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| **Economic Commission for Africa** | **African Union Commission** |

**Conference of African Ministers**
**Responsible for Civil Registration**
Sixth session
Expert segment

Addis Ababa, 24–28 October 2022
Item 5 (b) of the provisional agenda for the expert segment**
**Assessing progress in the development of civil registration and vital statistics systems in the region: how can Africa accelerate progress in meeting regional and international commitments?**
**Death registration and recording causes of death**

# Death registration and availability of information on causes of death in Africa

## I.    Background

1.      Currently, the majority of deaths that occur in Africa remain unregistered. This fact affects the ability of African countries to understand their population dynamics and adequately plan for them. It also affects their ability to provide legal identity and citizenship, especially to those whose parents are deceased, and to easily update administrative registers, such as the national identity management system, the electoral roll, the population register and various social security and welfare registers.

2.      Countries also need high-quality and timely mortality data (data on deaths and causes of death) in order to inform policy and planning, resource allocation, assessments of health situations and trends, and the tracking of progress in and the performance of the health sector. Mortality data are also needed for identifying research priorities, detecting disease outbreaks through the routine use of such data in disease surveillance and assessing the impact of responses to health emergencies.

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3.      Several Sustainable Development Goals on health or related to health require information on deaths and causes of death. The lack of such information jeopardizes the effectiveness of health interventions, as well as the efforts to monitor and enhance the continent's progress towards achieving the Goals.

4.      Mortality data stem from different sources, including: civil registration and vital statistics systems, which record the occurrence of vital events, such as births, deaths, marriages and divorces; routine health information systems, which collect and report data on people seeking health care; and maternal and perinatal death surveillance and response systems, which collect mortality data on adverse pregnancy outcomes, including maternal deaths, loss of pregnancy, stillbirths and newborn deaths.

5.      Mortality data can also be obtained from household surveys that include mortality modules, such as population censuses and demographic and health surveys. Sentinel surveillance systems, such as health and demographic surveillance systems, child health and mortality prevention surveillance systems, sample vital registration systems and countrywide mortality surveillance for action systems, are also useful sources of mortality data and provide longitudinal demographic data on deaths. Among these sources, the civil registration and vital statistics system is the best suited for registering deaths and compiling and disseminating mortality statistics.

6.      African Governments therefore have a fundamental responsibility to develop or strengthen these various systems and capacities for improving the availability, quality and use of mortality data. Developing or strengthening such systems and capacities requires country leadership, substantial investments, innovations and collaboration with development partners and national institutes.

## II.      Issues and challenges

7.      Access to updated data on the coverage of death registration remains a challenge in Africa. According to the Statistics Division of the United Nations, only 17 countries in Africa (31 per cent) have data on the coverage of death registration,[1] suggesting that the other 37 countries have not been able to count or register their dead. Another challenge is obtaining reliable population mortality statistics, especially on causes of death, as most African countries do not routinely collect data on causes of death in sufficient quantity and quality or generate even the most basic statistics on deaths and causes of death.

8.      In 2021, the World Health Organization (WHO) released a report in which it highlighted the substantial challenges faced by countries in the WHO African Region[2] in generating mortality data and statistics.[3] According to the report, only 4 of the 47 countries in the WHO African Region can, on a continuous basis, register all deaths and their causes. The capacity to register all deaths and their causes was found to be limited in 14 countries. The capacity to register all deaths and to register the causes of death was found to be almost non-existent in 32 (68 per cent) and 35 (75 per cent) of the countries, respectively (see figure I).

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1 United    Nations,    Statistics    Division,    Demographic    and    Social    Statistics.    Available    at https://unstats.un.org/unsd/demographic-social/crvs/ (accessed on 29 August 2022).
2 The WHO African Region comprises 47 countries, excluding Djibouti, Egypt, Libya, Morocco, Somalia, the Sudan and Tunisia, which are in the WHO Eastern Mediterranean Region.
3 WHO, *SCORE for Health Data Technical Package: Global Report on Health Data Systems and Capacity, 2020* (Geneva, 2021).

