

# A five-year evaluation of an NHS dental practice-based specialist minor oral surgery service

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**Objective:** To report the findings of an evaluation of an NHS dental practice-based minor oral surgery service. **Basic research design:** Service evaluation. **Clinical setting:** NHS specialist practice in England. **Participants:** Patients and referring practitioners. **Interventions:** analysis of activity, patient and referring practitioner satisfaction data. **Main outcome measures:** Numbers and case-mix treated; non-attendance; antibiotic prescribing; complication rates; patients and referring practitioner satisfaction. **Results:** 5,796 treatment appointments were arranged, with a median waiting time from receipt of referral to treatment of 35 days. Treatment provided included: surgical removal of third molars and non-third molars, surgical endodontics and other surgical and oral medicine cases (28.3%, 53.3%, 3.5%, and 15.0% of cases, respectively). Antibiotics were prescribed at 13.1% of all treatment appointments and 2.5% required appointments for post-operative complications. All but one patient reported overall satisfaction and over 98% strongly agreed/agreed with positive attitudinal statements about the oral surgeon's communication/information giving, technical competence and understanding/acceptance. 70.1% of patients were seen on time and under 1% were seen more than 15 minutes late. Some 83.1% felt the standard of service was better than expected from a hospital and none felt it was worse. More than 85% of referring practitioners agreed that: waiting times were shorter than at the hospital; urgent problems were seen quickly; and, the referral process was easy and understandable. Over 98% either strongly agreed or agreed that they were happy with the service provided. **Conclusions:** A range of minor oral surgery procedures can be provided with low complication rates, short waiting times, acceptable accessibility and high levels of patient and referring practitioner satisfaction from a specialist NHS dental practice-based service.

**Key words:** *service evaluation; specialist services; primary care; oral surgery*

## Introduction

The drive to relocate some specialist services from secondary to primary care in the UK has gathered momentum over the past two decades. In dentistry this was initiated by a review of dental specialist training in 1995 with subsequent change in health policy, including the introduction of local commissioning in England and Wales, encouraging a more pluralistic approach to the commissioning of service provision (Department of Health, 1995; 2005a,b; 2007). The rationale for these changes has been to increase services' efficiency and accessibility, while maintaining other aspects of service quality. In addition, general dental practitioners have reported dissatisfaction with hospital-based services, citing excessive waiting time and a lack of accessibility as reasons (Coulthard *et al.*, 2000). The intention to pursue such organisational changes continues to be emphasised in more recent NHS policy (Department of Health, 2010) and appears to be embedded in future plans for NHS dentistry since the establishment of the NHS Commissioning Board (now known as NHS England) in England (NHS Commissioning Board, 2013).

There are relatively few UK data from oral surgery services based in primary care. Although existing data suggest acceptable referral systems, better accessibility, reduced waiting times, and lower costs than secondary care (Bell, 2007; Dyer and Dhamija, 2009; Kendall,

2009; O'Neill *et al.*, 2012; Pope, 2012; Sadler *et al.*, 1993; Wood, 1988) yet with comparable outcomes (Wood, 1988), most are from relatively short-term evaluations and of limited analytical scope. Moreover, the degree to which some of these findings are generalisable to contemporary NHS services is questionable now that services are organised and contracted differently. Although oral surgery is established as a primary care-based specialty in many countries, and its expansion has been encouraged (Atun, 2004), a literature search was unable to identify comparable international data.

