An audit of referrals to a secondary care sedation unit

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RESEARCH

IN BRIEF

- A proportion of practitioners refer significantly higher numbers of patients than their peers.
- Referral letters for anxiety management are generally poor.
- Non-pharmacological techniques are seldom requested by practitioners.

Aims and objectives This audit was carried out to assess referrals received by a clinic treating anxious patients within a dental hospital setting. The audit aimed to provide a baseline measurement prior to the publication of a referral protocol. Referral frequencies were examined to explore the concept of serial referrers . **Methods** A retrospective design was used. The referrals of all patients given assessment appointments for treatment within the Sedation Suite between 1 January and 31 December 2006 were examined. In addition, a random sample of 100 cases was examined for the referral request. **Results** Three hundred and six referrals were sent assessment appointments by the Sedation Suite in 2006. The majority of referrals received (76.1%, n = 233) were from practitioners working in the general dental services. On average 1.68 referrals were received per clinician, with a maximum of 18 referrals from one clinician. The majority of patients were female and had an average age of 33.5. One hundred and eighty-seven patients attended for assessment. One hundred and forty-three (46.7%) were treatment planned to receive treatment with pharmacological help. Twenty-two (7.2%) were planned to receive treatment without pharmacological help, though none of the referrals received had considered requesting behavioural management. **Conclusion** This audit confirmed results from previous audits. The standards set for referral were not met. Despite the efficacy of psychological treatments, referring clinicians do not seem to consider their use for anxious patients. Referral patterns seemed to support the idea that a minority of practitioners refer significantly higher numbers of patients than their peers.

BACKGROUND

Dental anxiety is present in a significant proportion of the population. Use of the Modified Dental Anxiety Scale has shown that an average of 9.3% of patients report extreme anxiety,[1] and the United Kingdom Adult Dental Health Survey 1998[2] showed that 43% of dentate men and 55% of dentate women reported always feeling anxious about going to the dentist. Management of dental anxiety can be achieved by the use of psychological (behavioural management, cognitive behavioural therapy, hypnosis) or pharmacological (conscious sedation, general anaesthetic) techniques. In 2000, the Department of Health published *A conscious decision*, a report chaired by the Chief Medical and Dental Officers of England into the use of general anaesthesia and conscious sedation in primary care.[3] The result of this report effectively removed general anaesthesia (GA) from a general practice setting and encouraged a focus upon behavioural management and conscious sedation as methods for the control of dental anxiety.

Conscious sedation is defined as:

'A technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact with the patient is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation for dental treatment should carry a margin of safety wide enough to render loss of consciousness unlikely.'[4]

Provision of sedation by primary practitioners varies between studies.[5,6] In Wales, 12.1% of respondents to a survey provided conscious sedation in primary care.[7] In contrast, approximately 56% of patients attending emergency clinics would prefer to be treated with conscious sedation.[8,9] There is a significant demand for conscious sedation, although this may not be perceived similarly by patients and dentists. Ninety-eight percent of primary dental practitioners requested conscious sedation in referrals to a UK dental hospital, while 29% of patients opted for non-pharmacological methods following assessment.[10] There is therefore a disparity between provision, demand and need for conscious sedation. Despite these differences, there is still a significant need for conscious sedation services.

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The first five years[11] states that:

'Building on a sound knowledge of the prevalence and nature of dental phobias and anxieties in respect of dental treatment and the relevant basic sciences, students should be able to assess the suitability of the various methods of managing and controlling anxiety. They should recognise those patients requiring referral for specialist care...'

This should have been developed through:

'...a range of practical experience in the administration of inhalational and intravenous conscious sedation including assessment and preparation, care under treatment, and recovery and discharge of patients receiving conscious sedation'.

