

Informing Research in Primary Dental Care: Setting Priorities

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This paper suggests that priorities for research in primary dental care should follow the examples set in other areas of primary healthcare. It reviews the history of research in primary dental care, since 1990, and goes on to explain how the Delphi exercise, initiated by the Faculty of General Dental Practice (UK), has iden-

tified five priority areas for research in primary dental care. These areas are:

1. Research into the application of evidence-based dentistry into practice.
2. The effects of different systems of remuneration on treatment patterns in practice.
3. The oral health assessment on deter-

mining recall intervals and its effect on oral health.

4. Factors that influence and affect dentists' treatment modalities.
5. The evaluation of the cost benefits of whole team training.

Introduction

Primary care-based services form the cornerstone for the provision of over 90% of all oral healthcare in the United Kingdom (UK). However, the data underpinning the scientific basis for oral healthcare are pitifully weak. Furthermore, the recent work which led to the National Institute for Clinical Excellence (NICE) guideline on recall intervals reinforced this lack of an evidence base and highlighted the paucity of data to support current practice.¹ Yet, despite the shortcomings there is a continued need to inform the decision-making process.

The annual costs of dental care in the UK exceed £3 billion.² With the continued pressure on the overall healthcare budget, any decision on where resources are spent should be informed by evidence and this process requires a knowledge base. In addition, there may be conflicts between the priorities of those working as primary care providers and

those working as academics, which could affect both the topics for research and the degree of involvement. This paper explores the issues surrounding setting research priorities in primary dental care and the progress made by the Faculty of General Dental Practice (UK) [FGDP(UK)] in developing research in primary dental care, with particular reference to a Delphi study³ that aimed at identifying the key areas.

Setting a Research Agenda for Primary Healthcare

Tensions when setting research priorities in the development of care arrangements are not new to the National Health Service (NHS). In a study examining the priorities on the interface between primary and secondary care, Jones *et al* (1995)⁴ highlighted the fact that traditionally, research had been top-down

and investigator-led. It was argued that by developing a 'bottom-up' approach ownership of research results would be more likely to be accepted. The issue of ownership of research results in helping ensure that findings are adopted in practice is a recurrent theme in primary medical care.⁴⁻⁸

When discussing the importance of research in improving the quality of care delivered through primary care, Kekki (2005)⁹ has highlighted the need for a supportive climate, motivated researchers and adequate funding. A further factor, identified by Sanders *et al* (2004),¹⁰ centred on the role of civil society organisations (CSOs) or patient groups in developing research priorities. The same authors identified three aspects:

1. Influencing commissioning and priority-setting.
2. Becoming involved in the review process and in research production by changing funding rules.
3. Formal partnerships between commu-

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Figure 1 Stages in the procedure for administering the Delphi technique (adapted from Beech, 1999).¹⁷

i.	Recruitment of group members
ii.	Construction and distribution of questionnaire 1
iii.	Collation and ranking of results
iv.	Construction and distribution of questionnaire 2
v.	Collation and ranking of results
vi.	Construction and distribution of questionnaire 3
vii.	Re-collation of results
viii.	Possible further questionnaires, request for rationales
ix.	Achievement of consensus

nities and universities that link patient groups with academic researchers. The authors concluded ‘(they) are not alternatives; each offers important ways in which research outputs can be influenced to reflect more closely the interests of civil society’. Mitton and Patten (2004)¹¹ highlighted the tensions between decision makers (ie commissioners of care) and primary care researchers. They concluded that when setting priorities for research, commissioners of care (such as the Department of Health and Primary Care Trusts [PCTs]) require the more immediate political issues to be addressed as opposed to those of the broader health agenda.

The question of identifying priorities for research and improving standards in primary care has also been examined on a European-wide basis.^{12,13} Research addressing ‘clinical issues’ (common and chronic diseases), including diagnostic strategies, was identified as a key area of general practice research, with primary care-based morbidity registration essential for surveillance of disease, clinical research and teaching in general practice. There was also consensus on the need for research into education and teaching. Perhaps not surprisingly, ‘insufficient funding opportunities’ was perceived to be the major barrier to the development of general practice research, this, despite the differences in healthcare delivery arrangements.¹² Engels *et al* (2005)¹³ examined the feasibility of developing quality indicators for general practice

management and adopted a Delphi approach. In this exercise, most importantly, primary care workers and academics worked together to suggest the indicators.¹³

Recurrent issues arise when developing research priorities in primary healthcare. The need to engage all parties is paramount. Despite differences in delivery arrangements, there is agreement that a top-down approach will not work.¹⁴ Collaboration between the various parties is essential: academics, primary care providers, policy makers and users. Has primary dental care been different?