As part of their commissioning strategy to increase the accessibility and efficiency of specialist services, the then Doncaster Primary Care Trust (PCT) established a pilot practice-based specialist minor oral surgery (MOS) service in 2007. An element of the pilot's requirements was to undertake a service evaluation after one year's completed activity. Informed by its findings (Dyer and Dhamija, 2009), a substantive service was established with minimal modification, a description of which is provided below. All dental practices in the PCT area were sent electronic referral documentation which included: referral criteria (buried / fractured roots or residual root fragments; removal of impacted / ectopic / supernumerary tooth/ tooth of special difficulty; minor soft tissue surgery; surgical endodontics); referral forms; and medical history sheets for completion and signing by the patient. These forms, together with procedure-specific

information sheets, were also made available on the PCT and Local Dental Committee (LDC) websites. With few exceptions, only patients referred with the standard referral documentation and appropriate radiographs were accepted for treatment. Although there was no external triage service, all referrals were assessed by the specialist (TD) and a decision to appoint for a treatment or an assessment appointment was made at that stage. There was a contractual expectation that the majority of patients would not be assessed at a separate appointment. However, assessment appointments were made where there was doubt about the diagnosis or treatment plan. With the exception of surgical endodontic and coronectomy procedures, patients were not routinely reviewed post-operatively unless there were concerns about the post-operative phase (Irvine and Hapangama, 1998).

The approach taken in the prevention of cross infection and other aspects of health and safety management varied little over the five years, although a few changes were made in line with newly published guidance (Department of Health, 2013). Non-sterile gloves (latex and nitrile), disposable drapes and fine suction tips were used. Antibiotics were not routinely prescribed. The decision to prescribe these was based on clinical judgement and reserved for cases where there was evidence of active infection in the operative site. Intermediate Restorative Material (IRM) was used for retrograde root fillings and resorbable polyglactin sutures (Vicryl®) were used.

In addition to the information packs provided by the referring practitioner, which included pre- and post-operative instructions, further verbal and written post-operative instructions were provided, which included the instruction that those with any post-operative complications should contact the practice and not their own dentist. Discharge letters were sent within one week of completion of treatment. Where patients required referral to secondary care, letters were sent within a maximum of four days following assessment. Patients were informed of the outcomes at a review appointment or by telephone where review was not possible.

Although definitions vary, a service evaluation should be a systematic process to determine the extent to which a service's aims have been or are being achieved and analyse the reasons for any discrepancy. Generally they consider the quality of a service, but commonly focus on its relevance, efficiency and effectiveness, where effectiveness considers the impact it has on the quality of people's lives (World Health Organization: UNFPA, 2004).

The aim of this paper is to report the findings of a five-year service evaluation of a substantive NHS dental practice-based MOS service.

## Method

The aim of the service was to increase the accessibility and efficiency of oral surgery provision, while at least maintaining other aspects of service quality. Although other frameworks exist (Campbell and Tickle, 2013), for the purposes of this evaluation, Maxwell's dimensions of quality (1984) were used to guide the evaluation, as they provide a balance of simplicity and comprehensiveness (efficiency and economy, effectiveness, equity, access, relevance to need and social acceptability). As a service

evaluation should consider the extent to which a service meets its aims, the evaluation was designed to consider as many dimensions as practicable and included analyses of activity and outcome data together with patients' and referring practitioners' perspectives of the service.

### *Activity and outcome data analysis*

Contractual requirements included the collection of anonymised activity data for the period April 2008 to March 2013. Data collected included: date of receipt of referral; date of first appointment; number of appointments required for treatment; procedures performed (including, if involved, multiple teeth); antibiotic prescription; failed attendance; late cancellation; reasons for non-treatment; whether a review appointment was required; and, the nature of any post-operative complications. These data were routinely recorded in Microsoft Excel® and imported into SPSS v.19.0 for analysis using descriptive statistics.

### *Patient and practitioner satisfaction surveys*

A 16-item patient satisfaction questionnaire, adapted from the validated Dental Visit Satisfaction Scale (Corah *et al.*, 1984) and originally developed for the original pilot evaluation (Dyer and Dhamija, 2009), was mailed to consecutive patients treated by the service. Invitations to complete patient satisfaction questionnaires are often made verbally by service providers and completed in the practice. The dental team was concerned that patients might be less likely to evaluate their experience candidly in such circumstances. Consequently it was agreed to survey patients retrospectively by mail.

