Dentist, Dr C

A Report by the

Health and Disability Commissioner

(Case 01HDC00048)

Parties involved

Mr B	Consumer
Mrs A	Complainant / Consumer's mother
Dr C	Provider / Dentist
Dr D	Orthodontist

Expert advice was obtained from Dr Peter Dysart, an independent orthodontist, and Dr Karl Lyons, an independent prosthodontist.

Complaint

On 22 December 2000 the Commissioner received a complaint from Mrs A about the treatment her son, Mr B, received from dentist Dr C. The complaint is that:

- *In June 1999 Dr C removed Mr B's lower number 7 molars as part of an orthodontic treatment plan. These extractions were clinically inappropriate, unnecessary and will cause future orthodontic treatment to be difficult and a very poor compromise.*

An investigation was commenced on 2 March 2001.

Information reviewed

- Relevant dental and orthodontic records, x-rays and tooth moulds.

Information gathered during investigation

On 11 February 1997 13-year-old Mr B first consulted dentist Dr C for routine dental care. Dr C is a cosmetic and restorative dental surgeon in private practice, qualified with a BDS, and is also a member of the Australian Orthodontic Society. Dr C advised that he is not an orthodontist, but includes orthodontics among the treatments that he offers. He attended a number of orthodontic courses over the five or six years preceding this complaint.

There is a difference of opinion and approach between functional orthodontists and specialist orthodontists. Specialist orthodontists are qualified specialists in their field, and although functional orthodontists may have received training in addition to their basic degree, it is not equivalent to the three years' post-graduate training of a specialist orthodontist.

In his response to this investigation, Dr C explained his understanding of the two "major philosophical schools of thought" on dealing with malocclusions (a malposition of the teeth resulting in a faulty meeting of the teeth or jaws). The first school of thought (adhered to by the "pure" orthodontic movement) promotes the repositioning and alignment of teeth through bone, and uses braces to fit the teeth into the jaw. This may necessitate extracting some teeth so that there is adequate room in the jaw for the remaining teeth. The teeth extracted are usually the first or second premolars.

The second school of thought holds that the reason orthopaedic malalignment and dental overcrowding exists is due to improper muscle function inhibiting the jaw's growth and development. Treatment aims to change muscle behaviour and the direction of forces that they impart to the teeth and basal bone, thereby changing the bone shape back to a normal size and alignment. Dr C explained that although both approaches use tooth extractions to facilitate the end result, the teeth to be removed are chosen for very different reasons, and this can result in conflict between the two approaches.

During a routine dental consultation on 19 March 1998 Dr C discussed Mr B's orthodontic problems with Mrs A. Another appointment was made so that orthodontic assessment and treatment could begin.

On 30 March 1998 Dr C made study models of Mr B's teeth, and drew up a treatment plan. Dr C's assessment notes record:

> "… [Mr B] has a CI I skeletal (slight CI II) div 2 malocclusion, lost arch length in lower quadrants with loss of vertical dimension. Upper maxillary entrapment of mandible causing slight CI II and deep overbite.
>
> Treatment Plan
>
> 1 Maxillary expansion to allow mandiblar entrapment to be released.
>
> 2 Regain arch length loss on lowers, and expansion plates to relieve crowding of lower anteriors.
>
> 3 Fixed appliances, richonator or twin block to correct remaining vertical discrepancies."

The Treatment Plan and Financial Agreement signed by Mrs A on 9 April 1998 summarised the proposed treatment (as above), specified consent for x-rays and photographs and their use for research and teaching, and discussed financial considerations. It then stated:

> "… Treatment will be discontinued without refund for lack of patient co-operation, failure to follow the treatment plan, or non payment of the agreed fee.
>
> Treating younger children with removable appliances is a partnership. It takes patient compliance to achieve the desired result. Some appliances are more difficult to wear than others. They have to want an improved dentition in order for this type of orthodontics to succeed.

…

> I understand that [Dr C] is not a Registered Specialist ie Orthodontist, as detailed under section 21 of the 1998 Dental Act. I am also fully aware that [Dr C] is a General Dental Surgeon with a clinical interest in orthodontics and cosmetic surgery.
>
> I realise that [Dr C] completes continuing education in both these fields of speciality and regularly attends courses both in New Zealand and overseas.
>
> I certify that the information outlining the general treatment considerations, as well as potential problems have been presented to me, and that I have read, and understood its contents. I further understand that when dealing with orthodontics which is not an exact science, and the human body, that results cannot always be completely guaranteed.
>
> I *[Mrs B]* hereby acknowledge that I have been fully informed of the treatment proposed and the possible risks associated with this treatment. I now consent to this treatment."

Mrs A understood that Dr C had explained that because Mr B would most probably have problems in the future with his wisdom teeth coming through, as there was no room for them to erupt, it was an option for his lower second molars to be removed. Mrs A said that she considered this to be unfortunate, but accepted Dr C's professional advice and agreed to the proposed treatment plan.

On 26 May 1998 Mr B was fitted with his first orthodontic appliance. Dr C explained that appointments are usually made for follow-up every six weeks, and in Mr B's case to have his second appliance fitted. Mr B lost the first appliance and did not wear it for several weeks, so at the follow-up appointment on 6 July 1998 Dr C refitted the first appliance. Mrs A confirmed that Mr B had lost, then broken his first appliance.