An implicit understanding that the training of students should lead to dentists capable and willing to undertake sedation in practice following graduation is made explicit by the Dental Sedation Teachers Group, who state:

'At graduation, dentists should be aware of the advantages and disadvantages of using conscious sedation techniques and should be capable of providing effective sedation for selected patients undergoing straightforward dental procedures in the primary care setting.'[12]

However, some general dental practitioners (GDPs) express a belief that sedation is more appropriate in secondary care centres.[5]

Cardiff University School of Dentistry and Cardiff and Vale NHS Trust provide secondary care sedation services for adult restorative treatment within the Sedation Suite. This dedicated facility was set up in 1999 to provide a secondary care service within Rhondda Cynon Taff Local Health Board (LHB). The Sedation Suite provides both psychological and pharmacological management of dental anxiety. Treatment of anxious patients is provided by staff and students as appropriate, and training in conscious sedation is given to undergraduate and postgraduate students. To provide service and sufficient training opportunities, the patient base should ideally provide a mix of 'simple' cases for training purposes, as well as 'difficult' cases appropriate for treatment by experienced staff. In 2007, the University Dental Hospital published and disseminated a referral protocol which states that as well as more complex cases, 'A limited number of ASA I and II patients will be accepted for treatment to fulfil the requirements for undergraduate and postgraduate training'.[13] Of the referrals received during the previous six years, anecdotal evidence suggested that some dentists were 'serial referrers'. This information was of interest to the school, as a proposed qualitative research project within Cardiff School of Dentistry would be looking at patient referrals.

This audit therefore had two aims. Primarily it aimed to provide a baseline measurement of referrals received prior to the dissemination of the hospital referral protocol. Secondarily it sought to examine the evidence for 'serial referrers'.

Table 1 Referral sources

Referral source	n	%	McGoldrick *et al.* (%)	Wallace (%)
GDP	233	76.1	67	60.8
Hospital (HDS)	48	15.7	29	35.4
Non-HDS/GDP	24	7.8	4	3.2
CDS	(4)	(1.3)	-	(0.8)
Self-referral	(1)	(0.3)	(4)	-
Doctor	(19)	(6.2)	-	-
Other	-	-	-	(2.4)
Missing data	1	0.3	-	0.8

Numbers in brackets indicate breakdown of previous number without brackets.

Table 2 Referrals received from general dental practitioners

Referrals (n)	Referrers (n)	Referrers (%)	Total received (n)	Total received (%)
1	87	65.4	87	37.3
2	29	21.8	58	24.9
3	9	6.8	27	11.6
4	3	2.3	12	5.2
5	1	0.8	5	2.1
6	1	0.8	6	2.6
7	1	0.8	7	3.0
13	1	0.8	13	5.6
18	1	0.8	18	7.7
Total	137	100	233	100

Table 3 Referrals received from a corporate body

Referrals (n)	Referrers (n)	Total received (n)
1	9	9
2	4	8
3	1	3
7	1	7
Total	15	27

METHODS AND MATERIALS

Standards

The audit followed the cycle of setting a standard, collecting data, measuring against the standard, and developing responses to identified differences. A literature search was conducted using PubMed, which identified previous

audits to provide comparative standards and frequencies of sedation referrals.[10,14] No standard existed for 'serial referrers', so referral numbers would be compared with referral patterns of peers. Referrals for University Dental Hospital should come from within the Rhondda Cynon Taff LHB and 100% should detail the treatment considered and requested. A standard of 90% was set as the benchmark in this initial study, which reflected standards deemed as acceptable in other national guidelines.[15]

Design

A retrospective design was used. Referral letters received for the treatment of patients within the Sedation Suite were examined. Patient details were recorded from the patient records.

Sample

All referrals received for patients given assessment appointments within the Sedation Suite between 1 January and 31 December 2006 were included in the sample to be audited.

Data collection

Data sets examined were referrer (identity, location and referral date), patient (age, gender and location), and assessment outcome (attendance, treatment list allocation and perceived level of difficulty). In addition, a random sample of 100 cases was examined for the referral request.

Data analysis and management

All data were stored upon a secure University hard drive and analysed using an Excel (Microsoft) spreadsheet programme.

RESULTS

Referrers

The majority of referrals received (76.1%, n = 233) were from practitioners working in the general dental services (GDS). Referrals from other clinics within University Dental Hospital comprised 15.7% (n = 48) of the sample, and 1.3% (n = 4) were from the community dental service. Non-dental referrals comprised 6.5% of the sample size (n = 20) and were self-referral (0.3%, n = 1) or from medical practitioners (6.2%, n = 19) (Table 1).

