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Models for providing improved care in residential care homes: A thematic literature review

ANNOTATED BIBLIOGRAPHY

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ABSTRACT

This Annotated Bibliography is one output from a review of the available research evidence to support improved care in residential care homes as the needs of older people intensify.

Key findings

- The review identified extremely little published evidence on residential care homes; the research base is almost exclusively related to provision of care in nursing homes. Much of this research is from the US or other non-UK sources. Although it could be argued that some findings are generalisable to the UK residential care context, a systematic process is required to identify which. The literature often makes no distinction between nursing and residential homes; use of generic terms such as 'care home' should be avoided.
- There is considerable international debate in the quality improvement literature about the relationship between quality of care and quality of life in nursing and residential homes. Measures of social care, as well as clinical care, are needed. The centrality of the resident's voice in measuring quality of life must be recognised. Ethnic minority residents are almost entirely absent from the quality improvement literature.
- Some clinical areas, internationally identified as key in terms of quality e.g. palliative care, are absent in the general nursing and residential home quality improvement literature. Others such as mental health (dementia and depression), diabetes, and nutrition are present but not fully integrated.
- Considerable evidence points to a need for better management of medication in nursing homes. Pharmacist medication reviews have shown a positive effect in nursing homes. It is unclear how this evidence might relate to residential care.
- There is evidence that medical cover for nursing and residential care home residents is sub-optimal. Care could be restructured to give a greater scope for proactive and preventive interventions. General practitioners' workload in care homes may be considered against quality-of-care measures.
- There is US literature on the relationship between nurse staffing and nursing care home quality, with quality measured through clinical-based outcomes for residents and organisational outcomes. Conclusions are difficult to draw however due to inconsistencies in the evidence-base.
- Hospital admission and early discharge to nursing homes research may not be generalisable to residential care. The quality of inter-institutional transfers and ensuring patient safety across settings is important. To date research has not considered transfer from residential to nursing home care.
- The literature on district nurse and therapist roles in care homes includes very little research on residential care. Partnership working between district nurses and care home staff appears largely to occur by default at present. There is even less research evidence on therapist input to care homes.
- Set against the context outlined above, the international literature provides evidence of a number of approaches to care improvement, primarily in nursing homes. These include little discussion of cost-effectiveness other than in telecare. Research is needed in the UK on care improvement in residential homes.

Review Background

In the next 20 years, the number of older people (65 and over) in England will rise significantly. In particular, the number of advanced age (85 and over) is predicted to increase by two-thirds. Although there is currently less ethnic diversity in the population aged over 65 than in younger age groups, this is predicted to change over the coming 20 years.

The issue of future long-term care for older people and how this can best be provided and funded has been widely discussed. As the number of people with impairment and dependency increases over the coming years this will increase the demand for social and health care, putting pressure on available health resources and funding.

Residential homes ostensibly provide personal and social care for older people who are no longer able to live in their own home. Nursing and medical care is usually provided for residents through GPs and district nurses. Nursing homes provide nursing care as well as personal and social care, with qualified nurses employed in the home to supply the nursing care.

There are currently approximately 19,000 residential and nursing care homes for adults in England with a total capacity of 441,000 places. Most of these facilities are small providers; the average care home for residents aged 65 years plus has 35 beds. Furthermore, regulatory and other pressures on the sector have led to a fall in the number of places in the last few years, with 20,000 lost in the period 2003-2005. At the same time, the sector is becoming more concentrated with fewer, larger care homes. However, care homes still largely function in isolation; only a third of homes are part of a 'chain' of 3 or more care homes.

Today 1.2 million people aged 65 and over use publicly funded social care services; this figure excludes the significant numbers who use privately funded residential care. In 2004/5, local authorities spent £8 billion on personal social care services, with almost 60 per cent of this expenditure for placements in residential and nursing homes. Spending on care home placements has risen more rapidly than on home care, and is predicted to continue to do so in the Wanless report.

The challenge of providing quality, long-term care in care homes for older residents is not unique to the UK. Policy makers, clinicians and care home staff in many countries are increasingly aware of the importance of this inevitable challenge. At the same time, as the Wanless report points out, it is widely acknowledged that the social care evidence base is under-developed.

To address this evidence gap, a review has been undertaken to bring together available evidence relevant to various approaches to improving care in residential care homes as the needs of older people intensify. This should help to better outline the agenda for policy makers and practitioners, as well as highlighting areas for future research. In addition, by providing initial conclusions based on the evidence, the review also aims to promote further discussion of this important topic.

Methods and Materials Identified

A review group drew up a series of outline literature search protocols to reflect the key evidence required. Detailed search strategies were developed for each topic area by a qualified librarian to include relevant textwords and MeSH terms under different combinations of headings. Since the relevant literature crosses several disciplinary boundaries, searches were undertaken, and repeated in a range of general as well as specialist databases. Searches of publications database were supplemented by other strategies, including searching the bibliographies of retrieved articles. Articles were restricted to English language publications.

Materials identified as of some interest to the topic areas of the review were collated in the form of a consolidated Master Bibliography. The final bibliography contains nearly 1,700 references. Of these, fewer than 50 included a mention of residential homes in their title; the majority of these used generic terms such as 'nursing and residential' homes and did not specifically distinguish residential care homes without on-site nursing staff.

Analysis

Key papers were extracted and assessed by four reviewers in terms of their capacity to contribute in a meaningful way to the review. These papers were organised into key themes. Seven main themes emerged from this analysis, and a number of sub-themes, as follows:

- 1. Residents and relatives views on care**
- 2. Clinical areas for improvement**
 - 2.1. Palliative Care
 - 2.2. Mental Health (Depression & Dementia)
 - 2.3. Diabetes
 - 2.4. Infection:
 - 2.5. Rehabilitation & Stroke
 - 2.6. Continence
 - 2.7. Preventive Care (Including Falls & Stroke)
 - 2.8. Nutrition
- 3. Medication in care homes**
- 4. Medical input into care homes**
- 5. Nursing care in care homes**
 - 5.1. Skill Mix and Workforce Development
 - 5.2. Nursing care and quality
- 6. Interface between care homes and other services**
 - 6.1. Hospital Admissions
 - 6.2. Early Discharge
 - 6.3. Nursing Home Admissions
 - 6.4. District Nurse & Therapist Role
- 7. Models of care improvement in care homes**
 - 7.1. Integration /partnership
 - 7.2. Systems/ organizational approach
 - 7.3. Quality improvement initiatives
 - 7.4. Evidence-based practice/ guidelines
 - 7.5. Geriatric nurse specialists
 - 7.6. In-reach/ support teams/ telecare
 - 7.7. Resident-oriented care
 - 7.8. Management of change

Papers for each theme were extracted and a summary was prepared providing a brief overview with selected references cited from the theme bibliography. These summaries are presented below. Because the review could identify very little published on residential care homes, the bibliography for each theme mainly relates to provision of care in nursing homes.

The review team

The literature review was undertaken by a team from the University of Warwick: Professor Ala Szczepura (Lead); Diane Clay (Librarian) and Julia Hyde (Support) and The University of the West of England: Deidre Wild (Co-Lead) and Dr Sara Nelson (Nursing/ Psychology).

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SECTION 1. RESIDENTS & RELATIVES VIEWS ON CARE

Most of the research on residents and relatives and their viewpoint is focused on nursing homes, rather than residential homes. However, it could be argued that many findings are generalisable to both contexts since individuals are in long-term care.

There is considerable debate in the literature about the relationship between quality of care and quality of life as joint, but not necessarily competing, measures of quality.

A number of studies have adopted a consumer approach to measure quality of care [Edwards et al. 2003; Office of Fair Trading 1998; Robinson et al. 2004]. Factors which are shown to influence **residents' satisfaction** include staffing levels, dependability and trust, longevity of personnel, mealtime experience, personal control, recreational activities, residential environment, and the complaint process itself [Davis et al. 1997; Kruzich et al. 1992; Chou et al. 2003; Peak & Sinclair 2002; Faulkner et al. 2006]. A consumer multidimensional model of nursing home quality of care similarly identifies: staff, care, family involvement, communication, environment, home, and cost as key dimensions of quality [Rantz et al 1999].

