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	Effective Date:	12-30-2020
	Document Type:	Standard Operating Procedure
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	Department/Section:	Molecular Laboratory
	Document Title:	STEAM STERILIZATION IN THE MOLECULAR LABORATORY

PURPOSE:

To summarize the steps for the proper use of an autoclave and to describe the procedure of sterilization by application of wet heat.

SCOPE:

Applies to all Molecular Laboratory Personnel of Dr. Pablo O. Torre Memorial Hospital.

PERSON RESPONSIBLE:


All Medical Technologists assigned at the Molecular Laboratory

GENERAL GUIDELINES:


1. Despite built-in safeguards, an autoclave presents the possibility of serious injury to technicians from hot surfaces and from the release of live steam. It is important, therefore, that laboratorians understand the proper operation, limitations, and safeguards for sterilization by autoclaving.

PROCEDURE:

1. Autoclave sterilization times and temperatures are dependent on the composition and nature of the items being autoclaved. Minimum times are usually 15 minutes at 121⁰ C or 5 minutes at 132.2⁰ C.
2. Items to be sterilized are loaded into the autoclave in a manner so that nothing touches the inside of the chamber.
3. Sterilized supplies must be labelled with date autoclaved/processed. Date of expiration is determined using the following criteria:
 - 3.1. Sterile packs/items should be stored in clean, dry enclosed cabinets and drawers free from moisture and dust.

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- 3.2. Sterile packs prepared by technical staff, when stored in enclosed cabinets/drawers in a dust-free, insect-free, and well-ventilated area, can be considered sterile for 1 year providing the packaging remains dry and intact.
- 3.3. Sterile packs prepared by technical staff stored on open shelves have a reduced safe shelf life of 1 month providing the packaging remains dry and intact.
- 3.4. The manufacturer generally stamps commercially prepared sterilized packs with an expiration date.
- 3.5. A shelf life of 1 year is suggested for commercially prepared packs without an expiration date, providing the pack is stored in an enclosed cabinet/drawer, remains dry, and packaging is intact. Label with date of receipt.
- 3.6. The quality of the packaging material, storage and transport conditions, and the amount of handling all contribute to maintaining sterility of the package and its contents.
4. Any package that is wet, torn, dropped on the floor, damaged in any way, or past its date of expiration will not be used. When such events occur, the contents should be removed, repackaged, and re-sterilized.
5. Sterilization indicator strips (e.g., autoclave tape, steam indicator strips) should be used in each autoclave load.
6. When sterilizing materials using autoclave bags (with the exception of biohazardous bags/materials), leaving the bag open during the autoclave process will facilitate steam penetrating the contents of the bag.
7. When autoclaving biohazardous waste:
 - 7.1. Bags/containers should not be overfilled, half to three quarters full is recommended.
 - 7.2. Add water (e.g., approximately 1 cup) to the biohazard bag/container prior to sealing the container. This will aid in the generation of steam within the container during the autoclave process.

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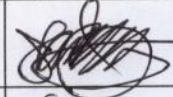
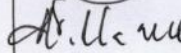


- 7.3. Do not add water if there is a chance that biohazardous material may splash out of the container.
- 7.4. Seal container.
- 7.5. Biohazard bags/containers should be labelled with an autoclave indicator so that it can be readily determined that the container has been autoclaved.
8. When the autoclave cycle is complete and the pressure returns to zero, the door may be opened.
9. Before opening the door, staff members should don heat-resistant autoclave gloves. To prevent being scalded from the steam, move to the opposite side of the door opening. Open door slowly and, once opened, walk away from the direct line of the steam. After a few minutes, the autoclave materials can then be removed. Items will still be very hot for a while. Items should not be used until cool to the touch the container it was autoclaved in.
10. Staff members encountering malfunctions with the autoclaves should report it immediately to their supervisor and should not attempt to fix it themselves.

