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# Quality of care in Icelandic nursing homes measured with Minimum Data Set quality indicators: Retrospective analysis of nursing home data over 7 years

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#### ABSTRACT

Background: The increasing need for long-term care as well as diminished financial resources may compromise the quality of care of older people. Thus the need for clinically based quality of care monitoring to guide development of long-term services has been pointed out.

Objectives: The aim of this study was to investigate trends in quality of care during 2003–2009 as reflected in the Minimum Data Set quality indicator outcome in Icelandic nursing homes and to investigate the association of Minimum Data Set quality indicators with residents' health status (health stability, pain, depression and cognitive performance) and functional profile (activities of daily living and social engagement).

Design: Retrospective analysis of nursing home data over 7 years.

Methods: The sample used for analysis was 11,034 Minimum Data Set assessments of 3694 residents living in Icelandic nursing homes in 2003–2009. Minimum Data Set quality indicators were used to measure quality of care. The chi-square test for trend and multivariate logistic regression were used to analyse the data.

Results: The mean age of residents during the period of the study ranged from 82.3 (SD 9.1) to 85.1 (SD 8.3) and women accounted for from 65.2% to 67.8%. Findings for 16 out of 20 quality indicators indicated a decline in quality of care (p < 0.05), although in 12 out of 20 indicators the prevalence was lower than 25%. One quality indicator showed improvement, i.e. for "Bladder and bowel incontinence without a toileting plan" from 17.4% in 2003 decreasing to 11.5% in 2009 (p < 0.001). Residents' health and functional status partially explain the increased prevalence of the quality indicators over time.

Conclusion: Further developments in quality of care in Icelandic nursing homes need to be monitored as well as the association between residents' health and functional status and the Minimum Data Set quality indicator outcome. The areas of care where the Minimum Data Set quality indicators showed need for improvement included treatment of depression, number of medications, resident activity level and behavioural symptoms.

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#### Increasing numbers of people, due to advanced age, will be frail and chronically ill and in need of home care or nursing home care.

What is already known about the topic?

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- Concerns about inadequate care and the need to monitor quality of care in nursing homes have been reported.
- Measuring quality of care is complex and outcomes are affected by several factors such as residents' characteristics, expectations of residents and family, and the design of service.

#### What this paper adds

- The study showed that Minimum Data Set quality indicators were sensitive in disclosing developments in quality of care over time. Findings showed decline in quality over time that officials and policy makers need to recognise and respond to.
- The increased prevalence of quality indicators, reflecting decline in quality of care in Icelandic nursing homes in 2003–2009, is only partially explained by the residents' health and functional status.
- In 12 out of 20 quality indicators the prevalence was lower than 25% over the years 2003–2009 and the prevalence for high risk areas for this population such as dehydration and weight loss was below 10%.
- The prevalence of one quality indicator "Bladder and bowel incontinence without a toileting plan" decreased, reflecting improved quality of care in 2003–2009.
- The findings show a need for improvement in treatment of depression, number of medications, resident activity level and behavioural problems.

#### 1. Introduction

The increasing need for long-term care will continue in most developed and developing countries as the proportion of old people, especially those 80 years and above, grows. They are likely to be frail and chronically ill and in need of home care or nursing home care (Schulz et al., 2004). The increasing dependency of those moving into nursing homes will put them at greater risk of developing problems such as pressure ulcers. The increased dependency of residents will be challenging for those who provide the care and may compromise the quality of care provided; even maintaining quality of care may be demanding. To respond to these changes and improve or maintain quality of care more knowledge is needed on how the measured quality of care in nursing homes has developed over extended periods. Such research is, however, sparse. Also needed is more knowledge on how quality of care is associated with the health and functioning of the residents.

Approximately 2500 older people live in the about 63 nursing homes in Iceland, or 7.4% of the population aged 67 and older, i.e. older than the retirement age in Iceland (Ministry of Welfare, 2011; Statistics Iceland, 2011). Around-the-clock care includes assistance with ADL, mobility, recreational activities, and room and board, as well as medical care. Most nursing homes also provide physiotherapy and some occupational therapy. The number of nursing hours provided per patient average 4.1–5.0/24 h and are delivered by registered nurses (18% of the staff), licensed practical nurses (20%) and nursing assistants (61%) (National Audit Office, 2005). Earlier

studies on newly admitted residents in Icelandic nursing homes in 1996–2006 showed that their health became more unstable and that pain became more common over the research period (Hjaltadottir et al., 2011a,b). Although the mortality rate did not change over the period, almost a third of the newly admitted residents died within a year (Hjaltadottir et al., 2011a,b). Thus staff need to be knowledgeable about areas such as pain management and palliative care. Knowledge based on clinical data reflecting the quality may guide improvements in care (Goolsby et al., 2010) and thereby help to ensure provision of the best possible long-term care.

It has become a compelling issue to monitor quality of care in nursing homes because of the concerns about inadequate care that have been reported (Sorenson, 2007), such as inappropriate use of psychotropic drugs (Chen et al., 2010) and pressure ulcers (Tannen et al., 2009). Furthermore, consumers are increasingly aware of quality of care (Castle and Lowe, 2005). Traditionally, when evaluating quality of care, three aspects were considered: structure, process and outcome. Structure refers to the facility, staff and equipment, process refers to the care delivered, and outcome to the health status and functioning of the residents that can be attributed to the care received (Donabedian, 2003). Additionally, quality of care should be evaluated against goals for health improvement and the expectations of the person receiving the care (Legido-Quigley et al., 2008).

The United States has been at the forefront in measuring quality of care in recent decades, using the Minimum Data Set (MDS) quality indicators. In Canada there is growing discussion about quality of care and standardised assessment in nursing homes, with the MDS or a newer version of the same instrument being implemented in several provinces (Berta et al., 2006; Hutchinson et al., 2009). In Europe several countries have developed national standardised quality measures (Sorenson, 2007). A 20 year overview of reforms in quality of care in nursing homes in the US has shown progress and improvement in quality of care. The reform included raising standards and setting nursing home regulations, such as regulations regarding the use of restraints as well as using standardised assessment of resident's health and reports to nursing homes and consumers on quality outcomes (Wiener et al., 2007). Regular monitoring of quality of care helps to direct activities of improvement: in particular long-term monitoring helps to identify target areas.

Quality of care may be viewed in the light of maximising benefits and minimising risks to the person. Protecting, promoting and improving quality of health care has been considered an inherent part of the values and ethics of health care professionals (Donabedian, 1979). An ideal measurement of quality of care would only depict the actual level of quality of care the resident received. In reality measuring quality is more complex and it is hard to separate deterioration due to a natural ageing process from that of poor care quality.

Additionally, the different dimensions of quality of care have been suggested to include individualised care, staff, safety, milieu, central focus of service and interaction

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