, *National*
- 15 *Guideline of Clinical Management and Infection Prevention and Control of Novel*
- 16 *Coronavirus (COVID-19)*.
- 17 26. Kenyan Ministry of Health (MOH), *Interim Guidelines on Management of COVID-19 in*
- 18 *Kenya*. 2020.
- 19 27. Kenya Ministry of Health (MOH), *Guidelines on Case Management of COVID-19 in Kenya*.
- 20 2021.
- 21
- 22 28. Ministry of Health - Office of the Director General, *Non-Communicable Diseases Clinic*
- 23 *During COVID_19 Outbreak*. 2020.
- 24 29. Ministry of Health, C.D., Gender, Elderly and Children,, *Guidance on the provision of NCD*
- 25 *and mental health services in the context of the covid-19 outbreak in Tanzania*. 2020.
- 26 30. Kenya Ministry of Health (MOH), *Interim Guidance on Continuity of Essential Health*
- 27 *Services during the Covid-19 Pandemic*. 2020.
- 28 31. Kenya Ministry of Health (MOH), *Guidance on Continuity of Essential Health Services*
- 29 *during the Covid-19 Pandemic*. 2020.
- 30 32. Kenya Ministry of Health (MOH), *Interim Guidance on Provision of Services for NCDs*
- 31 *during the COVID-19 Pandemic*. 2020.
- 32 33. United Nations, *Flash appeal for Covid-19 Tanzania*. 2020.
- 33 34. Tanzania NCD Alliance (TANCDA), *Policy brief on the inclusion of NCDs on universal health*
- 34 *coverage in Tanzania*. 2021.
- 35 35. Kenya Ministry of Health (MOH), *Kenya Emergency Medical Care Policy 2020 - 2030*. 2021.
- 36 36. Department of non-communicable diseases - Ministry of Health, *National Strategic Plan*
- 37 *for the Prevention and Control of Non-Communicable Disease 2021/22 - 2025/26*. 2021.
- 38 37. Government of Kenya, *Kenya Vision 2030*. 2007.
- 39 38. Kassa, M.D. and J.M. Grace, *Noncommunicable Diseases Prevention Policies and Their*
- 40 *Implementation in Africa: A Systematic Review*. Public Health Reviews, 2022. **42**: p.
- 41 1604310.
- 42 39. International Federation of Red Cross (IFRC) Disasater Law, *Law and public health*
- 43 *emergency preparedness and response: Lessons from the COVID-19 pandemic*. 2021,
- 44 International Federation of Red Cross and Red Crescent Societies. p. 174.
- 45 40. Kiragu, Z.W., et al., *Access to Medicines for Non-Communicable Diseases (NCDS) during*
- 46 *COVID-19 in Kenya: A Descriptive Commentary*. Health Systems & Reform, 2021. **7**(1): p.
- 47 e1984865.
- 48 41. Owopetu, O., L.-K. Fasehun, and U. Abakporo, *COVID-19: implications for NCDs and the*
- 49 *continuity of care in Sub-Saharan Africa*. Global Health Promotion, 2021. **28**(2): p. 83-86.
- 50
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3 42. Devi, R., et al., *The impact of COVID-19 on the care of patients with noncommunicable diseases in low-and middle-income countries: an online survey of patient perspectives.* Journal of Patient Experience, 2021. **8**: p. 23743735211034091.
4
5
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7 43. Juma, P.A., et al., *Non-communicable disease prevention policy process in five African countries authors.* BMC Public Health, 2018. **18**(1): p. 961.
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14 Figures