Research Priorities in Primary Dental Care

As with primary care, in general, the majority of research in primary dental care has been undertaken in secondary care centres. The major teaching institutions are dependant upon funding for research and development (R&D) to ensure their ongoing financial viability. In addition, their research agenda may not be coterminous with that of the needs of the services that are provided in primary care. However, the quality of care requires appropriate research, much of which can only be obtained by involving primary care practitioners and their patients. Indeed, the changes in NHS R&D funding have highlighted the need to ensure that it is of relevance to ‘the needs to the NHS’.¹⁵ In 1991, a strategy for NHS R&D was launched. It aimed

at identifying research needs, commissioning research, disseminating research findings into practice and, most importantly, improving research practice by training staff within their working environment. Despite initial work on priority setting, the NHS reform programme was threatening the continued viability of medical and dental research. The Government responded by setting up an NHS R&D task force. This group recommended a unified NHS budget specifically for research and its support. It was also suggested that a separate funding stream should be identified for underpinning research in primary care.¹⁶

In 1993, an advisory group was asked to consider research priorities within primary dental care. A consultation process involving dental schools, the then District Health Authorities, Family Health Service Authorities, NHS Trusts, Local Dental Committees, specialist bodies and patient interest groups took place, and 26 broad topic areas were identified. The advisory group then prioritised areas of research need based on the potential benefits and feasibility. Only £5 million was allocated to the NHS R&D primary dental care initiative to involve professionals actively in research. A total of 47 projects was commissioned. They commenced in 1998, with the final project completing its report last year (2005).

Since 1998, only limited funding for research, largely for capacity building, has been made available to primary dental care, even though the case for further funding for primary care research was strengthened in the Mant report.¹⁷ This set out strategic principles and recommendations to guide R&D in primary care to the development of a sound evidence base, helping to improve the quality and value for money of primary care.

It is clear that the key role of primary dental care research is to ensure that the work is relevant in answering the issues identified from the public, purchasers’ and the profession’s perspectives but, as with healthcare in general, decisions have to be prioritised. In the event that funding should be made available in the future there is a need to identify the key

Table I: Initial research priority areas provided by participants in the FGDP(UK) Delphi exercise

Clinical	Patient-centred
1. Effectiveness of monitoring malocclusions and interceptive orthodontics	1. Attendance patterns of patients in different socioeconomic groups
2. Effectiveness of regular dental examinations in identifying serious disease	2. Dental history in relation to demographic, socioeconomic and medical factors
3. The oral health assessment on determining recall intervals and its effect on oral health	3. NHS Direct: perceptions of patients, managers and dentists
4. Clinical care pathways and their effect on the quality of care	4. Evaluation of methods to improve access to NHS dental services and their cost-effectiveness
5. Clinical effectiveness of intervention versus non-intervention in the treatment of impacted third molars	5. NHS dentistry: evaluation of effects, patients' expectations and satisfaction
6. Life expectancy, morbidity and cost-effectiveness of restorative materials	6. Research into incorporating patient views into research outcomes that affect patient care
7. Risk factors, prevalence and effectiveness of treatments of periodontal disease	7. Patient concordance and motivation to oral health information
8. Effectiveness of restoration of deciduous teeth and outcomes of non-restoration of deciduous teeth	8. Effectiveness of PCTs in monitoring patient information leaflets and in-house complaints procedures
9. Benefits and barriers to the adoption of minimal interventional dentistry	9. Provision of NHS care for priority groups and remote communities
10. Dentists' views of the key clinical questions to assist in treatment decision making	10. Defining the border between health and cosmetics, and the ethics of invasive cosmetic dentistry
11. Infection control: methods of instrument decontamination and their effectiveness	Dental team
12. Identification of successful and cost-effective root canal treatment modalities	1. Outreach training in general practice for dental undergraduates
13. Causes of need for dental emergency appointments	2. Benefits of whole team training: evaluation of cost/benefit
14. Antibiotic use in dentistry, particularly prophylaxis for cardiac patients	3. Educational and training needs in primary care
15. Factors that influence and affect dentist treatment modalities	4. Effectiveness of personal development planning and methods of continuing professional development (CPD) in improving patient care
16. Effects of different systems of remuneration on treatment patterns in practice	5. Professional satisfaction and occupational illness among primary care workers
17. Effectiveness of oral health promotion in dentistry	6. Investigation of what new NHS organisations (PCTs, Workforce Development Confederations [WDCs], Strategic Health Authorities [SHAs]) know about primary care dentistry
18. Application of evidence-based dentistry in practice	
19. Evaluation of multidisciplinary approaches to the delivery of oral healthcare, including cost-effectiveness and barriers	
20. Effectiveness of school screening on oral health	

research priorities from the perspectives of these three groups.

