





## Quick Reference Guide

### CT SIMULATION

1. Prior to simulation, coach the patient on how the Breath Hold ES device works, i.e. why it is beneficial for their treatment, and explain the importance of breathing/breath holding regularity.
2. Set/ Confirm Breath Hold ES sensitivity setting (See Sensitivity Chart).
3. Connect bellows belt to the docking station/base power unit.
4. Turn on the docking station/base power unit (left side of base) and all remote displays (right side of displays).
5. Press the reference button  located on the top of the docking station/base unit to start LED light movement that corresponds with movement of the bellows belt
6. Place remote displays where best visualized by physician, patient and technicians. ALL remote displays are interchangeable. Patient display will be placed on gooseneck. (Arm connected to the table)
7. Monitor the type of breather the patient is. (Belly vs. Upper Abdomen)
8. Place the belt on the patient's bare skin in an area with good movement outside of the treatment area. Position reference markings on the patient where belt is placed using tattoos, markers, tape, etc.
9. The belt should be pulled tight enough around the patient so that the belt does not move during the procedure, but not so tight that it cannot expand and contract while breathing.
10. Record the length of the belt using the indexation drawn on top of the belt.
11. Confirm gooseneck is in a position so the patient can view the remote display.
12. With the patient on the table have them take an initial comfortable breath in and hold.
13. Zero the system by pushing the reference button .
14. The patient can now breathe around that comfortable breath i.e. illuminating three lights on either side, or return to that breath hold point and hold.
15. Monitor the patient to see what lights they can breathe between or how long they can hold their breath at desired point (This will vary depending upon treatment plan). Look for deviations such as periodic deep breaths, difficulty keeping within a range, or inability to hold breath.
16. If the patient is experiencing difficulty, try recalibrating the system at a different breath hold point or change the sensitivity. ( See Sensitivity Chart to change sensitivity setting)
17. Choose the light area you want the patient to stay between or the calibrated breath hold point you would like for the patient to return to.
18. Perform the CT simulation.
19. If a breathing study is performed, such as a 4D-CT, use the breathing surrogate for the CT scanner as well as the Medspira Breath Hold ES.
20. After the simulation, take the belt off the patient and DO NOT RESET THE SYSTEM.
21. Place belt into measurement tool.
22. Expand the bellows to illuminate the single red light, record the measurement using the measurement tool. (IF USING A BREATH HOLD TECHNIQUE SKIP TO STEP 25)
23. Expand the bellows to illuminate the top of the light range desired for the patient (for example 3 lights to the right of the breath hold point), record the measurement using measurement tool.
24. Contract the bellows to illuminate the bottom of the light range desired for the patient (for example 3 lights to the right of the breath hold point), record the measurement using measurement tool.

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### **During All Following Treatment Sessions**

25. Set the sensitivity to the setting used for the CT simulation.
26. Connect the bellows belt to the docking station/ base power unit.
27. Turn on the docking station/base power unit (left side of base) and all remote displays (right side of displays).
28. Zero the system by pushing the reference button .
29. Expand the bellows with the measurement tool to the recorded position found during CT Simulation.
30. Zero the system by pushing the reference button .
31. Then place the belt on the patient using tattoos or markings placed during first belt placement.
32. Position the patient on the table confirming that the belt has stayed in position.
33. Have the patient get to their breath hold or breathing range to begin treatment.
34. Initiate treatment when patient is at desired breath hold point or within desired breathing range.