IN BRIEF

- Personal dental service practices open up new opportunities as a setting for undergraduate teaching and learning.
- This paper evaluates a clinical programme in PDS for six final year dental students.
- Patients were very positive and raised no objections to paying customary NHS charges.
- Both practice staff and students were very positive about the experience.
- Further research is recommended on the costs of such programmes and on the availability of appropriate practices.

The personal dental service as a setting for an undergraduate clinical programme

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Objective To investigate the feasibility and benefits of placing dental undergraduates into a general dental practice setting for part of their clinical programme.

Setting Two six-surgery general dental practices in the North West of England operating within the personal dental service of the NHS.

Method Six volunteer final year students worked within the practices for one-day-per week for 11 weeks. Evaluation included patients', practitioners' and students' views obtained from questionnaires and/or interviews and an analysis of students' clinical records.

Results The students saw a large positive impact from: working alongside a dental nurse; developing their clinical skills; working in a busy practice environment; and developing interpersonal skills. Patients were very positive with 98% (44/45) being complimentary about the treatment they received, and commenting that they would be willing to participate in future student training programmes. The practice principals would also welcome continuation of the programme.

Conclusion The programme was both feasible and educationally beneficial. The financial implications need further research.

The educational advantage of dental undergraduates undertaking part of their clinical programme in community and other primary care settings has been widely discussed in the USA[1] and the UK[2,3] and the concept is now well embedded in the General Dental Council's[4] curriculum guidelines. However, to date, placing dental students into general dental practice has proved problematic; the fee-for-item payment system, the predominant culture of the 'independent' general dental practitioner, the lack of integration of general dental practice into the wider NHS and medico-legal issues have been perceived as obstacles.

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The Health Authorities Act (1995) abolished family health service authorities and integrated primary and secondary care within the health authority structures, while the *National Health Services (Primary Care) Act* (1997) introduced the personal dental service (PDS). The PDS provides for much greater local autonomy for both the health authority and practitioners to agree objectives and terms and conditions of service, and usually replaces the traditional fee-for-item of service with variations on a capitation payment system. These significant developments provided the opportunity and stimulus to reconsider the feasibility and benefits of placing dental undergraduates into a general dental practice setting for part of their clinical programme, and this study reports the outcome of such an initiative.

METHOD

Practice setting

This clinical programme involved two six-surgery dental practices: the Sutton Dental Practice in Ellesmere Port and the Woodlands Dental Practice in Rock Ferry, which entered the personal dental service in 1998 and 1999 respectively. Both practices operated on block contracts agreed with their local health authorities (South Wirral and Wirral respectively); the patient base in Rock Ferry consisted predominately of patients exempt from NHS charges with only 25% of practice income raised through charges. The second practice in Ellesmere Port had a more mixed patient base with 33% of practice income coming from patient charges. Both practices employed a range of professional and support staff including practice managers, receptionists, dental nurses, therapists, hygienists, associates and vocational dental practitioners, and both practices were headed by experienced principals with previous experience of vocational training. The University of Liverpool awarded both principals honorary contracts.

Six volunteer final-year dental undergraduates participated in the programme, attending the practices in two groups of three, one day per week for 11 weeks from January to April 2002. All six students had previous clinical experience of working in community dental service clinics one day per week for seven months. Under the direct personal supervision of the two practice principals they carried out the full range of dental procedures on a wide range of patients both fee-paying and exempt. The staff-student ratio was 1:3 and the member of staff was occupied exclusively on teaching sessions with students' supervision. Each student was assisted by an experienced dental nurse. At the end of each day, the students

and practice principals joined for an informal seminar discussing both clinical and practice management issues. The students joined practice meetings and participated in clinical audit. A steering group oversaw the planning and implementation of the educational programme with representation from the university, the health authority and the two practices. The steering group met on eight occasions.

Evaluation

Data were collected to reflect the views of the practice principals, the students, the patients and the health authorities. In addition, clinical practice profiles were obtained for each student from the practices' computerised databases. The practice principals' views were gleaned from the steering group's minutes and from a questionnaire completed at the end of the programme. The health authorities' views were articulated by the consultant in dental public health. The students completed an anonymous questionnaire seeking their views on the extent to which they experienced and benefited from a number of aspects of dental practice. Each aspect was scored on a six-point Likert-type scale ranging from 1 (not-at-all) up to 6 (to-a-great-extent). For the purpose of presentation this scale was subsequently collapsed into a three-point scale:

- Large positive impact (scores 5 and 6)
- Moderate impact (scores 3 and 4)
- Little/no impact (scores 1 and 2).

The students were also interviewed on a one-to-one basis by an educationalist (IT) with a background in the development and evaluation of work-based learning.[5] A sample of patients (target 10 per student) completed a questionnaire at the end of a treatment visit. The anonymous questionnaire was completed in the waiting room during weeks 10 and 11 of the programme. A member of the university staff was available in the practice waiting room on each day to explain the purpose of the questionnaire and to provide any clarification that the patient might request.