The majority of GDPs in the sample (65.4%, n = 87) referred one patient, and these accounted for 37.3% (n = 87) of referrals received. The maximum number of referrals received from a single practitioner was 18 (7.7%) (Table 2). Fifteen referrers (10.9%) were employed by a corporate body, and 206 referrals were received from the remaining practitioners (n = 122), a mean of 1.68 per clinician.

Referrals from the GDPs employed by a corporate body (n = 27) accounted for 11.6% of the referrals received from GDPs, the majority of whose referring practitioners referred one patient. The mean number of referrals received was also 1.68 per clinician, and the maximum number received from one corporate practitioner was seven referrals (Table 3).

Sixty-three percent (n = 34) of the hospital referrals (n = 54) were from the examination and emergency clinic, which sees unregistered patients for dental emergencies.

Patients

The age of referred patients ranged between 14 and 79 (mean = 33.5 years) and the majority of patients were under 40 years old. The female:male ratio of referred patients was approximately 2:1, with 203 (66%) female patients and 103 (34%) male.

Seventy-nine percent of referred patients lived within the catchment area for the Sedation Suite and 50% came from within ten miles of the clinic. Nineteen percent of referred patients (n = 58) came from one adjacent LHB and 2% (n = 5) came from other LHBs.

Assessment outcome

Three hundred and six patients were sent assessment appointments for the Sedation Suite. One hundred and eighty-seven patients attended for assessment (61.1%) and 165 were planned for treatment. The majority (46.7%, n = 143) were treatment planned to receive treatment with pharmacological help, and 22 (7.2%) were planned to receive treatment without pharmacological help (Table 4).

Failure to attend or cancellation of appointments occurred in 38.9% (n = 119) of referrals. Patients failed to attend assessment appointments in 39.9% of referrals from GDPs. This was fewer than internal hospital referrals (43.5%), and more than from other referrers (28.6%) (Table 5).

Patients who were treatment planned for pharmacological intervention were allocated to appropriate forms of sedation or general anaesthetic. The majority of patients (64.3%) were allocated to either inhalation sedation with nitrous oxide (28.5%, n = 47) or intravenous sedation with midazolam (35.8%, n = 59). Oral sedation with midazolam was planned in 2 (1.2%) patients and 11 (6.7%) participated in a clinical trial of inhalation sedation with sevoflurane. Eight patients (4.8%) were treatment planned to have extraction under GA and subsequent restoration of viable teeth under conscious sedation (Table 6).

Table 4 Outcome of assessment appointment

Outcome	n	%
Cancelled/Did not attend	119	38.9
Left before assessment	1	0.3
Return for 2nd assessment	4	1.3
Return to referrer	5	1.6
Secondary referral	12	3.9
Non-pharmacological treatment	22	7.2
Pharmacological treatment	143	46.7

Table 5 Failed attendance compared by referrer

Referrer	Total referrals	Failed attendance (n)	Failed attendance (%)
GDPs (Corporate body)	233 (27)	93 (13)	39.9 (48.1)
Hospital (Emergency clinic)	46 (34)	20 (12)	43.5 (35.3)
Other (Medical practitioners)	21 (19)	6 (4)	28.6 (21)

Of the 132 sedation treatment plans, 72 (55%) were categorised as 'simple' – suitable for undergraduate and postgraduate training; 49 (37%) were categorised as 'medium' – suitable for staff and experienced trainees; and 11 (8%) were categorised as 'difficult' – suitable for experienced staff.

Referral requests

One hundred requests for treatment were examined. Referrals were categorised into specific request modalities, implicit requests through the mention of previous treatment and no specific request (Table 7).

Table 6 Sedation treatment plans compared to other audits

Treatment type	n	%	McGoldrick *et al.* (%)	Wallace (%)
Behavioural management	22	13.3	29.6	-
Inhalation and oral	1	0.6	-	-
Oral	2	1.2	-	4.2
Nitrous oxide inhalation to allow cannulation for intravenous midazolam	4	2.4	-	4
Sevoflurane inhalation	11	6.7	-	-
Nitrous oxide inhalation	47	28.5	2.6	47.9
Intravenous midazolam	59	35.8	61.7	59
General anaesthetic (GA)	11	6.7	6	1
Conscious sedation and GA	8	4.8	-	-
Total	165	100		

