Dentistry in the United Kingdom

Organization of the

in England

the NHS are that it:

to all its citizens

for most services

3. Aspires to high standards of

5. Works across organizational

National Health Service

entistry in England and the UK

is a part of the National Health

Service (NHS), set up in 1948. The

NHS is the largest such organization

billion and a staff of 1.5 million. The

1. Provides comprehensive service

2. Provides access based on clinical

need rather than ability to pay,

excellence and professionalism

4. Reflects the needs and preferences

boundaries and in partnership

the interests of patients, local

communities, and the wider

6. Commits to providing the best value for tax payers' money and

the most effective and fair use of

population

with other organizations to serve

of patients, their families and carers

being free at the point of delivery

seven laudable principles underpinning

in Europe with a budget of £116.4

Kishor Gulabivala, BDS, MSc, PhD, FDS, FHEA, FACD

Abstract

In the United Kingdom (UK), dental care is administered as part of the National Health Service, a government system involving tax-based funding, country-wide standards, and some centralized management. Actual dental care is a hybrid of public (60%) and private (40%) reimbursement, contracts and fee-for-service payment schemes, often multiple streams for the same patient. This blend of governmental and capitalistic forces has undergone constant adjustment and has demonstrated general improvement in oral health and patient satisfaction in recent years. The complexity of the system makes it vulnerable to dentists gaming reimbursement opportunities and patients being uncertain about options and quality of care received. It is projected that as attention shifts from services provided to oral health outcomes, there will be more attention to local variations in need, greater use of therapists, and increasing emphasis on prevention.

Dr. Gulabivala is Professor of Endodontics at Eastman Dental Institute, University College London; k.gulabivala@ucl.ac.uk.

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finite resources 7. Is accountable to the public communities and patients. The organization and management

of the NHS dental services is complex, involving multiple bodies representing the government, the NHS organization, the patients (or population), and the dentists. Details of the individual organizations are beyond the scope

of this article but some definitions are provided (Table 1) to give a flavor of the structure. NHS in the UK is divided into regions: England, Wales, Scotland, and Northern Ireland; each has its own chief dental officer (CDO). The CDO for England is the British government's most senior advisor for dentistry in England, is recruited by NHS England, and is the head of dental staff and dental profession in England. The CDO is one of the six chief professional officers, one for each of six professions, to give advice in their respective specialty. As a senior member of the Medical Directorate, the CDO works in partnership with other directorates, domain leads, and other clinical leaders in regional and local area teams to improve outcomes for patients, and champion the role of dentists and dentistry within the health system.

The government's Department of Health (DoH) leads, shapes, and funds health care in England. The NHS organizations are tasked to work with the DoH to achieve a mutually aligned purpose. The DoH enables health and social care bodies to deliver services according to national priorities and works with other parts of government to achieve this goal. It sets objectives and budgets and holds the system to account on behalf of the Secretary of State for Health, who has ultimate responsibility for ensuring the whole system works. The system is therefore

TABLE 1. Organizations and their roles in the NHS.

NHS England (NHSE) supports NHS services by funding local clinical commissioning groups to provide the best possible care for patients through general, community, urgent care and hospital dental services. NHSE brings together expertise to ensure national standards are consistently in place across the country.

Public Health England (PHE) provides national leadership to support public health and works with local government, the NHS and other key partners to respond to health protection emergencies. It helps protect and improve the nation's health and address inequalities by reducing preventable deaths and the burden of ill health associated with common ills, infectious diseases and environmental hazards.

Health Education England (HEE) is the NHS wing that focuses on delivering the healthcare workforce for England by ensuring that the workforce has the right numbers, skills, values and behaviors. It is responsible for the education, training and personal development of every member of staff.

Local Authorities (LAs) commission care and support services and have a responsibility to protect and improve health and wellbeing.

Clinical Commissioning Groups (CCGs) constituted from doctors, dentists, nurses and other professionals plan and buy services for their local community from any service provider that meets NHS standards and costs, including NHS hospitals, social enterprises, voluntary organizations and private sector providers.

