

# Oral health care and status of elderly care home residents in Glasgow.

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**Objectives:** To investigate variations in reported oral health care provision and unmet dental need within a sample of care homes for the elderly in Glasgow. **Basic research design:** Two-phase study of a 50% random sample of 120 care homes (n=60). Phase 1: telephone interviews with care home managers. Phase 2: oral examinations of residents and face-to-face interviews with care staff, in a sub-sample of 10 homes. **Clinical setting:** Care homes in Greater Glasgow. **Participants:** Residents and staff. **Results:** Phase 1: data were collected from 58 of 60 care home managers approached (response rate: 97%). Oral assessment of residents on admission was reported for 78% of nursing homes and 24% of residential homes, and annual screening by a dentist for 85% and 76% respectively. Only 58% of nursing homes and 8% of residential homes had a formal mouth care policy. Staff training in mouth care was not universal and often carried out "in-house". All managers believed dental support was available when required. Phase 2: 288 oral examinations and 22 staff interviews took place within 10 homes selected. Examinations revealed high levels of oral disease. When interviewed, staff accepted that mouth care was within their remit but failed to document it within patient care plans. Further training on oral health and disease was requested from all levels of staff. **Conclusions:** Oral disease is common among elderly care home residents in Glasgow. Increased emphasis on implementation of standard oral care protocols and improved education of staff is essential if the oral health of elderly institutionalised residents is to improve.

*Key words:* care home, elderly, nursing staff, oral care

## Introduction

In common with other developed nations, Scotland is undergoing a demographic transition to an older population. Currently 750,000 people aged 65 years or over live in Scotland, of whom one third are over 75 and almost 100,000 are 85 years or over. At present, people over 65 years make up 15% of the total population of Scotland, but this group will account for almost a quarter of the population by 2031 (Wood and Bain, 2001). In addition, the oral health of older adults is changing. Forty years ago, over one third of the total UK adult population had no natural teeth and an edentulous mouth was common even in younger people (Gray *et al.*, 2000). That picture is changing, and figures from the Adult Dental Health Survey show that more than 50% of the pensionable population of the United Kingdom have some natural teeth (Nuttall *et al.*, 2001). With this change come new patterns of disease. Many surveys of the elderly have highlighted oral problems, including denture problems, mucosal pathology and high caries incidence (Ritchie, 1973; Manderson and Ettinger, 1975; Hoad-Reddick, 1985; Weyant *et al.*, 1993; Sweeney *et al.*, 1995; Simons *et al.*, 1999). It is recognised that those individuals residing in care institutions have far higher levels of oral disease than those living at home (Steele *et al.*, 1998; Simons *et al.*, 1999).

Many barriers to care have been identified in the dependent elderly group, particularly for those residing in care institutions (Eadie and Schou, 1992; Lester *et*

*al.*, 1998). These include poor mobility and poor manual dexterity of the patients, attitudes of the care home managers and staff towards dental matters in general and lack of education or understanding of the importance of oral health in the maintenance of good general health and quality of life (Simons *et al.*, 2000).

Older people in Scotland have worse oral health than those living in the rest of the UK (Steele *et al.*, 1998), and the dental health of the Scottish population as a whole is among the worst in the developed world (Scottish Executive, 2003a). Within Scotland, Greater Glasgow has particularly poor dental health, explained in part by high levels of deprivation. The Scottish Executive, which since 1999 has been the devolved legislative authority in health care, is committed to improving the health of older people living in Scotland (Scottish Executive, 2003a) and to the importance of oral health for this age-group (Scottish Executive, 2003b). Standards in Scottish care homes for the elderly are set by The National Care Standards Committee (NCSC). Standard 14.3 requires a full assessment of health care needs on admission followed by six monthly repeat assessments. Oral assessment is included within this process and any oral or dental problems noted should be referred for specialist advice and treatment (Scottish Executive, 2001). Despite these attempts at improving standards, there remains little reliable evidence on the oral health of older people living in residential care homes.

## Aims

The aims of the present study were to investigate oral health care provision within care homes in Glasgow, identify variations in such provision between types of care homes, and establish current levels of oral disease.

