International comparison of quality indicators in United States, Icelandic and Canadian nursing facilities

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Abstract

Aim: To discuss the results of a comparison using minimum data set (MDS)-based quality indicators (QIs) for residents in nursing facilities in three countries (Iceland; Ontario, Canada; and Missouri, United States) together with implications regarding nursing practices and resident outcomes in these countries. Method: Data were extracted from databases in each country for four consecutive quarterly periods during 1997 and 1998. All facilities investigated had the required consecutive quarterly data. Analytical techniques were matched to measure resident outcomes using the same MDS-based QIs in the three countries. Results: Similarities among the three countries included the use of nine or more multiple medications, weight loss, urinary tract infection, dehydration, and behavioural symptoms that affect others. Differences among the three countries included bowel and bladder incontinence, indwelling catheter use, fecal impaction, tube feeding use, development of pressure ulcers, bedridden residents, physical restraint use, depression without receiving antidepressant therapy, residents with depression, use of anti-anxiety or hypnotic drugs, use of anti-psychotic drugs in the absence of psychotic and related conditions, residents spending little or no time in activities, and falls. Conclusions: Comparisons highlighted differences in clinical practices among countries, which may account for differences in resident outcomes. Learning from each other's best practices can improve the quality of care for older people in nursing homes in many countries.

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Introduction

Quality of care in long-term nursing facilities is an international issue. Frail, elderly people are in need of services to help them remain as independent as possible, regardless of the country in which they live. A group of nurses came together with a common goal, namely that collaborative nursing

research would improve the quality of care for elderly people in nursing facilities in their respective countries. The nurses in this group are committed to using a standardized resident-assessment instrument to assess, plan care and evaluate the effectiveness of nursing care. With standardized assessment information, they realize that comparisons within their countries and with other countries are possible and can serve as a remarkable source of information about nursing practice and resident outcomes of care. Results of a comparison using data from three countries are presented, and implications about nursing practices and resident outcomes in these countries are discussed.

Background

Nurses actively working in long-term care in the Nordic countries (Iceland, Denmark, Norway, Sweden and Finland), the Netherlands, England, Canada and the United States, began meeting in the early 1990s to discuss common nursing care, care planning and evaluation of care issues. There was much interest in the implementation and use of the resident assessment instrument (RAI) and its assessment and care-planning process mandated for use in the United States by Omnibus Reconciliation Act (OBRA) '87 in 1990. The RAI requires use of the standardized nursing home minimum data set (MDS) assessment instrument. Residents in facilities certified to participate in Medicaid and Medicare programmes are assessed upon admission and routinely each quarter, and at times of significant change in condition. In the early 1990s, some states started building databases using MDS data from residents in their facilities, while others began electronic collection and transmission to a national database in the United States in 1998, when this was mandated by law.

In the mid-1990s, several countries began pilot projects using the RAI and collection of MDS data. Iceland and Canada (particularly Ontario) are two countries that embraced the potential for improving assessment and care planning for residents of nursing facilities and the potential for research that can enlighten care practice differences and comparison of resident outcomes of care. RAI was accepted as the national assessment instrument and care-planning process for long-term care facilities in Iceland in 1996 and in Ontario (Canada) in 1994. Other countries continue to collect MDS data as part of research or pilot projects, but have not accepted RAI nationally at this time.

Much work has been devoted to developing quality indicators (QIs) derived from MDS data. This has been a major focus of Health Care Financing Administration (HCFA) [now the Centers for Medicaid and Medicare (CMS)]-funded research initiatives. A version of MDS-based QIs was tested for approximately 10 years and implemented nationally in the United States as a guide for the nursing home survey process in 1999 (Heeschen 2000; Popejoy et al. 2000; Rantz et al. 1999). Topics of the QIs include development of pressure ulcers, weight loss, use of multiple medications, depression, incontinence, and others. Analyses of MDS-based QIs have been completed in facilities in the state of Missouri (Rantz et al. 1996) and suggest that quality improvement efforts in facilities using QIs can be effective in improving resident outcomes (Rantz et al. 2001). While QIs are not absolute measures of quality, they are markers of potentially poor or good care practices and their resulting outcomes (Karon & Zimmerman 1996; Zimmerman et al. 1995). The QIs can provide direction for examination of care delivery to determine ways of improving care.

