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PEN-PLUS – A REGIONAL STRATEGY TO ADDRESS SEVERE NONCOMMUNICABLE DISEASES AT FIRST-LEVEL REFERRAL HEALTH FACILITIES

Report of the Secretariat

EXECUTIVE SUMMARY

1. Africa has a high burden of noncommunicable diseases (NCDs). Health care services for severe NCDs such as type 1 diabetes, advanced rheumatic heart disease, and sickle cell disease, are usually provided at tertiary facilities in most countries. This exacerbates health inequities and contributes to the high premature mortality from NCDs in the Region.

2. Since 2008, WHO has been providing support to Member States to implement the WHO Package of Essential NCD interventions for primary health care in low-resource settings (WHO PEN). The aim is to provide decentralized and integrated management of common NCDs at the primary health care level as well as strengthen capacity for referrals.

3. As part of the district health system, district hospitals are the main referral facility at the district level and provide administrative oversight to first-level care facilities and other health institutions within the district. Strengthening capacity for management of severe NCDs at this level of health service delivery is important for reducing premature mortality from NCDs.

4. The regional strategy aims to address the burden of severe NCDs among rural and unreached populations through decentralized, integrated outpatient services in first-level referral health facilities. It offers solutions to bridging the gap in access to care for severe NCDs in addition to strengthening the implementation of WHO PEN. The guiding principles include a whole-of-government approach, multisectoral collaboration, universal health coverage and partnerships.

5. This strategy proposes priority interventions covering training and mentoring of staff, resource mobilization, multisectoral action, service delivery, data collection, innovation, and research. It also proposes approaches to improve efficiency by providing standardized protocol-based management of severe NCDs. Mid- and end-term reviews will be conducted to monitor implementation of the strategy.

6. The Regional Committee is invited to consider and adopt this strategy.

CONTENTS

INTRODUCTION

1. Globally, noncommunicable diseases are the main cause of morbidity and mortality, accounting for 71% of global mortality. In the African Region, the proportion of mortality due to NCDs ranges from 27% to 88%.[1] Compared to other regions, the African Region is already battling a high burden of communicable diseases and this double burden has a negative impact on the capacity to respond and allocate resources to NCDs due to competing demands on limited resources.[2]

2. Cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases account for 70% of the burden of NCDs in the Region.[3] The Region also has a high burden of severe NCDs, which are those that result in significant loss of healthy life for affected individuals due to early and high levels of disability and mortality in the absence of treatment. These include sickle cell disease, type 1 diabetes mellitus, insulin-dependent type 2 diabetes, advanced rheumatic heart disease, cardiomyopathy, severe hypertension and moderate to severe persistent asthma.

3. While there has been progress in the prevention and care of communicable diseases,[4] primary health care facilities, commonly known as "health centres", which are the first point of contact between the population and the health system, do not have capacity, basic equipment and medicines to manage chronic and severe NCDs.[5] Within the district or local health system, the first-level referral facilities which are the district hospitals or referral general hospitals, are not usually able to manage chronic and severe NCDs.[6]

4. The WHO Package of Essential NCD interventions for primary health care in low-resource settings (WHO PEN) supports the integrated detection, diagnosis, treatment, and care of NCDs in primary health care facilities using evidence-based algorithms and protocols for hypertension, type 2 diabetes, chronic respiratory diseases, and the referral of patients with suspected breast and cervical cancer. The regional framework for integrating essential NCD services in primary health care[7] which was adopted in 2017, provides additional guidance to Member States on decentralized care for NCDs and this framework complements the WHO PEN. Thus far, 21 Member States have adapted and have been implementing PEN.[4] However, there is a gap in access to prevention and care for patients with chronic and severe NCDs.[8]

5. Services for managing these conditions are available at the first and second referral levels as specialized facilities. This limits access to diagnosis and appropriate care for most rural, periurban and poor patients living with these conditions, thus contributing to the widening of the access gap and the burden of premature mortality from NCDs.