Mr B wore the refitted first appliance until his next appointment on 10 August 1998 when a second orthodontic appliance was fitted. Treatment continued with consultations on 1 September and 13 October 1998, until 2 November 1998 when Dr C decided that he was unhappy with treatment progress. Dr C therefore took more impressions of Mr B's teeth in order to redesign another lower appliance that would be easier for Mr B to wear.

At Mr B's next appointment on 14 December 1998 Dr C discussed with Mr B and Mr B a proposal to extract Mr B's lower second molars in order to speed up treatment. Mr B was living with his father at this time, but Mrs A was consulted by telephone about the proposed treatment. Dr C also fitted Mr B with the new appliance at this appointment.

On 28 January 1999 Dr C reviewed Mr B at a six weekly check. Dr C advised that at this appointment he had an in-depth discussion with Mr B and Mrs A about the advantages and disadvantages of extracting Mr B's lower second molars. Dr C stated that he was opposed to premolar extractions for Mr B based on "sound orthodontic reasons", and he detailed the advantages of second molar extractions as follows:

"…

a) Relief of crowding in both anterior as well as the posterior segments simultaneously. Therefore no need for incisor or premolar extractions and as need to remove third molars surgically at a later date.

b) Increase in vertical dimension. [Mr B] already had a deep overbite and an increase in vertical dimension was needed. Again removal of a lower incisor would not achieve this and only worsen the problem.

c) Less orthodontic relapse associated with the 'forward thrust of the second and third molars'.

d) Only 4 extractions instead of 8. Less cost less patient discomfort.

…"

Dr C advised that he did not see Mr B again until 25 May 1999, four months later, and he assumed that Mr B had decided not to continue with orthodontic treatment.

On 25 May 1999 Mr B had his annual examination and hygiene appointment with Dr C. At this appointment Mr B told Dr C that he wanted to continue with the orthodontic treatment and second molar extractions as had been discussed in January. On 1 June 1999 Dr C removed Mr B's lower second molars, teeth 37 and 47, under local anaesthetic.

Over the next six months Mr B did not return for his regular appointments. On 10 January 2000 Mr B returned to Dr C. At this point Mr B's orthodontic treatment was discontinued because of his lack of compliance with the treatment. Dr C explained that Mr B had not worn his appliances satisfactorily, and he believed that the only way to achieve the desired result was for Mr B to use a fixed appliance, which would remove the need for him to comply with treatment using the removable appliances.

On 20 July 2000, at his regular hygiene appointment with Dr C, Mr B said that he wanted to have fixed appliances (braces) to complete his orthodontic treatment. An appointment was therefore scheduled for 16 August 2000 in order to fit separators to Mr B's teeth seven days before fitting the braces.

Mrs A said that Mr B was unhappy about having to wear solid metal braces, so she telephoned Dr C to ask if Mr B could have clear or white braces instead. Mrs A was told that Dr C was unable to complete Mr B's treatment using clear appliances. The appointment to fit Mr B's braces on 24 August 2000 was therefore cancelled shortly before it was to occur.

Mrs A then decided to seek a second opinion from a specialist orthodontist. On 18 September 2000 Mr B had his first consultation with orthodontist Dr D. Dr D advised me as follows:

"[Mr B] had a class I malocclusion with a deep incisal over-bite, spacing of the upper incisors, crowding of the lower incisors especially a lower left central incisor

> which was virtually crowded out of the arch. He also presented with missing lower second permanent molars.
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> … I was advised by [Mrs A and her husband] that these teeth were extracted in order to prevent a surgical removal of third lower molars at a later stage.
>
> I believe this was not the case as the lower second molars were removed in order for [Dr C] to undertake an expansion programme.
>
> … My treatment plan was extraction of the lower left ventral incisor and placement of full fixed orthodontic appliances on the lower arch to align his pre-molars as well as line up the incisors and close off the remaining extraction space. This would also involve a long period of retention in the lower incisors.
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> …
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> Due to extraction of the lower second molars there has been considerable over eruption of the upper second molars. The lower third molars have barely been able to emerge through the gingiva due to contact with the upper over erupted second molars. There is also a considerable amount of bone between the lower first permanent molars and in the space occupied by extraction of the second molars and now a wall of bone between the lower third molars which are attempting to erupt.
>
> It is probable that in order for this treatment to be anywhere near achievable it will require the extraction of the over erupted upper second molars. Further it will probably require the services of an oral surgeon to remove the bone in front of the erupting lower third molar that has filled the extraction site of the lower second molar.
>
> …"

Mrs A uplifted Mr B's records and x-rays from Dr C's surgery on 21 September 2000 and took them to Dr D. Dr D later contacted Dr C's surgery to request extraction of a lower incisor and to inquire about the proposed treatment plan for Mr B.

On 11 October 2000 Dr C wrote to Mrs A as follows:

> "It has come to my attention that you have decided, midway through [Mr B's] orthodontic work to seek treatment elsewhere. Personally I do not have a problem with that. Naturally it is your prerogative to have treatment done where you wish.
>
> What does concern me is the obvious lack of understanding at the treatment plan that was outlined. It is unfortunate that both you and [Mr B] had not had the treatment plan explained together. [Dr D] tells me that when [Mr B] was asked why [Mr B] had had his 7's out, he replied that he 'didn't know'. We pride ourselves on educating our patients so they understand what treatments are available and I thought I had explained this adequately to [Mr B] and yourself.

