

Skills for Health Dental Nurse Apprenticeship Standard Survey Health Education England Organisational Response

Advancing Dental Care, Interim Review of Literature on Delegation of Clinical Procedures to and Substitution by Dental Care Professionals at 8 May 2019

Background

1. The HEE project Advancing Dental Care (ADC) is tasked to produce a plan for the most appropriate future delivery of training and education of future dental work force in order that they can deliver effective prevention and care for the oral health needs of patients. One aspect of this is to investigate how a team approach, in which teams of dentists and Dental Care Professionals (DCPs) teams to deliver oral health care to the population of England, could be developed further. At present, DCPs support dentists to deliver care. However, it has been suggested that with changing oral care needs (reduced dental disease), DCPs could deliver more care. Gallagher et al. (2013) found that 70% of routine care provided under the current GDS NHS contract was within the GDC scope of Dental Therapists. Wanyonyi et al. (2015) suggested that in 2011/2012 73% of clinical time in England's state-funded primary dental care was spent on tasks which could be delegated to DCPs."
2. In other areas of healthcare, such as primary care medicine, there has been increasing delegation and substitution of clinical tasks to non-traditional carers, who have received appropriate, externally assessed training and who practice to the same standards as traditional carers. Nurse Practitioners working with General Medical Practitioners are a case in point (Laurant et al. 2009). By definition, all DCPs support dentists and few, if any, UK dentists decontaminate and sterilise instruments or carry out the laboratory tasks required in the manufacture of fixed and removable prostheses. These tasks are delegated to Dental Nurses and Dental Technicians and dentists are happy to do so. A recent survey of Orthodontists working in the United Kingdom (UK) found that; Orthodontic Therapists were valued members of the orthodontic team, improving productivity and allowing orthodontists more time for treatment planning (Dugdale et al. 2018). Another recent survey of all registered Clinical Dental Technicians (CDTs) (Jaggee et al. 2019) concluded that "There was some evidence that CDTs are becoming more recognised and valued members of the dental team and "the respondents considered that there was still a need for progress to be made towards integration within the dental system and recognition by the public". It therefore seems that, in general,

Dentists in the UK are happy to delegate tasks, within the General Dental Council's (GDC's) Scope of Practice (GDC 2013) to Dental Nurses, Dental Technicians, Orthodontic Therapists and Clinical Dental Technicians.

3. However, for a variety of reasons including the payment system within current NHS GDS contract (Harris & Sun 2012, Brocklehurst et al. 2016) and historically, ignorance of the training and competence of Dental Therapists, lack of clinical space and also poor attitude by dentists towards DCPs to deliver high quality oral health care (Gallagher and Wright 2003, Ross et al. 2007), relatively few Dental Therapists are employed in dental practices in England. When they are employed, if they have dual Dental.

Therapy/Hygiene qualifications, they frequently work as Dental Hygienists (Jones et al. 2008, Godson et al. 2009, Eaton et al. 2012, Macey et al. 2016) and not as Dental Therapists. Furthermore, although Dentists appear to be happy to delegate clinical care within their scope of practice to Dental Hygienists, it seems that when this happens, the resulting care is usually not provided within the NHS GDS contract and patients are likely to have to pay private fees for this care (Eaton et al. 2012).

Topics Reviewed

4. This review was therefore commissioned to explore the current literature¹ and provide an update on four topics relating to the delegation of clinical care to Dental Therapists and Hygienists in England. These topics were:
 - The outcomes of education and training provided for Dental Therapists and Dental Hygienists, in the areas of clinical practice that fall within the General Dental Council's Scope of Practice for Dental Therapists and Hygienists, compared to that of Dentists.
 - The quality of care (both prevention and clinical intervention), within their scope of practice, provided by Dental Therapists and Hygienists compared to that provided by dentists.
 - The quality of care provided by and acceptability of receiving treatment from Dental Therapists and Hygienists from the perception of patients.
 - To relate these findings to the provision of care for children and adults, especially the disadvantaged, those with high needs and the elderly, by DCPs and Dental Therapists and Hygienists in particular.