Health and Wellbeing Boards (HWBs) are a forum where key leaders of the health and social care system work together to ensure that services respond to communities' needs and priorities. They have strategic influence over planning decisions, strengthen democratic legitimacy by involving elected representatives and help create a responsive local health system.

Monitoring Bodies (CQC, Monitor & Healthwatch)

The Care Quality Commission (CQC) measures compliance of services with national standards of quality and safety. Healthwatch England (part of CQC) monitors, protects, and promotes the interests of people by ensuring that NHS services are cost-effective. "Monitor" licenses health care providers to achieve this.

National Institute for Health and Care Excellence (NICE) provides guidance to help health and social care professionals deliver the best possible care for patients based on the best available evidence. NICE involves patients, carers and the public in the development of its guidance.

intrinsically and directly linked to the residing government, and is therefore a recurrent national news item and topic of parliamentary challenge.

In 2013 the NHS underwent the most wide-sweeping reorganization since its creation, involving the abolition of several organizations and formation of others. The purpose of reform was multifold, giving local communities and patients more say in their care, as well as putatively doctors and nurses more freedom to shape the services to improve quality of care. The intention was to allow greater direct control over planning and commissioning at a local level. The new emphasis was on preventative approaches. The roles of these organizations and their interrelationships are defined in Table 1 and require dialogue, discussion, negotiation, and debate amongst them to crystalize optimal modes of operation, which can be a challenging process with, at times, unpredictable outcomes.

The mode of operation in the NHS has undergone a paradigm shift in its approach to management within my practicing life. When I first started my dental career, the hospital services were led, directed, and managed by clinicians with the consultant dentist at the helm and in charge of their "firm." They were the "kings" whose opinions held sway in how the service was run. The service is now run and administered by "managers" who may or may not have a clinical background, are well-versed in NHS management culture, and are custodians of the budgets. Clinicians are therefore no longer in charge of the service, only their clinic, except by virtue of representation by clinical leads or clinical directors who provide the clinical perspective on how their service should be run. Their opinions and views on service delivery must be conveyed through dialogue, debate, and negotiation with other healthcare workers, administrators, and managers. Most clinicians at the workplace may not have any deep insight about higher management structures and imperatives, and only those applying for senior management posts are likely to invest time in trying to understand the intricacies and complexities of NHS management and priorities. Their main interface with the management is likely to arise from lack of resource or facilities impinging on their daily clinical activity.

NHS Dentistry

In the 60 years of its existence, NHS dentistry has focused mainly on treatment rather than prevention or quality. The mode of funding, feeper-item-of-treatment, coupled with a business model of running dental practices (in contrast to medical practices), resulted in "gaming" at different levels to gain maximal financial benefit, albeit for a proportion of dentists. The consequence was little visible reward for good dentists engaged conscientiously in improving oral health and providing a service that patients liked, with little sanction for those not meeting these goals. Historically, reimbursement had followed activity rather than patients' needs by virtue of the payment system. The welcome reforms recommended that the quality of the service and its outcomes should be explicitly recognized in the reward system of any revised contract. To achieve this, robust measures of quality would need to be devised on oral health outcomes and patients' perceptions of quality. The old funding system was to be reversed and the process of reallocation of resources to align it with needs has begun; the new dental contract based on registration, capitation, and quality has been piloted and prototypes are about to be tested.

In the interim, however, since April, 2006 NHS dentists in England and Wales have been paid according to how many "Units of Dental Activity" (UDA) they perform in a year. Dentists in Scotland still get paid on a "fee per item" basis. The actual value of a UDA had been set by the local NHS Primary Care Trust (England) or Local Health Board (Wales), in discussion with individual dental practices. The average value was around £20 and varied around the country. Usually the more in need an area is for NHS dentists, the more a UDA is worth but not always. Each dental procedure has been classified into a band that determines what patients pay and the amount of UDAs a dentist accrues. The bands are:

- Band 1 (1 UDA): Diagnosis, treatment planning and maintenance (examination, x-rays, scale and polish, preventative work, minor changes to dentures).
- Band 2 (3 UDAs): Simple treatment, e.g., for example fillings (including root canal treatment), extractions and periodontal treatment.
- Band 3 (12 UDAs): Complex treatment that includes a laboratory element (e.g., bridges, crowns, and dentures; excludes mouth guards).

