

Unravelling Referral Paths Relating to the Dental Care of Children: A Study in Liverpool

Rebecca V Harris, Susan M Pender, Alison Merry and Anthony Leo

Key Words: Primary Care, Secondary Care, Referral Networks, Dental

© Primary Dental Care 2008;15(2):45-52

Objective: To describe primary care referral networks relating to children's dental care and the main influences on referral decisions taken by dentists working in a primary care setting.

Design: A postal questionnaire to all 130 general dental practitioners (GDPs) in contract with Primary Care Trusts (PCTs), and 24 Community Dental Service (CDS) dentists in Liverpool.

Outcome measures: Characteristics of patient groups and factors influencing the choice of referral pathway of children referred from primary dental care.

Results: There were good responses rates (110 [85%] GDPs and 22 [92%] CDS dentists). The two main reasons why GDPs

referred children to hospitals were (a) for treatment under general anaesthetic (GA) or relative analgesia (RA) and (b) for restorative care of dentally anxious children. GDPs also referred anxious children requiring simple restorative care and/or RA to the CDS. Only eight GDPs (7%) cited a lack of experience as a reason for referral of dentally anxious children for simple restorative care, compared to 53 (48%) who cited a lack of RA facilities, and 25 (23%) who cited financial considerations.

Conclusions: GDPs refer children to both hospital services and the CDS, and identify a lack of RA facilities and economic pressures as key reasons for referral.

Primary care is traditionally defined as 'the first level of contact by individuals, the family and the community with the National Health Service (NHS), thus bringing healthcare as close as possible to where people live and work', whereas secondary care is 'care of a more specialised kind than can be offered at the most peripheral level'.¹ However, this definition is now beginning to look outdated in the light of policy developments and a gradual blurring of responsibilities for clinical care between general practitioners and hospital clinicians.² General medical practitioners (GMPs) and community nurses are being encouraged to develop new skills and practice-based facilities; shared care schemes are being introduced for chronic disease management, paediatrics, mental health, and maternity care.³

The government has put forward a vision of the future of primary care, as one in which, given continued advances in technology and professional practice, care once confined to specialist hospitals can be provided much closer to patients' homes.⁴ In the early part of this decade, government policy was based on a planning assumption that there would be an increase in 'activity taking place in primary and community settings to

contribute to the national assumption of at least one million more outpatient appointments (around 10%) [taking] place in the community rather than hospital'.⁵ Although the initial policy focus was on medical specialities, it was clear that the potential for other branches of healthcare to develop services in this way was to be explored.

In the context of dental care, the majority of primary care is provided by general dental practitioners (GDPs), supplemented by care provided by Primary Care Trust (PCT) Salaried Primary Dental Care Services (previously known as the Community Dental Service [CDS]) for those who 'have experienced difficulty in obtaining treatment from the General Dental Service (GDS) or for whom there is evidence that they would not otherwise seek treatment from the GDS'.⁶ Secondary care is provided through most district general hospitals in the United Kingdom (UK) as well as the main dental teaching hospitals. There are, however, some specialists working in the CDS setting, most often in the field of paediatric dentistry, and more recently there has been the prospect of GDPs taking on a specialist role as a Dentist with Special Interests (DwSIs),⁷ thus

RV Harris PhD, BDS. Senior Lecturer in Dental Public Health and Primary Dental Care.*

A Merry PhD, BDS, MPH, FDS. Consultant in Dental Public Health, Ashton, Leigh and Wigan Primary Care Trust, Manchester, UK.

SM Pender BA. Research Assistant.*

A Leo. Commissioner for Dental Services, Liverpool Primary Care Trust, Liverpool, UK.

*Liverpool University School of Dentistry, Liverpool, UK.

Practice No. _____ **GDP No.** _____
 Male =1 Practice postcode _____
 Female =2 Year of qualification _____

Q1. Do you provide any dental care for children?
 Yes, NHS care. Yes, both NHS and private.
 Yes, private care. I do not provide any care for children.

Q2. If you have NHS child patients, how many children aged 0-16 years are on your capitation list?

Q3. In the past year, have you referred any of your child patients (excluding those referred for orthodontic assessment and treatment) to any of the following?

	Yes	No
Liverpool Dental Hospital Paediatric Department	<input type="checkbox"/>	<input type="checkbox"/>
Alder Hey Hospital Paediatric Dentistry Department	<input type="checkbox"/>	<input type="checkbox"/>
Community Dental Service (CDS)	<input type="checkbox"/>	<input type="checkbox"/>
Another general dental practitioner (GDP)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please give brief details) _____	<input type="checkbox"/>	<input type="checkbox"/>

Please tick as many boxes as apply.
 If you have **not** referred children to any of these other services in the past year, please skip 4, 5, 6, and 7, and go straight to 8.

