Dentist, Dr B

A Report by the

Health and Disability Commissioner

(Case 00HDC06687)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mrs A	Complainant / Consumer
Dr B	Provider / Dentist
Dr C	Dental Surgeon
Dr D	Restorative Dentist

Complaint

On 3 July 2000 the Commissioner received a complaint from Mrs A about the treatment received from Dr B. The complaint is summarised as follows:

- *Between 22 December 1998 and 20 January 1999 Dr B carried out dental work which was deficient in the following areas:*
  - *The root fillings on teeth 11 and 12 will require specialist re-treatment before post crowns can be remade.*
  - *The bridge for teeth 23, 24 and 25 will require remaking, as existing deficiencies will eventually lead to decay and eventual loss of the bridge.*

An investigation was commenced on 22 September 2000.

Information reviewed

- Relevant dental records and x-rays from Dr B
- Report, photographs and x-rays from dental surgeon Dr C
- Report from restorative dentist Dr D
- Report from an independent dentist, Dr Robert Love

Information gathered during investigation

Background
Mrs A did not attend a dentist for at least 10 years prior to her consultation with Dr B in December 1998. The last dentist she saw had placed the crown on tooth 21. She has not had any problems with that crown. Mrs A consulted Dr B in December 1998 after hearing his advertisement on the radio.

Mrs A's records indicate that she consulted Dr B on 10 December although her x-rays, supplied by Dr B, are dated 9 December 1998. Dr B examined and x-rayed her teeth. The

x-rays revealed extensive dental caries. Dr B advised Mrs A that there was extensive decay present and suggested that he remove her teeth. Mrs A did not agree because she wanted to keep her own teeth. She understood that she would require extensive root canal and crown treatment. Dr B advised Mrs A that the cost of treatment would be approximately $6650.00 and that it was difficult to estimate how many dental visits would be required. Mrs A provided receipts for treatment on 22, 24, 30 December 1998 and 12 and 20 January 1999. The total cost of Dr B's treatment was $7,250.00.

From Mrs A's dental records it appears that she attended Dr B's surgery for dental treatment on 22, 24 and 30 December 1998; 5, 12, 13, 14, 20 and 27 January 1999; and 10 and 16 February 1999. Dr B's records are illegible. Dr B refused to supply a transcript of his records during this investigation, and has provided no explanation in response to Mrs A's complaint. The exact treatment he completed at each consultation has therefore not been established. Dr B's records suggest that he completed root canal fillings and placement crowns to teeth 11 and 12. My independent advisor indicated that Dr B also applied placement of crowns and a three-unit fix-fix bridge to teeth 23, 24 and 25. Tooth 23 is root filled but tooth 25 is not; tooth 24 is a false tooth.

Mrs A was initially satisfied with the treatment she received from Dr B. She did not see another dentist until 22 June 2000 when she consulted Dr C, because she had developed acute pain in her right upper molar, a tooth that Dr B had not treated. Dr C examined Mrs A's teeth, and took x-rays and clinical photographs. Mrs A said that Dr C told her that the dental work performed by Dr B was not satisfactory. Dr C provided Mrs A with the following report:

> "[Mrs A] has requested a report on the Crowns and Bridge on her upper front teeth, following a clinical examination with x-rays.
>
> The following were noted:
>
> **Tooth 12 PFM**. (Porcelain fused to metal crown) Mesial, labial and distal margins are deficient. Radiographically: post crown with rootfilling extending beyond apex surrounded by an apical area. This suggests an area of pathology, i.e. abnormal disease tissue.
>
> **Tooth 11 PFM.** Crown margin 360-degree deficient. Both labial and palatal deficient margin is filled with luting cement, which will eventually dissolve away.
>
> Radiographically: a post crown with rootfilling extending beyond apex, surrounded by an apical area. This suggests an area of pathology, i.e. abnormal disease tissue. Also confirms the margin deficiencies
>
> **Tooth 21 PFM.** Crown (made earlier by [Mrs A's last dentist]) is satisfactory.
>
> **Tooth 22 PFM.** Margins fit well but porcelain margin overhangs on mesial, labial and distal surfaces.

