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Driving the Culture of Alarm Management Practices: Using the Influencer Model

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Winchester Hospital
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Winchester Hospital is a **229-bed**, **three-time Magnet** designated **community hospital** founded in 1912.

It serves the health care needs of many communities in northwest suburban Boston. In addition to acute-care inpatient services, Winchester Hospital also provides an extensive range of outpatient services as well as integrated home care.

Background

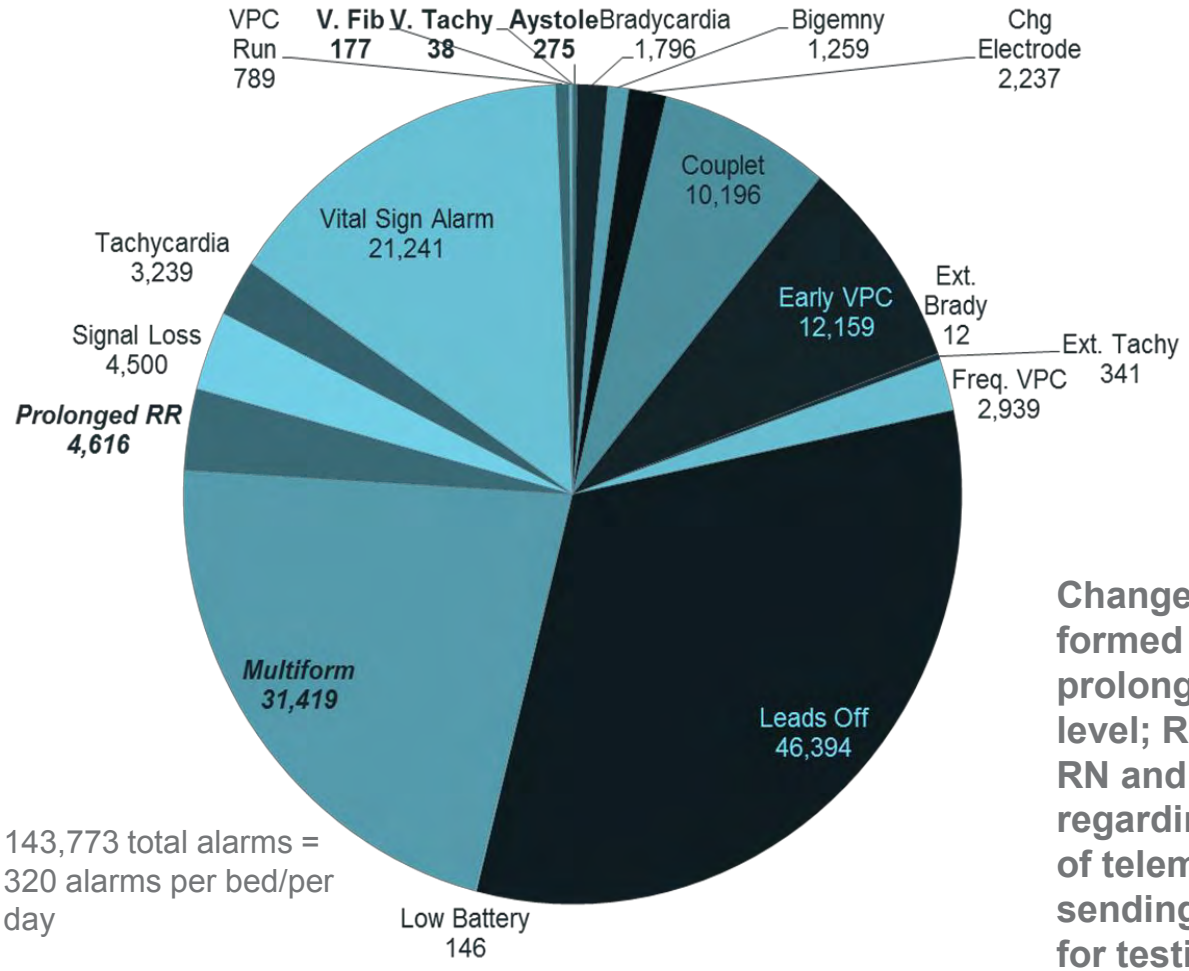
- Media alerts 2010 – 2011: Media coverage about nearby hospitals experiencing tragic patient outcomes attributed to alarm fatigue and cardiac alarm management
- February 2011: Senior leadership from the Winchester Hospital Quality and Safety Department and Patient Safety Committee recognized the patient safety implications and commissioned a multidisciplinary Alarm Fatigue Focus Group
  - Telemetry Task Force (Clinical Engineer, Nurse Manager, CPS)
  - Goal: to make alarms actionable
  - Researched the literature and influenced by project improvement model from Johns Hopkins (*Cvach, M. and Graham, K.*) using small tests of a change on a pilot unit and monitoring pre and post data