Q4. If you have referred children to any other services/practitioners, please indicate how many referrals you made during the last 4 weeks.

	0	1 or fewer	2-4	5-10	11 or more
Dental Hospital	<input type="checkbox"/>				
Alder Hey	<input type="checkbox"/>				
CDS	<input type="checkbox"/>				
To another GDP	<input type="checkbox"/>				
Other	<input type="checkbox"/>				

Q5. The following are descriptions of groups of patients whom you may have referred to the CDS, Dental Hospital or Alder Hey over the last year. Please tick MAIN GROUPS of patients you have referred and where you were most likely to have referred them to.

Please tick as many boxes as you think apply.
 If you do not refer any of these patients, just leave that row blank.

	Paediatric Dept at Liverpool Dental Hospital	Paediatric Dept at Alder Hey Hospital	CDS	Another GDP dentist	Other
Children with high caries requiring routine restorative treatment/ extractions under local anaesthesia (LA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dentally anxious children who require simple restorative treatment	<input type="checkbox"/>				
Children with high caries in need of extractions under general anaesthesia (GA)	<input type="checkbox"/>				
Children with complex medical histories who require routine treatment	<input type="checkbox"/>				
Children with learning or physical disabilities who require routine treatment	<input type="checkbox"/>				
Dentally anxious children referred for relative analgesia (RA)/sedation	<input type="checkbox"/>				
Children for treatment planning of dental anomalies	<input type="checkbox"/>				
Children for treatment of dental trauma	<input type="checkbox"/>				
Other group of patients (please describe) _____					

Q6. For the following groups of patients, what is the main reason for referral of this type of patient (tick any that apply)?

	Treatment in GDS is uneconomic	Lack of practice facilities for GA/RA sedation	Lack of skills and/or experience in undertaking this type of care/patient group	Other (please specify)
Children with high caries requiring routine restorative treatment/ extractions under local anaesthesia under (LA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dentally anxious children who require simple restorative treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children with high caries in need of GA extractions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children with complex medical histories who require routine treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children with learning or physical disabilities who require routine treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dentally anxious children referred for RA/sedation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children for treatment planning of dental anomalies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children for treatment of dental trauma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other group of patients (please describe) _____				

Figure 1 Questionnaire sent to general dental practitioners.

we now have the prospect of specialised dental care delivered in a primary care setting.

A review of the relationship between primary and secondary dental care provision is also likely to be on the agenda of PCTs, which now have the responsibility for determining the oral health needs of their population and commissioning the services that their residents need.⁸ As part of this role, they will inevitably bring a new perspective to looking at how services should be provided to patients in both community and hospital care settings. In the review of the future of salaried dentists in primary care, published by the Department of Health,⁹ it was made clear that the traditional demarcations between the GDP and dentists working in salaried services in the UK will

disappear in the future. PCTs were to make informed choices, taking into account the best use of resources regarding dental services needed by their populations. Specific reference was made to the possibility of GDPs developing services for patients with special needs, and dentists within the salaried services providing general care dentistry.

This paper is concerned with the context of the specialist area of paediatric dentistry. Previous research relating to referrals of child patients has mainly focused on trends in referrals made to hospital paediatric dentistry services,^{10,11} and referral patterns for outpatient general anaesthesia (GA).¹² Although the traditional boundaries between primary and secondary care are being challenged, there is relatively little research evidence as to

Q7. Do any referred patients return to you for care with a treatment plan provided for the care to be undertaken?Yes No

If you answered yes, please give brief details of the type of care provided:

Q8. Do you have any practice policy relating to the referral of child patients?Yes No

If you answered yes, please give brief details below:

Q9. Have you or your patients encountered any problems in relation to obtaining secondary/specialist paediatric dental care?Yes No

If you answered yes, please give details below:

Q10. The following ask about what kind of postgraduate experience in paediatric dentistry you may have had.