## Material and methods

Phase 1 of the study involved telephone interviews with care home managers. Phase 2 involved visits to ten randomly selected care homes to undertake oral examinations of all consenting residents and to interview a selected number of care staff in each institution.

### *PHASE 1: Telephone interviews*

This was a descriptive study comprising structured telephone interviews using a pre-piloted, proforma questionnaire. Sixty care homes sited within Greater Glasgow were selected from the list detailed by the Social Work Department of Glasgow City Council. This sample, representing 50% of Glasgow care homes (whether independent, voluntary or state-run), was identified via a stratified sampling technique, following selection of the first participating home via a random numbers table. A nursing home as defined by the local authority is an establishment with at least one qualified nurse available 24 hours a day while a residential home may have some nursing care on-site, but without 24-hour availability.

Managers were sent an explanatory letter requesting their participation in the study, together with the questionnaire for use during the telephone interview. Interviews commenced one week after posting and lasted approximately ten minutes. Both interviewee and interviewer followed the sequence of closed questions laid out in the questionnaire, with the interviewer asking for elaboration or clarification when required. This information was recorded on a standardised proforma.

### Structure of the telephone interviews

Part A of the questionnaire covered resident numbers per institution, gender and age group distribution. Part B sought information on whether mouth assessments were undertaken routinely on admission and by whom; whether annual dental inspection was offered and, if so, who performed this inspection and any necessary treatment; availability of a formal mouth care policy and its nature; whether audit of mouth care procedures was undertaken; and provision of staff training. Managers were requested to forward current mouth care policy documents to the researchers and to consent to Phase 2 of the study.

### Data entry and statistical analysis

All data were treated as confidential and anonymised prior to analysis. Data were analysed in the Statistical Package for the Social Sciences® (SPSS Inc., 1999). Analysis involved the production of descriptive statistics and cross tabulations, with potential associations between type of care home and other relevant variables tested for statistical significance using Pearson's Chi-square tests or T-tests.

### *PHASE 2: Care home visits*

#### Selection of homes

Ten care homes (five nursing and five residential) were selected at random from those who had agreed to participate in the visits after completion of Phase 1.

#### Visits to the Homes

The visit team comprised a dentist, dental hygienist and a general nurse. Each visit took between one and three hours depending on the number of residents to be examined. Larger homes were visited twice.

#### Staff interviews

Two staff members, one senior and one junior, were interviewed individually by the general nurse at nine care homes. The tenth home, divided into two units, required four staff interviews. The care home manager selected the staff members from those on duty at the time the dental examination took place. A standard questionnaire was used to structure the face-to-face interviews. Age and job specifications were determined, together with formal qualifications achieved in any aspect of nursing care, training in mouth care and their views on staff provision of mouth care within the home. As before, the interviews were recorded on a standardised proforma.

#### Clinical examination

Each resident gave witnessed verbal consent to the examination. The oral examination was undertaken by one of the authors (MPS), a qualified dental surgeon with experience of working within an oral medicine unit. Standard dental illumination was used (DenLite®, Welch Allyn) and mouth mirrors were employed for dentate patients. Clinical data were recorded onto a previously piloted standard proforma by the hygienist. This included presence or absence of natural teeth and whether caries, calculus or debris were present. Since a dental surgery was not available for these examinations, it was not possible to undertake a complete and detailed dental charting. Dentures, if present, were assessed for fit, condition and cleanliness. A soft tissue examination was carried out in a standardised fashion and any mucosal lesion noted was formally recorded. To ensure complete examination of the mucosa a table was drawn up which divided the mouth into 16 soft tissue sites. Thus a standardised order of examination was established and followed for every patient. This table had also been piloted prior to use. Treatment need was recorded as routine or urgent for four categories, namely oral hygiene, conservation/extractions, dentures and soft tissue.