In the first two years, mailing continued until 100 questionnaires were received. For reasons of cost, feasibility and practicality, this was reduced to 50 questionnaires in the final three years. Areas of enquiry included patients' perceptions of access, waiting times and interaction with the oral surgeon (including their information/communication, understanding/acceptance and technical competence) (Corah *et al.*, 1984). As patients were not routinely assessed before treatment, an additional item enquired whether patients felt they had sufficient time to ask about their treatment. Finally a single-item question on patient satisfaction was included. As the questionnaire had been piloted previously and required only minor amendments (Dyer and Dhamija, 2009), it was not piloted again.

All surveys were undertaken between January and April in each year of the period. Methods identified as maximising response rates were followed (Edwards *et al.*, 2009). All questionnaires were mailed with a personalised covering letter and a postage paid envelope to the practice. Questionnaire data were transferred to a spread sheet for analysis. Ten per cent of entries were checked against the source questionnaire for accuracy of transcription. Returned questionnaires with a response for under 90% of items were excluded from the analysis. Where a response was omitted from a particular item, the participant was excluded from analysis of that item. Any question answered by under 90% of participants was excluded from the analysis.

A practitioner questionnaire was developed by the provider and the then Doncaster PCT and comprised two sections. The first was for practitioners who referred to

the service and the second was for those who did not. The first section comprised 11 questions and enquired about satisfaction with the service and their opinion of the referral process. The second part comprised questions for those that did not refer to the service on measures that might encourage them to do so. The questionnaire was piloted with five dentists and opinion was sought on its content and from the LDC. Only very minor amendments were required. Finally the questionnaire was sent to all 102 practitioners in the PCT over three mailings to maximise response rates. As this was a service evaluation, ethical approval was not required for the study.

## Results

### *Service activity and outcomes*

Referrals were received from 169 different practitioners over the five year period, 13.6% of referrals were for patients who did not have a regular dentist. In total, 5,796 treatment appointments were arranged. The median waiting time for receipt of referral to first appointment was 35 days. Of the 3,911 appointments at which treatment was provided (67.5% of appointments made), the most commonly undertaken procedure was the surgical removal of non-third molar teeth (Table 1), with 15.2% of procedures involving more than one tooth. Nearly three quarters (73.6%) of procedures requested by referring dentists were completed in one visit, with only 3.5% needing more than three appointments (maximum of 9 appointments).

**Table 1.** Procedures performed (n=3,911)

| Procedures performed                | Numbers treated |      |
|-------------------------------------|-----------------|------|
|                                     | n               | % †  |
| Surgical removal of non-third molar | 2,085           | 53.3 |
| Surgical removal of third molars    | 1,107           | 28.3 |
| Surgical endodontics                | 135             | 3.5  |
| Oral medicine                       | 47              | 1.2  |
| Management of TMD                   | 62              | 1.6  |
| Coronectomy                         | 23              | 0.6  |
| Others*                             | 452             | 11.6 |

† Procedures of stated type ÷ All 3,911 treatment appointments

\* Others includes non-malignant soft tissue surgery, pre- and post-orthodontic procedures, additional tooth with third molars and other treatment where skills required beyond referring dentist.

Of the 5,796 appointments made, 3.3% were cancelled within 6 hours of the appointment and patients failed to attend a further 14.7%. Planned preoperative assessments before treatment accounted for 5.1% (n=298) of appointments and a further 10.1% (n=588) did not proceed to treatment for a number of reasons (Table 2).

Antibiotics were prescribed at 13.1% of the 3911 treatment appointments. Of the 135 surgical endodontic cases performed, 116 (87.2%) were prescribed antibiotics. All coronectomy cases included the prescription of perioperative antibiotics (Table 3).

Of the 3911 treatment appointments, 7.4% were followed by an elective review appointment, approximately half of which were routine review appointments for surgical endodontic and coronectomy cases. Only 2.5% (n=97) of the 3911 treatment appointments required a non-elective review to deal with post-operative problems. The most commonly reported post-operative complication was soft tissue infection followed by dry socket (following 0.9% of and 0.7% of all treatment appointments respectively) (Table 4).

