# The effects of a long wait for children's dental general anaesthesia

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**Objectives.** The purpose of this study was to monitor the effect of an interruption in a service for children who were scheduled to have dental extractions under general anaesthesia (GA). The reasons for offering GA and the treatment given while the service was not available, together with the history of the pain, antibiotic usage and alterations to the number of teeth extracted were recorded. **Methods.** When the GA extraction service stopped, the children who were scheduled to have their teeth extracted were placed on a waiting list. When the service recommenced 6 months later, the children were invited to attend a reassessment. Relevant data were collected at this visit using a proforma. **Results.** A total of 321 children had their extractions delayed. Only 249 of these attended for a reassessment. During the waiting period, 102 parents (41.0%) reported that their children required analgesics, 71 (28.5%) stated that their children's sleep was disturbed and 82 (32.9%) recorded problems with eating. One hundred and twenty-three children (49.4%) had received antibiotics, with 49 (19.6%) having been prescribed two or more courses. The majority of treatment plans (85.5%) remained unchanged. **Conclusions.** Many children who had had their extractions delayed suffered further pain and disruption to their life.

#### Introduction

The availability of general anaesthesia (GA) in general dental practice and the Community Dental Service has been greatly reduced following the Department of Health's circular A *Conscious Decision*<sup>1</sup>. It was envisaged that other methods of pain control and the use of sedation could be employed to avoid the use of GA<sup>2</sup>. There still remain a number of children, however, who are extremely anxious or who need multiple extractions of grossly carious teeth, and GA is still required in the treatment of these individuals<sup>3,4</sup>. This has led to the production of guidelines for primary care dentists who refer children for extractions under GA<sup>5</sup>. As a result of more-stringent referral criteria, the number of paediatric exodontia GAs at Charles Clifford Dental Hospital (CCDH), Sheffield, UK, has declined year on year, having

peaked in 1990 with 2150 children receiving this form of care. More recently, the number of children receiving outpatient GA for exodontia was: 1330 cases in 2001–2002; 1294 cases in 2002–2003; and 1190 cases in 2003–2004.

Following *A Conscious Decision*<sup>1</sup>, transitional arrangements were put in place for the CCDH to continue to provide an exodontia GA service, with the aim of eventually transferring the service to the nearby children's hospital. Delays in commissioning the children's hospital service, however, led to a gap in the service from December 2003 to June 2004.

Therefore, except in cases of acute emergency, no service provision for routine exodontia under GA was possible for 6 months because there were no other providers in the local area. All the children who had already been assessed and had treatment planned for exodontia under GA by the paediatric dentistry team were placed on a waiting list, and when the list began in the children's hospital, they were reassessed in order to update their treatment requirements and obtain a new informed consent.

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This gave the consultants in paediatric dentistry at CCDH a unique opportunity to undertake this study. The objectives were to:

- identify the reasons for offering children GA;
- note any treatment that had taken place between the initial consultation and reassessment;
- record the amount of discomfort suffered by the children between the initial consultation and the reassessment;
- record the prescription of antibiotics between the initial consultation and the reassessment; and
- record differences in the number of teeth scheduled for extraction that had occurred as a result of the service delay.

#### Subjects and methods

Data for this study were collected from children recalled from the waiting list for their dental GA reassessment, following the reintroduction of the GA service, which had ceased 6 months previously. Data were collected using a proforma which was completed by the paediatric dentist during the reassessment visit. The patient information recorded included gender, age at referral, age at assessment, area of residence, source of referral, reason for the GA, information on previous dental GAs, the number of teeth scheduled for extraction at the initial visit and whether there had been any alteration to the treatment plan in between assessments. The degree of discomfort that the children had experienced whilst waiting for resumption of the anaesthetic service was also recorded. This included the use of analgesia and antibiotics, reported disturbance of sleep, interference with eating, and where appropriate, missing school in cases where the child was old enough to be attending.

