



# STERILISATION PROCEDURE

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# Introduction

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## Purpose

The purpose of this document is to provide instructions of how to setup the sterilisation area and the sterilisation procedure of dental items and equipment.

## Required items and equipment

The table below lists the items that are required in the sterilisation (steri) area at all times.

**Table 1: List of required items in the steri area**

Required items	Recomm. qty	Type	Check
Washing containers	3	Item	
Rectangular metal tray	4	Item	
Autoclave steriliser unit	3	Item	
Latex glove box	2	Box	
Thermal protective gloves	2	Pair	
Protective masks	1	Box	
Protective glasses	3	Item	
Antibacterial hand gel	1	Bottle	
Hand brush	2	Piece	
Dry chux cloth	2	Stack	
Sterile buckets/ containers	2	Item	
Scooping container	1	Item	
Rubbish bin	2	Item	
Hi clean spray	2	Cans	
Protective Pouches (S, M and L sizes)	1	Box (for each size)	
Distilled water	1	Large container	
Funnel	1	Item	
Antibacterial wipes (soaked in CaviCide)	1	Pack	
Medical & dental instrument and equipment detergent (Clinidet)	1	Bottle	
Sterilisation indicator	1	Pack	

Pictures of the equipment and items are shown in the Appendix.

# Steri area setup

## Stations

There are three main stations from start to finish of the sterilisation procedure:

1. **Wash station** – This is where the dental items get dropped off by the nurse. This is a ‘dirty station’.
2. **Package station** – This is where dental items are wiped and placed into the sterilisation (steri) box for sterilisation. This is a ‘dirty station’.
3. **Steri station** – This is where the autoclaves and sterilised items are located. This is a ‘clean station’.

To avoid contamination, personnel in the wash and package station should not touch anything in the steri station. It is recommended each station is operated by at least one person.

## Steri area layout

Figure 1 shows an example of a typical steri layout. Starting from right to left the dirty dental items are dropped in the dirty container and gets washed through two containers. The item is then wiped and packaged in the steri box. The steri box is then inserted into the autoclave for sterilisation. When the steri cycle is complete, the items are removed from the steri box and placed on the drying tray ready for use.

