Providence HEALTH CARE	**RESPIRATORY SERVICES**	DATE CREATED: November 2014 DATE REVIEWED/REVISED: **January 2015**
POLICY & PROCEDURE	TITLE: MEDICAL/SURGICAL – ApneaLink AIR Sleep Screening System (Respiratory Therapy) NUMBER: B-00-12-12082	RELATED DOCUMENTS:

SITE APPLICABILITY:

ST. PAUL'S HOSPITAL

POLICY STATEMENT:

A Respirologist must order the application of a Level III sleep diagnostic system. This screening tool may be ordered as a: "Sleep study", "Stardust study", "T3 study", "Nocturnal study", "ApneaLink study" or any combination of these.

GENERAL INFORMATION:

The ApneaLink Air sleep diagnostic system can be used as a simple bedside sleep screening system. The ApneaLink Air records the following data: patient respiratory nasal airflow, snore, blood oxygen saturation, pulse rate and respiratory effort during sleep. The device uses these recordings to produce a report that may aid in the diagnosis of sleep-disordered breathing in adult patients.

INDICATIONS:

Unlike overnight oximetry monitoring, sleep-screening systems such as the ApneaLink Air can be used to distinguish between obstructive and central sleep apnea.

CONTRAINDICATIONS:

The ApneaLink Air must not be used in the vicinity of an MRI device or in the presence of flammable anesthetics or gases.

CAUTIONS:

Accuracy of automatic analysis for patients with a respiratory rate higher than 30 breaths per minute cannot be assured.

SPECIAL CONSIDERATIONS:

If the patient requires oxygen during the test, oxygen can be provided using nasal prongs in conjunction with

the nasal cannula flow/pressure sensor.

The ApneaLink is not intended for use with CPAP or BiPAP therapy. The system is unable to accurately measure flow when used in conjunction with positive pressure resulting in a loss of the flow signal. Overnight oximetry should be used to assess CPAP or BiPAP therapy.

REQUIRED SUPPLIES & EQUIPMENT:

NON-DISPOSABLE:

- ApneaLink Air sleep recorder
- Nonin pulse oximeter cable
- Resmed reusable belt clip for pulse oximeter
- Protective caps for nasal cannula and effort sensor connections
- USB download cable

DISPOSABLE – SINGLE PATIENT USE:

- Two AAA batteries – *always replace the batteries prior to use*
- Nasal cannula flow/pressure sensor
- Disk filter
- Nonin pulse oximeter probe
- Respiratory effort belt

DISPOSABLE – MULTI-PATIENT USE:

- Effort sensor

PROCEDURE FOR SET UP (to be completed during day shift):

1. Confirm the order for a nocturnal sleep study. Ensure the order is from Respirology.
2. Explain the procedure and purpose of the study to the patient. Determine the estimated time for going to sleep.
3. Insert two **new** AAA batteries into the device.
4. **Customize** the device before each new study to clear the memory.
5. Connect the device to a computer using the designated USB cable.
6. Open the ApneaLink software by double clicking on the desktop icon. In the **Quick Start** window click **Prepare ApneaLink**
7. The **Patient Information** window will appear. Complete the following sections of the **Patient Record Card:** Last Name, First Name, DOB, Patient ID (PHN), Height, and Weight.

   NOTE*:* If you do not customize the device prior to initiating a test, the patient's information can be entered when the device is connected to a computer for downloading.
8. Ensure the **test complete** indicator is set to 4 hours. If it is not, click the left mouse button and drag the pointer left or right until the time for test completion is set to 4 hours.
9. Click **OK.**

PROCEDURE FOR PERFORMING THE STUDY (to be completed during night shift):

A. ATTACHING THE DEVICE TO THE BELT:

1. Thread one end of the belt through the slots on the back of the device.
2. Thread this same end of the belt through one of the slots on the effort sensor.
3. Fasten the tab to the belt and position the device such that it is close to the effort sensor.

B. CONNECTING THE NASAL CANNULA AND EFFORT SENSOR:

1. Attach the disk filter to the nasal cannula connection on the device and then attach the nasal cannula to the filter. Turn clockwise to secure.