Table 7 Treatment requested in referral

Referral request	n	%	McGoldrick *et al.* (%)	Wallace (%)
None	32	32	-	76
Previous treatment mentioned	5	5	-	-
Behavioural management	0	0	1.7	0.7
Conscious sedation	50	50	95.6	14.4
Inhalation	(2)	(2)	-	(4.1)
Intravenous	(8)	(8)	-	(8.9)
Oral	-	-	-	(0.7)
Inhalation or intravenous	(1)	(1)	-	(0.7)
Oral or intravenous	(2)	(2)	-	-
Non-specific sedation	(37)	(37)	-	-
General anaesthetic (GA)	5	5	2.6	4.8
Conscious sedation or GA	8	8	-	4.1

Numbers in brackets indicate breakdown of previous number without brackets

DISCUSSION

Referrers

A higher proportion of referrals came from GDPs than in comparative studies,[10,14] the majority of whom referred only one patient. Some practitioners referred considerably more than their peers: the maximum number of referrals received from one practitioner was 18, which comprised 7.7% of the total referrals received. Referrals from dentists employed by a corporate body comprised 11.6% of total GDP referrals. Care must be taken in attributing significance to these results as there will be multiple variables influencing referral pattern, however it is interesting that certain practitioners or groups of practitioners refer more commonly, and this confirms the anecdotal evidence of 'serial referrers'. This may reflect a culture of referral, but could also be attributed to other factors such as practice location and patient demographics. A significant proportion of referrals from bodies corporate may simply reflect the number of practices and the locations of such practices. Such a situation, where measurements do not explain underlying processes, may be enlightened by applying an inductive qualitative research approach to understand influences upon referral by these practitioners.[16,17]

Referrals from within the hospital came from different departments, with 63% (n = 34) from the emergency clinic. Previous research has shown a high demand for sedation services by patients attending emergency clinics[8,9] and it might be expected that the emergency clinic would be a gateway into secondary care with sedation. However, 35.3% of patients referred from the emergency clinic failed to attend an assessment appointment.

One hundred and nineteen patients (38.9%) failed to attend their assessment appointment. Failure to attend following referral ranged from 21% (medical practitioners) to 48.1% (corporate body dentists). This has a significant cost implication for the sedation service, as well as affecting provision for other patients, and attempts to reduce failed appointments have been introduced by Cardiff Dental Hospital. Currently, letters are sent to patients following referral requesting that patients contact the appropriate clinic and book an appointment at a time that suits them, rather than unilaterally arranged appointments. This system (introduced prior to 2006) has not resulted in low rates of attendance failure. In addition to this system, guidance to interdepartmental referrals was disseminated to junior staff in August 2006, and the effect of this has yet to be assessed. Given the reason for referral, high rates of failure to attend

for assessment appointments would be expected as this is symptomatic of dental anxiety and anxious patients report an ambivalence about treatment.[18]

Patients

The mean age of referred patients was similar to previous studies, which reported the average age as 34 years.[10,14] Patients were predominantly female, which is also similar to previous audits,[10,14] which have reported female:male ratios of approximately 4:1 and 3:1 respectively. The majority of patients travelled from within the sedation service catchment area. However, some patients came from within other LHBs, which demonstrates a demand for service provision. The Department of Health has published guidelines for commissioning sedation services within primary care,[19] but there is also a need to ensure that adequate accessible secondary care provision exists.

Assessment outcome

One hundred and eighty-seven patients attended for assessment, of which 165 were planned to receive treatment within the clinic. Twenty-two (13.3%) were planned to receive treatment with behavioural management alone. Fewer patients were therefore treatment planned to receive behavioural management than in a comparable audit.[10] Of those patients planned to receive pharmacological treatment, 35.8% (n = 59) were allocated to receive intravenous sedation, which is fewer than actual treatments received in previous audits.[10,14] Fifty-eight patients (35.2%) were planned to receive inhalation sedation, which is considerably more than that reported by McGoldrick *et al.*[10] and fewer than Wallace.[14] Treatment with nitrous oxide was planned in 47 patients (28.5%) and 11 patients (6.7%) were treatment planned to receive inhalation sedation with sevoflurane. Four patients (2.4%) required inhalation sedation as an adjunct to allow intravenous sedation, which was also reported in a previous audit[14] at a prevalence of 4%. Other mixes of treatments which were carried out on different appointments, or treatments that were not comparable to other studies, were planned for 12.1% of patients. General anaesthetic was treatment planned in 6.7% (n = 11) of cases, which was more than in a previous audit within the Sedation Suite[14] but comparable with McGoldrick *et al.*[10] Treatment with propofol was not offered, as this modality was not available.

