

## **P151**

### **Unobtrusive Monitoring of Respiratory Variability in Palliative Care: A Small Case Series**

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**Background:** Respiratory patterns at the end of life are characterized by significant variability; sometimes as part of the normal dying process and sometimes influenced by the disease and treatments. The use of special mat sensors placed under the mattress can unobtrusively monitor breathing patterns. We investigated respiratory variability using remote monitoring in a small series of cases.

**Methods:** Data was collected in the Élisabeth Bruyère Hospital Palliative Care Unit and at Carleton University. Participants included two patients with advanced cancer and four student volunteers. A Tactex Systems Inc. Bed Occupancy Sensor was placed under the mattress. Data was collected on a laptop and analyzed using custom algorithms written in MatLab software. A total of 489 hours of patient breathing data and 79 hours of healthy adult breathing data were recorded. Edmonton Symptom Assessment Scores (ESAS) were collected.

**Results:** A Respiratory Amplitude and Interval Disturbance (RAID) score was determined for participants: volunteers scored a range of 13.1(+/- 10.3) to 18.0 (+/- 11.3); Patient A (gastrointestinal cancer) 15.6 (+/- 11.9); Patient B (lung cancer) 45.1 (+/-20.4). There was a correlation between the RAID score and the ESAS score in Patient B.

**Conclusions:** This unobtrusive mat sensor appears to be a useful approach to assessing respiratory patterns. The correlation between breathing patterns and symptomatology is an area that deserves further research and this technology may provide an approach to facilitate this. Larger studies are warranted.