The MATRx titration process consists of gradual advancement of the mandible in small steps of predefined magnitude until all evidence of airway obstruction is eliminated. The goal is to study the patient during REM sleep in the supine position since this represents the worst case scenario for maintaining patency of the upper airway and achieving a successful therapeutic outcome with oral appliance therapy.

The data collected during the MATRx study will enable the sleep physician to:

1. Accurately select patients who will respond to oral appliance therapy
2. Prescribe the target protrusive position (i.e. OATRx Number) for each responder

In addition to this titration procedure, please review the following resource documents:

- MATRx User Manual
- MATRx Clinical Applications Guide

Before beginning your MATRx study you should have:

- Created an OATRx channel in your PSG montage
- Successfully calibrated the mandibular positioner (MP) using the patient's OATRx scale readings provided by the dentist
- Successfully calibrated and integrated the MATRx device to your PSG system

Preparing for Titration

1. Ensure the MATRx system's software (known as OATRx™ TS) is open and the Polysomnograph Initialization Panel is displayed on your PSG screen.

2. Press the **Down Arrow** button to ensure you are beginning the MATRx study with the trays set at the patient's lower limit position (also known as their habitual bite or resting position).

3. Press the **Start Titration** button. The Control Panel will now be displayed.
   a. Set the **Step Size** at 0.2mm
   b. Single-step protrusion or single-step retrusion of the mandible will be accomplished by clicking on the **Up Arrow** or **Down Arrow** buttons located at the bottom left-hand corner of the Control Panel
   c. At any time during the study, a specific mandibular position can be set by pressing the **Desired Position** button, located to the right of the **Down Arrow** button, and entering a position in mm.

4. Ensure the patient's trays are securely connected to the previously calibrated MP and insert them into the patient's mouth. Instruct your patient to relax their jaw in order to get used to how the trays feel in their resting position.
   CAUTION: Please ask the patient to refrain from pushing against the trays and/or resisting the movement of the trays during the study. Voluntary resistance may damage the MP's motor.

5. Make sure your patient is comfortable and in the supine position. Proceed with the study.

Titration Procedure

After sleep onset, observe for apneas and/or hypopneas. If observed, start titration (i.e. gradual protrusion of the patient's mandible) until these events are eliminated.

The following titration procedure is recommended to minimize the risk of arousal:

1. Advance the mandible in three separate 0.2mm steps (i.e. total advancement of 0.6mm) by pressing the **Up Arrow** button
   NOTE: The OATRx software will impose a 5-second delay in between each 0.2mm step so as not to disturb the patient's sleep.

2. After completing each 0.6mm step, WAIT 2 minutes for equilibration of the patient's response to protrusion.
   NOTE: TAG the mandibular position at each 0.6mm step, similar to the tagging procedure used during CPAP titration

3. At the end of each titration exercise, the mandible may be retruded in a series of 0.2mm steps in preparation for the next titration attempt. Single-step retrusion of the mandible is accomplished by clicking on the **Down Arrow** button located at the bottom left-hand corner of the Control Panel.

4. Continue titration until apneas and/or hypopneas have been eliminated or the patient's upper limit (i.e. maximum protrusion) is reached.
   NOTE: Emergent central sleep apnea may occur during titration. Continue titration in response to observed obstructive apneas and/or hypopneas despite any central events that may be present.

Titration Considerations

1. The titration process should be started after the patient enters a deeper stage of sleep. During this time, the patient will not be able to consciously resist movements of the mandible.
   NOTE: Initiation of the titration process when the patient is awake or in lighter stages of sleep will expose the patient to the background noise generated by the MP and may delay the onset of sleep.

2. In most cases, a step size of 0.2mm should not cause arousals and/or awakenings. However, if the patient does experience arousals and/or awakenings, wait until the patient is in a deeper stage of sleep before continuing with titration.

3. The primary goal of the MATRx study is to eliminate apneas and/or hypopneas during REM sleep in the supine position.
   NOTE: If time permits and the patient's upper limit (i.e. maximum protrusion) has not been reached, titration may be continued in response to observed HUAR (e.g. IFL, RERAs) and snoring.

4. A five minute period of REM sleep in the supine position is recommended for MATRx study interpretation. During this period there should be less than 2 apneas and/or hypopneas observed.
   NOTE: REM lateral may only be used if the pre-study documentation confirms the patient is a known side-sleeper AND REM supine is not observed during the MATRx study.

