Chronic Disease Multi-Morbidity: Nurse Practitioners Reforming Health Care Delivery in Australia

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Outline

- Chronic disease comorbidity
- Innovative health services
- Results
- Implications for practice
Cost of Chronic Disease in Australia

- 1 in 5 Australians have a chronic disease – around 23% have at least two or more
- People with chronic conditions use health services and medicines frequently for a long time
- Estimate direct health costs of $27b in 2008-2009 (36% of allocated health expenditure)
- Expenditure associated with:
  - Admitted patient costs
  - Out-of-Hospital services
  - Medications
  - Non-healthcare sector cost – residential care
  - Lost productivity
  - Personal, social and community costs

Australian Health Ministers’ Advisory Council, 2017
Relationship between CVD, Diabetes and CKD
People of Logan: Metro South Hospital and Health Service

Nurse Practitioners

- Nurse Practitioner involvement in patient-centred care improves patients’
  - Health outcomes
  - Knowledge of their disease
  - Patient satisfaction in the service provided
  - Self-management of their disease
- Cost-effective for the healthcare system
- Internationally patients are more satisfied with Nurse Practitioner care
Integrated Nurse Practitioner-Led Clinic

- Comprehensive patient assessments and care planning developed
- Patient education based on a self-management model
  - Lifestyle modification
  - Adherence
- Medication review (prescribing, titration)
- Telephone follow-up and review
- Coordination of healthcare involving the specialty teams and the general practitioner
Advantages

Person-Centred Care
✓ ‘One-stop shop’ for patients with multiple comorbidities
✓ Coordinated chronic disease management
✓ Improved access to hospital medical specialists without having to attend multiple clinics
✓ Streamlining medication management

Health Provider
✓ Reducing burden on health system (acute/unplanned admissions; efficiency with outpatient clinics)
✓ Enhancing management and communication between primary and secondary providers
✓ Increase efficiencies in staffing, with capacity for cross pollination of clinical skills
✓ Nurses practicing to full scope of practice
Concurrent Evaluation Research

- Prospective, longitudinal design
- Donabedian framework
- Data
  - Patient-reported data
  - Clinical data
  - Hospital data
  - Qualitative data
## Clinic Throughput

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean (SD) or n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Days Waiting for First Appointment (Range: 4-27), Mean (SD)</td>
<td>15.33 (11.50)</td>
</tr>
<tr>
<td>Average Number of Days Between Appointments Mean (SD)</td>
<td>73.03 (44.34)</td>
</tr>
<tr>
<td>Number of Occasions of Service, n (%)</td>
<td></td>
</tr>
<tr>
<td>NP Diabetes</td>
<td>262 (28.32)</td>
</tr>
<tr>
<td>NP CKD</td>
<td>269 (29.08)</td>
</tr>
<tr>
<td>NP HF</td>
<td>187 (20.22)</td>
</tr>
<tr>
<td>NP Unspecified (i.e., DM/CKD/HF/Candidate)</td>
<td>207 (22.38)</td>
</tr>
<tr>
<td>Number of Patients Who Did Not Attend, n (%)</td>
<td>60 (6.1)</td>
</tr>
<tr>
<td>Number of Cancellations, n (%)</td>
<td></td>
</tr>
<tr>
<td>Clinic Initiated</td>
<td>142 (42.90)</td>
</tr>
<tr>
<td>Patient Initiated</td>
<td>189 (57.10)</td>
</tr>
</tbody>
</table>
Number of Diagnoses ($N = 162$)

- Two: 80%
- Three: 20%

Age ($N = 160$)

- <40: 5%
- 41-60: 17%
- 61-80: 31%
- >80: 47%

Primary Diagnosis ($N = 162$)

- CKD: 43%
- DM: 28%
- HF: 29%
## Change in Indicators (0-12 months)

