The impact of adding nursing support workers on patient, nurse and system outcomes

REDESIGNING THE NURSING WORKFORCE
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**Introduction & Context**

**Nurse Outcomes**

**Patient Outcomes**

**System Outcomes**

**Summary & Conclusion**
Nursing Support Worker Titles

• Unregulated nursing workers are known by a range of titles including:
  • Unlicensed assistive personnel (United States)
  • Health care assistants (United Kingdom and Australia)
  • Personal care attendants or assistants in nursing (Australia)
  • Medical assistant, patient care technician, care extender, nurse aide, nursing orderlies and attendants

• In our study we will talk about assistants in nursing (AINs) or nursing support workers
  • They undertake delegated nursing tasks under the supervision of regulated/licensed nursing staff within a nursing team
  • They have limited educational preparation – at most a few weeks of theory followed by clinical practice
  • In some jurisdictions in Australia they may be pre-registration undergraduate nursing students
Redesigning Nursing Work

• Two ways to introduce nursing support workers to a ward or unit
  • Either can potentially change the mix of staff, approach to care on a ward/unit, and impact on patients and staff

• The first is a substitutive model of nurse staffing whereby regulated staff (RNs) are replaced by unregulated nursing support workers
  • Hours of care remain the same but provided by less qualified staff (Roche et al., 2012)

• The second is a supportive or complementary model whereby unregulated nursing support workers are added to ward staffing
  • The total number of hours of patient care provided increases and the number of hours provided by RNs is maintained (Carrigan, 2009)

• Both methods have implications for the way patients are assigned to caregivers and the work caregivers may then undertake
Implications for the Model of Care (Duffield et al. 2010)

• Task assignment was used:
  • With a poorer skill mix (fewer RNs)
  • When staff were unfamiliar with the ward and patients
  • Can lead to issues with continuity of care because work is divided into tasks and different staff members undertake different tasks for the same patients
  • Usually the RN addresses more complex tasks, whereas lesser skilled staff (nursing support workers) undertake more routine tasks

• Patient allocation was used when staffing included:
  • More RNs
  • More RNs with degrees
  • More advanced practice clinical nurse consultants
Drivers for Change (1)

1. Workforce shortages

• Nursing workforce “sustainability” is “…a focus on maintaining numbers in the workforce, or achieving a predefined target of net growth in staffing, or reducing the relative level of reliance on international recruitment” (Buchan, 2015 p. 6)

• In this context workforce supply in Australia is unsustainable (Duffield in Buchan, 2015)
  • Australia continues to rely on migration

• Projections of nursing shortages estimated to be 123,000 nurses by 2030 (Health Workforce Australia, 2014)
  • AINs account for 25% of the Australian health workforce (ABS, 2013; AIHW 2008, 2012, 2014)
    • We will require a 16.5% increase (13600) in AINs by 2016/2017
Drivers for Change (2)

2. Increased workload:

- Limits the time nurses have for patient contact (Duffield et al., 2011; Williams et al., 2008)
- Results in insufficient time to provide care to patients
- Critical tasks such as the administration of pain relief, hygiene and skin care undone/delayed (Duffield et al., 2011; Roche et al., 2016)
- Decreases opportunity to deliver quality emotional care (Williams et al., 2008)
- Contributes to nurses’ job dissatisfaction, influencing their decision to resign from their positions (Duffield et al., 2009; Roche et al., 2015a, 2015b)
Potential Outcomes of Adding AINs on Nursing Work

- **Task shifting** between regulated and unregulated roles such as:
  - A decrease in the amount of time registered nurses spend on non-value adding tasks (e.g. administration and transport)
  - Increased direct patient care activities for registered nurses (e.g. assessment, clinical procedures)
  - Reduced nurses’ workloads
  - Increased patient contact and the provision of emotional care
Potential Outcomes of *Adding* AINs on Approach to Care

