Evaluation of New Nebraska Community Hospital Facilities
Nursing decentralization not consistently defined in the literature to date
- Largely ignores the many variations of decentralized models
- Very different designs included in a too-broad category

Other critical variables not considered in drawing conclusions
- Nurse room assignment methodology
- Locations of supplies/meds
- Technology adoption
- Other operational factors
Limited, but consistent, qualitative findings indicate issues with:
- Teamwork
- Support
- Communication

Research frequently focused on staff outcomes but with little focus on organizational planning and the change management process

No definitive evidence to warrant either a centralized or decentralized inpatient unit design
- But can help meet current guidelines regarding “patient visibility”
RESEARCH GOALS & SPECIFIC AIMS
Research Team

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Research Sites

Great Plains Health, North Platte, Nebraska

• In September 2015, transitioned inpatient services to a 114-bed patient tower with a decentralized nursing model with alcove stations

Fremont Health, Fremont, Nebraska.

• In January 2015, transitioned to a 76-bed inpatient unit environment with a decentralized nursing model with alcove stations
Research Goals

- Investigate impacts of the new decentralized inpatient unit environments on patient and nurse experience and outcomes
- Measure staff satisfaction with the new building, the decentralized model and the change management process
- Contribute to the body of empirical work informing evidence-based healthcare design
Specific Research Aims

**Aim 1: Patient Outcomes**
Determine whether architectural changes from a centralized to a decentralized nursing unit model are associated with key adult inpatient outcomes.

**Aim 2: Staff Experience**
Quantitatively and qualitatively explore nurse perspectives of the decentralized nursing model, collaboration, satisfaction, organizational factors and change management.

**Aim 3: Facility Performance**
Assess facility performance via validated experiential measures of the physical and ambient environment.
STAFF EXPERIENCE SURVEY
Participants at Great Plains Health

- 152 participants in a patient care or nursing role
- 53% RNs
- Average years working at Great Plains Health: 6.8 years

39% of patient care and nurse respondents have at least 10 years of hospital work experience

![Bar chart showing hospital work experience distribution]

45% of patient care and nurse respondents work in on an inpatient care unit

![Bar chart showing inpatient care distribution]
Participants at Fremont Health

- 73 participants in a patient care or nursing role
- 59% RNs
- Average years working at Fremont Health: 11.2 years

58% of respondents have at least 10 years of hospital work experience

- 1-4 years
- 5-9 years
- 10-19 years
- 20-29 years
- 30 years or more

70% of respondents work on an inpatient care unit

- Med/Surg - Medical-Surgical / Telemetry
- ICU - Intensive Care Unit / Critical Care
- Womens and Children / LDRPN
- Respiratory Care (Inpatient)
- Physical Therapy (Inpatient Rehab)
- OT / Speech (Inpatient Rehab)
- Rehab (outpatient)*
Satisfaction with Decentralized Design

**Great Plains Health**

**Fremont Health**
Change in Experience due to Decentralized Design

Great Plains Health

Fremont Health
Outcome Measures

**Nurse Job Satisfaction** (Chang 2015; Chang et al. 2011):
Assessment of work and interpersonal satisfaction among nurses

**Collaboration** (Hua 2010):
Experience of working with others and perceptions of the degree to which collaboration among coworkers was effective

**Nurse Satisfaction with Patient Care Environment** (Rich et al. forthcoming):
Degree to which nurses are satisfied with the patient care environment and changes in the patient care environment
Organizational Measures

Commitment to Change (Herscovitch & Meyer 2002):

Degree to which individuals are committed to a course of action necessary for a successful change

Change Leadership (Herold, Fedor, Caldwell & Liu 2008):

Degree to which leaders engaged behaviors needed to effectively implement change
No significant differences between sites
Organizational Measures

No significant differences between sites
Positive relationship between staff perceptions of change leadership and commitment to change
Organizational Measures and Satisfaction with Decentralization

Relationship between perception of change leadership and rating of change to decentralized nursing
Stronger relationship between change leadership and satisfaction with the decentralized environment
Change Leadership and Collaboration

Significant positive association between change leadership and collaboration dimensions, most strongly collaboration experience.
Between-Unit Differences

**JOB SATISFACTION SCORES BY UNIT**

**Great Plains Health**

**Overall effect p = 0.41**

- ICU/Critical Care: 5.71
- MedSurg: 4.98
- Women & Children: 4.53

**Fremont Health**

**Overall effect p = 0.01**

- ICU/Critical Care: 3.65
- MedSurg/Telemetry: 3.50
- Women & Children/LDRPN: 7.00
Between-Unit Differences

COLLABORATION EFFECTIVENESS SCORES BY UNIT

**Great Plains Health**

- ICU/Critical Care: Overall effect p = 0.21
- MedSurg: Overall effect p = 0.21
- Women & Children: Overall effect p = 0.21

**Fremont Health**

- ICU/Critical Care: Overall effect p = 0.02
- MedSurg/Telemetry: Overall effect p = 0.02
- Women & Children/LDRPN: Overall effect p = 0.02
Other Between-Unit Differences

- Overall work experience
- Feeling well-informed about activities and changes in the unit/department
- Ability to know when a coworker needs help
- Have information needed for work
- Ease of getting help from colleagues
- Noise levels
04 STAFF FOCUS GROUP FINDINGS
Staff Focus Groups

28 Caregivers participated across both sites.

Findings indicate that:

- Nurses define quality of care in human terms rather than in quantitative outcomes.
- Caregivers feel that the decentralized design places them closer to patients & improves nurse-patient communication and education.
- The majority of nurses feel staff teamwork & communication is compromised by the new design.
LENGTH OF STAY

- 7,408 patient encounters from Fremont Health
- 7,797 patient encounters from Great Plains Health
- At Great Plains Health there was a statistically significant decrease in length of stay comparing the pre to the post period
- At Fremont Health, there was no effect of time on LOS
- An interrupted time series model was used to assess LOS for Fremont Health, finding a relatively constant LOS over time in both the pre and the post periods.
PATIENT SATISFACTION (HCAHPS ITEMS)

- Some changes in HCAHPS scores based on a time series model
- "Always" quiet at night increased at the time of the move at Great Plains Health while an increase over time at Fremont Health appeared to be a continuation of a trend prior to the move
- "Always" getting help as soon as wanted after pressing the call button stayed constant at Great Plains Health but decreased at the time of the move at Fremont Health
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