SAFETY CONSIDERATIONS

1. Technicians can be seriously injured from hot surfaces and from the release of live steam. Use of the long-heat-resistant autoclave gloves is necessary.
2. If steam escapes through the gaskets while the autoclave is running, turn the autoclave off and get the supervisor or next in charge. **DO NOT OPEN THE DOOR.**

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APPROVAL:

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	MONICA B. VILLANUEVA, RN, RMT, PhD Laboratory Director		7-11-2022
	MELANIE ROSE B. ZERRUDO, MD, FPSP Chair, Department of Pathology		7-11-2022
Reviewed:	DENNIS C. ESCALONA, MN, FPCHA, FPSQua Quality Assurance Supervisor		7-11-2022
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Approved:	GENESIS GOLDI D. GOLINGAN President and CEO		

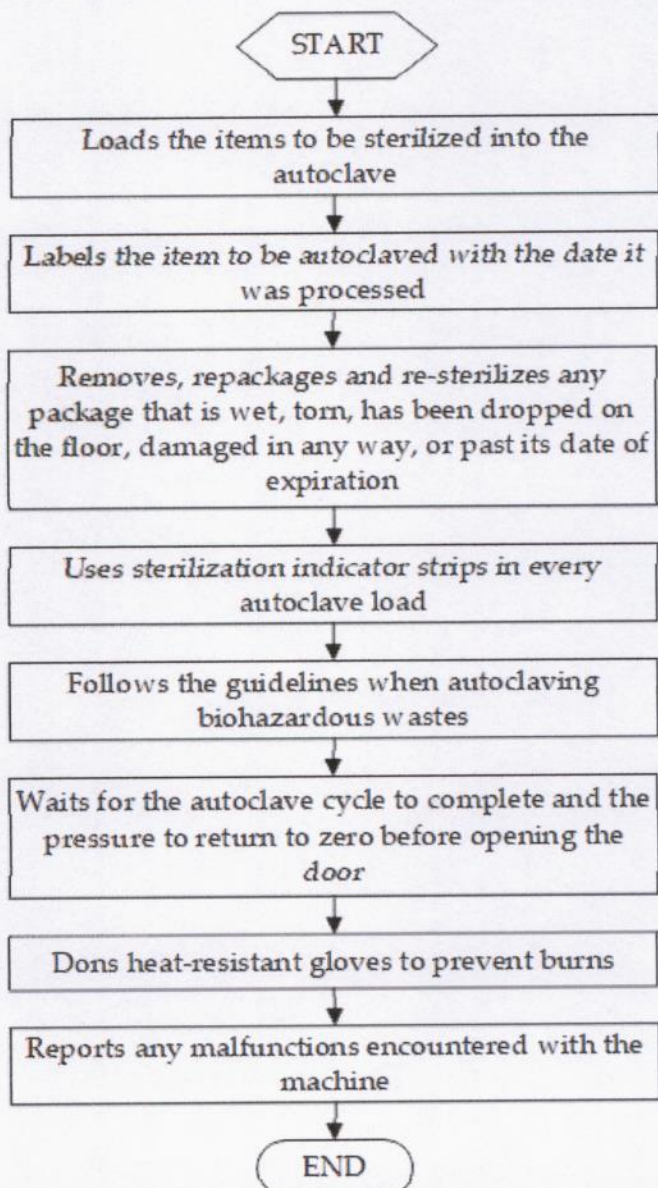



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FLOWCHART




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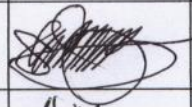
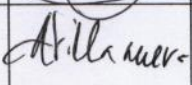
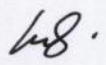

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KEY TASKS	PERSON RESPONSIBLE
1. Loads the items to be sterilized into the autoclave	Molecular Laboratory personnel
2. Labels the item to be autoclaved with the date it was processed	
3. Removes, repackages and re-sterilizes any package that is wet, torn, has been dropped on the floor, damaged in any way, or past its date of expiration	
4. Uses sterilization indicator strips in every autoclave load	
5. Follows the guidelines when autoclaving biohazardous wastes	
6. Waits for the autoclave cycle to complete and the pressure to return to zero before opening the door	
7. Dons heat-resistant gloves to prevent burns	
8. Reports any malfunctions encountered with the machine	

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