- **Rounding**
  - Scheduled visits made to patients in hospital rooms to address immediate patient needs
  - A common use of nursing support workers
  - Associated with positive patient outcomes & improved patient safety:
    - Reduced patient falls *(Woodard, 2009)*
    - Reduced use of the call bell *(Woodard, 2009)*
    - Fewer work interruptions *(Shepard, 2013)*
    - Consistency and continuity of patient care *(Meade, Bursell, & Ketelsen, 2006)*
    - Improved patient satisfaction *(Meade, Bursell, & Ketelsen, 2006)*
Background to Research

• Increasing registered nurse numbers to mitigate work intensification is unlikely given projected workforce shortages

• Previous studies have looked at the replacement of registered nurses with nursing support workers

• No study was found which examined the impact of the addition of nursing support workers to existing staffing in acute care settings

• The potentially positive aspects of adding nursing support workers to the quality of care patients receive and staff perceptions of changes to workload, job satisfaction and the work environment have not been systematically evaluated

• Western Australia is the first and only State to complement nurse staffing with AINs
PROTOCOL
A protocol to assess the impact of adding nursing support workers to ward staffing

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ABSTRACT
Aim. To assess the impact of adding nursing support workers to ward staffing.

Background. Nurses’ capacity to provide safe care is compromised by increased workloads and nursing shortages. Use of unregulated workers is an alternative to increasing the number of regulated nurses. The impact of adding nursing support workers on patient, nurse and system outcomes has not been systematically evaluated.

Design. A mixed longitudinal and cross-sectional design using administrative data sets and prospective data from a sample of wards.

Methods. Payroll data will identify wards on which unregulated staff work. To assess the impact on non-proportional outcomes, retrospective analysis of morbidity and mortality data of all patients admitted to Western Australia hospitals for over 24 hours across 4 years will be undertaken. For the cross-sectional study, a sample of 20 pairs of matched wards will be selected: 10 with unregulated workers added and 10 where they have not. From this sample, the impact on patients will be assessed using the Patient Evaluation of Emotional Care during Hospitalisation survey. The impact on nurses will be assessed by a nurse survey used extensively which includes variables such as job satisfaction and intention to leave. The impact on system outcomes will be explored using work sampling of staff activities and the Practice Environment Scale. Interviews will determine nurses’ experience of working with nursing support workers.

Discussion. This study aims to provide evidence about the impact of adding nursing support workers to ward staffing for patients, staff and the work environment.

Keywords: assistants in nursing, nursing support workers, nursing work organisation, nursing workload, skill mix
Aims

Determine the impact of the addition of AINs to nursing wards on...

Nurse outcomes

Patient outcomes

System outcomes
The Study

• Longitudinal
  • Two years of data *before* and two years *after* the addition of AINs

• Prospective
  • 5 pairs of wards
    • 5 wards where AIN resources were *added*
    • 5 wards where AIN resources were *not added*
      • 3 pairs of wards (6 wards) from large teaching hospitals
      • 2 pairs of wards (4 wards) from smaller non-teaching & regional hospitals
### Ward Matching – Prospective Data

<table>
<thead>
<tr>
<th>Hospital</th>
<th>NHpPD Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>B</td>
</tr>
<tr>
<td>Y</td>
<td>D</td>
</tr>
<tr>
<td>Z</td>
<td>B</td>
</tr>
<tr>
<td>Z</td>
<td>B</td>
</tr>
<tr>
<td>Z</td>
<td>C</td>
</tr>
</tbody>
</table>

• For prospective data collection, wards were *matched* using workload categories:
  • e.g. a Category B ward with no added AIN staff was matched with a Category B ward where AIN resources had been added
System Outcomes
System Outcomes

Nurse Survey

• Prospective Data
  • Practice Environment Scale (Lake, 2002)
  • Quality of Care
  • Tasks Delayed/Not Completed
  • Violence
    • n=154