#### Results

At the time of the suspension of the service, a total of 321 children who had already been assessed were on the waiting list for exodontia under GA. One hundred and fifty-eight (49.2%) were boys and 163 (50.8%) were girls. The mean age of the group was 74.3 months (range = 13-155 months; SD = 25.6 months).

#### Referral source

Two hundred and forty-four (76.0%) children had been referred initially by their general dental practitioner, 55 (17.1%) were self-referred because they were not registered with a dentist, 12 (3.7%) were referred by the Community Dental Service, three (0.9%) came from within the CCDH, and for seven, it was not possible to elicit the exact information (2.2%). Two hundred and forty-nine patients attended for the reassessment and the mean waiting time for this visit was 6.8 months, which was inclusive of the 6-month cessation of the service.

# Reason for general anaesthesia

Table 1 gives details of the reasons for offering GA at the first assessment visit. The main reason for the proposed extractions in 112 children (34.9%) was single or multiple extractions in children aged 4–6 years, whilst the second most common reason in 72 (22.4%) was single/multiple extraction in those older than 6 years of age. A further 29 children (9%) had or were suffering pain from at least two quadrants, whilst the same number required extraction of permanent molar teeth of poor prognosis as part of orthodontic treatment. A further 19 children (5.9%) required GA following a failed local anaesthetic.

# Treatment offered whilst waiting for resumption of the general anaesthesia service

Information on the treatment that children had received prior to the recommencement of the GA extraction service was recorded at the

Table 1. Reasons for the choice of general anaesthetic in the total group (n = 321).

Reason	Number	Percentage
Failed local analgesia	19	5.9
Soft-tissue swelling/surgical drainage	2	0.6
Single/multiple extractions:		
> 6 years of age	72	22.4
< 4 years of age	42	13.1
4–6 years of age	112	34.9
Pain from two quadrants	29	9.0
Complex extractions	16	5.0
Molar extractions for orthodontics	29	9.0

reassessment visit. For 249 patients, this information was obtained by looking back in the children's dental hospital records. In nine further cases, this information was gained by telephone contact with the family. The majority of the children, 185 (71.7%) had received no dental treatment on the teeth destined for extraction whilst awaiting the GA. Temporary restorations were done in 43 children (16.7%). Local anaesthetic extractions had been undertaken in 13 cases (5%) and GA utilized in 15 cases (13%), the majority of these latter cases (n = 9) received the GA from other providers outwith the Sheffield area. One child had been admitted to the Sheffield Children's Hospital requiring intravenous antibiotics.

The mean age of the 249 patients who attended for reassessment was 78.6 months (range = 19– 153 months; SD 24.1 months). One hundred and seventeen patients (47.0%) had not contacted the Children's Department during the waiting time; however, 132 (53.0%) of them had found it necessary to seek advice from staff at the CCDH: 74 children (29.7%) had either attended or asked for advice over the telephone on one occasion, 30 children (12.0%) had done this on two occasions, 19 (7.6%) on three occasions, four (1.6%) on four occasions, and five children (2.0%) had either attended or asked for advice over the telephone on five or more occasions.

# Toothache and prescription of antibiotics

Of the 249 patients who attended for reassessment, 102 parents (41.0%) reported that their child had required analgesia during the waiting period. Seventy-one (28.5%) reported that their child had been kept awake on more than one occasion, and 82 (32.9%) reported problems with eating. Twenty-three (9.2%)reported that school had been missed on at least one occasion. For 45 (18.1%) of the children, this question was not applicable since they were of preschool age. Between the initial consultation and the reassessment, 123 patients (49.4%) had received antibiotics from either a general dental practitioner, general medical practitioner or hospital, and 49 (19.6%) had taken two or more courses (range = 0-5).

