

## Contemporary Themes

# The Pyramid Plan for Dental Care

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### Introduction

There is a world-wide shortage of dentists. In the United Kingdom the ratio of school dentists to school children is one to nearly 6,000,<sup>1</sup> and for the population as a whole the ratio of dentists to people is 1:4,347.<sup>2</sup> The dental needs of the people are not being met, and in this paper I propose a plan for dental care using the services of dental ancillaries which I think would improve the existing situation.

### Dental Recruitment

An expansion of training schools would be needed for an increase in the number of dentists. The British Dental Association<sup>3</sup> concluded, however, that as more places were provided in dental schools there would be difficulty in finding enough recruits to fill them.

There are, I believe, several reasons for this expected shortage of candidates. Firstly, the image of dentistry is far from glamorous and suffers in comparison with that of medicine. Secondly, and more important, the highly trained dentist spends a working life doing constant repetitive technical procedures. Almost certainly, most dentists in the National Health Service spend most of their time cutting cavities in teeth and inserting plastic filling material in the resultant holes. They no doubt feel that there is little connexion between their daily working procedures and the years they spent as students studying anatomy, physiology, biochemistry, pathology, pharmacology, medicine, and surgery.

This feeling is reinforced when they observe dental hygienists (who receive a minimum of nine months' training) scaling and cleaning teeth, applying topical fluorides, and giving oral hygiene instruction and dental auxiliaries with two years' training preparing cavities and inserting fillings in teeth of children aged up to 16 and also extracting deciduous teeth under local anaesthesia.

### Dental Ancillaries

Rather than recruit more dentists it might be better to increase the number of training establishments for ancillaries. It would be less expensive than training and employing fully qualified dental surgeons. The cost of employing a dental auxiliary (who needs equipment and surgery premises similar to that of a dental surgeon) has been estimated<sup>4</sup> to be about two-thirds that of employing a dentist, and that if existing dental accommoda-

tion can be used a dental hygienist can be maintained for 25% of the cost of a dental surgeon.<sup>5</sup>

Even though conditions may not be strictly comparable, it is enlightening to compare the level of treatment achieved in New Zealand, where dental auxiliaries have been in operation for many years, with Britain, where the mainstay of dental treatment has been dental surgeons working alone or with other dental surgeons. New Zealand has had dental auxiliaries (dental nurses) for almost 50 years in their school dental service.

The overall decayed, missing, and filled rate (D.M.F.) in the teeth of New Zealand school children has been shown<sup>6, 7</sup> to be typical of affluent western societies. The proportion of filled teeth among the decayed, missing, and filled was 72%. In Australia the proportion was 26%, and in the U.S.A. it was 23%. An investigation in 1955 of 1,740 school children in the U.K. showed a proportion of 13%.

In contrast, a proportion of 40% for 13-year-old school children in Dundee reflects to some extent the favourable position of dental care in that city.<sup>4</sup> In New Zealand 93% of school children receive regular dental care, whereas in the U.S.A. half the children have never seen a dentist.<sup>8</sup>

The only countries relying entirely on dental surgeons to provide dental care to school children that can match the New Zealand results are the Scandinavian ones; where in 1952 the proportion of filled teeth among the decayed, missing, and filled in school children aged 9-13 was 85%—a level of treatment even better than in New Zealand.

### Dental Pyramid

Authorities must strive to achieve the best results with the amount of the national income allocated for dental services—never enough to provide the ideal service. I believe a possible scheme would be to establish "dental pyramids" to provide services in centres of population concentration and small dental teams to serve areas of low population concentration.

Dental teams have been described as consisting of a dental surgeon, a dental hygienist, and a dental surgery assistant. More elaborate groupings of seven dental surgeons, five dental hygienists, seven dental surgery assistants, three charge (appointment) nurses, three receptionists, one central supply room clerk, and one business manager have been described,<sup>8</sup> and teams have also been defined<sup>9</sup> as groups of dental auxiliaries, dental hygienists, and dental technicians working under the supervision of dental surgeons.

### TECHNICIANS IN TEAM

The dental pyramid can be constructed by adding other types of dental ancillary to the team and instituting a hierarchical system for both ancillaries and dentists.

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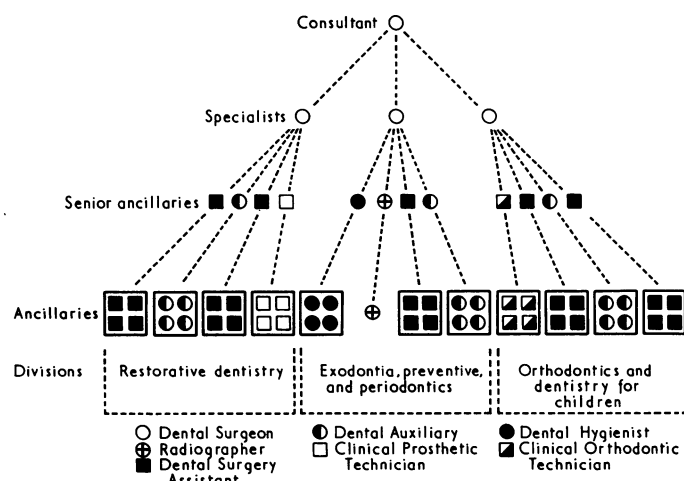
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The other types of ancillary include, prosthetic technicians who, with more training, could take impressions and fit artificial dentures under supervision. Prosthetic technicians work in the service in Tasmania, and certain classes of technicians in Denmark take impressions for dentures.<sup>9</sup> Dental technicians do limited clinical work in the Canton of Zurich; and in Alberta, Canada, dental technicians deal directly with the public and not exclusively through a dentist. The latter arrangement is not without its dangers. I believe that all dental auxiliaries should work under the supervision and clinical prescription of a dental surgeon.