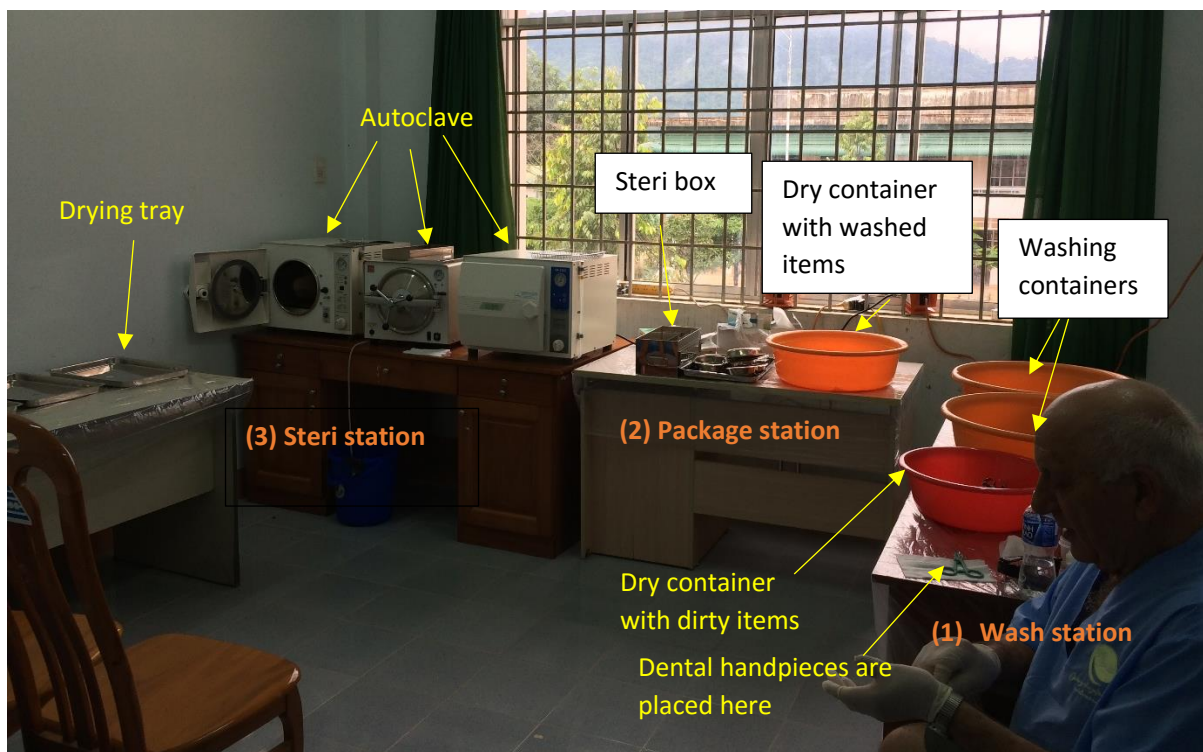


Figure 1: Typical steri room layout

## Station preparation

This following section provides instructions to prepare each station prior to working. It is recommended that a table is dedicated for each station to avoid cross contamination with other stations.

### Wash station

1. Wipe down a large table by with alcoholic antibacterial wipes.
2. Drape a plastic cover over the table.
3. Lightly scrub the containers to remove any dirt and rinse the large containers with tap water.

4. Fill two containers with tap water until the water depth is at least an inch.
5. Place a cap full of CliniDet for every 1 litre of water into the washing containers.
6. Place the filled washing container and empty containers in a row on the table.
7. Place an empty dirty container for used dental items.



**Figure 2: Wash station table**

#### Package station

1. Wipe down a large table by with disposable alcoholic wipes.
2. Drape a plastic cover over the table.
3. Wash one large empty container and place in on the table.
4. Allocate space for a tray and steri box.

#### Steri station

1. Wipe down a large sturdy table with disposable alcoholic wipes.
2. Drape a plastic cover over the table.
3. Place the autoclaves on the table.
4. Wipe the autoclaves using disposable alcoholic wipes, particularly where hands will be touching.
5. Open the autoclave and remove any items that have been left behind from a previous sterilisation. Make sure you are using safety gloves when removing the items.
6. Place a drip pan or a bucket underneath the table to catch spills and excess steam from the autoclave.
7. Fill the autoclave with distilled water. You must remove the black circular vent shown in Figure 3.



**Figure 3: Drain vent**

8. While pouring, check the water indicator is close to full capacity as shown in Figure 4. Make sure there's no excess water. Failing to do this before sterilisation will cause hot water to bubble out of the vent when draining.

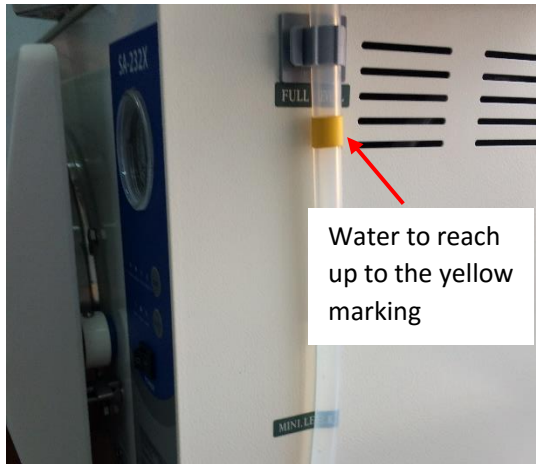


Figure 4: Autoclave water indicator

9. Set the dial to maximum temperature (typically 134°C). Check with Nam first to confirm the proper temperature for each autoclave.
10. Turn on the autoclave. Referring to Figure 5, rotate dial to 'filling'. Wait for water to fill the bottom of the chamber. Return the dial to 'close' when it is close to full capacity.
11. Set the autoclave timer to 15 minutes. Check with Nam first to confirm the proper time for each autoclave.



