

**Dentist, Dr C**

**A Report by the  
Health and Disability Commissioner**

**(Case 00HDC12109)**



## Parties involved

|          |                                 |
|----------|---------------------------------|
| Mrs A    | Complainant / Consumer's mother |
| Master B | Consumer                        |
| Dr C     | Provider / Dentist              |
| Mr D     | Complainant / Consumer's father |
| Ms E     | School Dental Nurse             |
| Dr F     | Dentist                         |
| Dr G     | Dental Surgeon                  |
| Dr H     | Dentist                         |

Independent expert advice was obtained from Dr Geoff Lingard, a specialist in paediatric dentistry.

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## Complaint

On 20 November 2000 the Commissioner received a complaint from Mrs A about the treatment her son, Master B, received from Dr C, a dentist in private practice. The complaint was that:

- *On 23 February 1999 Dr C did not discuss or obtain consent from Master B's parents prior to the fitting of crowns on teeth 84 and 85.*
- *On the same occasion Dr C did not appropriately deal with the exhibited fear and distress of Master B. Dr C continued with the procedure and requested Mr D to hold Master B down instead of stopping and offering reassurance.*
- *Dr C did not advise the parents of Master B on appropriate follow-up care or arrange a completion x-ray and check of the crowns on 84 and 85.*
- *Dr C did not fit the crowns on teeth 84 and 85 with appropriate care and skill. By late 2000 most of the tooth substance of teeth 84 and 85 had "disappeared". The crown on 85 came loose and was removed with a slight tug and the crown on 84 was loose.*

An investigation was commenced on 11 January 2001.

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## Information reviewed

- Letter of complaint
- Relevant dental records
- Response from Dr C including of the following articles:  
American Academy of Paediatric Dentistry: Guidelines for Paediatric Restorative Dentistry, *Paediatric Dentistry*, November 1997; and

Faroq SJ, Coll JA, Kuwaabra A, Shelton S: Success rates of formocresol pulpotomy and indirect pulp therapy in the treatment of deep dentinal caries in primary teeth, *Paediatric Dentistry*, April 2000

- Instructions provided to consumer's parents by provider
  - Pre-treatment patient questionnaire filled out by consumer's parents
  - Expert advice from an independent paediatric dentist.
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## **Information gathered during investigation**

### *Background*

In early February 1999 Ms E, a school dental nurse at a dental clinic, examined Master B, aged four years and six months, as part of the school dental service. Ms E noted that tooth 84, a deciduous molar, had significant dental caries that caused Master B pain and required treatment. As Ms E could not provide the level of treatment required, she referred Master B to another dentist, Dr F, on 12 February 1999. The approval form from the school dental service to Dr F was for Master B to undergo a "pulpotomy of 84". A pulpotomy entails the removal of the coronal portion of the infected dental pulp and treatment of the remaining pulp to preserve it.

On 15 February 1999 Mrs A took Master B to Dr F. However, Dr F declined to provide treatment, stating: "[Master B] was referred with 84. On examination this boy is very nervous and I could see early decay elsewhere. I suspect it would be more beneficial long term to have treatment with some sort of sedation. The 84 has been sore and I suspect may need root treatment." Dr F referred Master B to Dr C, a dentist in a town with postgraduate paediatric experience. This town is 90 minutes' drive from the consumer's town. A second approval form for "one complete treatment" (OCT) was issued by Ms E. Dr C advised me that OCT "approval is only given when the therapist is unable to complete treatment due to its complexity or in this case behavioural problems or non-cooperation/acceptance of the child or a combination of the above".

### *Pre-treatment*

Mrs A understood from Dr F and Ms E that the purpose of the referral was for Dr C to complete a pulpotomy and a pulpectomy (the removal of dental pulp). Mrs A said she was not informed that any other procedure would take place. Dr C sent the following information sheet through to Master B's parents prior to the appointment:

#### "Instructions for patients to have sedation

We give children sedation either as a tablet, or younger children as a small injection to their bottom. Parents are present at all stages (for pre-school and primary school children).

The sedation is designed to relax your child only – they will still be able to talk to you and answer your questions.

We encourage parents to help by playing the many children's games with us, and sometimes sitting with your child in the dental chair.

Please be careful with your language – be positive – never say (for example) 'she won't hurt you', all your child will hear is the word 'hurt' and straight away this frightens them.

Usually we prefer an initial visit so that you and your child can become familiar with us, and make your second visit so much more pleasant.

Please bring your child's favourite toy(s) or books and give us some clues about their interests/pets etc.

Please remove all nail polish from fingers and toes.

Please give your child breakfast before they come, a hungry child is not a happy child.