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>T1 M (SD)</th>
<th>T2 M (SD)</th>
<th>95% CIs</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blood Pressure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Systolic</td>
<td>54</td>
<td>124.89 (16.78)</td>
<td>125.72 (16.96)</td>
<td>-4.08, 5.75</td>
<td>.735</td>
</tr>
<tr>
<td>Diastolic</td>
<td>54</td>
<td>67.30 (11.25)</td>
<td>66.39 (10.30)</td>
<td>-3.94, 2.12</td>
<td>.550</td>
</tr>
<tr>
<td><strong>Body Mass Index (BMI)</strong></td>
<td>49</td>
<td>34.96 (6.65)</td>
<td>34.28 (6.41)</td>
<td>-1.32, -0.03</td>
<td>.027</td>
</tr>
<tr>
<td><strong>HbA1c</strong></td>
<td>32</td>
<td>8.80 (1.61)</td>
<td>8.21 (1.72)</td>
<td>-1.19, 0.02</td>
<td>.056</td>
</tr>
<tr>
<td><strong>HRQoL SF-36</strong></td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Functioning</td>
<td></td>
<td>43.65 (29.14)</td>
<td>55.19 (29.61)</td>
<td>1.20, 21.88</td>
<td>.030</td>
</tr>
<tr>
<td>Physical Role Limitations</td>
<td></td>
<td>33.65 (41.80)</td>
<td>60.58 (37.53)</td>
<td>7.99, 45.85</td>
<td>.007</td>
</tr>
<tr>
<td>Emotional Role Limitations</td>
<td></td>
<td>67.95 (43.70)</td>
<td>71.79 (40.76)</td>
<td>-15.32, 23.01</td>
<td>.683</td>
</tr>
<tr>
<td><strong>Vitality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td>50.19 (24.92)</td>
<td>50.38 (21.68)</td>
<td>-11.12, 11.51</td>
<td>.972</td>
</tr>
<tr>
<td>Social Functioning</td>
<td></td>
<td>73.38 (21.67)</td>
<td>74.31 (24.08)</td>
<td>-7.70, 9.55</td>
<td>.827</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td></td>
<td>68.75 (27.44)</td>
<td>78.37 (22.52)</td>
<td>-2.36, 21.59</td>
<td>.111</td>
</tr>
<tr>
<td><strong>General Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health State (SF-6D)</td>
<td>26</td>
<td>0.63 (0.11)</td>
<td>0.69 (0.15)</td>
<td>0.01, 0.12</td>
<td>.019</td>
</tr>
<tr>
<td>Self Efficacy (SEMCD-6)</td>
<td>26</td>
<td>6.63 (2.24)</td>
<td>7.01 (2.21)</td>
<td>-0.68, 1.45</td>
<td>.462</td>
</tr>
</tbody>
</table>
Emergency Department Presentations

*0-6 months = 108 patients; 6-12 months = 81 patients
Number of Inpatient Days

0-6 Months in Clinic
- 85.2% for 0 days
- 6.5% for 1-3 days
- 4.6% for 4-6 days
- 1.9% for 7 days

6-12 Months in Clinic
- 91.4% for 0 days
- 4.9% for 1-3 days
- 3.7% for 4-6 days
- 0% for 7 days

*0-6 months = 108 patients; 6-12 months = 81 patients
**Patient Satisfaction (at 6 months)**

**How satisfied were you with treatment of your most pressing health need?**

- **Highly unsatisfied**
- **Unsatisfied**
- **Neither satisfied nor unsatisfied**
- **Satisfied**
- **Highly satisfied**

**Did the NP/s give you the help you need to make changes in your habits or lifestyle to improve your health or prevent illness?**

- **I did not need help with this**
- **No, definitely not**
- **Yes, somewhat**
- **Yes, definitely**

**How much have the NPs contributed to resolution of your reasons for clinic attendance?**

- **Yes, definitely** 97%
- **Yes, somewhat** 3%
- **No, definitely haven’t** 0%
Implications for Patients

- Ensures timely referral and symptom management
- Reduces number of Outpatient appointments
- Provides a holistic management for patients with highly complex co-morbid chronic diseases
- Provides early detection and intervention
- Reduces hospital presentations and admissions
- Delivers a person-centred model in a more appropriate setting
- Patient satisfaction
Implications for Health Service Delivery

- Integrated NP clinic improves access, efficiency, and quality of service
- Patients are referred for specialist medical consultation when required
- Focus is on supporting patient adherence with complex chronic disease self-management
- Strengthened relationships between primary, secondary and tertiary health care services
- Reduced unplanned emergency department presentations and hospital admissions
Implications for Workforce

- Increased workforce productivity
- Increased cost effectiveness
- Increased workforce capacity and sustainability of the Nurse Practitioner role
- Nurse Practitioner Candidate
Conclusion

✓ People with co-morbid chronic disease do require health service delivery to be reformed
✓ Clinicians need to develop flexible service delivery models – move away from inflexible, siloed specialty structures
✓ Clinicians are supportive and engage with the clinic - improved communication and collaboration across multiple specialties and relevant team members
✓ Integrated chronic disease NP model could be replicated
References


