Inspiring and recognising good oral health practice within care homes

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Abstract

Aims and Objectives: The Fife Oral Health Care Award was developed to promote and improve oral health in care homes, by enhancing the knowledge and understanding of care home staff, and the capacity of care homes to deliver optimal oral health care.

Design: The Fife Oral Health Care Award was developed within Fife and based on national guidance and existing national award structures. The award was designed for and marketed to care homes within Fife. There were ten award criteria which were assessed by a dental hygienist / oral health promoter. The criteria included a range of indicators including the proportion of care home staff receiving oral health training, the oral hygiene of residents and the use of denture marking.

Results: Twenty one care homes have been successful in obtaining the award to date. There was an increase in the number of satisfactory plaque scores in residents. The quantity of staff training, oral health assessments, oral health care plans, provision of toothbrushes, toothpaste and denture marking also increased.

Conclusion: This novel approach to encouraging care home staff to improve oral healthcare standards had early positive results. Long term evaluation of the Fife Oral Health Care Award is required to establish if these improvements continue.

Key words: Older people, oral health, care homes, plaque scores, award, denture marking, nursing care, care staff

Introduction

The finding of poor oral health of older people in residential care home settings has been previously reported (Frenkel 1999; Frenkel et al., 2000; Simmons et al., 2000; Sweeney et al., 2007). Although carers believe that clients have a right to good oral health, many studies have shown that care home staff may not be well equipped to support older people in maintaining their oral health (Frenkel 1999; Fitzpatrick 2000; Simmons et al., 2000; Sweeney et al., 2007; Young et al., 2008; Samson et al., 2009). Miegel et al. (2008) suggests the nursing profession needs to address a number of factors to improve oral health including economic, political and staff barriers.

The 963 care homes for older people in Scotland, offering 38,843 registered places, (Scottish Government 2009) are regulated by the Scottish Commission for the Regulation of Care and assessed against National Care Standards (Scottish Government, 2007). Despite this, and the existence of evidence to establish appropriate standards (Fiske et al., 2000; Chalmers et al., 2005) and publication of best practice in working with dependent older people to achieve good oral health (Department of Health 2005; NHS Quality Improvement Scotland 2005) there was often variance with day-to-day practice (White et al., 2009). The importance of training nursing and support staff has been highlighted by Fitzpatrick (2000). Within the literature; however, there is conflicting evidence about carer training programmes. After training, one study (Simmons et al., 2000) reported no improvements in the oral health of older people in their care, whilst another study has suggested that staff education programmes can be effective in both changing oral health care procedures in long-stay institutions for older people and producing measurable improvements in the oral health of the residents (Nicol et al., 2005). Nonetheless, it was clear that the engagement of care homes was a key factor in the success of oral health improvement programmes targeted at older people. Such programmes need to address well known barriers such as high staff turnover rates (Simmons et al., 2000).

Fife is a local authority area within Scotland with a population of 360,000 people. Professional opinion supported the view that oral health provision within care homes for older people in Fife was variable and may have deteriorated over
recent years. Previous oral health care training sessions for care home staff had been poorly attended with commonly given reasons including competing training sessions, work duties and other responsibilities.

A working group was formed to steer the oral health care award project which included representatives of the Community Dental Service, Age Concern Scotland, care homes, Fife Council and the University of Glasgow. The working group reviewed current local and national guidelines for oral health care in these settings (Scottish Government, 2007) and agreed a number of award criteria.

Criteria for achieving the award
Six care homes, all of whom had previously expressed an interest in oral health care, were invited to participate by testing the feasibility of implementing the award. A number of barriers were identified in the early pilot phase, including poor attendance by care home staff at training events, high staff turnover, competing priorities and time restraints.

The feedback from the pilot care homes reassured the award team that the proposed structure of the award was practical to implement within the care home setting. Once the first pilot care homes had achieved the award, the award was marketed throughout Fife.

Methods
NHS Fife press release was issued to coincide with the first award. Subsequently all care homes were invited by letter to participate in the award process.