Teeth 23-24-25 (3unit fix-fix bridge)

23: Mesial, labial, and distal margins are deficient. Palatal margin has 0.5 thickness of luting cement filling the deficiency. Radiographically: a post crown with satisfactory rootfilling.

24: Pontic

25: Labial and mesial margin satisfactory, disto-labial margin overhang, palatal margin deficient. Radiographically confirms clinical finding of overhang and marginal deficiency.

In summary only crown 21 and 22 are satisfactory. The rootfillings on 11 and 12 will require specialist endodontic retreatment first before remake of post crowns.

The bridge 23-24-25 will also require remaking, as the existing marginal deficiencies will eventually lead to decay and eventual loss of the prosthesis.

Enclosed in this report are the x-rays. Unfortunately clinical photographs taken to accompany this report are presently not available due to a faulty camera. However, I anticipate that these photographs will be taken in the near future. They will clearly support the above clinical findings."

Dr C advised Mrs A that she should obtain a second opinion and referred her to a restorative dentist, Dr D. Mrs A consulted Dr D in December 2000. She said that Dr D asked her not to say which teeth he was reporting on because he wanted to give her an impartial report. Dr D reported the following:

"Following your consultation regarding a request for an opinion on crown and bridgework I report the following: the dentistry in question affected teeth 12, 11, 22, 23 and 25.

Teeth 12, 11 and 22 had separate porcelain bonded to metal crowns. Teeth 23 and 25 were joined as a bridge replacing tooth 24.

The colour of the porcelain work was considered completely satisfactory by yourself.

From the radiographs teeth 11 and 12, which had previously been root filled showed areas of apparent infection on their root tips. These should have been root-filled prior to placing posts.

I don't know whether the posts were placed with the new crowns or were already in the teeth. Regardless, the root tips need treatment. The root tip of tooth 23 has a short root filling and possible infection. Roots 22 and 25 are not root filled and are apparently healthy.

I imagine the primary area of concern expressed by your current dentist is the marginal fit of the crowns. This I describe in some detail.

Tooth 12 has a deficient margin, which is filled with the cement that retains the crown. The crown on tooth 11 has a reasonable margin but shows a cement line on the palatal aspect. Crown 22 is fine.

Tooth 23, the front end of the bridge has poor marginal fit on its labial or face side and tooth 25 has poor marginal fit on the palatal side. None of the errors in fit will affect the teeth short term but over a period of time will exhibit leakage with consequent problems. Of more immediate concern is the infection on the apices of the roots.

The occlusion of the crowns and bridge is satisfactory."

Claim to ACC

Mrs A lodged a medical misadventure claim for cover with ACC regarding her dental treatment by Dr B and subsequent infections. The Medical Misadventure Panel accepted that Mrs A suffered a personal injury because of the serious deficiencies in crowns 11, 12, 23 and 25 and root pathology. ACC's decision was that the crowns will need to be replaced. There was some question about the fitting of the crown on tooth 22 also. It was the Panel's view that the crown and bridge work undertaken by Dr B was inadequate and these "serious deficiencies constitute a failure on [Dr B's] part to exercise a standard of care and skill reasonably to be expected in the circumstances". Mrs A's medical misadventure claim was therefore accepted as "medical error".

Possible settlement

In a letter to Mrs A, dated 30 November 2000, Dr B indicated that he had received notice of this investigation from my Office. His letter informed her that the work he completed on teeth 11, 12, 23, 24 and 25 cost $3789.30. His letter referred to his telephone conversation with her the day before when she had indicated that she was not prepared to accept this amount. Dr B suggested in his letter that he would refund the money once the true costs of her treatment were known. In the meantime he suggested that she advise my Office that the matter had been settled.

