Neptune Waste Management System Training
Objectives

• Review important safety considerations for Neptune 2 and Neptune 1 Silver:
  - Device Information
  - Units of Measure
  - Set-Up
  - Before the Case
  - During the Case
  - After the Case

• Preview device warning placard

• Review Pre-Use Checklist

• Discuss next steps
Updated FDA Recall

• Stryker received additional reports of injury or death to patients following connection of a Neptune 2 to a passive chest drainage tube or closed wound drainage system post-operatively

• The FDA is requiring additional education in light of these continued events
Important Device Information
Neptune 2

- **Vacuum Range:**
  - 50 - 530 mm-Hg
  - 2.0 - 21.0 in-Hg
  - 7.0 - 71.0 kPa

- **Maximum vacuum:**
  - 530 mm-Hg
  - 21.0 in-Hg
  - 71.0 kPa

- **Do not use the low suction applications below:**
  - 50mm-Hg
  - 2.0in-Hg
  - 7.0 kPa
Important Device Information
Neptune 1 Silver

- Vacuum Range:
  - 254 - 483 mm-Hg
  - 10.0 – 19.0 in-Hg
- Maximum Vacuum:
  - 483 mm-Hg
  - 19.0 in-Hg
- Do not use in low suction applications below:
  - 254 mm-Hg
  - 10.0 in-Hg
Units of Measure

Both the Neptune 2 and Neptune 1 Silver can display various Units of Measure. It is recommended that you set your unit of measure to **mmHg**. The following slide will describe steps to change unit of measure for the Neptune 2.

- **mm-Hg**
- **in-Hg**
- **kPa (Neptune 2)**

It is recommended that you set your units of measure to mm-Hg.
Changing Units of Measure

1. Push the bottom right control panel display button down and hold until the System Setup screen appears (should take ~5 seconds)

2. Push the button next to the arrow and scroll down until you find the vacuum display units. Push the button next to the OK icon to select this item.

3. Use the buttons next to the arrows to choose between inHg, mmHg or kPa. Push the button next to the OK icon to select. Push button next to Escape to exit.
Viewing Fluid Suction Level
Neptune 1 Silver

Suction Gauge lists both inHg and mmHg numbers
Make sure you are reading the gauge accurately
Turn the Fluid Suction Adjustment Knob to change suction level
Neptune 1 Silver Setup

1. Indicator Lights must be lit
2. Turn on unit with On/Off Switch
3. Install Inlet Manifold
4. Connect Suction Tubing
Device Setup

- Ensure Control Panel is visible to everyone in room
- Discuss the type of tissue involved and decide if the Neptune product is the best choice
Knowledge Check: Setup

• Which safety steps should be taken during setup of the Neptune System?
  a) Ensure the control panel can be clearly seen by everyone
  b) Ensure the device has been cleaned since previous use
  c) Consider the type of tissue associated with the surgical procedure
  d) Check that the device has been fully charged
Knowledge Check: Setup

• Which safety steps should be taken during setup of the Neptune System?
  
a) Ensure the control panel can be clearly seen by everyone
  
b) Ensure the device has been cleaned since previous use
  
c) Consider the type of tissue associated with the surgical procedure
  
d) Check that the device has been fully charged
Before the Case
Neptune 2

- Neptune 2 has two reservoirs for collection
  - There is a four liter and a 20 liter reservoir that can be used either at the same time or independently during the procedure
- Determine how many manifolds are needed and which size would be most efficient
Attach the suction tubing to the ports of the installed manifold
Make sure all unused manifolds are closed using their corresponding caps
Press VACUUM SYSTEM to start fluid suction
Rotate the appropriate “vacuum setting” dial to adjust the suction level of the 4-liter and 20-liter canister
The corresponding vacuum setting will show on the small digital screen
Once the knob is stationary and the setting is no longer changing, the screen will change to the actual vacuum in the canister
Before the Case
Neptune 1 Silver

- The Neptune 1 Silver has one 20 liter canister
- Install the inlet manifold into the top of the canister
- Connect the suction tubing to the manifold’s port(s) and nozzle(s) to the suction tubing.
- Turn on by pressing Fluid Suction On/Off button
- Adjust the Fluid Suction Adjustment Knob until you reach the appropriate fluid suction level
- This will be displayed on the Fluid Suction Gauge
Knowledge Check: Before the Case

Which of the following scenarios is an acceptable use for the Neptune 2?

a) In an application that requires a vacuum level below 50mm-Hg
b) As a high vacuum device
c) To provide suction to other suction-powered accessories
d) In procedures that require no suction, such as passive chest drainage
Knowledge Check: Before the Case

Which of the following scenarios is an acceptable use for the Neptune 2?