We look forward to your visit and remember be positive."

Mrs A advised that she telephoned Dr C's clinic to ensure that prior to the administering of sedation no one mentioned it was like a bee sting as Master B had received a bee sting the week before and reference to bee stings might frighten him.

No further consultation took place prior to the appointment for treatment on 23 February 1999. Dr C advised that this was because Master B was referred from the school dental service for a "one complete treatment" and that she understood Master B to be in pain and felt obliged to provide treatment for the relief of pain promptly at the initial appointment. She also took into account the considerable distance the family had to travel from their hometown to Dr C's clinic for the appointment. Dr C's usual practice for local patients was to insist on a separate consultation prior to any treatment but in this case the pre-treatment consultation was rushed "because of the one visit, pain and treatment needs".

#### *Treatment*

On arrival at Dr C's clinic on 23 February 1999, Mr D and Mrs A were asked to complete a patient questionnaire and were then taken by a nurse to a small room. Master B was seen by a doctor, who asked Master B to pull down his pants a little to receive "just a small jab". Mr D and Mrs A recall that Master B was then taken into the surgery and placed in a dental chair. They state that the first time they met Dr C was at this point when she entered the room. Dr C, however, "believes she would have met [Master B] and the parents before [the doctor] administered the sedative".

Dr C recalled that she "managed to examine [Master B] but was unable to undertake x-rays to complete [a] diagnosis until after [Master B] was sedated". Dr C said that during the preliminary examination in the "green room" she discussed his medical history with Mr D and Mrs A based upon their responses in the patient questionnaire. Master B was then seen by the doctor, who medically examined him, listened to his chest and administered "midazolam" as sedation. Master B was also administered nitrous oxide by mask. Dr C advised that Master B was "then placed in the children's treatment room lying atop his

father – my preference for reassurance and monitored with a pulse oximeter ...”. Dr C explained that she administered a local anaesthetic and had to wait some minutes for it to take effect. During this time she played games with Master B. Once the local anaesthetic took effect Dr C said she told Master B she was going to put something in his mouth and then inserted a rubber dam.

There is conflicting evidence concerning Dr C’s explanation prior to treatment. Mr D and Mrs A stated that Dr C did not explain what was going to happen to Master B or to them. Dr C stated that she explained to Master B before every step of the treatment what was coming next in ways appropriate for children, such as saying they were going for a helicopter ride as she extended the dental chair. Dr C also said she explained to Mr D and Mrs A that they were able to ask for the treatment to be stopped at any time.

Dr C advised me that soon after she started to use her dental hand piece (drill), approximately 30 minutes into the treatment, Master B became increasingly distressed. At this stage she had “prepared” all three teeth as a quadrant for treatment. Dr C further advised:

“... [D]espite trying some distraction and other techniques it was obvious that his behaviour was that of learned fear and I would not be able to adequately complete his treatment nor was I in a position then to explain in detail the procedures I was using to his parents. I then would have asked his father to hold [Master B’s] arms (enveloping them in his own) so that I could finish the urgent problem (to which he agreed) so that I could provide the necessary relief of pain, cover his teeth and end this visit. In the time available the crowns were cemented without a trial fit and would have been a generous fit so that I could finish expeditiously. I believe that this approach was the most appropriate to that circumstance. I did respond to [Master B’s] behaviour, stopping care altogether as soon as I possibly could. I relieved the pain he was suffering.”

Dr C fitted stainless steel crowns to teeth 84 and 85 and applied amalgam to tooth 83 to complete the treatment.

Mr D and Mrs A advised me that Dr C asked both of them to restrain Master B while she continued treatment; however, near the end of the treatment Mrs A had to leave the room because of the heat. Mr D said he then had to sit behind his son holding his arms by his side while Master B’s legs were “jiggling around”.

Dr C explained:

“Given the behaviour exhibited, the pain and the time constraints I felt [reassurance] was not an appropriate technique to use at that time. The reality is that the treatment of children particularly wary children is a variable art and flexibility is essential. Those involved need to be able to appropriately respond to a child’s behaviour given the current circumstances. [Master B] had presented with a tooth that was causing pain with the potential to cause significantly more pain. As I proceeded with his treatment, under increasing difficulty, my choice was to complete the pain relief and refer, or to stop and refer for a general anaesthetic.”

Dr C explained that she understood the waiting time for a general anaesthetic at a public hospital for dental treatment is usually about six months as “toothache is not considered a priority”.

Dr C referred Master B to the Dental Department at a public hospital for completion of treatment under general anaesthetic and sent copies of her letters of referral to Mr D and Mrs A.

