

The dental team as part of the medical workforce during national and global crises

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Key points

Provides dental, medical and wider healthcare systems with a clearer understanding of the medical competencies gained by the dental team during undergraduate and specialist training.

Shows the commonality between dental and medical education curricula.

Utilising the dental team during crises has the advantage of the presence of medical and dental competencies with added benefits of administration, finance and leadership skills.

Abstract

In a national or global crisis, a healthcare system and its workforce should have the flexibility and resilience to deliver the required level of care for all its constituents. The current COVID-19 pandemic necessitated rapid decisions and early redeployment of staff to deliver essential healthcare. Having the dental team as part of this strategy would increase availability of healthcare workers. They have the potential to make a significant contribution as part of the medical workforce during national and global crises. The desirability of redeploying dentists at short notice is supported by several factors: they are accustomed to working in stressful situations, are effective communicators, are familiar with infection control procedures and work wearing PPE, are immunised and Disclosure and Barring Service (DBS)-checked, and undergo regular training in the management of medical emergencies. Dentists are also experienced in administrative tasks and have knowledge of legislation. They have additional resilience from working in different settings. They have the potential to make a significant contribution as part of the medical workforce during national and global crises.

Background

The coronavirus (COVID-19) pandemic caused a national crisis affecting every part of daily life.¹ In the United Kingdom (UK), this resulted in unprecedented and widespread pressures on both secondary and primary healthcare, along with considerable socioeconomic disruption. At the beginning of March 2020, *The Economist* article 'Is it ready? Britain's NHS is well suited to dealing with crises' commented: 'by International comparisons Britain was among the best prepared countries for a pandemic, thanks

to its testing infrastructure and contingency planning'. However, it also pointed out that the NHS was a 'relative weak point'.²

Ten years ago, the UK received a 'highly satisfactory rating' for its handling of the swine flu pandemic. Over a period of one year of the pandemic, 800,000 people were infected. Of these, 26,000 needed hospitalisation and 342 died in England.³ For COVID-19, the current figures from 15 February–31 May 2020 are 274,762 cases and 38,489 deaths, with worldwide figures reaching 6.2 million confirmed cases and 371,764 deaths.⁴

The National Risk Register rates a pandemic as the highest risk for the country.⁵ The expectation was that NHS England's Emergency Preparedness, Resilience and Response framework would be actioned and that a level 4 alert would signal national control of the service.⁶ However, this did not consider several factors, including the decrease in number of primary care general medical practices, the number of vacancies in the NHS and added burden of large numbers of highly trained staff leaving, and the intensive care facilities' ability to cope with the increased

demand. In addition, the pandemic occurred during the normally expected flu season. Many would argue that the most important factor is the persistent chronic underfunding of the NHS in the last ten years.

Throughout the pandemic, the NHS looked to alternative means of staffing hospitals. The healthcare system came under an inordinate amount of pressure as illness and self-isolation of frontline staff led to reduced numbers of healthcare workers available to their Trusts. Redeployment of staff was required to cover these shortages.

At the same time, general dental practices ceased treatment of both routine and urgent patients.⁷ The process released a large group of highly trained healthcare staff with transferable medical skills who could participate in delivering essential healthcare.

This paper aims to investigate whether the dental team – dentists and dental care professionals (DCPs) – can be effectively redeployed when the healthcare system is under pressure during national emergencies. This does not preclude the important issue that dentistry is an essential branch of the

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healthcare delivery during national and global crises.

Document review

Data collection on dental and medical training. A review of curricula including: the General Dental Council's (GDC's) *Preparing for practice*, the GDC's *Scope of practice*, the syllabus of the Membership of the Joint Dental Faculties (MJDF) examination, and the Committee of Postgraduate Dental Deans and Directors' (COPDEND's) *UK Dental Core Training curriculum*. A review of dental education and training alongside the General Medical Council's (GMC's) *Outcomes for graduates*.

Evidence available for medical training of the dental team

Medical knowledge

The GDC's *Preparing for practice* document outlines the learning outcomes for registration for dentists and DCPs.⁸ DCPs include dental therapists, dental hygienists, dental nurses, orthodontic therapists, dental technicians and clinical dental technicians.⁹ This document emphasises the importance of understanding the underpinning scientific concepts which allow a practitioner to treat clinical conditions.

