

HEALTH CARE WASTE MANAGEMENT MATURITY MODEL

May 2020

It is important to categorize HCWM systems to identify successes, best practices, gaps, and opportunities across the many facets of HCWM. This maturity model was developed to represent Health Care Waste Management (HCWM) for all health programs and to facilitate the process of a high level categorization of the HCWM system. Immunisation, as part of overall health programs, fits into this model with specific adaptations for immunisation best practices. This model can be used to contribute to determining first steps of investment for improving HCWM.

The HCWM maturity model is not a full-scale assessment; it is meant to initiate discussion and a high-level review. As a strategic-level assessment tool, the maturity model is the first step in both **engaging stakeholders** from across the health system, and **identifying the current effectiveness** of HCWM in the country. The model examines six key areas in HCWM in terms of five levels of effectiveness. The assumption is that the HCWM system will pass through the levels in the model's sequence as it becomes more effective. This tool can serve as a benchmark to gauge improvements over time and identify priority areas for investment. It is **not** an in-depth operational assessment.

This maturity model is designed for HCWM across all programs and areas, but it is applicable specifically for immunisation waste, both for routine and supplemental immunisation activities (SIA). The model should be used to stimulate meetings and dialogue among stakeholder groups, program managers, and budgeters to help make connections across programs and ensure a collaborative approach to the HCWM system

Guidance for use

Complete the analysis of the maturity model, using perspectives on the country context from discussions with HCWM stakeholders, to identify where the country lands on this continuum of maturity. The model describes six key areas that are important for HCWM, ranking from Level 1 (lowest level) to Level 5 (highest level).

Sources of information

Insight can be gleaned from recent assessments, reports, guidelines, strategies, policies, inventories for technology and equipment, and/or practical experience and knowledge from a variety of HCWM sources. Review training records, audit and supervision reports, and any observation or

interview with health care workers. This tool can be used at the national level or even at regional level to tailor practical application for HCWM.

Who should be involved

Stakeholders who have a realistic understanding of the HCWM system are integral to discussions. From the immunisation program, this could be national and sub-national level managers or officers, and supply-chain decision-makers. It is also critical to get the facility-level perspective, either through the in-charge or the health care worker

providing immunisations. Beyond immunisation, it is prudent to include the government entity responsible for HCWM as well as the broader waste management department and officials through the Ministry of Environment and Ministry of Finances as well as partners that can work with the government. See Annex 3 for an exhaustive list responsible for HCWM as well as the broader waste management department and officials.

Stakeholders should jointly examine the country's status in terms of six key areas.

Six key areas for assessing the maturity of HCWM systems

 <p>PEOPLE</p>	<ol style="list-style-type: none"> 1. Awareness, training and supportive supervision: Looks at the availability of training for health care workers and waste handlers on HCWM (both pre-service and in-service) and the level of integrated supervision that incorporates HCWM; and tracks comprehension of best practices in HCWM. 2. Adherence and compliance: Assesses the level of adherence to best HCWM practices across the entire process, from point of generation to point of disposal. Monitoring and evaluation frameworks and key performance indicators in place and supported through supervision.
 <p>PROCESSES</p>	<ol style="list-style-type: none"> 3. National policy/strategic plans: Includes national policies and strategic plans for HCWM (including any immunisation specific policies or guidance); laws and regulations related to HCWM; and environmental impacts and policies on environmental sanitation and hygiene—to list a few. 4. Budget and planning: Reflects the country having developed an appropriate budget that is fully funded and supports realistic needs. Budgets should be linked to resources and tools needed across all steps of HCWM, such as color-coded bags at the facility level, transport for waste, treatment and disposal sites, and maintenance for HCWM equipment. 5. Practical guidance: Looks at the hands-on tools such as standard operating procedures (SOPs), communication guidance, and job aids for health care workers and waste handlers directly involved in generating and managing waste.
 <p>TECHNOLOGY</p>	<ol style="list-style-type: none"> 6. Technology and equipment availability and use: Beyond equipment for treatment and disposal, this key area also incorporates all of the tools and supplies needed for HCWM. This begins with color-coded collection technology at point of generation of waste, resources for occupational health and safety such as personal protective equipment, through the entire management process until disposal. This area should also consider maintenance for equipment to ensure functionality and overall sustainability.

Through discussion with key stakeholders, identify the level (1–5) that best represents the country's current state of policy and practice for HCWM across those six areas, referring to the maturity model. This scoring process is the beginning of a process that stakeholders will repeat at intervals as the system reaches maturity. A full operational-level assessment occurs as a later step (tools and resources are widely available to guide that process) and should be planned for in a proposal if not recently completed

HEALTH CARE WASTE MANAGEMENT MATURITY MODEL

1. What is your ranking on the maturity model?

AREA		LEVEL RANKING (Level 1–5, lowest to highest)
PEOPLE	Awareness, training and supportive supervision	
	Adherence and Compliance	
PROCESSES	National policy/ strategic plans	
	Budget and Planning	
	Practical guidance	
TECHNOLOGY	Technology and equipment availability and use	
	TOTAL	
	Divide by 6 (number of areas)	/6
	OVERALL SCORE	

2. When was the last HCWM operational assessment completed? _____ (year) *Note: If more than 5 years ago, consider including this as an activity in your proposal.*

3. How much waste by category of risk and type of material is generated in your country segregated by region? *Note: to the extent possible, this should reflect the entire HCWM system, not only immunisation. If this information is not currently available in reports or recent assessments, some estimate guidelines are included below. Consider including an operational assessment, waste auditing and/or composition study in your proposal.*