*Post-treatment care*

Following the treatment Dr C asked Mr D and Mrs A to take Master B for a walk while the sedation wore off. She also explained to them that because of the experience Master B had just been through, he was likely to be fearful about returning to her and this would prevent her from being able to treat Master B. Mr D and Mrs A said Dr C informed them that she would arrange for further treatment to be completed at a hospital.

Mr D and Mrs A took Master B for a walk after which Mr D returned to the clinic to see Dr C. Mr D asked Dr C why his son’s teeth were crowned with stainless steel and expressed his unhappiness with the treatment provided, particularly the use of stainless steel crowns.

Dr C explained to Mr D that the use of stainless steel crowns is standard treatment for children. Dr C said she had not discussed which specific form of filling she was going to use in advance because she regarded consent to a pulpotomy procedure, which necessarily involves a form of filling, as consent to the use of stainless steel crowns. Dr C later advised that “even had a different form of treatment been agreed in advance, I would have been unable to provide it in the circumstances”. Dr C considers that stainless steel crowns are the quickest and most reliable form of crowns and were necessary given the circumstances of an increasingly unco-operative patient. Dr C in her report to Dr F, the referring dentist, stated that she understood at the time that Mr D accepted her explanation that “with such rampant caries ... it is far wiser to place restorations with a proven longevity”.

A staff member, who works for Dr C, phoned Mr D and Mrs A on 24 February 1999, the following day, to check how Master B was.

Dr C explained that she did not arrange follow-up care as she had referred Master B to a dental surgeon, Dr G, at the hospital to complete treatment under general anaesthetic. Dr C said she was funded for only one treatment by the school dental service and once she referred Master B to the hospital it would not have been appropriate to provide care or comment unless invited to do so.

Mr D and Mrs A were advised in writing by the school dental service prior to the consultation with Dr C that Master B would “continue to receive regular care at the school dental clinic”. Mrs A discussed Master B’s care with the school dental service on 25 February 1999, two days after Dr C saw Master B.

Three months later, on 24 May 1999, Master B underwent an operation under general anaesthetic at the hospital, in which dental surgeon Dr G treated Master B’s extensive caries and restored teeth 5/5, 5/4, 5/3, 6/4, 6/5, 7/5, 7/4 using silver amalgam. Following surgery,

Dr G advised Master B's general practitioner and the manager of Dental Health, that Master B should be reviewed within four weeks post-operatively.

Master B lost teeth 84 and 85 by November 2000 when he was six. These teeth are normally exfoliated when a child is between the ages of nine and 12. The teeth had rotted and Mr D and Mrs A were advised that this was due to ill-fitting crowns.

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## **Independent advice to Commissioner**

An independent specialist in paediatric dentistry, Dr Lingard, provided the following expert advice:

### **“1.0 Documents reviewed in relation to this report.**

- Letter from [Mrs A]
- Investigation letter to [Dr C]
- Letter to Commissioner from [Dr C]
- X-rays taken by [Dr C] 23 Feb 1999
- School dental Reports
- Report from [Dr H] dated 26 Oct 2000
- Copy of digital x-ray taken by [Dr H]

### **1.1 Specimens viewed**

- Exfoliated teeth – 84 and 85

### **2.0 Expert Advice Required by Health and Disability Commissioner**

#### **2.1 Should [Dr C] have known and discussed what her particular treatment options were prior to being able to physically examine [Master B's] teeth?**

#### *Advice*

The information available to [Dr C] prior to having examined [Master B] was:-

- The referral letter from [Dr F], which indicated:-  
  
[Master B] was a nervous boy  
Tooth 84 had been sore and may require root treatment  
Other fillings were required  
Beneficial to treat child under some sort of sedation
- The referral from School Dental Service, which indicated:-



[Master B] required one complete treatment. This usually indicates multiple teeth are decayed and require treatment.

Tooth 84 required a pulpotomy. The pulp of this tooth had been exposed and a temporary dressing was in place.

A pulp exposure indicates the integrity of the pulp has been breached either by tooth decay or during the restoration of the tooth. Often, in a severely decayed tooth the decay would have penetrated through the two hard layers of the tooth i.e. the enamel and dentine, on into the pulp which contains soft tissues with blood vessels, nerves, lymphatic tissue etc. Where there is deep decay, which has penetrated through the hard tissues into the pulp, normal restorative treatment is not possible and more complex treatment is required. These include: -

- A pulpotomy i.e. removal of the coronal pulp tissue followed by sealing the remaining pulp in the roots of the tooth using pulp treatment techniques and subsequent restoration of the tooth.
- A pulpectomy i.e. removal of both coronal (pulp in crown of tooth) and radicular (pulp in roots of tooth) and filling roots with a special material and then restoring the tooth.
- Extraction of the tooth.