Early research has indicated that **residents' perceptions** of nursing staff are a good indicator of quality of care [Stein et al. 1986]. Researchers in the US have also found a positive association between complaint levels and the presence of serious survey deficiencies of quality, and a negative association with nurse and nurse aide staffing levels [Stevenson 2005; Stevenson 2006]. Comparing resident and staff assessment of social climate, resident responses are significantly less favourable on most dimensions in poorer quality homes [Stein et al. 1987]. Some concern has been expressed that while residents are able to assess care they may be reluctant to criticize the staff or their behaviour [Pearson et al 1993]. Preferred qualities of nursing assistants identified by both residents and family members are genuine concern, kindness, respect, and consistent attentiveness [Buelow & Fee 2000]. Staff satisfaction also appears to play a central role in determining resident satisfaction in nursing homes [Chou et al. 2003].

A large portion of the work of caring (as known and understood by residents, families, and nursing staff) may be excluded from routines established by administration [Jackson 1997]. Quality of nursing home care, as assessed by residents, highlights the importance of **social relations** in daily living [Mattiasson & Andersson 1997]. The importance of developing measures of social care has been identified [Netten et al 2003], as has the concept of 'homeliness' in care homes [Titman 2003], epitomising the divide between health and social care [Glasby & Littlechild 2004].

A study of the role of **cultural context** on the meaning and definition of quality care in nursing homes with different sizes and organizational structures has compared London and New York [Brittis 1996]. A framework was used to study nursing home quality. Residents and staff in both locations identified the presence of 'caring', 'loving', and 'committed' staff as most important for quality care. Staff also identified organizational leadership, interdisciplinary communication, and resident-oriented care regimes as important in achieving high quality environments.

In a residential setting, it is acknowledged that staff activities can influence the **resident's Quality of Life** (QoL) as well as quality of care [Department of Health and Social Services Inspectorate 1989]. QoL is evidently important for residents in long-term care [Brown & Thompson 1994; Bowling et al. 2001; Tester et al. 2004]. Several authors have explored what quality of life means for residents of care homes. Early research showed that views of residents and staff were similar with both groups identifying individuality, professionalism, connectedness, and physical functioning as important to QoL [Oleson et al. 1994]. More recent research has emphasized the centrality of the resident's voice in measuring quality of life, and suggested the use of observations and proxies to assess quality of life for residents who it is impossible to interview due to cognitive impairment [Kane 2003]. Measurement using QoL items has indicated that nurses and nurse assistants give higher ratings, physicians lower ratings, and residents and families' ratings generally lower than nurses' ratings. Subsequent research

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by the same author assessed more systematically how various stakeholders involved with nursing home care rate the importance of different quality-of-life items for residents with varying types of impairment and came to similar conclusions; all stakeholders considered QoL to be important and felt that it deserves more attention in practice and regulation. [Kane et al. 2005]. When asked about their ability to influence QoL, certified nursing assistants in 5 cities were consistently reported to be more optimistic than activity personnel, social workers and physicians [Kane et al. 2006]. An observational study has examined the quality and quantity of nursing aide-resident interaction for rotating and permanent staff work assignments. The permanent assignment schedule was preferred by resident family members and nursing aides, and residents received better physical care and engaged in more independent self-care activity [Scillely 1998].

Linked to this, person-centred or **client-centred care**, similar to patient-oriented care in other settings, is increasingly considered important in long-term care [Lewin 2002; Eales et al. 2001]. Research evaluating implementation of a resident-oriented care model in nursing homes for the elderly in the Netherlands has demonstrated that use of the nursing process and primary nursing increased, and that nurses were able to achieve more job satisfaction through positive effects on psychological and behavioural outcomes for residents [Berkhout et al. 2004]. Issues of empowering residents in long-term care [Campbell 2003] and facilitating choice and control for older people are clearly important [Boyle 2004]. In the UK, the My Home Life Programme aims to promote the quality of life for those who are living in care homes [My Home Life].

This raises the question of the important **role of residents** in their own care [Tutton & Ager 2003; Fletcher 2000], and the views of relatives on quality of care [Caring Times 2004; Keady 1997]. The value of **participation of relatives** is also an important theme in the literature. Relationships and interactions between staff and relatives of older people permanently living in nursing homes have been highlighted by a number of authors [Hertzberg & Ekman 2003; Burton Jones 2001; Wright 2000; Reed et al. 1999; Ross et al. 1997; Naleppa 1996]. A recent review of the literature emphasises that partnerships in care homes are a complex mix of interactions between residents, family, and care giving staff; a key issue being understanding of 'family care' in the nursing home from the perspective of the family, the nursing home resident, and the nursing home staff [Bauer & Nay 2003]. This raises important issues for policy as well as practice [Nolan et al. 2001]. Involving carers of older people in decision-making processes in care settings has highlighted benefits for staff and relatives which include greater confidence in negotiating care and closer relationships between relatives and staff [Dewar et al. 2003]. The authors conclude that if carer involvement is to become a reality, care home staff need support and encouragement to develop meaningful relationships with relatives and to value their expert opinions. Recent research examining family members' perceptions of quality of nursing care has found an association between frequency of visits and family involvement in care and quality perception. Information and support from the staff and possibilities to participate in decision making were also associated with high-quality ratings [Voutilainen et al. 2006]. Research on where nursing home residents identify social support as coming from has found that the majority describe peer and staff support networks that are as large as or larger than their family support networks; it may be that clinical and programme interventions which facilitate peer and staff support can enhance patient well-being and stimulate participation in self-care [Carpenter 2002].

US research to identify which aspects of care are associated with optimal outcomes for 2,500 residents in 80 nursing homes, after controlling for resident characteristics, has identified high catheter use, low rates of skin care, and low participation in organized activities as associated with negative outcomes, and higher staff levels and lower RN turnover as related to functional improvement [Spector & Takada 1991].

However, there is limited research on the **health status of residents in residential homes** [Bowman et al. 2004]. A study of 80 elderly residents in personal care (residential) homes found that although the most frequent care needs were bathing, personal hygiene and dressing, 37% of residents had some bladder incontinence, 82% needed help with medication management, and over half had some cognitive impairment [Quinn et al. 1999]. Prevalence of cognitive impairment was higher compared to

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studies a decade earlier. The authors conclude that a combination of functional deficits and cognitive impairment indicates that elderly people may have unmet health needs in residential homes. At the same time, there is also some evidence that there is an important group of self-funded, low-dependency new admissions to nursing homes [Challis et al. 2000]. Of 308 new admissions to 30 nursing or residential homes in north-west England, nearly one third (31%) admitted to a nursing home and 71% to a residential home were in a 'low dependency' band (Barthel score 13 - 20). The authors suggest there may be a need to provide better assessment and placement services for those who are financially independent of local authorities. Other research has compared preadmission and follow-up assessments of health status in a cohort of older people admitted for long term nursing or residential care [Rothera et al. 2003]. As expected, cognitive impairment and physical disability were significantly higher in nursing homes, although a third of residents in residential care had substantial physical disability. A quarter of residents in nursing homes had low dependency needs, but these individuals had greater cognitive impairment than those in residential homes with the same level of dependency. Most residents had some degree of behavioural disturbance (particularly in nursing homes). The authors conclude that a case-mix which includes higher dependency residents in residential homes and lower dependency residents in nursing homes is likely to reflect changes in the health status of residents following placement but may also suggest that placement criteria used are inappropriate.