Work Sampling

• Prospective Data
  • Observation (Pelletier & Duffield, 2003; Urden & Roode, 1997)
  • 25 work activity categories
    • n=452 nurses
    • n=81,594 observations
    • 13,781 nurse-hours
    • (AIN wards: 7,695 / Non-AIN wards 6,122)
Potential Outcomes of *Adding* AINs on System Outcomes

• **Task shifting & changed work activities**
  • Decreased RN time on administration and transport, etc.
  • Increased RN direct patient care activities (assessment, clinical procedures)

• **Fewer delays & improved quality of care**
  • Decreased use of the call bell
  • Fewer work interruptions
  • Consistency and continuity

• **Changes to the practice environment**
  • Nurse-doctor relationships, foundations for quality care, etc

• Nurses may need to spend more time delegating and supervising
• AINs may not be effectively integrated into the workplace
Impact of the Practice Environment

• The elements of the practice environment are significant in the promotion of positive patient outcomes such as:
  • Fewer patient falls, pressure ulcers and venous needle disconnects and better pain management in patients
  • Less burnout, job dissatisfaction and intention to leave in nurses (Duffield et al., 2011; McHugh and Ma, 2014; Prezerakos et al., 2015; Roche et al., 2015; Stalpers et al., 2015).

• Improving staffing levels by lowering the nurse to patient ratio will have virtually no effect on patient outcomes in hospitals with poor work environments (Aiken et al., 2011)
The Practice Environment Scale of the Nursing Work Index

• Nurses’ perceptions of:
  • Collegial Nurse-Doctor Relationships
  • Nurse Management, Leadership and Support
  • Staffing & Resource Adequacy
  • Nurse Participation in Hospital Affairs
  • Nurse Foundations for Quality of Care

• 30 item questionnaire
  • (adapted from Lake, 2002)

• Scores 1 to 4
  • Mean scores less than 2.5 ‘negative’
  • Mean score 2.5 or above ‘positive’
    • (Lake & Friese, 2006)
System Outcomes: Practice Environment

- Collegial Nurse-Doctor Relationships
- Nurse Management, Leadership & Support
- Staffing & Resource Adequacy
- Nurse Participation in Hospital Affairs
- Nurse Foundations for Quality of Care
- Overall Environment

AIN wards
Non-AIN wards
Overall
System Outcomes: Tasks Delayed/Not Done

- Comforting patients
- Response to patient bell
- Nursing care planning
- Routine mobilisation or turns
- Oral hygiene
- Skin care
- Routine vital signs
- Routine teaching for patients and families
- Documenting nursing care
- Routine medications or dressings
- Prepare patient and family for discharge
- Discharge planning
- PRN pain medications
## System Outcomes: Self-reported Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>AIN wards</th>
<th>Non-AIN wards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RN</td>
<td>EN</td>
</tr>
<tr>
<td>Delivering / retrieving trays</td>
<td>21.70%</td>
<td>12.50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arranging discharge referrals and transportation</td>
<td>50.70%</td>
<td>37.50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing ECGs, routine phlebotomy and starting IVs</td>
<td>84.10%</td>
<td>93.80%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transporting patients</td>
<td>11.60%</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housekeeping duties</td>
<td>33.30%</td>
<td>25.00%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## System Outcomes: Quality of Care

<table>
<thead>
<tr>
<th>Last Shift</th>
<th>AIN wards</th>
<th>Non-AIN wards</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excellent</strong></td>
<td>23 (24.2%)</td>
<td>17 (29.3%)</td>
<td>40 (26.1%)</td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td>55 (57.9%)</td>
<td>39 (67.2%)</td>
<td>94 (61.4%)</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>14 (14.7%)</td>
<td>2 (3.4%)</td>
<td>16 (10.5%)</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>3 (3.2%)</td>
<td>0 (0%)</td>
<td>3 (2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Last 12 Months</th>
<th>Improved</th>
<th>Remained the same</th>
<th>Deteriorated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improved</strong></td>
<td>26 (30.6%)</td>
<td>11 (20.8%)</td>
<td>37 (26.8%)</td>
</tr>
<tr>
<td><strong>Remained the same</strong></td>
<td>38 (44.7%)</td>
<td>33 (62.3%)</td>
<td>71 (51.4%)</td>
</tr>
<tr>
<td><strong>Deteriorated</strong></td>
<td>21 (24.7%)</td>
<td>9 (17%)</td>
<td>30 (21.7%)</td>
</tr>
</tbody>
</table>
## System Outcomes: Violence