Sample and data analysis

Data were extracted from databases in each country for four consecutive quarterly periods during 1997 and 1998. All facilities included had the required consecutive quarterly data. The numbers of facilities and assessments used in the analysis are displayed in Table 1.

Table 1 Number of facilities and resident assessments analysed

	Number of facilities	Number of assessments
Iceland	46	2033
Missouri	425	756 207
Ontario	137	31 808

Calculations of QIs were completed using the same MDS-based algorithms in each country, following the methods of the HCFA/CMS-funded study conducted by the Center for Health Systems Research and Analysis (CHSRA 1997). In these methods, residents are identified with defined clinical problems (such as incontinence, weight loss, or others) using MDS data. The number of residents identified with the defined problem is divided by the number that could have potentially developed the problem (usually all the residents in the facility), so the resulting product can be interpreted as a simple percentage. Results of the QIs were compared using their average percentages across the three participating countries.

Results

Several similarities were found among the three countries (Fig. 1). Approximately 32–39% of residents in all three countries received nine or more multiple medications; ≈9–10% of all residents had weight loss; ≈7–10% of all residents developed urinary tract infections; ≈1% of all residents experienced dehydration; and ≈26–31% of all residents had behavioural symptoms that affect others.

Differences among the three countries are displayed in Figs 2a and 2b. First, in Fig. 2a, consis-

tently higher percentage values were obtained for residents of Ontario than for residents of either Iceland or Missouri, in several areas. Bowel and bladder incontinence was considerably higher in the Ontario residents (78.8%) as compared to the residents of Iceland or Missouri (46.2% and 49%, respectively). Indwelling catheter use in Ontario residents (12.6%) was higher than in residents of Iceland or Missouri (3.9% and 4.6%, respectively). Fecal impaction was higher in residents of Ontario (8.9%) than in those of Iceland or Missouri (2.7% and 2.4%, respectively). Tube feeding use was considerably higher in Ontario (15.1%) than in Iceland or Missouri (1.3% and 4.6%, respectively). Similarly, the development of pressure ulcers in residents of Ontario (19.1%) was more than twice as high as in residents of Iceland or Missouri (7.5% and 7.7%, respectively). Many more residents in Ontario (30.3%) were bedridden than in Iceland (11.7%) or in Missouri (5.5%). Physical restraint use in Ontario (31.6%) was more than twice that in Iceland (13.4%) and more than three times that in Missouri (9.3%). There were also differences in the prevalence of depression without receiving antidepressant therapy: 24.3% of residents in Ontario; 9% of residents in Missouri; and <0.1% of residents in Iceland.

