TOOL FOR VIRAL LOAD (VL), EARLY INFANT DIAGNOSIS (EID) MOLECULAR WASTE MANAGEMENT (WM) CONSIDERATIONS V2.0 NOVEMBER 2019

Purpose:
The purpose of this tool is to assist in identifying gaps and creating awareness of best practices for waste management processes in VL and EID molecular testing laboratories (and associated healthcare facilities), in order to provide a starting point for assistance in waste mitigation strategies.
To Complete the Tool:

*This tool is for completion by **Site Managers, Safety Managers, Waste Management professionals and/or Environmental Protection personnel** for making decisions on how the assessed site can develop and implement best practices for their location.*

1. *Fill in a copy of the tool for each testing laboratory or testing facility (for point-of-care and/or near-point-of-care).*
2. *List and fill data for all HIV viral load and EID testing laboratories and associated healthcare facilities in your country, including all PEPFAR-supported and non-PEPFAR-supported sites.*
3. *The tool is divided into the following five sub-sections:*
    i. *HIV VL/EID MOLECULAR TESTING INSTRUMENTS*
    ii. *HIV VL/EID MOLECULAR TESTING INSTRUMENT WASTE*
    iii. *WASTE MANAGEMENT STANDARD OPERATING PROCEDURES (SOPS), POLICIES & PRACTICES*
    iv. *SAFETY PRACTICES*
    v. *AVAILABILITY OF WASTE MANAGEMENT OPTIONS*
4. *Select **YES**, if the entire question is fulfilled at the site.*
5. *Select **NO**, if none of the question is fulfilled at the site.*
6. *Select **PARTIAL**, if part of the practices are in place, e.g., if practices are in place but not documented, or if practices are not followed, despite procedures being in place.*
7. *Add notes explaining any responses or additional useful information in the comments section at the end of each question.*
8. *Use the summary section to summarize findings from each of the five sub-sections of this tool.*
9. *Overall summary: recommendations and/or action items*

FACILITY INFORMATION
Name of Facility: _____
Type of Facility *(for example - regional referral hospital, health center, laboratory, ART clinic)*:
_____
Facility Address: _____
_____
_____
Assessor (Name of person(s*) filling out checklist): _____ **Date:** _____
*Attach separate sheet if necessary

1. HIV MOLECULAR TESTING INSTRUMENTS		RESPONSE	COMMENTS
1	What conventional high-throughput HIV VL and EID testing platforms are used at this facility, if any? *(check all boxes that apply)*	☐ Abbott m2000SP/RT ☐ Roche CAP/CTM 48/96 ☐ Roche 4800 ☐ Roche 6800/8800 ☐ Biomerieux NucliSENS ☐ Hologic Panther Aptima ☐ Others, specify_____	
2	What point-of-care, or near-point-of-care HIV/EID molecular testing instruments are used at this facility, if any? *(check all boxes that apply)*	☐ Cepheid GeneXpert ☐ Abbott m-Pima ☐ RDW Samba I or II ☐ Others, specify _____	
3	Where are the point-of-care, or near-point-of-care-VL or EID testing instrument(s) located? *At a laboratory, or healthcare testing facility/clinic, for example.*		
4	What is the volume of testing on each platform, or instrument, per month at each of the testing facilities? (*From this information we can estimate the amount of liquid and solid waste generated by each testing platform and laboratory on a monthly and annual basis.)*		
5	Are there obsolete testing platforms or instrumentation located at the testing facilities? If so, how many and what type of instruments? Is there a procedure in place for the decontamination, removal and disposal of such instruments?		

SECTION 1 SUMMARY:

2. HIV VL/ EID MOLECULAR TESTING INSTRUMENT WASTE		YES	PARTIAL	NO	COMMENTS
7	Is biohazardous/infectious waste separated from non-infectious waste in laboratories/testing facilities (at the point of generation)?				
8	What method of **solid** VL/EID-associated waste disposal is currently in use at each testing laboratory or point-of-care facility?				
	a. Transport for off-site disposal				
	I. Off-site incineration?				How are autoclaved waste materials being disposed? *(check all boxes that apply)* landfill/burial pit ☐ encapsulation ☐ others, specify ☐
	II. Off-site autoclaving?				
	III. Off-site open burning?				
	IV. Off-site landfill?				
	V. Off-site encapsulation?				
	b. On-site open incineration?				
	c. On-site autoclaving?				
	d. On-site open burning?				
	e. Other HIV VL/EID disposal methods are used: If you answer "yes," please indicate what these methods are in the comments section.				Please list other HIV VL/EID disposal methods that are used: 1.) _____ 2.) _____ 3.) _____
	f. TB GeneXpert testing is done at this facility: If you answer "yes," please indicate what TB molecular waste disposal methods are used in the comments section (i.e. autoclaving of waste followed by incineration)				Please list other disposal methods that are used for TB GeneXpert solid waste: 1.) _____ 2.) _____ 3.) _____

