Denture identification marking should be standard practice

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IN BRIEF

- Stresses that denture identification marking helps prevent loss of dentures in care home and hospital settings.
- Literature shows that when asked, patients readily appreciate the advantages of marking on their dentures.
- Highlights denture identification marking is a simple technical procedure that is widely available and is offered by commercial dental laboratories.

OPINION

The focus of this opinion article is to revisit whether denture identification marking should be routine and standard practice at manufacture in the United Kingdom. The benefits of denture identification marking are evident in the literature particularly for those who are in residential care or who will have to seek care due to dementia or physical frailty; however, within the UK it is not normally practised. Many patients would appear to be unaware of denture marking, but present positive attitudes towards it. Results of a survey of UK dental laboratories would indicate that the vast majority of them offer an inclusion denture marking service with a mean cost of £5 per denture. Is the lack of denture marking in the UK due to dental professionals having differences in opinion, lack of education of professionals in training or financial disincentives?

INTRODUCTION

There are many advantages to denture identification marking. Firstly, it enables the identification and return of lost or misplaced dentures, which is essential in institutions such as hospitals and residential care homes.[1–3] Secondly, it is beneficial in post-mortem identification of the denture wearer.[1,3] This topic has been subject to a number of reports of differing techniques with an emphasis on the durability of the identification marker in the event of disaster.[4] The aim of this opinion paper is particularly to focus on denture identification marking for the individual who is hospitalised, receiving respite care or institutionalised.

Denture identification marking is becoming increasingly important as the population ages resulting in a greater proportion of elderly patients. Consequently, with increasing age, these patients are more likely to require residential care services.[5] It has been reported in 2002 that 5% of the over 65-year-olds in the UK were institutionalised and of that percentage, 35% had dementia. At the institutional level 65% of residents had dementia.[6] Moreover, as people live longer the risk of developing dementia is greater with one in three people over 65 years of age likely to develop it and more recently, with improved diagnosis, it is estimated that 80% of those living in care homes have some form of dementia.[7] Further, with an ageing population a significantly increased number of people will enter care homes for respite or permanent care in forthcoming years. Despite the decrease in edentulousness rates dentures will still be in use for many years;[8] thus the identification of misplaced, or lost dentures is of utmost importance for patients within a hospital or residential care setting.

Being without dentures can decrease patients' quality of life by affecting their eating and social interaction, to the detriment of their nutrition, psychological and general health. It can also influence their speech and preservation of self-image. Additionally, the replacement of dentures is costly and can be unsuitable for some patients due to the lack of neuromuscular control that reduces the ability to adapt to new ones.[9] Furthermore, adaptability is further reduced when new dentures are produced without the originals being available for the clinician's guidance.[10]

Two types of identification marking techniques can be performed: surface marking and inclusion methods.[4] Surface marking is usually achieved by scratching the patient's name on the cast before processing. Inclusion methods place identification labels in the denture acrylic resin in two ways. After denture fabrication, a recess is created in the denture base; a label is placed and sealed with autopolymerising acrylic resin. Labels or other devices can also be incorporated directly into the base plate during packing and processing of the prosthesis.[3,4]

PATIENT AWARENESS OF AND ATTITUDE TO DENTURE MARKING

Cunningham and Hoad-Reddick[10] investigated the attitudes of 63 denture wearers in nursing homes to identification marks on dentures. The questionnaire survey showed that a large proportion of participants (93.5%) were unaware of denture marking, however, 85.5% believed it to be beneficial. In addition, all denture wearers (100%) expressed a desire to have their own dentures marked. Unfortunately this study is over 20 years old with a small sample size (n = 63) and in one location so although the results should be viewed with caution it did highlight the low level of awareness of the availability of marking among denture wearers.

More recent work explored the attitudes of 100 denture patients to denture marking in a UK teaching hospital setting.[11] The findings showed that 99% of patients would agree to have their dentures marked but they did express aesthetic considerations. This well designed study comprised a suitable sample size and a high response rate (100%), however, the patients were seeking treatment involving complete dentures from the hospital, creating potential bias as they may have been inclined to answer in the affirmative. However, it has been estimated from information from the Dental Practice Board for England and Wales that in 2004-5

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6.8% of dentures were marked and for the same year in Scotland 3.75% dentures were marked.[3] At that stage the NHS were remunerating dentists using a fee per item scale so an additional fee was available for a permanent patient identification marker in a denture.

ATTITUDES TO DENTURE IDENTIFICATION MARKING BY DENTAL CLINICIANS

Against the background of rationale for denture identification the attitude of clinicians is ambivalent. Murray *et al.* in their comprehensive study[3] surveyed 160 prosthodontists of whom 119 responded (74%), 54.9% reported that they carried out complete denture marking in their clinical practice. The vast majority (81.0%) of prosthodontic specialists indicated that denture identification marking was a worthwhile procedure. In addition, it has been reported that 67% of UK dental schools and 86% of schools in the US taught the practice of marking dentures.[12] However, in a study involving both general dental practitioners and their patients, it was concluded that the dental profession itself was possibly responsible for the non-marking of dentures.[13]

COMPARISON BETWEEN UK AND OTHER COUNTRIES

Comparatively few surveys have been published from other countries but those that have, appear to suggest a higher level of denture identification marking than is seen in the UK. An assessment of the frequency of marked dentures in long-term care units and in dental laboratories, by Bengtsson *et al.*,[14] found that on the examination of 213 edentulous patients, 47% had a marked denture. This study also revealed that in six major dental laboratories marking was performed on 90-100% of complete dentures. Although the extent of denture marking was significantly greater than that found by Murray *et al.*[3] the level of marking in this Scandinavian study demonstrated that over 50% of dentures were unmarked. In a very large study comprising of 1,715 residents from nursing homes in Sweden, the frequency of marked complete dentures evaluated by a screening examination revealed only 35% of the 1,215 dentures among the 1,715 residents were marked.[15]