Figure I
**Status of civil registration and vital statistics and of information on deaths and causes of death in the WHO African Region**
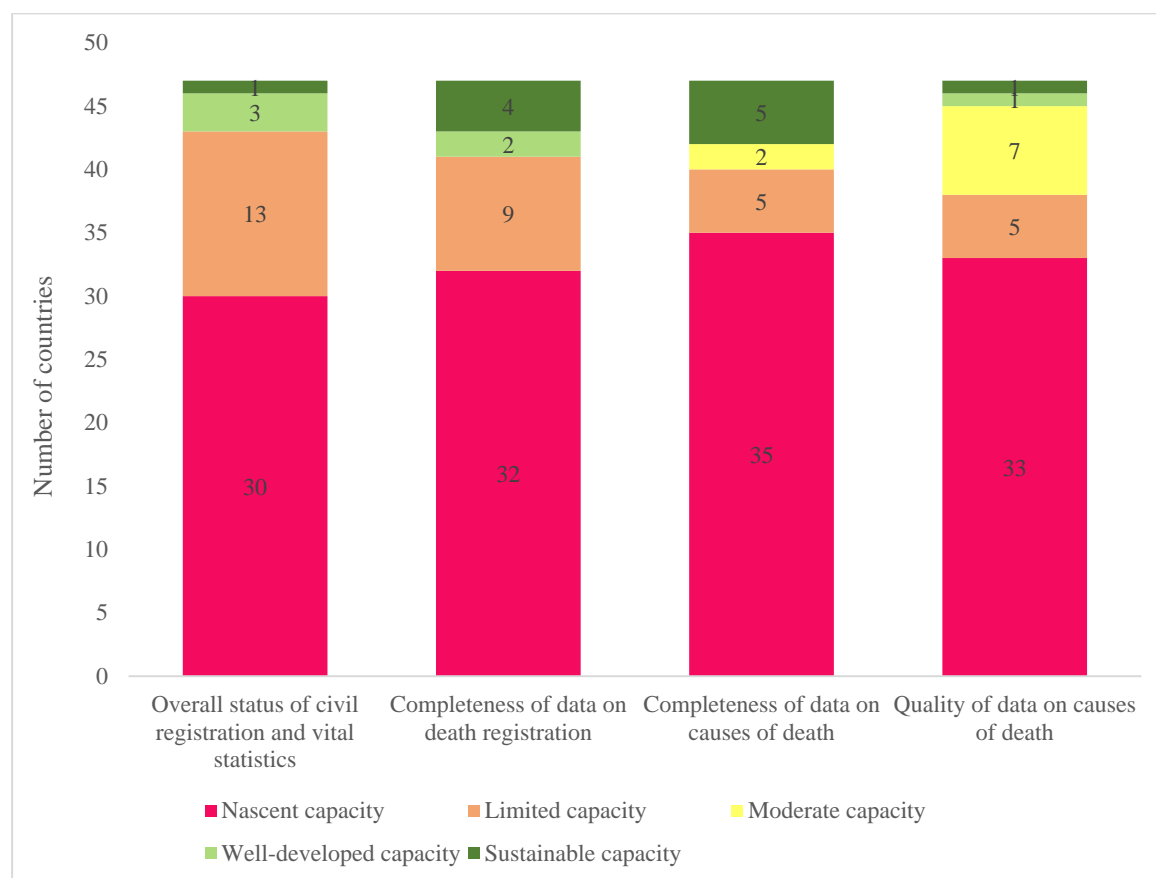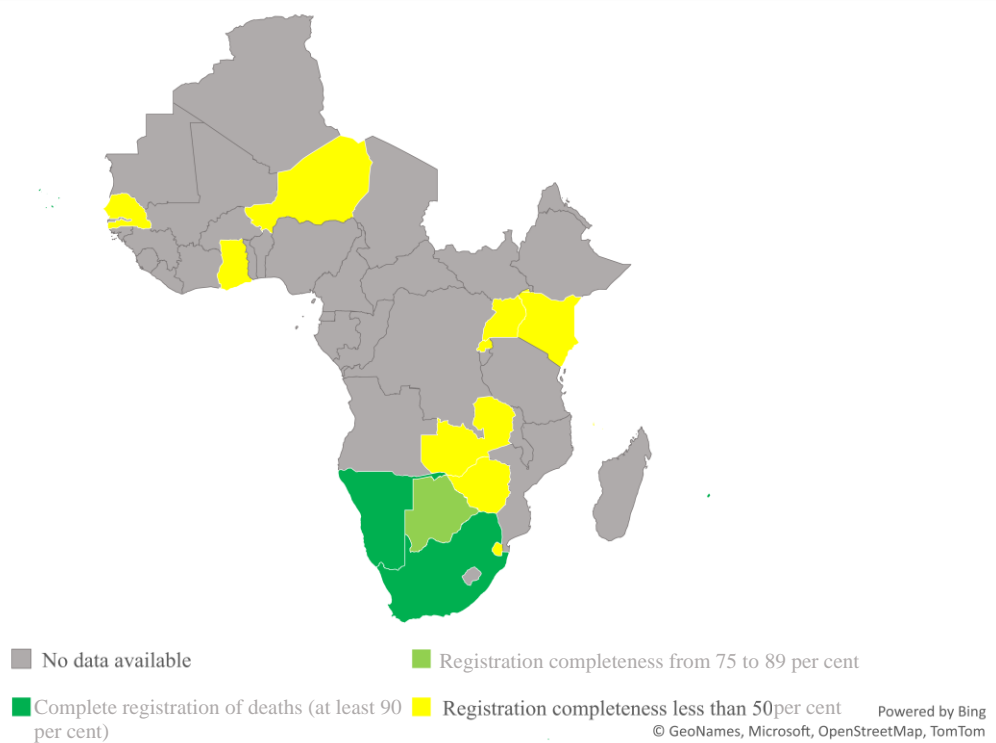