- a. Are you a member of the British Society of Paediatric Dentistry? Yes No
- b. Have you ever worked as a house officer/senior house officer in paediatric dentistry? Yes No
- c. Have you ever taken a short postgraduate course of study such as a Section 63 course with hands-on operative experience in paediatric dentistry? Yes No
- d. Have you ever attended any postgraduate lectures on paediatric dentistry? Yes No
- e. Do you have any postgraduate qualifications in paediatric dentistry? Yes No
- f. Is the only training you have received in paediatric dentistry that received as an undergraduate or a vocational trainee? Yes No

Q11. How do you rate your confidence in dealing with the restorative treatment needs of healthy children with no dental anxiety?Not confident at all Fairly confident Very confident **Q12. How do you rate your confidence in dealing with the restorative treatment needs of healthy children with dental anxiety?**Not confident at all Fairly confident Very confident **Q13. How do you rate your confidence in dealing with the restorative treatment needs of children with a significant medical history and no dental anxiety?**Not confident at all Fairly confident Very confident

- This questionnaire is part of a wide-ranging review of paediatric dental services in Liverpool.
- Participation in this survey is entirely voluntary; however, the results will be used to advise on possible improvements to local paediatric dental services and so your views are very important.
- Your answers will be treated in confidence and it will not be possible for you to be identified from any report or publication arising from this work.

Thank you very much for taking the time to complete this questionnaire.**Please return it to us in the pre-paid envelope by _____ (Date).**

and this issue is particularly pertinent with respect to the referral of child patients. In the Liverpool area, secondary care for child patients is provided by two hospital services: Liverpool University Dental Hospital (LUDH; a dental teaching hospital) and Alder Hey Hospital (AH; a specialist children's hospital). There are also two specialists in paediatric dentistry employed by the CDS in the area. It therefore represents an area in the UK where a full range of referrals between GDPs, CDS and hospital services is possible. This study examines referral networks across this system. The aim of the study was to investigate referral pathways of child patients from primary dental care services (GDS and CDS) to hospital services, and between the GDS and the CDS.

METHOD

The work was undertaken as part of a review of the provision of paediatric dental services in the area, and a letter from the Chair of Liverpool Research Ethics Committee confirmed that full ethical approval was not required. A fully structured questionnaire (Figure 1) was posted to all 130 GDPs who were listed by Liverpool PCTs as providing NHS care for children (no distinction was made between those working under General Dental Service terms and conditions, and those working under Personal Dental Service arrangements). Dentists working in Dental Access Centres and specialist orthodontic practices were excluded. There were no other salaried PDS providers. A similar fully structured questionnaire containing identical core questions was also distributed to the 24 CDS dentists working in Liverpool. Three weeks after the first mailing, non-respondents were telephoned and sent a second questionnaire in order to maximise the response rate. Questionnaires were sent in February 2004. Questions 1, 2, 7, 8, and 9 are not relevant to the topic of this paper. Answers to these five questions have been reported elsewhere.¹⁵ The answers to all other questions are reported in this paper. They included whether and where the GDP/CDS dentist had referred any child patients (excluding those for orthodontic care) within the previous year, the number of child patients referred by GDPs in the previous four weeks, the main groups of children referred by GDPs/CDS dentists, and the main reason for GDP referral. GDPs and CDS dentists were also asked about their postgraduate experience in paediatric dentistry, and their level of confidence in dealing with the restorative treatment needs of children with and without dental anxiety and a significant medical history. Individual vignettes of cases (requiring dentists to reply with reference to a given case history of a patient) were not presented in the questionnaires, but general categories of groups of patients put forward.

The questionnaire included reference to the service provided by consultants in paediatric dentistry working in two centres in Liverpool: LUDH and AH. Both centres provided GA services as well as specialist care and advice. A GA service was also provided by the CDS, in AH and in a district hospital setting

how the different parts of the system (the GDP, the CDS, and the Hospital Dental Service [HDS]) currently fit together. What referral networks exist, where is specialist paediatric dentistry currently provided, and how far are we from the government's vision of specialist paediatric dental care delivered in a primary care setting?

Previous research has indicated that the distinction between primary and secondary care may be distorted because some referral decisions by GDPs are made with financial considerations in mind rather than due to a lack of skills, experience or facilities.¹³ Referrals from the GDS to the CDS, for example, were reported to increase markedly in response to the introduction of a capitation system of payment in the GDS,¹⁴

Table 1: Numbers of child referrals made by GDPs in the previous four weeks

Destination of referral (or where no children were referred in this period)	GDPs making no referrals (%)	GDPs making 1-4 referrals (%)	GDPs making 5-10 referrals (%)	GDPs making more than 11 referrals (%)
Liverpool University Dental Hospital	27 (25)	75 (68)	6 (6)	2 (2)
Alder Hey Hospital	84 (76)	25 (23)	1 (1)	0 (0)
CDS	81 (74)	25 (23)	3 (3)	1 (1)
Other GDP	99 (90)	10 (9)	1 (1)	0 (0)
Other	101 (92)	7 (6)	1 (1)	1 (1)

