



**Fifth Conference of African Ministers Responsible
for Civil Registration**
Lusaka, 14-18 October 2019

CRMC5/2019/21

Assessing and strengthening medicolegal death investigation systems to improve accuracy and completeness of vital statistics

Conference theme

***Innovative Civil Registration and Vital Statistics systems:
Foundation for Legal Identity Management***



APAI-CRVS
Everyone visible in Africa



**Decade for Repositioning
of Civil Registration and
Vital Statistics in Africa
2017-2026**

I. Background

1. Deaths due to external causes, frequently called unnatural deaths, result from intentional (for example, self-harm and assault), unintentional (such as road traffic injuries and drowning), or undetermined intent. The estimated 4.9 million unnatural deaths in 2016 account for 9 per cent of the world's deaths.¹ Mostly preventable, these deaths are often included in global strategies and prevention campaigns. Deaths due to suicide, road traffic injuries, unintentional poisoning, disasters and homicides each have a unique Sustainable Development Goal indicator to promote government investments in order to achieve ambitious reductions in mortality.² The act of focusing on a specific type of unnatural death directs necessary attention and support for mortality prevention and monitoring. However, these targeted investments, notably in the monitoring of unnatural deaths, detract from a holistic strengthening of the medicolegal death investigation system. A strong and functional medicolegal death investigation system that is well linked to the civil registration and vital statistics (CRVS) system is essential for complete and accurate vital statistics on medicolegal deaths.

2. Most countries have legislation to support a coroner or medical examiner in relation to the medicolegal death investigation system in place. The public health side of this system investigates the manner³ and cause of these unnatural deaths, and often conducts special forensic examinations and autopsies as per its system's laws and regulations. The range of unnatural deaths referred to a country's medicolegal death investigation system is broad and traverses many public health system silos. Furthermore, these deaths engage the legal system with its own complexities and, more challenging, a disparate goal. The public health side of this system focuses on counting the dead, the circumstances leading to the death, and determination and certification of cause of death for prevention, treatment, policy and planning. The criminal justice side of this system focuses on manner of death for adjudication and prevention. The death notification, cause of death investigation, certification and reporting of unnatural deaths in the medicolegal death investigation system provides an opportunity to obtain detailed information about the causes, the manner and other circumstances leading to death. Procedures, however, are not always in place to ensure that key information is communicated to the CRVS and public health systems. Coronial and medical examiner systems are often based in justice or corrections ministries, which are not routinely included in CRVS stakeholder engagement processes. Efforts to upgrade the public health side of the medicolegal death investigation system contribute to improving the accuracy and completeness of statistics. Such efforts should not exclude engagement of the criminal justice side, as together they form one system.

3. To improve the completeness in the registration of unnatural deaths and accuracy of the reported causes of death of all unnatural deaths – for monitoring of the country and its progress on the Sustainable Development Goals – a holistic and thorough assessment of the medicolegal death investigation system is recommended as the starting point to strengthen system performance. A comprehensive legal review and business process mapping are tools that engage medicolegal death investigation system stakeholders and support a thorough

¹ WHO Global Health Estimates, available at

https://www.who.int/healthinfo/global_burden_disease/estimates/en/.

² <https://apps.who.int/iris/bitstream/handle/10665/272596/9789241565585-eng.pdf?ua=1>.

³ Manner of death categories listed on the WHO 2016 recommended form for medical certification of cause of death include the following: disease; accident; intentional self-harm; assault; legal intervention; war; could not be determined; pending investigation; and unknown. Manner of death classifies the circumstance of death, whereas the cause of death presents the sequence of medical conditions and injuries resulting in the death. Manner of death is of interest to the criminal justice side of the medicolegal death investigation system as it may influence the adjudication process of unnatural deaths.

assessment of the current system and its legal framework. The results from these assessments can inform medicolegal death investigation system improvements for more efficient system performance and engagement with the CRVS system for complete and accurate statistics.