Pilot Unit

23 bed medical telemetry unit

- Contest: Guess the number of alarms that went off in two categories (mf PVCs and prolonged R-R) for a two-week period
- Staff survey: Pre and post changes
- Alarm data collected: Pre and post changes
- Press Ganey Noise scores: Pre and post changes
- Staff education: RNs and CAs
- “Stop those alarms” posters on unit
  - “We want 77,813 fewer alarms!”

Pre-alarm Data



143,773 total alarms = 320 alarms per bed/per day

Date range: 7/28/11-8/16/11

Changed default of multi-formed PVCs and prolonged R-R to advisory level; RN education.
RN and CA education regarding steps in removal of telemetry box when sending patients off unit for testing and daily battery change. 9/11'

C3 Pilot Study: Data Analysis

Type of Alarm	Level of Alarm	Pre Trial	Post Trial
Multi-form	Advisory	31,419	-
Vital Signs Alarm (Hi/low HR, ST-Segment, SpO2)	Warning	21,214	19,473
Prolonged R-R	Advisory	4,616	-
Signal Loss	Advisory	4,500	1,279

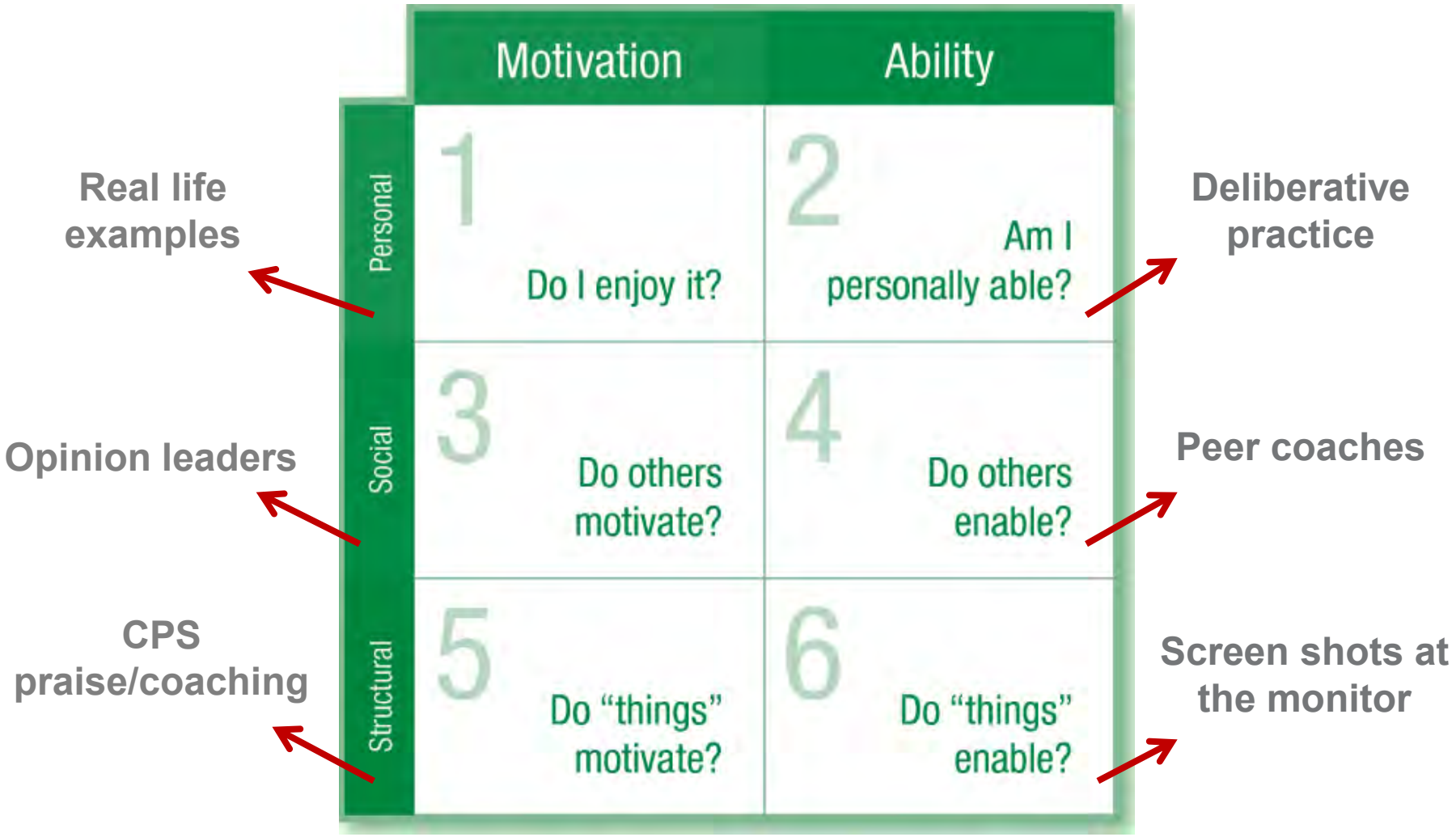
Results

- ✓ 30% reduction in audible alarms
- ✓ 225 alarms per bed/per day (down from 325 alarms per bed/per day)
- ✓ 70% reduction in signal loss alarms
- ✓ 57% reduction in low battery message
- ✓ 100% of the staff are changing parameter levels as the patient's condition changes

Next Steps

Since the data supported positive outcomes, the decision was made to roll out the same as well as additional alarm changes to the remaining three telemetry units in the hospital.

Influencer Model



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Patterson, K., Grenny, J., Maxfield, D., McMillan, R., & Switzler, A. (2007). *Influencer: The Power to Change Anything*. NY: McGraw-Hill.