### *Patients' perceptions of the service*

In total 350 completed questionnaires were included in the analysis, representing 9.7% of all patients treated over the 5 years. Of those responding, 70.1% were seen on time, with under 1% being seen more than 15 minutes after their appointment time, and 83.1% indicated they felt that service was better than they would expect from a hospital and none perceived it worse. Overall 99.7% were satisfied with the care they received. High levels of satisfaction were reported on the items adapted from the Corah *et al.* (1984) Dental Visit Satisfaction Scale (Figure 1). More than 98% of patients responded favourably to the statements posed, including the additional item inquiring about there being sufficient opportunity to ask questions about the treatment, despite the majority not having a preoperative assessment.

### *Referring practitioners' perceptions of the service*

A response rate of 76.4% was achieved after 3 phases of mailing to the 102 practitioners in the area. Those who referred to the service (n=60) had positive views, with more than 85% agreeing that: the waiting time was shorter than the hospital; patients with urgent problems were seen quickly; it was easy to refer and they understood the referral criteria; and correspondence from the specialist was easy to understand. Over 98% either

**Table 2.** Reasons for non-treatment at appointments (n=886)

| Reasons for non-treatment               | n   | Percentage of those not treated * | Percentage of all treatment appointments † |
|---|-----|-----------------------------------|--|
| Planned assessment before treatment     | 298 | 33.6                              | 5.1  |
| Patient declined treatment offered      | 236 | 26.6                              | 4.1  |
| Symptoms resolved                       | 138 | 15.6                              | 2.9  |
| Inappropriate referral                  | 121 | 3.7                               | 2.1  |
| Referred to secondary care for GA       | 56  | 6.3                               | 1.0  |
| Referred for treatment with IV sedation | 37  | 4.2                               | 0.6  |

\* Reason for non-treatment ÷ All 886 appointments attended but with no treatment

† Reason for non-treatment ÷ All 5,796 appointments made

**Table 3.** Procedures for which antibiotics were prescribed (n=511)

| Procedure                            | n   | % †  |
|--------------------------------------|-----|------|
| Surgical removal of non-third molars | 116 | 9.0  |
| Surgical removal of third molars     | 96  | 8.7  |
| Surgical endodontics                 | 116 | 87.2 |
| Coronectomy                          | 23  | 100  |
| Others*                              | 160 | 33.7 |

\* Others included additional tooth with third molars and other treatment where skills required beyond referring dentist (e.g. urgent referrals for cases of dentoalveolar abscess, cellulitis, extractions of particular difficulty)

† Procedures of stated type for which antibiotics were prescribed ÷ All procedures performed of that type

**Table 4.** Non-elective review appointments for post-operative complications (n=97)

| Post-operative complication                   | n  | %*  |
|---|----|-----|
| Soft tissue infection                         | 34 | 0.9 |
| Food packing in socket requiring intervention | 28 | 0.7 |
| Dry socket                                    | 26 | 0.7 |
| Request for removal of sutures                | 4  | 0.1 |
| Pain from bony sequestra or prominence        | 4  | 0.1 |
| Possible oro-antral communication             | 1  | 0.0 |
| Temperomandibular joint pain                  | 1  | 0.0 |

\* Percentage of all treatment appointments (rounded to one decimal place)

strongly agreed or agreed that they were happy with the service provided by the practice (Figure 2).