Table 2: Main groups of child patients referred by GDPs in the previous year to hospital centres and the CDS

Group of children referred	GDPs referring this group to LUDH (%)	GDPs referring this group to AH hospital service (%)	GDPs referring this group to the CDS (%)	GDPs referring this group to other places (%)
Children with high levels of caries in need of GA extractions	87 (79)	22 (22)	20 (18)	3 (3)
Dentally anxious children in need of RA sedation	56 (51)	3 (3)	34 (31)	6 (6)
Treatment planning for dental anomalies	53 (48)	4 (4)	0 (0)	0 (0)
Dentally anxious children for simple restorative care	41 (37)	1 (1)	28 (26)	4 (4)
Children with complex medical histories	33 (30)	36 (33)	6 (6)	0 (0)
Children with caries in need of LA extractions	31 (28)	6 (6)	12 (11)	0 (0)
Treatment for trauma	30 (27)	8 (7)	1 (1)	0 (0)
Children with learning or physical learning disabilities	26 (24)	7 (6)	18 (16)	0 (0)

(Whiston Hospital). The Cardiff TeleForm Information Capture System, an automated system containing validation routines for data cleansing, was used to transfer questionnaire data into an electronic form. Data analysis was undertaken using statistical software (SPSS version 11.0, SPSS Inc, Chicago, USA).

RESULTS

Responses were obtained from 110 (85%) GDPs and 22 (92%) CDS dentists. Eighty (73%) GDP respondents were male compared with seven (32%) CDS dentists responding who were male. Eight out of the 22 CDS dentists were senior dental officers (SDOs) or equivalent grade and 14 were dental officers (DOs).

All GDPs had made referrals of child patients in the last year, with most GDPs (95; 83%) having made referrals to the dental hospital (LUDH), 64 (58%) having referred to the children's hospital (AH), and 50 (46%) having referred children to the CDS. Many GDPs had referred patients to more than one type of service in the previous year, with 69 (73%) GDPs who had referred children to LUDH also having referred children to the CDS. The majority of practitioners made fewer than five referrals in a four-week period to LUDH. *Table 1* shows the number of referrals of children GDPs had made in the previous four

weeks. CDS dentists had also made child referrals within the last year, with 14 (64%) and 13 (59%) referring to LUDH and AH, respectively, in the last year, 21 (95%) referring to another CDS dentist (including the hospital-based service run by the CDS), and six (27%) referring to GDPs.

Types of patients referred

A high proportion (87; 79%) of GDPs reported referring children with high caries for extraction under GA within the last year to LUDH (*Table 2*). Just over half the GDPs (56; 51%) also reported referring children who were dentally anxious and in need of relative analgesia (RA) sedation, and 41 (37%) GDPs reported referring dentally anxious children in need of simple restorative care to LUDH (*Table 2*). Dentally anxious children were also often referred to the CDS either for care under RA or local analgesia (LA) (*Table 2*). Some GDPs also reported referring children to a sedation service situated in a general dental practice. If secondary care is defined as care requiring specialist personnel or a hospital setting, then 98 (89%) GDPs reported making referrals to a hospital service children whose care may have been undertaken in a primary care setting, given the appropriate equipment, such as an RA machine.

Relatively few CDS dentists, by contrast, had referred children to LUDH in the previous year. Three (14%) had referred

Table 3: Main groups of child patients referred by CDS dentists in the last year to hospital centres and to other CDS dentists

Group of children referred	CDS dentists referring this group to LUDH (%)	CDS dentists referring this group to AH hospital service (%)	CDS dentists referring this group to another CDS dentist (%)
Children with high levels of caries in need of GA extractions	0 (0)	0 (0)	20 (91)
Dentally anxious children in need of RA sedation	1 (5)	0 (0)	8 (36)
Treatment planning for dental anomalies	6 (27)	4 (18)	1 (5)
Dentally anxious children for simple restorative care	0 (0)	0 (0)	2 (9)
Children with complex medical histories	3 (14)	7 (32)	1 (5)
Children with caries in need of LA extractions	0 (0)	0 (0)	1 (5)
Treatment for trauma	4 (18)	1 (5)	2 (9)
Children with learning or physical disabilities	1 (5)	2 (9)	4 (18)

children with complex medical histories, six (27%) had referred children with dental anomalies, and four (18%) had referred children with dental trauma. Only two dentists (9%) had referred to LUDH children with learning or physical disabilities or anxious children for RA sedation (Table 3). In contrast, eight CDS dentists (36%) had referred anxious children for RA sedation to another CDS dentist. It appears that GA referrals were also largely carried out 'in-house', with 13 CDS dentists (59%) referring children in need of a GA to the CDS service based in AH and seven CDS dentists (32%) referring to the GA service provided by the CDS based in the Whiston Hospital.

