

MySpirometer

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SUMMARY

UCLA researchers have developed an incentive spirometry system that encourages and advises patients to perform incentive spirometry with minimal aid from healthcare professionals.

BACKGROUND

Patients who undergo thoracic, abdominal, head and neck surgery often experience severe pain during maximal inspiration. Such pain diminishes the time spent during inspiration, leading to reduced tidal volumes, decreased pulmonary compliance, atelectasis and alveolar collapse. Sustained maximal inspiration exercises have long been shown to improve lung functions and prevent these pulmonary complications. These exercises have become the standard of care for nonambulatory surgical and non-surgical patients. The incentive spirometer is the most extensively researched and commonly used device for these exercises. Conventional incentive spirometry includes a tube connected to a large air column containing a lightweight object that rises on inspiration. The self-administrated device however, suffers from low patient compliance. It's bulky, not user intuitive, may induce pain, and does not monitor patient use or progression. Furthermore, incentivizing features are not interactive and the device is easily looked over throughout the course of a busy hospital day.

INNOVATION

UCLA inventors have developed an incentive spirometry system that encourages and advises patients to perform incentive spirometry with minimal aid from healthcare professionals. This invention utilizes an adaptor device that allows for airflow through traditional spirometry tubing, substantially reducing the overall bulk of conventional spirometry devices. This invention quantitatively records the performance onto the patients' personal smartphone devices, which can be monitored by healthcare professionals. The programmable user interface allows for adjustments in spirometry timing, alarm and incentivizing graphics.

APPLICATIONS

- Encourage patients to perform incentive spirometry

ADVANTAGES

- Compared to the conventional incentive spirometry, this invention substantially reduces the overall bulk of spirometry devices
- Through incorporation of smartphone devices, this invention not only increases patient compliance, but also allows healthcare professionals to better monitor patient performance
- This invention will significantly reduce the cost per patient per hospitalization

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OTHER INFORMATION

KEYWORDS

incentive spirometry, inspiration, exercises, smartphone, spirometer, interactive

CATEGORIZED AS

- **Medical**
- Devices
- Rehabilitation

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