- a) In an application that requires a vacuum level below 50mm-Hg
- b) As a high vacuum device
- c) To provide suction to other suction-powered accessories
- d) In procedures that require no suction, such as passive chest drainage
During the Case Neptune 2

- Please note the following controls located on the user interface:

  IV Pole Height Adjustment

  VOLUME RESET will reset or zero the fluid level value on the fluid level display
During the Case Neptune 2

• If the 4-liter canister becomes full during the procedure, two options:
  - Switch collection to the 20-liter canister
  - Press the EMPTY TANK button that will transfer fluid into the 20-liter canister

• Can only do this three times before docking
During the Case Neptune 2 – Smoke Evacuation

- Install the smoke evacuator tubing to the smoke filter and press SMOKE EVACUATOR
- From the smoke evacuator screen on the control panel display, push the buttons next to the arrow icons to increase or decrease power level
During the Case Neptune 1 Silver

• Fluid Suction Range
  - 254 – 483 mm-Hg
  - 10 – 19 in-Hg

• Keep unused ports capped
Knowledge Check: During the Case

What options are available for the Neptune 2 if the 4-liter canister becomes full during the procedure?

a) Switch collection to the 20 liter canister
b) Press the Empty Tank button on the control panel
c) All of the above
Knowledge Check: During the Case

• What options are available for the Neptune 2 if the 4-liter canister becomes full during the procedure?
  a) Switch collection to the 20 liter canister
  b) Press the Empty Tank button on the control panel
  c) All of the above
After the Case

- Do not remove any attached suction tubing from the manifold
- Rotate the manifold one quarter turn to the left to disengage and remove it from the receptacle
- Dispose of the suction tubing and manifold together
- Turn the VACUUM SYSTEM off
- Ensure the vacuum level is greater than zero so that suction is present for the canister with the manifold to be removed
- Roll the tubing toward the manifold port to purge the tubing of fluid waste
After the Case
Neptune 2

• Does not need to be emptied between cases
• **Insert a new manifold before each case and clear the volume measurements**
• When the Rover becomes full, transport to the docking station for cleaning:
  - Push the Rover to docking station
  - Select appropriate cleaning cycle
    • Use the buttons on the display screen next to the arrow icons to scroll and highlight the appropriate wash cycle
    • Press OK
• **Rover may remain unplugged and turned off until next use**
After the Case
Neptune 1 Silver

• Does not need to be emptied between cases
• **Insert a new manifold before each case and clear the volume measurements**
• When the rover becomes full, transport to the docking station for cleaning
• Keep fluid suction running while coiling the suction tubing toward the manifold to purge waste fluid
• Turn the fluid suction off by pressing the Fluid Suction On/Off button
• Wait until the gauge reads zero then lift the manifold out of the collection canister
After the Case
Neptune 1 Silver

- Cap the large port on the underside of the manifold to prevent leakage
- Discard the manifold and suction tubing as biohazard waste
- DO NOT remove the manifold while the vacuum pump is running
- Turn the unit off and unplug the power cord
Knowledge Check: After the Case

- After the procedure, disconnect all suction tubing attached to the manifold and remove it from the receptacle. Dispose of suction tubing and manifold immediately.

  a) True
  b) False
Knowledge Check: After the Case

• After the procedure, disconnect all suction tubing attached to the manifold and remove it from the receptacle. Dispose of suction tubing and manifold immediately.
  a) True
  b) False

Suction tubing should not be removed from manifold – the two should be disposed of together
Pre-Use Checklist

• 9-point checklist must be completed before each procedure
  - This will be integrated into OpTime as 1 question that will suffice as the answer of “Yes” to all 9 questions

• The full checklist can be found posted on the Neptune unit
### Checklist in Optime

**Panel Information**

<table>
<thead>
<tr>
<th>Panel 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surgeon</strong></td>
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<td><strong>Role</strong></td>
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<td><strong>Service</strong></td>
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<table>
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<th>Procedure</th>
<th>Laterality</th>
<th>Wound Class</th>
<th>Anesthesia</th>
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<tbody>
<tr>
<td>HEMICOLECTOMY PARTIAL WITH ANASTOMOSIS</td>
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<td>Clean Contaminated</td>
<td>General</td>
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<tr>
<td>ILEOSTOMY NON-TUBE</td>
<td>N/A</td>
<td>Clean Contaminated</td>
<td>General</td>
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<td>General</td>
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<tr>
<td>OOPHORECTOMY</td>
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<td>VAGINECTOMY PARTIAL</td>
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<td>General</td>
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**Jump to OR Neptune Compliance Flowsheet**

