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Review

The relationship between nurse staffing and quality of care in nursing homes: A systematic review

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ABSTRACT

Background: Nursing homes have an important role in the provision of care for dependent older people. Ensuring quality of care for residents in these settings is the subject of ongoing international debates. Poor quality care has been associated with inadequate nurse staffing and poor skills mix.

Objectives: To review the evidence-base for the relationship between nursing home nurse staffing (proportion of RNs and support workers) and how this affects quality of care for nursing home residents and to explore methodological lessons for future international studies.

Design: A systematic mapping review of the literature.

Data sources: Published reports of studies of nurse staffing and quality in care homes.

Review methods: Systematic search of OVID databases. A total of 13,411 references were identified. References were screened to meet inclusion criteria. 80 papers were subjected to full scrutiny and checked for additional references ($n = 3$). Of the 83 papers, 50 were included. Paper selection and data extraction completed by one reviewer and checked by another. Content analysis was used to synthesise the findings to provide a systematic technique for categorising data and summarising findings.

Results: A growing body of literature is examining the relationships between nurse staffing levels in nursing homes and quality of care provided to residents, but predominantly focuses on US nursing facilities. The studies present a wide range and varied mass of findings that use disparate methods for defining and measuring quality (42 measures of quality identified) and nurse staffing (52 ways of measuring staffing identified).

Conclusions: A focus on numbers of nurses fails to address the influence of other staffing factors (e.g. turnover, agency staff use), training and experience of staff, and care organisation and management. 'Quality' is a difficult concept to capture directly and the measures used focus mainly on 'clinical' outcomes for residents. This systematic mapping review highlights important methodological lessons for future international studies and makes an important contribution to the evidence-base of a relationship between the nursing workforce and quality of care and resident outcomes in nursing home settings.

What is already known about the topic?

- Ensuring quality of care for residents in nursing home settings is the subject of ongoing international debates.
- Poor quality care has been associated with inadequate nurse staffing and poor skills mix.

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- Understanding quality in nursing home settings is complex.

What this paper adds

- There is tentative evidence that total nurse, registered nurse and nurse assistant staffing are more often positively influencing quality of care for residents.
- Measuring the relationship between nurse staffing and quality by focusing on numbers of staff provides only a limited explanation of the relationship.
- Research in this area has reduced 'quality of care' to clinical indicators that are easier to measure, to the exclusion of what is important to different stakeholders (such as residents and their families).

1. Background

Nursing homes – also called long-term, aged or skilled care facilities – have an important role in the provision of care for dependent older people. As the population ages, the need for nursing home care will increase (European Commission, 2008). Ensuring quality of care for residents in these settings is the subject of ongoing international debates (Kovner et al., 2000; Harrington, 2001). Poor quality care has been associated with inadequate nurse staffing and poor skills mix (Harrington, 2001). Nurse staffing is a major concern in these settings because of the challenges in determining the appropriate numbers and type of staff required to meet the multidimensional and complex needs of nursing home residents. Nursing homes provide care to three main groups of residents who vary in their requirements for care, management and treatment. Residents may be (i) post-acute care and require rehabilitation and recovery; (ii) in the terminal phases of an illness; or (iii) be suffering with (multiple) chronic conditions and have cognitive or functional impairments. During recent years, nursing homes have been providing care for residents who, by the nature of their progressive chronic condition, require more intensive care and resources than residents in nursing homes a decade ago (Bishop, 1999; Bowman et al., 2004; Bowman, 2007). This mix of residents affects the type and level of care and services required.

The nursing workforce in nursing homes is proportionally different to other care settings, such as acute hospital care, with nursing homes tending to have fewer registered nurses (RNs) and a higher proportion of support workers. Delivering care in nursing homes is a labour intensive process and the inputs of registered nurses and support staff represent an important component of quality. There are international policy concerns about improving the qualifications of nursing home staff and retention of this adequately educated and skilled workforce in nursing homes (OECD, 2005: p. 69). It is not necessarily the case that more staff (quantity), that is number of staff hours per resident day, would equal better care. Of equal importance are the *quality* of the inputs by nursing staff, that is number of hours, types of different activities and the performance of these activities that constitute the care undertaken by nurses of different levels and support workers. There are wide ranging professional and policy debates about what constitutes 'nursing' care and who is able to carry out nursing duties (Spilsbury and Meyer, 2001; Daly and Carnwell, 2003).

Nursing home costs and provision of care to dependent older people are one of the fastest growing areas. However, high nurse staffing costs have raised concerns about the roles and responsibilities of RNs and support workers in nursing homes to ensure efficient use of the available workforce resource (Carpenter and Perry, 2002; O'Kell, 2002). In addition, recruiting and retaining staff in long-term care settings is reported as being increasingly difficult (King's Fund, 2004). It is therefore important to understand more about the relationship between nursing home nurse staffing (proportion of RNs and support workers) and how nurse staffing affects quality of care for nursing home residents to ensure optimal use of resources.

1.1. Understanding quality

Quality is an elusive and dynamic concept. Questions about quality are essentially questions about values; difficulties arise in quality measurement because of the diverse range of views, values, expectations and preferences held by different key stakeholders (such as policy makers, health care professionals and consumers). In nursing homes, understanding quality is even more complex because it is confounded by regulations, debates about what should be measured to assess quality, case mix, facility characteristics and methods of measurement.

A widely accepted theoretical framework for understanding quality was proposed by Donabedian (1980, 1982, 2003) and has been applied widely to understanding quality of nursing and medical care (Wunderlich et al., 1996; Unruh and Wan, 2004; Hillmer et al., 2005; OECD, 2005). Donabedian referred to three categories for quality assessment: structure, process and outcome. *Structure* (also called inputs) refers to the relatively stable features of the organisation that affect its ability to deliver care and services. Structural variables include level and mix of staffing, characteristics of the home (such as ownership or size), and characteristics of the residents (such as demographics and payer mix). *Process* refers to the interactions between provider and consumer; what is done for and with residents by the provider. In the nursing home context, the processes of care focus on providing care and treatment to prevent (or allay) physical, mental, emotional and social problems for residents. Process measures in nursing homes assume greater importance than in studies of hospitals because residents tend to stay in nursing homes for considerable time periods–often months or years as opposed to days or weeks. *Outcomes* refer to the end results for consumers, attributable to antecedent care. Outcomes of nursing home care include changes in, or more often the maintenance of, health status and conditions which can be attributed to care provided or not provided.

Two dimensions of quality can be identified for nursing homes residents: quality of care and quality of life. Quality of care refers to more technical aspects of care (such as use of restraints or pressure ulcer prevalence), whereas quality