‘Failure to maintain’: Care rationing and the clinical and financial burden of nurse sensitive hospital–acquired complications in complex older patients.

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Abstract

Background: The ageing population, with concomitant increase in chronic conditions, is increasing the presence of older people with complex needs in hospital. People with dementia are one of these complex populations and are particularly vulnerable to complications in hospital. Registered nurses can offer simultaneous assessment and intervention to prevent or mitigate hospital-acquired complications through their skilled brokerage between patient needs and hospital functions. A range of patient outcome measures that are sensitive to nursing care has been tested in nursing work environments across the world. However, none of these measures have focused on hospitalised older patients.

Method: This thesis explores nursing-sensitive complications for older patients with and without dementia using an internationally recognised, risk-adjusted patient outcome approach. Specifically explored are: the differences between rates of complications; the costs of complications; and cost comparisons of patient complexity. A retrospective cohort study of an Australian state’s 2006–07 public hospital discharge data was utilised to identify patient episodes for people over age 50 (N=222,440) where dementia was identified as a primary or secondary diagnosis (N=44,422). Extra costs for patient episodes were estimated based on length of stay (LOS) above the average for each patient’s Diagnosis Related Group (DRG) (N=157,178) and were modelled using linear regression analysis to establish the strongest patient complexity predictors of cost.

Results: Hospitalised patients with a primary or secondary diagnosis of dementia had higher rates of complications than did their same-age peers. The highest rates and relative risk for people with dementia were found in four key complications: urinary tract infections; pressure injuries; pneumonia, and delirium. While 21.9% of dementia patients (9,751/44,488, p<0.0001) suffered a complication, only 8.8% of non-dementia patients did so (33,501/381,788, p<0.0001), giving dementia patients a 2.5 relative risk of acquiring a complication (p<0.0001). These four key complications in patients over 50 both with and without dementia were associated with an eightfold increase in length of stay (813%, or 3.6 days/0.4 days) and double the increased estimated mean episode cost (199%, or $16,403/$8,240). These four complications were associated with 24.7% of the estimated cost of additional days spent in hospital in 2006–07 in NSW ($226million/$914million). Dementia patients accounted for 22.0% of these costs ($49million/$226million) even
though they were only 10.4% of the population (44,488/426,276 episodes). Hospital-acquired complications, particularly for people with a comorbidity of dementia, cost more than other kinds of inpatient complexity but admission severity was a better predictor of excess cost.

**Discussion:** Four key complications occur more often in older patients with dementia and the high rate of these complications makes them expensive. These complications are potentially preventable. However, the care that can prevent them (such as mobility, hydration, nutrition and communication) is known to be rationed or left unfinished by nurses. Older hospitalised people who have complex needs, such as those with dementia, are more likely to experience care rationing as their care tends to take longer, be less predictable and less curative in nature. This thesis offers the theoretical proposition that evidence-based nursing practices are rationed for complex older patients and that this rationed care contributes to functional and cognitive decline during hospitalisation. This, in turn, contributes to the high rates of complications observed. Thus four key complications can be seen as a ‘Failure to Maintain’ complex older people in hospital. ‘Failure to Maintain’ is the inadequate delivery of essential functional and cognitive care for a complex older person in hospital resulting in a complication, and is recommended as a useful indicator for hospital quality.

**Conclusions:** When examining extra length of stay in hospital, complications and comorbid dementia are costly. Complications are potentially preventable, and dementia care in hospitals can be improved. Hospitals and governments looking to decrease costs can engage in risk-reduction strategies for common nurse sensitive complications such as healthy nursing work environments that minimise nurses’ rationing of functional and cognitive care. The conceptualisation of complex older patients as ‘business as usual’ rather than a ‘burden’ is likely necessary for sustainable health care services of the future. The use of the ‘Failure to Maintain’ indicators at institution and state levels may aid in embedding this approach for complex older patients into health organisations. Ongoing investigation is warranted into the relationships between the largest health services expense (hospitals), the largest hospital population (complex older patients), and the largest hospital expense (nurses). The ‘Failure to Maintain’ quality indicator makes a useful and substantive contribution to further clinical, administrative and research developments.
100 word abstract:

Nurses enable risk reduction for people with complex needs in hospital, such as those with dementia. A retrospective cohort study was utilised to identify that people with dementia have high rates of hospital-acquired complications that are sensitive to nursing care: urinary tract infections; pressure injuries; pneumonia, and delirium ($p<0.0001$, RR2.5). These four complications were associated with a quarter of the extra cost of above-average length of stay for patients over age 50. These complications can be conceptualised as a ‘Failure to Maintain’ complex older people in hospital, hence may be useful indicators for hospital quality.

Layman summary of findings:

Four complications commonly happen to complex older people in hospital (such as people with dementia): urinary tract infections; pressure injuries; pneumonia, and delirium. These complications can occur when care to support the person’s function and cognition is rationed by nurses and hospitals.
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For the first half of the candidature I was convinced that I would do the ‘traditional PhD’, with a hundred thousand words of detailed, progressive logic as a rite of passage. However, the timeliness and actuality of the ‘publish as you go’ approach ultimately created a moral obligation to complete a modern ‘PhD by publication’. I felt the world could not afford for these findings to sit quietly in a PhD waiting for some time in the future for papers to be rewritten and released.
The translational aspect of my work was also motivating; the bilateral streams of nursing and geriatrics research into patient outcomes with complementary but linguistically diverse findings meant I felt an obligation to try to synthesise and invite integration. Consequently I focused on publishing in open access journals, with high impact factors, and with limited alienating terms which might restrict readership. Whether the presentation of these findings and theories has achieved this, only time, and more research and application, will tell.

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