*Source*: WHO, *SCORE for Health Data Technical Package: Global Report on Health Data Systems and Capacity, 2020* (Geneva, 2021).

9.      In its report, WHO further notes that death registration was complete (meaning that at least 90 per cent of deaths were registered) in only five countries (Cabo Verde, Mauritius, Namibia, Seychelles and South Africa) and that two thirds of the countries had no information on death registration (see figure II). There were also no standardized systems to medically certify the causes of death in three quarters of the countries (see figure III), and in countries where such information was available, the quality of the diagnosis of causes of death was very poor. Similarly, the Centers for Disease Control and Prevention of the United States of America suggests in a report that only 7 per cent of deaths in Africa overall, and less than 3 per cent in sub-Saharan Africa, are registered.[4]
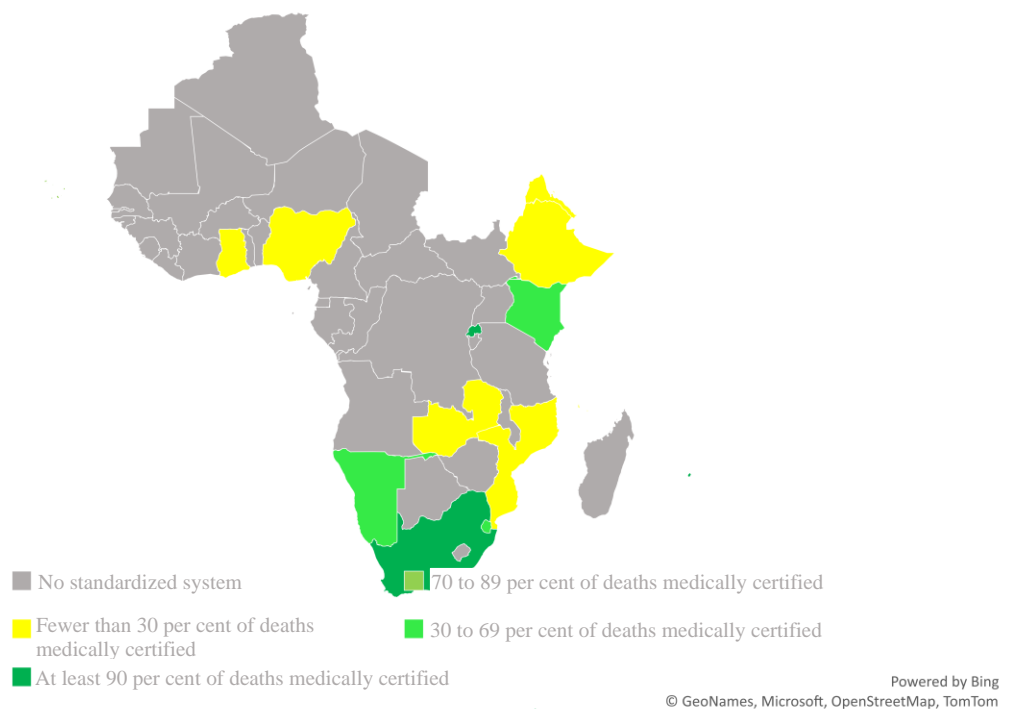
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[4] Centers for Disease Control and Prevention, "Global program for civil registration and vital statistics (CRVS) improvement", 6 November 2015.

