A Multi-Site Analysis of Nurse Leaders’ Influence Over Professional Practice Environments and the Impact on Patient Experience & Quality Outcomes

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Thank you for support

- AONE
- ANF/ANCC
- Connell Family Foundation
- WORLD-Institute

- Linda Aiken, Jeanette Ives Erickson, Gaurdia Banister, Dorothy Jones, Christine Kovner and many others CNOs, site coordinators, etc.
Background & Significance

- Over 400,000 nurse leaders in formal leadership positions represent the largest group of health care managers in the U.S.
- 5,800 Chief Nurses in the US leading 3.1 Million Nurses
- 17,500 Chief Nurses globally leading 19 Million Nurses
Background & Significance

- Yet, the influence of nurse leaders’ personal, educational, and practice characteristics on patient outcomes has not been systematically and empirically examined.

- The exception are a hand full of studies of nurse leaders leadership style on patient outcomes, mainly in the Canadian context.

- The lack of empirical data linking nurse leaders to patient outcomes is problematic.
**Thinking about the next 5-10 years, how much influence do you think each of the following professions or groups of people will have in health reform in the United States?**

<table>
<thead>
<tr>
<th></th>
<th>Great deal</th>
<th>Moderate amount</th>
<th>Not much</th>
<th>None at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>37%</td>
<td>52%</td>
<td>10%</td>
<td>1%</td>
</tr>
<tr>
<td>Nurses</td>
<td>14%</td>
<td>44%</td>
<td>39%</td>
<td>4%</td>
</tr>
<tr>
<td>Healthcare executives</td>
<td>46%</td>
<td>44%</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>Insurance executives</td>
<td>56%</td>
<td>33%</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>Government</td>
<td>75%</td>
<td>20%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Pharmaceutical executives</td>
<td>46%</td>
<td>38%</td>
<td>13%</td>
<td>2%</td>
</tr>
<tr>
<td>Patients</td>
<td>20%</td>
<td>37%</td>
<td>35%</td>
<td>8%</td>
</tr>
</tbody>
</table>

How can nurse leaders take over healthcare
Our Study Purpose

- What is exemplary nurse leadership practice?
- How are nurse leaders personal, educational, and practice characteristics related to patient outcomes?
- Best answer we’ve had before this study is:
  “I know it when I see it”
Theoretical Framework
Individual Experience & Expertise
Leadership – Work Environments – Informatics – Innovation – Entrepreneurship

Provide Context to Inform
Workplace – Professional Organizations – Community – Government *

Further Influencing
Education – Policy – Practice - Research - Theory

**Influence:** The ability of an individual to sway or persuade another person or group based on Authority, Communication Traits, Knowledge Based Competence, Status and Time & Timing.
Model of the Interrelationship of Leadership, Environments and Outcomes for Nurse Executives

Psychometric Evaluation of the Revised Professional Practice Environment (RPPE) Scale

Jeanette Ives Erickson, MS, RN, FAAN
Mary E. Duffy, PhD, FAAN

Marianne Ditomassi, MSN, RN, MBA
Dorothy Jones, EdD, RN, FAAN
Methods
Design, Sample, Setting

- **Design**: Cross-sectional correlational survey design
- **Nurse leader sample**: Convenience sample of 882 leaders
  - CNOs, senior, middle, front-line managers, clinical nurse leaders, & clinical nurse specialists
- **Patient data**: unit-level, hospital reported
- **Setting**: 35 hospitals, 6 U.S. states
Outcome Variables

- **Adverse Events**
  1. Stage Two Pressure Ulcers
  2. CAUTI
  3. CLABSI
  4. Total Falls
  5. Falls with injury.

- **Patient Satisfaction (HCAHPS)**
  1. Room Cleanliness
  2. Noise
  3. Staff Response
  4. RN Communication
  5. MD Communication
Primary Predictors
LIPPES - Operational Definitions

- **Collegial Administrative Approach** - A relationship-based leadership where synergy and equality are emphasized in lieu of hierarchical position.

- **Internal Strategy and Resolve** – Self determining characteristics, fortitude, and planning.

- **Authority** - the right to take action requiring an accountability and responsibility.

- **Access to Resources** - the ability to garner necessary information, workforce support, finances, capital goods or other assets.

- **Leadership Expectations of Staff** - presumptive requirement for subordinate self governance and authority over individual and team practices.