UDAs are awarded and calculated for completed treatments. Some of the anomalies include the fact that it does not matter if the dentist provides one crown or ten crowns, they still only accrue 12 UDAs. If they perform endodontic treatment on a simple maxillary incisor or five difficult molars, the reward is the same three UDAs, which incidentally is also the payment for a tooth extraction. The system has therefore attracted gaming of a different sort, including books and publications providing guidance on how to do so "legitimately."

In contrast to medical and hospital dental services, general dental services are not entirely free at the point of delivery but incur subsidized patient charges, except for those who may be exempt. The funding for general dental services for England therefore consists of core NHS funding plus a proportion of patient charges. In 2015, the core dental budget was £3.7 billion with patient charges accruing £714 million.

The overall ambition of the reformed NHS dentistry service is that of a lifetime-focused, evidence-based oral health service with the aim to prevent oral disease, minimize the impact of oral disease on general health, and manage identified disease with a view to maintain and restore quality of life. The vision is that personal computers in all dental surgeries within three years, followed by their central connection, would allow collation of clinical data to support shared information on quality and outcomes.

Private Dentistry

Private dental care operates outside the NHS and is not funded by it. Funding of private dentistry is through dental insurance, savings plans, or simply private payment as required. The spending on private dentistry is estimated at £2.2 billion. Patients elect to seek such care for convenience or quality. It is estimated that 15% of dental practices are completely private, 15% completely NHS, and the vast majority (70%) provide both NHS and private care. The interface between NHS and private service is sometimes blurred and greater operational clarity is required.

The Dental Workforce

The Centre for Workforce Intelligence (CfWI) was commissioned by Health Education England (HEE) to forecast and analyze the future supply of, and demand for, the dental care professional workforce projections for England up to 2025. This stocktake followed the CfWI's review of 2013 for dentistry student numbers that resulted in a reduction of annual dental school intake. That review recommended that HEE commission the CfWI to conduct a stocktake of the multiprofessional dental workforce, focusing on dental care professionals in their totality. The purpose was to enable HEE to develop its strategic position on the workforce required to deliver services in both the NHS and the private sector, and focused on the need for a changing dental "skill mix" in the context of the proposed reform of the NHS dental contract.

The UK dental workforce profile is given in Table 2. Of the registered dentists, 47% dentists were female. There were 44 dentists per 100,000 population (51 per 100,000 in London). It is worth noting that EU laws allow dentists within any EU country to work in any other. Such migration patterns may make prediction of future manpower requirements more challenging. Brexit is also likely to have

TABLE 2. UK registered dental workforce.

Registrant Type	December 2008 Total	January 2017 Total	
Dentist	32,281	41,441	
Dental Care Professional (DCP) 56,880	67,669	
Dental Nurse	42,959	53,358	
Dental Technician	7,460	6,176	
Dental Hygienist	5,160	6,898	
Dental Therapist	1,164	2,869	
Clinical Dental Technician	121	352	
Orthodontic Therapist	16	521	
All	91,548	109,110	

Note: Some DCPs may have more than one title. Source: GDC, 2009, 2017; Extracted from Advancing Dentistry

an impact. Dentists from overseas countries whose qualifications are not recognized must pass a statutory examination to be registered with the GDC.

Deployment of the Workforce

The dental workforce is distributed amongst several different branches of the service.

General Dental Services (GDS)

Primary care or GDS delivers over 80% of the dentistry in England through high street dental practices, which are funded through NHSE contracts to self-employed independent contractors. There are also some contracts for specialist services. The current contracts and patient charges were introduced in April 2006 with new reformed contracts expected in 2018. In 2015, 30 million (55.7%) people were seen by a dentist in England. Of these, 22 million were adults and eight million were children; 50% paid dental charges, 23% were exempt adults, and 27% were children (also exempt).

Community Dental Services (CDS)

The CDS provides 4% of general dentistry, mainly for children and adults with a range of special needs, including physical and learning disabilities, dental phobia, and medically compromised patients. This service is delivered through salaried dentists who also undertake screening and health promotion. CDS may also provide a specialist referral service (secondary care) and a service to prisons.