Search Strategy

5. Nash et al. (2014) published a review of the global literature on dental therapists. In this review the following databases were searched: ISI Science Citation Index, ISI Social Science Citation Index, Clinical Controlled Trials Register, Cochrane Library, Cumulative Index to Nursing and Allied Health Literature, Database of Abstracts of Reviews of Effects, System of Indexing Grey Literature in Europe, Medline; Pub Med, Google and Google Scholar. The search terms used were "dental nurse", "school dental nurse", "dental therapist", "school dental service", "school-based dental care", "dental auxiliaries" and "dental workforce."

¹ During the course of ADC Phase 2, more literature relevant to substitution by and delegation to DCPs, will be published. This review will therefore need updating periodically in order to capture such new information.

6. Subsequently, Brocklehurst et al. (2016) performed an extensive literature review to support the report - Determining the optimal model for role substitution in NHS dental services in the UK: a mixed-methods study, which reviewed 144 publications. These two sources provided a basis for the current literature review and were supplemented by further online searches using the Pub Med Medline database and the identification of additional relevant publications from the reference lists of previously published literature.
7. During the search a relevant Cochrane Collaboration Systematic review (Dyer et al. 2014) was identified. However, it found only five Randomised Controlled Trials, which in total involved only 6 dentists, 13 dental auxiliaries and 1156 patients. Four of the reports of these studies were published more than 20 years ago. Two were conducted in the United States of America and one each in Canada, Gambia and Singapore. The review concluded that in all five studies there was a high risk of bias. Previously, Galloway et al. (2003) performed a systematic review of professionals complementary to dentistry. A total of 125 studies were included in this review.
8. From this point in this review the term Dental Therapist should be interpreted as referring to both Dental Therapists and dually trained Dental Therapist-Hygienists.

Topic 1 - The outcomes of education and training provided for Dental Therapists and Dental Hygienists, in the areas of clinical practice which fall within the General Dental Council's Scope of Practice for Dental Therapists and Hygienists, compared to that of Dentists.

10. A number of studies have compared the education and training of undergraduate Dentists and Dental Therapists, either during or at the end of these processes. Ross et al (2007) found that both groups spent a similar number of hours working on phantom heads. However, as undergraduate Dentists perform a far wider range of restorative procedures, it is likely that on graduation/qualification, Dental Therapists may have more clinical experience, than newly qualified Dentists, in the restorative treatments that are in their scope of practice (Ross et al. 2007).
11. Sisty et al. (1978) performed a four-year evaluation which compared the training outcomes for dental students and expanded duties Dental Hygienists at the University of Iowa. The expanded duties included placing amalgam and other "plastic" restorations and producing periodontal treatment plans and delivering periodontal care. They found that the expanded duties Dental Hygienists performed these duties at a level comparable to that of senior dental students (Sisty et al. 1978).
12. Brocklehurst et al. (2012) investigated the relative performance of final-year dental students, final year dental hygiene-therapy students, primary care dentists, dental therapists and dental nurse in screening for occlusal caries. They found that after "minimal training" all these groups showed the potential to screen for occlusal caries to a similar standard as primary care dentists.

13. It is apparent that on graduation/qualification the outcomes of education and training for both dental and dental therapy students should be similar. This may not be understood by clinicians and others who are not actively involved in educating dental and dental therapy students. Inter-professional education for all members of the dental team enhances the knowledge of all members roles and clinical abilities (Evans et al. 2012) and should be encouraged in the future. A good example of inter-professional training for Orthodontic Therapists, Orthodontic Nurses and master's level orthodontic students, in a large orthodontic training practice, out with a dental school has been described by Cure (2016).

Topic 2 - The quality of care (both prevention and clinical intervention), within their scope of practice, provided by Dental Therapists and Hygienists compared to that provided by dentists.

