The provision of primary care dental general anaesthesia and sedation in the north west region of England, 1996–1999

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Aim To investigate trends in the provision of primary care dental general anaesthesia (DGA) and sedation following the new guidance from the General Dental Council.
Design Cross-sectional analysis of data about the provision of DGA in the General Dental Service and Community Dental Service from 1996/97 to 1998/99.
Setting The North West Health Region of England.
Method The numbers of DGAs in the General Dental Service (GDS) and Community Dental Service (CDS) for the three financial years, 1996/97, 1997/98 and 1998/99 were examined. In addition General Dental Service quarterly information about the numbers of general anaesthetics, sedations requiring another dentist or doctor, and claims for conscious sedation or inhalation sedation from April 1997 to December 1999 was requested from the Dental Practice Board.
Results The numbers of DGAs declined by 24 per cent between 1996/97 and 1998/99. Those in the GDS fell from 14,550 in the first quarter of 1997/98 to 3,527 in the first quarter of 1999/2000. The number of claims for sedation, which required another dentist or doctor, increased from 712 in the first quarter of 1997/98 to 2,989 in the same quarter of 1999/2000, while the number of claims for conscious sedation and inhalation sedation increased slightly from 2,847 to 2,963 over the same period.
Conclusions The revised General Dental Council guidance has reduced the numbers of DGAs being carried out in both GDS and CDS. The number of sedations involving another dentist or doctor has increased considerably but the new guidance seems to have had little effect on the numbers of patients receiving operated administered conscious sedation and inhalation sedation.

For many years attempts have been made to reduce dental general anaesthesia (DGA) and improve safety in dental practice. A study[1] in the North West Health Region of England found that publication of the Poswillo report[2] was initially successful in this aim and was associated with a slight fall in the numbers of dental general anaesthetics provided in primary care. However, numbers immediately began to rise again and in 1994/95 were similar to those in 1992/93. Further research[3] showed that this picture was maintained to 1996/97.

In May 1998 one of the cases considered by the Professional Conduct Committee of the General Dental Council (GDC) 'raised fundamental issues in terms of the relative responsibilities of professionally qualified staff involved in the giving of general anaesthesia in dentistry'. As a result the President of the GDC established the Resuscitation, Sedation and General Anaesthesia in Dentistry Review Group which proposed amendments to the guidance. These were further amended following discussions with the GDC's Preliminary Proceedings Committee and approved by the full Council meeting in November 1998. The amendments sought to clarify the responsibilities of the referring dentist and the treating dentist, and what conditions had to be met before any treatment was given under general anaesthesia. One major change concerned the person who administered the general anaesthetic. He/she had to be on the specialist register of the GMC as an anaesthetist, a trainee working under supervision on an approved training programme, or a non-consultant career grade anaesthetist working under the supervision of the named consultant. Dentally qualified anaesthetists could no longer provide DGAs and this was described by the President of the GDC as the end of an era.[4] Another major change was the need for practitioners to have a written protocol for the provision of advanced life support including appropriate arrangements for the immediate transfer of a patient to a critical care facility. The President considered the new guidance would dramatically decrease the provision of DGA in general dental practice.[4] She also stated that sedation was the safe alternative and thus presumably expected an increase in the numbers of courses of treatment involving this.

The purpose of this study was to investigate any changes in the provision of DGAs in the North West Health Region following the new guidance. The numbers of patients receiving sedation were also examined to find out if these had increased.

Method

The Dental Practice Board was asked to provide yearly information about numbers of DGAs and sedations in the General Dental Service in the north west region of England during the financial years 1996/97 to 1998/99. In addition quarterly data was requested for 1997/98, 1998/99 and the first three quarters of 1999/2000. Information about DGA activity in the Community Dental Service (CDS) was obtained from the appropriate clinical director. Quarterly information for the CDS was not available. Rates per 1,000 population were calculated using the population estimates in the public health common data set for 1998.

Results

Fig. 1 shows the rates of DGAs carried out in the former Mersey Region (Cheshire and Merseyside) in the financial years 1996/97, 1997/98 and 1998/99. The same information for the former North Western Region (Greater Manchester and Lancashire) plus South Cumbria is shown in Fig 2. The combined numbers of DGAs for the North West Region as a whole fell by 24 per cent between 1996/97 and 1998/99. The reduction was 21 per cent in Mersey Region compared with 25 per cent in North Western while a 32 per cent reduction occurred in the CDS compared with 20 per cent in the GDS.