#### Previous extractions

Thirty-five patients (10.9%) who were placed on the original exodontia waiting list (n = 321) had already undergone GA extractions in the past. Of the 249 patients who attended for reassessment, 21 (8.4%) had undergone previous GA extractions, with 18 cases having multiple extractions ranging from two to 10 teeth. Of the 72 who did not reattend, 14 (19.4%) had experienced GA previously on at least one occasion.

# Number of teeth extracted

Following reassessment, 233 patients subsequently attended for a dental GA. A total of 1559 teeth were extracted (mean = 6.69), which included 134 permanent teeth. The majority of the treatment plans (85.8%) were unchanged. There was a reduction in the number of teeth extracted in 12 cases because of exfoliation. In 21 cases, there had been an increased number of extractions, ranging from one to five, as a result of further caries.

# Children who failed to attend for reassessment

Seventy-two children [37 boys and 35 girls with a mean age of 82.9 months (range = 40– 155 months)] failed to attend reassessment in spite of two attempts to encourage attendance. The majority of these cases (77.8%) had been referred by either the general dental practitioner or Community Dental Services. Table 2 shows the reasons for the proposed GA. Single/multiple extractions were the main reasons for the GA.

Of the 72 children who failed to attend for reassessment, the original consultation, records recorded that analgesics had been required in

Table 2. Reasons for the choice of general anaesthetic in the non-attending group (n = 72).

Reason	Number	Percentage
Failed local analgesia Single/multiple extractions:	4	5.6
> 6 years of age	20	27.8
< 4 years of age	7	9.7
4–6 years of age	22	30.6
Pain from two quadrants	6	8.3
Complex extractions	13	18.1

42 cases (58.3%), and 27 had had their sleep disturbed (37.5%) on one or more occasions. Thirty-five patients (48.6%) had reported difficulties eating, with two patients having previous swelling and four cases having felt unwell. Nearly half of this group (48.6%) had received at least one course of antibiotics prior to the consultation visit.

Fourteen patients (19.4%) had had previous experience of extractions under GA. Thirteen were scheduled for permanent molar extractions, and the range of deciduous teeth to be removed was between two and 14, with a mean of 6.4.

#### Discussion

The unfortunate interruption of the GA extraction service in Sheffield gave the consultants in paediatric dentistry the opportunity to undertake this study.

During the wait for the new service, it was clear that dental pain was a major problem, with 41% of subjects reporting the need for analgesia, 28.5% losing sleep and one-third (32.9%) experienced problems eating.

In this study, the clinical armamentarium that many of the dentists adopted to cope with the loss of the GA service was to prescribe antibiotics to the children in pain. A paper by Thomas *et al.*<sup>6</sup> indicated that 30% of patients attending for acute dental conditions received antibiotics. More recently, further evidence of the inappropriate usage of antibiotics for children referred for GA treatment has been published<sup>7</sup>. The clinical rationale for the prescription of antibiotics to control dental pain is equivocal, the evidence base being somewhat weak<sup>8</sup>. The main problem for many clinicians, however, may well be confusion on how to treat the primary dentition<sup>9–12</sup>.

One major source of concern in this study is the fact that a sizeable proportion of parents did not return with their child for a reassessment visit, despite two appointments being offered. This group of children had high levels of dental caries, with a greater experience of previous GA extractions, and one must be concerned that these young children may well be suffering from a form of parental neglect. This group of children may require close collaboration with National Health Service providers and Social Services in order to facilitate care in the future.

The use of GA in Sheffield is certainly still required, and in the light of these findings, is unlikely to be discontinued in the near future unless radical steps are taken to reduce the prevalence of caries in the primary dentition.

What this paper adds

• The interuption of the general anaesthesia dental service resulted in children suffering pain, sleeploss and discomfort on eating.

Why this paper is important to paediatric dentists

- Dental caries is still a major source of pain and discomfort to children.
- Health service managers should ensure that crucial services are maintained.

#### Conclusions

Many children who had their extractions delayed experienced pain, as well as disruption of their sleeping and eating patterns. Analgesics and antibiotics were required because the extractions had been delayed.

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