On 1 December 2000 Mrs A notified my Office that she had received another telephone call from Dr B offering to refund the money she had paid him for her dental treatment. On 5 December Dr B's lawyer advised me that Dr B was working with Mrs A to resolve the issues between them. On 19 February Dr B's lawyer advised me that Dr B and Mrs A had resolved their differences.

Mrs A advised me that on or about 20 February 2001 Dr B telephoned her again. He informed her that he now had another dentist working with him who could replace the dental work he had done at no charge to her. She said that Dr B asked her to notify my Office because my investigation was making things difficult for him. Mrs A said that Dr B told her that he would post a cheque for $7000.00 to her by 28 February but the cheque had not arrived by 2 March. On 7 March Mrs A advised me that Dr B's dental assistant had rung her the previous week to say that the cheque was in the post but no cheque arrived. On 22 March 2001 Dr B sent his dental records to my Office. Mrs A has not received a refund from Dr B.

Independent advice to Commissioner

The following independent expert advice was received from an endodontist, Dr Robert Love:

"…

In preparing this report I have read the following documents:
Letter of complaint from [Mrs A] marked 'A'
Report by [Dr C], Dentist dated 22/6/00 –marked 'B'
Radiographs of [Mrs A's] teeth taken by [Dr C], Dentist – marked 'C'
Photographs of [Mrs A's] teeth taken by [Dr C], Dentist – marked 'D'
Investigation letter to [Dr B], Dentist dated 22/9/00 – marked 'E'
Copy of [Dr B's] Clinical Treatment record – marked 'F'
Radiographs of [Mrs A's] teeth – marked 'G'
…

Clinical and radiographic records
Copious clinical records have been made available for study however the poor quality of the handwriting has made it impossible for me to determine precisely what treatment [Dr B] planned for and provided to [Mrs A]. What is clear is that [Mrs A] had extensive dental caries. It is generally regarded that the control and stabilisation of such a disease process by the dentist, aided by an informed patient is mandatory before extensive rehabilitation of the teeth is performed. The clinical records indicated that restorative treatment was carried out on a number of occasions and I believe the records dated 10/12/99 indicated that [Mrs A] was advised to have tooth 37, which was extensively decayed removed, though I cannot read all the details. This tooth was still present when [Dr C] took his radiographs. In addition a large carious lesion present on the mesial aspect of tooth 27 is evident on [Dr B's] bitewing radiographs and is also present on one of [Dr C's] periapical radiographs. Additionally it would appear from the radiographs that tooth 27 had received endodontic and restorative treatment, at some stage from the 9/12/98 when seen by [Dr B] to when the patient was seen by [Dr C]. However I cannot see any reference in the clinical notes to this tooth being treated by [Dr B]. The endodontic treatment is deficient as it appears that only one (possibly two) canal has root filling material in it, there are normally three root canals and often four in this tooth, and there is an overhanging distal margin. I am able to discern some references in the clinical notes that discussion occurred on the patient's desire not to have false teeth however the quality of the notes are totally inadequate for me to say with any confidence that an extensive problem list was ascertained in order to formulate a treatment plan to control the dental caries and rehabilitate the dentition.

Specific teeth mentioned in the complaint

Upper right lateral incisor (12) and upper right central incisor (11)

I will discuss these teeth together as they had very similar clinical histories. Periapical radiographs dated 9/12/98 show that tooth 12 had extensive tooth loss, presumably as a

result of dental caries, involving most of the clinical crown and extending down the root surface to approximately the level of the alveolar crest. The radiograph demonstrates widening of the periodontal ligament at the apex of the tooth but no evidence of periapical bone loss. Tooth 11 also had extensive coronal tooth loss however the decay appeared to be restricted to the crown of the tooth. The periapical area does not show signs of periapical disease. Documentation reveals that both teeth had endodontic treatment, and were restored with what looks like cast post/core and porcelain fused to metal (PFM) crown restorations.