**Stryker Neptune Compliance**

**None**

**Staff Information**
Select “yes” indicating that the checklist has been reviewed and understood by all staff within the OR.
Pre-Use Checklist

- You learned how to adjust the unit of measure earlier in this module
- mm-Hg measures suction and is an industry standard
Pre-Use Checklist

- Always consider the type of tissue associated with the procedure
- Do not apply High Flow suction to tissues associated with procedures that require either no suction, low vacuum or low flow suction
Pre-Use Checklist

- Verify that the surgeon of record has consented to use the Neptune Device
Pre-Use Checklist

- This will be indicated by a sticker on the badge or should be asked of each caregiver in the OR
- OpTime will serve as record of who is in the procedure
Pre-Use Checklist

- In addition to the high-suction Neptune device, an alternative source of low-level suction must be available for use in the OR for use in low-level suction applications (e.g. - suctioning airway, procedures near vital organs or anatomic structures)
Pre-Use Checklist

- Verify and instruct users not to clamp any suction tubing
- If clamping is necessary, verify and instruct users to remove all suction from contact with the patient when clamping tube/tip.

<table>
<thead>
<tr>
<th>Checklist Items</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Verify and instruct users NOT to clamp any suction tubing if possible. If not, verify and instruct users to remove all suction from contact with patient when clamping tube/tip.</td>
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</table>
Pre-Use Checklist

- This will already be completed
- If for some reason the warning placard is missing or damaged, contact your Stryker or Supply Chain representative immediately
Warning Placard

DO NOT apply High Flow suction or allow extended exposure of suction to tissue associated with procedures that require either no suction, low vacuum, or low flow suction, for example, passive chest drainage.

ENSURE that in low level suction applications that the appropriate suction device is used. IT IS RECOMMENDED that an alternate source of low level suction be available for low level suction applications (e.g., suctioning an airway or near vital anatomical structures).

ENSURE the device control panel can be clearly seen and is not covered by drapes or other objects.

DO NOT use these devices with closed wound drainage systems.

ENSURE that the user has a clear understanding of the units of measure that are displayed. It is recommended that you set your unit to mm-HG.

DO NOT use these devices to provide suction to other suction powered accessories, such as Pleur Evac® devices.

ENSURE that all users of this Neptune device are adequately trained on the appropriate use of the device and are fully aware of the applications for which it is intended to be used and the risks of using it improperly.

ALWAYS consider the type of tissue associated with the surgical procedure BEFORE using this system.

DO NOT use this device for post operative use.

ENSURE the level of suction has been checked and is appropriate for the planned procedure.

Will be placed on all Neptune devices by Stryker representatives
Warning Placard

FAILURE TO COMPLY COULD RESULT IN INJURY TO VITAL ANATOMICAL STRUCTURES, AND/OR HEMORRHAGE, BOTH OF WHICH MAY RESULT IN SERIOUS INJURY AND/OR DEATH.

Will be placed on all Neptune devices by Stryker representatives.
Pre-Use Checklist

<table>
<thead>
<tr>
<th>Neptune Pre-Use Checklist</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
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<tr>
<td>The device control unit can be clearly seen by everyone in the OR and is not covered by drapes or other objects</td>
<td>☐</td>
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- **Make sure the unit can be clearly seen by everyone in the OR**
Next Steps

• Print off completion page and take to Director/Administrator for badge sticker
• Beginning mid-May 2013, Stryker will perform audits
• Master list of people who have been trained will be kept by Supply Chain
  - Evidence that pre-use checklist has been implemented reportable through OpTime
• Training and Risk Mitigation Binder kept by Perioperative Directors
Stryker Support

Visit the Neptune Customer Care website:
www.neptunecustomercare.com

Call the Center toll free: 855-458-7441

Email:
strykerinstrumentsrecalls@stryker.com
Internal Support

- Your Perioperative Director
- Supply Chain Management
  - Stephanie Baddour
    - baddous@ccf.org
    - 216-448-8026
Cleveland Clinic
Every life deserves world class care.