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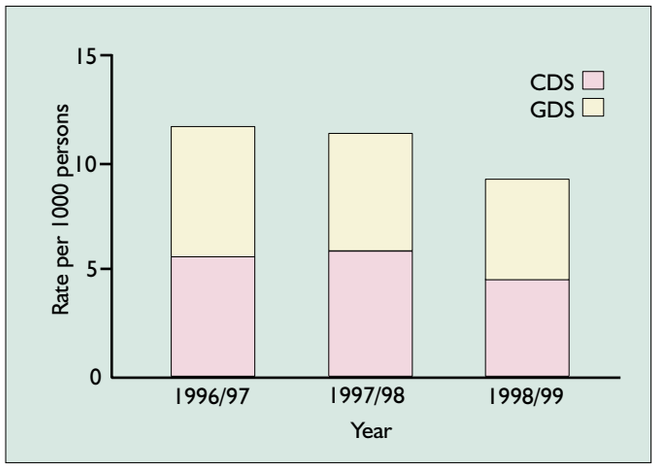

Fig. 1 Rates of general anaesthetic in Mersey region

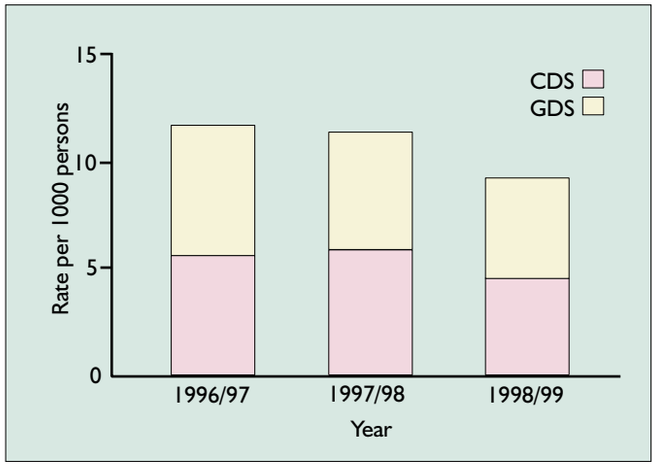

Fig. 2 Rates of general anaesthetic in North Western region

The numbers of DGAs carried out in the GDS for each quarter from April 1997 to the end of December 1999 are shown in Table 1. Prior to the revised guidance the numbers were about 14,000 per quarter although they were slightly lower in the summer quarters perhaps because of annual holidays. However, there was a marked downturn as the numbers fell from 12,434 DGAs in the July to September quarter of 1998 to 3451 in the same quarter of 1999 and to 2924 in the October to December quarter. The Table shows that the percentage reduction in DGAs for the over-18s, 91%, was greater than that for children, 76 %.

The population of the North West Region is 6,443,997. Therefore the quarterly DGA rates per 1,000 population were 2.26 in April to June 1997 and 0.55 two years later, a 76% reduction. In Mersey, where the population is 2,360,565 the rate fell by 82% from 1.48 to 0.26 per 1,000. In North Western, with a population of 4,083,412, it fell by 74% from 2.71 to 0.71.

Table 1. Quarterly numbers of claims for dental general anaesthesia in the General Dental Service, North West Region 1997/99

Quarter ending	Mersey		North Western		Total		
	Under-18	Over-18	Under-18	Over-18	Under-18	Over-18	Total
June 1997	2730	771	7952	3097	10682	3868	14550
September 1997	2519	821	7000	2690	9519	3511	13030
December 1997	2505	719	7608	3059	10113	3778	13891
March 1998	2706	849	7367	2810	10073	3659	13732
June 1998	2593	829	7669	2929	10262	3758	14020
September 1998	2560	729	6567	2578	9127	3307	12434
December 1998	1650	534	5683	2217	7333	2751	10084
March 1999	703	170	2502	676	3205	846	4051
June 1999	534	87	2459	447	2993	534	3527
September 1999	613	71	2386	381	2999	452	3451
December 1999	376	30	2210	308	2586	338	2924

Table 2. Quarterly numbers of claims for sedation involving another dentist or doctor in the General Dental Service, North West Region 1997/99

Quarter ending	Mersey		North Western		Total		
	Under-18	Over-18	Under-18	Over-18	Under-18	Over-18	Total
June 1997	24	86	118	484	142	570	712
September 1997	23	81	106	418	129	499	628
December 1997	25	87	111	413	136	500	636
March 1998	37	91	75	457	112	548	660
June 1998	39	121	79	443	118	564	682
September 1998	29	139	82	550	111	689	800
December 1998	96	252	207	942	303	1194	1497
March 1999	121	402	412	1474	533	1876	2409
June 1999	234	499	581	1675	815	2174	2989
September 1999	220	519	536	1520	756	2039	2795
December 1999	205	560	496	1746	701	2306	3006

During the April to June 1997 quarter 318 principals claimed fees for general anaesthesia. A year later the number had fallen to 268 while in April to June 1999 it was 82, a 74% reduction compared with the start of the study period. In Mersey it fell by 83% from 76 general dental practitioners in the first quarter of the study to 13. Over the same time period the number in North Western fell by 71% from 242 to 69. By the October to December 1999 quarter the numbers had fallen further to eight principals in Mersey and 51 in North Western.