14. Far more studies have assessed and compared the quality of care provided by Dentists, Dental Therapists and Dental Hygienists after qualification. A recent global review of the literature, which included over 1000 papers and covered 54 countries, where Dental Therapists (or their equivalent) practice, concluded that: Although these studies vary in their design and quality, they have consistently found that the quality of technical care provided by dental therapists (within their scope of competency) was comparable to that of a dentist and in some studies, it was judged as superior. Nash et al. (2014). This global review assessed delivery of care both within the workplace or within training environments.
15. In a systematic review, Galloway et al. (2003) found that DCPs were better at oral health promotion than General Dental Practitioner (GDPs). In a more recent systematic review, Dyer et al. (2014) found that resin fissure sealants placed by Dentists and Dental Therapists had similar survival rates. Brocklehurst et al. (2016) found seven studies which indicated that DCPs (in the main Dental Therapists and Hygienists) were able to screen reliably for oral diseases. These studies were (Wang 1994, Wang and Riordan 1997, Kwan and Prendergast 1998, Patel et al. 2012, Brocklehurst et al. 2012, Brocklehurst et al. 2015, Macey et al. 2015).

Brocklehurst et al. (2014) reviewed the literature on direct access and again found that Dental Therapists performed to a similar standard to Dentists. Phillips and Shaefer (2013) systematically reviewed the literature on the technical competence. They identified 23 studies and concluded that the evidence clearly suggests Dental Therapists are clinically competent to safely perform the limited set of procedures that falls within their scope of practice.

16. Perhaps because there are more Dental Hygienists than Dental Therapists and they have been employed more widely, in the UK, than Dental Therapists, Dentists may be more aware of the ability of Dental Hygienists to deliver high quality periodontal care of comparable or superior quality to that delivered by Dentists. One small study (Snoad and Eaton 2006) found that when the periodontal assessments made by 23 GDPs and 15 Dental Hygienists, who all worked exclusively in private practice, were compared to those of a visiting Periodontal Specialist, the assessments made by the Dental Hygienists matched those made by the Periodontal Specialist, whereas many of those made by the GDPs

frequently did not. Furthermore, there is evidence that some patients prefer to receive care and treatment from Dental Hygienists and Dental Therapists because they are usually excellent communicators and often take more time (Brocklehurst 2016, Bell 2018).

Topic 3 - The quality of care provided by and acceptability of receiving treatment from Dental Therapists and Hygienists from the perception of patients.

17. Having reviewed the quality of education and training of Dental Therapists and their ability to deliver high quality oral care to the same or a superior standard to Dentists, this section of the review will investigate patients' perception of Dental Therapists and Hygienists.

18. In 2010, a telephone survey of 1000 randomly selected adults found that only 10% were aware of Dental Therapists as a professional group (Dyer et al. 2010). However, several subsequent studies have indicated that, when treated by Dental Therapists, patients are satisfied with the care and treatment provided. Another study, involving 640 patients found that patients attending Dental Therapists had a significantly higher level of satisfaction than those attending a dentist (Sun et al. 2010). More recently, Macey (2016) found high social acceptability to the idea of using Dental Therapists to undertake routine dental examinations. Philips et al. (2016) found that when patients are provided with clear information on the role of Dental Therapists, the introduction of "mid-level" dental providers is a strategy those lacking regular dental care appear to be comfortable with.

A study in a dental practice in Portsmouth found high levels of patient satisfaction with Dental Therapists' communication skills and technical competence, irrespective of patients' age, gender or socio-economic status (Ball 2018). Another recent study, (Barnes et al. 2018) performed in six general dental practices in Wales, concluded: "Practices with Dental Therapists provided a more preventive-focused approach to oral healthcare delivery, dentists in these practices performed more complex work. Positive patient satisfaction and confidence in practitioners' ability suggest patient acceptability of a preventive model."

19. Unsurprisingly, as there are far more Dental Hygienists than Dental Therapists and they have been employed widely for over 40 years, Brocklehurst et al. (2016) found that the majority of patients were very accepting of Dental Hygienists and some preferred to have periodontal care provided by Dental Hygienists rather than Dentists because, as one patient reported, they were perceived as "experts in hygiene work" and took more time over treatment.

Topic 4 - The provision of care for children and adults, especially the disadvantaged, those with high needs and the elderly, by DCPs and Dental Therapists and Hygienists in particular.