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1 WHO. Global Health Observatory. https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/ncd-mortality

2 Temu, Florence et al. “Integration of non-communicable diseases in health care: tackling the double burden of disease in African settings.” The Pan African medical journal vol. 18 202. 5 Jul. 2014, doi:10.11604/pamj.2014.18.202.4086

3 Gouda HN, Charlson F, Sorsdahl K, et al. Burden of non-communicable diseases in sub-Saharan Africa, 1990–2017: results from the Global Burden of Disease Study 2017. Lancet Glob Health. 2019; 7: e1375-e1387

4 WHO, Atlas of African health statistics 2016. Brazzaville. World Health Organization 2016.

5 World Health Organization. Regional Committee for Africa. Progress Report on The Regional Framework for Integrating Essential Noncommunicable Disease Services In Primary Health Care. AFR/RC71/INF.DOC/4

6 Boudreaux C, Barango P, Alder A, et al. Addressing Severe Chronic NCDs Across Africa: Measuring Demand for the Package of Essential Noncommunicable Disease Interventions-Plus (PEN-Plus). Health Policy and Planning. 2022; 37: 452-60

7 World Health Organization. Regional Committee for Africa. Regional Framework for Integrating Essential Noncommunicable Disease Services in Primary Health Care. AFR/RC67/12

8 Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2019 global survey. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.

SITUATION ANALYSIS AND JUSTIFICATION

Situation analysis

6. Mortality from NCDs has increased over the years in the African Region. The share of NCDs in total mortality increased from 24.2% of total deaths in 2000 to 37.1% in 2019.[9] Weak capacity for early diagnosis, management and care of NCDs contributes to this rising mortality.

7. The Region has a high burden of severe NCDs which, if left unaddressed, will worsen health inequities and undermine the ability of Member States to attain SDG 3 target 4 on reducing premature mortality from NCDs. Here below is the status of some of these conditions:

(a) The number of people living with diabetes was 19 million in 2019 and is expected to reach 47 million by 2045, representing the highest projected rise across all WHO regions.[10] Type 1 diabetes, primarily found in children and adolescents, has an estimated prevalence of 406 440 cases across sub-Saharan Africa.[11] As with type 2 diabetes, poorly controlled type 1 diabetes can lead to significant microvascular and macrovascular complications.[12]

(b) Although steady improvements in disability-adjusted life years attributable to rheumatic heart disease have occurred since 1990 in nearly all world regions, age-standardized prevalence rates continue to increase in the African Region.[13]

(c) More than 66% of the 120 million people with sickle cell disease globally live in Africa.[14] In most African countries, it is estimated that up to 90% of children with the disorder die before reaching their fifth birthday.[15]

8. Only 36% of countries in the African Region reported availability of essential medicines for NCDs in the public sector.[16] The functionality of district hospitals has not been able to meet the challenge of longitudinal care for patients with chronic and severe NCDs despite their human resource capacity.[17] One study showed that only 25% of district hospitals in the United Republic of Tanzania provided access to NCD-specific training for providers.[18] Thus far, 70% of Member States have policies in place to support decentralization of chronic care of NCDs down to first-level referral facilities. A study from Kenya reported that only one third of first-level referral facilities had a blood chemistry analyser, and less than half of hospitals had ultrasound capacity,[19] whereas such equipment is important in ensuring quality of care for NCDs.

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9 World Health Organization. Global health Observatory. Cause specific mortality 2000-2019. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death

10 IDF International Diabetes Atlas. 2019 Edition.

11 IHME (Institute for Health Metrics and Evaluation). Global Burden of Disease 2017 Data Visualizations. http://viz.healthmetricsandevaluation.org/gbd-compare/.

12 Diagnosis and management of type 2 diabetes (HEARTS-D). Geneva]: World Health Organization; 2020 (WHO/UCN/NCD/20.1). Licence: CC BY-NC-SA 3.0 IGO

13 Coates, MM, Sliwa K, Watkins DA. et al. An investment case for the prevention and management of rheumatic heart disease in the African Union 2021–30: a modelling study. Lancet Global Heal 2021; 9: 957-66

14 Z.Y. Aliyu, G.J. Kato, Jt. Taylor, A. Babadoko, A.I. Mamman, V.R. Gordeuk, et al. Sickle cell disease and pulmonary hypertension in Africa: A global perspective and review of epidemiology, pathophysiology, and management. American Journal of Hematology, 83 (1) (2008), pp. 63-70, 10.1002/ajh.21057 Epub 2007/10/03. PubMed PMID: 17910044

15 McGann PT. Time to invest in sickle cell anemia as a global health priority. Pediatrics. 2016;137: e20160348. doi: 10.1542/peds.2016-0348

16 Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2019 global survey. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.