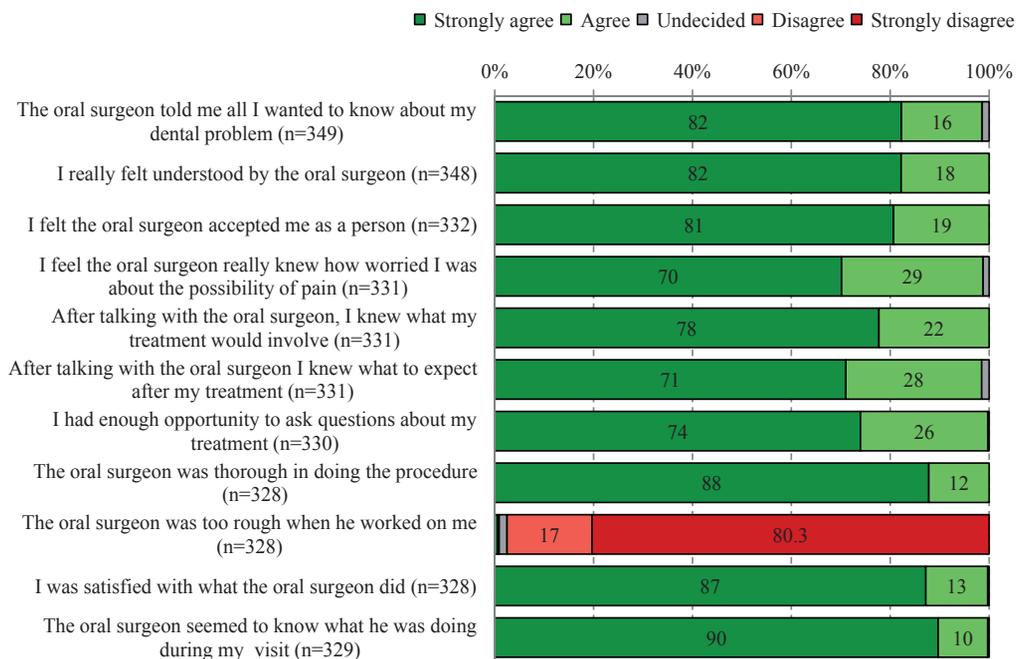
### Non-referring practitioners' perceptions

Eighteen practitioners (17.6%) did not refer to the service, of which 9 cited lack of awareness of the service as the main reason for not doing so. Four dentists preferred to refer to the hospital, one reported that patients requested to be referred to the hospital and another provided oral surgery themselves. Twelve declared that there was nothing the specialist practice could do to encourage them to refer to the service and 10 reported that they needed more information regarding the referral criteria.

## Discussion

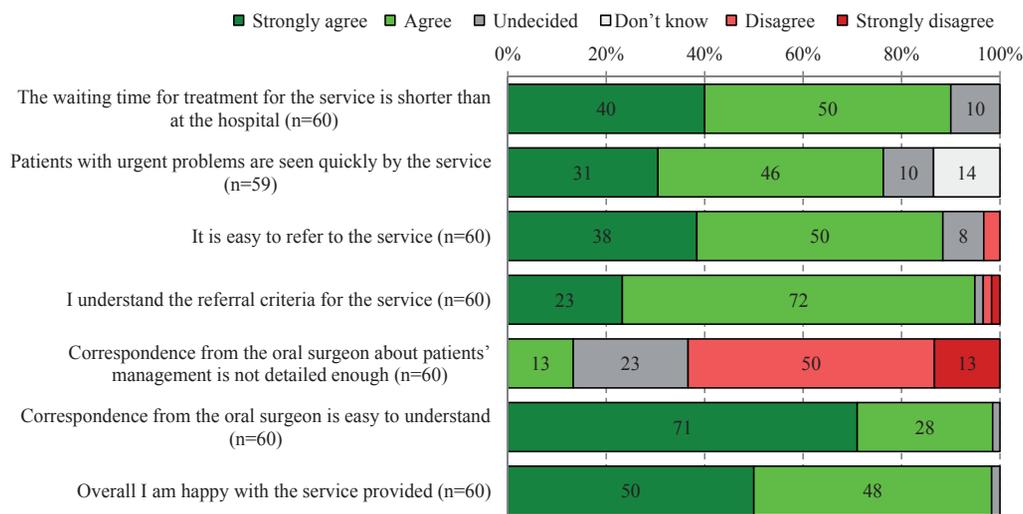
To the author's knowledge, this is the first evaluation of a substantive NHS practice-based minor oral surgery service to include analysis of activity and outcome data, and the perspectives of patients and referring practitioners. It confirmed that a range of oral surgical procedures can be performed in a primary care setting, with low complication rates and high levels of patient and practitioner satisfaction. These findings are consistent with and extend those of earlier evaluations (Bell, 2007; Dyer and Dhamija, 2009; O'Neill *et al.*, 2012; Pope, 2012; Sadler *et al.*, 1993; Wood, 1988).