9	How is **liquid** VL/EID waste currently disposed in laboratories using conventional viral load/EID testing platforms?	**YES**	**PARTIAL**	**NO**	**COMMENTS**
	a. Transportation for disposal off-site?				
	i. Off-site incineration?				
	ii. Off-site autoclaving?				
	iii. Off-site open burning?				
	iv. Off-site landfill?				
	v. Off-site encapsulation?				
	b. On-site open incineration?				
	c. On-site autoclaving?				
	d. On-site open burning?				
	e. Poured down a sink?				
	f. Is chemical waste treated using a dilution process before joining general waste?				
	e. Other HIV VL/EID disposal methods are used: If you answer "yes," please indicate what these methods are in the comments section.				
10	If **autoclaves** are used during waste disposal, are they**:**	**YES**	**PARTIAL**	**NO**	
	a. Maintained under service contracts?				
	b. Regularly serviced and are the service records available?				
	c. Is preventative maintenance performed and documentation for this available?				
	d. Under service contracts?				
	e. Operated by trained staff?				
	f. Operated by staff trained in proper biosafety procedures?				
11	Are **incinerators:**	**YES**	**PARTIAL**	**NO**	
	a. Maintained under service contracts?				
	b. Regularly serviced and are the service records available?				
	c. Is preventative maintenance performed and documentation for this available?				
	d. Operated by trained staff?				

	e. Is liquid waste combined from multiple instruments or other waste streams/processes at the testing laboratory/facility? If yes, please indicate which instrument wastes are combined in the comments column.				Instrument wastes from these instruments are combined before disposal: _____ _____
12	If VL/EID **liquid waste** is being poured down a sink;	**YES**	**PARTIAL**	**NO**	**COMMENTS**
	a. Is there an SOP that is followed?				
	b. Is the SDS on-site for specific chemical disposal mechanism followed?				
	c. Are Laboratory sinks equipped with chemical dilution traps?				
	d. Does the run-off from the sink go directly into the sewer system?				
13	Does the waste from the sink accumulate with other waste streams from the same testing facility (e.g. if the laboratory shares waste water systems with a large hospital?)				
14	Is bleach mixed with all potentially infectious liquid waste?				

SECTION 2 SUMMARY:

3.	WASTE MANAGEMENT STANDARD OPERATING PROCEDURES (SOPS), POLICIES & PRACTICES AT THE FACILITY LEVEL	YES	PARTIAL	NO	COMMENTS
15	Is a National (country) waste management policy, legislation, or a guideline located on site and enforced?				
16	Is a Facility health care waste management policy, legislation or guideline located on site and enforced? *If so, is there a dedicated manager or responsible person/agency for health care waste management in the facility - put answer in comments section*				
17	Is there an on-site, written SOP for the disposal of infectious waste?				
18	Is there an on-site, written SOP for the disposal of non-infectious waste?				
19	Is there an on-site, written SOP for the use of an on-site incinerator (where an incinerator exists)?				
20	Is there an on-site, written SOP for the use of an on-site autoclave (where an autoclave exists)?				
21	Is there guidance for the handling and disposal of chemical waste?				
22	Is there an on-site, written SOP used for the chemical disinfection of waste?				
23	Is there an on-site, written SOP used for handling expired viral load/EID instrument reagents and consumables?				
24	Is there an on-site, written SOP used for managing spills of liquid waste?				
25	Is there an on-site, written SOP for handling expired viral load/EID instrument reagents and consumables?				
26	Are records kept at the facility listing the amount of waste collected, treated and/or destroyed at the facility?				
27	Are waste management documents (SOPs, Records, etc.) maintained in an approved Quality Management System (QMS)?				

