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The teaching of Dental Public Health and its relation to Children's Dentistry

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MOST undergraduate curricula place their emphasis almost entirely on the diagnosis and treatment of individual dental patients, and pay little attention to public health aspects of dentistry. Because of this, there is a tendency for newly-qualified dental surgeons to enclose themselves between the four walls of their surgeries and give no thought to the dental problems that affect the population as a whole. They give an essential service to the public so far as treatment is concerned, but any lack of knowledge or interest in the wider concept of positive dental health demonstrates one of the limitations in dental education, which is a failure to develop a sense of responsibility to the community.

There is a gradual trend to correct this shortcoming in dental teaching. The Scottish universities of St. Andrew's and Edinburgh have for some years been increasing their activities in the field of public dental health. In England, new chairs and readerships have been created in such subjects as dental health, child dental health, and preventive dentistry. Articles in the dental literature have reflected a growing awareness of the necessity for shifting the student's viewpoint a little, so that he can stand back and observe the whole as well as take a close look at the part.

Greer Walker (1965) expressed this attitude as follows: 'If our dental schools could teach the clinical practice of dentistry as a collective dental health study rather than by clinical symptomatic techniques I believe the emphasis would change . . . to one of prevention and maintenance, where the accent is on the former rather than the latter.' R. O. Walker *et al.* (1965), in a comprehensive review of Dentistry in the United Kingdom, state: 'dental students must be made aware of the meaning of positive dental health and of its importance . . . some teaching in the principles of public health and the particular place of dental practice within it will become necessary with the expansion of public dental health services.' Slack (1966) has scrutinised the dental public health content of final dental examinations over the last ten years and noted that although there has been an increase in questions on this subject it is mostly due to the activities of the two Scottish universities mentioned before.

In 1965 the World Health Organisation issued a technical report on the organisation of dental public health services. Under the section headed 'undergraduate training' appear the following sentences, which admirably summarise the general thinking on the subject. 'There is an increasing awareness among dental educators of the need for additional emphasis on the social aspects of dentistry. . . . Educators are experimenting with curricula that will enable their graduates to be more responsive to the needs of society.' When the nature and extent of instruction in public health dentistry are considered it should be remembered that promoting this attitude is more important than merely teaching the relevant facts. It should be unnecessary to add that such public health teaching must be in addition to, not instead of, meticulous instruction in care of individual patients. The pendulum must not swing too far in one direction to the detriment of the other.

Undergraduate Instruction in Public Dental Health

The undergraduate curriculum is already crowded and the continuous process of improvement and discovery adds a little more each year. The suggestion that several new series of lectures should be inserted into the course is not likely to be a popular one with school administrators. However, no sweeping changes are necessary to improve undergraduate instruction in dental public health. In basic dental subjects the existing courses can be re-orientated, where necessary, to include public health considerations. For example, instruction in bacteriology should include the epidemiology and control of the major communicable diseases, and instruction in immunology could incorporate mention of public health methods and responsibilities. If public health is taught only as a separate subject it tends to become 'compartmentalised', and although there are specific areas where specialised teaching is desirable the overall concept should permeate all instruction. This view has been expressed in the World Health Organisation report (1965). After discussing the overlapping that inevitably occurs in the dental curriculum the author adds '. . . heads of

departments in public dental health should actively encourage the heads of other deparments to introduce the public health and preventive concept of dental practice in the teaching of their respective subjects.'

The same report lists suggested subjects that should be included in the undergraduate curriculum under the general heading of social dentistry. These are as follows: public health, ethics, jurisprudence, history, social and economic relations, psychology and human behaviour, biometrics, epidemiology, preventive dentistry, dental economics and practice administration, the social aspect of radiology, geronotology, hospital relations, chronic disease and rehabilitation, and health insurance. This is a comprehensive list, and in conjunction with the teaching in public health aspects of individual dental subjects it would give a considerable coverage of the subject. Some items might be considered more suitable for a postgraduate course.

Dental Public Health and Children's Dentistry

When special instruction in public dental health and preventive dentistry has been given to students it has often been undertaken by the departments of children's dentistry. Some consider that this department is best suited to develop the subject, at least until more ambitious changes are made in the traditional structure of dental schools, such as the establishment of departments of dental health. Critics of this arrangement say, quite correctly, that dental public health is not solely directed towards children. However, children's dentistry has considerable responsibility towards community dental care and this goes beyond the actual treatment of children.