15 Fig 1: Search strategy
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18 Tables

19 Table 1: Characteristics of Key Informants
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21 Table 2: Description of the documents included in the desk review for Kenya and Tanzania
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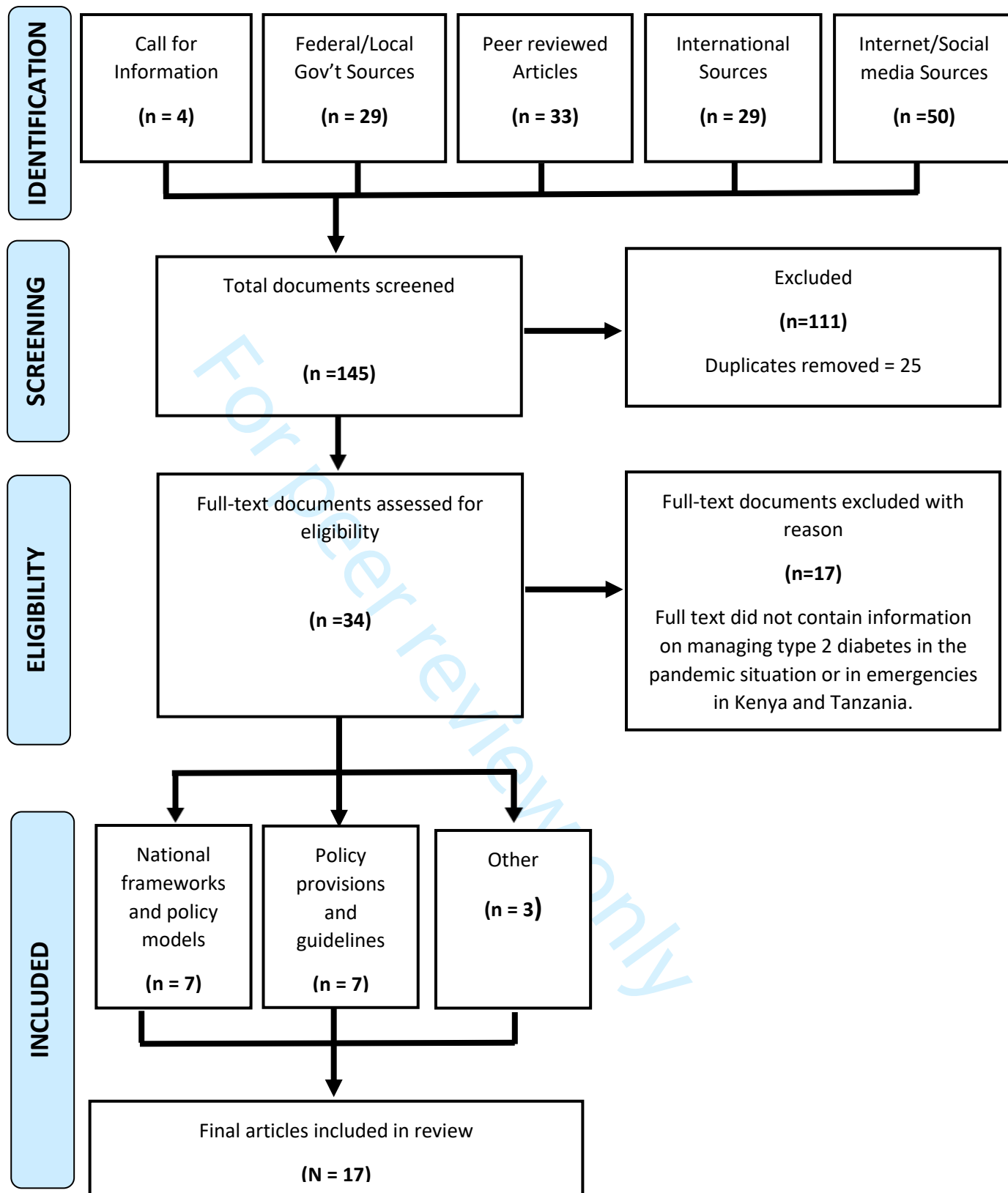


Figure 1: Search strategy

Appendices

Appendix A. Search Criteria for Peer-reviewed literature

1. **Diabetes terms:** diabetes, NCDs, disease management, Type 2 diabetes, diabetes mellitus, chronic disease, non-insulin dependent diabetes, 'type 2 diabetes' OR 'type II diabetes' OR 'diabetes mellitus' OR 'diabetes'
2. **COVID terms:** covid, coronavirus, COVID-19, SARS-COV-2, severe acute respiratory syndrome coronavirus 2, 2019-nCoV
3. **Healthcare:** healthcare, disruption, impact, health services provision, change, continuity of care, medical care
4. **Policies:** policy, guidelines, measurement/assessment/evaluation, strategies, recommendations, plans, impact, research, outcomes, result, approaches, care continuity, SOPs, procedures, frameworks, policy models, laws, bills, tools
5. **Countries:** Kenya, Tanzania