The referrals from [Dr F] or the school dental service did not identify the actual number of teeth which were decayed, or the extent of the treatment required to restore them apart from tooth 84.

It would have been difficult for [Dr C] to establish the full extent of the treatment required without a pre-operative examination of [Master B]. However, it would be reasonable to assume from the above information [Master B's] treatment needs were complex in that he required a number of teeth restored and at least one tooth required pulp treatment. On reading [Dr C's] reply to the investigative letter, it seems clear that it is her standard treatment to place stainless steel crowns over teeth that have been treated by pulpotomy.

- There was no pre-operative assessment

It is accepted as good clinical practice to examine patients prior to the provision of treatment. This enables a full assessment of the patient, their treatment needs and best method of providing this. In the case of a young child it would also provide the parents with sufficient information to enable them to make an informed choice with regard to the proposed treatment and patient management strategies.

This practice is very important for children in [Master B's] age group who are nervous and require complex treatment, especially as this was to be under sedation. The advantages and disadvantages of sedation pulp treatment and the provision of stainless steel crowns could have been discussed. Other management options could have also

been discussed such as provision of this treatment under general anaesthesia. The parents would have been involved in the decision making process and informed consent would have been obtained.

**2.2 Please comment on such factors as the family having travelled a distance for treatment, being approved for One Complete Treatment, then presence of extensive caries and then history of pain on [Dr C's] actions and treatment.**

*Advice*

- Distance travelled for treatment

The distance patients travel for treatment can unduly influence the provider of services to undertake as much treatment as possible in the one appointment. A child who requires one complete treatment usually requires a substantial amount of dental treatment. In planning to complete this within the one appointment, using sedation, it is possible [Dr C] placed herself under considerable pressure to achieve these goals.

- Presence of extensive caries

It was clear from [Dr C's] examination once [Master B] had been sedated and from radiographs taken that [Master B] has extensive caries involving all his primary molar teeth.

The radiographs taken by [Dr C] indicated extensive tooth decay on the right side of the mouth, both in the maxillary and mandibular primary molar teeth. Unfortunately, the x-rays of the left side can not be read with any degree of accuracy due to being of poor quality. However, it would be usual practice to find similar extensive tooth decay on the left side. [Dr C's] letter of referral to [the hospital], where [Master B's] treatment needs were outlined, confirms this observation.

- History of pain

The pulp of tooth 84 had been exposed, had a history of pain and had been dressed by the school dental therapist. A common complication of this condition is necrosis of the exposed pulp and abscess formation. It is appropriate to provide definitive treatment such as a pulp treatment as soon as practicable. It is not clear whether the child was in pain when he attended [Dr C's] surgery.

- [Dr C's] treatment

Once the extent of the treatment required was identified, it would have been more appropriate to provide treatment for tooth 84 only and then either schedule further appointments or to refer [Master B] for all the remaining treatment to be carried out in one appointment under general anaesthesia.

Once the treatment session has commenced and [Master B] became upset to the point where he needed to be restrained, the treatment should have been discontinued and

alternative treatment options pursued. However, the immediate treatment in progress needed to be completed so as not to cause [Master B] further pain or to further compromise the integrity of the tooth.

The fitting of stainless steel crowns following a pulpotomy on a tooth is considered the ideal restoration. This is because the strength of the tooth can be compromised by the removal of tooth tissue to gain entry into the pulp chamber. Extensive destruction of the tooth by the decay process can also weaken the remaining tissue. However, when [Master B] became distressed, it would have been more appropriate to have adopted a more flexible approach and placed an alternative filling material which would not involved further extensive preparation of the tooth. A stainless steel crown could have been placed later if required either during the treatment under general anaesthesia or at a later appointment with [Dr C].

It is not considered good clinical practice to forcibly restrain children during the provision of dental treatment.

### **2.3 Please comment on the likely effect of the behaviour of distressed young children on the ability of a dentist to satisfactorily complete tasks such as fitting stainless steel caps.**

#### *Advice*

The restoration of teeth in young children is very demanding and requires a high level of skill together with good patient co-operation to achieve a successful outcome. In a situation where [Master B] was not coping and being restrained, the dental procedures undertaken at the appointment in question i.e. preparation of teeth, one filling, two pulpotomy procedures and placement of two stainless steel crowns, would have been difficult to achieve. These circumstances would have contributed to a less than satisfactory outcome.

### **2.4 Could teeth have deteriorated for any reason other than ill fitting stainless steel caps?**

#### *Advice*

The teeth in question, 84 and 85 were treated by electro-surgical pulpotomies and restored with stainless steel crowns under very adverse circumstances.