Comments:

Endodontic treatment:
There are no working length radiographs for either tooth in the clinical records. There are two periapical radiographs supplied in the notes dated 5/1/99-12/1/99 one of the radiographs shows tooth 12 to have a single-cone gutta-percha root filling in the apical third of the root which is flush with the radiographic apex. Tooth 11 has a single gutta-percha point placed in the canal to the working length as a trial point check. There is no evidence on the radiograph that rubber dam isolation was used during this phase of the endodontic procedure, however this is not to say that it was not used as some rubber dam techniques do not show on radiographs.

The periapical radiograph supplied by [Dr C], Dentist showing teeth 12 and 11 demonstrate that the root filling in both of these teeth has been displaced through the tooth apex and that a periapical lesion, measuring approximately 3-4mm x 3-4mm, had developed on both teeth. Radiographic evidence of the development of periapical pathology subsequent to endodontic treatment of a tooth that did not have radiographic evidence of periapical pathology at the commencement of treatment indicates that the endodontic treatment has failed (Orstavik, 1996). Although the root filling has extruded into the periapical area the most likely cause of the periapical pathology is an infected root canal system (Sjogren et al., 1990). Such failures usually occur as a consequence of inadequate root canal preparation and disinfection. However failure can occur in a small percentage of cases after well-done endodontic treatment (Orstavik, 1996) and since I have no information on the adequacy of the clinical techniques I cannot say with certainty that the failure was due to inadequate clinical care. However, with a lack of evidence of working length determination and the extrusion of root filling material in both teeth would suggest that an apical stop was not prepared suggesting incomplete root canal preparation and, as a consequence, inadequate debridement and disinfection of the root canal system.

Post/core:
The post in tooth 12 is of good length to provide retention of the core and crown. However it is a wide post compared to the width of the root and the size of the original root canal and in my opinion excessive tooth structure has been removed, in particular on the distal aspect at the most apical point of the post. This may compromise the strength of the remaining tooth structure (Trabert et al., 1982, Mattison, 1982). Similar comments can be made of the post in tooth 11 although more tooth tissue remains.

Porcelain fused to metal crowns:
[Dr C's] excellent documentation, radiographs, and clinical photographs clearly show that the margins of the crown on tooth 12 and tooth 11 are grossly deficient. It is regarded that the marginal gap between crown margin and tooth structure should be approximately 50 microm in order to have a functional restoration and to limit the potential for coronal microleakage, recurrent caries, gingivitis or periodontal disease (Rosenstiel et al., 2001). The evidence shows that the crowns on 12 and 11 have marginal gaps that are large enough to measure in millimetres and as such the crowns are totally inadequate. The poor marginal fit of the crowns would have been plainly evident to the dentist at the time they were tried on the prepared teeth prior to cementing onto the cores. There are no references in [Dr B's] clinical notes that the margins were deficient or that he informed the patient nor are there any details of review appointments being scheduled to check the fit and occlusion of the crowns, this would be regarded as normal clinical practice.

Treatment required:
Both teeth 12 and 11 require similar treatment, which is complicated by the condition of the teeth. Treatment of the periapical pathology is complicated by the presence of a post in the roots. Ideally, whenever possible conventional (orthograde) root canal re-treatment should be undertaken in the first instance to eradicate the root canal infection. In the case of teeth 12 and 11 this would require the removal of the post/core from the root prior to root canal instrumentation. However the size of the posts and the perceived weakness of the remaining root structure would put the roots at risk of suffering a root fracture, which would make the tooth unrestorable. In addition, conventional re-treatment may not effectively remove the extruded root filling material from the periapical tissues. As such, in most cases, an Endodontist would consider that apical surgery with periapical curettage, apicectomy and retrograde root filling would be the treatment of choice. However the limitations of this technique may not adequately remove the infection from within the root canal system and success could not be guaranteed.