- **Status** - having high standing or prestige identified through hierarchical position, key relationships and/or reputation.
Identification of the Psychometric Properties of the Leadership Influence Over Professional Practice Environments Scale

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Dorothy A. Jones, EdD, RNC, FAAN

This study uses the qualitatively developed Adams Influence Model® (AIM) and concepts from the psychometrically validated Revised Professional Practice Environment scale to guide the development of the Leadership Influence Over Professional Practice Environments Scale. Nurse executives and others can use this scale individually or in conjunction with instruments targeting staff or patient perceptions of their environments that the influence of nurse leaders is crucial to enhancement of environments that support staff enacting change to optimize effective, efficient, equitable, patient-centered, safe, and timely care. Influence, as a standalone concept, is of particular importance in nursing leadership. A 2010 report by Gallup/Robert Wood Johnson Foundation and a series of studies conducted at the Institute for Nursing Healthcare Leadership
Covariates

**Nurse Manager Attributes:**
1. Direct Reports
2. Total Number of Beds Overseen
3. Years of Current Experience
4. Number of Past Employers
5. Age
6. Certification
7. Highest Nursing Degree
8. Highest Education Degree
Analyses

- Linear Mixed Effect Models
  - Outcomes: either HCAHPS or quality metrics
  - Predictors: LIPPPES components, covariates and two-way interactions
  - Random effects: units within hospitals---units within same hospital may not be independent
  - Nurse manager data aggregated to unit level
  - Adverse event rates were log transformed
Findings
Sample Characteristics

- **Age:** $M = 45.98$, $SD = 12.82$
- **Gender:** Females comprised 90.7%
- **Years of experience:** $M = 6.76$, $SD = 7.56$
- **Educational background:** BS = 35%, MS = 53.1%, Doctoral = 8.9%
## Adverse Event Rates

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
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</thead>
<tbody>
<tr>
<td>CAUTI</td>
<td>0</td>
<td>11.95</td>
<td>1.73</td>
<td>1.91</td>
</tr>
<tr>
<td>CLABSI</td>
<td>0</td>
<td>6.25</td>
<td>0.52</td>
<td>0.95</td>
</tr>
<tr>
<td>Falls with Injury</td>
<td>0</td>
<td>5.08</td>
<td>0.33</td>
<td>0.57</td>
</tr>
<tr>
<td>Pressure Ulcers</td>
<td>0</td>
<td>8.06</td>
<td>1.25</td>
<td>1.98</td>
</tr>
<tr>
<td>Total Falls</td>
<td>0</td>
<td>125.00</td>
<td>2.54</td>
<td>8.79</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Clean</td>
<td>30.00</td>
<td>100.00</td>
<td>72.72</td>
<td>11.78</td>
</tr>
<tr>
<td>Physician Communication</td>
<td>30.05</td>
<td>100.00</td>
<td>77.01</td>
<td>11.08</td>
</tr>
<tr>
<td>Quiet</td>
<td>12.50</td>
<td>100.00</td>
<td>55.70</td>
<td>14.70</td>
</tr>
<tr>
<td>Staff Response</td>
<td>0.00</td>
<td>100.00</td>
<td>64.59</td>
<td>14.61</td>
</tr>
<tr>
<td>Nurse Communication</td>
<td>24.95</td>
<td>100.00</td>
<td>77.24</td>
<td>9.91</td>
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</table>
## LIPPES Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component One (Collegial Admin)</td>
<td>2.50</td>
<td>4.00</td>
<td>3.60</td>
<td>0.32</td>
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<tr>
<td>Component Two (Internal Strategies)</td>
<td>2.39</td>
<td>4.00</td>
<td>3.68</td>
<td>0.26</td>
</tr>
<tr>
<td>Component Three (Authority)</td>
<td>2.00</td>
<td>4.00</td>
<td>3.59</td>
<td>0.38</td>
</tr>
<tr>
<td>Component 4 (Resource Access)</td>
<td>1.41</td>
<td>4.00</td>
<td>3.17</td>
<td>0.42</td>
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<tr>
<td>Component 5 (Leadership Expectations)</td>
<td>2.43</td>
<td>4.00</td>
<td>3.57</td>
<td>0.33</td>
</tr>
<tr>
<td>Component 6 (Status)</td>
<td>2.55</td>
<td>4.00</td>
<td>3.62</td>
<td>0.31</td>
</tr>
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</table>
**Leadership Influence over Professional Practice Environments Scale (LIPPES) Factor Structure (n=150)**

<table>
<thead>
<tr>
<th>Scale #</th>
<th>Name</th>
<th>Cronbach’s Alpha Coefficient</th>
<th>Explained Variability (%)</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collegial Administrative Approach</td>
<td>0.937</td>
<td>12.23</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>Internal Strategy and Resolve</td>
<td>0.893</td>
<td>11.46</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Authority *</td>
<td>0.923</td>
<td>11.22</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Access to Resources **</td>
<td>0.923</td>
<td>10.53</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Leadership Expectations of Staff</td>
<td>0.913</td>
<td>10.26</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Status *</td>
<td>0.881</td>
<td>8.63</td>
<td>10</td>
</tr>
</tbody>
</table>

Nurse Leader Influence on Stage 2 Pressure Ulcers

- As the **Status** of a nurse manager increases the stage two pressure ulcer rate decreases.