> In [Mr B's] case, as I explained to you [Mrs A], he had wisdom teeth that if left to run their natural course would have become surgical extractions at approximately 18-22 years. The treatment we opted for was to extract the teeth in front of these, the 7's, and allow the wisdom teeth to come in. During this period braces were to be placed to allow the trapped lower incisor to take its proper place in the dental arch. At some point I was phoned and asked if I was happy to extract this lower incisor. I am quite happy to treat [Mr B] but as this extraction was diametrically opposed to the treatment I felt was best for [Mr B] I could not morally do that procedure for him.
>
> Unfortunately I feel this situation has been motivated by the fact that [Mr B] did not want to wear brackets that were visible, and that [Mr B] was not included in the treatment planning. I would appreciate it if you took the time to watch this video [Mrs A]. In the video [Dr E] (a traditionally trained Orthodontist who practises outside the square and uses alternative methods) refers to 12 year molars, these are the 7's that [Mr B] had extracted. By using this system he allows trapped incisors back into the dental arch and eliminates any need for surgical wisdom teeth extractions or relapse at a later stage.
>
> My door is always open and I would have been only too happy to have had this conversation with you at an earlier stage. I aim for the best treatment for my patients and understanding that treatment is vital for a satisfactory completion. Please call if you have any queries regarding this information or that contained on the video."

Mrs A advised me that Dr D told her that because of the extractions done by Dr C, Mr B will have major ongoing orthodontic problems and any future orthodontic work would be difficult and the end result a "poor compromise". Mrs A then complained to this Office about Dr C's orthodontic work, as she was concerned about the possibility that incorrect or inappropriate treatment had been carried out on Mr B.

Dr C explained that he believes that Mr B's current orthodontic problems were largely caused by Mr B's lack of compliance with the original treatment plan, as described above. Dr C stated that had treatment continued with a fixed appliance as he proposed, it still would have been possible to achieve an acceptable orthodontic result.

Independent advice to Commissioner

The following expert advice was received from Dr Peter Dysart, an independent orthodontist in private practice:

> "*Was it appropriate for [Dr C], a dentist, to carry out orthodontic work of this nature on [Mr B]?*
>
> [Dr C] was entitled to undertake correction of [Mr B's] malocclusion provided his treatment plan was appropriate, the treatment was of an adequate standard, and he did not convey the impression that he was a specialist. I consider that [Mr B's] malocclusion fell within the range of severity that could be adequately treated by general dental practitioners with a special interest in, and knowledge of, orthodontics.
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> The separate issues of whether [Dr C's] advice and treatment were appropriate, and whether the outcome was of an adequate standard, are addressed below.
>
> *Please comment on [Dr C's] description of the two major philosophical schools of thought when dealing with malocclusions. Is his understanding accurate?*
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> [Dr C's] assertion that there are two 'major' philosophical viewpoints in orthodontics is inaccurate. The field of orthodontics is a mature, established discipline with an extensive literature. Within this literature there are indeed areas of debate, controversy and ongoing scientific research. However, the 'school of thought' to which [Dr C] declares his alignment refers to a minority group who have unilaterally declared that their philosophy involves the rejection of many of the approaches used by the wider orthodontic community, irrespective of evidence. This group refer to their own approach as 'functional' orthodontics, and they have a particular reluctance to consider extraction of any teeth other than the second molars.
>
> Practically all of the techniques and appliances used by the functional group have been or still are used within the context of conventional or mainstream orthodontics, but prudent practice requires that they be used discriminately. All treatments should be reserved for circumstances shown by evidence to be most suitable, and there is no justification for rejecting appropriate techniques purely on the basis of a 'philosophy' which is largely innocent of evidence. Appreciation of the full body of published orthodontic research, and recognition of the need to appraise the quality of evidence, are the foundations of evidence-based practice. It has been suggested to the functional group over a large number of years that they may wish to defend their opposition to certain techniques with well-designed research, but it appears to be their preference to rely on anecdote, dogma and highly selective reference to the scientific literature.
>
> Appropriate evidence-based practice does *not* require adherence to a philosophy of routine extractions, *nor* routine avoidance of extractions, *nor* exclusive extraction of particular teeth such as second molars. There has indeed been some debate in

the orthodontic literature about the merits of second molar extractions, but this procedure is considered and undertaken by practitioners of conventional orthodontics when the evidence suggests circumstances are appropriate.

Was [Dr C's] treatment plan for [Mr B] appropriate? Why or why not?

[Dr C's] original treatment plan, as outlined in the 'agreement' dated 31 March 1998, comprised expansion of the maxillary then mandibular arches using removable appliances, to be followed by the use of either a 'Richonator' or alternatively fixed appliances. [Dr C] did not commence the second phase of this treatment plan, but in late 1999 added the recommendation to extract the lower second molars. A brief discussion of each of these follows.