To correct the marginal discrepancy of the crowns new crowns have to be made. When providing crowns on teeth that have an artificial core, eg a cast post/core or a plastic restorative material, it is mandatory that the crown preparation incorporates a ferrule design. This has been shown to be important in providing fracture resistance in endodontically treated teeth (Sorensen and Engelman, 1990). In order to provide a ferrule, adequate tooth tissue must be present to place the margins of the crown at least 1mm from the margin of the core (Sorensen and Engelman, 1990). From the radiographs supplied I feel that the present crown preparations do not have a ferrule. I would have grave concerns that there is adequate tooth tissue present, particularly with tooth 12, for a ferrule design for a new crown. This must be ascertained before new crowns are constructed as alternative treatment may have a better prognosis.

Teeth 23 (upper right canine), 25 (upper right second premolar)

The documentation clearly shows that the margins of the crowns on these teeth, which are abutments for a three-unit bridge, are grossly deficient and would have been evident at the time of insertion similar as discussed above. Tooth 23 has a post/core restoration and endodontic treatment that appear adequate on the radiographs supplied by [Dr C]. To correct the marginal deficiencies a new bridge is required.

In conclusion I believe that inadequate care and skill was displayed by [Dr B] with respect to the control and treatment of dental caries, and the provision of defective fixed prosthesis (crowns and bridge abutments) on teeth 12, 11, 23, and 25. Additionally the evidence would suggest that the endodontic treatment carried out on teeth 12 and 11 was not done in accordance with accepted clinical techniques. There is no evidence that [Dr B] made provision for follow up review of the patient which would be regarded as normal clinic practice particularly when providing endodontic treatment and advanced crown and bridge work. [Dr B's] clinical notes were difficult to interpret.

…"

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.*

…

5) *Every consumer has the right to co-operation among providers to ensure quality and continuity of services.*

Opinion: Breach

In my opinion Dr B did not provide dental services with reasonable care and skill and breached Right 4(1) of the Code.

Between December 1998 and February 1999 Mrs A had dental treatment performed by Dr B. The treatment included root canal fillings and crowns to teeth 11 and 12, and crowns and a three unit bridge to teeth 23, 24 and 25. Mrs A was initially satisfied with Dr B's treatment but in June 2000 she had dental pain and consulted another dentist, Dr C, who advised her that the dental treatment provided by Dr B was not of an appropriate standard. (I note that Dr C, the ACC advisor and my dental advisor comment on the crown fitting to tooth 22. This investigation has not established that Dr B provided dental treatment to this tooth. My dental advisor also commented that he could find no reference in Dr B's notes to treatment to tooth 27. However, there is radiological evidence that this tooth had received endodontic and restorative treatment at some stage between December 1998, when Mrs A consulted Dr B, and June 2000, when she was seen by Dr C. Mrs A assured me that she did not consult any other dentist between when she completed treatment with Dr B and her consultation with Dr C.)

Teeth 11 and 12
Dr C advised Mrs A that the crowns on teeth 11 and 12 had margin deficiencies and both root fillings extended beyond the apex of the tooth. On both teeth the radiological findings identified apical areas that suggested infections. The marginal deficiency on tooth 11 was filled with "luting cement" that would eventually dissolve. Dr C recommended replacement of both crowns. Before this could be done Mrs A would need endodontic re-treatment to the root canals. The second opinion provided by Dr D confirmed the apical infections of teeth 11 and 12 and deficient margins on tooth 12. Dr D described the margins of tooth 11 as "reasonable".

My independent dental advisor noted that Mrs A's root canal fillings "extruded into the periapical area" with infections at the apex. The most likely cause of infections of this nature was an infected root canal system as a consequence of an inadequately prepared and disinfected root canal. My advisor considers that Dr B did not adequately debride and disinfect Mrs A's root canal systems, because there were no full length radiographs taken by Dr B, no evidence that he used an "apical stop", and both fillings extended beyond the apex of the tooth.