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Appendix B: Table 1: Details of search strategy

| Source | Details |
|------------------------------------|--|
| Call for information | A call for information was disseminated via email and social media platforms (WhatsApp) to relevant networks/experts including Ministry of Health officials, National NCD department heads, County health departments, diabetes clinic heads, National COVID-19 task force leads; Technical working groups (national or county), Academic researchers who focus on COVID/diabetes care disruption, and NGOs. We first identified a list of potential stakeholders from relevant networks and sent out the call to them. In the call we requested that they share hard or soft copy documents by email or courier related to the management of T2D and other chronic diseases during COVID-19 or other emergency epidemic or pandemic situations. |
| Peer reviewed literature databases | We searched peer reviewed literature databases of PubMed/Medline, Embase, Google Scholar, Web of Science, OpenGrey using search criteria to identify articles and grey literature that describe diabetes, COVID-19 and health system responses (<i>see specific search criteria in Appendix A</i>). Due to time limitations, this was not a comprehensive systematic review, but rather a rapid review of the literature. |
| Local/International resources | Since international health agencies such as the World Health Organization have taken the lead both on COVID-19 responses and on management of NCDs, we reviewed documents from international resources, including the United Nations, World Health Organization, and relevant non-governmental agencies. We included WHO country profiles, WHO documents on COVID, and reports from NGOs working in diabetes in Kenya. |
| Policy documents/drafts from | We reviewed Kenya’s health ministry websites including for all documents associated with national NCD strategies, policy documents and committee reports related to T2D and COVID-19, reports from meetings and events, and standard operating procedures. We searched websites including Ministry of health, and any COVID-specific working group, etc. for policies, |

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| relevant national ministries | guidelines, measurement/assessment/evaluation, strategies, recommendations, plans, impact, research, outcomes, result, approaches, care continuity, SOPs, procedures, frameworks, policy models, laws, bills, tools. |
| Internet search | Given the extensive use of the internet to communicate during the pandemic, we conducted an internet search using google, Google Scholar and other search engines to identify patient support groups, diabetes association's/message boards, newspaper/media articles regarding T2D and COVID. |
| Social Media | Finally, given the speed with which governments needed to react to COVID-19 developments, many governmental individuals and offices disseminated information to the public on social media. We reviewed twitter pages of the country's Ministry of Health and other high-profile individuals/offices, presidential speeches or other speeches on social media and national NCD groups for information about T2D and COVID-19. |

Appendix C: Key Informant Interview guide for policy actors working in non-communicable diseases (NCDs).



GECO Study

Project Title: Healthcare and Socio-economic Impacts of COVID-19 on Patients with type 2 Diabetes in Kenya

Key Informant Interview (KII) guide – Policy Actors working in non-communicable diseases (NCDs).

Pre-review only

AFRICAN POPULATION AND HEALTH RESEARCH CENTRE

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3 **These are the interviews with policy actors and decision makers working in non-communicable**
4 **diseases and other related fields. The objective is to identify policy gaps in Kenya to inform**
5 **policy change, priority setting and action for T2D management during COVID-19**
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8 **Introduction and Warm up**

9 ***Moderator Note: Moderator to read out from written informed consent form and obtain***
10 ***signature/ thumbprint)***

- 11 • The moderator introduces him/herself and explains the purpose of the study.
- 12 • Collects relevant information on the Participant Description Form (PDF) during screening.
- 13 • The moderator explains that the discussion is open, not an exam and there is no right or wrong
- 14 answer. The facilitator/moderator should explain to the respondent that the information
- 15 given by the participant is confidential.
- 16 • Encourage the respondent to give honest opinions.
- 17 • Explain the use of the recorder.
- 18 • Start tape recording if consent is granted: (Moderator to switch recorder on)

19 Remember to introduce each section to the participant to prepare them for the questions to be
20 asked.
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This study aims to identify policy gaps in Kenya to inform policy change, priority setting and action for T2D management during COVID-19. In particular, we would like to know what policies/guidelines have been developed during COVID-19, who and which sectors have been involved in the policy development and implementation, challenges in the formulation and implementation, gaps that still exist and recommendations. We are interested in higher level policies such as laws, regulations, national strategic plans, directives as well as lower level guidelines, action plans, SOPs etc. related to T2DM during COVID-19.

Section A: General response of governments to COVID-19

1. Briefly tell me what the government's response has been towards the management of NCDs including type 2 diabetes during COVID-19 in Kenya?