1. Arch expansion using removable appliances.
The use of arch expansion, particularly in the lower jaw, has been shown in long term clinical studies to be characterised by subsequent instability of arch width and a tendency to return to pre-treatment dimensions (see enclosed article, Blake and Bibby, including conclusions). For this reason the use of this approach for [Mr B] would be appropriate only if the patient and parents were counselled prior to treatment about the subsequent reliance on long term artificial retention of the tooth positions achieved.

2. Richonator or fixed appliances
The proposals to use either a Richonator or fixed appliance were not, in themselves, inappropriate, but their use in conjunction with arch expansion has not been demonstrated to overcome the aforementioned risk of post-treatment instability.

3. Extraction of lower second molars
This is addressed in response to a later question.

Was this treatment plan carried out appropriately? Why or why not?

[Dr C] did not complete his entire treatment plan because the patient was transferred to [Dr D's] care. The only interventions undertaken were the use of removable appliances to expand both dental arches, and the extraction of the lower second molars. The justification for both of these measures is questionable, as discussed elsewhere, but the actual service was delivered without incident. There is little evidence of any discernible benefit to [Mr B] from these interventions, and [Dr C] concluded after 18 months of treatment that compliance had been unsatisfactory with the removable appliances.

Was it appropriate for [Dr C] to have extracted the specific teeth that he did?

Despite the fact that second molar teeth can be a valid choice for orthodontic extraction in suitable circumstances, I have reservations about the particular conditions and the reasons given for their selection in this case.

[Dr C] states in his letter to [Mrs A] dated 11 October 2000 that [Mr B's] wisdom teeth 'would have become surgical extractions' had it not been for the removal of his second molars. This is a matter of judgement, but I consider that there would perhaps only have been a 50% chance that impactions requiring surgery would arise. The lack of space in the posterior part of the lower arch was not extreme, and the third molars were positioned in such a way that a typical degree of growth would produce a chance of these teeth erupting without extraction of the second molars. I believe it is difficult to justify the extraction of intact, well-positioned second molar teeth as a solution to third molar impaction when the future need for surgical extractions is uncertain. The outcome of the extractions appears to support my view, as [Mr B] was left with significant spaces between his lower first and third molars when records were taken 15 months after his extractions. It seems likely that the appliance treatment being carried out by [Dr D] will need to involve repositioning the third molars in order to close the space in this area.

The other reason given by [Dr C] for the extraction of the second molars was to assist in the relief of anterior crowding and to thereby facilitate the alignment of the front teeth. Although a very modest potential for this effect has been demonstrated in some studies of second molar extractions (see page 119 Stamatis article), they could not be expected to resolve [Mr B's] degree of anterior crowding. Alignment of the teeth would therefore still require arch expansion in the absence of further extractions. [Mr B's] records confirm that the second molar extractions produced no demonstrable improvement in alignment of the anterior teeth over a 15-month period.

A predictable problem resulting from the extraction of second molars is the undesirable side effect of 'over-eruption' of the opposing second molars. To avoid this problem it is customary to consider the extraction of the upper second molars following the removal of lower second molars, and if this is not undertaken it is advisable to use some form of appliance or retainer to prevent it. Over-eruption is clearly evident in the records taken by [Dr D], but [Dr C] makes no reference to the measures he intended taking to correct it.

In summary, I do not consider that the second molar teeth were the most appropriate choice for extraction because:

1. Although there was a chance that the wisdom teeth would become impacted, this was by no means a certainty. Indeed, following the extractions significant residual space remains between the lower first and third molars.
2. Evidence suggests that these extractions would have an extremely limited ability to alleviate anterior crowding.
3. No measures were taken to prevent the predictable side effect of over-eruption of the opposing upper second molars.

Did [Dr C] respond appropriately to [Mr B's] reluctance to comply with treatment?

The fixed appliances proposed by [Dr C] in response to the lack of progress were, in my opinion, *more* appropriate for the circumstances than the removable appliances originally used, because they provide more satisfactory control of tooth

positions. However the overall treatment remains complicated by the earlier decision to extract second molars, and [Dr C's] intention to complete treatment without further extractions would still necessitate potentially unstable expansion of the lower arch anteriorly.

CONCLUSIONS

It is my opinion that the treatment prescribed and partially completed by [Dr C] for [Mr B], in particular the selection of teeth for extraction, was not ideal. It is, however, not unusual to encounter variation of opinion concerning extraction decisions for orthodontic treatment.

[Dr C's] primary reason for his choice of extractions was to facilitate third molar eruption. In defence of [Dr C], the evidence regarding third molar behaviour is equivocal, but with the benefit of some hindsight regarding the subsequent progress of [Mr B's] third molar teeth, I consider that the extractions may well have NOT been essential to avoid later surgical extractions of the third molars.

Having made the decision to extract second molars, [Dr C] should have had a plan to prevent or deal with over-eruption of the upper teeth. This situation will need to be corrected as part of the ongoing orthodontic treatment.

If extractions were to be undertaken, it would have been prudent to select teeth more likely to relieve anterior crowding and improve the prospect of stability following subsequent orthodontic treatment. [Dr C] believed that his selection of the second molars would assist in this regard but the evidence for this view is extremely tenuous.