The teeth (85, 84) could have deteriorated as a result of ill fitting crowns or failed pulpotomies. These teeth are usually exfoliated between the ages of 9–12 as a part of normal growth and development. In a situation where both treatments, pulpotomies and the placement of stainless crowns were performed with difficulty under adverse conditions, failure of the treatment was a possibility. The School of Dentistry, University of Otago teaches a pulpotomy technique based on the medicant formocresol. The efficacy of the electrosurgical technique has not yet been fully evaluated.

The exfoliated / extracted crowns of teeth 84 and 85 teeth complete with stainless steel crowns in place were examined by viewing only. There appeared to be associated with both teeth macroscopic evidence of total internal resorption of the remaining tooth tissue. There is evidence of incomplete removal of caries.

I would surmise restorations on teeth 84 and 85 teeth failed because of rapid and complete internal resorption, which is a known complication of pulpotomies. It is possible some coronal leakage around the stainless steel crowns contributed to this but probably the major contributing factor was inadequate pulpotomies performed on a resistant child.

The normal success rate for formocresol pulpotomies (a technique not used for [Master B]) is around 90 – 98%.

The copies of [Dr H's] x-rays are not adequate to make a definite diagnosis in relation to the deterioration of teeth 84 and 85.

**2.5 Should any defect in the fit of the stainless steel crown have been picked up when [Master B] was later under general anaesthesia for the completion of his dental treatment?**

*Advice*

It is possible but depended on the cause of the failure of the crown. If the crowns were fitting badly resulting in marginal leakage and a poor coronal seal, it should have been detectable.

However, since the treatment under general anaesthetic was performed only a short time after the crowns were fitted, any possible discrepancies in the fit may have been masked by the cement and not have been immediately obvious. Minor deficiencies would have been more difficult to detect. X-rays taken at the time of the general anaesthetic might have been helpful but not all hospital dental departments have access to dental x-ray machines within a theatre set up.

**2.6 Please explain the system of referrals from the school through to hospital services. Who had the primary responsibility for follow-up of [Master B] after [Dr C] referred him to [the hospital]?**

*Advice*

- Referral systems

The referral by the school dental service of children for one complete treatment is an accepted practice in New Zealand. The children are mainly young, have had either none or minimal dental treatment and usually find dental treatment difficult to cope with. They often have many decayed teeth and may require extractions and/or many fillings. The Principal Dental Officer approves a special dental benefit and the parents are

informed. The health care providers are usually either a private dental practitioner or the District Health Board hospital dental department.

Many school dental services will refer children who require one complete treatment direct to a hospital dental department, as they are able to provide treatment under general anaesthesia.

- Primary responsibility

The primary responsibility for follow-up care should be with the practitioner who provided the treatment. This can be delegated to the referring practitioner who provides care for that child on a regular basis i.e. the school dental service. However, in 1999, the majority of practising school dental therapists were not familiar with stainless steel crowns or pulpotomy procedures as this was outside their scope of practice. Under these circumstances, [Dr C] is responsible for the follow up care resulting from treatment she performed on teeth 84 and 85. The British National Guidelines for Paediatric Dentistry on pulpotomies state these teeth should be followed up and x-rayed at annual intervals.

## **2.7 Any other relevant matters you wish to comment on.**

To provide complex treatment for a 4.5-year-old child under sedation using intramuscular Midazolam is not common practice in New Zealand. The majority of children in this age group who require extensive restorative treatment, such as [Master B] needed, would be referred to a Hospital Dental Department for treatment under General Anaesthesia. Hypno-sedative medications such as Midazolam when administered via the intramuscular route are uncomfortable and unpredictable in young children.”

Dr Lingard subsequently provided the following clarificatory advice summarised below, in response to specific questions (in bold):

### **What is a failed pulpotomy and what causes them?**

A pulpotomy is where the vital inflamed pulp in the coronal section of the tooth is removed and replaced by a filling. During this procedure the dentist drills down through the enamel and dentine hard tissues into the pulp chamber. The pulp comprises of soft tissue, which contains blood, nerve and lymph supply and is the vehicle for supplying nutrients and pain perception to the tooth. It is an acceptable technique to use in the paediatric context where the pulp is not infected to the extent where there is necrotic tissue with possible abscess formation. In ideal circumstances there is about a 98% success rate. However, if the tooth has been compromised because of a history of infection then the chances of success are more limited.

Master B had his pulpotomy done using the diathermy technique. If there is any infection in the radicular pulp, with this technique the infection can effectively be sealed or trapped within the tooth. The diathermy technique is not usual practice in New Zealand but is nevertheless acceptable.