TYPE OF WASTE	QUANTITY/KG PER MONTH	GEOGRAPHIC REGION
Infectious waste		
Sharps		
Chemical radioactive (highly infectious)		
General waste (non-hazardous)		

High level calculation guidance for estimating waste quantity:

- » Incinerator: capacity is typically 50–200 kg/cycle, assuming 6-8 cycles per day if functioning well.
- » WHO health care waste estimates for African countries (assumption that volumes will be higher in more urban, more developed settings; assumption that 10% of this waste is infectious, 5% is highly infectious):
 - » Primary health clinic: 0.1 kg/patient per day
 - » Small district hospital: 1.0 kg/bed per day
 - » General hospital: 2.0 kg/bed per day
 - » Major hospital: 5 kg/bed per day
- » Sharps for immunisation: a typical safety box used in health facilities is 5 litres which is estimated to hold 80–100 syringes, weighing 1.2–1.4 kg. Transport and disposal of safety boxes should be budgeted for within the overall WM system.

HEALTH CARE WASTE MANAGEMENT MATURITY MODEL

4. What is the current inventory of treatment and disposal equipment across the health care system and health programs, including for the immunisation program? Note: add more lines as necessary. *Note: add more lines as necessary.*

TYPE (AUTOCLAVE, INCINERATOR, SHREDDER, ETC.)	QUANTITY	GENERAL GEOGRAPHIC PLACEMENT

4.1. At a high level, where are the geographic gaps in accessibility to these technologies and equipment across the health sector? Where does the volume of waste (from question 3) not match the expected capacity of the treatment and disposal equipment?

5. What private sector companies are involved in waste management in your country? Are there opportunities to further develop this public-private partnership?

6. What is currently included in your annual domestic resources and budget for HCWM?

7. What other sources of financial support for HCWM are available in the country? *Note: in your proposal document additional resources, donors, projects, private sector engagement and the collaboration among all stakeholders to ensure complementary efforts and reduce duplication.*

HEALTH CARE WASTE MANAGEMENT MATURITY MODEL

8. Looking at your score from the maturity model and your answers to the previous questions, what are the immediate opportunities in each of the three system areas. *Note: Think broader than just buying equipment and explore innovations and promising practices that may be appropriate for your country. For example, if you scored low on the “Policy and Strategic Plans” area of the maturity model, consider revising policies as part of your proposal. Or if health care worker knowledge and adherence to best practices is low, consider integrating HCWM training into on-the-job training and supervision.*

PEOPLE	PROCESSES	TECHNOLOGY

These should be included in your proposal (if external funding is needed) or in your annual workplan (for example, for updating policies or clarifying guidance).

9. What are longer-term opportunities that may require more strategic planning, systems building, and/or private sector engagement?

PEOPLE	PROCESSES	TECHNOLOGY

MATURITY MODEL

	AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
PEOPLE	Awareness, training and supportive supervision	Low level of awareness of risk associated with HCW (less than 40%)	Moderate awareness of risk associated with HCW; curriculum developed but not fully rolled out (implemented in 41%–50% of facilities)	A significant proportion of health workers and waste handlers (51%–75%) are trained on the risks associated with HCW and clear guidance on HCWM is available at most facilities	High level of awareness of HCW risk. 76%–85% health care workers and waste handlers have undergone training and have access to on-going training	More than 85% of health workers and waste handlers are trained and are aware of risks associated with HCW and demonstrate BEP. HCWM is included in supportive supervision activities
	Adherence and compliance	Little insight into adherence of best practices for HCWM	Have insight and best practice of HCWM available (SOPs and job aids) but not practiced (less than 50% of facilities adhere and comply)	Best practices of HCWM being adhered to in at least half of the facilities; minimal M&E in place.	Significant compliance to the best HCWM practices. M&E framework in place with some tracking of adherence	Country fully adheres to the best practices; M&E framework tracks adherence to policies and guidance
PROCESSES	National policy/ strategic plans	Policy is needed or currently being developed. No recent HCWM assessment carried out (within the last 5 years)	Policy developed and/or reviewed within the last 5 years. HCWM assessment carried out within the last 5 years	Policies and guidelines are disseminated and partially adopted	Country can show that the policies and guidelines are fully implemented at all levels of the system	Policies widely adopted across the country. Evidence that WM performance gaps are addressed in strategic planning and financing mechanisms at national and sub-national levels.
	Budget and planning	HCWM is not planned and budgeted	Budgeted but not directly linked to realistic needs or assessment findings	At least half of facilities develop a HCWM budget and implement specific plans	Budgets are available, funded and tracked at 75% of system levels	HCWM is 100% budgeted at national and sub-national levels.
	Practical guidance	Need, or currently being developed	Guidance developed but not fully in use (used in less than 50% of the facilities)	Guidance is developed and in use in 50%–65% of the facilities within the country	Guidance is available and being implemented at most (65%–85%) system levels	Guidance is available and in use at more than 85% of facilities within the country
TECHNOLOGY	Technology and equipment availability and use	Not aware of BAT and BEP. Out-of-date, inefficient, non-environmentally friendly options for treatment and disposal	Awareness of the recommended BAT and BEP options but still using out-of-date equipment and technology	Some BAT equipment available at 50% of facilities (or 50% accessing services) and/or at least 50% of the waste being generated is treated and disposed using globally accepted technologies	Globally accepted equipment is widely (more than 51%) available; most facilities are clustered and mapped to an acceptable treatment technology	Only efficient and BAT used to manage HCW. Environmental monitoring of waste treatment and disposal done in compliance with national and/or global standards