17 Gupta N, Coates MM, Bekele A et al.2020. Availability of equipment and medications for non-communicable diseases and injuries at public first-referral level hospitals: a cross-sectional analysis of service provision assessments in eight low-income countries. BMJ Open 10: e038842.

18 Peck, R., et al. "Preparedness of Tanzanian health facilities for outpatient primary care of hypertension and diabetes: A cross-sectional survey." The Lancet Global Health. 2014. 2: e285-e292.

19 Institute for Health Metrics and Evaluation (IHME). Health Service Provision in Kenya: Assessing Facility Capacity, Costs of Care, and Patient Perspectives. Seattle, WA: IHME, 2014.

Justification

9. The PEN-Plus strategy builds on and complements WHO PEN at primary health care level. The strategy will bridge the access gap in treatment and care of patients with chronic and severe NCDs and contribute significantly to reduction in premature mortality from NCDs.

10. The PEN-Plus strategy has been successfully implemented and scaled up in Liberia, Malawi and Rwanda,[20] with evidence of significant improvement in the number of patients accessing services in these countries.[21]

11. The PEN-Plus strategy will strengthen the management and care of chronic and severe NCDs at district hospitals by ensuring that the capacity, infrastructure, and logistics for care are available at this level of service delivery. It provides health-care workers with the shared competencies needed to deliver care for groups of related conditions, through the development of protocols, ensuring the availability of the necessary resources and mentoring for standardized quality care.[22]

THE REGIONAL STRATEGY

Aim, objectives, and targets

12. **Aim**:

To provide essential NCD services to alleviate the burden of unaddressed, severe NCDs among populations through decentralized, outpatient services and integrated case management in the African Region.

13. **Objectives**:

(a) To strengthen the availability of, and access to quality care for severe NCDs in first-level referral facilities through targeted health sector policies that foster the PEN-Plus approach;

(b) To improve and recognize the capacity of the health workforce, especially at district hospitals, to provide integrated care for severe NCDs;

(c) To improve the availability of essential medicines and equipment for the management of severe NCDs at district hospitals.

(d) To support monitoring and evaluation and research on PEN-Plus interventions.

14. **Targets and Milestones:**

Targets by 2030

(a) Standardized protocol-based management approaches for severe NCDs and their principles integrated in the health policies and strategies of 75% of Member States.

(b) 70% of Member States have included national standardized protocol-based management approaches for severe NCDs in operational plans and have begun rolling out services to district hospitals.

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[20] Eberly LA, Rusangwa C, Ng'ang'a L, et al. Cost of integrated chronic care for severe noncommunicable diseases at district hospitals in rural Rwanda. BMJ Global Health 2019; 4: 1–7.

[21] United Republic of Tanzania, Zambia, Uganda, Eswatini, Mozambique, Zambia, Zimbabwe, Kenya, Sierra Leone, Ethiopia

[22] Niyonsenga, SP, Park PH, Ngoga G, et al. Implementation outcomes of national decentralization of integrated outpatient services for severe non-communicable diseases to district hospitals in Rwanda. Trop Med Int Health 2021; 26: 953-61.

(c) 70% of Member States have established national training programmes which include standardized protocol-based management approaches for severe NCDs in the training curriculum of mid-level health-care workers, thus maintaining a skilled workforce.

(d) 70% of Member States have essential medicines and basic technologies for the management of severe NCDs in district hospitals.

(e) All Member States have systems for collecting mortality data on a routine basis.

Milestones by 2025

(a) 50% of Member States have adapted and integrated standardized protocol-based management approaches for severe NCDs and their principles into their health policies, strategies, and plans.

(b) 50% of Member States have formulated national operational plans for protocol-based management of chronic and severe NCDs and have begun rolling out services to district hospitals.

(c) 50% of Member States have established national training programmes which include standardized protocol-based management of chronic and severe NCDs in the training curriculum of mid-level health-care workers, thus maintaining a skilled workforce.

(d) 50% of Member States have essential medicines and basic technologies for management of severe NCDs in district hospitals.

(e) At least 60% of Member States have systems for collecting mortality data on a routine basis.

Milestones by 2028

(a) 60% of Member States have adapted and integrated standardized protocol-based management approaches for severe NCDs and their principles into their national NCD health policies and strategies.

(b) 65% of Member States have formulated national operational plans for protocol-based management of chronic and severe NCDs and have begun rolling out services to district hospitals.