Two factors that undermined the efficiency of the service were the failed to attend (FTA) rates and the proportion of patients not treated at appointments. Each factor will now be considered in turn. Overall 14.7% of treatment appointments were not attended. This rate has remained consistent over more than 5 years (Dyer and Dhamija, 2009) but is at the lower end of a range



Note: Disagreement with the 9<sup>th</sup> statement is a positive comment on the oral surgeon's handling of the patient as the statement is worded negatively

**Figure 1.** Responses to patient satisfaction questionnaire items (n=350)



Note: Disagreement with the 5<sup>th</sup> statement is a positive comment on the adequacy of the oral surgeon's correspondence as the statement is worded negatively

**Figure 2.** Referring practitioners' perspectives on the service (n=60)

of published FTA rates in hospitals and practices (Bandalier, 1999; Trenouth and Hough, 1991). These FTAs occurred despite the requirement for patients to call the practice to arrange appointments at times of their choosing and verbal requests to ensure, where possible, that they provide 24 hours notice to cancel appointments. A text reminder system was used for a period, but this was found to have little or no effect. It may be that FTAs are related to dental anxiety of dental treatment or a desire to be treated symptomatically. That nearly a third (32.4%) of patients without regular dentists would fail or cancel within 6 hours of their appointment would seem to support this, and epidemiological studies have identified that such patients are more likely to be dentally anxious (Marshman *et al.*, 2010, 2012; Milsom *et al.*, 2009; Nuttall *et al.*, 2011). In general healthcare, text messaging and reminder phone calls appear to have an effect (Geraghty *et al.*, 2008; Reda and Makhoul, 2001), however these findings cannot necessarily be generalised to dentistry, particularly where anxiety may play a larger role in attendance patterns in certain groups.

The proportion of patients not treated at their appointment (15.2%) would have been lower if the referral criteria for the service were always applied. Consistent with General Dental Council standards of practice (GDC, 2005), referring practitioners were expected to diagnose, treatment plan and explain the procedure for which they were being referred (including the provision of procedure-specific information sheets) and to provide an up-to-date medical history signed by the patient. Better assessment and referral of patients could have prevented some of these appointments in that many were inappropriate for treatment in primary care (usually due to complex medical histories), where the patient declined treatment, or where they required referral for IV sedation or general anaesthesia (Table 2). Many patients that required referral to secondary care originated from a Dental Access Centre (a clinic providing predominantly urgent treatment for those unable to access care from a regular dentist) and were irregular attenders. It has already been identified

that such patients are often dentally anxious and it may be difficult for the referring dentist to assess their suitability for MOS with local anaesthesia when there is no history of continuing care. Furthermore, approximately a third of these patients were elective pre-operative assessments. In these cases the specialist deemed it appropriate to see the patient pre-operatively for reasons including: the likely technical difficulty of the procedure; possible risks of surgery; and also where there was uncertainty about the diagnosis. In addition, all cases referred for surgical endodontics were assessed before surgery to ensure that all treatment options had been explained to the patient. Consequently, there will always be a need for some elective and non-elective pre-operative assessments in such services, and this should be considered in any contractual arrangements between commissioners and providers.

With few exceptions, only cases that met the referral criteria were contacted to arrange an appointment. However, the appropriateness of a referral was not always easy to assess from referral documentation and x-rays alone. For example, dentists' competence in oral surgery varied and sometimes a prior attempt to remove a tooth was not always included in correspondence. Assessments of the appropriateness and completeness of referrals have now been added to the routine data collection process. It is hoped that these data will inform future contract management processes and may identify training needs of some practitioners.

