Overview of the State of the Research: Individual Credentialing

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Innovate. Involve. Inspire.
Focus of this review:

• Limited to U.S.

• Nursing – post-entry level and post MSN/DNP

• Not including advanced practice roles of nurse practitioner (NP), clinical nurse specialist (CNS), nurse-anesthetists (CRNA), or midwife (CNM)
  • Certification is not voluntary for these 4 advanced practice roles – systematic review (Newhouse et al., 2011)

• Any certifying organization, for example:
  • American Nurses Credentialing Center
  • Competency and Credentialing Institute
  • American Association of Critical Care Nurses Certification Corporation
  • Oncology Nursing Certification Corporation
  (32 certifying bodies are American Board of Nursing Specialties members)
Types of Outcomes

• NOT nurse-reported perceptions of benefits and outcomes

• Common sources and outcomes:
  • Administrative data – outcomes (e.g., infection, falls, medication errors, mortality, failure to rescue)
  • Administrative data – nurse (e.g., education and certification)
  • Primary data collection (e.g., survey for specialty certification)

• Levels of analysis are primarily unit and hospital-level
Patient Outcome Study Example 1

*Nurse specialty certification, inpatient mortality, and failure to rescue* (Kendall-Gallagher et al., 2011)

- **Sample:**
  - Surgical patients from 652 hospitals in FL, CA, PA, NJ
  - Staff nurse sample (N=28,017) from Board of Nursing lists
- **Design:**
  - Secondary analysis – data aggregated to hospital-level
  - Certification measured from individual nurses
- **Findings:**
  - On average at the hospital level, % BS certified 38.3% (range 0-100)
  - % BS education and % BS certified (vs. AD/ diploma) significantly decreased odds of 30-day inpatient mortality and failure to rescue
Limitations cited by Kendall Gallagher et al. (2011)

- Unknown types of staff nurse specialty certification, making it difficult to consider the relation of specific clinical knowledge to surgical morbidity and mortality

- Moderate nurse survey response with potential response bias

- Administrative discharge data may not be coded accurately or fully represent illness severity to risk adjust patient outcomes

- Logistic models did not control for other hospital characteristics that may influence patient outcomes
Nursing specialty certification and nursing-sensitive patient outcomes in the intensive care unit (Krapohl et al., 2010)

• Sample:
  • 25 ICUs in Michigan
  • ICU staff nurse survey (N=450 useable surveys)
• Design:
  • Survey responses aggregated to unit level and linked to unit level outcomes
  • Certification measured as “specialty” Yes/No
• Findings:
  • On average, 17% of nurses were certified (range 4-38)
  • No significant effect of certification on rate of central line catheter infections, ventilator-associated pneumonia, or pressure ulcers
Limitations cited by Krapohl et al. (2010):

- Sample of 25 intensive care units and focused on a narrow geographic area
- Moderate response to nurse survey may indicate non-response bias (i.e., those who are not certified may not answer)
- Varied types of specialty certification were represented (not only certifications for critical care nursing)
- Administrative data may have coding errors that influence outcomes, and there was no ability to collect other variables
### Summary of Outcomes in Relation to Certification

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Study (significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls</td>
<td>Kendall-Gallagher 2009 (+); Lange 2009 (+)</td>
</tr>
<tr>
<td>Pressure ulcer development</td>
<td>Kendall-Gallagher 2009 (-); Krapohl 2010 (-)</td>
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<tr>
<td>Medication errors</td>
<td>Kendall-Gallagher 2009 (-)</td>
</tr>
<tr>
<td>Blood stream infection</td>
<td>Frank-Stromborg 2002 (-)</td>
</tr>
<tr>
<td>Central venous catheter infection</td>
<td>Kendall-Gallagher 2009 (-); Krapohl 2010 (-)</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>Kendall-Gallagher 2009 (-)</td>
</tr>
<tr>
<td>Ventilator-associated pneumonia</td>
<td>Krapohl 2010 (-)</td>
</tr>
<tr>
<td>Other infections</td>
<td>Frank-Stromborg 2002 (-)</td>
</tr>
<tr>
<td>Complications</td>
<td>Newhouse 2005 (-)</td>
</tr>
<tr>
<td>Mortality</td>
<td>Newhouse 2005 (-); Kendall-Gallagher 2011 (+)</td>
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<tr>
<td>Failure to rescue</td>
<td>Kendall-Gallaher 2011 (+)</td>
</tr>
<tr>
<td>Length of stay</td>
<td>Nelson 2007 (+)</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Coleman 2009 (-)</td>
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Summary of Limitations

• Correlational studies (associations are not causal)

• Difficult to isolate independent effect of nurse on patient outcomes
  • Care is delivered by a team
  • Data must be aggregated to unit or hospital level

• Outcome measures rely on administrative data which may have errors in coding, unclear attribution to a single unit, and may not be risk adjusted

• Influence of confounding variables not consistently examined
  • education, clinical settings, experience, systems of care

• Studies are primarily related to inpatient care and specialty practice areas (e.g., ICU, OR, oncology outpatient)
Research Challenges

• Building support for research
  • Individual nurse and organizational motivations to seek and promote certification vary
  • Lack of data systems to track dates and types of certification and recertification

• Isolating the effect of certification
  • Team care
  • Confounding variables

• Measuring outcomes specific to certification
  • Inpatient
  • Outpatient
References