A leaflet describing the award was distributed from the Community Dental Service to medical and dental practitioners, care homes and district nurses. Articles in the local NHS / Council free newspaper (NHS Fife, 2009a) were distributed to every household in Fife. Informative oral care plans, oral health assessments and information leaflet were made available on a specially designed website (NHS Fife, 2009b) in addition to promoting the award and award process. Care homes participating in the award process agreed to be listed on the website, along with their progress.

Following expressions of interest by care homes, initial meetings were arranged with a Fife Community Dental Service team. The process commenced once the care home manager received the award information. The appropriate paperwork was then completed, held and periodically reviewed within resident’s notes. Introduction to the award requirements and the award team was given to residents by the care home staff. Details of residents not wishing to participate were documented by the care home manager. Baseline data were gathered during the initial meeting between care home managers and the award co-ordinator. A questionnaire adapted from White et al., (2009) was completed. Data collected included demographics and information about current dental care provision (C1-C4, Table 1).

After the introductory meeting with the care home managers, the award hygienist and a dental health support worker collected baseline data on each specific criteria of the award for 100% of residents, who agreed to participate. (C5-C10, Table 2).

Measurement of the residents’ plaque scores was performed using a Quigley and Hein plaque scores for the natural dentition (Quigley and Hein, 1962) and a modified version of the Quigley & Hein plaque score for dentures (Table 2). One hygienist conducted the plaque scoring to ensure continuity of assessments. The hygienist used standard lighting and a toothbrush for soft tissue retraction for the assessment. Residents were either in bed or sitting on a chair. A plaque score of 0-1 was regarded as satisfactory.

After baseline assessment, care homes were provided with a denture (identification) marking kit. Demonstrations in denture marking were given by the award team. For cross

### Table 1 The award criteria

<table>
<thead>
<tr>
<th>Award Requirements</th>
<th>Criteria</th>
</tr>
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<tbody>
<tr>
<td>Care home requirements:</td>
<td></td>
</tr>
<tr>
<td>An Oral Health Policy</td>
<td>C1</td>
</tr>
<tr>
<td>An identified lead person for oral health</td>
<td>C2</td>
</tr>
<tr>
<td>A minimum of fifty percent of staff who have received specific oral health training</td>
<td>C3</td>
</tr>
<tr>
<td>Oral health information leaflet available</td>
<td>C4</td>
</tr>
<tr>
<td>Residents’ requirements:</td>
<td></td>
</tr>
<tr>
<td>An individual oral health risk assessment</td>
<td>C5</td>
</tr>
<tr>
<td>An individual oral health care plan completed in last 12 months by a dentist</td>
<td>C6</td>
</tr>
<tr>
<td>A plaque score of between 0-1 at award assessment examination</td>
<td>C7</td>
</tr>
<tr>
<td>An appropriate toothpaste</td>
<td>C8</td>
</tr>
<tr>
<td>An appropriate toothbrush</td>
<td>C9</td>
</tr>
<tr>
<td>Full dentures are all identified with name or equivalent (denture marking)</td>
<td>C10</td>
</tr>
</tbody>
</table>

### Table 2 Modified plaque score used for dentures

<table>
<thead>
<tr>
<th>Criteria Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No plaque</td>
<td>0</td>
</tr>
<tr>
<td>A film of plaque adhering to the denture. The plaque may only be recognised by running a probe across the tooth surface.</td>
<td>1</td>
</tr>
<tr>
<td>Moderate accumulation of soft deposits on the denture which can be seen with the naked eye.</td>
<td>2</td>
</tr>
<tr>
<td>Abundance of soft matter on the denture.</td>
<td>3</td>
</tr>
</tbody>
</table>
infection purposes, a single use abrasive pad, and micro-brush was used for each patient. Between patients, the denture marking pencil lead was snapped off and wiped with neutral detergent. Regular support visits were given by the dental health support workers who also supplied oral health resources.

The award process culminated in an unannounced award assessment, usually several months after the initial visit. Care homes were required to attain a minimum of 90% in nine of the award criteria (C1-C2, C4-C10) and 50% of staff trained in the training criterion (C3). Criteria C1-C4 were measured for every care home. Criteria C5-C10 were measured in a randomly selected sample of 50% of the residents.

If, at the unannounced visit, the care home did not achieve the minimum requirement to attain the award, further support was made available in order to improve their performance against the criteria. Such assistance included additional training, support with documentation, improved communication, and more frequent visits by the award team.