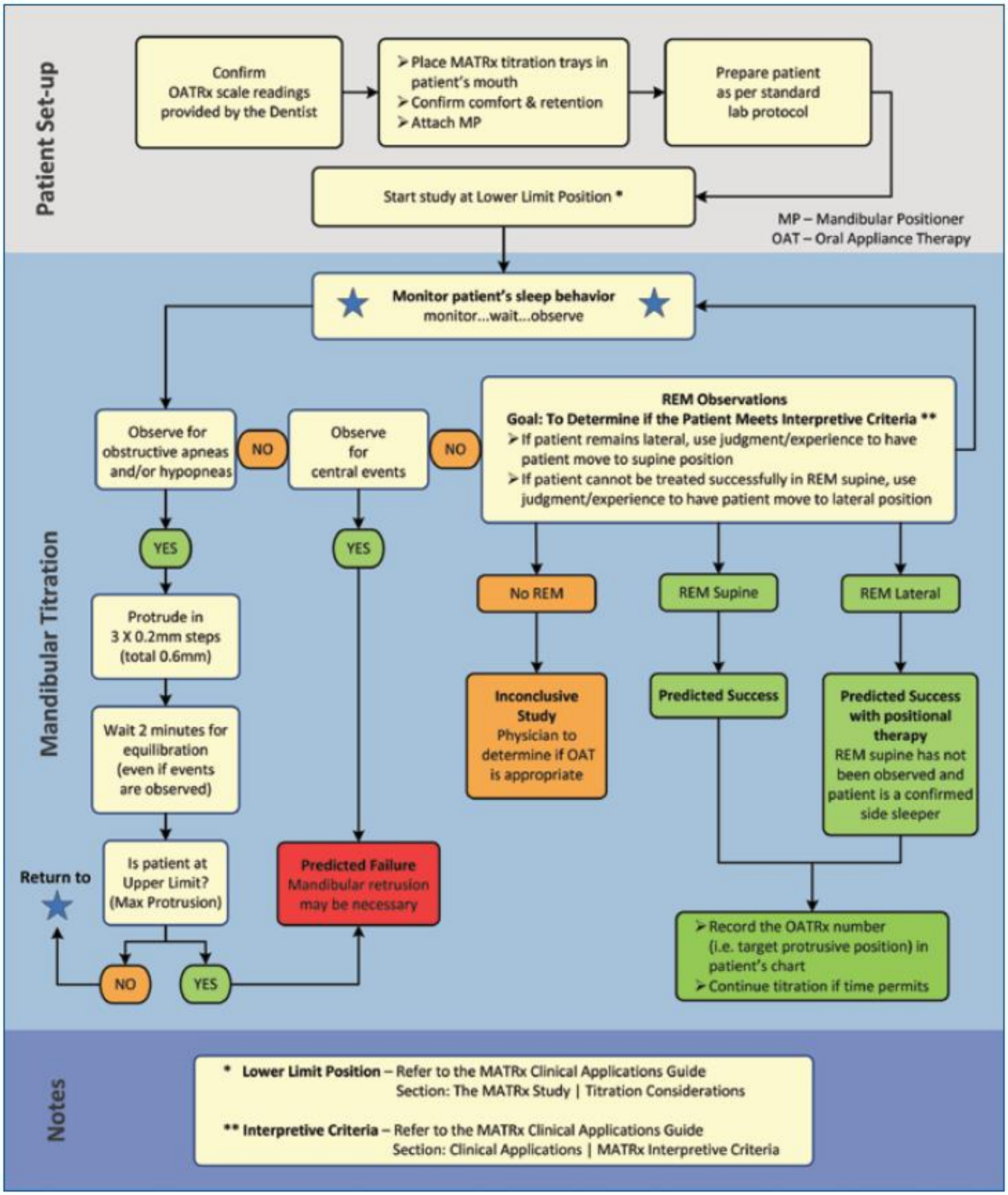
5. If the patient fails to sleep in the supine position after 2-3 hours, enter the patient room and move the patient onto their back. Repeat as necessary until the patient experiences REM sleep while supine.

6. It is important to study the patient in all stages/states of sleep and in both the supine and lateral body position.
   NOTE: Respiratory disturbances may return when the patient enters deeper stages of sleep (especially REM) or when the patient changes body position (especially from side to supine).

7. The titration procedure should be repeated several times during the night as to test the ability of the device to eliminate respiratory events under different circumstances (i.e. combinations of sleep stage and body position).

8. When frequent apneas and/or hypopneas are observed, a series of small advancement steps may be performed in succession.

9. In some cases, a more aggressive step titration procedure may be necessary to ensure there is adequate study time to observe REM sleep. In this instance, be careful not to cause arousals and/or awakenings.



Standard Titration Procedure