125 years of developments in dentistry, 1880–2005

Part 7: War and the dental profession

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SCHOOL DENTAL SERVICES`

Wars greatly influenced the establishment of children's and hospital dental services, dental hygienists and dentistry in the NHS. In the Boer War half the men inspected were unfit for military service. Of 69,553 men inspected 4,400 were not accepted due to "loss or decay of many teeth".[1] Three official reports[2-4] agreed on a need for increased care for children to improve the nation's health. The 1904 report of the Interdepartmental Committee on Physical Deterioration[3] and education acts passed in 1906[3] and 1907[4] were particularly important for dentistry. After passage of the 1906 act which allowed for the provision of free or subsidised school meals the *British Dental Journal* questioned the logic of this action when so many children had missing or decayed teeth which made eating difficult.[5] The 1907 act allowed the development of publicly-funded school health services, including dentistry, and led to compulsory medical inspections in public and elementary schools. The *BDJ* emphasised that examinations must include the teeth but pointed out that inspection without treatment would only touch the fringe of the problem.[7] Dental inspections were originally carried out by doctors but after pressure from the BDA dentists took over.

One important development was the establishment in 1906 of a dental clinic for school children in Cambridge. It was initially endowed by a Fellow of Trinity College, Sedley Taylor, after encouragement from his dentist, George Cunningham.[6] This Cambridge Dental Institute was later taken over by the Borough of Cambridge as the first clinic of its school service, a move made possible by the 1907 Education Act. By 1909 there were clinics in Bradford, Cambridge, Chester, Coventry, Hove, Kettering, Great Crosby, Norwich, Reading, Sheffield, Torquay and Worthing. Dentistry became an integral part of the school medical services provided through local education authorities.

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DENTISTRY IN HOSPITALS

The Boer and two world wars stimulated the development of hospital dentistry. However it had been recognised in the hospital service since 1860 and was one of the first specialty appointments, preceded solely by obstetrics. Only Westminster hospital had an ophthalmic surgeon before a dentist.[7] In some hospitals dentists gave the first anaesthetics.

When the Boer War started in 1899 caries was a major problem. There was no provision by the services for dental care so many soldiers had to return to the UK because of oral problems.[8] The BDA had been pressing the government since its formation in 1880 for some form of dental treatment for soldiers but with the introduction of breech loading guns the need for them to have front teeth was no longer essential so the request fell on deaf ears.[9] The Royal Army Dental Corps was not established until 1921, the Royal Naval Dental Service in 1923 and the RAF Dental Branch in 1930. Entry to the RN dental service was competitive. In 1922 it was announced that four dentists had passed an examination held at the Royal Dental Hospital to qualify for entry to the RN as dental officers.[10]

Eventually Frederick Newland Pedley was allowed to go out to South Africa to treat the soldiers on active service provided he incurred no cost to the government.

Fig 1 E W Corfe, one of four practitioners to treat soldiers on active service during the Boer War, stands outside his operating tent

Claudius Ash supplied most of his kit. As a result of his subsequent report to the War Office four practitioners were contracted to treat the troops – the first paid dentists to serve the army on active service (Fig 1). Out of 208,000 troops in Africa 6,900 were admitted to hospital for dental reasons.

Oral surgery received a major boost after World War I started in 1914. As the forces had no dental services, dentists initially enrolled as combatants. The Commander of the First Army had toothache but there were no British dentists available to treat him. As a result 12 dentists were sent to France, granted temporary commissions on the General List and attached to the Royal Army Medical Corps (Fig 2). By 1918 there were 850 such officers. If also medically qualified, dentists could join the RAMC. Dually qualified William Kelsey Fry was attached to the Welsh Fusiliers, sent to the Western Front, was injured, decorated with the Military Cross at the front and repatriated. He was then posted to the Cambridge Hospital in Aldershot to join two other RAMC officer, McGill and Rowbotham, and put in charge of the dentists and technicians.[11]

Fig 2 Dental treatment in the field during World War I

In 1915 Harold Gillies, an ear, nose and throat surgeon, was sent by the Army to work with Auguste Charles Valadier, a French-American dentist and doctor. Valadier was the first dental surgeon to be given an honorary commission in the RAMC. At his own expense he established a dental department at the 83rd British General Hospital near Boulogne where he achieved world-wide fame in maxillofacial surgery (Fig 3).[12] As a result of that contact Gillies devoted the rest of his life to plastic surgery. He returned to England and joined Fry. For the first time cases could be referred to a specialist unit. McGill and Rowbotham introduced endotracheal anaesthesia which with suction allowed longer treatment sessions for patients whilst lying back rather than in the usual sitting up position without inhaling anything. The first endotracheal tubes were made by Fry. In 1917 Fry and Gillies transferred to Queen Mary's Hospital, Sidcup which became a training centre for plastic and oral surgery. They treated many soldiers with facial injuries, usually from gunshot wounds.