What are the Priorities?

In order to move the research agenda forward and to try to ensure that it was based on a sound approach the FGDP(UK) undertook a study.³ The aim

was to provide up-to-date information on the perceived research priorities in primary dental care. This was achieved through the use of the Delphi technique. The technique is used to achieve consensus, while preventing any individual from influencing the views of others, since they are anonymous to all but the researcher.

The Delphi technique has been used in a wide variety of research areas, for example, in the management of change,¹⁸ in investigating long-term prescribing by general practitioners,¹⁹ in an investigation of skills required by surgical trainees,²⁰ and in identifying the components of an oral health assessment.²¹

Using the FGDP(UK)'s infrastructure,

Table 2: Results of the first round scoring in the FGDP(UK) Delphi exercise showing the research area and mean score

Research area	Mean score (1-9)	Research area	Mean score (1-9)
1. Effectiveness of monitoring malocclusions and interceptive orthodontics	3.09	19. Evaluation of multidisciplinary approaches to the delivery of oral healthcare, including cost-effectiveness and barriers	6.09
2. Effectiveness of regular dental examinations in identifying serious disease	6.18	20. Effectiveness of school screening on oral health	3.81
3. The oral health assessment on determining recall intervals and its effect on oral health	6.81	21. Attendance patterns of patients in different socioeconomic groups	4.36
4. Clinical care pathways and their effect on the quality of care	6.54	22. Dental history in relation to demographic, socioeconomic and medical factors	3.90
5. Clinical effectiveness of intervention versus non-intervention in the treatment of impacted third molars	3.72	23. NHS Direct: perceptions of patients, managers and dentists	4.27
6. Life expectancy, morbidity and cost-effectiveness of restorative materials	5.90	24. Evaluation of methods to improve access to NHS dental services and their cost-effectiveness	6.36
7. Risk factors, prevalence and effectiveness of treatments of periodontal disease	6.00	25. NHS dentistry: evaluation of effects, patients' expectations and satisfaction	6.09
8. Effectiveness of restoration of deciduous teeth and outcomes of non-restoration of deciduous teeth	5.45	26. Research into incorporating patient views into research outcomes that affect patient care	6.18
9. Benefits and barriers to the adoption of minimal interventional dentistry	6.27	27. Patient concordance and motivation to oral health information	4.36
10. Dentists' views of the key clinical questions to assist in treatment decision making	5.18	28. Effectiveness of PCTs in monitoring patient information leaflets and in-house complaints procedures	3.54
11. Infection control: methods of instrument decontamination and their effectiveness	5.81	29. Provision of NHS care for priority groups and remote communities	6.45
12. Identification of successful and cost-effective root canal treatment modalities	3.45	30. Defining the border between health and cosmetics and the ethics of invasive cosmetic dentistry	4.81
13. What constitutes a dental emergency: patients' and dentists' perceptions	4.18	31. Effectiveness of outreach training in general practice for dental undergraduates	5.72
14. Antibiotic use in dentistry, particularly prophylaxis for cardiac patients	5.72	32. Benefits of whole team training: evaluation of cost/benefit	6.45
15. Factors that influence and affect dentist treatment modalities	6.45	33. Educational and training needs in primary care	6.36
16. Effects of different systems of remuneration on treatment patterns in practice	7.18	34. Effectiveness of personal development planning and methods of CPD in improving patient care	4.90
17. Effectiveness of oral health promotion in dentistry	6.18	35. Professional satisfaction and occupational illness among primary dental care workers	5.36
18. Application of evidence-based dentistry in practice	7.63	36. Investigation of what new NHS organisations (PCTs WDCs, SHAs) know about primary care dentistry	5.81

a number of experts were invited by letter to participate in the study. They included general dental practitioners, academics, executives from health authorities, members of patient advisory

groups, specialists, consultants in dental public health, the British Dental Association, and the FGDP(UK).

All of the group members who agreed to participate were initially invited to

submit the five key areas that they, as individuals, regarded as priorities for research in primary dental care. The resulting list contained 36 topics. These were subsequently grouped into three

main categories: clinical, patient-centred, and the dental team (Table 1).

Participants were then asked to score each area on a nine-point scale ranging from 1 (of no importance for inclusion as a research priority) to 9 (very important for inclusion).