The most commonly used pulpotomy technique used in New Zealand is the formocresol technique. This is where after removal of the coronal pulp a medicant is placed in the pulp chamber which kills bacteria and fixes the root tissue. From one point of view a drawback of this technique is the toxic side effects of formocresol. However, the amounts used are minute and this is the technique taught at Otago University and internationally.

As indicated in the original report the success of a pulpotomy depends whether the treated tooth has been restored well so that there is no coronal leakage, ie bacteria cannot gain access to the treated radicular pulp. A well placed stainless steel crown can help achieve this. One that has been placed in less than optimal conditions may allow marginal leakage and could allow some coronal leakage.

### **What is resorption?**

When the root of the tooth disappears through osteoclastic cell action and inflammatory action on the root surface. This may be external or internal. It is a possible complication of a pulpotomy because you can induce a process where the body does not recognise the cells of the tooth as its own and sets up a reaction against the tooth. This is also the case where there is an unresolved inflammatory reaction. A pulpotomy needs to be done in a controlled environment when the pulp chamber is clean and dry and appropriate filling material can be placed. So when it is done in less than ideal conditions, then this contributes to the failure of the pulpotomy.

### **What is involved in preparing teeth for crowns and what is the point of no return in that preparation?**

Once Dr C chose to place crowns she would have been committed from the beginning of the preparation. Preparation of a tooth for a crown requires the tooth to be reduced in overall size. This is achieved by cutting the top, back and sides of the tooth so that the size of the crown can be accommodated. If preparation of Master B's teeth was also done by the quadrant then all of the teeth were prepared together. The pulpotomies would have been completed before preparation for crowns commenced.

### **What does the statement "to finish immediate treatment" mean?**

Dr C had no option but to complete the placing of the stainless steel caps on 84 and 85 once the preparatory cuts had been made. Not to have done so would have left the teeth in an unrestored state.

### **What is the significance of the incomplete removal of caries in teeth 84 and 85?**

It is routine practice sometimes with deep cavities where the dentist does not want the nerve involved to clean the periphery of the tooth and fill the cavity leaving some caries. The idea is that by thoroughly cleaning the tooth of destructive organisms and then filling the cavity, the damaged part of the tooth is sealed off and can start to repair itself. However, this is not the case where a pulpotomy has been carried out as the coronal pulp no longer exists and therefore cannot institute a reparative process. In this situation, if the crown had fitted well the remaining caries may have simply arrested as the bacteria would have been deprived of

nutrients. If the crown was a poor fit, then the bacteria may have been able to survive and the caries could have continued to have been active. This might have contributed to the failure of the crowns although it is unlikely.

Dr Lingard said that when he looked at the crowns and x-rays he did not have a clear view of the cause of why Master B's pulpotomies failed. However, the probable cause of an inadequate pulpotomy would be contamination from blood and saliva where the degree of pulp removal is unclear. When pulp is removed it bleeds and this must be controlled before filling. Dr C did this by the diathermy technique but contamination can still occur and is more likely if co-operation of the child is lost. The other possible reasons were lack of a well sealed restoration, ie ill fitting stainless steel crowns or possibly (but less likely) inadequate removal of all decay.

The child was clearly unhappy with the treatment and his behaviour subsequently deteriorated as the appointment progressed. This, as discussed in original report, would have contributed to a very compromised treatment outcome.

### **Management comments?**

Dr C wrote 'the treatment and management of wary young patients is often not a predictable path despite the use of sedation. Much flexibility is required.' However, Dr C did not demonstrate a lot of flexibility in her management and treatment of Master B. It would have been better with an anxious four-year-old to treat one tooth at a time and then if the child is reacting badly, treatment could be stopped quickly. Therefore, if tooth 84 had been painful, it might have been an option to treat only this and then reassess progress. Tooth 85 was carious and it can only be assumed this also had pulp involvement as this tooth was also treated by pulpotomy and stainless steel crown. There are alternative filling materials that could have been used rather than proceeding with preparation for crowns. Crowns are considered the ideal treatment for pulpotomies but are not the only choice especially when the child was upset and unco-operative.

Dr C made an error of judgement in not allowing herself as much flexibility as possible in her management of Master B's treatment.

### **Is the "error of judgement" made clear in retrospect or should the potential of the situation have been clear to Dr C at the time?**

That the situation deteriorated as it did was foreseeable with an anxious four-year-old but Dr C's choices were, however, unfortunate rather than unreasonable because in some circumstances the approach may have been successful.

In conclusion, however, while the approach itself was not unreasonable, in the circumstances as they developed – with Dr C committed to continue with the placing of crowns – the overall management of the case lacked foresight.

