

ORTHODONTICS AND WESTERN AUSTRALIA*

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McKinnon (1964) stated that Orthodontics was "at a vital stage of development in Australia and that to allow the specialty to develop by passive evolution was undesirable". Since that time, little has been done to guide our profession towards a more broadly based provision of services to the community. The "vital stage" has now become the "critical stage". Despite our procrastination, we can still determine a policy and a plan that should satisfy the critical eye that soon will be turned upon us.

Because in this country some degree of Federal control is inevitable, we must bend our efforts, indeed it is obligatory for us to do so, to ensure that a comprehensive scheme placing the community interest first will prove acceptable to all concerned. If we cannot guide our future, who can, or rather who will?

How are such statements related to Orthodontics in Western Australia? We in Western Australia are an isolated but not compact community and our situation may well reflect Australia in miniature. If this is so, then the path we are taking with its future implications may well serve as a pattern for the country as a whole and of course that should be of interest to you.

GEOGRAPHICAL

The western third of the continent forms the State of Western Australia. Covering almost one million square miles, the area must be considered to be divided into the Perth Metropolitan area and the rest of the State. Although the Metropolitan area and environs covers only 2000 square miles, it contains 740,000 people while the rest of the 974,000 square miles contains only 330,000. This means that more than two thirds of the one million people live in Perth and this fact must constantly be borne in mind.

HISTORICAL

The first orthodontist in Western Australia commenced practising in Perth in 1946 and was soon joined by another when the population of Western Australia was half a million, 300,000 being in Perth. (Both of these men are still practising). However, times and circumstances were different, the war was over, dental education was minimal, the average weekly earnings were \$12 and the struggle for personal and social betterment was about to begin. Even the concept of the National Health Scheme in Britain was little more than a Socialist theory. In those early years the fee for full fixed appliances was approximately \$60 or five times the weekly wage and it is interesting to note that today the fee for full banding is about \$500 and the weekly earnings \$111, so the same ratio of five times the weekly wage still exists and I shall refer to this later.

PRESENT SITUATION

In Perth there are 400 dentists (Register of Dentists, 1974) or 1 to every 1900 of the population and this is satisfactory, but in the country areas there are 50 dentists or 1 to every 6,500 of the population and this is clearly unsatisfactory.

The orthodontic situation is perhaps worse with 13 productive orthodontists working full time, nine in private practice and four working in the Dental Hospital and Clinics. Only one of these works in the country, at Bunbury 100 miles south of Perth, although monthly visits are made to Albany, Kalgoorlie and Geraldton.

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At the moment there are 305,000 children and adolescents between 5 and 19 years, with 200,000 in the city area alone, or one orthodontist to every 23,000 children. Estimates vary but it seems reasonable to presume that 25 per cent of these would require complex orthodontic treatment which means that each orthodontist would have to treat 6000 patients. A recent survey made by the author has shown that in fact each orthodontist commences treating about 200 patients per year of which 115 have fixed appliances. The difference between the need and the supply of treatment is obvious. In addition, the difference between need and demand is closing rapidly.

THE PROBLEM

How does one answer such daunting problems? In planning to meet the future, the real need must be assessed first and this is not found in those figures previously quoted but in the fact that in Western Australia there are 22,000 babies born each year and this number is increasing. Gains due to immigration are not known. Therefore, future projections indicate that each year 5,500 children (25 per cent of children born) will require fixed appliances and with each orthodontist treating 120 cases we shall require 46 orthodontists. It is realized that not every parent or child wishes to have treatment, but in future most may, so that these figures are relevant. The problem is to deal with a situation in which all children of orthodontic age will receive dental treatment funded by the Government. Seventy five dental therapists per year are graduated by the two Dental Therapy Schools in Western Australia. These are being placed in dental clinics being built in the schools so that by 1980 all primary school children will be catered for. A start will then be made on the secondary schools. Parents have been promised that dental treatment for their children will be provided free of charge and they believe that this includes orthodontic treatment. At the moment this is not so, but it is only a matter of time before pressure will mount, as in New Zealand, until it is included in an overall Government scheme whereby school children will be treated within a reasonable distance of their schools. How can this be effected and yet satisfy the demands of the three parties concerned, namely, the Government, the public and the orthodontists? It should be noted that most schemes have foundered on the rock of irreconcilability between these three conflicting groups. The aims and objectives of each group are different. The Government (i.e. the politicians) desire as many as possible, to be treated as cheaply as possible, irrespective of the standard of work. The public expect the highest possible standards at no cost to themselves other than through taxation. The orthodontists wish to be able to practise at the highest standard and be well rewarded for their training, skill and efforts.