[Dr C] is clearly aware that his philosophy of orthodontic treatment is not unanimously accepted, but he appears to be unaware, or unwilling to accept, that a sound basis of evidence is the primary determinant of what constitutes appropriate practice. The ability to quote a textbook characterised by anecdote and dogma, and to catalogue extensive attendance at alternative courses, does not validate a treatment philosophy. My view is that it was the responsibility of [Dr C] to either base his treatment plan on better supporting evidence, or alternatively to emphasise to [Mrs A] that his philosophy is at odds with evidence-based practice, in order to enable her to make an informed decision about her choice of treatment provider.

I conclude that the departure from appropriate practice in this case is not extreme, but that the attitudes and beliefs expressed by [Dr C] provide cause for concern."

The following expert advice was received from Dr Karl Lyons, an independent prosthodontist at The University of Otago School of Dentistry:

"*Was it appropriate for [Dr C], a dentist, to carry out orthodontic work of this nature on [Mr B]?*

I do believe that it was appropriate for a dentist, such as [Dr C], to carry out this orthodontic treatment. [Dr C] has demonstrated, in his orthodontic assessment of this case that pretreatment, he has accurately assessed and diagnosed [Mr B's] occlusal relationship/orthodontic condition, and therefore demonstrates that he has a knowledge of [Mr B's] presenting orthodontic condition. Dentists, registered by the Dental Council of New Zealand, are legally able to carry out this type of treatment. In addition, [Dr C] did not advertise himself to be an orthodontist. He made it clear in documentation provided to [Mrs A] that he was a dentist with an interest in orthodontics. As [Mrs A] has another child who has had orthodontic treatment from orthodontist [Dr D], then if [Mrs A] had had concerns, about a dentist providing this treatment, she could have had a second opinion from [Dr D].

Please comment on [Dr C's] description of the two major philosophical schools of thought when dealing with malocclusions. Is his understanding accurate?

[Dr C's] description of two major philosophical schools of thought when dealing with malocclusions, namely orthodontics and functional orthodontics, is not the main issue in question with this complaint, although it does reflect the treatment approach that [Dr C] used. It is true that orthodontists and those that practice functional orthodontics do have a difference in opinion on how treatment should be delivered. Most orthodontists have graduated from a three-year university postgraduate course in orthodontics. Most who practise functional orthodontics have not. Many orthodontists also use functional appliances. The main philosophical differences between the two groups are their beliefs on how growth can be influenced, the effect use of functional appliances have on long-term tooth position stability, and, their extraction protocols. Orthodontists would argue that their treatment beliefs are based on evidence from the wide scientific literature, and that those who practise functional orthodontics base their beliefs on a much narrower area of the literature, and lack the same amount of evidence from the scientific literature to justify their treatment protocols. In this respect, [Dr C] is correct, that there are two philosophical schools of thought in dealing with malocclusions.

The second difference relates to the extraction of second molars and the cause of lower incisor crowding. The literature provided by [Dr C] suggests the extraction of upper and lower second molars is a way to reduce the need for surgical extraction of third molars, and to relieve lower anterior crowding, due to the 'forward thrust' of the second and third molars. The majority of orthodontic scientific literature would disagree with both of these suggestions.

In relation to the suggestion that extraction of upper and lower second molars is a way to reduce the need for surgical extraction of third molars. Research carried out in the Michigan Growth Study would suggest that it is difficult to predict whether there will be sufficient space for third molars to erupt. Consequently, tooth extraction to facilitate third molar eruption is generally not warranted, because growth of the ramus of the mandible may allow the third molars to erupt.

In relation to extraction of upper and lower second molars as a way to relieve lower anterior crowding, due to the 'forward thrust' of the second and third molars. This theory is not the most commonly accepted reason for lower anterior crowding. The most commonly agreed cause of lower anterior crowding is due to mesialisation of the teeth which occurs because of a combination of the:

i. Teeth not being upright in the jaws, so that the vector of pressure has a slight mesial component.

ii. Forces occurring from the combination of continued development of the facial skeleton and soft tissue forces.

Lower anterior crowding has been shown to occur whether the second or and/or third molars are present or not.

Was [Dr C's] treatment plan for [Mr B] appropriate?

[Dr C's] examination and diagnosis of this case was accurate. The treatment plan that [Dr C] proposed was one that practitioners of functional orthodontics may use. With the exception of the use of fixed appliances, few orthodontists would agree with [Dr C's] treatment plan. This is because:

i. Maxillary expansion can be used where there is crowding in the upper arch or where the arch width is not normal. There isn't crowding in the upper arch in this case, and the maxillary width is in the normal range, so conventionally, there is no need to expand the upper arch. In addition, expansion of the upper arch would be unlikely to release entrapment of the lower incisors. This is because the cause of the incisor entrapment is due to a vertical rather that a horizontal problem.

ii. Use of an expansion plate to relieve lower arch crowding would be successful. However, it has been shown that the use of expansion plates can shift the teeth to an unstable position; if this happened, relapse would occur.

iii. Fixed appliances and a twin block would correct the remaining vertical discrepancies. Many orthodontists would question why fixed appliances weren't planned for use much earlier in the treatment plan.

Was this treatment plan carried out appropriately?

