Disposable device for reducing pulmonary complications by promoting incentive spirometer use

Technology #cu17019

This technology is an inexpensive, disposable device that contains a sensor, microprocessor, and notification system that promotes incentive spirometer use in hospitalized patients. By improving patient compliance with respiratory therapy this device can reduce costly pulmonary complications. This device will also help clinicians identify patients who are at higher risk for adverse outcomes.

Unmet Need: Reminder for patients to use incentive spirometer

Incentive spirometers are disposable devices that encourage patients to take deep, slow breaths. Patients who regularly use incentive spirometers are less likely to have costly pulmonary complications. However, patients often forget to use their incentive spirometer, limiting the efficacy of these therapies. Furthermore, clinicians are unable to track which patients have poor compliance, limiting the opportunity to identify these higher-risk patients. There is an unmet need for a simple system that reminds patients to use their incentive spirometer and that enables caregivers to track patient compliance.

The Technology: Simple device that encourages incentive spirometer use and provides feedback to caregivers

This technology is a disposable device that operates on alkaline batteries (can be disposed as standard waste) that attaches to most commercial incentive spirometers. The device uses a combination of sensors and algorithms to track patient compliance with incentive spirometer use and provides audible reminders. The device can be quickly interrogated using a handheld receiver which can then transmit the data to a central server and electronic medical record.

Applications:

- Improving patient compliance with incentive spirometer use
• Reducing pulmonary complications in hospitalized patients
• Identifying patients at high risk for pulmonary complications

**Advantages:**

• Simple, intelligent device design
• Compatible with most commercial incentive spirometers
• Lasts for a few days and then can be disposed as standard waste
• Ease of use for both patient and caregiver
• Easily integrates into any medical system
• Reduces hospital costs by reducing pulmonary complications and patient length of stay
• Enables clinicians to easily identify patients who are non-compliant and at higher risk for pulmonary complications

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**Related Publications:**

**Tech Ventures Reference:**

• IR CU17019, CU17248

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