A possible solution to the problem may come from (a) the education and training of personnel and (b) the effective utilization of such personnel.

Training programmes should be aimed at four different types of personnel.

- (a) Ancillary staff (the orthodontic nurse or auxiliary, dental radiographer and dental technician).
- (b) Undergraduates.
- (c) General Dental Practitioners. (Post-graduate training).
- (d) Orthodontists. (Graduate training).

ANCILLARY STAFF

Like all branches of dentistry, orthodontics is becoming more dependent upon ancillary assistance so that it is necessary for the orthodontists themselves to establish a sound training organisation for these people. The editor of the New Zealand Dental Journal (Brown, 1973) discussing that the new Government had promised free orthodontic treatment for all up to 18 years, bemoaned the fact that there was not only an insufficient number of orthodontists but also a dearth of trained technicians to allow implementation of such a scheme. This highlights the need for such personnel to be trained now in properly organized courses so that orthodontists shall have at least the framework for expansion of training when the time comes. Although this area is extremely important, consideration shall only be given to the following three members of the team.

ORTHODONTIC NURSE OR AUXILIARY

Recognising the need for specialized chairside assistance, an advanced course in orthodontic assistance, for selected staff nurses, was established in the Orthodontic Department of the Perth Dental Hospital a few years ago. This is a six month course and covers all aspects of clinical work so that four-handed orthodontics becomes possible. Following various projects and examinations, the successful nurses gain a special certificate of orthodontic nursing for which a higher wage margin is paid. It is this type of training that will be expanded in future if it is required, and may well include Dental Therapists who wish to become orthodontic auxiliaries.

DENTAL RADIOGRAPHER

As with the orthodontic nurse, so staff nurse radiographers are being trained for six months in dental radiography and their course must contain an orthodontic element so that they are capable of taking whatever radiographs are required, particularly cephalometric films. Training girls such as these to produce tracings of a high standard is another useful innovation.

DENTAL TECHNICIAN

If the orthodontists require well trained technicians, then they must train them themselves and I do not necessarily mean in their own practices. A good technician is invaluable and in recognition of this fact, the Western Australian Branch of the Australian Society of Orthodontists has established a one year course in orthodontic laboratory techniques for qualified technicians in one of the Technical Colleges in Perth. In 1971 three orthodontists and a skilled technician met weekly for a year and taught the technicians the fabrication of a vast array of orthodontic appliances, supplemented by appropriate lectures. Although the course was limited to 12, 17 technicians applied and 10 were successful in completing the course and examinations, following which they received a certificate. This qualified them as advanced technicians and the Arbitration Court has awarded them a margin for skill above the award rate. And that is how it should be. It should be added here that the Technicians and the Australian Dental Association have requested the Australian Society of Orthodontists to conduct another such course in 1975 and this will be done. The worth of the course has been recognized and we are proud of the fact that this course is the only one of its kind in the world.

UNDERGRADUATE TRAINING

The introduction of new orthodontic clinical facilities in conjunction with a new dental curriculum presents an ideal opportunity to implement a sound orthodontic undergraduate course. For some unknown reason, many orthodontists, like so many dentists, particularly teaching staff, are not interested in orthodontics at this level. As Cheney (1959) said, "There are no teachers, there is no time, no interest, no money, no understanding and no ability of the dental student to grasp orthodontic problems". Despite these difficulties, the highest priority of any orthodontic department must always be given to undergraduate teaching.

The objectives of this were clearly stated in the Report of the Committee on Education of the American Association of Orthodontists (1951) when it suggested that instruction should teach the undergraduate to:

1. Anticipate and detect malocclusions.
2. Take steps to prevent or intercept malocclusion where possible.
3. Treat simple cases or the simple immediate problems of complex cases.
4. Use this knowledge as an adjunct to procedures in all other phases of dental practice.
5. Know what cases to avoid and refer to more experienced men in the field.

The author agrees but would add that some teaching must be related to dental practice as it will develop in this country in succeeding years. Orthodontic education must be constant, like the dripping of water, over the final three years of the undergraduate course. The proposals for third year

in Western Australia are essentially to teach growth and development, occlusion and the fundamentals upon which orthodontic knowledge is based and upon which treatment depends. A technique course in removable appliances, extra-oral traction and lingual arches would form a foundation for clinical participation in the following year. In the fourth year orthodontic lectures would be reinforced by an introduction to clinical practice with a strong emphasis on examining, diagnosing, analysing and understanding the complexities of developmental changes in the growing child, so that aetiology of malocclusion can be understood. Treatment of patients with the accent on prevention and guidance of the developing occlusion would be carried into the final year up to graduation. It is essential to have the students thinking orthodontically when they leave the Dental School. This type of programme would include a useful innovation which I have plagiarized from the curriculum of the University of Michigan (Cheney, 1959) where a Patient Observation Programme enabled each student to observe a specific child over at least a three year period. Such an event would also facilitate integration with other branches of dentistry, particularly pedodontics.