Seventy-two referrals were classified as 'simple'. These cases are suitable for treatment by students training in conscious sedation. Cardiff University School of Dentistry provides training in basic sedation techniques as part of its fourth year curriculum, and requires approximately 60 patients per annum. Postgraduate courses require additional patients, and so the level of referrals is appropriate for training demand. However, 21% were referred from outside the LHB's catchment area. Whilst the Sedation Suite currently has capacity to provide treatment for these patients, it is important that neighbouring LHBs look to ensure that they are providing conscious sedation services for patients within their boundaries.

Referrals

None of the referrals received had requested behavioural management. This compares to previous studies,[10,14] which have shown a negligible request for behavioural management (1.7% and 3%). This may be due to practitioners feeling that they have attempted behavioural management themselves before referral. Behavioural management such as hypnosis or graded exposure is very effective in aiding dental treatment and patients who receive behavioural management of dental anxiety generally show a lasting and significant reduction in their anxiety, which leads to regular dental attendance.[20] It may be useful for further education and training, both at undergraduate and postgraduate level, to raise competence in and awareness of psychological management modalities other than 'tell, show, do'. In addition, funding for psychological services may provide the ability to move beyond symptomatic anxiety management.[21] Guidance for purchasing clinical psychology services were produced in 1996,[22] but a decade later there still seems to be little provision of psychological services for dentally anxious patients.

Five referrals (5%) mentioned previous treatment, thereby implying a suggested modality. Fifty referrals (50%) requested conscious sedation, of which 37 were not specific and 13 suggested a particular modality. The suggestion of sedation was more than in a previous audit at the clinic[14] and this may reflect an increase in awareness of conscious sedation as a possible modality. However, it was considerably less than elsewhere in the United Kingdom.[10] General anaesthetic was explicitly requested in 5% of referrals, which is twice that experienced by McGoldrick *et al.*[10] and comparable to Wallace.[14]

The majority of referrals were written in 2005. Until 1 June 2005, dental practitioners were guided by *Maintaining standards*.[23] This document states:

'In assessing the needs of an individual patient, due regard should be given to all aspects of behavioural management before deciding to refer, to prescribe or to proceed with treatment'.

This requires that:

'A careful assessment of the patient, including a full medical and dental history, must be made before the decision to treat or to refer for treatment under conscious sedation can be taken. An explanation of the conscious sedation technique proposed and of appropriate alternative methods of pain and anxiety control must be given'.

In addition, the Dental Sedation Teachers Group and the Society for the Advancement of Anaesthesia in Dentistry jointly published guidelines specifically for sedation referrals.[24] Of the 100 referral requests examined, 32% (n = 32) were of poor quality, failing to request any treatment or inform the Sedation Suite that these conditions had been met.

CONCLUSION

This audit broadly confirmed results from previous audits.[10,14] Patient demographics were similar to other audits, with the majority of patients being female and the average age being 33.5. The outcome of referrals was also similar, with the majority of patients receiving treatment under conscious sedation, but a significant minority receiving treatment with non-pharmacological techniques.

The standards set for referral were not met. The sedation service was developed to provide secondary care for patients appropriately referred within Rhondda Cynon Taff LHB, yet 21% of patients came from outside the catchment area and one third of referrals did not provide any information about treatment options considered or information given. In addition, referrers did not seem to consider behavioural management as a possible treatment option to request. These results provide a baseline measurement from which to detect changes in future audits, following the implementation of the subsequently published referral protocol.

Referral patterns seemed to support the idea that a minority of practitioners refer significantly higher numbers of patients than their peers. The reasons for this are not understandable from quantitative data, and qualitative research may be useful to shed light on factors influencing referral for conscious sedation.

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