On registration, dentists are required to be able to identify general and systemic disease and have a good knowledge of dental, oral, craniofacial and general anatomy. Other learning objectives include knowledge of physiology, transmission of infectious disease, properties and delivery of medication and therapeutic agents, epidemiology, psychology and sociology, alongside the basic dental and surgical skills.⁸

The dental check-up is a good access point to secondary care investigations and treatment. During these appointments, chairside rapport develops and enables an assessment of general health and wellbeing, presentation of systemic conditions within the oral cavity and surrounding craniofacial tissues, comorbidities and assessment of patients' medication. The frequency and periodicity of patient contact has demonstrated that DCPs are a significant 'touch point' for general health promotion. This puts the dental team in an ideal situation to provide health interventions for conditions such as diabetes and cardiovascular disease.^{10,11,12} The diagnosis and treatment of hepatitis C is another proposed intervention.

These examples exclude the learning objectives related to general dentistry and demonstrate dentists' wide range of medical knowledge.

Dental therapists and hygienists have a similar range of learning objectives before registration. Dental nurses are also required to have a knowledge of physiology, health promotion and general patient management.⁸

Postgraduate qualifications allow access to membership of the Faculty of Dental Surgery and the Faculty of General Dental Practice.¹³ In the past year, 1,800 dentists took the MJDF examination.¹⁴ The syllabus requires knowledge of general medicine, health promotion and a high level of skill in medical emergencies. A prerequisite for achieving membership requires that candidates demonstrate their ability to identify and manage medical emergencies beyond their routine scope of practice.¹⁵

Communication skills

Communication training begins during the undergraduate years through observation and feedback by clinical tutors, including formative assessments, objective structured clinical examinations (OSCEs), clinical cases pertaining to treatment and management scenarios. This continues into the later postgraduate examinations. The GDC expects dentists, dental hygienists and dental therapists to communicate effectively with patients and members of the team. It also asks dentists to be able to maintain good records and act within the principles of information governance.¹⁶ Dental nurses are also expected to communicate effectively with patients and colleagues.⁸ These skills are practised routinely with actual meaningful patient contact as undergraduate students and then throughout their dental career.

History taking

Dentists, dental hygienists and dental therapists elicit a comprehensive patient history as an undergraduate. General dentists continue to use their history-taking skills throughout their career. Together with a clinical examination, they can form a differential diagnosis and order appropriate investigations.⁸

Postgraduate examinations assess a dentist's ability to take a thorough history, including a medical and medication history, and the effect of social, psychological and genetic factors.¹⁵ A significant proportion of dental attendances requiring a thorough history are related to pain. Dentists have mastered the art of eliciting concise and thorough acute histories.

Clinical skills

As a medical emergency may occur at any time, all members of the dental team are instructed in managing medical emergencies.¹⁷ It is a continuing professional development (CPD) topic recommended by the GDC that must be completed each cycle along with disinfection and decontamination. Personal protective equipment (PPE) and cross-infection control are skills in which they excel.

Dental nurses play an essential role in infection control and are vital in preventing spread of infection in the surgery. Surgeries are often small clinical spaces with a high turnover, with multiple instrument, exposure-prone and aerosol generating procedures. The dental nurses are responsible for preparing the clinical environment, documentation and assisting the operator during procedures. Furthermore, they play a role in supporting patients during both routine treatments and throughout medical emergencies. With additional training, nurses are able to remove sutures, carry out health promotion and assist in conscious sedation, including placement of cannulas.¹⁷ They also participate in administration including management, reception work and assisting with clinical governance activities, and have a working knowledge of the current best practice and legislation.

