

THE ECONOMICS OF THE BEGG TECHNIQUE

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The only available guide to the economics of orthodontics in Australia is the A.S.O. Survey, published in June, 1968. This showed that in a 45 week working year the orthodontist worked 30.5 hours at the chairside, out of a 42.5 hour working week. The published average gross figures showed a return of approximately 15% over the general dental working rate, a margin which could probably be considered fair and reasonable.

Figures returned in the questionnaire on which the survey is based, showing hours worked, days off and gross returns can be considered accurate, for every operator is strongly aware of his working hours; his holidays are marked in his appointment book and gross returns written on an income tax schedule. The analysis, however, of other figures in the survey, reveal marked anomalies, throwing them open to question.

The average orthodontist commenced 9 new full upper and lower banding cases per month, together with 2 single arch treatments, 5 removables and 2 headgears; a total of 18 new patients per month. If we consider for the purposes of this article only the full upper and lower banding patients: then if an operator continued for two years to commence 108 full upper and lower banding cases, on the assumption that each full upper and lower banding patient is under treatment for two years, he would, at the end of the two year period, be handling 216 fixed appliance patients per year. When this is related to the average maximum fee as shown on the survey — and full upper and lower banding cases would be the patients commanding a maximum fee — then the gross income would be very markedly in excess of what it actually is on the gross figures as returned in the survey. If it is assumed that at most no more than 80% of the orthodontist's chairside time would be involved in treating full fixed appliance cases, then he would be treating these 216 cases over and above removable single arch treatments, headgears, etc. and the gross income would, on these figures, for average new patients commenced, at the end of a two year period, become even more in excess of what the survey shows. In addition, the work load would be, in all probability, far more than the average orthodontist could hope to carry successfully. It

would also indicate that an average of twelve hours' chairside time is spent on each full upper and lower banding, providing that the orthodontist spends the whole of his 30.5 hours a week treating full upper and lower banding. If he spends 80% of this time, then in actual fact he would only be spending 10 hours on each full upper and lower banding patient.

In view of the accuracy of the gross income figure which must be correct for taxation purposes, then there would appear to be errors in the other figures: e.g. the assessment of the number of patients commenced per week; or fees charged are considerably lower than those stated in the survey. On the other hand, it is difficult not to accept that the figures given are correct and it was therefore deduced that other less obvious factors must be brought into consideration.

The writer found himself unable to reach any definite conclusions from these figures, except that they are anomalous and can only arrive at opinions and deductions which may or may not be correct. The most probable answer coming to mind is that when an orthodontist reaches a point of consistently banding up 9 patients a month, in a very short period of time he has to engage a partner or an assistant which immediately reduces his work load and halves his income which would bring the figures back to the undeniably correct ones of gross income and hourly rate.

This analysis, or rather inability to reconcile the figures resulting from analysis of the survey, led the writer to carry out a time study in his own practice. For a period of one month, the time taken for every single item of activity was noted down, but for the purpose of this article, only full banding has been considered.

In the writer's practice there are three orthodontists working, all of different temperament and with slightly different methods of working, but all have done a post-graduate Begg course and the practice is basically a Begg practice where none other than ribbon arch brackets are used. .016" arches are standard equipment except during third stage when usually .020" arches are used.

Full banding patients have an appointment made for separation. At this appointment two of the three operators prefer to select bands in order that brackets can be placed and buccal tubes ready for the banding appointment when the patient returns in a week. The third operator simply places separation at the first appointment, selects and cements bands at the second appointment. The average appointment for separation and selecting of bands occupies some 30 minutes, assuming that brackets and molar tubing are welded or soldered by a chairside assistant, who for the benefit of this article, will be referred to as a nurse. Bands having been selected and fitted, ten minutes are then spent carrying out a thorough cleaning with stannous fluoride paste to polish the surfaces of the teeth and remove any debris. The nurse takes approximately 5 to 6 minutes to mix the cement for full upper and lower banding. The operator takes 5 minutes to seat the bands. The removing of cement and cleaning up of the teeth afterwards, takes approximately 10 minutes. The bending and fitting of arches averages out at 25 to 30 minutes. Then when time is allowed for annealing the ends of the arches, turning them over carefully after they have been pinned in, this extends to a very full 35 minutes. 10 minutes is then involved in carefully explaining to the patient how to brush the teeth, giving instructions on what he can eat and how to wear elastics. The patient is given wax to put over any sharp points and shown how to use it.