Figure II
**Completeness of death registration in the WHO African Region**



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| ☐ No data available | ☐ Registration completeness from 75 to 89 per cent |
| ☐ Complete registration of deaths (at least 90 per cent) | ☐ Registration completeness less than 50 per cent |

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*Source*: WHO, *SCORE for Health Data Technical Package*.

Figure III
**Certification of causes of death in the WHO African Region**



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| ☐ No standardized system | ☐ 70 to 89 per cent of deaths medically certified |
| ☐ Fewer than 30 per cent of deaths medically certified | ☐ 30 to 69 per cent of deaths medically certified |
| ☐ At least 90 per cent of deaths medically certified | |

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*Source: WHO, SCORE for Health Data Technical Package.*

10.     The significant gaps in the systems for generating mortality data have become much clearer during the ongoing coronavirus disease (COVID-19) pandemic. In a recent report on the impact of COVID-19 in the WHO African Region, it was shown that only 155,248 (35 per cent) of the estimated 439,500 deaths that were caused by COVID-19 occurring between January 2020 and December 2021 were reported, that is to say, close to two thirds (65 per cent) of those deaths were not reported.[5] Moreover, given the limited knowledge and skills in the medical certification of causes of death in Africa, the accuracy of diagnoses of deaths caused by COVID-19 in Africa should be considered highly uncertain.

11.     These are worrying statistics, as they mean that African countries cannot provide timely insights into when, where and why people die and therefore cannot put in place appropriate interventions to ensure the health of the population. It also seems that African countries learned few or no lessons from the Ebola virus disease outbreak in West Africa in 2015 and therefore did not prepare the systems to adequately generate mortality data and to use such data to support decision-making.

12.     There are a number of challenges to generating or reporting data for death registration and mortality statistics in Africa. In general, they include challenges related to civil registration and vital statistics governance, data generation, analysis and information use. The governance-related challenges, being a basic prerequisite for a well-functioning system, are perhaps the most important. They include the lack of a strict legal requirement in many African countries to report a death or obtain permission to dispose of a dead body, the limited central or leadership role of the health sector – responsible for generating most of the information needed for death registration and for generating mortality statistics – in the civil registration and vital statistics systems, and the lack of comprehensive and up-to-date strategic plans, policies and data architecture frameworks[6] for mortality data.

13.     The governance-related challenges also include limited investments in systems for generating mortality data, the lack of a skilled and equitably distributed workforce, in particular at the community level, and a limited appreciation of the importance of mortality data for death registration and for the generation of vital statistics, resulting in low demand for vital data.

14.     In most countries, systems for the generation, storage and transmission of mortality data are still paper based, which is cumbersome and slow and increases the burden of reporting on health workers and community volunteers. The systems are generally fragmented: countries and partners do not take advantage of integrated or harmonized systems, such as the district health information software "DHIS2", to centralize and speed up the transmission of data. Furthermore, the insufficient number of health workers with the knowledge and skills needed to determine[7] and code[8] causes of death is limiting the ability of countries in Africa to generate high-quality mortality data and statistics.

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[5] Joseph Waogodo Cabore and others, "COVID-19 in the 47 countries of the WHO African Region: a modelling analysis of past trends and future patterns", *The Lancet Global Health*, vol. 10, No. 8 (1 August 2022).

[6] A data architecture framework defines sources of data; standards, processes and responsibilities for data collection, storage and transmission; schedules for data collection; and the means by which data are shared.

[7] Causes of death are determined through medical certification (for deaths that occur in health-care facilities) and verbal autopsy systems (for deaths that occur in the communities).

[8] Causes of death are coded on the basis of the eleventh revision of the International Classification of Diseases.

15.     There are also specific challenges associated with each of the systems for generating mortality data, which affect the availability and quality of the data. The routine health information system, the largest and most important source of health data in any country, is often beset with data quality problems, such as incompleteness and inconsistencies. Household surveys that have mortality modules are irregularly conducted, and their results have high uncertainties at the subnational level owing to their small sample size (sampling for these population surveys is done to provide national estimates). Coverage of other sample-based systems currently in use in Africa, such as countrywide mortality surveillance for action systems, child health and mortality prevention surveillance systems and maternal and perinatal death surveillance and response systems, is too small to generate nationally representative statistics, and data from such systems are rarely transmitted to civil registration offices or national statistical offices.