The results of the first round of scoring are shown in Table 2. The mean scores ranged from 3.1 to 7.68. Eight of the 36 areas were removed following the first round of scoring. The results arising from the second-round questionnaire are shown in Table 3. Consensus was achieved for the first five areas and general consensus for six other areas following the second round of scoring. The research priority areas are summarised in Table 4.

The results suggest that there is concern about the lack of evidence-based practice being translated into everyday practice and that remuneration systems may affect treatment modalities.

Discussion

This paper has sought to explore the issues surrounding setting research priorities in primary dental care. It has outlined some of the problems encountered in developing a primary dental care research agenda and defining research priorities. An agenda defined with a top-down approach by academics will not succeed; the priorities may differ and, perhaps most importantly, the implementation of any findings into practice is likely to fail. It seems that, in the present climate, the research agenda of commissioners of dental care provision relate to service provision and cost-effectiveness rather than evidence-based, quality patient care. The need for collaboration between all stakeholders, particularly patient groups, in defining the research priorities in dental practice has been highlighted.

In the absence of any other initiatives in setting the research agenda and priorities, this paper reports on the progress made by the FGDP(UK) in developing research in primary dental care. The participants in the Delphi study, initiated by FGDP(UK) and reported in this

Table 3: Results of the second round of the FGDP(UK) Delphi exercise

Rank 1st round	Rank 2nd round	Research area	Group mean score 1st	Group mean score 2nd
1	1	Application of evidence-based dentistry in practice	7.63	7.9
2	3	Effects of different systems of remuneration on treatment patterns in practice	7.18	7.5
3	2	The oral health assessment on determining recall intervals and its effect on oral health	6.81	7.63
5=	4	Factors that influence and affect dentists' treatment modalities	6.45	7.09
5=	5	Benefits of whole team training: evaluation of cost/benefit	6.45	6.72
4	10	Clinical care pathways and their effect on the quality of care	6.54	6.27
8	7	Evaluation of methods to improve access to NHS dental services and their cost effectiveness	6.36	6.45
11=	6	Research into incorporating patient views into research outcomes that affect patient care	6.18	6.63
5=	11	Provision of NHS care for priority groups and remote communities	6.45	6.27
10	8	Benefits and barriers to the adoption of minimal interventional dentistry	6.27	6.45
8=	12	Education and training needs in primary care	6.36	6.0
14	9	Evaluation of multidisciplinary approaches to the delivery of oral healthcare including cost-effectiveness and barriers	6.09	6.36

Table 4: Research priorities arising from the FGDP(UK) Delphi exercise

Consensus agreement	
1.	Research into the application of evidence-based dentistry into practice
2.	Effects of different systems of remuneration on treatment patterns in practice
3.	The oral health assessment on determining recall intervals and its effect on oral health
4.	Factors that influence and affect dentists' treatment modalities
5.	Whole team training: evaluation of cost/benefit
There was also general agreement for a number of further areas listed below	
6.	Clinical care pathways and their effect on the quality of care
7.	Evaluation of methods to improve access to NHS services and their cost-effectiveness
8.	Benefits and barriers to the adoption of minimal interventional techniques
9.	Research into incorporating patients' views into research outcomes that affect patient care
10.	Education and training needs in primary care
11.	Provision of NHS care for priority groups and remote communities

Conclusion

References

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A study of the fate of the buccal wall of extraction sockets of teeth with prominent roots

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The objective of this investigation was to determine the fate of thin buccal bone encasing the prominent roots of maxillary anterior teeth following extraction. Resorption of the buccal plate compromises the morphology of the localised edentulous ridge and makes it challenging to place an implant in the optimal position for prosthetic restoration. In addition, the use of Bio-Oss as a bone filler to maintain the form of the edentulous ridge was evaluated. Nine patients were selected for the extraction of 36 maxillary anterior teeth. Nineteen extraction sockets received Bio-Oss, and seventeen sockets received no osteogenic material. All

sites were completely covered with soft tissue at the conclusion of surgery. Computerised tomographic scans were made immediately following extraction and then at 30 to 90 days after healing so as to assess the fate of the buccal plates and resultant form of the edentulous sites. The results were assessed by an independent radiologist, with a crest width of 6 mm regarded as sufficient to place an implant. Those sockets treated with Bio-Oss demonstrated a loss of less than 20% of the buccal plate in 15 of 19 test sites (79%). In contrast, 12 of 17 control sockets (71%) demonstrated a loss of more than 20% of the buccal plate. In conclusion, the Bio-Oss test sites outperformed the control sites by a significant margin. No investigator was able to predict which site would be successful without the grafting material even though all were experienced clinicians. This leads to the conclusion that a patient has a significant benefit from receiving grafting materials at the time of extraction.

Abstract