Dental health support workers, who had already been trained to deliver a child health improvement programme, received a two day training course to assist them in their work within care homes. This consisted of specific training on introduction to the award, special needs, oral health promotion and the award oral health training session.

A training package for care home staff was also developed using existing local resources and material adapted from ‘Making Sense of the Mouth’ (Bagg and Sweeney, 2005) and ‘Dental Rescue Programme’ (Dental Rescue, 2006); two oral health education programmes from Scotland and Australia respectively. Training to support the package, led by an oral health promoter, was delivered free to care home staff and consisted of a one hour presentation with information on oral health, dental and periodontal disease, common oral diseases, denture care and oral hygiene instruction. The award criteria were also covered. Training sessions were held in house within the care homes with an expected minimum of ten care home staff attending at any one session. Although this was the expectation, the training sessions were less well attended.

Pre- and post-training knowledge tests (Table 3) were undertaken to measure the baseline knowledge of care home staff and knowledge gained from the training sessions. Written feedback forms were also collected from every staff member that participated in the training. It was recommended to care homes that residents should use a 1450ppm fluoride concentration toothpaste and that edentulous residents should use a denture cream or unperfumed liquid soap to clean their dentures. Oral health risk assessments and care plans (C5-C6) were designed to allow co-ordinated care. The care plan also provided evidence of the last episode of care from a dental professional.

Table 3 The award criteria

<table>
<thead>
<tr>
<th>Questions Asked</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of bristles should a toothbrush have? (soft)</td>
<td>Q1</td>
</tr>
<tr>
<td>What size of head should a toothbrush have? (small)</td>
<td>Q2</td>
</tr>
<tr>
<td>When choosing toothpaste what is the most important thing to look for? (fluoride toothpaste)</td>
<td>Q3</td>
</tr>
<tr>
<td>What is the recommended level of fluoride in toothpaste for adults (1450ppm)</td>
<td>Q4</td>
</tr>
<tr>
<td>What is the cause of gum disease? (Plaque)</td>
<td>Q5</td>
</tr>
<tr>
<td>What are the main factors causing tooth decay? You can choose more than one answer (time/plaque/sugar)</td>
<td>Q6</td>
</tr>
<tr>
<td>How should dentures be stored overnight? (in denture box with water)</td>
<td>Q7</td>
</tr>
<tr>
<td>How often should residents have an oral health assessment? (every 12 months)</td>
<td>Q8</td>
</tr>
</tbody>
</table>

Data Management

Software to collect data for the award was commissioned from the Health Informatics Centre at the University of Dundee. This software supported timetabling of visits and programme monitoring, and reporting.

Results

There were 89 registered care homes in Fife at March 2010. Of these, 49 were enrolled in the award programme with 21 of them obtaining the award. The average time taken to gain the award was 5.5 months. Of the successful care homes, eight fulfilled the criteria at the first unannounced assessment, with the remaining 13 requiring an additional unannounced visit before receiving the award.

Of the 28 care homes working towards the award, only one had been unsuccessful at their first unannounced visit, and was working with the team to complete the criteria. Forty were not enrolled into the programme (Table 4).

Criteria status at pre-award and award assessments

Figures 1 and 2 illustrate the differences between pre-award assessment (baseline) and award assessment for care home and residents.

At baseline 38% of care homes had an oral health policy (C1). No care home provided any specific oral health information leaflet (C2-4). There was no recognised oral health lead in any of the care homes. Ten per cent of staff in the 49 care homes reported having previously received training in oral health. At the award assessment, all care homes met the criteria (C1-4) by having an oral health policy and leaflet for staff; an identified lead person with 60% of all staff having attended oral health training.

