INTRODUCTION

High-quality patient care depends on identifying and using evidence-based methods of diagnosis, treatment, and management over time. It became clear many years ago that the evidence obtained from research in secondary/hospital care could often not be applied to general practice (primary care), and that general practice needed to build an evidence base of its own. This section of the resource begins by identifying some important research topics in general practice and supplying references to key research papers which have addressed these topics. Many of these papers are suitable for use in teaching and learning sessions on research methodology, medical writing, critical reading, and peer review. We then look at how and where general practice and primary care research is conducted, and the features of the NHS that enable this research to be carried out. There is a section on the fundamentals of critical reading, and it might be interesting to look at some of the papers already referred to earlier and test these out on them! The final section describes where primary care research is published and how it possible to contribute to this literature, even at an early stage in your medical career.

THE SCOPE OF GENERAL PRACTICE & PRIMARY CARE RESEARCH

Over the last five or six decades, general practice researchers have turned their attention to several distinctive features of general practice. A number of these are described below, with examples of related, key papers reporting research conducted in general practice, largely by academic general practitioners and their colleagues in university departments:

THE EPIDEMIOLOGY OF COMMON DISORDERS

Also known as the “iceberg of illness” this emphasises that most patients who have symptoms don’t seek medical treatment and that patients seen in hospital care represent only a tiny minority of the total patient population.


- Jones R, Lydeard S. Prevalence of symptoms of dyspepsia in the community. BMJ 1989; 298:30-2. A cross-sectional survey of patients selected at random from participating practices which showed for the first time that dyspeptic symptoms are very common in the general population, that they frequently overlap with other gastro-intestinal symptoms, and that only a small minority of people with these symptoms seek medical attention.
HEALTHCARE SEEKING BEHAVIOURS

Stresses the importance of eliciting and addressing patients’ ideas, concerns and expectations in understanding why they have consulted and in making diagnoses and management plans. See 1E Long-term conditions for more on health seeking behaviours.

- **S Lydeard and R Jones** Factors affecting the decision to consult with dyspepsia: comparison of consultants and non-consulters. *J R Coll Gen Pract*. 1989 Dec; 39(329): 495–498. A semi-qualitative study which showed that symptom type and severity were not associated with the decision to consult but concerns about the possible significance and seriousness of the symptoms were.

- **Britten, N. Okomunne, O.** The influence of patients’ hopes of receiving a prescription on doctors’ perceptions and the decision to prescribe: A questionnaire survey. *BMJ* 7121 p1506-1510. An important analysis of the effects of patients’ expectations of receiving a prescription, and GPs’ perceptions of them and their feelings of being pressurised to prescribe.

DIAGNOSIS

Generalist medicine is carried out under conditions of uncertainty and undifferentiated symptoms but has a focus on making early diagnoses of potentially serious disorders such as cancer and sepsis and improving the accuracy of diagnosis of chronic conditions such as heart failure and depression. See 1A Generalist Clinical Method for more on diagnosis.


- **Hobbs FDR, Roalfe AK, Davis RC, et al.** Prognosis of all-cause heart failure and borderline left ventricular systolic dysfunction: 5-year mortality follow-up of the Echocardiographic Heart of England Screening Study (ECHOES) *Eur Heart J*. 2007;28(9):1128–1134. A large population-based study which quantified for the first time the mortality risks of heart failure in the community and the poor prognosis associated with borderline systolic dysfunction.
TREATMENT

This includes appropriate management in primary care, including therapeutic approaches in heart failure, coronary heart disease, gastrointestinal disorders such as inflammatory bowel disease and coeliac disease, respiratory illnesses such as asthma and COPD and infectious diseases. See 1A Prescribing for more.


CHRONIC DISEASE MANAGEMENT

Research in this area includes the long-term, high-quality care of people with diabetes, cardiovascular disorders, asthma, and neurological and psychological problems, and with multi-morbidity involving many of these chronic conditions. See 1E Long term conditions and 1G Multiple conditions for more on these topics.


SCREENING, HEALTH PROMOTION, AND DISEASE PREVENTION

Including cardiovascular risk detection and risk reduction in smoking, alcohol and drug use. See 2b Preventing disease and promoting health for more about this topic.