- As the **Access to Resources** increases the stage two pressure ulcer rate decreases.

- For older managers as **Internal Strategy and Resolve** increases, the stage two pressure ulcer rate decreases. This effect is reversed for younger managers.
Nurse Leader Influence on Urinary Tract Infections

- As the Authority score increases the urinary tract infection rate decreases.
- As the Access to Resources score increases urinary tract infection rate decreases.
- As the Leadership Expectation of Staff score increases the urinary tract infection rate decreases.
Nurse Leader Influence on Central Line Infections

- As the **Collegial Administrative Approach** score increases the central line infection rate increases.
Nurse Leader Influence on Nursing Communication

- As the **Authority** score increases, the nurse communication score increases.
Nurse Leader Influence on Room Cleanliness

- As the **Authority** score increases the room cleanliness score increases.
- As the **Access to Resources** score increases the room cleanliness score increases.
- For older managers: As the **Leadership Expectations of Staff** score increases the room cleanliness score increases. This effect is reversed for younger managers.
Nurse Leader Influence on Staff Response

• As the Authority score increases the staff response score increases.

• For older managers: As the Leadership Expectations score increases the staff response score increases. This effect is reversed for younger managers.
Nurse Leader Influence over Noise

- As the **authority** score increases the quiet score increases.
Nurse Leader Influence on Physician Communication

- As the **Leadership Expectations** score increases, the physician communication score decreases.
Conclusions

• Different aspects of nurse leaders practice are important for influencing different outcomes

• Nurse leader authority influences the greatest number of outcomes: UTI, nurse communication, staff responsiveness, cleanliness, and noise

• Followed by resource access, which is important for pressure ulcers, UTI, and cleanliness

• Collegial administration is only influential for central line infections

• Leadership expectations are only influential for physician communication

• Status is only important for pressure ulcers
Conclusions

- We did not find any components of nurse leader practice that we measured to be related to patient falls.
- Experience and age moderated the influence of some LIPPES components on the outcomes of interest.
Implications

• Our study is the first to empirically link nurse leader practice characteristics to patient outcomes

• Developing nurse leaders across LIPPES components expends quality improvement toolkit for hospitals
Next Steps

**WORLD...future research:**

- Needs to look at through which mechanisms nurse leaders influence patient falls and other outcomes which we did not examine in this study
- Develop evidence-based leader development programs
- Should focus on designs that can demonstrate causality between nurse leaders practice and patient outcomes
WORLD

The Workforce Outcomes Research and Leadership Development Institute
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Vision & Mission

Vision: To create a practice-academic partnership composed of nurse leaders, researchers and educators who will create and sustain a program of research in innovating healthcare leadership development programs throughout the professional continuum and their impact on clinical, workforce and organizational outcomes.

Mission: To generate and test innovative models of leadership development that result in highly effective clinical leaders and to demonstrate the influence of mindful leadership on clinical, workforce and organization outcomes.
Exemplary Leadership → Better Work Environments → Better Outcomes & More Innovation

Foster Joy in the Workplace

Leadership = Love

Based on the Premise

Lack of empirical evidence

A lot of empirical evidence
Research Associate
Areas of Expertise - March 2016

Quadruple Aim (quality, access, cost, workforce)
The Impact of Leaders’ Social Networks
Physical Work Environments
Caring Science
Leaders Influence over Practice Environments
Nurse Managers Practice Environments
Value/ Cost of Nursing Care
Ambulatory Work Environments
Leadership
Innovation
Study Design

Human Factors
Quantitative Analysis Methods
Leadership Simulation
Statistical Analysis
Directed Content Analysis
Mindfulness
Patients Feeling Known
Culture of Health
Safety Culture
ICU Work Environments
Why Innovative

Addresses needs of Practice, Research, and Education simultaneously

1. **Within practice**: Organizations are increasingly challenged to continuously improve leadership practices and optimize resources.

2. **Within research**: Efforts to sustainably fund leadership research through traditional mechanisms at large scale has proven challenging.

3. **Within education**: Engagement at the point that new evidence is developed supports efforts to utilize current best practices in the advancement...
Contact & Questions

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