Urgent Care Dental Services (UCDS)

The UCDS facilitates the management of emergencies (uncontrollable hemorrhage, rapidly increasing swellings, serious facial and oral trauma) through in- and out-of-hours services. A new model implemented in 2016, included call handling, telephone triage (day and night), and treatment service.

Hospital Dental Services (HDS)

The HDS provides specialist dental care (secondary and tertiary care), advice for complex treatments, routine care for severe special needs patients, accident and emergency cover, dental care for inpatients, and is where the training of undergraduate and postgraduate dentists mainly takes place.

Provision of Dental Education

The eighteen dental schools in the UK are distributed, 12 in England, four in

Scotland, and one each in Wales and Northern Ireland, each accepting different numbers of students. The dental schools are funded via the universities by the government (66%, plus 34% from other sources, including £9,250 per year tuition fee from students) and are coupled with dental hospitals that are funded via NHS trusts by the government through NHSE. These distinct strands of funding are accompanied by distinct management structures and remits for each. It is clear, therefore, that potential for conflicts exists, which should ideally be resolved at the highest management level in the dental school. Where such avenues of dialogue do not exist the conflicts may impact both training and education, although the needs of the patient

TABLE 3. Seven overarching outcomes for all dental professionals.

Upon registration with the General Dental Council, the registrant is expected to be able to:

- 1. Practice safely and effectively, making the high-quality, long-term care of patients the first concern
- 2. Recognize the role and responsibility of being a registrant and demonstrate professionalism through their education, training, and practice in accordance with GDC guidance
- 3. Demonstrate effective clinical decision-making
- 4. Describe the principles of good research, how to access research and interpret it for use as part of an evidence based approach to practice
- 5. Apply an evidence-based approach to learning, practice, clinical judgment and decision-making and utilize critical thinking and problem solving skills
- 6. Accurately assess their own capabilities and limitations, demonstrating reflective practice, in the interest of high quality patient care, and act within these boundaries
- 7. Recognize the importance of lifelong learning and apply it to practice

should always prevail.

The learning outcomes for dental professionals are defined by the General Dental Council (GDC), previously in "The First Five Years (TFFY): A Framework for undergraduate dental education, 3rd Edition (2008)," then replaced by "Preparing for practice—Dental team learning outcomes for registration (2015 revised edition)." The learning outcomes are grouped in four domains and fit categories required by the GDC throughout the registrants' practice life, listed under "clinical, communication, professionalism and management, and leadership." The laudable aspiration is that the outcomes in each domain are integrated and support each other; the clinical and technical skills together with the underpinning scientific knowledge forming the central core. It is categorically stated that the clinical and technical domain should remain crucial to developing safe practitioners and will form a significant part of training and education programs. Seven overarching outcomes are required (Table 3) and apply to all dental professional registration categories.

Graduate dentists, now registered with the GDC, may follow a number of postgraduate career options but an initial period of foundation training (previously known as vocational training) is mandatory during which they are mentored by a suitably experienced clinician in a practice environment. Trainers and training practices are recruited and funded to fulfill this role.

A prevalent debate in the profession is that recently emerging dentists, whilst well-educated, are not sufficiently clinically trained to meet their practice remits. This may possibly be traced to a lack of integration between training and education in the undergraduate curriculum; academic assessments are surface-learning oriented, and technical training is not well embedded. This pattern of activity may have been influenced by the need for dental academics to increasingly focus more on research outputs than educational outputs. The role of providing clinical training has thus fallen to multiple part-time teachers, who simultaneously run their own practices; such diverse groups of multiple trainers may be difficult to coordinate to provide coherent training. It appears that by default, the training elements have been displaced increasingly into the postgraduate dental foundation training year, where again the teachers may not be suitably equipped to sustain a coordinated continuation of coaching and teaching for the neophytic dentist. It is not unknown for dentists to graduate having completed only one root canal treatment in their entire undergraduate training.