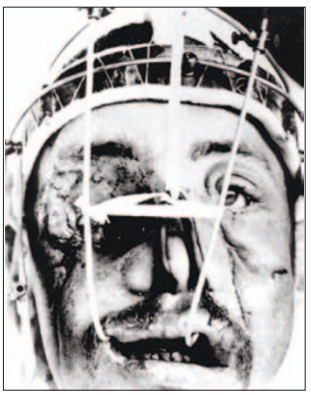

Fig 3 Facial trauma 1915

In 1918 Fry became assistant dental surgeon at Guy's, where it was a long time before they allowed him to introduced similar techniques. Twenty years later he still wondered to which branch of surgery belonged diseases and treatment of the jaws. Almost ignored by general and orthopaedic textbooks the best references were in dental surgery texts. In the USA oral surgery was already a dental specialty.

PREPARATIONS FOR WORLD WAR II

For a long time Fry, William Warwick James and Cyril Bowdler Henry dominated the oral surgery scene. Aware of a possible war, in 1932 the Army Council asked John Percival Helliwell of the Army Medical Directorate to chair a group consisting of Gillies, Fry and James plus Samuel Hamilton Woods as secretary to prepare a report on the expected wartime facial and jaw injuries. They recommended:[13] a specialist hospital for the treatment of maxillofacial injuries rather than special departments of general hospitals; and unless needing plastic surgery patients should be looked after by a dental surgeon. Their report was accepted by the army and the ministry of health. The ministry's principal dental officer, Henry Alvin Mahoney, identified hospitals near to large cities which could thus also be used for patients with injuries received in air raids. Included were East Grinstead, Roehampton, Basingstoke and Hill End hospitals. When war started, dental surgeons were allocated to them on a full-time basis.

A committee chaired by Wilson Jamison, professor of public health at the London School of Hygiene and Tropical Medicine (later chief medical officer to the ministry of health) was appointed in 1938 to consider the form a national hospital service might take. They found hospitals ill-prepared to cope with the expected air raid casualties. The voluntary hospitals were almost bankrupt and dependent on government subsidies. At the outbreak of war an Emergency Medical Service was established. The government forced cooperation between local authority and voluntary hospitals. Accommodation was increased with temporary buildings at new and some existing hospitals.

In 1938 the BDA announced that dentists would be involved in a range of activities both in the military and as civilians.[14] They would be needed to administer oxygen for resuscitation purposes and general anaesthetics during treatment. The Committee of Imperial Defence and the ministry of health arranged for the recruitment of dentists in the event of a national emergency.[15] The anticipated pressure helped to develop dental services in hospitals. The BDA, Incorporated Dental Society and the Public Dental Services Association jointly issued questionnaires asking dentists about their experience and if they wanted to serve full or part-time, at home or abroad, attending civilian casualties as a result of air raids and so on.

In October a Dental Emergency Committee (DEC) was established with dentists, representatives from the health and social departments and the BMA.[16] The DEC considered the likely demand for dental services in times of emergency by public service departments, public health and education services, general practice and emergency hospital services. It learned of the bad dental health of army recruits.[17] One in 34 had dentures and a further one in 18 would need essential dentures in the next year.

World War I experience indicated that dentists would be needed to give general anaesthetics and provide maxillofacial treatment.[18] Spanish and German sources suggested that many facial injuries would place a burden on the few relevantly experienced dentists working in hospitals where the doctors passed many accident cases to the dental staff.

The DEC learned that the minister of health had appointed a number of consultant medical and surgical specialists for the Emergency Hospital Organisation, one concerned with jaw injuries. In March 1939 the dental organisations urged the DEC to ensure the appointment of a dentist to the staff of each regional director of medical services to ensure effective local application of the national arrangements.[19] In April, Fry (Fig 4) was appointed as advisor to the minister and to work with Gillies on a scheme for locating and staffing hospital units for the treatment of wartime injuries.[20] It represented a major recognition of dentistry as a specialty.