Dental hygienists are able to take targeted histories including evaluating patients' medical histories relevant to their scope of practice. They administer topical and local anaesthesia. Aside from their routine hygiene procedures, they are able to carry out health promotion. Additional training is required to remove sutures and administer inhalation sedation. Dental therapists have a similar range of medically relevant clinical skills.¹⁷

Dentists have all the GDC-listed skills. They are highly skilled at history taking, examining, investigating and treatment planning for patients. They carry out minor oral surgery procedures, including suturing, and all dentists are able to prescribe. They can also take and interpret their own radiographs. A dental practitioner is generally autonomous from the point of qualification.¹⁷

After completing their Dental Foundation Training (DFT), dentists may proceed to Dental Core Training (DCT). In 2013, out of approximately 1,050 Dental Foundation Trainees, 400 entered the first year of DCT.¹⁸ In 2018, 600 DCT places were available in England. Two-thirds of these places were in oral and maxillofacial surgery in London,

increasing to four-fifths outside of London.¹⁰ DCT allows dentists to work in settings outside of general practice and to learn new skills. General DCT outcomes include history-taking skills, communication and clinical examinations, requesting investigations, diagnosis, prescribing, management of medical emergencies and health promotion. In secondary care, dental core trainees work within multidisciplinary teams. In many units, dental core trainees will learn how to manage inpatients and act as foundation doctors under the guidance of medically trained registrar and consultant colleagues.¹⁸

Dentists may choose to undertake speciality training. Within the thirteen specialist lists, there are specific outcomes, many of which are transferable to general medical care. For example, paediatric dentistry requires effective management of young patients and a good knowledge of safeguarding procedures. Special care dentists have a great understanding of a wide range of impairments, disabilities, special needs and anxious patients. They administer conscious sedation while delivering comprehensive dental care.

The specialist areas of restorative dentistry require teamwork with head and neck surgeons. Both groups have highly advanced specialist skills. This also applies to orthodontics and orthognathic surgery. Many prosthetic materials developed for dental applications have had uses in general surgery.

Oral medicine requires a high level of medical knowledge and skills. Trainees must have a thorough understanding of patient systemic comorbidities in order to diagnose and treat oral mucosal disease. Oral mucosal disease may be the first and primary clinical manifestation of systemic disease; for example, haematological disorders such as nutritional deficiency, viral or bacterial infections and immune-related conditions, as well as cardiovascular, respiratory, gastrointestinal and psychological problems. In addition to this, oral lesions may also be a part of a spectrum of mucocutaneous disorders. As such, they have a high level of medical diagnostic and treatment skills.

There are also oral pathologists and oral microbiologists who undertake MRCPATH examinations and work in the general diagnostic laboratories. Public health specialists and radiologists also have a wide range of transferable skills.¹⁸

Dental core trainees in oral and maxillofacial surgery have experience working on wards,

including ward rounds under supervision, and they undertake patient bedside care. They too have high levels of communication skills as they work within a multidisciplinary setting involving communicating with nursing staff, communicating with other teams, phlebotomy, cannulation, swabs, removing drains, prescribing under supervision (outside of the dental formulary), requesting investigations and writing discharge summaries. In addition to this, they have out-of-hours on-call experience where they see patients in the emergency department requiring suturing of facial and oral lacerations, incision and drainage of abscesses (intraoral and extraoral), managing bleeds, assessment of facial fractures and admission of patients. These trainees will also have experience in assisting and performing surgery, including dentoalveolar procedures, removal of malignant and benign skin lesions, and the treatment of facial fractures, orthognathic surgery and cancer surgery. Other duties include outpatient clinics and minor oral surgery.

Enlisted dentists and DCPs also have the opportunity to work as part of the medical team in the British Armed Forces.¹⁹

Discussion

The documents reviewed confirm that there is a minimum standard of medical knowledge required by dentists and DCPs. Patients who attend dental appointments undergo a variety of complex dental procedures and may present with a multitude of comorbidities. Understanding the interplay of these factors and how they may affect management is a requisite for safe treatment. Many of the GDC's *Preparing for practice* outcomes align with the GMC's *Outcomes for graduates* in terms of professionalism, communication skills, history taking, teamwork, and prescribing and information governance. There is also an overlap between the dental and medical curricular outcomes in biomedical sciences, psychology, social sciences and health promotion.^{8,20,21} The Bachelor of Dental Surgery (BDS) degree, similar to the Bachelor of Medicine, Bachelor of Surgery (MBBS) degree, encourages students to become clinical scientists with the capacity to learn, understand and apply complex concepts. Prior to the 1990 curriculum, medical and dental students attended the same preclinical course before the more specific training

