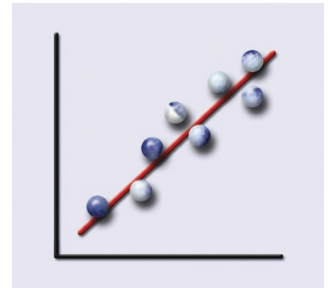


IN BRIEF

- This is the first in a series of articles describing how general dental practitioners can get involved in research and how to go about this.
- This article identifies the barriers to conducting research in primary dental care and explores how these barriers can be overcome.
- A useful list of sources of advice for those planning to undertake research in the primary dental care setting is provided.

Research in primary dental care Part 1: Setting the scene

J. T. Newton¹, E. J. Bower² and A. C. Williams³



There is a growing trend for research to be conducted in primary health settings, to the benefit of patients and healthcare workers. This article provides an introduction and overview of a series which aims to facilitate research in general dental practice and to encourage general dental practitioners and other members of the dental team to become involved in these studies. The benefits of undertaking research are outlined, as well as barriers to becoming involved in such research. It is argued that many of these barriers can be overcome by encouraging dental practitioners to collaborate with established researchers in a variety of settings.

RESEARCH IN PRIMARY DENTAL CARE

1. Setting the scene

2. Developing a research question
3. Designing your study
4. Measures
5. Devising a proposal, obtaining funding and ethical considerations
6. Data analysis
7. Writing up your research

Recent initiatives in the NHS funding of research have placed a greater emphasis on the involvement of healthcare professionals working in primary care.^{1,2} Instead of research being confined to academic institutions and other specialist centres, healthcare professionals are being encouraged both to undertake research themselves and to enter into discussions with research institutions to identify directions for future research. In this way it is hoped that research will be relevant to those working directly with patients.

This is the first in a series of articles describing why general dental practitioners (GDPs) and other members of the dental team working in primary care should take part in research, and how they might go about becoming involved. The series aims to provide practical advice for GDPs as well as a basic introduction to research methods. In this article the authors will provide an overview of the series as well as detailing the importance of research for the dental practitioner and their team.

WHY SHOULD GDPs BECOME INVOLVED IN RESEARCH?

The advantages for the GDP involved in research are not immediately evident, however such involvement may provide long-term benefits. Participating in research will allow you, as a GDP, to ensure that you are providing the best possible care for your patients and to ensure the efficiency of your practice. If you take some time to think about research that might improve your practice, you may be able

to list a few possible projects. As part of a project examining research priorities in primary dental care,³ the following areas were identified as being important concerns in interviews with GDPs:

- Motivating patients to attend the practice, both those who do not attend at all and those who are irregular attenders.
- The development and audit of protocols of care.
- Reducing high rates of staff turnover (in particular nursing staff).
- Examining the impact of information technology in the dental setting (does it improve patient confidence/satisfaction? Can it be used for patient education?).
- Reducing patient non-attendance at booked appointments.

This list may include several topics relevant to your practice, but it may also be that you can identify many more topics of greater importance to your practice.

Research, in different forms, can help to address these topics, through:

1. Determining what kinds of questions should be asked. What research is relevant to primary dental care?
2. Improving the quality and quantity of information upon which to base decisions about your practice, by:

- describing the needs of your patients
- describing the outcomes of your care

¹Professor of Psychology as Applied to Dentistry, Department of Dental Public Health & Oral Health Services Research, GKT Dental Institute, Caldecot Road, London SE5 9RW; ²GDP, Staff Dental Service, Eastman Dental Hospital, 256, Gray's Inn Road, London WC1X 8LD; ³Consultant Senior Lecturer in Orthodontics, Department of Child Dental Health, University of Bristol Dental School, Lower Maudlin St, Bristol BS1 2LY
*Correspondence to: Prof. J. T. Newton
Email: Tim.Newton@kcl.ac.uk

- providing information on the effectiveness of new techniques and materials in primary care settings
- evaluating cost-effectiveness

Let us examine some of these in greater detail. Consider for a moment the population in the area of your surgery. Some of those people will be your patients, some will not. How many potential patients are there in your area? How many are children, how many are elderly? What kinds of treatments are they likely to need over the next few years? From the results of the latest *Adult Dental Health Survey*⁴ we know that only around half the population regularly attend the dentist, and that among the group that do not attend there is more untreated disease than among those who do attend. What would make your surgery more attractive to those who currently are not attending (and what impact would this have on your current patients)? Two of the largest barriers to regular attendance that have been identified are cost and fear.^{4,5} This leads us to identify further questions about ways of overcoming these barriers. What systems of payment would your patients prefer? How could anxious patients be encouraged to attend the practice? These are all research questions. The methods that might be used to identify the answers are varied and will be described in other articles in this series.

In choosing materials and equipment to use in dental practice, GDPs will generally be guided by information from a variety of sources. However, how applicable are sources of information to your own general dental practice? For example, new impression materials may have fantastic qualities in laboratory tests but are they more effective than current materials for taking impressions in your practice? Furthermore, are any improvements sufficient to justify the increased costs?