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### Table 4 Enrolment of care homes into Oral Health Award programme

<table>
<thead>
<tr>
<th></th>
<th>Award Obtained</th>
<th>Award Enrolled</th>
<th>Not Participating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Care Home (CH)</strong></td>
<td>21</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td>No of Council CHs</td>
<td>7</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>No of Private CHs</td>
<td>14</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Mean No of residents/CH</td>
<td>39 (range 12-83)</td>
<td>42 (range 11-83)</td>
<td></td>
</tr>
<tr>
<td>Mean Award attainment (months)</td>
<td>5.5 (range 1-12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Residents</strong></td>
<td>747</td>
<td>1929</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1.** Baseline and award assessment on award criteria by care home by percentage (C1-C4)

**Figure 2.** Baseline and award assessment criteria of residents by percentage (C5-C6, C8-C10)
At baseline, 14% of all residents had oral health risk assessments (C5) completed and 28% had oral health care plans (C6) completed. At the award assessment these assessments and oral health care plans had increased to 100% and 97% respectively. At baseline 76% and 79% of residents had access to appropriate toothbrush and toothpaste (C8, C9) whilst at assessment the proportion was 92% and 93% respectively.

For marked dentures (C10) an increase was recorded from 43% of all residents (including dentate and edentulous residents) at baseline to 55% of randomly selected residents at award assessment who had their names marked on their dentures. Some residents did not have dentures and, therefore, the achievement of 100% of residents with marked dentures was not possible. It should be noted that at the baseline assessment any unmarked dentures were immediately marked with the resident’s name and, therefore, recorded as marked, thus artificially inflating the baseline figure.

**Care home staff training**
A total of 369 care staff attended the award training. Pre-training knowledge was found to be limited in several areas as follows:

- Recommended level of fluoride concentration in toothpastes (2%)
- Causes of gum disease (1%)
- Regularity of health assessments (10%).

Repetition of the same questions after training indicated an improvement in knowledge with more correct responses. Wording at question 6 caused confusion with the care home staff resulting in many incorrect answers (Figure 3).

**Table 5 Plaque score award assessment (C7)**

<table>
<thead>
<tr>
<th>Plaque Score</th>
<th>Pre-award Assessment (n = 421)</th>
<th>Award Assessment (n = 253)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Criteria achieved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>224 (53%)</td>
<td>190 (75%)</td>
</tr>
<tr>
<td></td>
<td>30 (24.5%)</td>
<td>60 (24%)</td>
</tr>
<tr>
<td>1</td>
<td>Criteria not met</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63 (15%)</td>
<td>3 (1%)</td>
</tr>
<tr>
<td></td>
<td>31 (7.5%)</td>
<td>0 (-)</td>
</tr>
</tbody>
</table>

**Figure 3. Staff training results**
Discussion

The aim of the Fife Oral Health Care Award was to improve oral health for the population within care homes in Fife. Any improvement was measured by comparing the award criteria at award assessment with the baseline assessment. In concordance with recent literature White et al., (2009) the evaluation at baseline demonstrated inadequate oral health provision across all criteria.

The Award introduced a number of elements to improve oral health; including staff training and regular visits by dental health support workers; and a strict list of criteria for completion by the care home before any award would be considered. It was not possible to determine which element alone, or combination of elements caused the improvements in plaque scores seen with the introduction of the award. Although current literature (Nicol et al., 2005; Samson et al., 2009) discusses training and its influence on oral health improvement, there is limited research on the other criteria used in the award structure (C1, C2, C4-C10) and their influence.

The plaque scores in residents at baseline were broadly in agreement with Nicol et al., measurements of plaque scores in residents in care homes, prior to training (Nicol et al., 2005). However comparisons are difficult due to differing scoring systems being used by Nicol et al., (2005) and Samson et al., (2009).

The identification of high plaque scores at anytime during the award process was used as a learning process for staff; with the oral health promoter working with the care homes to help improve the plaque levels. During assessments the plaque scores were all performed by one examiner, therefore inter-examiner validity was of no concern. However, it was not possible to blind this examiner so assessments could have been biased by this knowledge. The oral health award was successful in reducing overall plaque scores, with improvement similar to that reported by Nicol et al., (2005). The importance of regular dental attendance is clear as dental practitioners can screen for caries, gum disease, and as Preston (2000) suggests, screening of a 'plethora of oral soft tissue infections, tumours and other abnormalities'.

Prior to the introduction of the award, only 28% of care home residents were reported to have been seen by a dentist within the last twelve months (C6) as documented within the care home folder. This result is in keeping with the findings of White et al., (2009) with only 39% of managers reporting annual screening of residents.