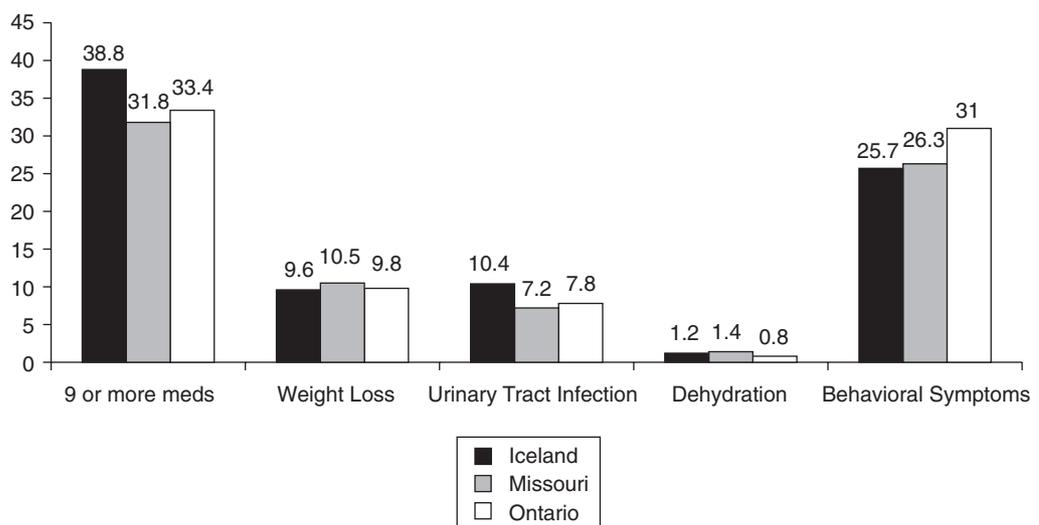In Fig. 2b, several differences are illustrated. Residents of Iceland and Ontario (40.6% and 33.7%,

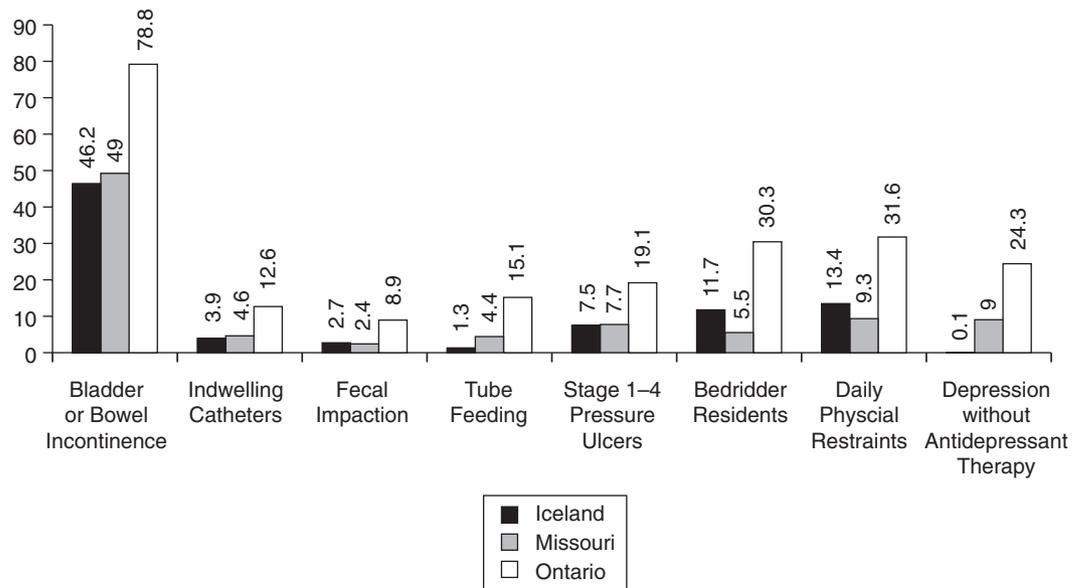**Fig. 1** Similarities among countries.