Main reasons for GDP referral

The reasons given by GDPs for referring children in need of extractions under LA, or simple restorative care for the dentally anxious were only in part based on a lack of expertise on the part of the practitioner. Although eight (7%) GDPs attributed the referral of these groups to a lack of expertise, 36 (33%) and 53 (48%) GDPs cited a lack of RA facilities as a reason for referring children for extractions under LA and for simple restorative care for the dentally anxious child, respectively. Financial considerations were factors in the referral by GDPs of children for LA extractions (19; 17%) and anxious children for simple restorative care (25; 23%).

Postgraduate training and qualifications

Relatively few (40; 36%) GDPs had received any teaching in paediatric dentistry after vocational training (including attendance at relevant postgraduate lectures), compared with 19 (86%) CDS dentists. Although only one CDS dentist had a postgraduate qualification specifically in paediatric dentistry, a

Table 4: Responses of GDPs and CDS dentists to the question, 'How confident do you feel in undertaking restorative care for this type of patient?'

Type of patient	GDPs who felt very confident in undertaking restorative care (%)	CDS dentists who felt very confident in undertaking restorative care (%)
Healthy children with no dental anxiety	81 (74)	18 (82)
Healthy children with dental anxiety	23 (21)	13 (59)
Children with a significant medical history and no dental anxiety	9 (8)	6 (27)

further three CDS dentists had obtained a modular Master's degree, which included some postgraduate training in paediatric dentistry. No GDPs had any postgraduate qualifications in the field of paediatric dentistry, and only two of the 110 GDPs were members of the British Society of Paediatric Dentistry, compared with nine out of the 22 CDS dentists.

Confidence in undertaking restorative care for children

GDPs also expressed a lower level of confidence in being able to treat healthy children with dental anxiety; only 23 (21%) felt very confident about this, compared with 13 (59%) CDS dentists (Table 4). A lower proportion (6; 27%) of CDS dentists felt very confident in undertaking restorative care for children for children with a significant medical history, and only a few GDPs (9; 8%) felt very confident with this type of patient.

DISCUSSION

The response rate for the study was high, and demographic details of responding dentists indicate that the sample is relatively representative of dentists nationally, in that 73% of GDPs responding were male; this compares to the figure of 68%

male dentists in general dental practice in 2005.¹⁶ In the CDS, 33% of dentists in the UK are male,¹⁶ and this compares closely with the figure (32%) for CDS respondents in this study. Nationally, 34% of CDS dentists are of SDO grade or equivalent, which compares to 36% in this study.¹⁷ Thus although issues relating to referral networks between primary and secondary care are to some extent defined by local circumstances, the results of the study may be generalisable to other areas in the UK, particularly those in which a teaching dental hospital is situated.

The study shows that the primary/secondary care interface is multifaceted. GDPs appear to refer certain groups of child patients to both hospital and community services, although more research is needed to investigate this further and explore how practitioners make distinctions between secondary care providers. How do GDPs decide between possible referral routes: is it on the basis of waiting lists or expertise? To what extent does patient choice currently influence the choice of referral pathway? As well as raising various questions, this study demonstrates that at the time when the concept of DwSIs was first being put forward, and when a clear distinction between the roles of the CDS and general practitioners existed, a plurality of referral paths between GDPs, the CDS and hospital services was in operation, without clear direction. As the commissioning role of PCTs becomes more established, it will be interesting to see whether referral networks become guided by PCT policy, emphasising the desirability of provision of community-based specialist care.

Although the World Health Organization's definition of primary and secondary care is unambiguous,¹ in the context of referral of child patients for secondary dental care, the distinction between primary and secondary care is far from clear. Many GDPs identify a lack of RA facilities in general dental practice as a reason for referral of many child patients, more so than their lack of expertise in this area. The study shows that a relatively high number of GDPs refer such patients to a hospital service, even though, if equipment were available, this could be undertaken by appropriately trained clinicians in a primary care setting. Perhaps this is one area where DwSIs working in a general dental practice setting may be able to provide a service that relieves pressure on hospital services.