RESULTS

The practice principals agreed that the students gained a lot from their experience and that they would be pleased to host students again; their staff, both clinical and support staff, were also very positive about the benefits to both the practice and the students. Both principals agreed that the patients' response had been very positive and that no patients had expressed concern that NHS charges had been levied on treatment carried out by students.

The results of the student questionnaire concerning the extent to which they benefited from the experience of eight different aspects of dental practice are presented in Figure 1. All students reported a large positive impact from:

- Working alongside a dental nurse (6/6 students scoring large impact)
- Experiencing adult dentistry (6/6)
- Working as part of a team (6/6)
- Working in a busy practice environment (6/6).

In contrast, most students reported only moderate impact from their exposure to:

- Child/parent management (5/6 students scoring moderate impact)
- Children's dentistry (6/6)
- Preventive dentistry issues (3/6 scoring moderate and 3/6 scoring little impact)
- Diagnosis and treatment planning (3/6 scoring moderate and 2/6 scoring little).

With regard to the students theoretical and practical skills (Fig. 2) most students saw the programme as having a high impact on:

- Developing clinical skills (6/6 students scoring high impact)
- Developing interpersonal skills (6/6)
- Increasing confidence (6/6), and
- Enhancing understanding of how theory relates to practice (4/6).

The students saw the programme as having only a moderate impact on:

- Developing understanding of theoretical knowledge (6/6 students scoring moderate impact).

The student interviews confirmed and expanded the results of the questionnaires. In particular they indicated that the students had been delighted with the way they had been received and treated by practice staff and acknowledged the responsive and sensitive

