The Importance of Incentive Spirometry use in Recently Extubated Patients

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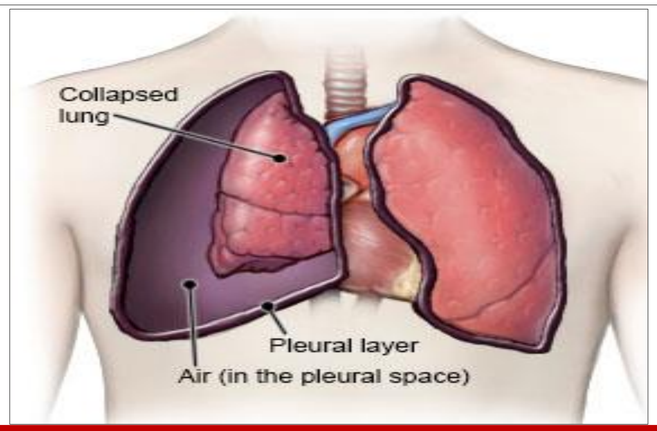
Purpose

- The purpose of this project is to support registered nurses' educational efforts on recently extubated patients and the proper use of incentive spirometry.
- The goal is to decrease and/or eliminate pulmonary complications including but not limited to pneumonia, bronchospasm, respiratory failure, diaphragm dysfunction and even death.

Background

- The Intensive Care unit treats many patients who are intubated requiring mechanical ventilated due to respiratory distress, protection of an airway or a surgical procedures. All patients are treated at a very high acuity level.
- When extubation occurs, the patients are very vulnerable to further pulmonary complications from the prolonged mechanical ventilation.



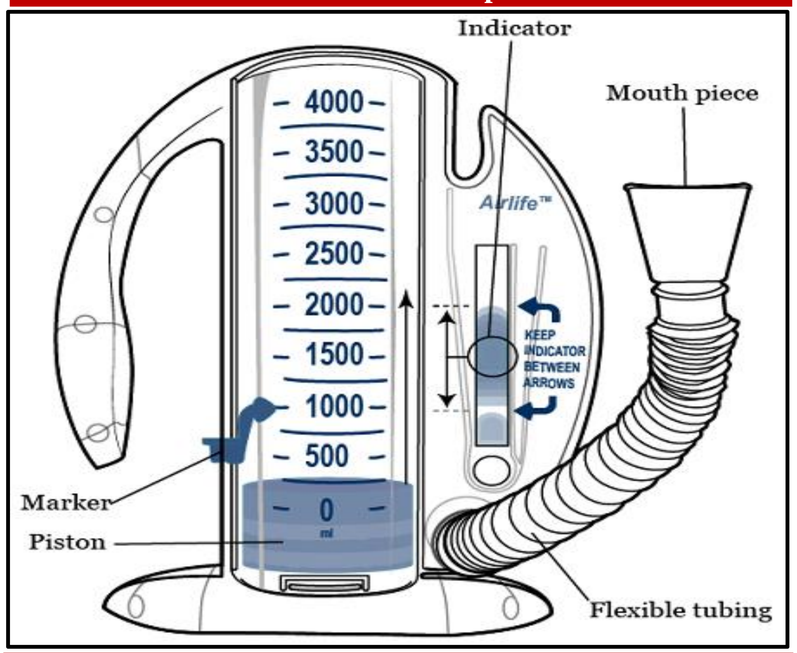
How Mechanical Ventilation Effects the Lungs

- Diaphragm Dysfunction occurs due to the dependence of the ventilation post extubation.
  - Weakened accessory muscles due to immobility
  - Inability to fully expand lungs and obtain full lung volume capacity
  - Increased secretions
  - Atelectasis or a collapsed lung

Lung Rehabilitation: Incentive Spirometry

- To prevent these possible lung complications, pulmonary rehabilitation is used
- An Incentive Spirometer is a device used to help rehabilitate and strengthen the lungs to avoid complications.
- Based on Medical studies, adherence to this device is low based on lack of education

Parts of an Incentive Spirometer



Implementation of the Project

- An educational and interactive pamphlet was created and given to patients on the ICU at Stamford Hospital to help with patient education and compliance with rehabilitation while creating goal orientated tasks.

Stamford Hospital Level 2 Intensive Care Unit

- Stamford Hospital is a 305 bed, not for profit community teaching hospital, Magnet recognized
- Stamford Hospital ICU is a level II trauma med/surg 27,000+-sq.foot unit with 20 beds

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Significance of this Project as it Relates to Nursing

- Providing personalized patient education is imperative in improving a patient's health
- Nurses must use an individualized approach in delivering education while paying attention to cultural an age-related developmental factors
- Nurses must also use an interdisciplinary approach in order to provide adequate care to patients
- Nurses must ensure that patient adhere to all care plans and be an active participant in care

Conclusion

- Incentive spirometry, if done properly and used with strict adherence, can help eliminate extubation complications that could arise from weakened accessory muscles, dysfunctional diaphragm, excessive sections, immobility and pain.
- The nurse must work and collaborate with other members of the health care team and the patient to create a plan that is patient center, realistic and attainable

Future Quality Improvements

Based on effectiveness of this teaching tool, quality improvement studies can be done to help further evaluate the relationship between Incentive Spirometry and positive patient outcomes.

Acknowledgements

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*References for this project are available on a separate handout