Action Plan

- Changed most audible defaults to “off”
- Created a psychomotor competency with deliberative practice
- Education
- Opinion leaders as peer validators
- Alarm champions/ peer coaches
- Posted a screen shot of the alarm changes next to the monitor
- Shared real-life scenarios
- Clinical Practice Specialist praise and coaching
- Shared data results

The Results

Post-Implementation: First Data Point *

	Cardiac dysrhythmia alarms Run 1/9/14
Unit A	89% fewer audible alarm alerts than what would have been
Unit B	85%
Unit C	85%

*Two weeks of data from each unit

Post-Implementation: Second Data Point *

	Cardiac dysrhythmia alarms Run 1/9/14	Cardiac dysrhythmia alarms Run 2/10/14
Unit A	89% fewer audible alarm alerts than what would have been	81% fewer audible alarm alerts than what would have been
Unit B	85%	93%
Unit C	85%	88%

*Two weeks of data from each unit

Tachycardia Alarms: First Data Point*

	Predata	1/9/14
Unit A	214	473
Unit B	373	182
Unit C	914	290
Unit D	1111	319
Total	**2612**	**1264**

*Two weeks of data from each unit

Tachycardia Alarms: Second Data Point*

	Predata	1/9/14	2/10/14
Unit A	214	473	688
Unit B	373	182	154
Unit C	914	290	305
Unit D	1111	319	399
Total	**2612**	**1264**	**1546**

*Two weeks of data from each unit

Questions?

References: Patterson, K., Grenny, J., Maxfield, D., McMillan, R., & Switzler, A. (2007). *Influencer: The Power to Change Anything*. NY: McGraw-Hill.
Graham, C. & Cvach, M. (2010). Monitor alarm fatigue: Standardizing use of physiological monitors and decreasing nuisance alarms. *AJCC*, 19(1), 28-34.