Although [Dr C's] treatment plan would be unlikely to be agreed with by many orthodontists, [Dr C's] plan was never given an opportunity to be carried out appropriately due to a lack of compliance by patient [Mr B]. [Dr C] did adapt his treatment plan in an attempt to accommodate the lack of compliance. Examples include, [Dr C] provided a redesigned lower appliance following an appointment on the 2nd November 1998, and discontinued the use of the removable appliance treatment in favour of fixed appliances (not commenced) after the 10th January 2000 appointment.

Although there is limited support in the scientific orthodontic literature for the treatment plan suggested by [Dr C], he did carry out his treatment according to some principles that have been published in the literature. Therefore, although not widely accepted, especially by orthodontists, [Dr C] was carrying out treatment based on principles that have been published in the literature.

The documentation provided does not indicate whether [Dr C's] office attempted to contact patient [Mr B] or his mother, with regard to concerns about a lack of treatment compliance. Based on the lack of compliance by [Mr B], [Dr C] could be questioned about the wisdom of extracting the two lower second molars, with the need to control the upper occlusion, without a document being signed by [Mr B] and his mother which explained the consequences of a lack of compliance following extraction of these two teeth.

Was it appropriate for [Dr C] to have extracted the specific teeth that he did?

The treatment, of extracting four 2nd molars, has been published in the literature, and therefore is not inappropriate treatment. The rationale for this extraction protocol, does not, however, have much support in the scientific literature. It is the extraction of the lower second molars, without an indication of how the position of the upper second molars would be controlled, which causes the greatest problem in this complaint. Whether due to a lack of compliance by [Mr B] or not, the opposing upper second molars have, as would be expected, over-erupted following the extraction of their opposing teeth. Management of this situation as it was when [Mr B] presented to [Dr D], is not easy, and requires one of the following forms of treatment to manage the over-erupted position of the upper second molars:

i. Intrusion
ii. Occlusal adjustment to bring them back into line in the upper occlusal arch
iii. Extraction.

It is possible that, based on the extraction protocol that [Dr C] was following, that he would have suggested extraction as the preferred option, however, this is not suggested in his letter dated 6th June 2001. There are also treatment methods available to control the position of the opposing upper second molars following extraction of the lower second molars. [Dr C] was not given an opportunity to use these.

Did [Dr C] respond appropriately to [Mr B's] reluctance to comply with treatment?

As commented previously, [Dr C] did adapt his treatment plan in an attempt to accommodate the lack of compliance, such as placing a redesigned lower appliance and discontinuing the use of the removable appliance treatment in favour of commencing the use of fixed appliances. However, as also previously commented, documentation provided does not indicate whether [Dr C's] office attempted to contact patient [Mr B] or his mother, with regard to concerns about a lack of treatment compliance. Again, based on the lack of compliance by [Mr B], [Dr C] could be questioned about the wisdom of extracting the two lower second molars,

without a document being signed by [Mr B] and his mother which explained the consequences of a lack of compliance following extraction of these two teeth.

Other matters

i. [Dr C] suggests, in his letter dated 6th June 2001, that conventional orthodontics (based on the American School of thought as described in the letter), may effect the structural integrity of the temporomandibular joints. There is no evidence in the peer- reviewed scientific literature to justify this statement.

ii. The use of a bite-raising appliance, extraction of two or four premolars and fixed appliances could have completed this treatment sooner and without the need for removable appliances.

iii. The treatment plan proposed by [Dr D], for [Mr B], of extracting a lower incisor and providing fixed orthodontic appliances, is the most suitable course of treatment following extraction of the lower 2nd molars.

Summary

This is a difficult case to advise the Health and Disability Commissioner on. The orthodontic treatment provided by [Dr C] does not have wide support from orthodontists or the scientific literature. In addition, extraction of the two lower second molars has caused the over-eruption of the opposing upper second molars. This has complicated completing orthodontic treatment and has limited the treatment options for orthodontist, [Dr D]. It may also require the extraction of the two upper second molars, in addition to removal of bone between the first and third lower molars so that the lower third molars can be moved into a reasonable position in the lower arch. However, [Dr C] was following principles that are practised by some dentists, and does have limited support in the literature. In addition, due to the lack of compliance by patient [Mr B], [Dr C's] treatment was never given a chance of a successful outcome.

I do not agree with the philosophy used, or the treatment which has been provided by [Dr C]. However, in my opinion, for the above reasons, and because [Dr C] followed principles described in the literature used by dentists who practise using functional orthodontics, I do not believe that [Dr C] has provided dental services which are below a reasonable standard of care and skill."