Fig 4 Sir William Kelsey Fry

In September, the ministry indicated a Dental War Committee should be constituted.[21] Within four months the BDA was told the conditions of service for dentists would be the same as for doctors in the Emergency Medical Service. Under the influence of war hospital dentists achieved the equality of status with doctors which continues today. The committee listed dental and oral surgeons who would be posted to major maxillofacial units. Throughout the war such units proved the value of hospital dental services for maxillofacial care.

In World War II army dentists advised on dietetics, gave anaesthetics during operations performed by surgeons and provided emergency treatment on the battlefield, releasing medical staff to provide specialised care away from the front. There was a fear of oral epidemics as many cases of 'Trench Mouth' were seen in World War I.[22]

The RAF Dental Branch did pioneering work and acted as a model for the NHS hospital services which followed. Dental specialists were posted to all RAF hospitals, acted as a referral point and could admit patients to their own beds. The Royal Army Dental Corps quickly followed and the three services had dental specialists. Their extremely high standard established a need for the inclusion of specialist hospital dental services in the NHS.

It was during the war years that penicillin and other antibiotics came to the fore, making surgery much safer.

HOSPITAL SERVICES IN THE NHS

After the war some specialist units remained and a number of oral surgeons worked in them. Virtually everyone was part-time. An exception was Terence Ward who in 1946 was the dental specialist at East Grinstead. In 1947 he became full-time consultant maxillofacial surgeon at the Royal East Sussex Hospital in Hastings, the world's first such appointment. In 1948 consultant dental surgeons were appointed to some hospitals, many with experience of wartime dentistry. Orthodontists had earlier been seconded from the local authority school services to provide orthodontic treatment in hospitals. They were transferred to the NHS. It was to be a further three years before the first orthodontic consultant was appointed. Other dentists were existing 'honoraries' in the dental schools. The NHS initially accepted a need for 200 consultant dental surgeons, one for every 250,000 people. The ratio for orthodontists was 1: 500,000.

ORAL AND MAXILLOFACIAL SURGERY

With time it was recognised that much care from dental surgeons related to oral surgery rather than dentistry in

general so NHS consultants in oral surgery were appointed. Their specialist training reflected this new role and excluded other aspects of dentistry. Some patients who previously were referred by practitioners to consultant dental surgeons for non-surgical advice and treatment such as the provision of difficult dentures now had nowhere to go unless they lived close to a dental school. Eventually pressure from GDPs led to agreement by the department of health that consultants in restorative (to include periodontal, conservative and prosthetic care) and paediatric dentistry could be appointed to regional hospital units. With increasing specialisation and pressures arising from developments in Europe, dual medically and dentally qualified consultants in oral and maxillofacial surgery are now appointed to hospital posts.

DENTAL HYGIENISTS

This group of workers came to the fore in Britain because of severe periodontal disease in wartime. Once again the Royal Air Force was to the forefront of developments. Dental hygienists were initially trained in America in 1913 to scale and polish teeth and to educate patients. The 1957 Dentists Act allowed their introduction as the first post-World War II civilian ancillary workers to legally provide oral care in the United Kingdom. However, some hygienists had already been trained and employed by the RAF during the war.[23] Kelsey Fry, a civilian consultant to the RAF, suggested they should be trained to help with the severe problem of acute periodontal disease in neglected mouths.[24] A hygiene school was started at RAF Sidmouth in 1943 by James Smith.[23] Gerald Leatherman played a major role in setting it up but as with many visionaries he received abuse from colleagues about "dilution of the profession".[24] Each course of 16 weeks trained specially selected clerk-orderlies (dental chairside assistants) to scale and polish teeth and educate patients. The first civilian school followed in 1949 at the Eastman Dental Clinic in London.[23] Over the years they came to be accepted by dental practitioners. There is currently a large increase in training places, usually in dental schools. They gain a registrable diploma and sometimes a BSc degree.