These findings differ from Borrman *et al.*[16] who reported on a questionnaire completed by 75 Swedish dentists who stated that between 81-100% of complete dentures were marked. The higher frequency of denture marking seen in the Swedish studies may be due to the Swedish National Board of Health and Welfare's (NBHW) recommendation that marking should be offered to all patients.[14]

Alexander, Taylor, Szuster, and Brown[17] established the extent of denture marking undertaken by different groups of dental professionals in South Australia. This was against the context of the requirement from the Australian Nursing Home Standards that require dentures of residents to be discreetly labelled and the Australian Dental Association recommendation that all dentures should be marked. The questionnaire and telephone interview found that it varied among the groups; 19.9% of general dental practitioners, 25% of specialist prosthodontists and 43.5% of clinical technicians marked dentures. A policy report of the American Dental Association Council on dental practice states that in 21 US states labelling is regulated and denture identification is compulsory in Iceland and Sweden.[18]

CURRENT DEMAND FOR DENTURE IDENTIFICATION MARKING FROM THE PERSPECTIVE OF DENTAL TECHNICAL LABORATORIES

In 2013, one author (AK) as part of her final year dissertation, undertook a preliminary audit by telephone interview of seven dental laboratories in the Portsmouth area to discover how many of them offered a denture identification marking service, how frequently it was prescribed and what additional fee was incurred. These preliminary results suggested that the majority of laboratories could provide this service at a cost of approximately between £5 and £10 per denture but demand was very low.

With this information as background, a UK wide telephone survey with slightly modified questions was undertaken in early 2014. To ensure wide coverage the country was divided into areas, the South-west, the South, the South-east, London and the home counties, East Anglia, the Midlands, Wales, the North-east, the North-west, the North, Scotland and Northern Ireland. Laboratories in each area were randomly chosen from the Dental Laboratories Association directory. The following questions were asked: Do you offer a complete denture name marking service? What is the level of demand? Which method do you use, inclusion or surface marking? What is the cost? Thirty laboratories were contacted and at that stage, saturation of data had been reached.

No regional bias was detected in the results. Of the 30 technical laboratories interviewed only four did not offer a denture marking service. Those not offering the service all stated that this was because of lack of demand. Of the remaining 26 (86%), all but three reported very low demand, most stating that the few cases they had were from the Community Dental Service and domiciliary visits. Further, many stated that demand had reduced over the last few years. These laboratories all used the inclusion marking system. Interestingly, the three laboratories that reported marking all their dentures using surface marking by scratching the patients name on the cast before processing stated that they marked the dentures mainly for internal audit purposes rather than for identification later, although this would be a useful by-product. Although three of the laboratories offering the inclusion method did not make an extra charge, the majority made an extra charge of between £2 and £10 per denture with the mode and mean charge being £5 (40% of laboratories). Those using surface marking did not charge.

DISCUSSION

It is evident that the degree of denture marking performed in the UK is low,[3] therefore indicating that it is not undertaken as standard practice. Moreover, the reasons why marking is not performed are not clear. This is surprising as most patients were permissive to marking and the majority of dental technicians, prosthodontic specialists and dental academics were supportive and expressed the need for a guideline or legal requirement,[3,6] thus emphasising the importance associated with denture identification marking. Despite this, there appears to be a divide within the profession as this positive view was not universal.[13] This may account for the low patient awareness as dental professionals are not keen to inform patients about marking. Thus, this suggests that perhaps the profession is a potential barrier to denture identification marking. From the audit it appears that the cost of marking may be a potential barrier, due to the increase in the overall denture production cost, but with a fixed NHS band 3 fee. This needs to be further investigated as it is essential that this valuable practice is not limited due to financial disincentives. It is important to note that the findings of the recent audit only provides a limited insight into the current situation and the other reports are outdated, thus it is necessary for more further research to be conducted.

It could be argued that not all patients with dentures will enter care homes and therefore marking dentures is not necessary. However, whether a patient enters institutionalised care cannot always be foreseen and may occur many years after the manufacture of

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the denture, in which case a marked denture would be advantageous. Therefore, it is a professional responsibility to discuss with the patient as to whether they wish for their denture to be marked with their identity. Furthermore, the marking of new dentures during manufacture is advised by the UK Alzheimer's Society.[19] The significance of marking is also supported by the British Dental Association wherein the 'marking of existing dentures for easy identification in residential homes' is advocated in their policy paper on the dental care of older people.[20] On the other hand, if a patient does not enter a care home, a marked denture would still be beneficial should the patient be admitted to hospital.

Marking dentures can potentially improve the quality of care delivered to patients. This will be increasingly important as the population gets older and patients with dementia are reliant on residential care. Denture identification should be undertaken as standard practice at manufacture both to determine ownership of dentures in residential care and aid forensic identification.

CONCLUSIONS AND RECOMMENDATIONS

The benefits of denture identification marking are evident in the literature, however, within the UK it is rarely undertaken despite the positive attitudes of some dental professionals and patients. There is a disincentive because most dental technical laboratories charge an additional fee that cannot currently be recouped from the NHS, but from a social point of view and in the best interests of patients, identification marking of dentures would have benefit. It may also save money in the longer term as it is significantly more expensive to replace lost dentures. Perhaps the new NHS contract should take this into account and adopt denture identification marking as standard practice with the safeguard that it should be discussed with the patient with the option of a patient opt-out rather than opt-in.

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