The patient is brought back two days later to check whether or not any part of the appliance is causing discomfort or ulceration of the soft tissues. This appointment, even though there may be nothing to do, involves bringing the patient into the surgery, sitting him down and having a quick discussion with him to see if anything is worrying him, checking that he is wearing his elastics correctly, brushing his teeth correctly and is generally happy! The patient is then sent away for six weeks.

Up to this point, how much time has been spent? 35 minutes fitting bands, 5 minutes cementing, 10 minutes cleaning up, 35 minutes for setting up arches, 10 minutes instruction thereafter, and 10 minutes when they are brought back two days after banding, a total of 105 minutes.

It has been found in the practice that the average time taken to remove and adjust an arch varies from 15 to 20 minutes for two arches, a single arch works out at 10 minutes. This includes the time to unpin the old arch, remove and reset it, adjust and repin it in position. If, therefore, it is considered that the average Begg treatment involves three adjustments of each arch, between initial placement of arches and the setting up of third stage, the time involved would be 1 hour, allowing 10 minutes for the adjustment of each arch. The total time now spent is 165 minutes.

If prior to third stage an arch is broken and has to be replaced, it has been found that 20 minutes are taken by the time the old arch has been removed, a new arch bent and pinned into place. If two arches are broken between putting bands on and reaching third stage, then a further 40 minutes can be added to the time for adjustments — 205 minutes.

The setting up of the third stage, including the placement of new heavy arches, occupies anything from 60 to 80 minutes of concentrated work and it is felt that although some third stages do come down to 40 minutes, the average third stage works out at 65 minutes where full torquing arches are used, with uprighting springs on all teeth and new heavy arches having been bent — 270 minutes.

It is found in this practice that the average patient is in third stage for some four to eight months. If, during that time it becomes necessary to replace an arch, then a full 40 minutes is involved in resetting that arch with uprighters, for a considerable amount of time is involved in removing the old arch when it is complete with uprighters ligatured on to the arch wire. So that if one such adjustment should occur during third stage, then a further 40 minutes will have to be added to the treatment time, making a total of 310 minutes.

Removal of bands takes approximately five minutes and cleaning, scaling off of cement from teeth, 10 minutes; taking of impressions for study models another 10 minutes. If a removable appliance is fitted in the upper arch, this takes approximately 15 minutes to fit adequately, although this time can be as low as 5 minutes and as high as 25, 15 minutes represents a fair average. A further 25 minutes is needed if a fixed lower 3 to 3 retaining appliance is inserted. If, however, a lower lingual is not used, we now have a total of 350 minutes.

Each adjustment of a retaining plate involves about 10 minutes and if these retainers are adjusted four times in twelve months following the removal of bands, a further 40 minutes are involved; this is a total of 6 hours and 30 minutes. If again it is allowed that 80% of chairside time is devoted to full upper and lower banding cases, then on these figures one operator could handle 336 full banding cases per year. However, since the retention period has been included in these figures, the time of 6 hours 30 minutes would be actually spread over three years and in that case an orthodontist theoretically could handle over 400 patients under treatment with full banding per year. In actual fact, however, the number of patients under full banding treatment in the practice per operator is less than 40% of this figure. We are thus left with a similar anomaly to that produced by an analysis of the orthodontic survey.

In order to ascertain why there is such a great discrepancy between the number of patients who

could theoretically be handled with full fixed appliances in the practice and the very much lower figure of patients who actually are treated, the time study was re-analysed. At a majority of appointments the time spent on adjusting the appliance was much shorter than the time that the patient actually sat in the operating chair. This lost time was being absorbed by such things as:— unanticipated discussions with parents, remonstrating with a patient regarding not wearing elastics or cleaning his teeth, and re-instructing him; telephone discussions with a referring dentist, taking check x-rays, etc. Now in a non-mechanical profession such as law or accountancy, such discussions are charged for and therefore in orthodontics the mechanical treatment fee must embrace these non mechanical activities.