Post-operative review appointments were not routinely arranged in line with published data (Irvine and Hapanagama, 1998). Only 2.5% of treatment appointments resulted in patients re-attending with complications over the 5 years, a third of which were soft tissue infections which required antibiotics (Table 4). Only 0.7% of appointments led to cases of alveolar osteitis or "dry socket", where a dry socket was defined as uncontrolled pain starting between 2 to 4 days post-operatively with full or partial loss of blood clot and exposed alveolar bone in the socket. This compares favourably with

complication rates from secondary care (Amaratunga and Senaratne, 1988; Blondeau and Daniel, 2007; Halabi *et al.*, 2012; Heasman and Jacobs, 1984; Venkateshwar *et al.*, 2011), although case-mixes are likely to be different. Furthermore patients may have sought help from their referring dentist, despite verbal and written instructions to contact the specialist practice, which would mean this finding may be an under-estimate. However, neither the patient or practitioner satisfactions surveys identified problems with post-operative complications.

There is conflicting evidence on the effectiveness of peri-operative antibiotics in oral surgery (Halpern and Dodson, 2007; Lodi *et al.*, 2012; Susarla *et al.*, 2011; Venkateshwar *et al.*, 2011), but where benefit has been shown, the effect is relatively small. In the absence of a clear evidence-base, the decision to prescribe antibiotics was based on the procedure undertaken, best practice and if there was active infection in the operative site. For example, antibiotics were prescribed for coronectomy procedures (Long *et al.*, 2012; Patel *et al.*, 2010; Pogrel *et al.*, 2004; Pogrel, 2007; Renton, 2012) and where there was a confirmed history of complications following tooth extraction. Only 13.1% of treatment cases were prescribed antibiotics. Although some of these were for the surgical management of acute infection for urgent referrals, most were for surgical endodontics and coronectomy (Table 3). The service used disposable non-sterile gloves and drapes, in line with existing evidence for exodontia (Laskin, 1999; Cheung *et al.*, 2001; Adeyemo *et al.*, 2005). As complication rates were very low in the pilot (Dyer and Dhamija, 2009) and the substantive service, these findings support continuing this practice.

Patient satisfaction with the service was very high. Traditionally, patient satisfaction is assessed using self-completed questionnaires in waiting rooms following appointments. The team at the specialist practice was concerned that this might influence patients' responses and it was agreed to survey patients retrospectively by post. In the pilot evaluation (Dyer and Dhamija, 2009), this was undertaken on a sample of patients and non-responders were mailed up to three times to maximise response rates (Edwards *et al.*, 2009). The second and third mailings provided very few additional responses and satisfaction varied little between mailings. Consequently, it was agreed in following years that successive patients would be mailed until an agreed number of responses was received. As the findings were so consistent, the number of responses sought was reduced from 100 to 50 in the final three years for reasons of cost and feasibility. The survey revealed very high levels of satisfaction; over 83% of participants reported that the service was better than they would expect from a hospital and none reported that it was worse. All but one participant was satisfied with the service overall. These findings are consistent with earlier research reporting satisfaction with MOS provided in primary care (Bell, 2007; Clark, 1995; Dyer and Dhamija, 2009). Reasons cited for this include simpler appointment processes, shorter waiting times, the more personal nature of such services, geographical convenience, all of which appear to be consistent with the responses reported here. However, as the number participating (n=350) represents 9.7% of all patients treated, these findings should be interpreted with caution.

In addition, satisfaction surveys often report high levels of satisfaction, even when dissatisfaction exists. Various explanations have been proposed for this phenomenon including patients' unwillingness to offend their practitioners (Calnan, 1988; Locker and Dunt, 1978). As the oral surgeon was not the patients' regular practitioner and the surveys were undertaken retrospectively and anonymously, such factors were less likely to have had an effect. Ideally, comprehensive approaches to assessing the acceptability of services should use mixed-methods approaches, including qualitative methods (Calnan, 1988; Dyer *et al.*, 2013; Schneider and Palmer, 2002; Sitzia and Wood, 1997). Costs and feasibility precluded such an approach but should be considered in any future evaluation.

