

Hyper Expansion Therapy: Incentive Spirometer



What is “Hyper Expansion Therapy”

- Effective lung expansion prevents atelectasis, potentially improves oxygenation, augments an effective cough.
- Therapies considered “hyper expansion therapy” or “lung hyper expansion”
 - Incentive Spirometer
 - PEP
 - IPPB

Who gets Hyper Expansion Therapy?

- Bed ridden patients
- Post Surgical (particularly of the chest and abdomen)
- Patients at risk for atelectasis
- Patients that have atelectasis
- Ventricular Assist Device (VAD) patients

What is atelectasis?

- An area of lung collapse. May be segmental or lobar.
- Reduces oxygenation: V/Q mismatch (shunt effect)
- May be associated with thick retained secretions
- May be a precursor to more serious lung infection like pneumonia
- Patients that present with fever may be developing lung infection.

Incentive Spirometer

- Evidence exists for the effectiveness of cough and deep breathing in preventing lung complications for bed-ridden patients
- IS Measures and quantifies magnitude of “deep breathing”
- Patient’s are given a goal based upon age, height, and sex.
- Once patients are ambulatory, IS becomes less necessary

IS Procedure

- Surgery patient should be allowed to wake up fully before attempting to instruct IS.
- Patient is instructed to take 10 maximum (slow and deep) breaths in succession attempting to achieve their goal.
- IS efforts should be followed by a cough.
- Patient's should be instructed to perform the therapy every 2 hours.
- Watch the patient perform 10 breaths and document therapy.

IS Procedure continued

- Patients that perform <30% of predicted:
 - May need more effective pain control
 - May need additional teaching (too sleepy?)
 - May be candidates for additional interventions (i.e....PEP)
- Patients that achieve >30% of predicted:
 - Instruct the patient to continue every 2 hours. DC IS
 - Get family involved if possible in continuing compliance with therapy.

In Summary

- IS plays a role in preventing lung complications in bed ridden and surgical patients
- Instruct patients to take 10 deep breaths on the IS and cough.
- Patient should perform every 2 hours on their own.
- Once patients are ambulatory the frequency of IS can be reduced.
- Effective patient/family teaching is critical in the success of the therapy.