GENERAL DENTAL SERVICES

During World War II the Government of National Unity wanted to give the troops something to look forward to so considered the possibility of cheap or even free health and welfare benefits. A 1942 report to the government by William Beveridge[26] included his thoughts on dentistry. Beveridge indicated "a general demand that dental services should become statutory benefits available to all under health insurance". He suggested that as dental health was part of general health preservative dental treatment was of major importance. Beveridge wrote: "This measure involves, first, a change of popular habit from aversion to visiting the dentist till pain compels, into a readiness to visit and be inspected periodically." He recognised that a much larger dental service would be needed to cope with any increased demand. Although emphasising that the right to treatment should be as universal as medical care he cautioned against the provision of dentures as there was a dentist manpower shortage.

Because of the government's involvement in the pre-war Dental Benefits Council it was not surprising that free dentistry was considered as part of a national health service in the mid-1940s. A committee of civil servants chaired by E J Maude was asked to consider post-war dental policy; in particular the steps required to establish a public service for the whole population. They found:[27] widespread dental disease; the population did not realise the importance of dental hygiene; people were not aware of the danger to health from oral sepsis; the demand for services was very low; and the only treatment possible for most people was large scale extraction of teeth, possibly with substitution by dentures (although frequently they were too costly). The high disease rate was demonstrated by statistics from the school service and the existing National Health Insurance Dental Scheme, plus examination of service recruits, munitions workers and women attending maternal and child welfare clinics.[28] Maude learned the problem started in childhood: 6,860 out of 10,000 children required extractions and 6,197 needed dentures; 98 per cent leaving public elementary schools in 1943 had decay; 70 per cent needed treatment and 65 per cent accepted it.[29] Only 5 per cent of recruits to the army and navy were dentally fit; 80 per cent of naval recruits had never received conservative treatment; comparison with an Army Command Report of 1918 showed the condition of recruits was distinctly worse in spite of increased facilities for treatment; only one per cent of workers in Royal Ordnance factories were dentally fit; over 50 per cent of mothers needed treatment but only 26 per cent completed the necessary treatment - even worse, 23 per cent refused any treatment. In all, dental health was very poor. Maude announced that in spite of the development of public dental services during the preceding twenty years there was little or no sign of improved dental health.

THE WAY AHEAD

By 1943 some 5,000 approved insurance societies and branches provided dental benefits. Their 14 million members represented about 75 per cent of the insured population. However, only 6-7 per cent of eligible people were treated each year. Treatment could be obtained from any dentist prepared to provide it under the prescribed conditions of service. Provided the agreed fees scale was used societies had to contribute at least

half the cost of any necessary treatment. Non-insured people resorted to private care but Maude learned that cost made it difficult for many people to obtain treatment.

If Beveridge's proposals were accepted, NHI Dental Benefit would disappear and alternative provision would be needed for the people entitled to it. However Maude felt there were not enough dentists for a complete public service. Thus efforts should be concentrated on improving the dental health of the priority groups by providing services through treatment centres or clinics: for 4 million expectant and nursing mothers and their preschool children, 7 million school children and 2 million 15 to 17-year-olds. The BDA was also concerned about manpower.[30] It suggested a start should be made by expanding the priority services. Even then it would take ten years to free adolescents from decay. However, the Minister wanted treatment to be available (at least theoretically) to everyone.

Maude eventually advised that dentistry should be extended to everyone with any new scheme being administered by the new local NHS authorities, i.e. executive councils, in a similar manner to the administration of Dental Benefits by approved societies. When patients received treatment from a dentist who complied with the prescribed conditions a proportion of the costs would be paid by the authority. Maude said the authorities should have power to provide dental clinics for the general population. He suggested the scheme should include all "proper and necessary treatment" of the kind which dentists usually undertake for their patients: examination and advice, radiographs, extractions, fillings, the administration of anaesthetics, crowns, the provision, repair and remodelling of dentures. An important principle was that the provision of a full range of treatment for younger people would encourage care at the most effective time. However Maude doubted if free treatment should include the provision of false teeth. He suggested that payment of up to half the cost would promote the reasonable care of dentures and encourage patients to seek fillings, reducing the demand for new false teeth. A subsequent committee chaired by Lord Teviot[31] strongly supported the inclusion of dentistry and discussed the manpower issues.

THE NHS GENERAL DENTAL SERVICES

On 5 July 1948 the NHS came into being and the general dental services were founded. It was to be available to everyone, free at the time of treatment and financed out of taxation. From the beginning dentists were paid on an items-of-service basis. It is very easy, over fifty years later, to deride that system. However we must not forget that in the early days it ensured that huge inroads were made into the very large backlog of need, especially for the treatment of caries and the provision of dentures.

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