#### Microbiology sampling

Oral swabs (PROBACT transport swabs, Technical Service Consultants Limited, Heywood, UK) were collected from patients with clinical signs of oral fungal infections. The specimens were transported within three hours to a diagnostic oral microbiology laboratory for culture and sensitivity testing. The swabs were inoculated onto Sabouraud's and Pagano-Levin agars and incubated at 37°C for 48 hours. Each swab was also inoculated onto blood agar plates and incubated aerobically at 37°C for 48 hours to permit detection of other pathogens such as *Staphylococcus aureus* and coliforms. Yeast isolates were

identified by germ tube tests and APID 32C (bio-Mérieux S A, Marcy-l'Etoile, France) profiles. Bacterial isolates were identified by standard laboratory methods.

### Treatment

All patients who required treatment were referred to the local Community Dental Service. For a small number of residents in whom urgent clinical problems were identified, the investigators undertook appropriate treatment or referral immediately.

## Results

### PHASE 1

#### Response rate and resident numbers

Of the 60 homes in the initial sample, 58 managers agreed to participate, a response rate of 97%. In total, 2,487 individuals were resident in the care homes participating in the study.

#### Care home status

Of the 58 participating homes, 33 were nursing and 25 residential. Table 2 shows that while residential homes tended to have fewer residents, ( $p < 0.001$ ) there was no difference between the types of homes and the proportion of females or over 85s.

#### Oral assessments

Table 2 shows the reported arrangements for oral health assessments on admission and on a routine annual basis. It shows that reported provision of an oral health assessment on admission was significantly less common in residential homes than in nursing homes ( $p < 0.001$ ). Annual assessments were reported by the majority of managers in both types of homes. In all but one case (a nursing home) assessments were conducted by a dentist.

### Provision of dental treatment

All 58 managers indicated that dental treatment was available when needed. Treatment was provided by community dental officers (34% of homes), by general dental practitioners (31%) or by a combination (35%).

### Formal mouth care policy

Nineteen (58%) nursing homes stated that they had a formal mouth care policy in place, compared with two (8%) residential homes ( $X^2=15.14$ ,  $df=1$ ,  $p=0.001$ ). Insufficient examples three of these policies were supplied to the research team to permit meaningful analysis of the quality of such documents.

### Audit and training

Only two (6%) nursing homes and three (12%) residential homes had carried out an audit of mouth care procedures in recent years. Twenty-eight (85%) nursing homes and 18 (72%) residential homes provided training in mouth care for non-nursing staff. In residential homes, care staff typically received training 'in-house' from senior carers who were often untrained themselves. In nursing homes, training was usually provided by qualified nursing staff, and only occasionally by dental staff. Seventeen (52%) of the 33 nursing home managers indicated that 'in-house' oral care training was provided for their qualified nursing staff (residential homes do not generally employ this category of staff).

### PHASE 2

All residential home managers and all but one of the nursing home managers agreed to take part in a Phase 2 visit from the research team.

**Table 1.** Characteristics of the participating homes

	<i>Nursing Homes</i> <i>n=33</i>	<i>Residential Homes</i> <i>n=25</i>	<i>All Homes</i> <i>n=58</i>
Mean number of residents (range) <sup>1</sup>	54 (19-180)	28 (6-54)	43 (6-180)
% female residents (range) <sup>2</sup>	73% (47%-100%)	71% (44%-100%)	72% (44%-100%)
% 85 years (range) <sup>3</sup>	39% (6%-75%)	34% (7%-83%)	37% (6%-83%)

<sup>1</sup>t=3.85, df=56, p=0.001; <sup>2</sup>t=0.38, df=56, p=0.704; <sup>3</sup>t=0.75, df=56, p=0.456

**Table 2.** Reported oral health care assessments by type of home

	<i>Nursing Home</i> <i>n=33</i>	<i>Residential Home</i> <i>n=25</i>	<i>All Homes</i> <i>n=58</i>
Oral assessment on admission offered <sup>1</sup>	79% (26)	24% (6)	55% (32)
Admission assessment by dentist <sup>2</sup>	35% (9)	8% (2)	19% (11)
Annual dental assessment offered <sup>3</sup>	85% (28)	76% (19)	82% (47)

<sup>1</sup>X<sup>2</sup>=17.26, df=1, p=0.001; <sup>2</sup>X<sup>2</sup>=3.44, df=1, p=0.064; <sup>3</sup>X<sup>2</sup>=1.28, df=1, p=0.257