A recurring theme in this series of articles will be the asking of questions. Research at its most simple level is about asking questions and finding out the answers. We hope to encourage dental professionals working in primary care to ask questions and seek the answers using the skills which they already possess, and to reinforce these through the articles in this series.

WHAT ARE THE BARRIERS TO BECOMING INVOLVED IN RESEARCH?

Research by Blinkhorn *et al.*⁶ and Jowett *et al.*⁷ has identified the following barriers to undertaking research in primary care:

- Incentives. There is little incentive to undertake research in primary care. Such incentives could be financial or related to prestige (for example, postgraduate qualifications).
- A perception that GDPs lack research skills.
- The isolation of GDPs. Related to this, the GDPs interviewed by Professor Blinkhorn and his team suggested that links to other GDPs and links to the university sector would help them

undertake research.

- A lack of available time for research.
- A fear that research would generate paperwork.
- Lack of funding

Let us examine each of these barriers in turn:

Incentives

As mentioned above, the incentives to carry out research are not immediately tangible. However, research can form the basis for practice development (including seeking funding for service development and evaluation). For example, the development of personal dental services schemes included a component of the evaluation of the impact of these new forms of service provision. Identifying the needs of your patients, and potential patients, will allow you and your practice staff to target your services most effectively and maximise your patient-base.

There is a tradition amongst researchers of sharing their findings with other researchers through the publication of findings at conferences and in journals. The rewards of publication are fairly intangible, although it is quite exciting to see your name in print, and to gain the recognition of colleagues.

Doing research as part of a postgraduate qualification is a good way to become involved in research, and offers the reward of a qualification, which may form part of specialist training.

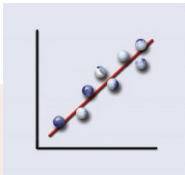
Finally, the introduction of continuing professional development (CPD) requirements provides the opportunity to undertake research as part of this process. A large component of any research should include acquiring and reading relevant literature. Through contact with academic departments and departments of postgraduate dental education, research can form part of your CPD.

Research skills

Most GDPs are involved in activities which could be considered to constitute research, but which are not traditionally labelled as such. For example, a GDP making a decision about purchasing some new equipment will probably read all the relevant literature about its effectiveness, and weigh up the costs against the likely benefits. This is a research process. Research is about asking questions, and using structured techniques to identify the answers. We hope to encourage dental professionals working in primary care to ask questions and seek the answers using the skills which they already possess, and then reinforce these through the articles in this series.

Supporting research

There are many researchers who are keen to collaborate with and support those GDPs who wish to undertake some research. Usually such support could be located within academic centres. If you work in an area close to such a centre this can be very useful. If, however, your practice is



We hope to encourage dental professionals working in primary care to ask questions and seek the answers using the skills they already possess

Table 1 Further and other information

INITIAL CONTACTS	OTHER INFORMATION
<p>Faculty of General Dental Practitioners (UK), The Royal College of Surgeons of England, 35-43, Lincoln's Inn Fields, London WC2A 3PE</p> <p>Contact the Research Officer on 0207 869 6752 or Email: lee.smith@rcseng.ac.uk</p> <p>www.rcseng.ac.uk/dental/fgdp/#research</p> <p>Postgraduate Dental Deans</p> <p>A list of postgraduate dental deans and their contact details can be obtained from:</p> <p>www.copdend.org.uk/list/content1/htm</p> <p>UK Federation of Primary Care Research Networks</p> <p>A list of networks by region can be obtained from:</p> <p>www.ukf-pcrn.org</p>	<p>Department of Health</p> <p>www.doh.gov.uk</p> <p>The huge research and development section of this website contains details of government policy and activity regarding research (including research governance). Information on the National Research and Development Programme for Primary Dental Care can be found at:</p> <p>www.doh.gov.uk/research/rd3/nhsrandd/timeltdprogs/pcdental/pcdental.htm</p> <p>The Department of Health supports several excellent websites which provide a wealth of advice and information for researchers:</p> <p><i>Research funding</i> – this site provides access to health related research funding opportunities and details awards from projects/programmes to travel awards.</p> <p>www.rdinfo.org.uk</p> <p><i>Research training</i> – this site details post-qualification courses and workshops relating to research skills.</p> <p>www.rdlearning.org.uk</p> <p><i>Research advice</i> – RDDirect (0113 295 1122) is a telephone advisory service and offers advice and help to NHS staff who are undertaking or thinking about carrying out research in the health related field. The website also provides on-line help and links to useful websites.</p> <p>www.rddirect.org.uk</p> <p>Royal College of General Practitioners</p> <p>The research section of this website has a lot of useful contacts/links and information about research in primary care.</p> <p>www.rcgp.org.uk</p>

quite distant from a dental school, it might be possible to develop support mechanisms through email and the internet. Later in this article we discuss ways of becoming more involved in research, and how to use support networks to assist you in undertaking research.