Other studies have also shown that one of the largest groups of patients referred to paediatric consultant clinics elsewhere in

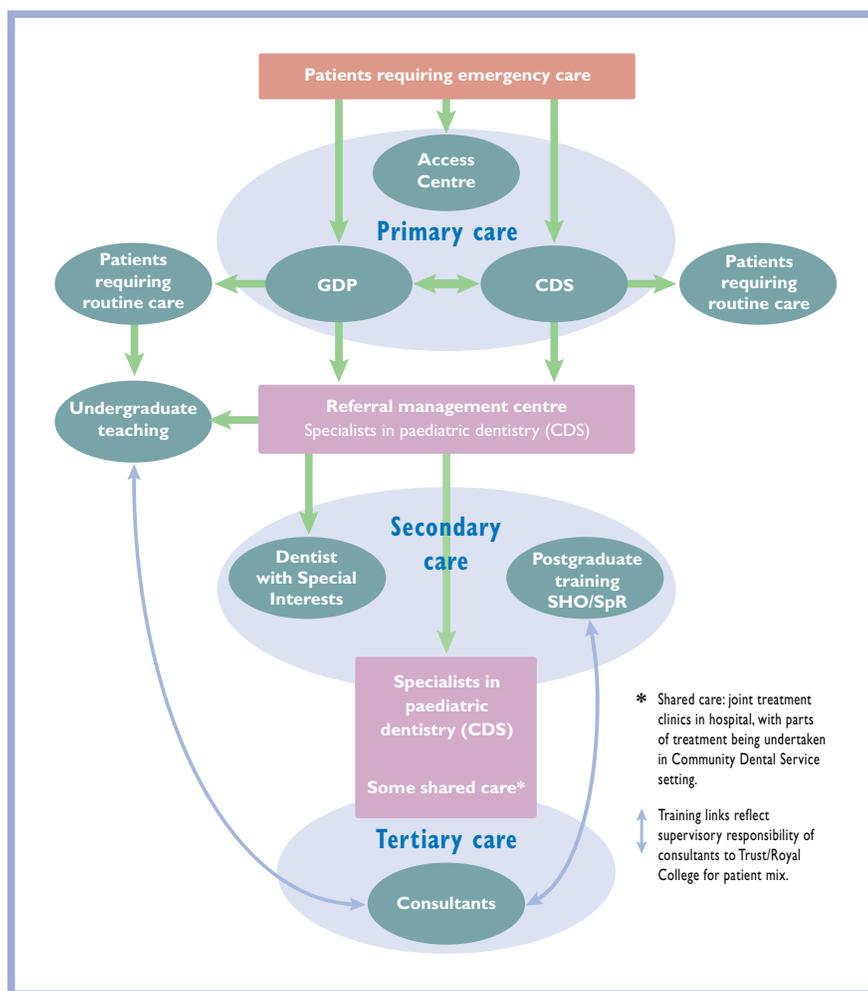


Figure 2 Model of the primary/secondary/tertiary care interface involving a referral management centre for paediatric dentistry patients.

the UK is that of dentally anxious children.¹⁰ The response to this finding was the establishment of a clinic, in a dental hospital, specifically allocated to provide care for this type of patient. Current changes in the organisation and commissioning of primary and secondary care services mean that other options would probably now be considered in order to adhere to the strategic principles of moving towards care being delivered nearer to patients' homes, and in a primary care setting where possible. However, this does raise questions concerning the availability of the appropriate manpower in primary care because it is evident that although the CDS might provide a local network of dentists with some postgraduate training and qualification, this may not be sufficient to meet the demand for this type of care. The current study also shows that although the concept of DwSIs may provide the PCT with more options in the dental care system, the level of postgraduate training and experience of GDPs in paediatric dentistry is currently so low as to be unlikely to offer a realistic resource in the near future.

The organisational form established in the UK's NHS in 1948 was a tripartite configuration of hospitals, community services, and family practitioner services. Since 1997, the government has argued that the structure based on hierarchies should be shifted towards one based on partnership working,

Primary care	
Provided by:	General dental practitioners (GDPs), community dentists and dental students.
For:	Children with low levels of disease and limited restorative treatment requirements. Some GDPs with a specialist interest might provide additional levels of care eg using relative analgesia (RA).
Secondary care	
Provided by:	Dentists, eg senior dental officers (SDOs) on specialist list or with a special interest, senior house officers (SHOs), specialist registrars (SpRs; first 3 years) under consultant direction.
For:	Children with more difficult circumstances such as: <ul style="list-style-type: none"> • Controlled cardiac condition. • Long-term transplant. • Cancer (after chemotherapy and in remission). • Low–moderate learning difficulty. • Cerebral palsy. • Repaired cleft lip/palate. • Uncomplicated dental trauma (crown fracture with pulpal exposure, luxation injuries including avulsion of permanent incisors). • Collaboration in treating dental anomalies. • Pain and infection, including the need for treatment under general anaesthesia.
Tertiary care	
Provided by:	Teams of specialists including SpRs led by consultants in paediatric dentistry. Collaboration with SDOs in community.
For:	Children with special needs, resulting in behavioural or treatment difficulties, and children requiring overall treatment planning, including long-term planning on interdisciplinary clinics. <ul style="list-style-type: none"> • Pre- or post-heart surgery. • Transplant cases until risk of rejection past. • Paediatric oncology pre- and post-remission. • Severe mental disability. • Cleft lip and palate during period of growth and development. • Dental development anomalies. • Complex dental trauma. • Other children with special needs that cannot be managed in secondary care. • Other medically compromised patients eg renal, liver, respiratory. • Patients with complex syndromes. • Patients requiring joint consultations for restorative/orthodontic/oral surgery.