<table>
<thead>
<tr>
<th></th>
<th>AIN wards</th>
<th>Non-AIN wards</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical assault</td>
<td>25 (26.3%)</td>
<td>2 (3.4%)</td>
<td>27 (17.6%)</td>
</tr>
<tr>
<td>Threat of assault</td>
<td>36 (39.1%)</td>
<td>11 (19%)</td>
<td>47 (31.3%)</td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>34 (36.2%)</td>
<td>11 (19%)</td>
<td>45 (29.6%)</td>
</tr>
</tbody>
</table>

**Sources:**
- Physical assault
  - Patients 96.3%
- Threat of assault
  - Patients 93.9%, Family 6.1%
- Emotional abuse
  - Patients 48.3%, Co-workers 28.3%, Family 18.3%
Nursing Activities

• Self Reported Activities
  • Nurse Survey

• Work Sampling Tool
  • (Duffield & Wise, 2003; Pelletier & Duffield, 2003; Urden & Roode, 1997)

• Randomly selected two-hour time blocks over a 6-month period.
  • 6 observations per nurse per hour
    • ~82000 observations
  • 107-154 hours observations per ward
    • ~13800 nurse-hours
## Work Sampling Activity Categories

<table>
<thead>
<tr>
<th>Direct Care</th>
<th>Indirect Care</th>
<th>Unit-Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission &amp; Assessment</td>
<td>Verbal Report &amp; Handover</td>
<td>Teaching &amp; In-service</td>
</tr>
<tr>
<td>Hygiene</td>
<td>Communication &amp; Information</td>
<td>Supplies, Check, Re-stock</td>
</tr>
<tr>
<td>Patient Mobility</td>
<td>Room or Equipment Setup &amp; Cleaning</td>
<td>Errands, Off-Unit</td>
</tr>
<tr>
<td>Medications &amp; IV Administration</td>
<td>Medication and IV Preparation</td>
<td>Meetings &amp; Administration</td>
</tr>
<tr>
<td>Procedures</td>
<td>Progress Notes / Discharge Notes</td>
<td>Clerical</td>
</tr>
<tr>
<td>Specimen Collection &amp; Testing</td>
<td>Computer – Data Entry &amp; Retrieval</td>
<td>Environmental Cleaning</td>
</tr>
<tr>
<td>Nutrition &amp; Elimination</td>
<td>Co-ordination of Care Rounds &amp; Team Meetings</td>
<td></td>
</tr>
<tr>
<td>Transporting Patient</td>
<td>Co-ordination of Care, Care Planning &amp; Clinical Pathways</td>
<td></td>
</tr>
<tr>
<td>Assisting with Procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient &amp; Family Interaction</td>
<td></td>
<td>Personal</td>
</tr>
</tbody>
</table>
## Work Sampling: Sample

<table>
<thead>
<tr>
<th>Hospital</th>
<th>AIN wards</th>
<th>Non-AIN wards</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ward</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>X</td>
<td>W1</td>
<td>9558</td>
<td>20.7%</td>
</tr>
<tr>
<td>Y</td>
<td>W3</td>
<td>6228</td>
<td>13.5%</td>
</tr>
<tr>
<td>Z</td>
<td>W5</td>
<td>12660</td>
<td>27.4%</td>
</tr>
<tr>
<td>Z</td>
<td>W7</td>
<td>8718</td>
<td>18.9%</td>
</tr>
<tr>
<td>Z</td>
<td>W9</td>
<td>9006</td>
<td>19.5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>46170</td>
<td>56.6%</td>
</tr>
</tbody>
</table>