## Response to Provisional Opinion

Dr C commented on the advice from my independent advisor, Dr Lingard, as follows:

“I understand that Dr Lingard’s comments and opinions are based on his experience and view of the treatment I provided for [Master B]. There are different ways of treating such a case and while some are not mainstream within New Zealand, that doesn’t necessarily make them wrong.

I refer particularly to the comment on my use of Midazolam as an IM sedative, and the diathermy technique for the pulpotomy. Both have been well reported in the dental literature and well accepted, otherwise I would not use them.”

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## 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.*

...

(3) *Every consumer has a right to have services provided in a manner consistent with his or her needs.*

### *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; ...*



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## Opinion: Breach – Dr C

### Right 6(1)(b)

#### *Information about treatment options*

For the purposes of Right 6 and 7(1) of the Code, a consumer includes a person entitled to give consent on behalf of that consumer. Mr D and Mrs A, as Master B's parents and guardians, were entitled to consent on his behalf, and to receive all the information that reasonable parents, in their circumstances, would expect to receive, including an explanation of the options available. Informed consent cannot be obtained unless this information is provided prior to the provision of treatment.

Mrs A understood from dentist Dr F and school dental therapist Ms E that Master B had been referred for pulpotomies to be performed. Mrs A was not told that any other procedure would take place.

Dr C acknowledged that no information was given to Mr D and Mrs A before the day of treatment, except a form about sedation. Dr C also acknowledged that the type of filling to be used, and the option of operating under a general anaesthetic if sedation failed, were not discussed prior to treatment.

I accept that Dr C did discuss Master B's medical history based on the patient questionnaire completed by Mr D and Mrs A and explained that she "was unable to undertake x-rays to complete a diagnosis until after [Master B] was sedated". Dr C was in the 'habit' of providing commentary as treatment progressed, as she did in Master B's case. However, explaining procedures step by step does not fulfil the requirements of Right 6(1)(b), since a consumer cannot make an informed choice if no explanation has been given prior to treatment.

Dr C had the referral letter from Dr F, which indicated that Master B was a nervous boy, and the referral from the school dental service for "one complete treatment" (OCT). My advisor stated that OCT referrals "usually indicate multiple teeth are decayed and require treatment". In such circumstances it is reasonable to expect that difficulties may well arise, and to have a contingency plan. Mr D and Mrs A should have been provided with information relating to the treatment procedure and management options prior to the commencement of treatment. In failing to provide such information, Dr C breached Right 6(1)(b) of the Code.

### Right 4(3)

#### *Initial management*

Dr C advised that she prepared all three teeth together in a "quadrant", including teeth 84 and 85 for crowns.

My advisor stated that "it would have been more appropriate to provide treatment for tooth 84 only" because with an anxious four-year-old child if one tooth was treated at a time and

the child reacted badly, treatment could be stopped quickly. My advisor also said that while crowns are considered the ideal treatment for pulpotomies they are not the only choice.

My advisor noted that it was an “error of judgement” not to allow as much flexibility as possible in the management of Master B’s treatment, since deterioration in his ability to co-operate was foreseeable. However, Dr C’s decision to prepare all teeth together and to fit crowns was “unfortunate rather than unreasonable” because in different circumstances with full co-operation her approach may have been successful.

After the extent of decay in Master B’s teeth was ascertained following sedation, examination and x-ray, it was questionable whether Dr C should have proceeded to treat Master B. Once the decision had been made to proceed, it would have been prudent to maintain as much flexibility as possible to allow for the foreseeable circumstance of an upset, unco-operative child. In my opinion Dr C breached Right 4(3) of the Code in not making appropriate management decisions in her treatment of Master B when the difficulties were foreseeable.

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## **Opinion: No breach – Dr C**

### **Right 4(3)**

*Appropriate response to child’s fear and distress.*

Dr C’s practice includes a high proportion of paediatric surgical patients. She was aware that Master B was a “nervous” boy.

Dr C advised Mr D and Mrs A (in the instruction pamphlet sent to them prior to the appointment) about appropriate behaviour and language to best prepare and assist Master B to undergo treatment. The advice included references to playing games, positive language, allowing the child to have favourite toys and books, and a request to be told about the child’s interests and pets. I accept that Dr C explained to Master B before every step of the treatment what was coming next, in language appropriate for a child. I am satisfied that Dr C took steps aimed at alleviating Master B’s anxiety and did not breach Right 4(3) of the Code.

### **Right 4(1)**

*Intra-operative management*

Despite sedation with intramuscular midazolam, local anaesthetic and nitrous oxide, Master B became distressed when Dr C commenced the “second set of drilling”.