Figure 3 Defining the case mix within the various parts of the paediatric dentistry network: agreed decision criteria.

which involves coordination of services and a structure involving networks.¹⁸ Given that GDPs appear to have several possible routes for the referral of a child in need, for example, of a GA, it does seem that there would be some benefit in working towards a greater coordination of similar services that are currently available, albeit in different settings. This would be where the demand for the service regularly outstrips capacity, as is often the case for GA services.

Referral management systems have recently been put forward as a possible means of bringing together a plurality of providers and directing patients to the service that is most appropriate for their needs.¹⁹ Initiatives such as telephone helplines, computer-based decision support systems, and prac-

itioner-led triage systems have been developed in many areas as a means of managing patient demand in complex health systems. There are several examples within primary dental care where schemes (such as the use of referral pro formas for GDPs referring patients to secondary care) have been used successfully and shown to facilitate the more effective management of referred patients.²⁰

As a further development of the concept, at the interface between primary and secondary care, referral management centres (a centralised process of managing referrals) are being increasingly used. PCTs have established referral management centres in a range of disease areas, mainly to reduce the numbers of referrals into secondary care.¹⁹ Referral management centres have three potential roles: to count and monitor referrals, to assess their nature (and, perhaps, their quality), and to redirect or bar requests for referral. Although there is some concern that there is potential for an unwelcome extrusion of management systems into clinical decision making, others welcome this development as a way of introducing quality control into the traditional system of the practitioner as gatekeeper.¹⁹

Referral management systems have been suggested as a means of managing demand for both sedation services for dental patients²¹ and orthodontic assessment and treatment,²² although these are relatively recent developments. The findings of the study indicate that a referral management centre may also have a role to play in the management of paediatric dentistry referrals. Indeed, implementa-

tion of a referral management system is being planned in the area described in the study, with new referral paths envisaged under the new system outlined in *Figure 2*. An essential part of the process is the involvement of all key stakeholders (hospital consultants, paediatric dentistry specialists, GDPs, PCT commissioners) in agreeing clinical referral criteria to underpin decision making (*Figure 3*). The success of the new system in managing demand and maximising the effectiveness of the different service providers in contributing to the overall system has yet to be established, although the findings of the study reported here suggest that such an intervention may bring some benefits. Although there is some concern that developments such as referral management centres have ‘appeared overnight in

an evidence-free zone',¹⁹ there is a general agreement that 'something needs to be done', as patient demand rises and PCTs move towards commissioning services on a local basis.

CONCLUSIONS

GDPs refer children to both hospital services and the CDS, and identify a lack of RA facilities and economic pressures as key reasons for referral.