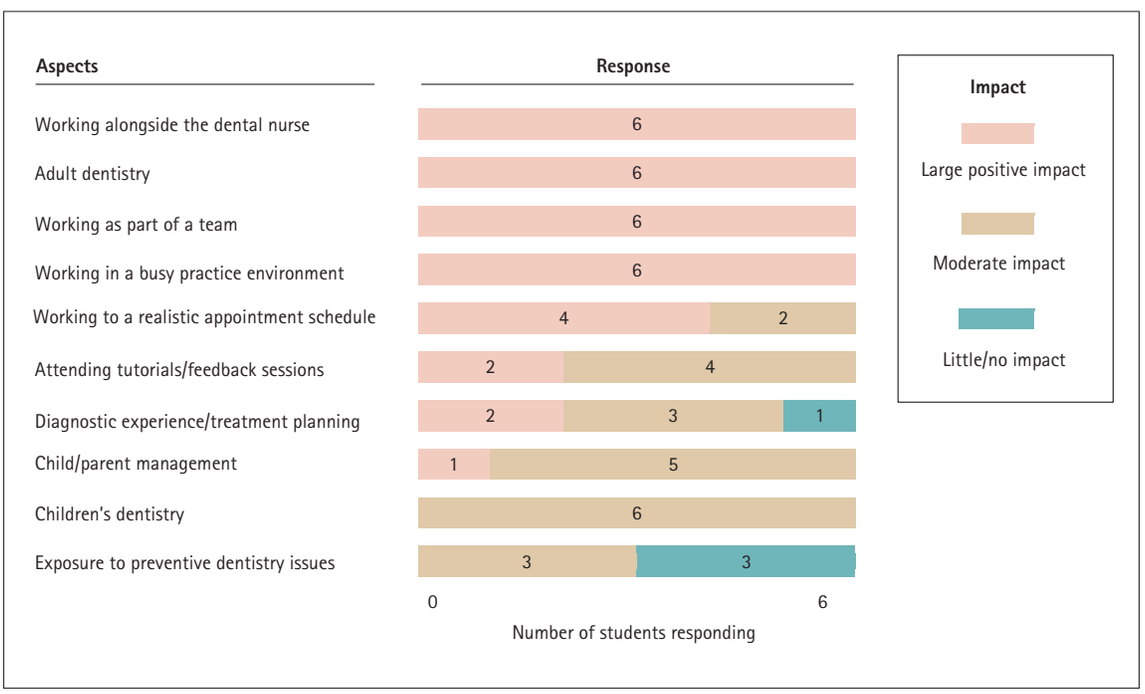

Fig. 1 The extent to which the six students benefited from their placement

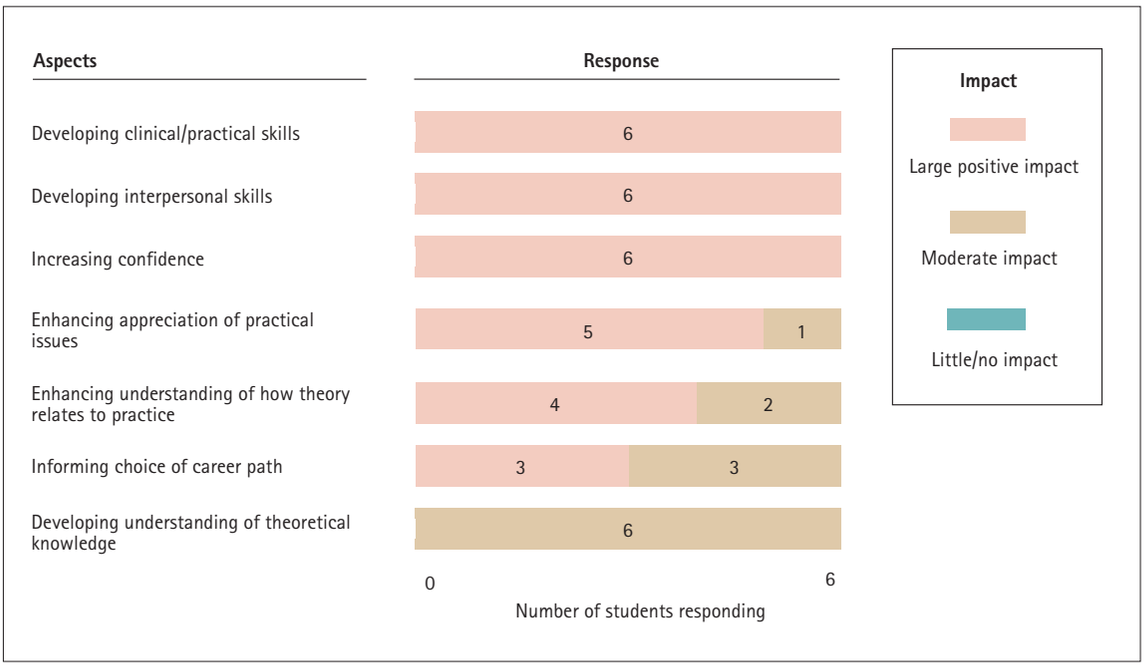

Fig. 2 The impact of the placement on students' theoretical and practical skills

guidance they had received. Clearly having the opportunity to work with experienced dental nurses and the opportunities to learn from their student colleagues had enhanced the placement experience. Communicating effectively with a rapid (for students) turnover of patients, working as part of a team, experiencing a busy practice environment and understanding and being involved in a range of practice management issues were highlighted in the interviews. Students were also beginning to appreciate the importance of treatment planning against the background of the patients' social and economic circumstances. The students had emerged confident and re-assured that a period working in the PDS was the appropriate next step in their careers. These educational aspects of the evaluation will be the subject of a further, more detailed report.[6]

Forty-five patients completed the questionnaire. All patients considered that they were fully informed about the student programme prior to receiving treatment. Forty-four patients (98%) stated that they were fully informed as to what treatment the student was going to undertake. When asked did they have any positive comments to make about the treatment received, 44 patients (98%) were extremely complimentary. Twenty-two patients (49%) specifically commented that the treatment was very good. A typical comment was *'Fantastic, no bother at all, 11/10 full marks'*. Fifteen patients (33%) commented specifically on the students' good communication skills and 14 (31%) commented on the students' skill at patient handling. There were also positive comments on the professionalism, confidence and competence of the students. One patient registered dissatisfaction with the treatment which her child had received. This patient attended as an emergency and was distressed before the start of treatment. There were only a small number of suggestions made as to how the programme could be improved. Three patients suggested that the students should spend more time at the practice and one patient wished to be informed that she would be seeing a student at the time of booking the appointment. Forty-four patients (98%) stated that they would encourage the development of future training courses in general dental practice. Forty-four patients (98%) stated that they would be happy to participate in future student-training programmes. When asked for any additional comments about the training programme, there were no negative comments. One patient stated *'I find it very reassuring that students are being given "on hand" experience. This improves confidence between patients and doctors.'*

Finally the health authorities' views were expressed by the consultant in dental public health. South Cheshire and Wirral Health Authorities were very supportive of using personal dental services as a setting for undergraduate teaching. Their main concern was that there was no financial risk in relation to the PDS pilots through a reduction in the throughput as a result of the student-training programme. This potentially could result in a reduced budget allocation in subsequent years. These concerns were raised with the Department of Health who are responsible for allocating the local budget for PDS. It was agreed that any potential impact of the undergraduate programme budget allocation would be taken into consideration.

The work undertaken by the six students during their 11-day placement is outlined in Table 1. The students were involved in a mean of 75 patient contacts (patient visits) during which each provided on average 57 plastic restorations and a range of more complex items including crowns, endodontics, removable prosthetics and minor oral surgery.