20. Nash (2014) found that, worldwide, the impetus for including Dental Therapists in the oral healthcare workforce has typically been to improve access to care and improve the oral health of children. There have been major improvements in countries where Dental Therapists are employed in publicly funded clinics. For example, in 2010 in New Zealand, 60% of 2-4-year-olds and 98% of 5 - 13-year-olds were enrolled in programmes staffed by Dental Therapists (New Zealand Ministry of Health 2012). Similarly, 95% of primary schoolchildren in Hong Kong (Hong Kong Government 2011) and 96% of elementary schoolchildren in Malaysia are cared for by Dental Therapists (Malaysia Ministry of Health

2005). Such programmes are of particular benefit to disadvantaged children, especially those from lower socio-economic groups (Nash, 2014).

21. In several countries, Dental Therapists provide oral health care, for patients of all ages, in remote areas, such as rural communities in Western Australia (Kruger and Tennant 2005) and in Alaska (Williard 2012). Dental Therapists provide oral health care for uninsured patients or patients on public assistance in Minnesota, where there is a chronic shortage of Dentists (Blue and Kaylor 2016).
22. Yi Mohammadi et al. (2015) reviewed the literature on oral care provision in residential homes and particularly frail elderly and those with dementia. They identified several studies in which Dental Hygienists and in some studies Dental Therapists, visited residential homes at regular intervals, to perform oral screening and when necessary, arrange for subsequent referral for treatment. When necessary, during these visits they also provided oral hygiene to the residents and taught the care staff how to provide it.

Discussion

23. There has been no Adult Dental Health Survey in England, to assess current treatment needs and trends, for ten years. However, the 2009 Adult Dental Health Survey and the Children's Dental Health Survey of 2013 suggested that in general, the oral health of the population in England had improved over the previous 40 years and that a higher proportion of the population required no or simple active oral treatment (NHS Digital ADHS 2009, Health and Social Care Information Centre CHDS 2013). It has also been stressed that more emphasis should be placed on preventing oral diseases (Steele Report 2009). At the same time, due to a combination of factors including longer life expectancy, increased retention of teeth into old age, previous extensive restorative treatment and polypharmacy, for a minority of the population, when oral treatment is required, it is often likely to be complex.
24. It has therefore been suggested that to address these trends there should be increased use of non-dentists such as Dental Therapists and Dental Hygienists to address the oral health needs of the majority of the population and that dentists should be treating those members of the population who have complex oral care needs. If this is to happen in England, several challenges must be met. The first is to educate and train far more Dental Therapists, reduce the numbers of Dentists in training and provide them with the skills to lead clinical teams and manage and treat patients requiring complex care. This pattern has been adopted in the Netherlands (van den Heuvel et al. 2005) where for the last 15 years equal numbers of Dental Therapists and Dentists have been trained.
25. At 31 December 2018, there were 42123 Dentists on the GDC register and only 2552 Dental Therapists (2315 of whom were also registered as Dental Hygienists) (GDC 2019). It is therefore unlikely that there could be any major changes in the short or even medium term. Apart from this demographic consideration, numerous studies have reported that in England and Wales the current NHS GDS contract makes it uneconomic to employ Dental Therapists to deliver restorative procedures within the GDS (Jones et al. 2008, Godson et al. 2009, Brocklehurst et al. 2016). It is also pertinent to note that less than 20% of fees for treatment provided by Dental Hygienists or Dental Therapist Hygienists are paid for by the

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NHS in England and over 80% of fees for treatment by Dental Hygienists are paid for by patients on a private basis (Eaton et al. 2012). Thus, it can be concluded that the current system for paying for oral health care provided under the current UDA system is a major barrier to the employment of Dental Therapists and indeed Dental Hygienists in general dental practices, which provide care in England under the GDS NHS contract.

26. Apart from, economic grounds, other reasons for not employing Dental Therapists, to deliver oral health care in primary dental care, have included: Lack of space and in the past, a lack of awareness, by some GPs of the range of care within the scope of practice of Dental Therapists, their competence at delivering such care.

Conclusions

27. This review has demonstrated that both Dental Therapists and Dental Hygienists have levels of clinical competence, within their scope of practice that match or, in some areas, surpass those of GPs. If more care and treatment within NHS funded general dental practices is to be delivered by Dental Therapists and Dental Hygienists, the current financial disincentives must be addressed.

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