2. Attach the connector end of the effort sensor to the effort sensor connection on the device and turn clockwise to secure.

C. CONNECTING THE OXIMETER:

1. Connect the oximeter finger probe to the oximeter cable.
2. Attach the belt clip to the oximeter.
3. Attach the oximeter to the oximeter connector on the device by pushing on it.

D. FITTING THE BELT:

1. Pull the belt around the body such that it sits just below the armpits. For women, the belt should be worn above the breasts.
2. Thread the free end of the belt through the free slot on the effort sensor and fasten the tab to the belt.
3. Check that the device is secure and comfortable and that it is positioned over the center of the chest.
4. Slide the oximeter clip onto the belt. The clip should be placed on the same side of the body as the oximeter finger probe.

E. STARTING THE TEST:

1. Attach the oximeter probe to the fourth finger on the patient's non-dominant hand. Line up the picture of the fingernail on the probe with the patient's fingernail and secure the adhesive.
2. Insert the nasal cannula into the patient's nares and secure the tubing to the patients face with paper tape.
3. Have the patient lay down in their usual sleeping position to check that the belt still fits appropriately. Ensure the belt is lying flat & is not twisted.

4. To turn the device on, press and hold the power button on the center of the device for three seconds or until the light turns on.

5. Check that the lights next to the connectors for the nasal cannula, effort sensor and pulse oximeter are green. If any of these lights are red and blinking, the accessory is not connected properly.

   NOTE: All indicator lights will dim (but stay lit) approximately 10 minutes after recording begins.

6. Check on the patient 2-3 times throughout the night as workload ensuring that the probes and sensors remain in place and that the indicator light for each accessory is lit green.

F. STOPPING THE TEST:

1. Press and hold the power button for three seconds.

2. Check to see that the **Test Complete** light on the device is lit green. This means that there is at least four hours of data collected from all channels. If the **Test Complete** light is red, be sure to indicate in your comments on the downloaded report that there is less the four hours of recorded data and keep the equipment at the patient bedside in case the test needs to be repeated.

3. Press and hold the power button for three second to turn the device off.

G. DISSASSEMBLING THE EQUIPMENT:

NOTE: Do not dispose of any equipment until the sleep study has been successfully downloaded and printed.

1. Remove the pulse oximeter, nasal cannula and effort belt from the patient.

2. Disconnect the disk filter, nasal cannula and effort sensor from the connecting ports on the ApneaLink device. The disk filter and nasal cannula can be discarded after successful download. The effort sensor should be wiped down with a CaviWipe. It will be disposed of yearly.

3. Remove the pulse oximeter belt clip from the effort belt and disconnect the pulse oximeter probe from the cable. The pulse oximeter probe and effort belt should be discarded after successful download. The belt clip and pulse oximeter cable should be wiped down with a CaviWipe.

4. The ApneaLink device should be cleaned with a CaviWipe.

H. DOWNLOADING THE DATA:

1. Connect the device to a computer using the designated USB cable.

2. Open the ApneaLink software by double clicking on the ApneaLink icon.

3. Click the **Download ApneaLink** icon 

4. If you did not get the opportunity to enter the patient's information prior to starting the test a **Patient Record Card** will appear and you will be prompted to customize the report before the downloading process continues.

5. Once the report has downloaded, click on **Edit Comments**  in the tool bar to record your notes. Be sure to include whether the study was performed on oxygen or CPAP.

6. From the **File** menu select "Print" to print the report. Print three copies. Place one copy in the Patient

Record under Laboratory Reports and place the other two copies in the 8B interpretation office (Room 8436)

DOCUMENTATION, COMMUNICATION, EDUCATION:

Document the start time of the test as well the level of oxygen or CPAP that the patient is on in the Interdisciplinary Notes section of the Patient Record. When checking on the patient throughout the night be sure to document any intervention that is required.

Before initiating the test inform the patient's nurse and encourage the nurse to page you if the patient removes any of the equipment during the test.

Inform the patient that all pieces of the equipment must be worn all night. Instruct the patient not to remove any of the connections.

REFERENCES:

1. ApneaLink Air Clinical Guide. Copyright 2013. ResMed Ltd.

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