The records of previously treated patients were then analysed. The conclusions reached are as follows:— From past records it was apparent that only a very small percentage of patients went through their treatment according to the timetable set out for each individual step in the treatment course. In very few patients were all the steps in the course of treatment put together to give the ideal version that has just been outlined. Some 20% of patients were perpetual wreckers, at every appointment bands were loose or an arch broken. Up to 60% did not wear their elastics consistently throughout treatment time. In at least 50% of patients, at some stage in the treatment something went amiss, a molar rolled lingually or buccally, a twelve year old molar erupted into buccal occlusion or the patient's oral hygiene was so poor as to necessitate stopping treatment and recommencing. Quite a percentage of patients had to have anterior bands removed so that they could be a bridesmaid or go for an air trip to Europe and then have the bands replaced. A high percentage broke retaining plates which had to be remade. A high percentage had to have retaining plates remade so that they could be adjusted to carry out some minor alteration in the final positioning of the teeth. In other words, human factors, as applied to the patient, operator and parent, did not often permit of treatment going through smoothly to a conclusion, as it undoubtedly could. The human factor with regards the parent often slows down and prolongs orthodontic treatment. The resistance of parents to having children removed from school to attend the orthodontist with the resultant before and after school rush, puts the orthodontist under a strain, whereby he cannot carry out the readjustments necessary when they should be done. In the Begg treatment, as with any other orthodontic technique, the instant that a tooth is moving where it is not meant to be, action must be taken to remedy this. Where such a situation is encountered in the middle of an after school rush, the orthodontist has the alternative of either working himself and his staff beyond the hours which

could be reasonably expected and having other patients suffer, or alternatively, having to bring the patient back, during school hours, as soon as possible.

The human factor, as it applies to the operator, as in, say, medicine, where a doctor may be able to command a certain fee for some items of his work which he can under ideal conditions carry out in a very short period of time — making his fee superficially an excessive one — under average conditions he may take two or three times as long to perform the task; applies similarly with the orthodontist. This applies more to orthodontics than to general dental practice, for orthodontics is carried out over a period of several years on the same patient, and on the sheer law of averages, the likelihood of delicate appliances placed in an area of enormous physical stress being damaged, becomes higher as each month passes. Orthodontic appliances sitting in a patient's mouth for 20 months to two years are far more susceptible to damage and treatment to interruption than is a short operation such as restoring a tooth, which can be completed at one appointment without any interruption. The duration of treatment of necessity involves far more contact at a conversational level between parent, patient and operator than does general practice.

Orthodontists because of their involvement with referring practitioners of necessity become more involved with professional colleagues and this inevitably absorbs some working time; more so than usually occurs in general practice.

The time study showed a remarkable amount of time being spent on explaining or discussing treatment with patient or parent after treatment has commenced. A wise operator tries to keep this talking to a minimum but if adequate explanation is not given to dentist, parent and child at the appropriate time, public relations will suffer and the practice will suffer. The resentment of the public towards "clinic type" group medical practice can be offered in support of this. It has also been the writer's personal experience.

It was found from our past records that in actual fact, despite the ideal time in which Begg treatment can undoubtedly be carried out on full banding patients, treatment time does in fact work out at something like 15 hours for full upper and lower banding, when all the hidden time involved is added up. IN OTHER WORDS, THE TIME SPENT AT THE CHAIRSIDE ON PURELY MECHANICAL WORK IS PROBABLY FAR LESS THAN 30.5 HOURS PER WEEK.

All of the factors above must be fully taken into account when discussing the economics of orthodontics. It must also be borne in mind that many operators practise the edgewise technique where probably treatment time is in the vicinity

of 25 or more hours of chairside time. Fee structures must embrace all techniques and give everyone a fair and reasonable reward for his labours.

Orthodontists like all other professional men with many years of training behind them face a future of increasing difficulty from the economic standpoint. Due to the income tax framework based largely on a pre-World War II table of tax assessment, the lifting of nett income is becoming yearly more difficult. In contrast the average weekly earnings of the population are rising at an unprecedented rate, so that every month the gap between the earning power of the unskilled worker and the skilled professional is closing. Hence although the orthodontist's first duty is to increase his skill in treating his patient, the profession needs to make a careful assessment of

its future economic position in order to assure a continued reasonable return for the orthodontist's skill.

We must consider all the factors described above and when assessing present fees, we must not be carried away by the speed with which some isolated factor of treatment can be carried out under ideal conditions.

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