Fish, Bates, and Nairn<sup>10</sup> state that "the extension to prosthetic dentistry of the services of clinically trained auxiliaries could permit more effective use of the unique conceptual skills of the dentist." I can see no reason why orthodontic technicians could not play a similar role under supervision in the treatment. An orthodontist could examine and prescribe for the child and the orthodontic technician could be trained to execute the clinical work as directed—certainly the simpler cases. It would be impracticable to extend this concept to include the conservation technicians.

#### STRUCTURE OF PYRAMID

The structure and distribution of responsibility in the dental pyramid is shown in the Figure. A dental surgeon would be responsible for the work of at least eight dental ancillary workers,



Proposed pyramidal staffing structure of team for dental care.

and consequently he would see, examine, and prescribe for eight times as many patients as before and exercise some supervision on the progress of the treatment plan.

This shift in emphasis from actually carrying out treatment to diagnosis and planning and supervising treatment would, I believe, give greater job satisfaction to the dentist. He would have to think more often about his patients' dental and general health, and would be able to prescribe the most appropriate treatment in each case without dislikes of certain types of treatment unconsciously intruding. Prosthetic technicians would certainly welcome contact with patients. Recruitment to both technical and professional staff would improve in such a scheme.

For simplification, the position of clerks, receptionists, storekeepers, etc., have been excluded from the description, but in a structure of this size the supporting staff would have to be reasonably intelligent and carefully selected. Similarly, I

have not discussed the lay-out of accommodation, surgery plans, or questions of shift work and maximum utilization of expensive equipment.

#### Future Trends in Dental Education

Whether possible future changes in the dental educational curriculum would be compatible with a pyramidal structure should be considered. Though dentistry was not considered by the Todd Committee, it became obvious that dental educators would have to decide whether to break away from the medical training proposed or to merge dental training at first with the training of a basic medical graduate and follow this with vocational training in dentistry.

Though not accepting the need to merge, Prophet<sup>11</sup> maintains that it would be foolish to try to make dentistry a profession completely separate from medicine. Hopper<sup>12</sup> asks whether treatment of a routine mechanical nature should not be carried out by ancillary workers as part of a dental team: if so, he thinks there is a strong case for dentists following the pattern outlined for medical education. The *British Dental Journal*<sup>13</sup> points out that dentistry could be at the parting of the ways, either going in a completely separate direction or else, if following a pattern similar to medicine, becoming a medical specialty. Dentists would be "stomatologists," as in some European countries. The General Dental Council has accepted the principle of vocational registration and responsibility for it.<sup>13</sup>

A dentist in a pyramidal structure would examine many more patients than under the existing system and therefore would see a wider range of oral pathology. In the future there will probably be more dental patients who are on systemic medication and more patients with generalized illness presenting for dental treatment. These considerations strengthen the argument for an identical initial training for medical and dental students. The argument, to my mind, is at least as powerful as it is in the case of training medical administrators.

#### Conclusion

The pyramidal structure of a team for dental care described would allow dentists to survey the needs of their particular community and to deploy their staff accordingly. This would increase their sense of commitment to the local population and, moreover, exercise their intellect to better advantage. Recruitment to the dental profession would, I believe, improve under the circumstances outlined. The utilization of ancillary workers would considerably increase productivity, as measured by dental disease treated and prevented.

#### References

- <sup>1</sup> *British Dental Journal*, 1968, 125, 39.
- <sup>2</sup> Secretary of State for Social Services, *British Dental Journal*, 1971, 131, 215.
- <sup>3</sup> *British Dental Journal Supplement*, 1968, 125, 9.
- <sup>4</sup> McHugh, W. D., *British Dental Journal*, 1966, 121, 428.
- <sup>5</sup> McKendrick, A. J. W., *British Dental Journal*, 1970, 128, 185.
- <sup>6</sup> Walsh, J., *New Zealand Dental Journal*, 1970, 66, 143.
- <sup>7</sup> Beck, D. J., Department of Health, *Special Report No. 29*. Wellington, Government Printer, 1968.
- <sup>8</sup> MacLean, H. R., *International Dental Journal*, 1971, 21, 245.
- <sup>9</sup> Kaim-Caudle, P. R., *Dental Services in Ireland*, Dublin, The Economic and Social Research Institute, 1969.
- <sup>10</sup> Fish, S. F., Bates, J. F., and Nairn, R. I., *British Dental Journal*, 1969, 127, 59.
- <sup>11</sup> Prophet, A. S., *Apex*, 1968, 3, 9.
- <sup>12</sup> Hopper, F. E., *British Dental Journal*, 1969, 127, 197.
- <sup>13</sup> Bradlaw, R., *British Dental Journal*, 1969, 127, 597.