The **transition to a care home environment** has been studied in more detail by a number of researchers. From the older person's point of view, a number of studies have examined adaptation to life in a nursing or residential home [Reed & Payton 1996; Reed et al. 1998; Bright & Clarke 2006; Nolan et al. 2006] and the factors influencing the choice of residential care rather than alternatives [Sitwell & Kerlake 2004]. A review of the literature on older people's experiences of residential care placement has identified that although there is evidence on older people's pre and post-placement experiences, there is a dearth of literature on the actual experiences involved as older people made their day to day adjustment after placement [Lee et al. 2002]. In particular, the authors suggest that future research should focus on the experiences of elders with different ethnic backgrounds. There is a growing policy interest since the Race Relations Amendment Act (2000) in the quality of care provided to ethnic minority older people in nursing homes [Mold et al. 2005a]. A recent review of the literature shows this is a neglected area [Mold et al. 2005b]. As an example, a study exploring factors influencing residents' satisfaction in residential care specifically excluded those with a poor understanding of English [Chou et al. 2003].

Research on **relatives' experiences of the transition** to a care home suggest that there is a great potential for health and social care practitioners to enhance the experience if family carers perceive that they are able to work in partnership with care staff in order to ease the transition for the older person [Davies & Nolan 2004; Davies & Nolan 2003]. From the family perspective, responsibility for elderly relatives continues after the move [Keefe & Fancey 2000]. In Sweden, the role of community staff in the placement of older people in care homes has been considered [Sandberg et al. 2002]. There is no evidence base on transfers from residential to nursing home care.

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SECTION 2. CLINICAL AREAS FOR IMPROVEMENT

Literature on quality of care improvements in residential homes should be mapped against research evidence on clinical areas for improvement. Most of the literature focuses on nursing homes; some of this may not be generalisable to residential care. There is, however, some research reporting on residential homes.

The largest literature base identified was on **palliative care**. Although this is mostly confined to nursing homes, there are some papers on residential care homes [Duggelby 2005; Froggatt & Houtt 2002; Froggatt et al 2002; Field & Froggatt 2003; Goodman et al 2003; Samson & Katz 2005; Phillips et al 2006; Kristjanson et al 2005; Katz 2003]. There is also research on spirituality, especially related to the end of life care [Albans 2003; Orchard & Clark 2001]. None of the general quality improvement literature incorporates this element of care.

The second largest literature which includes residential homes is on mental health care, focused primarily on **dementia** and **depression**. A review of the literature indicates poor mental health knowledge in residential aged care [Hsu et al 2004]. For dementia, the main messages are of the unmet needs of older people in care homes, poor quality of life, and inappropriate use of psychotropic drugs [Hoe et al. 2006; Hancock et al 2006; Ballard et al 2001; Tune & Bowie 2000]. For depression, once again the need for improved drug treatment is highlighted [Mann et al 2000; Kuruvilla et al 2007]. A study of early psychiatric intervention in residential care has demonstrated a positive impact [Kotynia-English et al. 2005].

Research showing the need for improvements in **diabetes care** in residential homes emphasises that training residential care home staff can be beneficial [Deakin & Littley 2001; Heeley-Creed et al. 2006; Gallichan 2002; Tattersal & Page 1998].

For other clinical areas, there is limited research on residential homes. Work on infection, rehabilitation (including stroke) and continence does not examine residential homes specifically; and literature on preventive care (including falls) is also not specific to residential homes [for example, Skelton 2004; Nazarko 2005; Jacobs & Rummery 2002]. However, there is some literature on improving the **nutritional status** of older people in residential care [Morrell 2003] and the link between malnutrition and low staffing levels in long term care [Woo et al. 2005].

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SECTION 3. MEDICATION IN CARE HOMES

Appropriateness of drug use is identified as an important indicator of the quality of care in nursing homes [Schmidt et al. 1998]. Considerable evidence points to a general need for better management of medication in nursing homes [Manias 1998; Commission for Social Care Inspection 2004; Commission for Social Care Inspection 2006; Lunn et al. 1997; Furniss 2002; Simonson & Feinberg 2005; Snowdon et al 2006; Stokes et al. 2004].

Along with poor use of **psychotropic medication** [Crotty et al. 2004a; Gurwitz et al. 2005; Hughes & Lapane 2005; Schmidt et al. 1998], several studies identify a need to improve assessment and management of pain among older people in care homes [Cowan et al 2003a; Cowan et al 2003b; Clark et al. 2006]. More recent research has reported initiatives to improve **pain management** in nursing homes [Buhr & White 2006; Jones 2006].

Research on medication errors and adverse events in nursing homes suggests that patients taking antipsychotic agents, anticoagulants, diuretics, and antiepileptics are at increased risk [Gurwitz et al. 2005; Lau et al. 2005; Perri et al. 2005], as are patients transferred between acute and long-term care facilities [Midlov et al. 2005; Boockvar et al. 2004]. There are also questions over antibiotic prescribing [Russell & Gallen 2003], polypharmacy [Frazier 2005], and the existence of specific poor practice such as tablet crushing [Wright 2002]. The introduction of electronic prescribing has been recently discussed in Australia [Bollen et al. 2005], as have other administrative initiatives for reducing inappropriate prescribing of psychotropic drugs [Hughes & Lapane 2005].

The literature identified on use of medication in care homes is limited to studies in nursing homes, with no specific research on residential care. Several intervention studies assessing introduction of a **pharmacist's medication review** in nursing homes have shown a positive effect [Furniss et al. 2000; Klepping 2000; Hall et al. 2001], as has provision of an enhanced pharmacy service to care homes [Jones 2006]. Similar medication reviews by a pharmacist for at-risk older patients in the community are reported to reduce prescribing but had no effect on clinical outcomes or quality of life [Lenaghan et al. 2007]. The role of extended nurse prescribing [Astles 2006], pharmacists working alongside nursing staff to review medication [Hall et al. 2001], and certified medication aides to free up nurses' time in the US [Nelson 2005] have all been discussed in the context of nursing homes.

Review of medication by general practitioners has also been shown to be effective [Khunti & Kinsella 2000]. A physician outreach intervention focused on psychotropic drug prescribing and stroke risk reduction practices, while well received, produced no change in prescribing patterns [Crotty et al 2004a]. However, a multidisciplinary case conference intervention [Crotty et al. 2004b] and a pharmacist transition coordinator [Crotty et al. 2004c] are both reported to have improved medication appropriateness.

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SECTION 4. MEDICAL INPUT INTO CARE HOMES

Research evidence on medical input to care homes mainly focuses on nursing homes, although there is mention of residential homes in some of the UK literature. This is primarily focused on **general practitioners' workload** in care homes and **poor access to medical services** [Glendinning et al. 2002; Jacobs. 2003]. The Royal College of Physicians, together with the Royal College of Nursing and the British Geriatrics Society, has also highlighted problems with medical care in residential facilities that require resolution [Royal College of Physicians 2000].

The main theme emerging from the UK literature is one of the **size of GP workload** associated with care homes. Studies range from early single GP practice research that show that patients in UK nursing homes have nearly twice the number of contacts as other patients over the age of 74 years. [Carlisle 1999]. Later work similarly reported an impact of nursing home patients on general practitioners' workload [Groom et al 2000]. This evidence has led to the suggestion that an allowance be provided to compensate GPs for differences in workload associated with nursing home patients [O'Neill et al. 2000]. Other research has identified that although nursing home residents receive more face-to-face GP consultations, they are no more likely to be referred to hospital, and are less likely to be followed-up by their GP [Pell & Williams 1999]. These authors conclude that medical cover for nursing home residents should be restructured to give a greater scope for proactive and preventive interventions and for consulting with several patients during one visit. A survey has shown poor access to health care in nursing homes in one English Health Authority [O'Dea et al. 2000].

Although studies have examined the correlation between nurse staffing levels and quality in nursing homes, little if any research has systematically described the relationship between in-house physician staffing patterns and relevant outcomes. An early US study concluded that **medical organisation and practice patterns** do emerge as important factors in considerations of nursing home quality [Karuza & Katz 1994]. More recent research has also highlighted medical workforce shortages and implications for the future including an increased focus on staffing levels and competency [Katz et al 2003]. There is also discussion of physician practice and whether this may be enhanced by specialising in nursing home care, and of paying physicians on quality-of-care measures [Levy & Kramer 2005]. Other research has looked at information exchange between GPs and Nursing Home Physician in the Netherlands [Schols & de Veer 2005]; the role of the consultant in US long-term care facilities [Dimant 2003b]; and the role of nurse practitioners and physician assistants to enhance the medical care provided to nursing home residents [Caprio 2006]

There is also evidence on outcomes of care provided to nursing home resident by nurse practitioners/physicians versus physicians only [Aigner et al. 2004]. This is set within a wider debate on **doctor-nurse substitution** [Richardson & Maynard 1995] and the problems of delivering medical care to the frail elderly in the community [Craig 1995; Black & Bowman 1997].