My dental advisor noted, in relation to fitting the crowns, that radiology confirmed that the marginal gaps "are large enough to measure in millimetres and as such the crowns are totally inadequate". Gaps of this nature expose the patient to the risk of microleakage, recurrent decay, and periodontal and gum disease. Dr B should have been aware of the poor marginal fit when he fitted the crowns onto the prepared teeth prior to cementing them. He did not inform Mrs A and no reference is apparent in Dr B's clinical notes. Dr B did not offer Mrs A review appointments to check the fit and occlusion of the crowns, even though review appointments would be regarded as normal clinical practice.

In relation to the post in tooth 12, my dental advisor said that it was too wide for the size of the original root canal. This means that Dr B removed an excessive amount of tooth structure when he was preparing Mrs A's teeth, potentially compromising the strength of the remaining tooth. My advisor made the same comments about the post in tooth 11, although in that case Dr B did not remove as much tooth tissue in preparing that tooth. My advisor concluded that Dr B did not provide Mrs A with endodontic treatment on teeth 12 and 11 in accordance with accepted clinical techniques. I accept this advice.

Four dentists (including ACC's dental advisor) have reviewed Mrs A's dental records and concluded that the dental treatment to teeth 11 and 12 provided by Dr B failed to reach an appropriate standard. I am satisfied that Dr B failed to provide dental services to Mrs A with reasonable care and skill and breached Right 4(1) of the Code.

Teeth 23 and 25 (three unit bridge)
Dr C advised Mrs A that the bridge on teeth 23, 24 and 25 supplied by Dr B would require remaking because the marginal deficiencies left when he fitted the bridge will lead to decay. (Tooth 24 is the artificial tooth.) Dr D confirmed that the marginal fit on teeth 23 and 25 (abutment teeth) was poor and will eventually cause problems. Of immediate concern to Dr D was the infection at the root tip of tooth 23.

My dental advisor noted that the post/core restoration and endodontic treatment to tooth 23 appears adequate but the margins of the crowns on teeth 23 and 25 are grossly deficient. This would have been evident to Dr B at the time he fitted them. The only way to correct these marginal deficiencies is to provide a new bridge. I accept my advisor's advice that Dr B demonstrated "inadequate care and skill" in his provision of dental services in fitting the three unit bridge to Mrs A and, in particular, the crowns to teeth 23 and 25.

Accordingly, my opinion is that Dr B failed to provide dental care with reasonable care and skill to Mrs A when he fitted her bridge and therefore breached Right 4(1) of the Code.

Other comments

Dental records
Under Right 4(5) of the Code, Mrs A has the right to co-operation between health care providers to ensure quality and continuity of care. When Mrs A had to consult another dentist subsequent to her treatment from Dr B, her new dentist should have been able to rely on Dr B's notes as a true and accurate account of her dental treatment. Although Dr B kept extensive dental records his writing is illegible. My expert advisor was unable to define exactly what dental treatment Dr B completed and it is doubtful that Dr C could have interpreted Mrs A's records.

Dental records are a permanent record of treatment and a means of ensuring continuity of dental care. In failing to keep legible records of his dental care for Mrs A, Dr B failed to

comply with professional standards and did not enable adequate continuity of care from subsequent dentists.

Actions

I recommend that Dr B take the following actions:

- Provide a written apology to Mrs A for breaching the Code of Health and Disability Services Consumers' Rights. This letter is to be sent to my Office and will be forwarded to Mrs A.

- Reimburse the $7250.00 fee for dental services paid by Mrs A, by payment of a bank cheque to my Office one month from the date of my final report. The cheque will be forwarded to Mrs A.

Further actions

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

- A copy of this report with identifying features removed will be sent to the Dental Council of New Zealand, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

- I have decided to refer this matter to the Director of Proceedings in accordance with section 45(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any further action should be taken.