There are three reasons for this:

First. One of the main objects of organised dental health programmes must be the prevention and control of the most prevalent dental problems, dental caries and periodontal disease. If dental caries is not controlled and treated during infancy, childhood, and adolescence there is a poor outlook indeed for the dental health of adults. Habits of diet and hygiene and attitudes towards dentistry formed during the early years of life are responsible for the extent of future dental care, both that practised by the individual and that sought from the professional. To this extent the children's dentist is responsible for the adult dentition.

Second. In the field of public health the dental health of children is the responsibility of the county chief dental officer. He and his staff, unlike most other members of the profession, examine unselected groups of children at school inspections, and are therefore very conscious of dental needs in the community. Even though a large proportion of children may elect to attend general practitioners for treatment, their overall dental state is as much his concern as their collective medical health is that of the medical officer. It is through the medical officer of health that the dental officer must approach the appropriate health or education committee, and through his personal contact he may influence, or fail to influence, all matters of dental concern in the community, whether they concern children or adults. Fluoridation of water is a case in point.

Third. An important feature of dental public health is dental epidemiology, which fulfills two functions; it informs health authorities of dental conditions and treatment requirements; and it is a research tool, investigating the prevalence of dental disease in the population to discover anomalies in its distribution and hence possible limiting or predisposing factors. An essential requisite of dental epidemiology is a large supply of dentally-unselected population groups, readily available for examination, and existing in comparable form all over the country—indeed, all over the world. The only source of such material is the school, and therefore the relationship between children's dentistry and epidemiology is a close one.

For the above reasons it has often been the teachers of children's dentistry who have developed the teaching in dental public health and epidemiology. It is not of course necessary that this should be so, and there have been notable exceptions. The present development seems to be to establish composite departments of dental health or preventive dentistry which embrace appropriate areas of clinical teaching, adults as well as children.

Special Instruction in Dental Public Health

It is necessary to state the subjects in which the undergraduate requires more specific instruction than can be provided just by a re-orientation of existing courses. Opinions vary considerably as to the content and scope of this particular instruction, and the method of teaching. There are possibly four main areas, each capable of considerable development and subdivision, and all overlapping to some extent:

(1) Public health.
(2) Social and preventive dentistry.
(3) Health education.
(4) Epidemiology and statistics.

(1) Public Health

The basic concept in this part of the instruction is the care of the community: the promotion of positive health and well-being by control of disease and by improvement of the human environment. Subject headings might include the history of public health measures; their development and organisation in Britain; and the present division of responsibilities between national government, local government, and other bodies.

On a more particular plane the special functions of local authority should be taught, with mention of housing, sanitation, hygiene, water and medical services. The organisation of the latter may be considered in more detail, together with standard methods for measuring the health and socio-economic status of populations.

This looks an extensive curriculum, but the level of instruction can be fairly superficial in an undergraduate course. Much of it is information that should be (and often is) possessed by an intelligent layman, let alone an active contributor to an important aspect of health. It serves to place dental practice in the context of overall social services.

The best teacher in this subject might be a medical officer of health or a chief dental officer, but this, and the method of instruction, depends on personalities and availability. A possible method might be to combine lecture-discussions with visits to suitable institutions such as waterworks, ante-natal clinics, schools etc.

(2) *Social and Preventive Dentistry*

This course may conveniently be divided into two parts; the problem, and its possible solutions.

In the first part the discussion covers the nature and magnitude of oral disease in the population, considered from several viewpoints, health, socio-economic aspects, and the provision of treatment. Most of this will probably be devoted to considerations of dental caries and periodontal disease, but other problems should be mentioned, including malocclusion, developmental anomalies, impacted wisdom teeth, oral cancers, and industrial hazards to the oral structures. The differences in prevalence of the main diseases between one community and another, and between different sections of the same community, should be discussed.

This introduction, which should be given early in the clinical course, serves several useful purposes. *First*, it gives factual information which cannot be found in a single textbook. *Second*, it introduces the principles of dental epidemiology, and *third* it can be used to underline factors in the ætiology of dental diseases.

Considerations of the problems caused by oral diseases in the population leads naturally into the consideration of methods to prevent or control them. The second part of this course contains all the well-known aspects of preventive dentistry; nutrition, dietary control, fluoride, the use of auxiliary personnel, oral hygiene, and so on. The detail depends on the content of courses in other departments. If each clinical department teaches its own preventive measures the individual techniques can be omitted and the emphasis will be on general principles of preventive dentistry and community measures to control dental disease.