4. The present report responds to recommendations made in the Nouakchott Declaration from the fourth Conference of African Ministers Responsible for Civil Registration, where the Conference “*Encourages* the African Union Commission to identify best practices within or outside the continent in order to improve the civil registration and vital statistics processes and methods and to share them among African Union member States and the regional economic communities”; and where it “*Invites* African Union member States to put in place appropriate legal frameworks to promote civil registration and vital statistics systems through the involvement of all stakeholders.”⁴

II. Objective of the session

5. A legal review and business process mapping are fundamental starting points to assess a country’s medicolegal death investigation system. Both engage system stakeholders, fostering support for improvements through the assessment process and discussions. A legal review is a comprehensive review of CRVS laws and regulations through the application of a legal toolkit, structured in line with the draft guidelines on the legislative framework for civil registration, vital statistics and identity management.⁵ BPM brings stakeholders together to describe how the system operates, an activity that reveals system complexities, inefficiencies, bottlenecks and relationships plotted on a map. This clear presentation of the system in the form of a map facilitates discussion on potential solutions and the prioritization of improvements. These tools, applied in various Data for Health Initiative countries globally, have been successful in assessing components of the civil registration system and initiating necessary changes. These complementary assessments are recommended to strengthen the legal framework, system and processes fundamental for an effective medicolegal death investigation system that is well linked to the civil registration system to produce complete and accurate vital statistics.

6. The Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics (APAI-CRVS) advises a review of the existing legal and regulatory environment before reforming any component of a CRVS system in order to: (a) promote stakeholder’s understanding of their system’s design, strengths and weaknesses; (b) identify possible improvements to the system that can be made under existing regulatory authority; and (c) reform laws and regulations to achieve best practices and align them with international standards.⁶ The legal toolkit is based on the draft guidelines on the legislative framework mentioned previously and is the recommended tool with extensive guidance on the review of laws for many components of CRVS and identify management systems.

7. A comprehensive legal review can be conducted for all components of CRVS and identity management systems, or a limited review can be conducted for just one or a subset of components, such as the medicolegal death investigation system. Regardless of its breadth, any successful legal review requires endorsement and sponsorship from senior officials in the relevant government agencies. The legal review should be led by a lawyer with strong knowledge of and experience in the constitutional structure, administrative system and

⁴ <http://apai-crvs.org/sites/default/files/public/Nouakchott%20Declaration%20-%20Dec2017-English.pdf>.

⁵ https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Handbooks/crvs/CRVS_GOLF_Final_Draft-E.pdf.

⁶ <http://www.apai-crvs.org/assessment-tools>.

policymaking procedures of the country. Prior to the legal review using the draft guidelines referred to above, system stakeholders should meet to identify the country's priorities and strategic vision, and to identify and compile pertinent existing or draft laws, regulations and standard operating procedures. Once the legal team completes the legal toolkit analysis comparing existing laws in country to international best practice, the stakeholders convene for a recommendations workshop to discuss analysis results and next steps.

8. Outcomes from a legal review vary based on results of the legal analysis, stakeholder investment in systems improvements, and a country's legal system. In response to a legal review conducted in Ghana on the birth and death registration process, stakeholders prioritized the establishment of a memorandum of understanding between the Ghana Health Services and the Birth and Death Registry, as well as the drafting of new laws on birth and death registration, and birth notification. In the United Republic of Tanzania, stakeholders prioritized the drafting of a birth, death and divorce registration bill to replace a civil registration law from the colonial period. In India, the only Data for Health country that has conducted a legal review focused on the medicolegal death investigation system, stakeholders prioritized the revision of the death certification form to meet the WHO recommended form for Medical Certification of Cause of Death, revised in 2016. Given the investments required for legal changes and the needed advocacy, stakeholders should create a long-term plan to ensure alignment and intersectoral collaboration for their shared objective. As outcomes are achieved or obstacles are faced, stakeholders should review the long-term plan and determine how to proceed with other planned improvements.

9. A legal review serves as an excellent complement to BPM, an assessment of a system structure and processes conducted by stakeholders, often with the guidance of a BPM expert. Since 2015, BPM using enterprise architecture methodology has been applied to national CRVS systems in more than 18 countries across Africa, Asia, Latin America and Oceania (see table below). This has facilitated, for the first time in most settings, collaboration among officials from the ministry of health, the civil registration authority and the national statistics office collectively to identify system process flaws and bottlenecks. With this knowledge, country stakeholders are able to reach consensus on needed actions to ensure that the system tracks the required information from the occurrence of a birth or a death, through its official registration and certification, and eventually to its incorporation into the vital statistics system. Ghana, Malawi, Rwanda, the United Republic of Tanzania and Zambia, have conducted BPM on birth and death notification and registration systems.

Table

Business process mapping outcomes in Africa, Asia Pacific and Latin America

Application	Country																		Count
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
New insights after training	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	16
Stakeholder management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	13
VA intervention integration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
Routine process analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	7
Managing SOPs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	6
IT and digitizing CRVS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	4
DHIS2 integration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5
Supporting legal review	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	4
Sub-national analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
Performance analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5
COD certification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
IRIS integration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1
Comprehensive assessment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1
National ID Integration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1
Change management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1
COD Coding intervention	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	4
Application Count	10	5	7	8	9	6	1	6	3	5	3	8	3	3	3	6	3	3	

Source: Don de Savigny and D. Cobos Muñoz. *Understanding CRVS Systems: The Importance of Process Mapping*. CRVS Development Series. Melbourne: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne, 2018.