SECTION 3 SUMMARY:

4. SAFETY PRACTICES		YES	PARTIAL	NO	COMMENTS
28	Have all personnel performing HIV molecular testing at the facilities received training on managing healthcare-associated and chemical wastes?				
29	If so, did this training include:				
	a. Types of healthcare-associated waste and how to properly identify and segregate waste for treatment and/or final disposal?				
	b. Hazards associated with Healthcare-associated waste?				
	c. What is infectious and non-infectious waste?				
	d. The segregation of infectious and non-infectious waste?				
	e. How and where different waste types are collected and stored at the facility?				
	f. Disposal of infectious solid waste and sharps				
	g. Chemical waste disposal procedures?				
	i. What is considered chemical waste?				
	ii. Compatibility of different chemical waste streams generated at the site?				
	iii. Handling and disposing of solid waste versus liquid waste?				
	h. Appropriate waste containers for collection and storage of waste?				
	i. Labeling of waste containers to list the contents of the waste?				
	j. Ensuring waste containers are leak-proof and kept closed?				
	k. Location and use of chemical and biological spill kits?				
	l. Location of Chemical Hygiene Plan[1] and laboratory waste guidance?				
	m. Is the above safety training provided and documented for each employee?				
30	Are laboratory and janitorial staff (that may collect healthcare-associated and chemical waste from the facilities) also trained in the use of appropriate personal protective equipment (PPE) for handling waste?				
31	Has a documented risk assessment been performed for personnel that may generate or handle VL/EID waste regarding hazards, handling, storage and/or PPE requirements?				
32	Is potentially biohazardous/infectious waste separated from non-infectious waste in laboratories/testing facilities (at the point of generation)?				
33	Are liquid waste and solid waste segregated for separate waste stream disposal in laboratories/testing facilities?				
34	Is liquid VL/EID waste stored and collected in labeled puncture-proof, sealed leak proof containers?				

35	Are liquid VL/EID waste containers kept in a secondary container to prevent leakage due to primary container damage or accidental overfilling?	**YES**	**PARTIAL**	**NO**	**COMMENTS**
36	Is solid VL/EID waste collected and stored in appropriate and labeled containers?				
37	Are waste containers labeled correctly to facilitate appropriate waste segregation?				
38	Does the facility/lab follow a color-coded waste container to classify waste according to national policy, if any? If yes, what color coding is in use? For example: black= non-infectious waste, yellow= infectious medical waste, red= highly infectious waste and brown= chemical waste. Enter response in comments				
39	Are areas where liquid and solid waste is generated and stored:				
	a. Organized to handle both chemical and biological waste?				
	b. Non-porous and durable for disinfection practices in case of a spill?				
	c. Access-controlled?				
40	Is there a system/ process in place for reporting incident and accidents including documentation?				
41	Is there a biological spill kit and associated SOP in use?				
42	Is there a chemical spill kit and associated SOP in use?				
43	Is there a Chemical Hygiene Plan[1] in place at the facility?				

SECTION 4 SUMMARY:

5. AVAILABILITY OF WASTE MANAGEMENT OPTIONS		YES	PARTIAL	NO	COMMENTS
44	Are there any **licensed** waste management companies currently operating in your country?				
45	Are there any **licensed** waste management companies outside of your country that are currently contracted to transport and dispose of waste, either within your country or outside of your country?				
46	Are there managed landfill sites in proximity to the facility/sites? If so, are the landfill sites owned and operated by the government or private businesses?				
47	Are there medical waste incinerators located in country?				
	a. Do you have access to a medical waste incinerator? If yes;				
	b. Is it equipped with a primary chamber?				
	c. Is it equipped with a secondary chamber?				
	d. Do the primary and secondary chambers reach required operational temperatures?				
	e. Is the incinerator outfitted with a scrubber system to filter gases before exhausting to the environment?				
	f. Are incinerator gas emissions monitored and tested as part of maintenance and certification to ensure compliance with environmental safety regulations?				
48	Are there any in-country partners that can help with waste management or that may be already focusing efforts on addressing country needs?				

SECTION 5 SUMMARY:

ACTION ITEMS (If applicable)

KEY FOLLOW UP ACTION	RESPONSIBLE PERSON/ENTITY	SUGGESTED TIMELINE

[1] A Chemical Hygiene Plan is a written document stating the policies, procedures and responsibilities that protect workers from the health hazards associated with the hazardous chemicals used in that particular workplace (i.e., laboratory or facility)