(3) *Health Education*

Walker *et al.* (1965) stress the importance, not only of instilling the importance of dental health attitudes in the student, but also the techniques for disseminating information and guidance on the subject. This would have been mentioned in the preventive dentistry instruction, but it is important enough to merit specific attention in its own right. It can be taught in the form of lecture-demonstrations, and preferably not by a dentist. A high proportion of the success of preventive dentistry depends on the degree of personal co-operation that can be obtained from individual patients. The technique of personal and community instruction is a highly specialised one; dental knowledge must be wedded to the experience and persuasion of the advertising experts. The dentist himself is not usually the best judge of what interests (or repels) the public, and students should be warned against over-enthusiasm in this field without proper advice. The course would include elementary instruction in psychology, dental attitudes, the use of different educational media, the design of demonstrations, and the organisation of dental health campaigns. It is enough, in an undergraduate course, to teach the difference between an amateur and professional approach to the subject.

It is no use trying to induce preventive dentistry in the public if the dentist does not have a preventive outlook himself. At the individual level students should be taught practical preventive dentistry from the start of their clinical training, and each patient should receive education in dental health, possibly following the initial history-taking and treatment planning. Where possible this consultation should be away from the operating area. A dental surgeon who treats the lesions of a disease without attempting to control its incidence is again demonstrating the inadequacies of his degree course.

(4) *Epidemiology and Statistics*

The principles of epidemiology were introduced in earlier considerations of the dental problems of different communities or between groups in the same community. This subject should be developed and discussed in relation to current dental research, with more specific instruction in the techniques of sampling, the standardisation and reproducability of the examinations, the choice of diagnostic indices, and the collection and treatment of the data. Examples of research in this field include studies into the effect of fluoride and other trace elements, longitudinal investigations into the incidence of different dental conditions, and the conduct of clinical trials of therapeutic or prophylactic substances. The level of instruction at this undergraduate stage is again set rather at presenting an overall picture of the subject and its related problems than teaching every detail of procedure. Dentists are inclined to undertake prevalence surveys and clinical trials without adequate knowledge of the many pitfalls they will encounter, and their results may only be useful as a demonstration of faulty experimental technique leading to unjustified conclusions. Dental epidemiology is a sophisticated subject, requiring considerable experience.

Many of the scientific articles appearing in current literature have a statistical approach.

Without an elementary knowledge of this subject the reader is unable to evaluate the validity of the conclusions, and often even their meaning. For this reason instruction in elementary statistics should be included in an undergraduate course. Moreover, the study of statistics, even at the most elementary level, encourages clear thinking on scientific problems, and a more critical appraisal of the literature. The curriculum should include methods of sampling, the various types of distributions, the commonly-used parameters, probability, and the testing for significance. Some practical work is essential.

Dental students usually examine only patients who attend a dental hospital for treatment. This is a highly selected group and not at all representative of the population, and consequently the student receives a false impression of the general oral condition outside. It is sometimes possible to arrange for groups of students to overlook the dental examinations carried out by a member of staff for research purposes, or to attend at routine school inspections. Every effort should be made to take students outside their own clinical areas; ten minutes spent examining teeth of children in a fluoride area will make a greater impression than ten hours lecturing on the subject.

Conclusion

Improvement in the training of dental students in public dental health would benefit three groups of people; first, the public, who would obtain a better service; second, the public health authorities, who might be expected to recruit more graduates than at present; and third, the dental profession itself, which would improve its status as a promoter of health. The dental surgeon is often at a disadvantage in dealing with public medical authorities, who have been specifically trained in the community aspect of their subject. If the dentist is ignorant of standard public health organisation and procedures, unversed in the principles of epidemiology or statistics, with no appreciation of social problems, he will probably be unable to exercise the influence that he should in promoting dental health in his community, however excellent he may be in diagnosing and treating individual patients. Although some have acquired the necessary knowledge by experience they would be the first to admit their original deficiency in this respect.

The World Health Organisation Report previously quoted states that there is a responsibility for initiating society-oriented courses in the dental schools, to produce a more responsive and responsible dental profession. Several British university dental schools have accepted this responsibility, and it is to be hoped, in the interests of the profession, that others will follow.

SUMMARY

(1) The dentist tends by nature (almost by selection) to be an individualist. It is important to inculcate, during his training, a sense of responsibility to the community.

(2) Much of this can be achieved by a shift of emphasis in existing dental courses so that due attention is paid to public health as well as to individual patients.

(3) Specific instruction is also necessary in public health, social and preventive dentistry, dental health education, epidemiology and statistics.

(4) The improved education in these subjects will benefit the public, the health services and the dental profession itself.

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