



## Touchless Continuous Low-Acuity Monitoring to Counter Health Care Staff Shortage

Oral Presentation (Practice-related)

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**Background:** Across the EU the number of people who are 80 years or older will double by 2050. The demand for efficiency within today's health care could be supported by technological innovation.

**Problem:** The demographic shift poses quality challenges for the EU health care, particularly for the care of the frail elderly. The shortage of staff exacerbates this; high rates of falls and pressure ulcers often require additional hospitalization. Regular spot checks significantly reduce staffs time that could be spent on essential caregiving. Although at least 30% of health care tasks could be automated for efficiency support, such innovative technology is introduced rarely.

**Objectives of this practice-based project:** 1. Improving efficiency by reducing the number of regular spot-checks. 2. Reducing staffs work-related stress. 3. Supporting fall prevention. 4. Supporting pressure ulcer prevention. 5. Supporting optimal use of resources. Approach Team of nurses and physicians participated in product usability testing interviews addressing the five objectives. The tested system was developed according to a ballistocardiograph technology. A review was also made of a study assessing the ROI for the implementation of a similar monitoring system within a general surgical unit, where two case models were used: [A] an estimation of total cost savings of intervention effects, and [B] sum of only the direct costs.

**Results / Experiences:** The experience showed that the continuous contact-free low acuity monitoring can reduce the number of regular spot-checks, while also reducing staff's stress, and improving efficiency. It can also be a supporting tool in prevention of falls and pressure ulcers. Overall, optimal use of resources is supported in studies of similar systems, showing to have a cost-effective ROI.

**Discussion:** The contactless continuous low-acuity monitoring appears to create positive results by reducing the number of regular spot-checks and stress for the staff. Additionally, the bed-exit information allows the staff to pay attention for fall risks, and the mobility information supports staff's efforts in the prevention and care of bed ulcers. As this is a practice-based study using a single health care team, the results should be replicated a number of times in diverse contexts. When evaluating similar monitoring systems concerns were raised regarding alarm fatigue, operational costs (including annual replacement of the sensor parts). and maintenance.

**Conclusion:** In conclusion, given the significant shortage of staff and the demographic shift, low acuity monitoring should be included for quality, efficiency, and safety support within EU health care.