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SECTION 5. NURSING CARE IN CARE HOMES

5.1. Skill Mix and Workforce Development

A World Health Organisation review [WHO, 2000] noted that in general, determining and achieving an appropriate skill mix of health personnel are major challenges for health care organizations and health systems. However, some authors [Buchan and Dal Poz, 2002] suggest that current evidence on skill mix (predominantly from US studies) is limited by methodological weaknesses and a lack of generalizability. Further, papers that argue that there could be hidden costs to the quality of care if the qualified workforce is diminished by an increase in care assistants, and despite benefits in terms of cost effectiveness, are often written by or for qualified nursing personnel [Buchan and Dal Poz]. It has been suggested that if residential care home staff were more skilled in anticipating health problems in residents or in delivering care, community nurse input could be reduced [Help the Aged, 2006]. The Government White Paper '*Our health, our care, our say*' [DoH, 2006] includes a commitment to equip health and social care staff with skills to enable them to operate effectively in multi-agency, cross-cultural environments. It is suggested that if an efficient, integrated care delivery is to be provided to older people, it is essential that the workforce is sufficient in number, skilled, knowledgeable and motivated. This will require the replacement of traditional models of care with one that encompasses more integrated roles, competencies and vision [Tamsma and Kooij, 2004]. However, achieving workforce development when attempting to provide an integrated care package for older people whether in a health or social care situation, can be organisationally, culturally and personally challenging for those involved [Nies and Bermon, 2004]. Changing vision and practice in health care environments can take time before benefits can be realised and initially could lower staff morale, produce resistance, and harden the subscription to traditional cultural values [Bozak, 2003; Ely, 2001].

Recent US research has tended to look at the effects of skill mix (often defined as absolute numbers of Registered Nurses [RN] or RN staffing hours as a proportion of total staffing hours) on the prevention of resident hospitalisation [Decker, 2008] or resident outcome [Konetzka, Stearns & Park, 2008]. Decker [2008] found that higher numbers of registered nurses more so than skill mix or greater levels of licensed nurse practitioners was successful in preventing hospitalisations in nursing home residents who had originally been admitted to the home from a hospital situation. In addressing the methodological weakness of some studies, Konetzka *et al* [2008] used a longitudinal research design with discrete outcome measures (development of pressure sores of grade 2 or above, and urinary tract infection [UTI]) and examined the relationship between staffing and outcomes in nursing homes. They found that increasing RN staffing improved outcomes for residents (less pressure sores and UTI). However, increasing skill mix only impacted on the incidence of UTI and not pressure sores. Bostik *et al* [2006] carried out a systematic review in order to evaluate the effects of staffing on quality of care in nursing home residents and found a positive association between higher levels of (especially licensed) staff with the quality of care indicators of pressure sores, functional ability, and weight loss. Other studies demonstrated that nursing homes with active nurse aide development training and evaluation programs had a lower likelihood of resident hospitalisation [Intrator, Zinn and Mor, 2008]. Thus, it may be that upskilling non-registered staff is the key to increasing quality in care.

Over the last decade several UK authors [Bartlett & Burnip, 1999; Goodman and Woolley, 2004] have noted the paucity of evidence concerned with the level of provision of NHS services to care homes, the ability of the NHS to meet potential demands created by the uptake of services by homes, and the capacity and role of the independent sector within health and social care services for older people as a whole (Jacobs & Glendinning, 2001). Although there is little research specific to residential care for the older person, Chambers & Tryer, [2002] recommend the need for care homes to have greater access to NHS nursing expertise no less because care home staff have been described as being isolated and excluded from main stream care systems [Davies, 2001]. Bartlett and Burnip [1998, 1999] conclude from their studies that to achieve quality care in care homes and nursing homes respectively, mandatory training for care staff and continuing education for qualified staff; opportunities for joint learning between the public and private sector; a greater provider or support role in education by local

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authorities and health authorities; increased emphasis upon outcomes for residents; and adequate funding for homes, are essential.

Carpenter & Perry [2001] suggest that the 24 hour requirement for nursing cover in nursing homes was often not indicated as necessary following assessment of residents' needs, and O'Kell [2002] observed that some tasks undertaken by nurses in nursing homes could be met by care staff, thus suggesting that alternative models of staff skill mix could be viable. Several authors have observed that up-skilling carers working within residential and nursing homes and the home care sector results in both short and long-term benefits for residents in terms of improved quality of life, increased resident activity and stimulation, an increase in positive interactions and relationships between residents and staff, and more appropriate and directed care for the resident [Fleming and Taylor, 2006; Smith et al, 2005 and Proctor et al, 1998]. In addition to the benefits realised by residents, investment in education and training for care staff has consistently been shown to advantage the staff themselves.

Although there is a paucity of research that looks specifically at the role development of the care worker for older people in a residential setting, findings from studies conducted with carers in other settings could be relevant to the residential care workforce. The effect of a health care worker development programme in a hospital setting found that care staff showed an increase in confidence and initiative that positively impacted on their care delivery by moving away from a task-oriented approach towards a more holistic model of care. Increased knowledge also brought a sense of achievement and satisfaction [Hancock et al, 2005]. Similarly, a survey of community home care workers found that those who had completed NVQ training up to level 2, reported higher levels of job satisfaction as well as increased confidence in their ability to carry out their job. Gaining the qualification gave meaning to their role as a home carer although they suggest that a grading structure with appropriate remunerative incentives should be in place in order to meet the growing number and more complex needs of service users and to attracting more young people into care work as a real career [Fleming and Taylor, 2006].

Some authors believe that the lack of clear definition of the care worker role could detriment work satisfaction and minimise role potential [Baldwin *et al*, 2003], while others suggest that it could reduce the public perception and confidence in the skills and knowledge of the care worker [McKenna *et al*, 2004]. In hospital, community and residential care settings care workers often have the dual role of housekeeper and carer and some expressed concern that the quality of their housekeeping may suffer with the development of their more patient-focused roles. Colleagues who had chosen not to take on extra role development training echo similar concerns [Hancock et al, 2005]. By 2005, DoH [2003] stated that care homes providing nursing or personal care for older people should have a minimum of 50% of care staff (excluding the care manager) with at least NVQ level 2 or equivalent. Recent figures compiled by Skills for Care [SFC 2008] show that overall, 91% of CSCI council registered residential homes for older people meet this standard.

In recent years, US models of health and social care for people with chronic illness [Dixon *et al*. 2004] have given impetus to the development of local UK in-reach and outreach models (IR/ORMs) between NHS and/or Social Services with the care homes' sector. Integrated and systematic ways of multidisciplinary working in these IR/ORMs allow greater input and direction from Primary Care Trusts and/or local government [DoH, 2005]. A mapping exercise of the development of new types of working initiatives in the South West Region [Skills for Care, 2007] found a diversity of training programmes for carers and suggested that a more standardised learning pathway would provide a recognisable status and skill base that could be transferable across both health and social care environments.

5.2. Nursing care and quality

Research evidence on the relationship between **nurse staffing** and **quality of care** for residents in care homes has focused on nursing care homes. There has been a concentration of these studies in US nursing facilities. Studies of residential care homes and UK-based studies have not been identified. This section presents the evidence-base, considering the extent to which findings can be generalized.

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Nurse staffing is a major concern in care home settings because of the challenges in determining the appropriate number and type of staff required to meet the needs of care home residents. Residents admitted to care homes (nursing and residential) are increasingly dependent with both acute and chronic **complex care needs** (Bishop, 1999; Bowman et al., 2004). A growing body of literature is linking nurse staffing levels in nursing homes with quality of care provided to residents. This issue is becoming increasingly important as the population being cared for is changing and service provision is concentrating on maximizing the independence of individuals to avoid admission to long-term care.

