We utilized a novel wireless patient position/movement monitoring system on a busy, 27-bed medical-surgical unit. The unit uses a two-hour turn protocol for all patients.

An FDA-cleared patient monitoring system (Leaf Healthcare, Pleasanton CA) was installed on our medical-surgical unit. The wearable patient sensors transmitted data regarding the patient’s position to a central computer, where it was analyzed and displayed on large monitors. Nurses could easily identify at a glance when a patient was about to require a turn, or when a turn was overdue.

The system automatically recognized and documented any patient self-turns that met prescribed turn-angle and tissue decompression time thresholds. In such a fashion, the system allowed resources to be directed toward those patients who most needed assistance.

Sixty-nine patients with a mean Braden score of 19.4 (min 13, max 23) were monitored over 31 days. A total of 3287 hours of monitoring data was collected. Average monitoring time per patient was 47 hours (min 2.8, max 172). The average compliance after implementing Leaf was 89%.

The number of turn alerts and compliance to the two-hour turn protocol varied by time of day, and by day of the week. Periods with the lowest compliance coincided with medication delivery times, shift changes and typical admission/discharge times.

Times with the most overdue turns:
- Medication administration times
- Vital signs recording times
- Admissions
- Meals
- Shift changes

Times with the fewest overdue turns:
- Night shift (nursing down-time)
- More CNAs present

This project focused on the use of new technology to objectively measure turning practices. Our plan is to utilize these findings to shape targeted clinical training to support the implementation of a sustainable pressure ulcer prevention program. The results allowed Nursing Management to provide improvement measures by addressing staffing levels and education.

A second phase of this quality improvement initiative will consist of a comprehensive clinical training academy, implementation of a revised unit protocol and adopting the Leaf System to ensure sustained, highly compliant turning practice. With this technology, we can now explore the option of varying turn schedules based on individual patient risk assessments.

### References
1. Are We Ready for This Change? Preventing Pressure Ulcers in Hospitals: A Toolkit for Improving Quality of Care. April 2011
2. AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, HCUPnet, Nationwide Inpatient Sample, 1993-2006