

CONTRIBUTORS

Brian E. Louie, MD
Thomas Knowles, MD
Jordan Wilkerson, MD
Margaret Skoog, RN
Jed Gorden, MD

INSTITUTION

Swedish Health Services,
Seattle, WA

PLEURAL DRAINAGE DURING COVID-19

SARS-CoV-2 infection often leads to infection of the lower respiratory tract. Although pleural space complications are reportedly uncommon, two clinical scenarios are envisioned where the pleural space may need to be drained to facilitate evacuation of the pleural space.

- In COVID-19-positive patients who develop a parenchymal tear leading to a pneumothorax either through pulmonary involvement or from underlying lung disease
- In asymptomatic patients who may or may not be COVID-19 positive undergoing lung surgery for cancer or complications of underlying lung disease

The need to drain the pleural space in such patients during the COVID-19 pandemic potentially creates a clinical situation where virus from the lower respiratory tract is theoretically shed and aerosolized via pleural drainage systems, particularly in patients with parenchymal air leak.

Based on information gathered from thoracic surgical colleagues via social media and a presentation from Dr. Moishe Lieberman available on The Society of Thoracic Surgeons' website, a closed pleural drainage system using stocked items at Swedish Medical Center was created. Each center's version of a closed pleural drainage system is similar in construction but modified based on available supplies at the specific center.

See step-by-step instructions below.

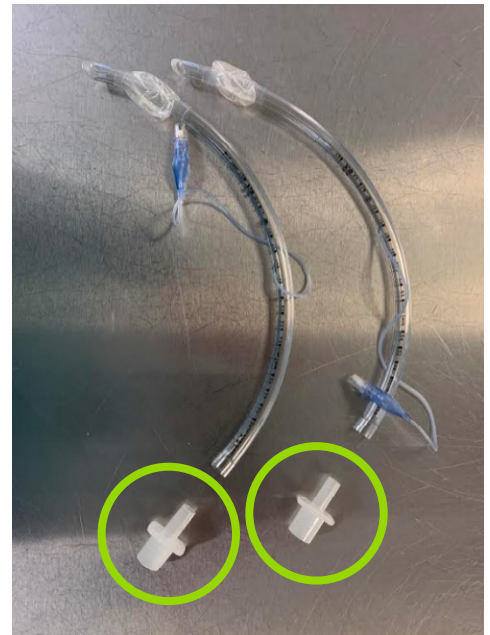
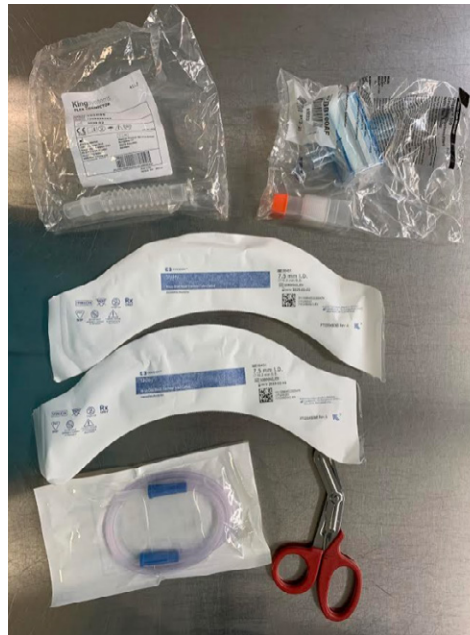
REFERENCE

1. Centre Hospitalier de l'Université de Montréal, Division of Thoracic Surgery CHUM Endoscopic Tracheo-bronchial and Oesophageal. Creating a COVID-19 safe chest tube drainage system. Accessed June 15, 2020. <https://www.sts.org/covid-19/covid-19-resources>.

INLINE HEPA FILTER FOR CHEST TUBE: STEP-BY-STEP GUIDE

Supply List

- 1 - King Flex Connector
- 1 - HEPA filter
- 2 - 7.5 ET tube (for the connectors)
- 1 - Short suction tubing
- 1 - Trauma shears
- 1 - Atrium



Using trauma shears, cut King Flex Connector at end of accordion section.



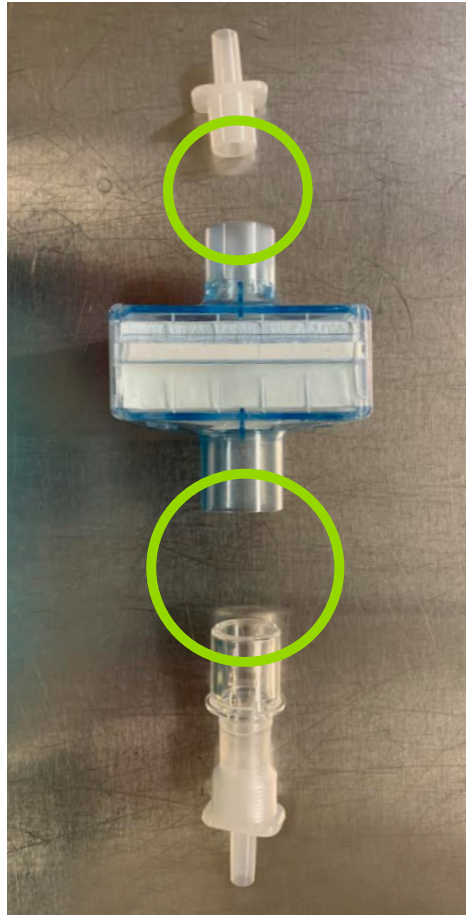
Compress King Flex Connector tubing.

Attach 1 ET tube connector to the compressed tubing on the King Flex Connector.



Attach stand-alone ET tube connector to patient side of HEPA filter.

Attach King Connector with ET tube connector to nonpatient side of HEPA filter.



Patient side directed toward atrium.

Nonpatient side directed toward wall suction.



COMPLETED FILTER SETUP

Tape all connections to
avoid breaks in system.



To
Atrium



To wall
suction

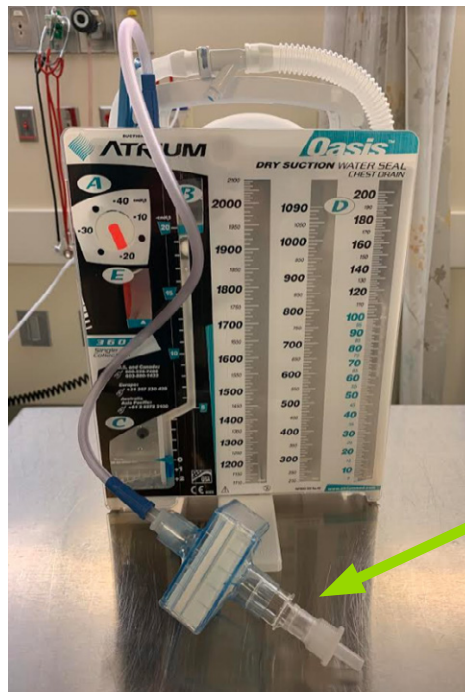


WALL SUCTION CONFIGURATION



WATER SEAL CONFIGURATION

Be sure to leave filter **attached** to atrium.



Disconnect here.