All patients referred to the service arranged their own appointments at times convenient to them and nearly three quarters of treatment requested by dentists was completed in one appointment. Despite patients not being routinely assessed pre-operatively, over 98% agreed or strongly agreed that they knew what to expect before and after treatment and that they had sufficient time to ask any questions they might have.

Dissatisfaction with hospital-based oral surgery amongst primary care dentists has been reported, with poor access to the service cited as the main reason for this (Coulthard *et al.*, 2000). In contrast, 98% of referring practitioners either strongly agreed or agreed that they were satisfied with this service provided. A small proportion of dentists reported they did not understand the service referral criteria. As all referral documentation was available on the PCT and LDC websites, arguably this reflects more on induction procedures at the relevant practices rather the specialist service *per se*. Interestingly, of the 18 practitioners who did not refer to the service, 10 declared that there was nothing that the specialist practice could do to encourage them to refer and cited a preference for them (or their patients) to refer to the hospital. An exploration of the reasons for this was beyond the scope of this evaluation, but it could be an area for future enquiry. Nonetheless such preferences should be considered when undertaking any service redesign.

The referral criteria used in this service remained essentially unchanged over the five-year period and were largely restricted to dentoalveolar surgery and designed to meet the needs of the then local PCT. However, oral medicine and TMD cases were occasionally referred but were not declined access to avoid delays in treatment. Primary care specialist services could provide a wider range of oral surgery and oral medicine care to meet commissioning need, providing these cases fall within providers' skills and training and ideally this should operate as part of a clinical network. However, all such services should remain sufficiently independent to ensure the advantages of being practice-based are maintained, particularly their accessibility, flexibility and responsiveness to the needs of patients and referring dentists alike.

Other NHS practice-based oral surgery services have been reported as being more cost-effective than those in secondary care (Sadler *et al.*, 1993). However, this study was undertaken under different contractual and remunerative arrangements. Although there have been barriers to establish such services in the past, the cur-

rent policy environment encourages a more pluralistic approach to delivering specialist services in the future. It is essential that the advantages of providing services in primary care are not undermined by introducing excessive bureaucracy. Although case-mixes are different, it is likely that this service is more cost-effective for like-for-like cases than secondary care, and recent reports would support this (Medical Education England, 2010). However, anecdotal reports suggest that costs paid by the then PCTs to secondary care for minor oral surgery can vary significantly and are much higher than those made for cases treated by specialists in primary care (Patel, 2013). Consequently, a standard approach to allocating costs should be established and health economic evaluation undertaken.

Any service evaluation, should aim to consider all dimensions of the quality of a service. Maxwell (1984) identified: efficiency and economy (is a service value for money?), effectiveness (is it effective for individual patients), equity (is the service applied fairly to the population?), social acceptability (is it acceptable to all stakeholders - patients and practitioners and commissioners?), access to services (is the service accessible to patients and practitioners?) and relevant to the needs of the whole population. Arguably, with the exception of a health economic analysis and the perspectives of the commissioners and provider of the service, all other dimensions have been considered in this evaluation. Taken as a whole, the findings would suggest that within the case-mix defined by the referral criteria, a high quality service has been provided and consistent with the recent Care Quality Commission (2012) report on the practice.

Ideally services should be independently evaluated to minimise risk of bias. Although the author was the provider of the service, each aspect of the evaluation was developed with the commissioner and data were submitted monthly as part of contract monitoring and were consistent with NHS activity submissions. Both satisfaction surveys were administered (including mailing and inputting of data) by a third party not involved in the service.

## Conclusion

This service evaluation has revealed that an NHS MOS service can be provided successfully from dental practice. A range of oral surgery procedures was provided with low complication rates, short waiting times, acceptable accessibility and high levels of patient and referring practitioner satisfaction. Further evaluation could include a health economic analysis comparing this service with other providers.

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