of their respective clinical years, and there are still courses with a shared curriculum. In many instances, the preclinical dental and medical undergraduate content will be prepared and delivered by the same scientists and clinicians.^{10,22,23} At present, qualified doctors may be admitted into the third year of dental training. Similarly, dentists planning to train in maxillofacial surgery join the third year of the medical curriculum. A spine of inter-professional training for both medical and dental professionals could increase undergraduate learning.^{10,21,24}

An indicator of the strength of the candidates applying can be gauged by the similar entry requirements for both medical and dental undergraduate courses.²⁵ In addition, university applications suggest a similar level of competitiveness. The 'Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies' (FHEQ) level of training for medicine and dentistry are equivalent at a level 7.²⁶ Dentists have the ability to access the same intercalated degrees as their medical colleagues, denoting that the academic rigour of the courses is similar. In addition, the model of training indicates that dentists are clinical scientists with both medical and specialist dental clinical skills. Medical colleagues are clinical scientists who have a wider range of medical clinical skills and access specialisation at a much later stage in training.

Other DCP training pathways, although perhaps less competitive with lower academic entry requirements, still select candidates for the same values and characteristics that are required to train compassionate, caring, 'frontline' clinicians.

In the postgraduate arena, dental public health training has many similarities to general medical public health. When working together in a team, dentists may provide beneficial skills such as leadership, strategy and implementation of the response to the COVID-19 pandemic.

Resilience training and mental health preparedness were sadly lacking previously in all curricula for all healthcare workers, but are now a feature in many modernised curricula. Both medicine and dentistry are high-stress vocations. Preparation for dentists is given at undergraduate, DFT and DCT level, but in some cases is too little and too late.²⁷ Many dentists have additional financial responsibilities for which they have some preparation; however, medical students have no financial training in the undergraduate years.

Conclusion

The dental team would be valuable members of a wider medical core of professionals during emergencies or national crises, such as the current COVID-19 pandemic. They have a wide range of transferable clinical and non-clinical skills, which could be of significant benefit to a system under pressure. All dentists and DCPs are immunised for exposure-prone procedures and have enhanced Disclosure and Barring Service (DBS) certification.^{28,29} A background in clinical sciences and knowledge of basic human systems makes them ideal candidates for further intensive training courses, allowing them to provide an additional level of care in national emergencies.

In addition to direct clinical care, dental professionals may undertake non-patient-facing roles to triage patients, manage emergency phone services and carry out hospital administrative tasks. Dental hygienists and therapists have high levels of manual dexterity and clinical ability, and are experienced in adhering to prescribed treatment pathways.

Additional training outside of their scope of practice will enhance skills. During the current COVID-19 pandemic, members of the dental team are being employed in several different settings, including general medical wards, maternity, emergency departments, renal dialysis units, Intensive Care Unit proning and oral care teams. They are also training medical staff on the general wards in COVID-19 procedures, and assisting maxillofacial and general surgery operative procedures. Without exception, the feedback received from senior medical colleagues has been positive.

It is highly advantageous to maintain an effective skilled workforce of dental professionals with additional skills needed during emergencies or times of crises. Many prerequisite skills are already present. The GDC, or another national database should be assigned to register the additional skills gained outside of the professional scope of practice. We should also ensure that dentists have access to CPD resources to keep their medical knowledge up-to-date and develop additional medical skills training courses for national emergencies. To harness teams quickly and effectively, we could start by

considering a single spine of training in the early undergraduate years before the specialised clinical training in either medicine or dentistry takes place.

A large skilled healthcare workforce that is agile and responsive is required for the future. The wider dental workforce are effective contributors in the current pandemic. They have demonstrated excellent shared understandings of clinical care and effective teamwork. They are also exceptional at working in PPE and are mindful of cross infection and disinfection procedures to ensure a safe environment for patients and colleagues.

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