GENERAL DENTAL PRACTITIONERS (Post-graduate training)

The position of the General Dental Practitioner is in a state of flux. It is highly probable that within a decade his practice will be largely devoid of children and adolescents. Why then teach him any orthodontics? If my conjecture is correct, then children will have their operative work done by dental therapists in school clinics but diagnosed and supervised by dentists and it would be these dentists who would require post-graduate instruction as an extension of their undergraduate course. You may well ask, "Should malocclusion and skeletal deformity become the province of the general dentist or should it be left to the expert?" Anderson (1959) rephrased this by asking, "Can it be left entirely to the orthodontists?" Of course, at the moment, it cannot, and there will probably always be a place for the general dentist in the provision of orthodontic services.

With this in mind, the Postgraduate Dental Education Committee of the University of Western Australia has attempted to ascertain just what the General Dental Practitioner would like to know and what are the major problems that confront him daily in his practice. This was done in two ways: Firstly, the problems of the cases that were sent to Perth for consultation from the outlying parts were recorded. Secondly, a comprehensive questionnaire was sent to all country practitioners asking pertinent questions regarding their orthodontic requirements. These proved very informative and as a result, last month, three members of the Australian Society of Orthodontists devised an intensive two-day course which they delivered in the town of Narrogin, 150 miles from Perth. Here country practitioners, and it was restricted to those practising outside Perth, were given lectures and demonstrations, and undertook practical exercises and clinical examinations. When more facilities become available, short and long clinical courses will be given continuously within the Dental School in order that dentists may gain a sound understanding of orthodontic principles, be able to recognise needs and deal with them adequately.

ORTHODONTISTS (Graduate training)

The provision, within two years, of a new building on the present site in Perth, will enable the Dental School to occupy clinical facilities that will allow the implementation of a new Graduate course. This will be an intensive course of at least two years and should fulfil the most exacting requirements. Looking even further ahead, the recent Faculty decision to proceed with plans to build a new Dental School on the University campus adjacent to the new Medical School, will enable this orthodontic course to be modified, improved and implemented in an academic environment that is difficult to attain whilst attached to a Dental Hospital.

Space does not allow the presentation of details of this course, but several ideas on clinical orthodontic technique will be outlined from a didactic point of view. Firstly, in two years of training, indoctrination in any system is never sufficient to allow a student to master that system, nor I hope is such a technique so dogmatically taught as to preclude change or progressive thought. However, from a practical point of view, it is wise to emphasise one particular treatment method and simultaneously

familiarize the candidate with other common techniques. The selection of a particular form of treatment must inevitably be subjective as it depends on the lecturer as well as the environment. My own belief is that a light wire edgewise type of appliance, using round wire initially, probably has the most universal application and I hope, produces a broadminded orthodontist. Anchorage conservation and control is an essential principle that must be emphasized and with this in mind, the graduate should be taught to use extra-oral traction to prevent loss of anchorage. As he becomes more experienced he will possibly require headgear less. The student should appreciate that patient co-operation is often not ideal as far as wearing headgear is concerned so that he must utilize intra-oral anchorage to the maximum. This will mean that he should learn the advantages of banding second molars, of using palatal arches and rectangular archwires so that he will be able to exercise the ultimate in tooth control. What he does when he leaves the Dental School will be his decision but I should hope that that decision will be conditioned by his initial teaching and based on sound principles.