Having completed the foundation year training, dentists may enter a career in general or primary care practice or follow a hospital or secondary care pathway (Figure 1), leading to specialization. The GDC has established 13 specialties (Table 4), not all of which are funded by the government (endodontics, periodontics, prosthodontics). Dentists aspiring to follow these specialties would need to fund their own training (an added burden upon their undergraduate tuition fee debt), whilst simultaneously taking an income loss through lack of practice. They do, however, follow a prescribed and quality-assured training program, consistent with other funded specialties. The endpoint of training is defined by satisfactory completion of an

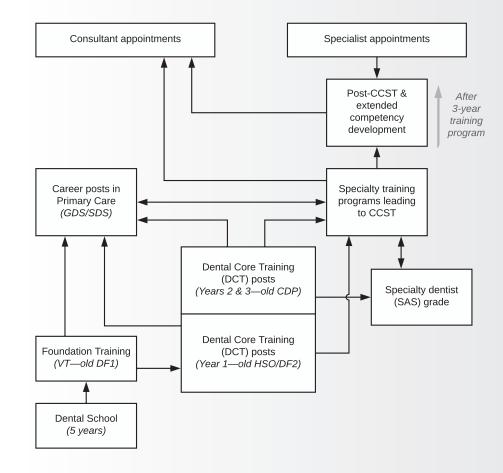


FIGURE 1. Dental Careers Framework. (Revised April 2013)

approved training program and passing a Royal College exit examination, which together lead to the award of a Certificate of Completion of Specialist Training (CCST), allowing entry to the General Dental Council Specialist Lists.

There has been debate about whether unfunded specialties should even exist or be supported by the NHS, with strong advocates on both sides of the argument. Some believe that unfunded pathways should not be supported by the NHS because the graduates will ultimately practice privately to recoup their tuition fee investment. Others argue that private practice nevertheless contributes to the overall healthcare of the nation. My personal belief is that all specialties in need and demand by the public should be appropriately and equally funded with equivalent career structures in hospital practice. Unfortunately, this is not currently universally true. The lack of a clinical career structure in the hospital environment may also undermine the development of its respective academic discipline because of a lack of equivalent pay and thus quality recruitment. However, in a publicfunded system with finite resources,

TABLE 4. The denta	specialties in the UK.
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Specialty	Years of training to CCST	Post-CCST training (years)	Exit qualifications
Dental and Maxiofacial Radiology	4	No	DDR
Dental Public Health	4 (or 3 with MPH/MDPH)	No	FDS (DPH)
Endodontics	3	No	MEndo/MRD
Oral and Maxillofacial Pathology	5	No	FRCPath
Oral Medicine	5 (or 3 with medical degree)	No	FDS (OM)
Oral Microbiology	5	No	FRCPath
Oral Surgery	3	2	MOralSurg, FDS (OS)
Orthodontics	3	2*	MOrth, FDS (Orth)
Paediatric Dentistry	3	2	MPaedDent FDS (PaedDent)
Periodontics	3	No	MPerio/MRD
Prosthodontics	3	No	MPros/MRD
Restorative Dentistry	5	No	FDS (RestDent)
Special Care Dentistry	3	No	MSCD

* There are a number of runthrough training posts of five years in Orthodontics. Source: GDC; State of the Oral Health and Future Challenges Facing UK Dentistry

priorities have to be honored. The matter becomes one of ensuring adequate representation and negotiating power at the decisionmaking table.

Overall, the oral health surveys in the UK show an improvement in the oral condition of the nation, with a projected decline in edentulousness and retention of more healthy teeth into older age (Figure 2).

An aged population retaining more teeth will result in greater wear and tear problems of the teeth and potentially the need for more complex dentistry. It is further projected that across the UK, at least 1.8 million people aged 65 and over could have urgent dental conditions (dental pain, oral sepsis, extensive decay). By 2040, this number is estimated to have increased by more than 50%. There is therefore a perceived urgent need to improve oral healthcare for the elderly (Table 5).

At the other end of the population spectrum, caries levels in children are unacceptably high in England. Twelve percent of three-year-olds (Survey 2013) and 25% of five-yearolds (Public Health England survey 2015) had caries, with an average of three to four teeth affected, the vast majority untreated. There was wide variation (4%-56%) in the prevalence of tooth decay by region, with poorer dental health in north England; 41% of this variation could be explained by deprivation.

