

**BEFORE THE TALK**

**PREPARATION TIPS**

- 1 Print Attendance Sheet to pass around.
- 2 Be prepared to discuss types of burns/cuts that are possible when working with sterilization equipment, as well as other hazards that can occur when dealing with autoclaves/sterilizers.
- 3 Discuss and pass around safe work practices and policies.  
  
Other:
- 4 Have workers share stories/incidents when they have experienced problems working with autoclaves/sterilizers.
- 5 Brainstorm ways these experiences could have been prevented, or if not prevented, discuss ways in which workers were/could have been protected.
- 6 Discuss appropriate vs. inappropriate workarounds and temporary fixes for these types of problems found in the lab.

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**AFTER THE TALK**

**CHECKLIST**

- Provided extra training to workers who did poorly on quiz  
Date: \_\_\_\_\_
- Observed workers  
Date: \_\_\_\_\_
- Refresher training  
Date: \_\_\_\_\_
- Other (describe)

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Date: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Meeting conducted by: \_\_\_\_\_

**MEETING WAS ATTENDED BY:** Each participant is to sign below, for record kept on file.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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Answers to T201809-50 Quiz: 1. False, 2. False, 3. False 4. False

# Laboratory Equipment Safety: Autoclaves/Sterilizers

## What's at Stake?

### Consider the following incident...

A postdoc was badly scalded by water while removing items from the top autoclave of a tower-style autoclave. To autoclave her own materials, the doctor began to remove a load that belonged to another laboratory while standing on a low step-stool. The load in the autoclave consisted of a Nalgene tub that contained liter bottles of media with water around them. The water in the tub was near boiling temperature, and as the doctor attempted to remove it, the contents spilled down her torso and thighs.

## What's the Danger?

Autoclaves and sterilizers pose many threats to workers. The most common issues are burns from steam, water or other detergent/ chemicals used in some types of autoclaves, and/or burns from the equipment being sterilized.

Additionally, cuts can be common hazards, as many instruments to be sterilized are made of glass and/or metal, and unless handled carefully with appropriate PPE, can be a risk to workers.

In addition to burns and cuts, autoclaves/sterilizers can explode if not maintained or used properly. In these instances, workers are at risk of being impaled by shrapnel from the equipment, severe burning, and exposure to pathological materials from instrumentation that was not properly sterilized.

## How to Protect Yourself

- 1. PPE:** Your employer must assess and identify potential worksite hazards to which you may be exposed while you are doing your job. Employers must also ensure that workers use appropriate personal protective equipment (PPE).
  - Workers should use appropriate hand protection when hands are exposed to hazards such as cuts, lacerations or thermal burns.
  - Using oven mitts for handling hot items, and steel mesh gloves for handling or sorting sharp instruments are examples of appropriate PPE.
  - Additionally, lab coats, smocks, and/or aprons should be used to prevent scalding of the body.
- 2. Training:** It is always good practice to have appropriate training when working with autoclaves/sterilizers, even if workers have

been experienced with sterilization techniques before.

- Different models of sterilizers pose different risks. For example, the tower style autoclave as seen in the story above, is more dangerous than a standard autoclave.
    - Removing a load from the top autoclave requires standing on a step-stool or platform ladder and stepping down to place the load on a cart.
    - For a short-statured person, a standard step-stool is not high enough to allow them to remove a load without reaching over their head.
  - Autoclaves and sterilizers pose electrical hazards. Workers should be trained on these hazards, as well as the location and use of control valves, electrical panels/shut-offs.
  - In most labs and medical facilities, the autoclaves and sterilizers are used by multiple groups.
    - Training must be done to ensure that issues such as overcrowding in the rooms, unfamiliarity with equipment/loads, and unfamiliarity with first aid measures, do not pose threats for all workers who will be using the autoclaves and sterilizers.
- 2. Good work practices:** To ensure the safety for all workers the following standards should be practiced.
- Ensure that the autoclave/sterilizer door is closed and locked before beginning the cycle.
  - Do not remove items from an autoclave/sterilizer until they have cooled. Wait 10 minutes from the time the door is cracked open to allow time for sufficient cooling.
  - Remove glassware one by one before removing tubs from the autoclave.
  - Avoid handling the sharp ends of instruments; use forceps or other tools in addition to steel mesh gloves to remove sharp instruments from baskets and autoclaves.

## Final Word

*Although very common and relatively easy to use equipment, autoclaves and sterilizers can pose threats to lab workers if potential hazards such as cuts and burns are not recognized.*

## TEST YOUR KNOWLEDGE

- Appropriate PPE for removing instruments from an autoclave would be Nalgene gloves.  
 True  False
- Gloves are the only type of PPE necessary for work with autoclaves/sterilizers.  
 True  False
- A tower-style autoclave is the safest type of autoclave.  
 True  False
- Using forceps is not recommended when handling sharps if you have on steel mesh gloves, as the gloves impede your dexterity.  
 True  False

## What Would You Do?

After starting a new job in a lab, you notice there is no PPE available for working with autoclaves. Most workers simply try to be quick to avoid burns and/or wrap their hands with their sleeves and shirt-tails when removing instruments from the sterilizers. What would you do?

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### Meeting materials to go:

Safety meeting materials such as presentation tips, PowerPoint presentations, quiz answers and more are downloadable at [www.SafetyNow.com](http://www.SafetyNow.com)