Response to Provisional Opinion

Dr C responded to my provisional opinion as follows:

> "Firstly before I comment on your provisional opinion I must draw your attention to the enclosed study which was done by highly qualified British orthodontists and published in the American Journal of Orthodontics and Dentofacial Orthopaedics in March 2001. This and many other studies have been done by Orthodontists who have done years of postgraduate study and considered all aspects of treatment. Of particular note is the introduction and the conclusion in relation to [Mr B's] case, also in the references 5 6 7 there is substantial evidence specific to [Mr B's] malocclusion and the merits of treatment by second molar extraction.
>
> It is true that I am not a specialist such as [Dr D], however I have spent some considerable time studying, attending courses and reviewing the literature. I am concerned however that [Dr D] and Mr Dysart as specialists seem to be unaware of the enclosed study and many others in the references.
>
> [Dr D] made the point that he believed the lower teeth had been extracted to undertake 'an expansion programme'. This term is a very loose description as 'an expansion programme' can either be lateral (transverse), antero-posterior (sagittal) or both. In [Mr B's] case he was wearing a sagittal appliance (the second appliance) to aid in the reduction of crowding. No expansion was taking place, only the translation of the first molar distally into some of the second molar's space. Also on [Mr B's] appliance; this is very important; was a posterior bite plane to prevent the over eruption of the upper second molars. However without [Mr B's] cooperation (ie obviously did not wear his appliance) these second molars have overerupted. Concerns expressed by [Dr D] re extraction of the upper second molars is unfounded as you will read in the conclusions of the study enclosed. 100% of third molars make satisfactory replacement of extracted second molars. [Dr D's] belief that it is probable that the lower third molars will require the services of an oral surgeon are not supported in the literature with some 99% of third molars that erupt into a satisfactory position.
>
> Comments made by [Dr D] 'that because of the extractions done by [Dr C], [Mr B] will have major ongoing orthodontic problems and any future orthodontic work would be difficult and the end result a poor compromise' are completely inflammatory, inaccurate, unethical and unsupported in the literature.
>
> …
>
> Dr Peter Dysart: a brief summary after reading his report would be 'functional orthodontists only extract second molars, that they use the same appliances as the orthodontists but not with prudence and without evidence and that we rely on anecdote, dogma and highly selective reference to the scientific literature'.
>
> Dr Dysart's belief was that I was only extracting the second molars to prevent third molar impaction, I have **never** informed the patient that I was extracting solely for

this reason. The extractions were performed for orthodontic reasons, not surgical reasons, and in Cl II div I malocclusions with arch length loss I believe the literature not anecdote, dogma etc etc supports this. Concern was expressed as to long term retention with my treatment option. [Dr D] has commented that removal of the lower incisor will require long term retention.

And indeed in your provisional opinion you believe I have not given the patient all the options, however as previously stated I discussed at length the pros and cons of second molar vs premolar extractions. The two opinions you [sought] believe my treatment options is drawn; from a minority branch of orthodontic opinion, however there is a wealth of evidence that justifies my treatment plan. The appliance provided for [Mr B] would have also prevented over eruption of his upper second molars.

The conclusion drawn by Dr Dysart are not based on all the facts. Measures were taken to prevent over eruption of [Mr B's] upper second molars.

Dr Dysart also is aware that some of his philosophy of orthodontic treatment is not unanimously accepted. I am also very aware that evidence based treatment constitutes appropriate treatment. I am also aware that the courses I attend are given by Orthodontists who have extensive training, and cannot accept his opinion that my decision for treatment in this case is not evidence based.

[Dr D] also makes note of his request for information relating to [Mr B's] case. Unfortunately he has not explained accurately his telephone manner to my receptionist and myself when he called regarding [Mr B's] treatment, if [Dr D] believes our conversation was a request for information then there appears to be a communication breakdown. All relevant radiographs etc were given to the patient on the 21st September 2000, three days after his first consultation with [Dr D].

There was no reluctance on my part to provide information in a professional manner. However I was not forwarded the same courtesy by [Dr D].

In summary, unfortunately there is a wedge present between some orthodontists and general practitioners practising orthodontics. I believe our goals are the same 'the health and benefits to the patients'. However this case has arisen due to comments one practitioner has made about another without first consulting the other to discuss rationally the treatment that has gone before. Had this case been discussed between [Dr D] and myself in a professional manner from the outset then the compliance issues and treatment objectives could have been understood and doubts that were put in the patient's mind as to the appropriateness of treatment availed.

I believe that all options and merits especially premolar extractions were explained to the patient during treatment, and I am still surprised that if there was any doubt that a second opinion wasn't [sought] before continuing with treatment (ie before extractions were done).

As for the Orthodontist's opinion that my treatment philosophy forms the minority point of view; this is purely subjective and I would advise he review the literature and check the size of Orthodontic Society membership vs the Functional Orthodontic Society, which has considerably more members.

I am very concerned that this case has arisen and have reviewed all aspects of orthodontic treatment in my practice so as to minimise any misunderstanding between my patients and myself. Furthermore I have had meetings with [Dr D] to discuss cases, and help develop a relationship and understanding of different treatment philosophies.

I believe that future benefits to our patients will be maximised only if both specialist and general practitioner work together."

Code of Health and Disability Services Consumers' Rights

The following Rights in the Code of Health and Disability Services Consumers' Rights are applicable to this complaint:

RIGHT 4
Right to Services of an Appropriate Standard

1) Every consumer has the right to have services provided with reasonable care and skill.
2) Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards.

RIGHT 6
Right to be Fully Informed

1) Every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive, including –

...

b) An explanation of the options available, including an assessment of the expected risks, side effects, benefits, and costs of each option; and

...

e) Any other information required by legal, professional, ethical, and other relevant standards;

...

