

# Consequences of Not Using Incentive Spirometry and Enhancing Pulmonary Health with Its Usage

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**Received:** February 17, 2026; **Accepted:** February 23, 2026; **Published:** February 28, 2026

## Background

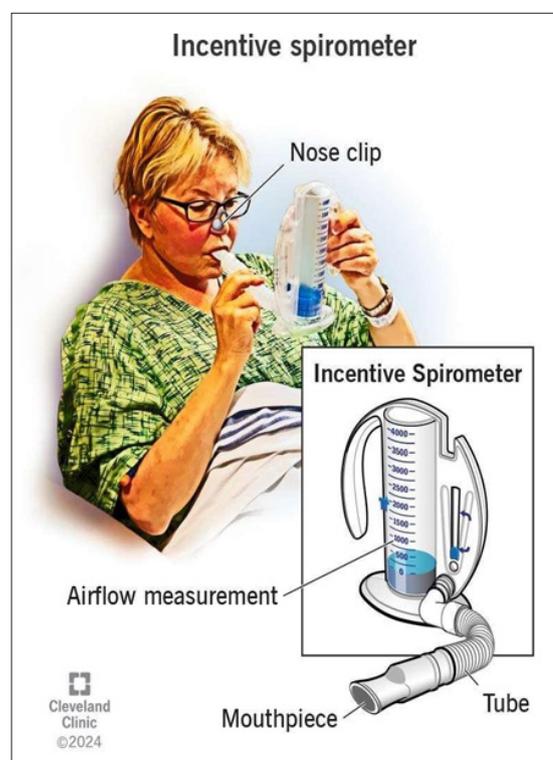
Most residents admitted to the emergency department due to traumas and rib fractures are scheduled for physiotherapy to help improve the thoracic volume of inspired air. For respiratory physiotherapy in many patients with chest trauma and rib fractures, an incentive spirometry device is widely used that is designed to motivate the patients to get the maximum number of inspiratory volumes through visually aided feedback. Incentive spirometry is a device that is neither invasive nor expensive [1].

The first report that showed incentive spirometry to reduce pulmonary complications was given by Bartlett et al., along with other studies that investigated the uses of incentive spirometry [1]. The residents in the facility where the project is implemented primarily are post-acute care and post-surgical care on a long-term basis, and they don't use incentive spirometry most of the time due to laziness and forgetfulness. Most of them are hospitalized in the emergency department after being admitted to long-term care due to the pulmonary complications they develop. They must know the benefits and importance of using incentive spirometry daily for 15 minutes every 2 hours. This paper discusses this issue along with the strategies to implement the use of incentive spirometry.

## Methods

The materials used in this strategy to implement incentive spirometry were digital posters that showed the use and importance of incentive spirometry. Such techniques were used for the residents because most of the residents in the facility are 65-90 years old, and most of them learn through visual teaching through videos and posters. Besides using the

materials, collaboration was set up with the nurse assistants and staff nurses. They would positively reinforce residents to use incentive spirometry 15 minutes every 2 hours through daily reminders. Residents were made easier to use incentive spirometry by demonstrating their use in front of them [2].



**Citation:** Kayinat Sundas, Yar Muhammad Khan, Ragenia Wilson. Consequences of Not Using Incentive Spirometry and Enhancing Pulmonary Health with Its Usage Department. Open Access J Clin Path Res. 2026. 2(1): 1-3. DOI: doi.org/10.61440/OAJCPR.2026.v2.37

### Strategy

#### 1. Educational Tools:

- Posters and videos tailored for elderly residents.
- Focused on the importance and proper use of spirometry.

#### 2. Daily Reminders:

- Scheduled reminders every two hours for 15-minute sessions.

#### 3. Staff Involvement:

- Hands-on demonstrations and assistance by nurse assistants.
- Positive reinforcement to motivate residents.

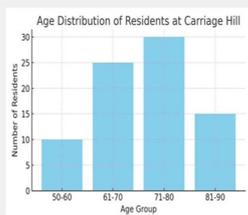
#### 4. Monitoring and Feedback:

- Staff monitored usage and provided continuous encouragement.



### Setting and Population

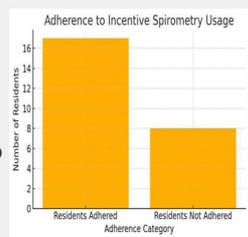
- **Carriage Hill Nursing Home:**
  - An 80-bed rural facility serving post-acute and chronic care patients.
- **Residents:**
  - Age: 50–90 years.
  - Health conditions: Diabetes, hypertension, hip/knee replacements, lung cancer.
- **Staff:**
  - 4 nurses and nursing assistants supporting the residents across 4 units



### Results

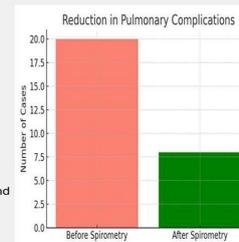
Upon evaluation, it was found that only 17 out of the 25 residents could use incentive spirometry regularly for 15 minutes every 2 hours, while the remaining ones skipped it or were not adhering to its usage due to laziness or forgetfulness. The things that worked well during this project were the teaching methods and materials used: videos and posters, along with an in-person demonstration of using incentive spirometry. However, the things that did not work were not having enough time to get all the residents to use incentive spirometry and not having enough residents to have much more robust data that could give solid results. If the project were to be repeated, the one different thing that could be done would be to wait till more residents with 10 post-surgical and post-acute care occupy beds so that the sample size is more significant compared to the previous one. The second difference would be giving the project more time to finish to get more fruitful results [3].

- **Sample Size:**
  - 25 residents (out of 80).
- **Adherence:**
  - 68% (17 residents) used spirometry consistently.
  - Remaining residents cited forgetfulness or lack of interest.
- **Feedback Highlights:**
  - Visual teaching aids (posters/videos) were highly effective.
  - Hands-on demonstrations improved understanding and compliance.
  - Barriers included residents' lack of motivation and laziness.



### Discussion

- **Strengths:**
  - Short implementation timeline.
  - Positive results with a small sample size.
- **Weaknesses:**
  - Limited participation.
  - Residents required frequent reminders to adhere consistently.
- **Opportunities:**
  - Expand project to include more residents and refine educational tools.



### Conclusion

Usually, the benefit that incentive spirometry can provide to the residents is improved pulmonary ventilation. By using incentive spirometry, patients on ventilators suffering from lung cancer typically benefits as they have lesser pulmonary complications, for example, pneumonia and lower hospital readmissions. The benefits are not only to the patients but also, to the stakeholders that invest in buying the equipment for incentive 11 spirometry. The more the patients use incentive spirometry, the higher the stakeholders will get financial benefits. The main aim is to promote the use of incentive spirometry by positive reinforcement through regular reminders during the morning and to help and facilitate the residents using incentive spirometry during the morning. Strategies for implementing incentive spirometry usage are to provide visual teachings about the benefits and importance of incentive spirometry use [4].



### Acknowledgments

I would like to extend my heartfelt gratitude to all the nurse assistants, occupational therapists, speech therapists, physical therapists, the director of nursing, nursing supervisor, and the unit manager for their invaluable support in carrying out this research project. Without their collaboration and dedication, this work would not have been possible. A special thank you goes to all the stakeholders who generously provided the necessary equipment for incentive spirometry. Their contributions played a crucial role in enabling me to educate patients on the benefits and proper use of incentive spirometry, which was central to the success of this study.

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