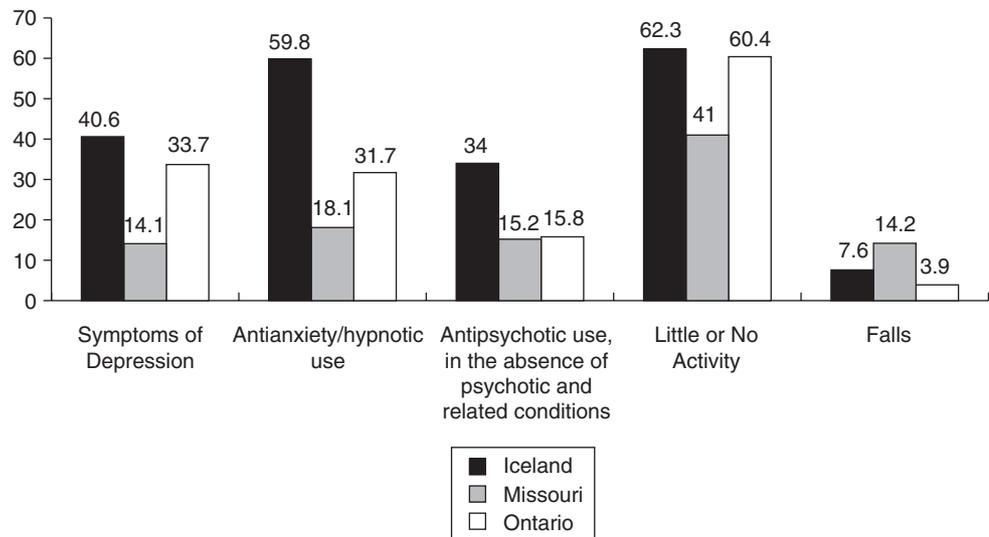Fig. 2a Differences among countries.

Fig. 2b Differences among countries.

respectively) had a greater number of symptoms of depression than residents in Missouri (14.1%). Use of anti-anxiety or hypnotic drugs was considerably higher in residents in Iceland (59.6%) than in residents in Missouri (18.1%) or in Ontario (31.7%). Similarly, anti-psychotic drug use in the absence of psychotic and related conditions in Iceland (34%) was more than twice that of anti-psychotic drug use in Missouri and Ontario (15.2% and 15.8%, respectively). More than 60% of residents in Iceland and Ontario were reported to spend little or no time in activities, as compared to 41% in Missouri. Falls in Missouri (14.2%) were nearly twice as frequent as reported for residents in Iceland (7.6%) and more than three times as frequent as reported for residents in Ontario (3.9%).

Discussion

Much can be learned by comparing MDS-based QIs measuring resident outcomes and process measures of care. Using simple comparisons of standardized resident assessment information that measures quality of care, members of the international nursing community can learn from each other's practice strengths.

It is probable that variations in clinical practice can account for some of the similarities or differences detected in resident outcomes. For example, why is tube feeding used so frequently in Ontario nursing homes and not in Missouri or Iceland, while weight loss is virtually the same in all countries? Why would incontinence and pressure ulcer development be considerably higher in Ontario? What clinical practice differences could account for these differences in outcomes? Why are the symptoms of depression so much less in Missouri nursing homes? Are nursing staff under-recognizing depression in Missouri or over-recognizing the symptoms in Iceland or Ontario? Is the higher pressure ulcer rate in Ontario somehow linked to the considerably higher use of daily physical restraints? Why is the use of anti-anxiety, hypnotic and anti-psychotic drugs so much higher in Iceland than in Ontario or Missouri? What underlying clinical practice is different that affects prescribing patterns? Is the higher fall rate in Missouri somehow related to efforts to engage residents in activities or some other practice?

It is necessary to be cautious when interpreting MDS-based QIs because there can be differences in coding practices, that is, how the nurses completing the MDS interpret and answer the questions. To minimize differences in coding, the countries used the same instrument and same definitive manual that explains how to complete the form and care plan.

This analysis did not address potential differences in resident acuity in each country. Resident acuity or case mix may account for some practice differences. However, previously reported case mix information about each country has not identified dramatic differences in acuity (Fries et al. 1997; Hirdes et al. 1998). An analysis of resident activities of daily living capabilities would be enlightening to help us better understand subtle differences in residents. Our international research team is considering such an analysis in our future work together.

In summary, differences in clinical practice in nursing homes and differences in resident outcomes can be detected through the use of a standardized resident assessment instrument, such as the nursing home RAI. The data from the assessment can guide care planning and care delivery for nurses as well as be a source of evaluation information. International comparisons can enlighten clinical practice so that we can learn from each other's strengths.

Acknowledgements

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