Figure 5: Autoclave SA-232X setting and preparation

## Personal protective equipment

Each personnel must wear the following personal protective equipment (PPE) when working in the steri area:

1. Enclosed shoes
2. Safety glasses
3. Safety masks
4. Latex gloves
5. Long pants and long sleeve shirt (recommended)

Before commencing work, lather both hands with antibacterial gel and let them dry. Then put on your mask followed by glasses and finally your gloves. When finishing work, you must remove your gloves first before removing your mask and glasses. Make sure you don't touch the dirty gloves when disposing into the bin.

## Station working procedure

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### Wash station

1. Sort the items in the dirty container. Separate items that are not required to be sterilised which include:
  - a. Disposables item such as floss, buds etc. These items can be binned.
  - b. Any disposable attachments on tools. These can be binned.
  - c. Ultrasonic handpieces as shown in Figure 6. These must be wiped and returned.

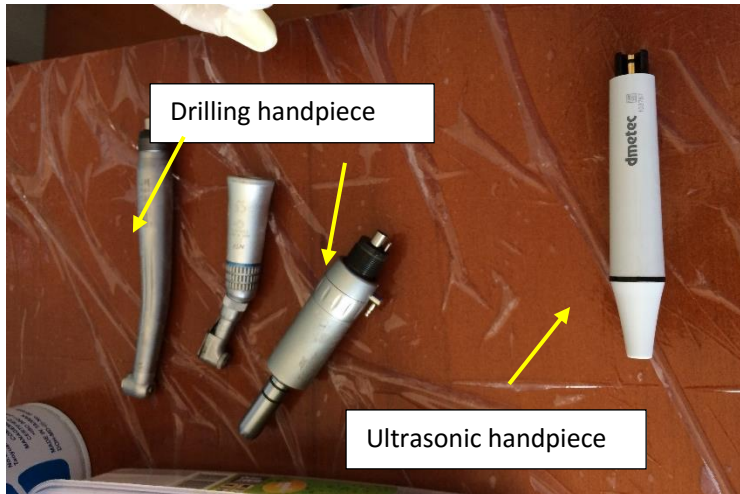


Figure 6: Drilling and ultrasonic handpieces

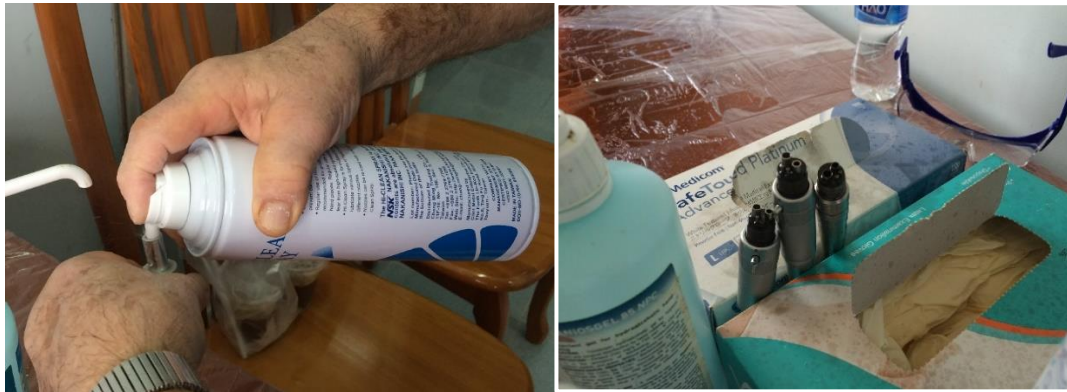
Drilling handpieces are required to be sterilised but should NOT be soaked in the washing containers. Instead they should be sprayed with a Hi Clean spray and packaged in a sterilisation (steri) pouch (Instructions are in step 6).

2. Once the washable items have been separated place the items in the first large container and let it soak for a few minutes.
3. Carefully scrub each item at a time using a hand brush. Closely inspect between brushing to ensure the item is clean from blood and grime. Continue brushing until it is visibly clean. Please be cautious when handling sharp objects as they can pierce through the latex gloves and potentially puncture your skin.