UTS:CENTRE FOR HEALTH SERVICES MANAGEMENT
Work Sampling: % of Activities – Summary – All Nurses

Direct care

Indirect care

Unit related

Personal

Non-AIN wards

AIN wards

0.0% 10.0% 20.0% 30.0% 40.0% 50.0% 60.0%
Work Sampling: Difference in the % of additional activities on AIN wards – All Nurses

- Direct care
- Indirect care
- Unit related
- Personal

-6% -4% -2% 0% 2% 4% 6%
Work Sampling: % of Activities – All Categories – All Nurses

- Coord. Care: Rounds & Team Mtg.
- Personal
- Admission & Assessment
- Verbal Report & Handover
- Room/Equip. Setup/Clean
- Medication and IV Preparation
- Patient & Family Interaction
- Procedures
- Progress Notes / Discharge Notes
- Nutrition & Elimination
- Medications & IV Administration
- Hygiene
- Patient Mobility
- Teaching & Inservice
- Communication & Information
- Meetings & Administration
- Clerical
- Transporting Patient
- Computer – Data Entry & Retrieval
- Assisting with Procedures
- Errands, Off-Unit
- Supplies, Check, Re-stock
- Specimen Collection & Testing
- Environmental Cleaning

Non-AIN wards
AIN wards
Work Sampling: Difference in the % of additional activities on AIN wards – All Nurses

- Admission & Assessment
- Hygiene
- Patient Mobility
- Medications & IV Administration
- Procedures
- Specimen Collection & Testing
- Nutrition & Elimination
- Transporting Patient
- Assisting with Procedures
- Patient & Family Interaction
- Verbal Report & Handover
- Communication & Information
- Room or Equipment Setup & Cleaning
- Medication and IV Preparation
- Progress Notes / Discharge Notes
- Computer – Data Entry & Retrieval
- Co-ordination of Care: Rounds & Team Meetings
- Co-ordination of Care: Care Planning & Clinical Pathways
- Teaching & Inservice
- Supplies, Check, Re-stock
- Errands, Off-Unit
- Meetings & Administration
- Clerical
- Environmental Cleaning
- Personal

Direct Care

Indirect Care

Unit Related

-3.0%
-2.0%
-1.0%
0.0%
1.0%
2.0%
3.0%
Summary & Questions
Summary

• Patient outcomes: negative outcomes associate with AINs & skillmix
• Work activities: more direct care / less indirect care on AIN wards
• Perceived quality of care: higher on non-AIN wards
• Turnover: intent to leave higher on AIN wards
• Practice environments: staffing & leadership lower on AIN wards
• Violence experienced by nurses: higher on AIN wards
• Delayed tasks: higher on AIN wards
• Absenteeism: higher on AIN wards
• AINs reported performing tasks that appear out of scope
Questions

• Model of care & utilisation
  • Team versus patient allocation
    • What type of patients were allocated to AINs?
    • ‘Specialling’ (one-to-one)
  • Rounding – no evidence that AINs were used in this way

• Effective delegation & integration into the team
  • AINs may not have been routinely added to every shift every day
    • How would this impact effective delegation and model of care?

• Qualifications
  • Undergraduate BN students or Cert III qualification

• Scope of practice
  • Are findings linked to the use of Undergraduate BN students?

• If staffed to full complement, does adding more staff make a difference?

• Variation
  • Substantial variation within wards, what unit-level factors are important?
Current Controversy

Hornsby Ku-ring-gai Hospital nurses wage war on decision to introduce AiN's into acute units

@ May 24, 2016 1:29pm
Jake McCallum

NURSES are rallying against NSW Health to protect the safety of their most vulnerable patients, after "minimally qualified workers" were proposed to work in an intensive care unit.
Acknowledgements

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