At baseline, only 14% of residents examined for the award process had oral health risk assessments. This measurement contrasts with the national study by White et al., (2009) where approximately 50% of care home managers reported that oral assessments were undertaken. This may be explained by the differing data collection methods. In White's national study White et al., (2009) self reporting was utilised whereas in Fife the assessment was conducted by the award team.

An integral part of the award criteria was ensuring dental care by a dentist. The award process increased dental visits as evidenced by the increase in provision of oral health risk assessments and oral care plans. There were short term increases in knowledge by care home staff. However, caution should be exercised as to the long term influence of this training on care home knowledge, and its relationship to any behaviour change. Barriers for care home staff to attend training included other competing mandatory training, the provision of cover for other staff, and general reluctance of staff to attend training (even when in some cases, overtime was offered). These difficulties could account for the differences in uptake between care homes which had between 40-100% of their staff trained at the award visit.

It was necessary for sufficient proportions of staff to attend training events in order for care homes to achieve the award in an appropriate time and it is essential for a cost effective delivery of this training by the Community Dental Service. In addition, concerns over significantly high staff turnover in some care homes and the repeated demands on oral health promoters’ time may make the maintenance of a required 50% of staff trained difficult.

These issues need to be addressed as the award criteria envisaged that by year two, the training requirement should increase for care homes to 75% of staff. One possible solution is the inclusion of oral health training as part of the induction process by care homes.

A second alternative is the development of an electronic training tool to help balance the requirements of the care home and the ability of the community dental service to deliver the training. This online training tool was developed by MIMAC (Channel Fife TV, Fife, UK) and adapted to be used on DVDs by NHS Fife medical illustration (Fife Oral health Care Award Online Training tool 2011). The advantage of this online training is the ability to fit with other care home priorities. Toothpaste and toothbrush provision within the award did improve. The award team felt care home staff had difficulty locating oral health products, both at initial and award assessments. In addition, liquid soap was counted as fulfilling the denture cleansing agent. However, it may have not been used for this purpose.

The award team expects the criteria measured at the award visit to be indicative of routine practice within the care home. Care homes were not advised as to the timing of the unannounced award visit. This contrasts with the initial assessment where managers were aware that baseline criteria would be assessed. Managers had the ability then to influence the baseline results (e.g. by prioritising oral health practices on the day of the baseline visit). This could have biased the baseline data collected but as no care home had obtained all of the award’s 10 criteria at
this point, it is unlikely that prior knowledge of this visit influenced the overall improvements required to attain the award.

Some care homes achieved the award within one month while others took up to twelve, although the reasons were not investigated. However, one contributing factor may have been that care homes volunteered to participate, demonstrating their enthusiasm to achieve the award's objectives. Informal discussions between the authors and the Fife oral health care team suggested the possibility of competition to achieve the award between care homes; between council and non council care homes, and between different commercial group care homes. This may have encouraged the uptake of the award as could the fact that the process was documented on a public website.

Many in the Fife oral health care team reported that having an identified lead person as a contact point and who drove the project forward within the care home increased the likelihood of award completion. Conversely, care homes without a lead person, or with a high staff turnover of lead persons struggled to fulfil their award commitments.

As of March 2010, the Fife Oral Health Care Award had been ongoing for 18 months. In order to ensure the maintenance of standards once two years has elapsed, the care homes will be required to renew their award. This two year renewal process will generate information as to the influence the award has, on both the long term maintenance of award standards and oral health within care homes.

Conclusions

This Award addressed poor oral health in care homes in a novel way which was valued as a local indicator of quality of care. Within the award structure indicators of oral health such as plaque scores, oral health assessments, referrals to dentists, and denture marking have improved. Other process measures such as oral health knowledge in staff have improved within the short term of this award evaluation. Long term follow up will determine the long term success of the award structure in improving oral health care.

Acknowledgements and ethics

The authors would like to thank all the care homes in Fife, and the NHS Fife Community Dental Service for their continued support in improving oral health for older people. Advice was received through the NHS Fife, Forth Valley and Tayside Research Ethics Service. The award process was deemed to be a service evaluation of both the community dental service and individual care homes therefore ethical approval was not required.

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