DISPOSABLE EQUIPMENT FOR EFFICIENT HOME SLEEP APNEA TESTING AND MINIMIZING HUMAN HANDLING AT THE SLEEP LABORATORY

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What's the Problem?

The use and handling of Home sleep apnea test (HSAT) equipment are potentially increasing risk of COVID-19 transmission among the Jefferson sleep laboratory technicians and staff.

HSAT kits include a nasal cannula, pulse oximeter, chest effort sensor belt that are all worn by a patient, and a recording device.
Prior to the pandemic, the Jefferson sleep lab utilizes a combination of third-party vendor for HSAT kits and Jefferson-owned HSAT kits. For the latter, the HSAT kit is shipped from the Jefferson sleep lab to the patient's home. After testing, the device is then shipped back to the lab, and kept in a decontamination room for 48 hours. Staff wearing PPE then cleans it using chemical disinfection, before data download.

Screening for SARS-CoV2 is not required prior to HSAT, so we continue to look for ways to minimize potential staff exposure, and ideally, any human exposure, to the equipment.

Cause analysis

Root causes of this problem:
- SARS-CoV2 PCR testing is not required prior to HSAT
- The nature of HSAT involves direct equipment contact to patients' nasal passages and fingers, a high risk for potential virus transmission.
- HSAT kits are not fully disposable
- A lengthy disinfection process may potentially cause shortage of available HSAT equipment at a time of high demand

How Might We: Improve efficiency of home sleep apnea testing process and minimize overall human handling of HSAT equipment during the pandemic?

As part of the disease mitigation strategy at the time of the pandemic, the Jefferson sleep laboratory has completely shifted towards utilization of the third-party vendor for HSATs. The vendor specializes in handling, shipping and disinfecting the HSAT equipment. They send the data electronically to the Jefferson sleep laboratory for interpretation.

We propose a **single-use, fully disposable HSAT kit (WatchPAT One)** to further minimize potential virus exposures and spread. The single-use design allows no return shipment, no charging or downloading, no cleaning and no infection transmission risk.

Since the equipment utilizes a different mechanism - peripheral arterial tone (PAT) signal instead of airflow, the Sleep Disorders Center will require scorer and provider staff training.