16.     Furthermore, across Africa, systems and the capacity to analyse mortality data are limited, in particular regarding the analysis of mortality data that have been coded using the International Statistical Classification of Diseases and Related Health Problems. Further compounding the capacity limitations is the fact that little effort is made across the continent to involve national academic institutes in institutionalizing the knowledge and skills needed to analyse mortality data. Lastly, the use of mortality data and statistics in key decisions remains limited in Africa, which perhaps explains the limited appreciation of the importance of mortality information and the lack of effort made to improve the availability and quality of such data in Africa.

## III.     Proposed actions for Governments to improve the availability and quality of mortality data

17.     *Review and update legal frameworks to improve death (and birth) registration and statistics.* Governments are encouraged to develop or enforce policies or laws that make it mandatory to report deaths and causes of death; to ensure that no burial takes place without a permit; and to mandate medical practitioners to determine the cause of every death and issue a medical certificate in that regard.

18.     *Enhance the central role of health ministries in the management of civil registration and vital statistics systems.* The health sector should play a leading or central role in managing the civil registration and vital statistics system. This is particularly important for several reasons: health ministries are frequently in contact with the population through their network of facility- and community-based health-care delivery systems; they are in the best position to assign a cause of death; and they are in charge of managing the routine health information system, which is the largest source of mortality data in any country. Currently, the proportion of deaths occurring in health-care facilities in Africa is unknown, but estimates suggest that about 20 per cent of deaths in low-income countries occur in health-care facilities.[9] Even when deaths occur at home, in the majority of cases, there is an interaction with the health sector at some point during the illness, and information on the cause of death can be deciphered from health facility archives. Moreover, health workers already play a leading role in collecting mortality data and reporting the data for input in the national health information system and in reporting such data to civil registration offices. The use of hospitals as centres for death (and birth) registration presents a great opportunity to ensure that every birth and death is registered.

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[9] Tim Adair, "Who dies where? Estimating the percentage of deaths that occur at home", *BMJ Global Health*, vol. 6 (19 August 2021).

19.      *Ensure that strategic plans, policies and data architecture frameworks are up to date.* Countries should ensure that strategic plans for improving systems and capacities for mortality data and statistics are up to date and comprehensive and have been developed in collaboration with key ministries and partners. Such strategic documents provide an overarching framework for improving mortality data and statistics and facilitate their use in decision-making.

20.      *Enhance investments in civil registration and vital statistics systems.* The fact that investments in civil registration and vital statistics systems have been limited has hampered the availability and quality of mortality data and statistics. Countries should therefore put in place sustainable mechanisms, for example, through the mobilization of domestic resources, to ensure that there is sufficient funding for activities involving civil registration and vital statistics.

21.      *Ensure that work on mortality data by partners is harmonized and aligned with country priorities.* A number of partners have invested significant resources in setting up systems for generating mortality data, which can be leveraged by countries. However, these efforts and resources are currently fragmented, poorly coordinated by Governments and not adequately aligned with the data needs of countries. Harmonizing the efforts and resources of these partners and ensuring that their activities are country-led and country-owned would be a significant step towards building sustainable systems for mortality information in Africa.

22.      *Involve national institutes in the generation, analysis and promotion of the use of mortality data.* There are a number of advantages to and opportunities for involving national academic institutes in efforts to improve mortality data and statistics, as such institutes are a rich source of knowledge and skills and can therefore provide technical support and guidance. Academic institutes can train students on specific mortality modules, undertake mortality systems research and development, lead efforts to develop information and knowledge products and lead dialogues to facilitate the integration of evidence into policies and practices. Countries should also strengthen intersectoral collaboration and coordination. They should therefore identify the governmental and non-governmental sectors in the country that are involved in generating information on deaths and causes of deaths, and bring them together under a single national framework for the effective coordination and alignment of activities and resources.

23.      *Leverage innovations in digital technology.* Countries should digitalize mortality data systems to improve the speed and accuracy of data collection and reporting. Digital systems also reduce the burden of data collection and reporting. This includes taking advantage of "DHIS2", which is used by almost all countries in Africa, to integrate different mortality data systems.