Time and paperwork

These are two important considerations for any GDP, particularly since both are listed as common sources of stress.⁸ The key to undertaking successful research is, as far as possible, to ensure that the collection of information does not interfere with day-to-day practice. There is, however, an enormous amount of information routinely collected for other purposes that might be used for research. The challenge then is to identify resources for collating and analysing the existing information. Alternatively, if new information is to be collected, this should be done as efficiently as possible. This requires careful consideration of the information which is necessary (a common mistake is to collect too much information which is unwieldy and inefficient), and consideration of data input options. Academic departments will be able to advise you on automated data input devices.

Funding

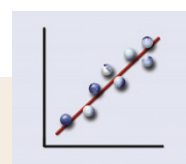
Ensuring adequate funding for research projects is a prerequisite for successful research. Funding can be obtained from dental bodies, manufacturers, the Department of Health's Research and Development programme and other sources. First-time researchers should consider collaborating with established, successful researchers when applying for funding.

HOW CAN GDPS GET INVOLVED IN RESEARCH?

There are several routes which GDPS can take to become involved in research. These are not necessarily mutually exclusive:

- Contact the research officer at the Faculty of General Dental Practitioners (UK)
- Join a primary care research network
- Establish links to a university department
- Undertake postgraduate studies
- Read this series of articles

The Faculty of General Dental Practitioners (FGDP) (UK) is keen to promote research in general dental practice and has appointed regional research co-ordinators to promote and co-ordinate research locally. The FGDP(UK) also maintains a database of GDPS who are interested in



There are many resources and contacts available for general dental practitioners interested in becoming involved in research, these will be explored later in this series

undertaking research, and lists of academics, statisticians and experienced researchers who may be able to support GDP researchers. They can also supply a series of research leaflets to assist GDPs in research and there is an annual research scholarship award for a single research project in primary dental care.

Throughout the UK, there are primary care research networks which provide advice on research methodology and sources of funding, act as a source of advice on potential collaborative research opportunities, network with national research bodies and provide a focus for the dissemination of research results. Some primary care research networks also provide funding for research projects.

Several university departments also have set up networks of GDPs to support research in primary care. Contact your local dental postgraduate dean for further details.

Postgraduate studies typically include a research component, which is supervised by an experienced researcher who is familiar with both research methods and previous studies in the area. This is a good way of both becoming involved in research and acquiring a further qualification which will benefit your practice and your patients.

In order to generate research findings of the highest quality and to fulfil the legal requirements of research governance,⁹ it is recommended that GDPs are supported by experienced researchers and/or academic departments at all stages of the research process.

There are six further articles in this series. These are outlined below:

Developing a research question

This article will look at ways of devising and revising a research question, commencing with an initial idea and focussing this into a testable research question. The skills that this article will develop include literature searching and critical analysis of literature.

Designing your study

This article will compare and contrast two different approaches to data collection, the quantitative and the qualitative. Considering the research question described previously, readers

will be encouraged to decide on whether their study is qualitative or quantitative in nature. On the basis of that decision, readers will be given further information about designing their study. The use of evidence-based research methods is promoted.

Measures

This article will provide an overview of measures which can be used within research, including standardised evidence-based tools developed by other researchers and guidelines for designing new measures, in particular questionnaires.

Writing the proposal, funding and ethical considerations

This paper will outline how to produce a research proposal, suggest ways of obtaining funding for your project and detail ethical and research governance responsibilities.

Data analysis

This will include simple analysis of both qualitative and quantitative data.

Report writing and submitting your research for publication

The final paper in this series will encourage you to write up your research for scientific publication. Emphasis will be placed upon; identifying and writing for your audience; identifying and complying with requirements of journals.

1. Medical Research Council. *Primary Health Care* [Topic Review]. London: MRC, 1997.
2. Department of Health. *Research Et Development in Primary Care [National Working Group Report]*. London: HMSO, 1997.
3. Newton J T, Gibbons D E, Kavanagh D, Zoitopoulos L. *Primary Care Research Priorities - Dentistry [Report to NHS Executive]*. London, 2000.
4. Kelly M, Steele J, Nuttall N, Bradnock G, Morris J, Nunn J, Pine C, Pitts N, Treasure E, White D. *Adult Dental Health Survey: Oral Health in the United Kingdom 1998*. London: The Stationery Office, 2000.
5. Finch H, Keegan J, Ward K, Sen B S. *Barriers to the receipt of dental care: A qualitative study*. London: Social Et Community Planning Research Unit, 1988.
6. Blinkhorn A S, Clarkson J E, Craven R, Holloway P J, Worthington H V. An evaluation of a training programme in primary care research for general dental practitioners. *Br Dent J* 2000; **188**: 333-336.
7. Jowett S M, Macloed J, Wilson S, Hobbs F D R. Research in primary care: extent of involvement and perceived determinants among practitioners from one English region. *Br J Gen Prac* 2000; **50**: 387-389.
8. Gibbons D E, Newton J T. *Stress solutions for the Overstretched*. London: Macmillan, 1998.
9. Department of Health. *Research Governance Framework for Health and Social Care*. London: HMSO, 2001.