(c) 65% of Member States have established national training programmes which include standardized protocol-based management of chronic and severe NCDs in the training curriculum of mid-level health-care workers so as to sustain the PEN-Plus workforce.

(d) 60% of Member States have essential medicines and basic technologies for management of severe NCDs in district hospitals.

(e) 60% of Member States have systems for collecting mortality data on a routine basis.

Guiding principles

15. **Government leadership**: The ministry of health will provide leadership and take decisions on the provision of services for chronic and severe NCDs at district hospitals and advocate for them with all stakeholders.

16. **Universal health coverage**: Deliberate efforts will be made to provide access to quality NCD services that are appropriate, accessible, and affordable for all people, particularly those living in poor and disadvantaged communities, with financial protection targeting poor, rural populations.

17. **Equity:** Implementation of PEN-Plus will be based on promoting human rights, gender and equity in accessing health care and other essential social services that impact health.

18. **Evidence-based approaches and cost-effective interventions**: Interventions need to be based on the latest available evidence and best practices while ensuring cost-effectiveness.

19. **Resource efficiency** will be promoted, by supporting mid-level providers at district hospitals to grow an interest and be retained in clinics providing PEN-Plus interventions; nurses, clinical officers, and physician assistants should have a recognized career track to become specialized in NCD care at secondary-level facilities.

20. **Patient-centred approaches**: A patient-centred approach will be promoted in the organization of integrated service delivery at district hospitals.

21. **Collaboration between the public and private sectors**: Collaboration between the public and private sectors and the nongovernmental organization sector will be promoted in order to strengthen delivery of NCD services across the district health system.

22. **Multisectoral and multidisciplinary approaches:** Broad partnerships, multisectoral and multidisciplinary coordination mechanisms and integrated approaches are critical and will be promoted.

Priority interventions

23. **Assessing system readiness, capacity and needs**: Guided by this strategy, Member States should conduct national needs assessments through a multisectoral and multidisciplinary consultative process to appraise existing capacity, identify prevailing policy and guideline barriers that limit the availability of PEN-Plus services at district hospitals as well as identify opportunities for efficient interventions and define requisite resources to implement priority activities.

24. **Including PEN-Plus interventions in national operational plans**: Based on the needs assessment, Member States should include PEN-Plus interventions in national operational plans at district hospitals. The plans should be aligned with the current national health sector strategic plan. The planning process should be inclusive of a broad base of policy-makers, health care providers and stakeholders from across the prevention, treatment, and care spectrum.

25. **Mobilizing resources:** Member States should develop resource mobilization plans to guide implementation of a national scale-up of PEN-Plus. Strategic partnerships with a focus on collective approaches to technical expertise and sharing of resources in a sustainable manner will be promoted.

26. **Integrating service delivery at district hospitals**: The proposed PEN-Plus interventions should be fully integrated across other services provided at district hospitals, including emergency care, women's, children's, and adolescent health. This should be complemented by strengthening the capacity of the lower levels of the health system for prevention, early detection, diagnosis, treatment, and referral.

27. **Strengthening capacity to provide palliative care**: Member States should strengthen the capacity of district facilities to provide end-of-life care and pain relief, as well as psychological support, family support and other related services. Where possible, home-based models of palliative care should be integrated into primary health care with the district facilities providing mentoring and oversight to primary health care facilities.

28. **Establishing training and mentorship programmes for mid-level health-care providers**: Emphasis should be placed on training and mentorship of mid-level providers who will be leading

care delivery at facilities offering PEN-Plus. Integrating PEN-Plus into national training for mid-level providers at district hospitals and incorporating PEN-Plus in the training curriculum of mid-level health-care workers will maintain a workforce skilled in delivering PEN-Plus interventions.

29. **Strengthening referral pathways and people-centric linkages throughout the continuum of care**: Member States should minimize delays in accessing diagnostic and treatment services by patients with chronic and severe NCDs through establishing and streamlining care pathways. Effective referral networks linking different levels of facilities will improve the continuity of care as well as strengthen patient navigation programmes, which have proven to be effective in improving service utilization. They are also important for linking patients to other social support programmes, such as transport and housing during treatment.

30. **Ensuring availability of essential medicines and basic equipment for the management of chronic and severe NCDs at district hospitals**: Strengthen existing supply chains to be inclusive of essential medicines and equipment for the management of chronic and severe NCDs at secondary-level facilities.