'Quality' is a difficult concept to capture directly. Many studies use Donabedian's (1988) quality framework. The major proposition of this framework is that three quality indicators are causally linked: structure (i.e. organisational characteristics), process (i.e. what is done for and with residents) and outcome (i.e. the end result for residents). Measures of quality are often used as a proxy for quality, either as **resident or organisational outcomes**. Resident clinical outcomes most sensitive to nurse staffing are conceptually linked to nurse staffing levels because of the nursing time required to improve outcomes. Resident outcomes focus on 'clinical' outcomes¹ and include:

- Incidence of pressure ulcers (Aaronson et al., 1994; Rantz et al., 2004; Dellefield 2006)
- Incidence of catheter use (Zhang and Grabowski, 2004; Horn et al., 2005)
- Use of physical restraints (Castle and Fogel, 1998; Wan, 2003; Bostick 2004)
- Improvements or a decline in functional ability and/ or physical activity (Rohrer and Hogan, 1987; Cohen and Spector, 1996; Bliesmer et al. 1998)
- Use of psychotropic drugs (Weech-Maldonado et al., 2004)
- Incidence of weight change/ loss (Bostick 2004; Horn et al., 2005)
- Incidence of behavioural problems and/ or disruptive behaviour (Ooi et al., 1999; Porrell et al., 1998)
- Incidence of urinary tract infections (Anderson et al., 1998; Horn et al., 2005)
- Incidence of malnutrition and/ or dehydration (Anderson et al., 1998)
- Incidence of antibiotic use (Zimmerman et al., 2002)
- Incidence of contractures (Anderson et al., 1998)
- Time resident is socially engaged (Bates-Jensen et al., 2004)

There are limited numbers of studies taking a broader view of outcomes, to include privacy and dignity, freedom of choice and social independence (Pearson et al., 1992).

A number of organisational outcomes² have also been studied, including:

- Hospital admissions/ re-hospitalisation rates (Harrington et al., 2001; Carter and Porrell, 2003)
- Mortality rates (Braun, 1991; Cohen and Spector, 1996)
- Discharge rates (Braun, 1991; Bliesmer et al. 1998)

Managerial factors (as part of organisational structures) may also impact on resident care outcomes and quality. Anderson et al. (2003) studied the relationship between **management practices** (communication openness, decision making, relationship-oriented leadership and formalisation) and resident outcomes (aggressive behaviour, restraint use, complications and fractures). Each management practice explained at least one resident outcome, suggesting that strategies for improving resident outcomes go beyond clinical process and the skills of care providers, relying also on management strategies that increase connections and interactions among people.

¹All of these outcomes would be applicable to residential care settings, apart from 'use of physical restraints'. In addition, accidents or falls may be a useful outcome indicator for residential or nursing home care.

² All of these outcomes would be applicable to residential care settings. Additional outcomes may also include complaints data, length of stay or referral to palliative care

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It is difficult to offer conclusions and recommendations about nurse staffing based on the existing research evidence: research has produced **inconsistent and contradictory results** about the link between nurse staffing and quality in care homes (Dellefield 2000; Kovner et al 2000). However, studies contributing to an understanding of the *potential* relationship between nurse staffing and quality indicate that:

- Higher *total* nurse staffing hours per resident day (registered nurses and support staff) is associated with improved quality of care (Rantz et al. 2004; Schnelle et al. 2004; Harrington et al. 2000)
- *More licensed nurse* staffing hours per resident day (RN³ and LPN⁴) are associated with better quality (Bliesmer et al. 1998; Porell et al. 1998; Cohen & Spector 1996)
- *Higher proportions of LPN* hours per resident day are associated with poorer quality (Zimmerman et al. 2002)
- *Low staff turnover* is associated with improved resident outcomes (Anderson et al. 1997; Munroe 1990; Spector & Takada 1991; Zimmerman et al. 2002)

However, there are some studies which contradict these findings, indicating that nurse staffing hours may not be the most important factor influencing quality and outcomes (Pearson et al., 2002; Wan, 2003). Care is provided to residents of care homes by a variety of staff (including medics and therapists) and so these **other staff** need to be considered as variables in any study of staffing and quality. Pearson et al. (2002) found that therapist hours are an important variable for residents' quality of care and life.

These studies may not capture the **multi-dimensional nature of quality**. There is a danger that research to date has reduced quality to what is easily measurable, to the exclusion of what is important to different stakeholders. These omissions present significant methodological challenges for future studies in this area. There are problems associated with resident and organisational outcomes used. For example, decline in mobility for nursing home residents may be due to a medical condition rather than poor quality care. Similarly, death (mortality rates) may be an expected outcome for some residents in nursing homes. To date there is an absence of quality of life measures and social care indicators included in studies. These may be more sensitive to variations in nurse staffing than clinical indicators. For example, there is evidence that nursing home residents prefer consistent assistance in activities of daily living (ADLs) delivered in a respectful manner (Grau et al. 1995; Gustafson & Gustafson 1996). It would be expected that staff's ability to meet this demand (i.e. assistance with ADLs) would be more affected by levels of nurse staffing than other clinical outcomes, which are influenced by resident-acuity factors. In addition, little is known about the relationship between processes of care and nursing staff skill mix in nursing homes. Schnelle (2004) argues for a focus on care processes based on the premise that all nursing home residents deserve to receive good care even if they suffer from conditions that may prevent good clinical outcomes. Research into care home outcomes (and their relationship to nursing) need to be broader to increase their applicability to the resident population under study, by encompassing physical, mental and social care outcomes.

A major criticism of many of the studies exploring the relationship between nurse staffing and quality is that they are cross sectional and use existing data secondary data sources. The accuracy and sensitivity of these data for understanding quality of care in relation to nurse staffing is questionable. Research in this area has thus far tended to concentrate on measuring quality in relation to *numbers* of nurses, assuming a linear relationship: higher numbers of nursing staff equals better quality. However, the relationship is not linear: at least some threshold of staffing must be reached before the benefits of staffing levels are seen (Schnelle et al., 2004; Zhang and Grabowski, 2004). Donabedian (2003) discusses this relationship in terms of *optimality*: the balancing of improvements in quality against the costs of such improvements. To date, there is a paucity of economic data to guide on the **cost effectiveness** of nurse staffing in care homes. Future research needs to address what combination of nursing skill level contributes to quality (and outcomes) in the most cost-effective manner. Castle and

³ Registered Nurses

⁴ Licensed Practical Nurses (grade of nurse in US)

Engberg (2007) argue that staffing characteristics such as turnover, staffing levels, worker stability and agency staff use should be addressed simultaneously to numbers of staff to assess quality because of an interaction effect: higher quality is dependent upon more than having one favorable staffing characteristic alone. Measuring quality in relation to nurse staffing is more complex than simply numbers of nurses delivering care.

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SECTION 6. INTERFACE BETWEEN CARE HOMES AND OTHER SERVICES

Although there is research on the interface between hospitals and care homes, studies do not generally distinguish residential homes. A number of studies have considered variations in **hospitalisation rate** between nursing homes [Castle & Mor 1996; Carter & Porell 2003], and the need to improve transitional care [Cheng et al. 2006]. More recent research has focused on predicting risk of admission to hospital [Billings et al. 2006; Miller & Weissert 2000], or identify any potentially preventable or inappropriate hospitalisations from nursing homes [Intrator et al. 2004; Saliba et al 2000]. The interface with hospital emergency care is particularly important [Finn et al. 2006], although follow up of older people with a history of emergency admissions shows that rates fall naturally over time without intervention [Roland et al. 2005].

Hospitalisation of nursing home residents for suspected respiratory infection and factors influencing this have been reported [Konetzka et al. 2004; Zimmerman et al. 2002; Miller & Weissert 2001]. Studies have attempted to identify whether hospitalization affects outcome [Boockvar et al. 2005; Kruse et al. 2004], and also to find ways of reducing hospitalisation rates including clinical pathways [Zimmer & Hall 1997; Loeb et al. 2006]. There is some evidence that nursing homes employing physicians and providing training for nurses' aides may have fewer hospitalisations [Anon 2005].