REFERENCES

1. *Primary Health Care*. Report of the International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978, jointly sponsored by the World Health Organization and the United Nations Children's Fund. Health for All Series, No 1. Geneva: World Health Organization; 1978.
2. Jones R, Tomlin Z, Cavanagh M, Oxley D, Rosen R. General practitioners with special interests: evolution and evaluation. *J Health Serv Res Policy*. 2006;11:106-9.
3. Coulter A. Shifting the balance from secondary to primary care [editorial]. *BMJ*. 1995;311:1447-8.
4. Department of Health. *Choice and Opportunity. Primary Care: The Future*. London: Stationery Office; 1996.
5. Department of Health. *Priorities and Planning Framework 2003-2006*. Available from: www.publications.doh.gov.uk/planning2003-2006/index.htm
6. Department of Health. *The Future Development of the Community Dental Service*. DH Circular HC (89)2. London: Stationery Office; 1991.
7. Department of Health. *Implementing a Scheme for Dentists With Special Interests (DwSIs)*. London: Stationery Office; 2004.
8. Department of Health. *Shifting the Balance of Power within the NHS: The Next Steps*. London: Stationery Office; 2002.
9. Department of Health. *Creating the Future. Modernising Careers for Salaried Dentists in Primary Care*. London: Stationery Office; 2004.
10. Evans D, Attwood D, Blinkhorn AS, Reid JS. A review of referral patterns to paediatric dental consultant clinics. *Community Dent Health*. 1991;8:357-60.
11. Shaw AJ, Nunn JH, Welbury RR. A survey of referral patterns to a paediatric dentistry unit over a 2-year period. *Int J Paediatr Dent*. 1994;4:233-7.
12. Foley J, Evans DJ, Blackwell A. Referral of children to a general anaesthetic dental service in Tayside. *Health Bull (Edinb)*. 2001;59:136-9.
13. Morris AJ, Burke FJ. Primary and secondary dental care: how ideal is the interface? *Br Dent J*. 2001;191:666-70.
14. Cooke L, Davenport ES, Anderson P. Changes in the referral pattern of child patients from the GDS to the CDS following the introduction of capitation in October 1990. *Br Dent J*. 1998;185:586-90.
15. Harris RV, Leo A, Merry A, Pender S. *Modernisation of the Provision of Paediatric Dental Services in Liverpool*. Internal Report to the Modernisation Steering Group. Liverpool: Royal Liverpool and Broadgreen Hospitals Trust; 2004.
16. Dental Practice Board. NHS dentistry: a snapshot. *Dent Profile*. 2005;47:22-7.
17. Blinkhorn FA, Blinkhorn AS, Tickle M. A profile of the dentists working in the community dental service in the United Kingdom in 1999. *Br Dent J*. 2001;190:266-8.
18. Department of Health. *The New NHS: Modern, Dependable*. London: Stationery Office; 1997.
19. Davies M, Elwyn G. Referral management centres: promising innovations or Trojan horses? *BMJ*. 2006;332:844-6.
20. Thomas D, Royle I, John, JH, Bainton P. Do referrals from primary dental care for treatment using general anaesthesia comply with General Dental Council guidelines? *Prim Dent Care*. 2004;11:26-30.
21. Department of Health. *Commissioning Conscious Sedation Services in Primary Dental Care*. Gateway approval reference number 8338. 2007 June 4. Accessed at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_075172
22. Coventry PCT Board Report. Section 4.6: Referrals and Demand Management. In: *Commissioning Update, Primary Dental Care Services*. 2006 Nov 28. Accessed at: www.coventrypct.nhs.uk/documents/general/2006112711540_dental_report.pdf

Correspondence: R Harris, 5th Floor, Liverpool University School of Dentistry, Pembroke Place, Liverpool L3 5PS.
E-mail: harrisrv@liv.ac.uk

Patients' expectations of orthodontic treatment: part 2—findings from a questionnaire survey

Sayers MS, Newton JT
J Orthod. 2007;34:25-35

Objective

To describe patients' and their parents' expectations of orthodontic treatment.

Design

A questionnaire survey of 100 patients and their primary care-givers attending a new patient orthodontic consultant clinic, at a teaching hospital.

Setting

GKT Orthodontic Department, King's College Dental Hospital, London, UK.

Subjects

The sample consisted of 100 participants who completed the questionnaire, including 50 patients aged 12-14 years who had been referred to the orthodontic department for treatment. One parent of each patient was also invited to participate.

Materials and methods

Participants completed a valid questionnaire measure of orthodontic expecta-

tations that was tested for reliability and validity. Descriptive analysis of the responses was undertaken, and comparisons of children's and parents' expectations, in addition to ethnicity, were made.

Results

Patients and parents have similar expectations of treatment, with the exception of expectations of duration of orthodontic treatment ($P < 0.01$), having a brace fitted at the initial visit ($P < 0.05$), and restrictions with regard to what one can eat and drink as a result of orthodontic treatment ($P < 0.05$). Among the patient participants, different ethnic groups displayed different expectations of the initial orthodontic assessment visit, the likelihood of wearing headgear, the impact of orthodontic treatment on diet, and the reaction of peers to treatment ($P < 0.05$). For patients, ethnic group differences were reported for expectations regarding the initial visit, headgear and dietary restrictions ($P < 0.05$).

Conclusions

Patients and their parents share similar expectations of orthodontic treatment for most aspects of care, although parents are more realistic in their estimation of the duration of treatment and the initial visit. The expectations of patients differ from those of their parents with regard to dietary and drink restrictions in relation to orthodontic treatment. Ethnicity significantly influences expectations of orthodontic treatment, and this may relate to differences in the patients' and their parents' assessed outcome of care.

Abstract