## Personal interviews with care staff

Twenty-two members of staff (11 senior, including five qualified nurses, and 11 junior) were interviewed in 10 care homes. Most (17/22) had received no formal training in mouth care and those who had been trained felt that the level of training was inadequate in terms of content and not provided by an instructor with specific dental knowledge or experience. All those interviewed agreed that mouth care was within their daily remit, but was not always carried out on a daily basis and none documented mouth care routinely. Nine interviewees found certain aspects of mouth care distasteful, in particular the insertion and removal of dentures, especially those

in need of cleaning. All stressed that mouth care was the resident's own choice and they should be free to refuse it if they wished. Only two care workers were satisfied with the standard of mouth care being provided in the care home where they worked. Ten felt that much more specialised training was required covering all aspects of oral health and disease in the elderly. Practical 'hands on' training sessions were also requested.

## Clinical examinations

There were 316 residents in the 10 care homes selected at random for a visit. Of these, 288 (91%) agreed to an oral assessment. Tables 3,4 and 5 summarise the results

**Table 3.** Results of clinical examinations (n=288)

Edentulous	74% (213)
% of edentulous with dentures	84% (179)
% of edentulous with F/- only	30% (64)
Dentate/partially dentate	26% (75)
% of dentate with evident caries	73% (55)
% of dentate with calculus present	57% (43)
% of dentate with debris present	80% (60)
Mucosal lesions identified	38% (110)
Erythematous candidosis confirmed	19% (54)
Ulceration recorded	5% (13)

**Table 4.** Types and frequency of mucosal lesions detected

Erythematous candidosis	19% (54)
Ulcer	5% (13)
Leucoplakia	4% (11)
Erosive lesion	1% (3)
Herpes simplex virus reactivation	0% (1)
Denture- induced hyperplasia	3% (7)
Venous Lake	4% (10)
Geographic tongue	2% (5)
Fibroepithelial polyp	2% (4)
Black hairy tongue	1% (2)

**Table 5.** Routine and urgent treatment requirement

	<i>Routine treatment</i>	<i>Urgent treatment</i>
Hygiene (dentate patients)	79% (59)	-
Cons/extractions	33% (25)	5% (4)
Dentures (edentulous)	7% (14)	-
Soft tissue (all patients)	17% (50)	5%(13)

**Table 6.** The yeast species isolated from oral swabs of 60 residents with clinical evidence of oral candidosis

<i>Yeasts isolated</i>	<i>Number of patients (n=60)</i>
Candida albicans	31
Candida glabrata	2
Candida albicans and Candida glabrata	19
Candida albicans and Candida tropicalis	1
Candida albicans and Candida dubliniensis	1
No yeasts isolated	6

of these examinations. In the opinion of the examining dentist, dental treatment was required in almost half of those assessed (47%) and was classed as urgent in 6% of cases.

### Microbiology

Swabs for mycological examination were collected from 60 patients with oral lesions that had the clinical appearance of oral candidosis. Fifty-four were positive for the presence of *Candida* species, of which 21 were colonised with combinations of species (Table 6). The mouths of 16 of the 60 patients were colonised with *Staphylococcus aureus*, of which nine were strains of methicillin resistant *S. aureus* (MRSA). Five of the MRSA – infected patients were resident in the same care home. Nine patients demonstrated oral carriage of coliforms.

## Discussion

The provision of dental treatment services and standards of mouth care for residents of care homes for the elderly varies geographically (Nicol *et al.*, 2005). However, little research has been carried out in Scotland to examine oral care provision for this population group. This study, with its excellent response rate of 97%, has helped to redress this deficiency in part. While Phase 1 data depended on reports of oral care services in the care homes, rather than direct observation of their existence and adequacy, the incorporation of clinical assessments into the study enabled the objective examination of health status.