In terms of **early discharge**, one study has assessed how a low intensity early discharge model set up in a residential home for patients discharged from an Amsterdam university hospital. The research found that a heterogeneous patient population, relatively unqualified staff, and cultural differences between collaborating partners impeded implementation and limited the effectiveness of the model [Plochg et al. 2005]. In Australia, use of a transitional care facility for elderly people in hospital awaiting a long term care bed has been shown to 'unblock' hospital beds without adverse effects [Crotty et al. 2005]. In older adults who are hospitalised, functional decline can occur in a matter of days, emphasising the importance of timely hospital discharge as an intervention that can help prevent such decline [Graf 2006]. In England, the need for post-acute care for older people has been estimated as up to one-quarter of acute admissions to a district general hospital [Young et al. 2003].

A number of research projects have examined the role of nursing homes following discharge after a stroke. These show that patients in nursing homes are less likely to receive physiotherapy or occupational therapy compared to disabled patients in hospital based extended nursing care [Noone et al. 2001]. Some research also indicates that stroke patients discharged to a nursing home have a greater risk of dying, even after adjusting for demographics and clinical indicators, than those discharged to a rehabilitation facility [Lai et al. 1999; Leeds et al. 2004]. Other research indicates that rehabilitative nursing homes provide no better outcomes than ordinary nursing homes for stroke patients or for hip fracture patients [Kane et al. 1996]. Apart from stroke units, the evidence about effectiveness and costs of different forms of care for older patients has been reported to be weak in a review of the literature [Parker et al. 2000]. It has been argued more recently that placement in nursing homes after stroke discharge needs to be better understood to manage length of stay and the cost of acute care [Somerford et al. 2004].

After hospital discharge, it has been shown that inter-institutional transfers are common in older patients, emphasising that in such a situation there is a need to improve the quality of care transitions and ensure patient safety across settings [Ma et al. 2004]. To date research has focused more on **admission to nursing homes** [Slade et al. 2006; Netten & Darton 2003], rather than transfers from residential to nursing home care, where research is lacking. In the context of early discharge to nursing homes with conditions that previously would have required prolonged hospital stay, it has been reported that nurses' aides (who provide the vast majority of direct care to nursing home residents) need to develop skills to recognize potential problems e.g. early signs and symptoms of infection [Jackson & Schafer 1993].

The literature on **district nurse and therapist** roles in care homes includes very little research on residential care. One UK study has specifically examined district nurses' experiences of providing care

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in residential care home settings and identified that partnership working between district nurses and care home staff largely occurs by default [Goodman et al. 2003; Goodman et al. 2005]. This may be partly due to the perceived demands that older people in nursing and residential homes make on the district nursing service as reported in another study [Donald et al. 2002]. In Australia, although not specifically focused on residential care homes, issues that impact on registered nurses providing residential care to older citizens have been examined [Cheek et al. 2003]. The need for district nursing to support empowerment in nursing homes has also recently been discussed [Slettebo 2006].

There is far less research evidence on therapist input to care homes. The importance of podiatry [Clelland & McCann 1999], and of an occupational therapy intervention [Sackley et al. 2004] has been discussed but research does not differentiate nursing and residential homes. The impact of occupational therapy cost on service use in residential homes has however recently been raised [Schneider et al. 2007].

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SECTION 7. MODELS OF CARE IMPROVEMENT IN CARE HOMES

The literature on new models of care is once again mainly focused on improving care in nursing homes, with very few studies reporting on residential care or residential and nursing homes [Crotty et al. 2004a; Crotty et al. 2004b; Jacobs & Glendinning 2001; Proctor et al. 1998]. The NHS Improvement Plan and *Supporting People with Long Term Conditions* [Department of Health 2005a] require the workforces in health and social care to be modernised to meet the needs of redesigned user pathways. Residential care homes are not differentiated in policy documents. At the same time, nurses working in long-term care environments for older people have been shown to have limited awareness of such policies and their implementation [Tolson et al. 2005].

Residents of nursing and residential care homes frequently have substantial and complex healthcare needs. Although some of these needs may be met through the care provided within homes themselves, it is recognised that residents will require models of care that can provide contributions from medical, nursing, pharmaceutical and other services. A review of the evidence has pointed out that little is known about the 'twilight zone' of residential homes, the NHS services currently provided to them, and the capacity of mainstream NHS services to meet the needs of residents [Jacobs & Glendinning 2001].

The various 'models' of care improvement identified in the literature include: (1) Integration /partnership; (2) Systems/ organizational approach; (3) Quality improvement initiatives; (4) Evidence-based practice/ guidelines; (5) Geriatric nurse specialists; (6) In-reach/ support teams/ telecare; (7) Resident-oriented care; (8) Management of change.

7.1. Integration /partnership

Better **integration of services** for elderly people has long been promoted as improving quality of care and potentially reducing costs and use of health services in various health care systems [Bernabie et al. 1998; Kodner & Kyriacou 2000; Kodner & Spreeuwenberg 2002; Meehan et al. 2002; Ahlstrom et al. 2004]. In 2000, the Royal College of Physicians of London, the Royal College of Nursing and the British Geriatrics Society considered interdisciplinary working in care homes and recommended the introduction of gerontological nurse specialists, specialist GP services and specialist pharmacy services for older people in homes. Increased inputs from professions allied to medicine, the introduction of regular multidisciplinary consultant sessions and consultant visits to homes, the introduction of formal approaches to improve care planning, and the development of teaching nursing homes in each region were also suggested [Royal College of Physicians et al. 2000]. In America, the relationship between nursing homes and hospitals and the quality of care during patient transfers has also recently been discussed [Boockvar & Burack 2007].

Comparison of UK and Dutch care homes demonstrates a similar recognition of interdependence and willingness to pursue integration of services for multi-problem patients [Hardy et al. 1999]. Local circumstances, legal context, funding streams, procedural and structural arrangements at different system levels, and the collaborative culture all play a dominant role in both systems; but hierarchies and the interplay between hierarchies play a more dominant role in the UK.

In Australia, **multidisciplinary** case conference reviews involving general practitioners, a clinical pharmacist, senior nursing staff, other health professionals e.g. physiotherapist, and sometimes the resident or their representative have been assessed [King & Roberts 2001]. Recommendations in the management plans that were carried out benefited the residents or carers, and one month after reviews there were (non-significant) reductions in medication orders, medication cost, and mortality in the reviewed group. In the Netherlands, the impact of the introduction of integrated care models on the relationships between informal care and formal care in nursing homes as well as delivery of care has also been assessed [Paulus et al. 2005; Paulus et al. 2006].

7.2. *Systems/ organizational approach*

A number of studies from the mid-1990's onwards have examined quality improvement implementation in nursing homes through a **systems and case-mix approach** [Alvine 2005; Katsaliaki et al. 2005; Challis et al. 2007]. In some instances, a structure, process and outcome paradigm was adopted. For example, one study identified a structural measure (providing nursing care), three process measures (food quality, staff treat residents with respect, and staff verbally abuse residents), and two outcomes measures (cleanliness of the facility and complaints to Ombudsman) as significant, with for-profit facilities rated more poorly than not-for-profit ones [Castle 2004]. Another study used this approach together with path analysis for 142 certified and licensed nursing facilities [Ramsay et al. 1995]. Although multivariate analysis indicated that there were several significant direct effects, the overall path model was unconfirmed; suggesting that a simple structure-process-outcome path analysis may not accurately capture the way nursing facility health care is delivered. Similarly, use of discriminant analysis to identify organisational and environmental characteristics associated with nursing homes which are more successful financially has demonstrated limited value [Aaronson & Zinn 1995]. A different approach used service quality measured along five dimensions identified by marketing research (organisation responsiveness, reliability, assurance, empathy, and tangibles); researchers collected perceptions of service quality from over 400 family members who regularly visited residents in 41 nursing homes [Steffen et al. 1997]. Perceptions of service quality were found to show significant associations with four organizational factors: ownership, funding mix, facility size, and nurse staffing.