2) *Before making a choice or giving consent, every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, needs to make an informed choice or give informed consent.*

RIGHT 7
Right to Make an Informed Choice and Give Informed Consent

1) *Services may be provided to a consumer only if that consumer makes an informed choice and gives informed consent, except where any enactment, or the common law, or any other provision of this Code provides otherwise.*

Other Relevant Standards

New Zealand Dental Association 'Code of Ethics' (1991)

…

Informed Consent

The patient has a right to know the details of examination procedures, the state of their oral health, any disease diagnosed, the probable cause, available options for treatment, and likely costs, benefits and risks.

New Zealand Dental Association 'Code of Practice' (1996)

Informed Consent

…

Information to be given

1. The nature, status (whether it is orthodox or developmental) and purpose of the treatment, including its expected benefits.

Opinion:
No Breach

Rights 4(1) and 4(2)

Under the Code of Health and Disability Services Consumers' Rights Mr B had the right to receive dental and orthodontic services from Dr C that were provided with reasonable care and skill, and that complied with legal, professional, ethical, and other relevant standards.

It has become clear during this investigation that there is a divergence of views within orthodontic practice. Dr C practises functional orthodontics, a variation of practice that is not supported by many specialist trained orthodontists.

It would appear that according to widely accepted orthodontic theory, the treatment prescribed and partially completed by Dr C for Mr B, in particular the selection of teeth for extraction, was not ideal. It is, however, not unusual to encounter variation of opinion about extraction decisions for orthodontic treatment. It is important to note that no judgement is being made in this opinion about the merits or otherwise of functional orthodontics.

I note my dental advisor's opinion that Dr C's examination and diagnosis of Mr B's orthodontic problems was accurate; his treatment plan was acceptable practice within the functional orthodontic realm; and it was carried out with reasonable care and skill, although hindsight shows that the most prudent treatment choices may not have been made. I also note that Mr B's non-compliance with the treatment over an extended period of time made its ultimate success unlikely.

I also note that although there is limited support in the scientific orthodontic literature for Dr C's approach to Mr B's care, the treatment was carried out according to recognised principles. Although this treatment approach is not universally accepted, it does have some support.

Dr C's diagnosis of Mr B's orthodontic problems was accurate, his treatment plan was within the parameters of functional orthodontic theory, and it was carried out with reasonable care and skill. I therefore conclude that Dr C provided Mr B with dental services that complied with relevant standards and that were provided with reasonable care and skill. Accordingly, Dr C did not breach Rights 4(1) and 4(2) of the Code.

Other Comment

Under Right 6 of the Code, Mr B and Mrs A had the right to information that a reasonable consumer, in their circumstances, would expect to receive, in order to make an informed choice or give informed consent to the proposed orthodontic treatment. Such information included an explanation about Mr B's condition, and the available treatment options, including an assessment of the expected risks, benefits, side effects, and costs of each option. For Mr B and Mrs A, this should have included the fact that Dr C was proposing a treatment plan drawn from a minority branch of orthodontic theory. Under Right 7 of the Code, services may only be provided if the consumer's choice and consent are informed (subject to limited exceptions not relevant in this case).

I am aware that there is a degree of controversy in the dental profession arising from the conflict between functional and specialist orthodontists. I understand that orthodox orthodontists are highly qualified specialists in their field, and that although functional orthodontists may have received training in addition to their basic degree, it is not equivalent to the three years' post-graduate training of specialist orthodontists. In light of this distinction, dentists practising as functional orthodontists should be careful to ensure that they present a range of options to their patients that cover not only the methods they have been trained in, but also other options available to the patient, such as treatment from a specialist orthodontist. Otherwise, the patient may be unaware of other treatment options that a specialist orthodontist might consider appropriate in the circumstances.

Dr C is clearly aware that his philosophy of orthodontic treatment is not unanimously accepted. I consider that it was Dr C's responsibility to emphasise to Mrs A that his philosophy was at odds with generally accepted practice, in order to enable her to make an informed choice of treatment and treatment provider. A reasonable consumer in Mr B and Mrs A's circumstances would have expected to receive this information before consenting to treatment, and was entitled to be given it.

The New Zealand Dental Association 'Code of Ethics' clearly states that the consumer has a right to know about available options for treatment. The Association's 'Code of Practice' requires the consumer be told whether the proposed treatment is orthodox or developmental.

As Mrs A's complaint concerned only the standard of orthodontic services offered, I have made no finding in relation to whether Dr C breached the Code in relation to this point. However, I have seen no indication that Mr B and Mrs A were told that Dr C's proposed treatment plan was based on a minority viewpoint or that most orthodox orthodontists would offer quite a different course of treatment.

I therefore draw to Dr C's attention the need to ensure that his patients are fully aware of all the treatment options available, and what they entail, before consenting to treatment. Without this information patients are unable to make an informed choice and give informed consent to treatment.

Actions

I recommend that Dr C take the following actions:

- Apologise in writing to Mr B and Mrs A for providing inadequate information about the proposed treatment for Mr B. This apology is to be sent to the Commissioner and will be forwarded to the family.

Other Actions

- A copy of this report will be sent to the Dental Council of New Zealand.

- Further copies of this opinion, with all identifying features removed, will be sent to the Dental Council of New Zealand, the New Zealand Dental Association, the New Zealand Functional Orthodontic Society, and the New Zealand Association of Orthodontists, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.