THE FUTURE

It is impossible to discuss education of the orthodontist without considering his role in the future health pattern of the nation. It is a salutary thought that our present graduate orthodontists will be practising at their peak beyond the year 2000. How will their services be utilized for the benefit of the community in a society that is continually demanding more and more? In a State like Western Australia and indeed throughout Australia, the answer to the problem is twofold, one solution for the city and one for the country areas. In the metropolitan regions, if we do nothing, the Public Health Departments or their equivalents will undoubtedly appoint salaried consultant orthodontists on a regional basis, installing them in clinics attached to Health centres so that children can be referred by the proximal dentists who are supervising the Dental Therapists. Some Health Departments are already thinking along these lines, so unless we grasp the nettle, we shall witness the decline and fall of private practice as we know it. As Halliday (1974) recently pointed out in reference to a consultant service, the efficiency in terms of practical orthodontic production is exceptionally poor and some of you, at least, will agree that a scheme whereby the orthodontist is paid on a fee for service basis would be much more productive and satisfying. The Australian Society of Orthodontists should urgently consider setting up a committee to devise a plan that would be acceptable to the Government, fulfil the hopes of the public and allay the fears of our profession. If this could be achieved, and I feel confident that it could, then the private practitioner could move into the areas that otherwise would be filled by salaried staff. The one somewhat unpalatable pill that would have to be swallowed would be the acceptance of a schedule of fees, but there is no reason why such a scale could not be based on the economic foundations of the nation as a whole. A fee schedule is necessary because it is fatuous naivety to believe that any responsible Government would consider a scheme, involving children, where the orthodontist could charge his own fees, no matter how usual, customary or reasonable he may think they are. Following is an outline of the structure of a possible National Orthodontic Scheme. The ideas, like those of Cullinan et al (1973), have been based on the operations of schemes in other countries.

NATIONAL ORTHODONTIC SCHEME

Firstly, it would be necessary to establish a Government Agency to which an examination and diagnosis form, setting out the proposed treatment, would be submitted. This does not imply that prior approval would be required but it would always be the prerogative of the Agency to inspect the patient or models at any time before or during treatment. An initial payment, 25 per cent of the full fee, would be made immediately treatment commenced with subsequent interim payments every six months, culminating in a final payment of 25 per cent when the case is completed.

The foundation of all fees would be the average weekly earnings of the adult male (reviewed annually) and the basic orthodontic fee would be that for full fixed appliances, this always being a multiple of the average weekly earnings. In Western Australia, as indicated earlier, this multiple has

always been approximately five. The rest of the scale would show the fees as proportional to the adult male weekly earning capacity (Table 1). This basis is fairer to everyone than one using the

Table 1. Example of Scale of Fees in Western Australia (1974)

Treatment	Fee (\$)
Full fixed appliances	550–5 times adult male wage
One arch	275–50% of full fixed fee
5–9 bands	137–25% of full fixed fee
1–4 bands	68–12½% of full fixed fee
Extra-oral traction, chinstrap, lingual arch, etc.	82–15% of full fixed fee
Removable appliance	55–10% of full fixed fee

Consumer Price Index or the Gross Domestic Product as it depends on the capacity of the community to pay and follows in the wake of inflationary demands rather than contributing to them. It is also important to stress that we are not selling appliances and theoretically the fee should be tied to the type and complexity of the malocclusion. However, as malocclusion indices are questionable, one must be realistic and practical, hence the suggestion that fees be related to treatment actually given.

Another point that should be made is the necessity for the patient to contribute, at least a nominal sum, towards payment for his treatment. A flat rate of 5 per cent of the full fixed appliance fee, which amounts to the first \$25 of any treatment is suggested. Conversely the Government contribution could be increased according to the complexity of the case, as in Norway. (Table 2).

Table 2. Example of Proportionate Contributions

Fee (\$)	Patient Pays	Govt. Pays
25	100%	
50	50%	50%
100	25%	75%
200	12½%	87½%
300	8½%	91½%
400	6¼%	93¾%
500	5%	95%

So much for a National Orthodontic Scheme which admittedly is abstract, perhaps even abstruse and unrealistic, but hopefully provocative; but the message is clear – do nothing and others will plan the future of orthodontics for us!

COUNTRY AREAS

In such a sparsely populated area as Western Australia, any form of private practice outside Perth, without heavy subsidization, would be impossible. The only workable solution appears to be a salaried consultant – clinician service working on a regional basis. Of course orthodontists might not wish to work in Paraburdoo or Kununurra unless the remuneration and conditions of service were sufficiently attractive. And that would have to be the key. They would work in association with not only the few private practitioners but more particularly the Public Health clinics already set up in the country. Financial assistance for children who would have to travel would be necessary. The plan would not be difficult to establish, but it would be expensive.

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New Zealand Orthodontic Conference, 1975

The 1975 Conference of the New Zealand Orthodontic Society will be held in Queenstown from July 28-31, 1975 at the Trans Hotel. Lecturers at the Conference will include

Professor J.R.E. Mills	Head, Orthodontic Department, Eastman Dental Hospital, London.
Dr. J. Ackerman	Chairman, Department of Orthodontics, University of Pennsylvania.
Dr. C.F. Gugino	Buffalo, New York.
Dr. G.I. Brown	Adelaide, Australia.
Dr. W.J. Mackie	Sydney, Australia.

These lecturers will be supported by invited lecturers from New Zealand.

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