My advisor confirmed that once preparation for crowns is commenced the dentist is committed to complete treatment because the teeth are cut down in size. To stop treatment then would have left Master B in pain and compromised the integrity of his teeth. I accept that crowns had to be fitted because “the immediate treatment in progress needed to be completed”. It appears that when Master B became distressed, reassurance alone was of

limited value and it was in Master B's best interests to complete the immediate treatment as expeditiously as possible.

In my opinion it was reasonable in the circumstances for Dr C to request Mr D to restrain Master B while she completed treatment, even though forcible restraint is not considered good practice. Accordingly, Dr C did not breach Right 4(1) of the Code in continuing treatment once Master B became distressed.

*Pulpotomies and fitting of crowns*

Dr C fitted stainless steel crowns, under adverse circumstances, to teeth 84 and 85, but 21 months later Master B had lost both teeth.

My advisor stated:

“The restoration of teeth in young children is very demanding and requires a high level of skill together with good patient co-operation to achieve a successful outcome. In a situation where [Master B] was not coping and being restrained, the dental procedures undertaken ... would have been difficult to achieve. These circumstances would have contributed to a less than satisfactory outcome.”

My advisor also noted that “the teeth (84, 85) could have deteriorated as a result of ill-fitting crowns or failed pulpotomies” but concluded:

“Restorations on teeth 84 and 85 failed because of rapid and complete internal resorption, which is a known complication of pulpotomies. It is possible some coronal leakage around the stainless steel crowns contributed to this but probably the major contributing factor was inadequate pulpotomies performed on a resistant child.”

My advisor explained that if the nerve is not too affected and not abscessed then the success rate for pulpotomy treatment using the medicant formocresol technique is 98%. However, Master B did have extensive dental decay probably involving the nerve on tooth 84 and Dr C used the electro-surgical or diathermy technique. My advisor commented that this technique is not usual practice in New Zealand and its efficacy has not been fully evaluated. However, it is acceptable dental practice. Dr C advised also that pulpotomies in deciduous teeth “do have a failure rate especially if the carious exposure is very large and has been longstanding”.

Finally, my advisor noted that “if the crowns were fitting badly resulting in marginal leakage and a poor coronal seal, it should have been detectable” when Master B was later under general anaesthesia for the completion of his dental treatment. However, because of the short time between Master B's treatment under Dr C and the treatment under general anaesthetic, “possible discrepancies may have been masked by the cement and not have been immediately obvious”.

On balance I am satisfied that the probable cause of the failure of treatment for Master B's teeth 84 and 85 was a failure of the pulpotomies. The treatment occurred under adverse circumstances involving a child with significant tooth decay. This reduced the likelihood of success. I do not consider that the treatment on teeth 84 and 85 failed because of any

failure by Dr C to exercise reasonable care and skill. Accordingly, Dr C did not breach Right 4(1) of the Code.

#### *Follow-up care*

Following Master B's appointment on 23 February 1999, Dr C appropriately referred him to Dr G, the dental surgeon at the hospital, because Master B had extensive caries and required further treatment under general anaesthetic. Dr C also wrote a report to the local dentist, Dr F.

Dr G operated on Master B at the hospital on 24 May 1999 and restored teeth 5/5, 5/4, 5/3, 6/4, 6/5, 7/5, 7/4. Dr G sent reports to Master B's general practitioner and to the manager of Dental Health. Master B's care continued under the school dental service.

My advisor noted that pulpotomies "should be followed up and x-rayed at annual intervals". My advisor also stated:

"The primary responsibility for follow-up care should be with the practitioner who provided the treatment. This can be delegated to the referring practitioner who provides care for that child on a regular basis i.e. the school dental service."

Dr C referred Master B to Dr G for further treatment. From this point the care for Master B's teeth 83, 84 and 85 was not Dr C's responsibility. I accept Dr C's advice that she would have been available, if requested, to advise on necessary follow-up care.

In my opinion Dr C did not breach Right 4(1) of the Code in not providing follow-up care for Master B, as she had appropriately referred him to the dental surgeon at the hospital and reported back to Dr F.

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### **Actions taken**

- In response to my provisional opinion, that Dr C submitted a written apology to Mr D and Mrs A for not adequately informing them of the options for treatment and management of Master B prior to commencing surgery.
- Dr C confirmed that as a result of Mr D and Mrs A's complaint she has reviewed her practice with patients referred for a "one complete treatment", and now ensures that "before, during and after treatment, parents understand the nature of the case".

## 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 also be sent to the Dental Association of New Zealand and to the School of Dentistry of the University of Otago, and placed on the Health and Disability Commissioner's website, [www.hdc.org.nz](http://www.hdc.org.nz), for educational purposes.