More than 30% of children in England did not see an NHS dentist between 2012-14. In the two years to March 2016, only 38% of children up to age four years in England accessed a dentist. The rate varied across the country from 15%–58%. Tooth extraction was the most common reason for hospital admission for children aged five to nine years. In the financial year 2015-16, the cost of tooth extractions was approximately £50.5 million among children and young adults up to 19 years, the majority for tooth decay. Whilst for children under five years, there were 9,306 admissions for tooth extractions (7,926 specifically due to tooth decay), at a cost of £7.8 million.

A number of cost-effective interventions may prevent tooth decay and save money long-term, as well as reduce the need for school leave. Targeted community fluoride varnish

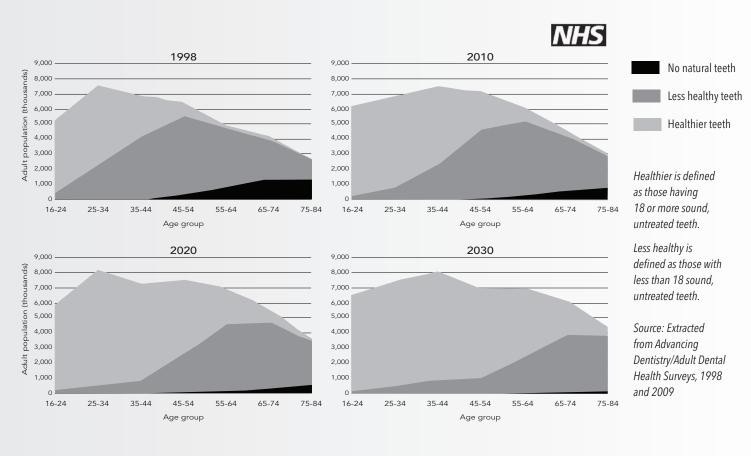


FIGURE 2. Dental health and future projections to 2030.

programs may gain an extra 3,049 school days per 5,000 children. It is estimated that the return on investment for this intervention to be £2.29 for every £1 spent after five years, increasing to £2.74 after ten years.

The future intention is to improve children's access to NHS dental services for regular preventive advice and early diagnosis for prompt management. The relative shortage of specialist pediatric dentistry services will need to be addressed. NHS England and the profession will need to ensure that preventive care is adequately resourced and delivered and dental access is measured twelve monthly rather than 24 monthly, in line with the National Institute for Health and Care Excellence guidance. Public campaigns to educate parents and children should also be considered for their importance of

TABLE 5. Recommendations for improving the health of the elderly.

- 1. Health professionals in acute and community care settings should receive training in oral health.
- 2. Social care providers should give their staff appropriate oral health and care training; as well as ensuring that all services have an oral care policy.
- 3. Preventative advice on maintaining good oral health should be easily available for older people, their families and their carers.
- Government, health services, local authorities, care providers, regulators and the oral health profession should work together to develop a strategy for improving access to dental services for older people.
- 5. Health and social care regulators should ensure that standards of oral care are assessed during their inspections of care homes and hospitals.
- 6. All hospitals and care homes should have policies in place to minimize denture loss.

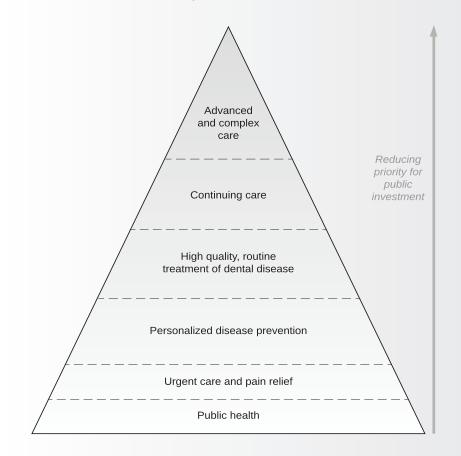
good oral health and prevention, as well as in awareness of the impact of sugar and ways to reduce its consumption. Local authorities without water fluoridation may need to be encouraged to introduce schemes to tackle the significant inequalities in children's oral health across the country.