10. Briefly, the entire process mapping and modelling exercise consists of four sequential phases or steps (see box below). First, a team with the responsibility of overseeing the entire activity is assembled, and all the existing intelligence about the current system's processes for that goal is compiled. In a second phase, the current end-to-end flow of activities and stakeholders involved in a process are described using a process map with standard business process mapping notation. For an assessment of a country's medicolegal death investigation system, doctors certifying medicolegal deaths (often pathologists or forensic pathologists), police, registrars, reference laboratory representatives, transportation bureau authorities, and any other stakeholders who participate in the system should be called to participate in the BPM exercise. These stakeholders create what is called the As-Is BPM.

Box

Phases for the application of process mapping and modelling to health systems

Phase 1. Preparation for the process mapping exercise

- 1.1. Assemble the process modelling team
- 1.2. Obtain the necessary support
- 1.3. Select the process to improve

Phase 2. Description of the current process

- 2.1. Understand the context (stakeholders' map)
- 2.2. Compile existing documentation
- 2.3. Develop the As-Is process map

Phase 3. Analysis of the current process

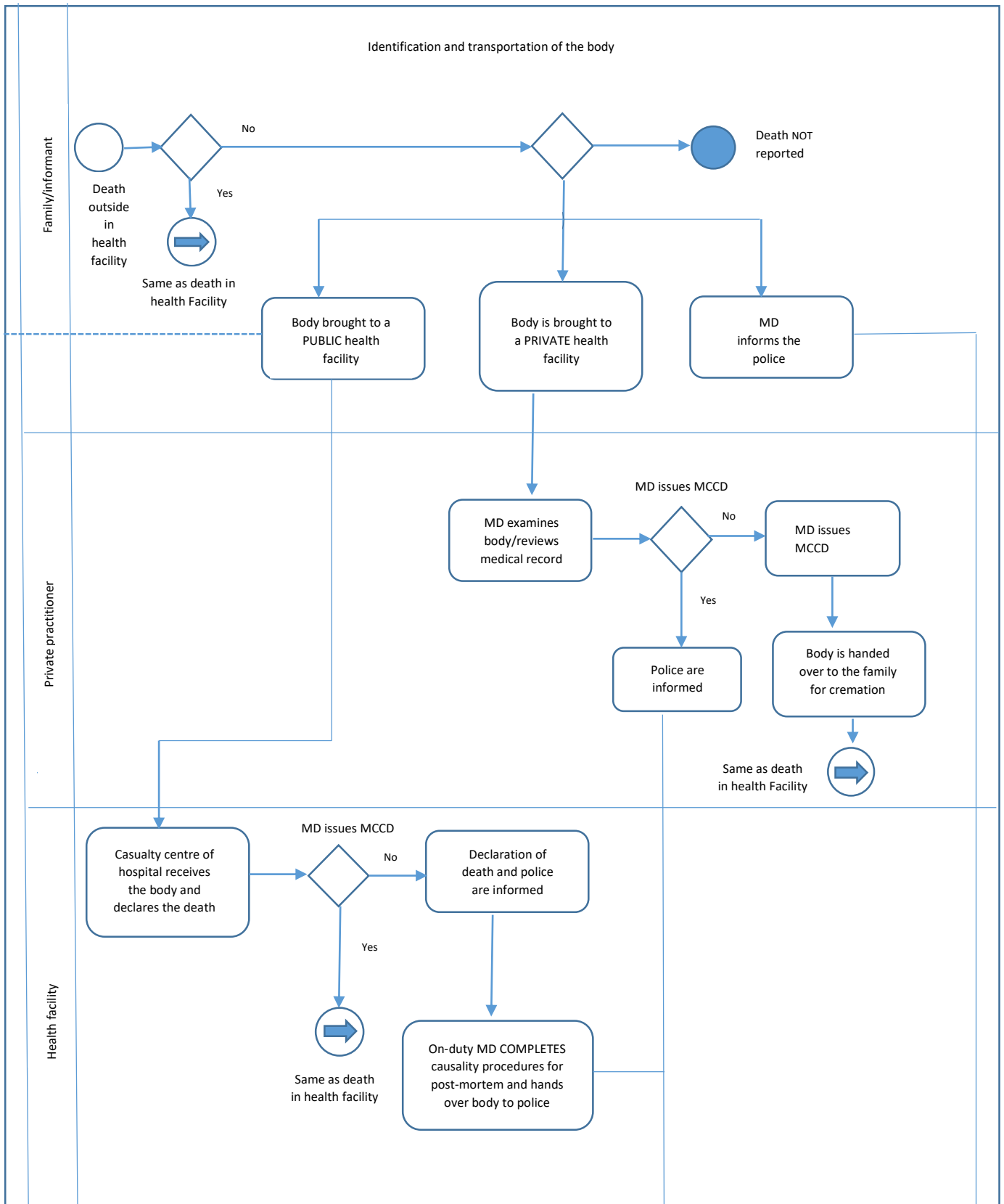
- 3.1. Assess the performance of the process
- 3.2. Root causes of underperforming