Section B: Policy formulation during COVID-19

2. Please tell me about the policies and guidelines that you are aware of that were **formulated** during COVID-19 to manage people with type 2 diabetes

Probes:

Context

- a) What was the rationale for the formulation of the policy/guidelines mentioned? (context)
 - i. What is it about the COVID-19 situation that necessitated the development of the policy/ guideline?
 - ii. Was there any research that informed the need to update/revise the pre-existing NCD/diabetes policies/guidelines? Please explain.

Content

- b) What do the policies/guidelines include? (content)
 - i. Were the provisions (content) in the policy adequate to manage type 2 diabetes during COVID-19? If not, what else do you think should be added?
 - ii. Was the content in the policy/guideline informed by research findings?

Actors and Process

- c) Were you involved in the formulation of these policies you have mentioned? (actors)
 - d) What was your role in the formulation?
 - e) Who else or what other sectors were involved in the formulation of the policy or guidelines?
 - i. Who led the process of formulating the type 2 diabetes policies or guidelines?
 - ii. What was the role of the sectors involved?
 - iii. Who else should have been involved in the formulation?
 - i. Were healthcare providers involved in the formulation?
 - f) What were the advantages of having these policies/guidelines in place during COVID-19?
 - g) What were the challenges encountered during the formulation process of the policy/guidelines for type 2 diabetes?
3. What resources were available for the **formulation** of these policies/guidelines?

Probes:

 - a) Type of resources available? (funding, human resource, experts in the field)

Section C: Policy implementation during COVID-19

4. To what extent have the policies/guidelines developed during COVID-19 been **implemented**

Probes:

- a) Were you involved in their implementation? (actors)
 - b) What was your role in the implementation?
 - c) Who else or what other sectors were involved in the implementation of the policy/guidelines?
 - i. Who led the implementation of the policies/guidelines?
 - ii. What was the role of the sectors involved?
 - iii. Who else should have been involved in the implementation? Why?
 - d) What were the advantages of implementing these policies/guidelines during COVID-19?
 - e) What were the challenges encountered during the implementation of the policy/guidelines?
5. What resources were available for the **implementation** of these policies/guidelines?
- Probes:**
- a) Type of resources available? (funding, human resource, experts in the field)
 - b) Were the resources adequate? What was missing? Elaborate
6. What mechanisms were used to disseminate the new policies/guidelines on the management of type 2 diabetes during COVID-19?
- Probes:**
- a) Types of mechanisms? (trainings, directives shared etc?)
 - b) How does the government ensure that the policies/guidelines are actually being used?

Section D: Recommendations

7. What gaps still exist in the management of type 2 diabetes during COVID-19?
- a) How can they be addressed to avoid future disruption in care during an emergency/pandemic situation?
8. In your opinion, how best can the Kenyan health system **strengthen its response** towards chronic disease management in the event of an emergency/pandemic situation?
9. What would you recommend to ensure the continuity of chronic care management (including type 2 diabetes) during an emergency/pandemic situation?
10. Is there anything else you would like to add with regard to chronic care management including diabetes in Kenya that we have not discussed?

We have come to the end of the interview. ***[Thank the participant for participating in the interview]***

*****END*****

Appendix D: Description of the documents included in the desk review for Kenya and Tanzania

| Type of Document | Name of Document | Country | Dates | Content Description |
|-------------------------------------|--|----------|-------------|---|
| 1. Policy ¹² | Tanzania Health Policy 2007 | Tanzania | 2007 | The policy provides direction on the development of NCD guidelines that will provide guidance on the provision of health service, equity in service provision, capacity building, and raising awareness on the management and prevention of NCDs. |
| 2. Policy ¹³ | Kenya Health Policy 2014-2030 | Kenya | 2014 | The document provides overall directions to ensure significant improvement in the overall status of health in Kenya, the country's long-term development agenda, Vision 2030 and global commitments including halting and reversing the rising burden of NCDs in the country. |
| 3. National Framework ¹⁴ | National Strategy for the Prevention and Control of NCDs 2015 -2020 | Kenya | 2015 - 2020 | The document emphasizes an integrated approach towards addressing NCDs in order to reduce the preventable burden, avoidable morbidity, mortality, risk factors, and costs due to NCDs. It provides evidence based NCD prevention and control interventions to ensure optimal health throughout the life course for sustainable socioeconomic development. |
| 4. National Framework ¹⁵ | Health Sector Strategic Plan (HSSP IV) | Tanzania | 2015-2020 | The document clarifies the importance of integrating NCD clinics into the health care system to enhance access to care. It also describes NCD prevention and early detection of the NCD and start of medication. |
| 5. National framework ¹⁶ | Strategic and action plan for the prevention and control of NCDs in Tanzania 2016 – 2020 | Tanzania | 2016-2020 | The document advocates for NCD prevention and control at a national level and it emphasizes strengthening leadership, governance, multisectoral collaboration, and accountability for the prevention and control of NCDs and promoting preventive curative and rehabilitative services. |