Figure 7: Washing dirty dental items

4. Place the item in the second container for a second scrub. It is recommended a second designated scrubber is assigned to check that the item is clean the second time.
5. Place the washed item into the container at the package station.
6. Dental drilling handpieces require cleaning with a spray with an attached nozzle as shown in Figure 8. Make sure that it's the top drill handpiece. Any lower attached handpieces should be detached and returned to the dental station unless dental work is completely finished.
7. Turn the handpiece upside down and insert the nozzle in the hole where water flows in. Spray until the oil emerges from the other end. Repeat for other holes.
8. Once completed, place the handpiece upright and upside down to let the oil seep through. Leave for a minute before placing it in at the package station.



**Figure 8: Cleaning a drill handpiece with Hi Clean spray and set upright**

9. Replace and re-treat the water in the washing containers every couple of hours or until the water appears murky.

### Package station

1. Carefully grab a washed item from the container and wipe any excess foam and water.
2. Check for any blood and/or grime. If spotted, place it back in the washing container.
3. If inspection is ok, place the item in the steri box. Make sure all items do not overlap on the surface. Use a metal divider if required to vertically stack items.



**Figure 9: Dental items placed in the steri box**



4. Package and seal the following items in a sterilisation pouch:
  - a. Any tools that are exposed to blood – E.g. Forceps, Laksators, burrs. (Note: Except for burrs, each tool must be packaged in a separate steri pouch as shown in Figure 10)
  - b. Mouth props.
  - c. Scissors.
  - d. Any reusable plastic and rubber items. They can be packaged together.

It is recommended at least two steri pouches are loaded in each steri box.

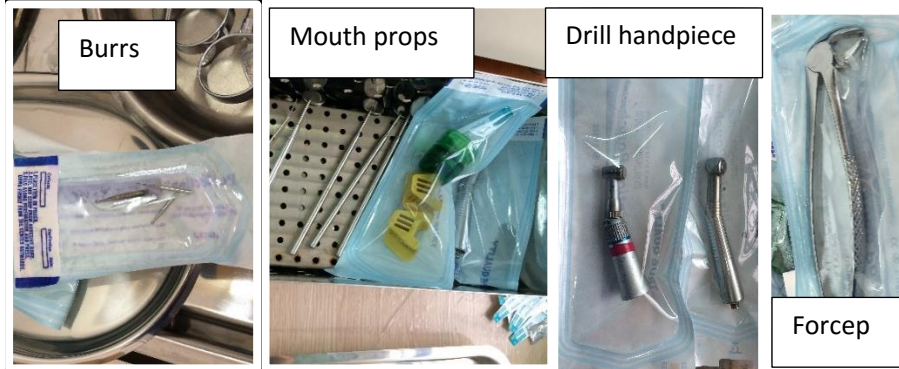


Figure 10: Package examples

5. Once the steri box has been filled, insert a new sterilisation indicator inside facing up. You can also insert one into a steri pouch as shown in Figure 11.



Figure 11: Insert a new steri indicator into a pouch

6. Close the lid and slide the tab on each side of the box to ensure holes are fully open.



Figure 12: Insert steri box with holes open and water is filled in the chamber.

7. Ask a clean person at the steri station to open the autoclave door. You must not touch the autoclave when it is sterile.
8. Check that the autoclave has water filled inside the chamber.
9. Carefully load the box into the autoclave. Do not close the door.

## Steri station

This section is for personnel handling the sterilisation unit. They must be clean at all times. Note that this procedure is for the autoclave sterilisation unit, model SA-232X.

1. Once the box is inserted into the autoclave by the person from the package station, double check that water is filled at the bottom of the chamber. If not, fill distilled water until close to full capacity.
2. Close the door and screw the knob until tight.
3. Set the timer to 15 mins by pressing SELECT
4. Set temperature to 134°C (Confirm with Nam prior to setting the temperature).
5. Activate the sterilisation cycle by selecting START and wait for 30 minutes.
6. When the sterilisation cycle is complete, the buzzer will emit a 40 sec beep and the 'complete' orange indicator is lit as shown in Figure 13.



