PneuX Pneumonia Prevention System

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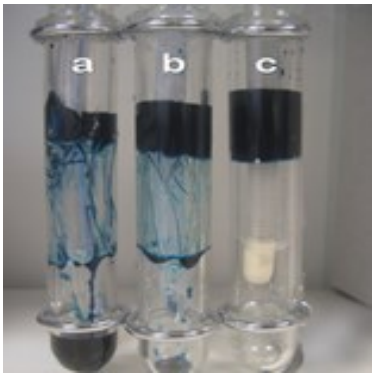
Selected by the prestigious NHS Innovation Accelerator programme, 2015

Cleveland Clinic Top 10 innovations, 2010



The PneuX Pneumonia Prevention System is a tracheal tube and tracheal seal monitor that prevents leakage of contaminated fluid to the lungs by continuously maintaining a safe and effective seal. This unique system allows for saline irrigation to maintain pharyngeal hygiene.

Ventilator associated pneumonia (VAP) is the leading cause of infective nosocomial mortality in ICU[1] resulting in tens of thousands of avoidable deaths, increasing ICU stay[2] and an excess spend estimated of up to £100 million in the NHS.[3] Pharyngeal secretions rapidly become colonized with pathogenic bacteria that continuously drip into the lungs past all standard tube cuffs. Accumulating bacteria invades lung tissue resulting in VAP. Recent studies by Massachusetts General Hospital and Cardiff University have shown that all current cuffed tubes leak bacteria and fluid past the cuff, except the PneuX, even over prolonged periods of time (24 hours).[4,5] The ICU is an incubator of antimicrobial resistance and the PneuX has been shown to break the antibiotic/re-infection cycle.[6] An independent NHS clinical RCT showed significant reductions in VAP using the PneuX[7] and independent health economists (Royal College of Surgeons) reported a saving of £700 per PneuX tube used.[8] Listed as a Cleveland Clinic Top 10 innovation[9], the PneuX was selected for the NHS Innovation Accelerator[10] and was awarded a national tariff for adoption in the NHS.[11]

Conclusion:

The PneuX was designed as a system that can:

- ⇒ facilitate eliminating VAP in critical care
- ⇒ achieve a leak-free cuff
- ⇒ provides a complete tracheal seal against micro-aspiration
- ⇒ allow for continuous reliable pressure control to maintain trachea seal
- ⇒ safely remove and irrigate chemically and bacteriologically damaging material from the subglottic and upper airway
- ⇒ make soiling and colonisation of bacteria in the tracheobronchial tree and lungs unacceptable
- ⇒ raise the quality of care for ventilated patients

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