7.3. *Quality improvement initiatives*

There is a large literature, mainly from the USA, on **quality improvement (QI)** and, less frequently, total quality management (TQM) interventions aimed at improving care provision and quality of life of residents in nursing homes. The US Institute of Medicine produced a seminal report in 2001 highlighting the need for quality improvement in long-term care. This considers the measurement and monitoring of quality of care, approaches to strengthening the care giving workforce, and the need to improve care through the building of organizational capacity [Institute of Medicine 2001; Wunderlich & Kohler 2001]. The interest in *quality improvement* in long-term care homes has occurred against a backdrop of increased emphasis on *regulation* and quality assurance in different parts of the world [Harrington 2001a; Kerrison & Pollock 2001; Wiener et al. 2007]. Despite a preoccupation with regulations and government oversight, many opportunities exist for improvements in quality of life and quality of care in the culture of the nursing homes, [Deutschman 2001]. Consideration should also be given to how nursing and residential care homes could provide a continuum of quality care [Johnson et al. 1996].

Early research identified significant organisational and clinical obstacles to use of the **Total Quality Management (TQM)** model to improve quality in nursing homes, although it has improved efficiency and product quality in hospital and non-health-care settings [Schnelle et al. 1993]. Approaches such as providing nursing homes with comparative quality performance feedback and access to education about quality improvement have been shown not to lead to improvements; although additional access to a gerontological clinical nurse specialist did lead to a significant improvement in resident outcomes, but only in those nursing homes that sought this support [Rantz et al. 2001]. In Australia, a national outcome standards and monitoring system for care homes and the introduction of a care homes accreditation system has formed the basis of policy and practice for quality improvement in nursing and residential homes but the effects are still unclear [Bartlett & Boldy 2001].

Research from the US, examining quality improvement (QI) implementation in nursing homes and its association with **organizational culture**, using pressure ulcer care as a measure of quality, concludes that QI implementation is most likely to be successful in nursing homes with an underlying culture that promotes innovation [Berlowitz et al. 2003]. However, while such QI implementation results in staff who are more satisfied with their jobs and who believe they are providing better care, any association with improved care is uncertain. Research from Canada has indicated that a task-based orientation to care, lack of peer cohesion and supervisory support and a lack of autonomy and innovation in practice all produce a workplace environment in long-term care facilities that is less than supportive of high quality care [Ross et al. 2002]. A European study comparing the UK and Germany in terms of the potential of

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a quality management system for self-regulation in elderly care homes suggests that standardisation of quality indicators may be inappropriate in the context of local differences [Reed et al. 2003].

Mixed findings emerge from a 3-year longitudinal study of QI process innovations in two US not-for-profit nursing homes [Rosen et al. 2005]. An initial 6-month QI initiative was based on the principles of staff empowerment, enhancing ability through training, and financial incentives. All staff members completed a computer-based interactive video education programme on pressure ulcer prevention, and incentives included \$75 per staff member if desired reductions in pressure ulcer rates were achieved. After 18 months, the QI process was modified to include real-time feedback of adherence to mandated training since there had been no measurable improvements in residents' QoL, quality of care, or staff job satisfaction. Only when the element of real-time feedback was introduced, in combination with enhanced training and financial incentives, were significant improvements seen (reduction of new pressure ulcers). Examination of black and white nursing home residents showed a racial disparity at baseline (black residents were more likely to have multiple Stage II-IV pressure ulcers); this was eliminated [Rosen et al. 2006a]. However, a continuation of the study also identified that the overall quality improvement effect was not sustainable and was lost during the post-intervention period [Rosen et al. 2006b].

A 4 year longitudinal study of an organisational intervention to foster participatory management practices in a nursing home has used job stress, nursing care, family involvement, and satisfaction of residents and family members as proximal outcomes to indicate whether organisational change occurred [Beck et al. 2005]. The researchers conclude that sustaining best practices in a nursing home also requires changes in regulatory support for quality care, sufficient staff resources to implement and monitor the practices, and a 'change agent' with sufficient formal or informal influence. A more recent study in the Netherlands has explored the impact that quality management systems and quality assurance activities have had on undesirable clinical outcomes in a cross-section of 65 Dutch nursing homes [Wagner et al. 2006]. The authors report that implementation of a quality management system had a significant (although small) influence on the number of undesirable outcomes. More recently, analysis of data from 17,000 US nursing homes on physical restraint, psychotropic medication, catheterization and pressure ulcer rates suggests that nursing homes can increase their private-pay census by increasing quality [Castle 2005].

The underlying issue for QI of staff empowerment in nursing homes has been considered by a number of authors. Early findings suggested that organisational structures which foster nurses' empowerment, combined with powerful managers, are important factors for long-term care commitment [Beaulieu et al. 1997]. Subsequent research in care homes has identified the need for flattened organisational structures, and a willingness from management to fully support the change process and to be more transparent if success is to be achieved in improving practice and care standards; factors inhibiting the change process included the organisational culture and tokenistic support by management [Chenoweth & Kilstoff 2002]. Finally, access to opportunity has been identified as the most empowering factor for nurses, and access to resources the least empowering, in another recent study in nursing homes [DeCicco et al. 2006].

7.4. Evidence-based practice/ guidelines

A slightly different approach to improving care has been the introduction of evidence-based guidelines. This has not only been applied to medical care but also to nursing and administrative practices. Evidence-based medicine does not appear to affect practice in long-term care due to a number of implementation barriers [Messinger-Rapport 2004]. Similarly, a US study of 71 nursing homes from various states has shown that the use of evidence-based clinical practices and evidence-based administrative policies/practices is not widespread [Mueller et al. 2004]. The importance of administrative guidelines for successful implementation of research-based quality improvement in nursing homes has been pointed out by other authors [Dyck 2005]. So has the need for improved medical records containing information about care-process delivery for QI [Schnelle et al. 2004], and a requirement for better practice resource centres [Brazil et al. 2004]. Discussion of the role of nursing

homes as a suitable alternative to hospital care for older people in the UK has also highlighted the need to urgently advance the development of evidence-based practice in this sector [Turrel 2001].

7.5. Geriatric nurse specialists

The value of a geriatric nurse practitioner (NP) for nursing homes has been assessed in a number of studies starting in the late 80's [Kane et al. 1989; Garrard et al. 1990; Garrard et al. 1991]. Impact measurement has included process and outcome measures of nursing home care; nursing-home residents' functional status, satisfaction and discharge outcomes. Introduction of a geriatric NP led to some reduction in hospital admissions and some evidence of geriatric NP care substituting for physician care in a study comparing 30 nursing homes employing geriatric nurse practitioners with 30 matched control homes [Kane et al. 1989]. The same team interviewed 848 residents in 10 nursing homes with and without a geriatric NP and found little difference in residents' functional status, physical condition, or satisfaction [Garrard et al. 1990]. Geriatric NPs working with staff in three US nursing homes were successful in introducing protocols for residents with four specific problems (pressure ulcers, incontinence, depression, and aggressive behaviour); these led to better outcomes in all four areas as protocols were integrated into the daily routines of staff [Krichbaum et al. 2000]. The research is part of a broader study into the use of gerontological clinical nurse specialists to support quality improvement activities in nursing homes [Popejoy et al. 2000; Harrington 2001b].

Analysis of the work patterns of NPs in US long-term care facilities has identified that they provide a substantial number of services including making sick/urgent resident visits (96%), providing preventive care to long-stay residents (88%), hospice care (80%), and wound care (78%); and that they are more likely to be involved in larger (>100-bed) facilities [Rosenfeld et al. 2004]. Various strategies for strengthening the use of advanced practice nurses in nursing homes have been discussed and recommendations made about educational preparation, caseload, and reimbursable visits [Mezey et al. 2005a; Mezey et al. 2005b]. A different study has assessed the introduction of a second tier of organization-level interventions by NPs, on top of their provision of direct care and training [Krichbaum et al. 2005]. This revealed significant improvement in depression scores, whereas the original NP input only produced improvements in continence, pressure ulcers, and aggression.