Table 2 shows the number of sedations administered by a doctor or another dentist. This rose slightly from 712 in the April to June quarter of 1997 to 800 in July to September 1998. For the quarter in which the revised guidance was issued the number increased to 1497 and then to 3006 by the October to December quarter of 1999. This was a 321% increase over the study period. The number of sedations for the under-18s rose at a greater rate from 142 in April to June 1997 to 815 by April to June 1999, a 474% increase, but then fell back slightly.

The numbers of claims for conscious sedation and inhalation sedation are shown in Table 3. These increased by six per cent over the study period from 2847 in April to June 1997 to 3029 in October to December 1999.

Discussion

The yearly figures show a 24% reduction in DGAs in 1998/99 compared with 1996/97. However, the yearly figures do not give a true representation of the effect of the changed GDC guidance because this was announced in November 1998, nearly two-thirds of the way through the financial year. A better picture is provided by the quarterly figures (Table 1) which show the large fall in the numbers of DGAs. This was associated with a similar fall in the numbers of general dental practitioners providing DGAs from 268 in the first quarter of 1998/99 to 59 in the third quarter of 1999/2000. Presumably the revised guidance left them unable or unwilling to continue.

The fall from 3451 DGAs in July to September 1999 to 2924 in October to December may have been influenced by the decision by the Committee on Safety of Medicines to restrict the use of halothane to hospitals.[5] This followed publication of a paper showing a strong association between it and ventricular arrhythmias, especially ventricular tachycardia.[6] Sevoflurane was recommended instead but is considerably more expensive. Because this decision was only announced in November 1999 further reductions in DGAs can be predicted.

It might have been expected that the CDS would be in a better position than the GDS to carry on providing DGAs. However, the CDS appears to have been more affected because it experienced a greater percentage reduction (25%) than the GDS (21%). Thus,

Table 3 Quarterly numbers of claims for conscious sedation and inhalation sedation in the General Dental Service, North West Region 1997/99

Quarter ending	Mersey		North Western		Total		
	Under-18	Over-18	Under-18	Over-18	Under-18	Over-18	Total
June 1997	267	566	725	1389	992	1955	2847
September 1997	304	539	725	1306	1029	1845	2874
December 1997	294	556	761	1372	1055	1928	2983
March 1998	267	462	763	1315	1030	1777	2807
June 1998	264	527	680	1266	944	1793	2737
September 1998	240	585	740	1305	980	1890	2870
December 1998	350	492	823	1438	1173	1930	3103
March 1999	308	462	998	1287	1306	1749	3055
June 1999	327	415	951	1270	1278	1685	2963
September 1999	323	390	867	1239	1190	1629	2819
December 1999	329	467	998	1235	1327	1702	3029

there is no evidence that patients, previously seen in the GDS, are being referred to the CDS or, anecdotally, that they are being referred to the hospital dental service to any great extent. However, it is unlikely that the full effects of the changed guidance are yet evident and the situation will continue to be monitored.

Research is needed to find out how patients who might have been treated with general anaesthesia prior to November 1998 are being managed. It appears that some are now being offered sedation. However, although the numbers of sedations have increased from 712 to 3006 over the study period, the numbers of general anaesthetics and sedations combined fell from 15,262 to 5930.

The Dental Practice Board statistics do not distinguish between conscious sedation administered by the operating dentist and inhalation sedation. However, this aspect of dental care seems to have been affected very little by the change in the GDC guidance. It is disappointing that the numbers of patients in this category did not change during the study period. This is particularly so in the light of research in the North West Region[7,8] which showed that 80 to 87% of patients referred for DGA could be treated with inhalation sedation. However, it may be that large numbers of these patients do not need this either. Tyrer[9] reported that it was possible to carry out appropriate treatment, with local anaesthesia alone, for 75% of those referred for a DGA, although his approach has been criticised.[10,11] Nevertheless much greater reliance may be being placed on local anaesthesia and it would be interesting to find out if the number of teeth extracted has changed during the study period. This is the subject of further research.

If the number of teeth being extracted has fallen, it may be that patients are being treated conservatively. Dentists may be carrying out more pulp treatments or root canal treatments. Another possibility is that patients are receiving more antibiotics and a study is needed to determine whether prescribing patterns have changed following the revised guidance.

Whether or not intra-venous sedation in general dental practice is appropriate for children is debatable. It is, therefore, of concern that there has been an increase in the number of sedations requiring another dentist or doctor given to this age group. Inappropriate use may make it difficult for the GDC to ensure that sedation remains available in dental practice.[4]

Another concern to dentists is redistribution of savings in the GDS. The minimum fee for a DGA or sedation in 1999/2000 is £18.75.[12] Since DGAs and sedations combined have fallen from 15,262 per quarter in 1997 to 6,516 per quarter in 1999, the minimum annual saving in the North West Region is £655,950 and the true amount is likely to be much greater. These considerable resources should be used to improve standards further.

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