DISCUSSION

The most recent revision of the General Dental Council's [4] curriculum guidelines *'The first five years'* recommends the personal dental service as an appropriate setting for an undergraduate clinical programme. However to our knowledge this is the first report of the feasibility and acceptability of such a programme.

Table 1 Profile of clinical activity (number of items) undertaken by the six students during their 11-day placement

	Output for all students	Output per student	Range
Patient contacts	447	74.5	69–86
Plastic restorations	340	56.7	24–81
Advanced restorations (crowns, veneers, bridges)	20	3.3	2–5
Endodontics	10	1.7	0–5
Removable prosthetics *	18	3	2–5
Extractions (including minor oral surgery)	42	7	4–14

* = Number of patients

All of the stakeholders, the practice principals, the students, the patients and the health authorities indicate high levels of satisfaction with the programme; however the financial aspects, not covered in depth in this evaluation, need further consideration.

The levels of clinical output of a student, using the fee-per-item fee scale (excluding continuing care and capitation payments) as a proxy measure, approximated to one-third of the output of an associate dentist; so in the Ellesmere Port practice the combined proxy output for the three students for eleven days amounted to £5,340 as against £19,450 for two associates and the principal occupying similar surgery accommodation and over a similar time period. Of course, in reality, the practice is not funded on a fee-per-item basis. Practice income is derived from two sources; a block contract with the health authority and income from patient charges. The first of these income streams is not directly affected by patient throughput, and the health authorities were prepared to accept the reduction in patient numbers at least for the purpose of the pilot study. On the other hand patient charge income was sensitive to patient throughput, and the consequent reduction in income, amounting to around £5,000 over the 11 days was reimbursed by the National Dental Development Unit (NDDU) through Dental Service Increment for Teaching (SIFT).

In contrast, the Woodlands Dental Practice in Rock Ferry was less sensitive to patient charge income, with 25% of overall practice income being derived from that source. However, the practice principal argued that the students were accommodated by using spare capacity within the practice. As a result practice expenses, particularly nursing costs, increased. Again the NDDU reimbursed these costs at around £5,000. Clearly the financial impact of accommodating dental students within a PDS practice is an area for further research.

Another issue that concerned the practice principals, at least at the planning stage, was the willingness to participate of patients who were paying NHS charges. All patients were provided with an information leaflet and asked to sign a consent form prior to their treatment by a student. However none of the patients required to pay NHS charges raised any objections. Furthermore none of the 45 patients completing the patient questionnaire raised charges as an issue.

In our community dental service-based outreach programme, clinical indemnity is covered by the NHS Community Trust and the supervising clinical dental officer's own indemnity. In the PDS programme the two practice principals and the six students were all members of the Medical Protection Society who provided indemnity cover for the duration of the pilot study.

Three issues concerning the learning outcomes require further comment. The student questionnaire indicated that the students experienced preventive aspects of dentistry to only a moderate extent. At first sight this seems anomalous particularly in a modern PDS practice. However further enquires clarified the issue, in that most of the preventive advice and procedures in both practices were undertaken by dental therapists and/or dental hygienists to whom the students referred their patients. Of course it would have been possible for the students to have carried out this preventive work themselves. However, given that these students had already obtained extensive experience of children's and preventive dentistry in their previous outreach programme, the advantages of interacting formally with other members of the dental team by referring patients seemed advantageous. Such experience of working with professionals complementary to dentistry was an important component of the programme.

With regard to treatment planning, the quantitative and qualitative data gave rather mixed messages. On the one hand the quantitative data suggested that the experience of diagnosis and treatment planning had only a moderate impact on the students while the qualitative data indicated that the students became more aware of the impact of the patients' social and economic circumstances. The latter important learning outcome is emphasised in the GDC's curriculum guidelines, yet it is one which is not so readily addressed in a dental hospital setting. Clearly this is also an area for further research.

Thirdly, the students noted that the programme increased skills and increased understanding of how theory relates to practise but did not develop understanding of theoretical knowledge. This outcome is consistent with the overall aims of the programme which were to complement, and not replace, clinical teaching in more traditional settings.

The Department of Health[7] has recently published its strategy for modernisation of NHS Dentistry *'Options for Change'*. In chapter 5 which is the report of a task group reviewing education, training and development of the dental team, it is stated that, *'The need to ensure that education and training is designed to develop dental professionals who are best suited to working in practice argues for an increased use of primary care outreach schemes throughout training'*. The results of this pilot scheme in Liverpool add support to this recommendation.

In conclusion this programme indicated that it is both feasible (in terms of preparation, support and monitoring of student learning) and educationally beneficial to provide an undergraduate programme in a PDS setting. Further research should clarify the extent to which such practices are available and willing to contribute, and should investigate in greater depth the financial impact of such a programme. The experience so far reinforces our view that outreach teaching in general dental practice can complement existing programmes.

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