The NCSC requirement for healthcare assessment on admission was being met by a high proportion of the nursing homes surveyed. However, the proportion of residential homes providing oral health assessment as part of this process was low, relying instead on the outcome of an annual dental inspection to highlight patients' oral problems. Annual dental inspections in care homes have several purposes. In addition to assessing the oral health care needs of an individual, the process can also be used for service planning purposes. In the past, Community Dental Services across Scotland provided what was described as an annual dental 'screening' for all institutionalised elderly. However, economic and workforce restraints have led to decreased provision of this service in many areas. Despite this, many care home managers reported satisfaction with the dental service currently received by residents. However, the oral examinations carried out as part of this study revealed a high level of untreated dental caries and soft tissue disease. It is probable, as in other studies, that this reflects a difference between normative need and perceived need for this client group. This issue requires consideration by both care home managers and those responsible for the delivery of dental services.

In order to provide adequate oral care for dependent residents, a written policy or protocol should be available for care workers to follow. Approximately half of the nursing homes in the study stated they had a mouth care policy, compared with only a small proportion of residential homes. All participating care homes were requested to send in their policies, to enable comparison of topics covered and to allow evaluation for the purposes of further study. However, this request had the

effect of alienating some interviewees, and in total only three policies were received. This would suggest that a standard for oral care should be set out in a formal policy document and an oral hygiene protocol be agreed upon in conjunction with stakeholders such as the care commission, care home staff, dentists, oral health educators and care home residents, to ensure provision of an adequate level of care.

Oral care has a specific role in maintaining well-being and quality of life, but in many long-term care establishments most of the oral care is provided by untrained or poorly trained care staff who are often busy, poorly paid and have a high rate of turnover (Chalmers *et al.*, 1996). While most managers in this study stated that training in mouth care was provided for staff, personal interviews with a sample of staff indicated that many of the care staff had received no formal oral care training before being given the responsibility of caring for dependent residents. The quality of mouth care training was not evaluated in this study, but it is worth noting that many of the staff who provided training were themselves lacking formal training in oral health and disease. It is well recognised that training of nurses in oral care is inadequate in the current nursing curriculum and there is a lack of standardisation of training (Longhurst, 1998). Therefore the training of carers by inadequately trained nursing staff may do nothing to improve the situation. Unfortunately, there is very little appropriate written material on mouth care available for those without a dental background, and it is essential if dental staff are to address the training issues for nursing and care staff, that high quality, modern evidence-based training aids are made available to those providing education (Sweeney *et al.*, 2000). However, this must be supported by practical 'hands on' training (Nicol *et al.*, 2005).

As anticipated, oral candidosis was a common problem among this group. The diagnosis was confirmed by culture for 54 patients and revealed a high prevalence of non-albicans yeasts. The detailed mycological flora of the elderly is worthy of study, since there are increasing trends towards azole resistance, particularly among some of the non-albicans species such as *C. glabrata* (White *et al.*, 1998). The microbiological investigations also revealed that the mouths of several patients were colonised with MRSA. The mouth has been increasingly recognised in recent times as a reservoir for *S. aureus*, particularly among the elderly and it can be extremely difficult to eliminate MRSA from the oropharynx (Smith *et al.*, 2001). A high standard of regular mouth care is important, with due regard to the potential for cross-infection. It is of interest that five of the nine patients colonised with MRSA were from the same care home.

The high prevalence of mucosal infection and carriage of yeasts and staphylococci, coupled to the high numbers (80%) of dentate patients with obvious debris, is likely to reflect factors such as continuous denture wearing and infrequent and inadequate oral hygiene measures. Such problems could be addressed by rigorous adherence to written mouth care policies, and regular support from dental hygienists.

## Conclusion

In some care homes in Glasgow, healthcare needs assessment for elderly residents on admission includes an element of oral needs assessment. However, this assessment is often performed by care staff, many of whom have received little or no formal training in recognition and treatment of oral health and disease in the elderly. The importance of oral health and the need for provision of adequate mouth care for elderly and other dependent individuals, is well recognised, but this study revealed a high level of treatment need within care homes across Glasgow. This finding was despite managers' assurances that regular dental inspections were taking place. If oral health assessment of dependent groups is to be effective it must be undertaken regularly by trained staff, with provision for independent audit, and followed up by treatment as required.

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