ORGANISATION AND DELIVERY OF CARE

This includes understanding the ingredients of high-quality care, the identification of quality criteria to support the achievement of quality standards, understanding of the place and value of continuity of care, the adoption of new technologies and developing and evaluating new and evolving roles in the primary health care team. See themes 2 and 3 for more on this.


SERIOUS & MINOR ILLNESS IN GENERAL PRACTICE

It is worth noting that general practice is involved in the whole spectrum of illness, from the minor and self-limiting to the serious and life-threatening, and that patients’ problems are generally seen in the framework of the biopsychosocial model of illness. This is reflected in the original research carried out in this setting. GPs are expert generalists who make accurate assessments of patients irrespective of the type and stage of the illness presentation, and initiate treatment and management informed by high-quality research evidence.

PRIMARY CARE RESEARCH IN MEDICAL SCHOOLS

The general practitioners who organise and deliver your undergraduate teaching and general practice placements, working in university departments or divisions of general practice and primary care, are also frequently involved in research in these fields. Because of the complexity of many of the research questions that have required and still require answers, these departments and research teams are typically multi-disciplinary, including epidemiologists and statisticians, behavioural and social scientists, qualitative research experts, ethicists, and colleagues from other primary care clinical disciplines. Some medical schools pursue energetic programmes of medical educational research. Academic general practice in the universities is a highly regarded discipline, holding its own in terms of international quality ratings. General practice research is conducted in all UK Medical Schools, and the most highly rated departments form the National Institute of Health Research’s National School of Primary Care Research.

DOING PRIMARY CARE RESEARCH

Some years ago, a member of a House of Lords Select Committee on medical research asked me, in relation to research in general practice, and rather testily, “But where is the laboratory?” In the community, of course, where the subjects of primary care research - the units of analysis - can include individual citizens, patients, practices, practitioners, general practice organisations and institutions.

Research in general practice and primary care in the UK has been world-leading. Medical schools have generated world-class research across a range of topics and the British Journal of General Practice is now also world leading, with the highest Impact Factor (a measure of the frequency with which articles published in the Journal are cited by other researchers in their publications) worldwide. This success has been made possible largely by the structure of the general practice system within the NHS and strong support for general practice research by UK research funding bodies.

Because all UK citizens are required to register with a general practice, the patient databases held in general practice provide a virtually 100% complete population sampling frame. Because patients have long-term personal and trusting relationships with their general practitioners, recruitment into studies is greatly facilitated. General practices have, over the years, joined research networks and have been supported by
the National Primary Care Research Network (PCRN), resourced through the NHS Research & Development programmes. Large databases, initially the General Practice Research Database, now the Clinical Practice Research Datalink (CPRD) provide enormous analytical power for large-scale studies. Other GP research networks such as Q Research, the Royal College of General Practitioners' Research Surveillance Centre, and Lambeth Data link, are also capable of generating valuable research information on individual and population health.

CRITICAL READING

Critical reading is the ability to appraise and evaluate the quality of an academic or professional article, generally a research paper. It is an important skill in medicine and critical reading abilities are required by clinicians in training and in practice, to evaluate the quality of new research and its relevance of that in a good practice, by teachers and trainers, who need to guide students and trainees through the medical literature, and to students, who are increasingly expected to understand the elements of critical appraisal of research papers. In the first part of this document you will have read through a list of papers which demonstrate most of the research methods used in primary care and general practice research; surveys, large database research, randomised controlled trials, systematic reviews and meta analyses, tools for diagnosis and measurement, e.g. of risk, and qualitative studies. The principles of critically appraising papers of all types are similar, although different research methods demand particular appraisal skills, particularly about methodology and analysis.

It’s worth remembering that a research paper that has been published in a peer-reviewed journal such as the British Journal of General Practice, the British Medical Journal or the Lancet will already have undergone a great deal of revision and re-writing in response to the comments provided to the Editor of the journal by two, three or more external expert reviews. The text will have been copy edited to ensure that it reads well and conforms to publishing conventions. However, publication is still no guarantee of quality or of relevance.

To decide if the paper is trustworthy, relevant and interesting - “is it new and is it true?”- try asking and answering the following questions:

1. Does the introduction to the paper clearly describe the background to the study - what is known and what is unknown - which leads to asking a clear research question?