Debate on Future Planning of the Dental Services

The current composition of the dental workforce and its training structures are products of historical needs, decisions, and consequent evolution. HEE believes a radical rethink of the existing models of service delivery is overdue if cost-effective and efficient management of future patient demand is to be met. It proposes a radical strategy to meet current and future healthcare needs in the UK, taking account of demographic, technological, and geographic factors, as well as future models of commissioning and service provision.

HEE believes that the priority for public funding investment resides in the lower levels of the pyramid shown in Figure 3. Mapping of the competences of the dentist against other dental care professionals shows overlapping as well as distinctive characteristics for each group (Preparing for Practice 2015—GDC). The dentist should be competent to undertake the majority of procedures, but those that are uniquely limited to the dentist is much smaller, with dental therapists, hygienists, clinical dental technicians, and others qualified to undertake many of the duties. HEE believes that a greater

FIGURE 3. Priorities for public investment in oral health.



Source: Extracted from NHS Dental Services in England–An independent review led by Professor Jimmy Steele

proportion of dental care could be delivered by dental therapists and dental technicians instead of relying on the highly specialized skills of the dentist; although in the current climate, the assumed skills of the emergent dental graduates may be over-estimated. It is estimated by the Center for Workforce Intelligence that the ratio of service delivery by dentists versus dental care professionals is currently 80:20 in favor of dentists, whereas by 2025, it could be closer to 50:50.

The corollary of such thinking is to explore common entry to shared undergraduate programs for all dental professional groups, with opportunities to progress to more advanced learning for different roles based upon projected demand for those roles. This model is believed to increase flexibility for trainees, in that their final choice of profession could be made later based upon their progression and opportunities available, or allow them to step off and on the training ladder to better meet their own personal circumstances and preferences. The system is also perceived to provide a more flexibly modifiable workforce for service delivery, since it would be more straightforward to deliver the projected numbers required in each profession by tweaking the output opportunities from the common entry baseline. A prominent selling point of this plan is a more effective use of taxpayer funded resource.

There would also be implications further downstream in the higher training pathways (Figure 1). Following core training there are currently opportunities for 13 different specialties but a radical review of the nature envisaged would inevitably be followed by a review of these specialties, their need and costeffectiveness, as exemplified in the priority allocation in Figure 3 for advanced and complex care.

This is an interesting and bold, but also a worrying development, for many in higher dental education. A common entry for all dental professionals would inevitably require a reduction in entry qualifications, whereas dentistry currently enjoys highly competitive entry requiring top grades from school leavers and attracting the best candidates. The proposal is perceived to have a dumbing down effect on the entry cohort with implications for the future well-being of dentistry. Clinical academics have traditionally been the custodians of the science and art of the practice of their discipline. Such higher development is facilitated by integrated development in the domains of research, education, and clinical practice. The proposed future plans are seen by some to potentially undermine the propagation of this custodianship.

Public Perception of Dentists in the UK

Large sections of the healthy population see a dentist much more frequently and regularly than they see their general medical practitioner. Some people consider a visit to the dentist as routine, but others find the prospect terrifying. Around 53% of people have visited an NHS dentist in the previous two years, but public satisfaction with NHS dentists has fallen fairly steadily over the last 25 years, from over 70% to just above 40%.

The impression, reinforced by media and word of mouth, is that NHS

dentists are hard to find. However, the majority of those trying to get an NHS appointment managed to do so. Again, there is regional variation, with 65% of patients in urban areas able to make an NHS appointment with the first dentist contacted, compared to 44% in rural areas. There was independent evidence from Public Care Trusts of variation in availability of dentists in some regions (Primary Care Trusts were part of the NHS in England from 2001-13 and were administrative bodies responsible for commissioning primary, community and secondary health services).

Of those that find an NHS dentist. many are happy with both the dentist and the service they receive. This finding is not unique by sector of population or geographical region; it is widespread. A survey found that 86% of those receiving NHS treatment were "very" or "fairly" satisfied. Younger adults tended to have had good care in their formative years, with good habits and low disease experience. Middle aged groups recounted negative experiences over the years, mentioning large numbers of fillings; they were most keen for regular care and to stick with a trusted dentist. Those beyond retirement age had witnessed the biggest changes in dentistry and expressed greatest concern about maintenance costs and the need for more care and attention to their teeth. A lack of information about options for care make people suspicious or likely to be concerned about whether the treatment offered was really necessary.