31. **Promoting research, innovation and development**. Member States should develop research plans to generate evidence and fill knowledge and implementation gaps in the management of chronic and severe NCDs. This should be integrated into the national research priority plan and should include the review and translation of evidence for easier adoption by policy-makers. The efforts of Member States will be supported and facilitated by WHO and partners. Research findings on new therapies should be recommended for wider use in the Region.

32. **Strengthening strategic information and surveillance**. Surveillance, strategic information, and knowledge management play pivotal roles in effective management of chronic and severe NCDs. Building on the lessons from the COVID-19 pandemic, Member States should expand the use of digital technologies for prevention, treatment, and care as well as for surveillance and monitoring. Countries should strengthen integration of key indicators into routine data collection, including monitoring of trends in mortality and morbidity of chronic and severe NCDs.

Roles and responsibilities:

33. **Member States should:**

(a) Develop, integrate in their national health policy and strategy (NHPS) and implement, comprehensive national, integrated and standardized protocol-based programmes for management of chronic and severe NCDs, by ensuring availability of essential medicines, technologies and diagnostics needed for management of severe and chronic NCDs at district hospitals, based on the outcomes of the situation analysis of policy, infrastructure and human resource barriers identified.

(b) Engage non-publicly-funded facilities through their associations and other platforms to ensure that interventions are offered to populations accessing non-public hospitals, including skilling through continuing education requirements for the relevant cadres.

(c) Mobilize and allocate additional resources for standardized and integrated protocol-based programmes for management of chronic and severe NCDs, ensuring that their implementation strengthens and complements WHO PEN.

(d) Establish mentorship programmes to strengthen standardized and integrated protocol-based management of chronic NCDs to ensure that the knowledge and skills of trained health-care workers are maintained.

(e) Develop management tools and protocols on integrated management of severe NCDs including sickle cell disease, rheumatic heart disease and type 1 diabetes mellitus at district hospitals.

(f) Integrate surveillance within the national health information system and invest in digital health platforms for scaling up programmes.

(g) Collaborate with partners to undertake basic and applied research in the area of NCD management.

34. **WHO and partners should:**

(a) Mobilize the international community to support the prevention and effective management of severe NCDs and facilitate effective linkages, collaboration and coordination among partners and stakeholders.

(b) Advocate for increased resource allocation to support implementation of PEN-Plus.

(c) Support Member States to improve the affordability and availability of essential medicines, diagnostics and monitoring devices for chronic and severe NCDs.

(d) Promote and support partnerships to improve the training and expertise of health personnel and to undertake research.

Resource implications

35. The existing level of funding allocated to NCD prevention and control is generally insufficient. Additional internal and external resources will be required to support the implementation of this strategy. Specifically, there is need to ensure the availability of trained human resources at district hospitals along with the provision of medicines and equipment.

Monitoring and evaluation

36. Member States should integrate monitoring and evaluation in programme cycles; develop logical frameworks linking inputs, processes, outputs, and outcomes, along with programme performance indicators. Continuous monitoring and evaluation are crucial to the success of the implementation of PEN-Plus and should be integrated into existing systems.

37. Indicators for monitoring progress will include availability and integration of PEN-Plus and its principles into national NCD health policies and strategies as well as the development and implementation at national scale, of PEN-Plus guidelines and protocols. Outcome and impact indicators will include reduction of mortality, morbidity, and increased survival of patients with these conditions.

38. Implementation of the strategy will be evaluated using data from existing information systems and national surveys. A mid-term review will be conducted in 2025 and reported to the Regional Committee. An end-term report will be presented in 2029.

CONCLUSION

39. There is need to accelerate progress in reducing NCD morbidity and mortality in the African Region. Existing programmes should be reviewed to identify where and how they can be made more effective. Meanwhile, as the burden of NCDs increases in all age groups, measures to capacitate care teams in district hospitals are needed, while ensuring availability of the necessary resources and standardized quality care.

40. This strategy is a reference tool for policymakers and health care managers, who can use it to facilitate the implementation of interventions to reduce the burden of NCDs and ensure prevention, care and support at all levels. This will result in improved quality of life and life expectancy of affected individuals and contribute towards the achievement of SDG 3 target 4, to reduce by one third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being, as well as target 8 on universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

41. The Regional Committee is invited to consider and adopt the proposed strategy.