**Figure 13: Autoclave showing sterilisation complete**

7. Set the dial to 'draining'. Immediately stand back as the vent above the autoclave will release very hot steam.



**Figure 14: Steam venting from the autoclave**

8. Turn off the autoclave.

9. Unscrew the knob slowly and open the autoclave door.
10. Wait a couple of minutes to allow the steri box to cool down before handling.
11. Using thermal protective gloves, carefully remove the steri box as shown in Figure 15 and place it on a clean metal tray.



Figure 15: Removal of steri box using thermal protective gloves

12. Open the lid and check that the steri indicator bar is completely black as shown in Figure 16. If the black bar doesn't exceed the halfway mark, return the steri box with the contents into the autoclave and repeat from step 2.

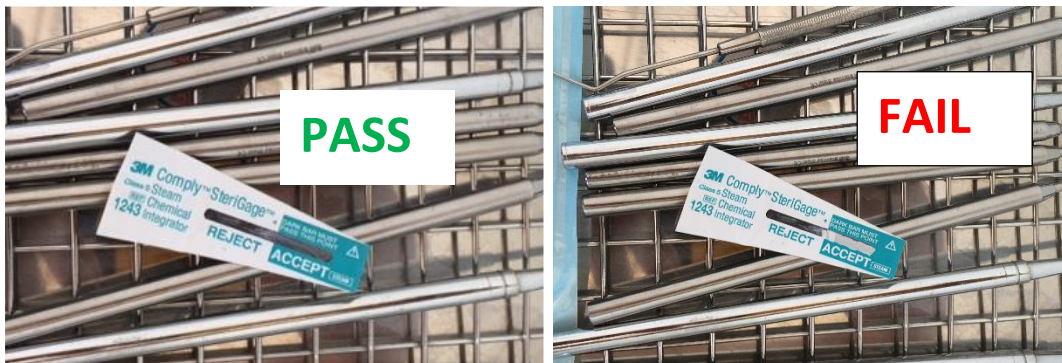


Figure 16: Sterilisation indicator after sterilisation in the autoclave – A full back bar indicates successful sterilisation

13. If the black indicator exceeds the halfway mark, carefully unload the contents onto a clean metal tray. If there is excess water on the items, gently wipe using a dry disposable cloth.
14. Inspect the items to ensure there is no blood or dirty stains on each item. If there are visible blood stains, return the all the contents that was removed into the steri box and insert back into the autoclave to repeat from step 2.
15. Place the dry items onto the metal tray and allow it to cool for a few minutes.
16. Return the empty steri box at the package station.
17. Deliver the clean items back to the nurse at the dental station.

**If power is cut off during sterilisation process for any reason, even if the sterilisation indicator shows it is acceptable, the sterilisation process will need to repeated.**

## Packing up

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### Autoclave steriliser cleaning process

This is only required if the water used in the autoclave unit is not distilled.





1. Ensure that there are no objects inside the steri chamber.
2. Drain all the distilled water from the chamber
3. Mix a solution of distilled water and Cham-mate.
4. Pour the solution inside the chamber and close the door.
5. Set the autoclave at maximum temperature with the timer set at 15 minutes.
6. Start the sterilisation.
7. Once completed, drain the autoclave and let it cool.
8. Turn off the autoclave, open the door and wipe any excess solution.
9. When the chamber is dry, disconnect the power and pack the autoclave back in its box.

### Other items

For other items, quickly wipe it down with alcohol wipes and wrap them up in gladwrap for storage.

## Appendix: Example illustrations

Equipment	Example illustrations
Washing containers	
Metal trays	
Autoclave steriliser unit	
Safety latex gloves	
Thermal protective gloves	

<p>Hand brush</p>	
<p>Hi Clean Spray</p>	
<p>Protective Pouches (Small, Medium and Large size)</p>	
<p>Distilled Water</p>	

Funnel



Antibacterial wipes (CaviCide)



Medical & Dental Instrument and Equipment Detergent (Clinidet)



Sterilisation Indicator



Autoclave chamber and pipe cleaner