Dentists are currently allowed to provide both private and NHS care from the same practice, even for the same patient. This is an important part of dentistry for many dentists (70%)

and many patients. Patients often report that it is impossible for them to distinguish between private and NHS care, leading to resentment. There is no prescribed list of items of treatment offered by the NHS. This gives the dentist freedom, but leaves the options for care open to interpretation causing uncertainty for both patients and dentists. Dentists can pick and choose what is provided and what is not on the NHS, resulting in patients being uncertain about what the NHS offers. Many dentists in the UK operate as part of independent businesses that hold contracts with the NHS. They receive an agreed amount of money from the NHS in return for delivering an agreed number of weighted courses of treatment each year; such a practice may operate alongside private care.

Dominant Influences on Practice Culture

There is good evidence that the manner in which graduated dentists practice when they leave their dental schools is at variance with their undergraduate teaching in many aspects. It is a sad indictment that dentists who spent at least five years of their formative years learning the science and art of dental practice from their undergraduate mentors, so readily abandon their taught principles. There is a lack of comprehensive research to explain the reasons for such variations but some key arguments have been proposed.

It seems that many young dentists do not cope well with the transition from the protected environment of the dental school to the real-life world of practice, even though some schools offer a "general practice" environment in their final year, supervised by general practitioners. The business elements of decision-making rapidly impinge upon scientific and clinical rationale to overturn established thinking. Under peer and practicementor guidance, confidence seems to develop that cutting certain corners may not necessarily accrue anticipated problems with mathematical certainty, whilst on the other hand, diligent compliant practice (albeit inexperienced) did not always guarantee freedom from problems. A practice-based culture and knowhow then rapidly replaces the undergraduate-learnt ideals.

Factors influencing the direction of this new and growing acumen as a "real dentist" come from a variety of quarters apart from practice, not least the dental companies and their consultants (gurus in the making), who demonstrate the business and cosmetic possibilities of their products and "smoother" mode of practice. Social media has served to accelerate the spread of this culture and embed a new truth. Evidence has in their minds less to do with literature than what peers can achieve and show in glamorous images and videos on the internet. The growth of "unregulated" gurus is a considerable and unchallenged threat to appropriate and ethical dental practice. The normally accepted ethics of dental

practice may easily be submerged by these competing influences. Cosmetic dentistry and loose practice ethics seem to be two of the many threats facing dentistry.

The main counter-balancing factor, apart the voice of experience (often simply regarded as outdated), is the threat of medico-legal action and litigation. The rate of fitness-topractice hearings at the GDC and dental litigation in the UK is supposedly at an all-time high and possibly the highest in Europe.

Differences in Dentistry between UK and Other Countries

Despite differences in training, service delivery systems and funding mechanisms across the world, the problems facing the dental-clinicianbusinessman, seem oddly and universally consistent. Regardless of attempts to engineer better systems and processes, ultimately, at the point of delivery human strengths and frailties prevail and seem guided mainly by personal and moral values. Perhaps the key selection criterion for dentistry ought to be this characteristic, which is seldom modifiable by dental mentors, whereas other qualities may be more plastic. The NHS has laudable characteristics and in the minds of the public, is a flagship of the nation's character, as exemplified in the 2012 Olympics opening ceremony, however it continues to challenge everyone involved in it.

Conclusions

The NHS has unique characteristics and problems in healthcare delivery but the challenge of balancing the cost of healthcare delivery with growing needs and demands of a cosmetically conscious, desire-chasing, and aging population remain universally the same as anywhere else in the world. A rather obvious conclusion seems to be that healthcare and business make uneasy bedfellows, yet healthcare is expensive and must be paid for. There are intellectually and morally challenging decisions to be made in the future by the public and the profession to find a solution to the cost of healthcare. Prevention seems a glaringly obvious solution.

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