2. Is the aim or aims of the study clearly stated?

3. Is the methods section clear and detailed enough to allow the research to be repeated by others?

4. Are the results clearly presented, with good use of appropriate graphics and the correct statistical tests?
5. Are the **sampling and recruitment** methods and inclusion/exclusion criteria clearly stated?

6. Are the **results** relevant to your own practice population/practice setting?

7. Is the **comparison with the existing literature** adequate?

8. Are the **strengths and weaknesses** of the study candidly and fully described?

9. Is the **referencing** adequate, with inclusion of relevant previous work and other sources?

10. Are potential **conflicts of interest** stated by the authors and do these matters?

11. Is the **funding source** identified and, for trials, the trial registration details included?

12. Is there a statement of **ethics committee** approval?

Many journals specify a structured Discussion section, in which many of these points should be covered. The British Journal of General Practice specifies a section entitled “implications for research and practice”. If the authors have been unable to provide a crisp and persuasive account of what the results mean in this section, it’s often worth going back to the introduction, and looking at the precision, or otherwise, of the research question they were asking in the first place.

The BJGP website ([bjgp.org](http://bjgp.org)) includes a link via the Authors and Reviewers section to a document entitled Critical Appraisal for Primary Care, in which more detailed guidance on appraising papers using different methodologies can be found.

**CONTRIBUTING TO PRIMARY CARE RESEARCH**

If you are interested in getting involved in general practice/primary care research, you probably should consider doing three things:

1. Reading the general practice research literature
2. Keeping your mind open to new research questions when you are on a general practice placement
3. Discussing your ideas with your GP tutor who may be able to put you in touch with staff in the medical school department of general practice/primary care, or its equivalent.

Three journals to read are the British Journal of General Practice, published by the RCGP, Family Practice, published by OUP, and Education for Primary Care, published by Taylor and Francis. When you browse the BMJ, Lancet and the big American general medical journals from time to time you will see papers from GPs, often written in collaboration with specialists. Signing up an electronic notification service to reflect your interests is also worthwhile.
Many research papers raised as many questions as they do answers, and you may well find your imagination sparked by doing this. It is unlikely that a day in general practice will go by without a patient presenting a dilemma for which there is no ready-made answer, sometimes because the research hasn't been done and the evidence isn't there. It's unlikely that you won't encounter some consultations where things didn't go well, and you wonder how the risks and benefit of medication or a procedure could have been better communicated, or a more empathetic response made to a patient's concerns. Questions like these can often be the sand in the oyster of a significant research question. Don't be afraid to bring ideas for research to experienced academic colleagues. It may be difficult for them to provide close supervision without notice but registering your interest and keeping in touch could well lead to fruitful future collaboration. Keep at it.

While you are waiting for your Einstein moment, it's a good idea to get into the habit of scientific writing. The only way to start writing is to start writing, and drafting responses to articles in the correspondence columns of journals, and submitting short articles describing interesting experiences and possibly case reports are all ways are beginning to flex your muscles as a medical author. Editors of medical journals may be prepared to respond to enquiries about the suitability of articles that you are thinking about writing. Always try to get your work looked over by someone who can act as a critical friend, to help you be sure you do justice in print to what you have in your mind. Good luck!

THE FUTURE

One constant feature of health care is change. Patterns of illness and the kinds of patients that we see in general press and primary care will continue to diversify as the population ages and its demographics change, with new diseases emerging and new treatments becoming available. Novel diagnostics, personalised genomics for diagnosis and therapy, and increasingly sophisticated imaging technologies, along with communication technologies to facilitate patient: doctor interactions are all happening now. This means that there will be a continuing need for high-quality evidence about what works and what doesn't, the risks as well as the benefits, and the costs and opportunity costs. Primary care research will need to respond by developing new research paradigms, such as evaluations which can provide fast-track alternatives to cumbersome randomised controlled trials, using the enormous resources held in large healthcare databases more effectively, and in real time, and providing smarter ways of getting this evidence into practice. The intellectual challenges of doing research in general practice and primary care have never been greater.

The following resources have been developed in conjunction with SAPC Heads of GP Teaching. If you have any queries or questions regarding the resources on offer, please contact Prof. Joe Rosenthal or Prof. Alex Harding, Co-Chairs of SAPC’s Heads of GP Teaching Group.