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| 6. Guideline ¹⁷ | National guideline of clinical management and infection prevention and control of novel coronavirus (COVID-19) | Tanzania | April 2020 | This guideline educates the public on COVID-19 preventive measures and emphasizes the provision of accurate information for people with NCDs to protect them from COVID-19. |
| 7. Guideline ¹⁸ | Interim Guidelines on Management of COVID-19 in Kenya | Kenya | April 2020 | The guidelines combine both preventive and clinical management of diseases during COVID-19. The updated version (2021) contains the latest guidelines for the clinical management of COVID-19 and includes case definitions, infection prevention and control, diagnosis and management of COVID-19, and ending isolation for COVID-19 patients. |
| 8. Guideline ¹⁹ | Updated version: Guidelines on Case Management of COVID-19 in Kenya | | July, 2021 | |
| 9. Letter ²⁰ | Non-Communicable Diseases Clinic During COVID-19 Outbreak | Kenya | Mid-April 2020 | This document is a national directive for NCD clinics to remain operational in all counties during the COVID-19 pandemic. |
| 10. Guideline ²¹ | Guidance on the provision of NCD and mental health services in the context of the COVID-19 outbreak in Tanzania | Tanzania | May 2020 | This guideline targets strengthening NCD service provision during COVID-19 including capacity building for health workers, health promotion for NCD/T2D patients, health facility re-structuring for COVID-19 prevention, and access to care and continuity of essential health services. |
| 11. Guideline ²² | Interim Guidance on Continuity of Essential Health Services during the Covid-19 Pandemic. | Kenya | May 2020 | These documents provide guidance for healthcare providers on immediate actions that should be considered to reorganise the health system to ensure continuity of health services during the COVID-19 pandemic for all services including NCD services. |
| 12. Guidelines ²³ | Updated version: Guidance on Continuity of Essential Health Services | | July 2020 | |

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| | during the COVID-19 Pandemic | | | |
| 13. Guideline ²⁴ | Interim Guidance on Provision of Services for NCDs during the COVID-19 Pandemic | Kenya | July 2020 | The document highlights specific COVID-19 related challenges on NCDs including severity among high-risk persons, COVID-19 actions/responses jeopardising access to care and disrupting lifestyle approaches, disruption of funding and supplies, and the general management of NCDs. |
| 14. Report ²⁵ | Flash appeal for COVID-19 Tanzania | Tanzania | July – December 2020 | The document discusses strengthening capacity building for health workers, ensuring continued mentorship on NCD and COVID-19 health management, and disseminating information materials and guidelines. It also recommends health promotion and public health intervention strategies for quality-of-life improvement for those with complications associated with NCDs. |
| 15. Policy Brief ²⁶ | Tanzania NCD Alliance (TANCDA) policy brief on the inclusion of NCDs on universal health coverage in Tanzania | Tanzania | March 2021 | The document recommends various actions to ensure access to quality NCD care, appropriate health financing strategies, multisectoral collaboration on prevention and control of NCDs, and health awareness creation during the COVID-19 pandemic. |
| 16. Policy ²⁷ | Kenya Emergency Medical Care Policy 2020 – 2030 | Kenya | July 2021 | This document was developed to provide guidance including necessary structures, resources, regulations and standards needed to establish an emergency medical care system in Kenya. It aims to reduce morbidity and mortality caused by medical emergencies, including those emergency conditions caused by NCDs. |
| 17. National framework ²⁸ | National Strategic Plan for the Prevention and Control of Non-Communicable Disease 2021/22 - 2025/26 | Kenya | August 2021 | The document provides direction on strengthening sectoral and multi-sectoral coordination, leadership and governance for prevention and response to NCDs at all levels. It highlights the importance of sustainable NCD management, promotion of NCD research, and strengthening surveillance, monitoring and evaluation of NCDs to inform decision making and health planning. |