Phase 4. Improved process

- 4.1. Develop the As-Desired process map
- 4.2. Identify the gap and plan for change

Source: D. Cobos Muñoz and D. de Savigny. Process mapping and modelling: a tool for visualizing system processes from end-to-end. In: de Savigny, D., Blanchet, K. and Adam, T. (eds). *Applied Systems Thinking for Health Systems Research*. Maidenhead, United Kingdom: Open University Press, 2017.

Figure
An example of As-Is business process mapping of the medical examiner system in the state of Maharashtra, India



11. The third phase is an analysis of the As-Is BPM among stakeholders to identify flaws in the design and areas that could be streamlined to improve the performance of the whole system. The As-Desired BPM is then designed to capture the proposed changes and, finally, the gap between the current and the future situation must be identified. The As-Is BPM and the As-Desired BPM simplify complex interactions and present them as a graphic, which helps policymakers and implementers understand more deeply their system as a whole and prepare the ground for innovative solutions. Similar to the legal review process, BPM stakeholders should agree on a long-term plan to support intersectoral collaboration and achievement of systems improvements.

12. Of the African countries that have implemented BPM through the Data for Health Initiative, Ghana has conducted BPM on its medicolegal death investigation system, mapping the 16 disparate information systems that capture mortality information. Meeting participants included key CRVS system stakeholders, including those from the medicolegal death investigation system: representatives from the CRVS system, police, funeral homes, cemeteries and the municipal government. System stakeholders documented all activities performed by the Birth and Death Registration Authority, the health sector and national statistical agency. A series of bilateral and multilateral meetings were held to gather all the details on the flow of information for a death.

13. The BPM exercise in Ghana revealed that one road traffic death could be recorded in at least seven different records at the same time, a duplication that the system did not flag. For deaths due to external causes, the civil registration system, police and medical examiner systems were each recording these deaths. Information systems from emergency rooms in regional and national teaching hospitals were identified as potential recording systems since they can capture delayed deaths, for example, in the case where a person who survived a road accident dies at the hospital after some time. The fragmentation found in the CRVS system exposed multiple avenues to integrate the different systems, and the potential for quick gains in terms of completeness. Stakeholders in Ghana are currently using the results of this analysis to develop a more integrated and efficient system. Preparing As-Is BPM and As-Desired BPM visualizes potential discrepancies and facilitates a discussion among stakeholders on areas of improvement and their prioritization.

14. The 2030 Agenda for Sustainable Development and Agenda 2063 of the African Union have ambitious goals to decrease the burden of deaths due to unnatural causes. To capture the magnitude of this burden with complete and accurate statistics, countries must first have well-functioning medicolegal death investigation systems that integrate needed information with CRVS systems. This starts with a comprehensive assessment of laws, the system and its processes. A legal review and BPM focusing on a country's medicolegal system are recommended as best practice methods for the identification of improvements through stakeholder discussion, prioritization and collaboration to achieve a stronger performing medicolegal death investigation system.

III. Issues for discussion

15. In the light of the above, the following questions should be used as a basis for discussion:

(a) Given the complexity of legal and regulatory issues, the multitude of stakeholders, complex processes, resource implications, capacity limitations and other factors,

which elements should be present before a country initiates a comprehensive legal analysis or business process mapping of its medicolegal death investigation system?

(b) Stakeholders in a country's medicolegal death investigation system may come from various ministries and institutions with disparate goals and mandates. How can a country engage medicolegal death investigation system stakeholders across ministries and institutions in the long run? How can a country engage stakeholders from the criminal justice side to assess and support systems improvements focusing on CRVS data quality?

(c) How can medicolegal death investigation system improvements avoid fragmentation and silos? What role can donors play in supporting a country's efforts in improving its medicolegal death investigation system?