24.      *Implement medical certification and coding of causes of death in all facilities.* WHO has developed an international form for the medical certification of causes of death and has established the International Classification of Diseases as the global standard to improve the quality and comparability of mortality data within and across countries.[10] Countries should implement these tools in all hospitals, train medical practitioners on their use and ensure that they are used to collect and report data on causes of death.

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[10] See https://crvsgateway.info/The-International-Form-of-Medical-Certificate-of-Cause-of-Death~356 and https://icd.who.int/en.

25.     *Implement the verbal autopsy instrument in cases where there is no medical practitioner.* WHO and partners have developed a verbal autopsy tool for ascertaining and attributing the cause of death in cases where there is no medical practitioner, such as in certain communities or primary health-care facilities.[11] The tool has very good psychometric properties, and, in many validation studies, it was considered to be highly accurate in terms of the diagnosis of causes of death.[12] Its accuracy has been further enhanced by the "openVA" software, which runs automated verbal autopsy coding algorithms. Countries should innovatively design systems and community linkages to improve the determination of causes of death through the use of the verbal autopsy system.

26.     *Institutionalize skills for the analysis of mortality data.* Countries should train health workers and staff from national statistical offices to analyse mortality data, including data coded on the basis of the International Classification of Diseases. WHO has recently developed an online tool to analyse mortality data that countries will find useful.[13] Countries should also involve national academic institutes in generating and disseminating knowledge to support decision-making.

27.     *Improve access to mortality data.* When data are used, their availability and quality will often improve. Countries should implement open-access mechanisms, such as national health observatories,[14] to facilitate access to mortality data and increase their use in decision-making. In addition, health ministries and national statistical offices should work together to regularly produce and disseminate mortality statistics and monitor their use in decision-making.

28.     *Establish a network of institutions to improve the reporting of deaths and the determination of causes of death.* Countries should establish innovative cost-effective and sustainable systems for improving civil registration and vital statistics systems. The WHO Regional Office for Africa is proposing a network of collaborative institutions to improve civil registration and vital statistics in Africa. The network leverages existing systems and includes health ministries and ministries of home affairs at its core. It also includes an international institute,[15] national academic or public health institutes[16] and a network of hospitals, primary care facilities and community-owned resource persons.[17] Such a collaborative network involves research on the means of implementation, with documentation and the sharing of best practices and lessons learned, and the use of such mechanisms to continuously improve the system. The

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[11] See www.who.int/standards/classifications/other-classifications/verbal-autopsy-standards-ascertaining-and-attributing- causes- of- death- tool#:~:text=The%20WHO%20verbal%20autopsy%20instrument&text=The%20instrument%20is%20designed%20for,SmartVA%2C%20InterVA%2C%20InSilicoVA.

[12] Awoke Misganaw and others, "Validity of verbal autopsy method to determine causes of death among adults in the urban setting of Ethiopia", *BMC Medical Research Methodology*, vol. 12 (2012); Maria A. Quigley, Danial Chandramohan and Laura C. Rodrigues, "Diagnostic accuracy of physician review, expert algorithms and data-derived algorithms in adult verbal autopsies", *International Journal of Epidemiology*, vol. 28 (1999).

[13] See https://icd.who.int/anacod.

[14] National health observatories are open-access online platforms that enable the centralization and dissemination of health data and information. Information on a similar observatory, called the integrated African Health Observatory, is available here: https://aho.afro.who.int.

[15] The international institute is a centre of excellence for civil registration and vital statistics and the WHO family of international classifications. It can be an institution, such as the South African Medical Research Council, the University of Melbourne or the Swiss Tropical and Public Health Institute, or a partner or international organization, such as WHO.

[16] It is envisaged that the academic institute will be strongly allied with and deeply involved in providing support to the health ministries and ministries of home affairs. The academic institute can be a university or a research institution, while the public health institute can be the health ministry or a reference hospital.

[17] Community-owned resource persons include local administrative leaders, community health workers and cultural or religious leaders.

network is expected to begin with a few health-care facilities and communities and grow incrementally to cover entire countries.

29.     The Conference of African Ministers Responsible for Civil Registration are invited to take note of the challenges described above and adopt the proposed actions to improve civil registration and vital statistics in Africa.

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