The EverCare model involves case management of frail elderly by nurse practitioners employed by EverCare, a US Medicare HMO serving exclusively nursing home residents [Kane et al 2002; Evercare 2004]. Impact on mortality, preventable hospitalizations, quality indicators derived from the Minimum Data Set, and change in functioning have all been assessed for the Evercare model [Kane et al. 2004]. Results indicate that mortality is significantly lower for Evercare residents than for other residents in the same nursing homes; that Evercare residents have fewer preventable hospitalizations; but that quality indicators and functional changes are equivalent. The authors conclude that use of nurse practitioners in the Evercare model can provide more efficient care that is of at least comparable quality. Analysis of NP work patterns shows 35% of the working day spent on direct patient care and the remainder interacting with nursing home staff, families and physicians [Kane et al. 2001]. Transfer of the EverCare model to the UK has produced initial enthusiastic reports [e.g. Jehan & Nelson 2006] together with a slightly more tempered response [Gravelle et al. 2006].

7.6. In-reach/ support teams/ telecare

With no in-house nursing staff in residential care homes, models of integrated care which involve specialist in-reach or support teams coming into homes may be appropriate to consider. A recent review of published research has identified that reassessment of the interface between community and residential care to improve the access of older people in care homes to primary nursing care [Goodman & Woolley 2004]. There have been a small number of studies describing such in-reach teams can improve the nursing care given to older people in care homes [Proctor et al 1998; Anderson 2004]. The inclusion of an older people's specialist nurse in a multidisciplinary care homes support team in the London boroughs of Lambeth, Southwark and Lewisham is reported to have produced benefits, especially in managing the interface between the nursing homes and primary care [Hayes & Martin 2004]. This role was introduced partly as a response to local health need among care home residents, but also as a response to changes in national policy with the introduction of NHS-funded nursing care.

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To our knowledge, to date there has been only one evaluation which has considered the impact and cost-effectiveness of such an intervention [Szczepura et al 2008]. Enhanced physical and occupational therapy services have been reported to demonstrate a positive effect on the functional status and cost of care of long-term care residents over a 2 year period [Przybylski et al. 1996].

The potential for use of telecare, especially to support older people, has been more extensively discussed in the literature [Audit Commission 2004; Curry et al. 2003; Bandolier 2005; Department of Health 2005b,c,d; Garcia-Lizana & Sarria-Santemera 2007; Balas & Iakovidis 1999]. It is argued that the integration of telecare technology with primary care systems could provide support at home and might make better use of medical and nursing professionals' time and scarce hospital beds [Kelly 2005; Pitsillides et al 2004]. However, experts also argue that organisational and structural barriers to implementation, including managing conflicting demands on professionals' time, will first need to be overcome [Barlow et al. 2005; Barlow et al. 2003; Holmström & Dall'Alba 2002]. The conclusion is that these systems will require careful assessment [Bayer et al. 2005].

The potential for telemedicine to replace community nurse visits to an individual's home was assessed early in the UK [Wootton et al. 1998]. It was judged that 14-16% of 1,626 home nursing visits could have been done via telemedicine; 83% of episodes involved 'hands-on' interventions and so could not. Similarly, introduction of a city-based telecare scheme (to enable older people to remain in their own homes) involving 11,618 community alarm users is predicted to achieve a return on investment, but only after 10 years, with principal savings expected to be due to reduced hospital bed costs and reduced residential care [Brownsell et al. 2001; Brownsell et al. 2000]. The authors also suggest that the financial benefits of the proposed system would occur in the ratio of 4% to the local authority housing department, 43% to the National Health Service and 53% to the residential care provider. Although assistive technology and telecare do offer support for independent living [Brownsell & Bradley 2003], the adaptability of existing housing will depend on a range of factors and costs will vary greatly [Tinker & Lansley 2005]. There is no indication of costs in care homes.

It is only recently that the potential for remote patient monitoring in residential care homes has been considered [Bratan et al. 2007; Clarke et al. 2004]. No trials have reported findings for residential care homes.

7.7. Resident-oriented care

An early study comparing 'excellent' and 'ordinary' nursing homes in Denmark identified two models of ageing - psychosocial and medical [Andersen 1987]. The first of these seemed to be more influential among staff of 'excellent' homes. The most important single factor in determining excellence was seen as resident-oriented care focused on quality of life, with contributing factors including activities for residents, their social contacts and staff knowledge and evaluation of individuals. The author suggests that staff of nursing homes need to compensate both loss of biological capacity and social contacts and roles to provide optimum quality of care for their residents. In a study in the Netherlands, introduction of client-tailored nursing care was assessed through interviews with 337 residents in 10 nursing homes [Holtkamp et al. 2000]. The study showed a relationship between higher quality co-ordination and fewer care gaps, particularly with regards to psycho-social aspects of care. In another, quasi-experimental study in three Dutch nursing homes it was reported that implementation of resident-oriented care also had an impact on staff; lower frequency of sick leave was reported, although effects on job characteristics (job autonomy, job demands and social support) were limited [Berkhout et al. 2001]. A follow-on study identified that effects on job characteristics remained limited; there was still a partly task-oriented division of labour, and the delegation of co-ordination tasks to nursing caregivers had not yet been properly achieved [Berkhout et al. 2003].

7.8. Management of change

Management and leadership style have an important impact on outcomes of quality improvement initiatives within the nursing home. Nursing home staff identify communication and leadership as important to facilitate quality improvement [Scott-Cawiezell et al. 2004]. In Australia, a study of the relationship between skills mix and resident outcomes in 200 nursing homes identified that the role of

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the senior nurse (e.g. the director of nursing) was pivotal, as had been consistently reported in earlier literature [Pearson et al. 1992]. Also important were the ideology of the staff, team cohesiveness and an overall positive staffing environment; all of these were found to be influenced by the senior nurse. The relationship between effective management practices and resident outcomes has been examined in 164 Texas nursing homes [Anderson et al. 2003]. Management practices (communication openness, decision making, relationship-oriented leadership, and formalisation) and resident outcomes (aggressive behaviour, restraint use, immobility of complications, and fractures) were correlated, after controlling for case mix, size, ownership, and director's tenure and experience. In an Australian study, the impact of policy change on nursing staff in one nursing home and their practice was dependent on management's leadership in interpreted the new policy and implemented innovative strategies in order to meet its requirements [Jeong & Keatinge 2004]. In the US, the rise in turnover of nursing home managers, due to greater job complexity and administrative responsibilities, has been identified as a significant issue [Angelelli et al. 2001].

Culture change may be required within the organization to facilitate change. Changing culture within care homes requires a better understanding of culture and what motivates care-home providers [Davies & Nolan 2002; Matosevic et al 2007]. Differences among care participants in the nursing home setting about expectations for care-giving and care-seeking behaviour have been well-documented [Jackson 1991]. Studies have demonstrated that differences exist among nurses, nurses' aides, residents and family members in their interpretations of the meaning of care, care requirements, and distress states that influence decision-making. Two important tensions emerge (home/hospital and generalised/specialised knowledge). Although families and health care professionals have similar goals for the health and well-being of a patient or client, they approach care, especially long-term care, with different assumptions, values, attitudes, and behaviours [Levine 2003]. Researchers argue that, if nursing homes are contemplating significant culture change in order to embrace a new set of values, then change must begin with the owners and administrators of nursing homes who need to focus on building new relationships with all the stakeholders [Deutschman 2005]. A study to examine the association of high involvement nursing work practices with employer-of-choice (magnet) status in a sample of 125 Canadian nursing homes identified that 'magnet' nursing homes are more likely to have progressive participatory decision-making cultures and much more likely to spend considerable resources on job-related training for their nursing staff [Rondeau & Wagar 2006]. The authors conclude that adoption of new nursing work practices may be insufficient, especially if practices are adopted without an investment in nurse training or a commitment to establish a more participatory decision-making style involving all nursing staff.

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