PRACTICE OBSERVED

Organising a Practice

Problem identification, disease management, and audit

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After converting the practice records to an A4 format in 1980-1 a system of identifying and recording problems and risk factors was developed for 11 000 patients. Disease registers were developed for patients with hypertension and diabetes and a system of patient recall and audit were started.

Organising the notes

In general practice records much important information is buried among trivia even when an A4 format. Many hospital letters from follow-up clinics give little more information than the original letter does. We decided to weed and summarise the notes. All FP8 and 9 cards containing irrelevant information and all but one of the hospital letters for each episode of illness were extracted and torn up. The main items were summarised and written on a Royal College of General Practitioners (RCGP) pink summary card. The card was filed on top of the current A4 note sheet, where it can be seen first each time the notes are opened.

This task was approached with trepidation on account of the amount of work it required. Elliott¹ was only able to summarise 120 notes in one year. Our notes are summarised in odd moments before and after surgeries, and always by partners. The average time taken for a summary is four and a half minutes, and the average number done a day is three and a half.

Certain disease entities need to be easily identified at each patient contact. We decided to mark the outside of the folders for these disease groups, and used the RCGP system with the following changes: (i) black and white squares indicate neoplasia; (ii) a light green tag indicates bronchospasm; (iii) a purple tag

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indicates arteriosclerosis that limits a patient's life or needs treatment.

When partners had difficulty in identifying problems from the notes we decided to mark the problem that was presented in each consultation by taping this first and underlining it. Using this system of recording information we found that it was possible to rapidly run the eye down an A4 page and pick out the reasons for the patient contacts. The discipline was easily learned and was used with the summary card as a limited form of problem oriented record as described by Woods.²

Prevention and audit

As the records system improved it became obvious that for many patients basic risk factors had not been recorded. We decided to record in an easily recognisable form the blood pressures and smoking habits of all men between 30 and 65 years and the weight of those who were obviously obese. We record this information on the blue FP8B card placed between the summary card and the A4 current notes. Again this task was approached with the belief that it would require large amounts of time. But this fear proved unfounded. An average of five records are completed a day.

Having made the decision to identify patients at risk, the logical consequence was to consider what happened to patients who were in the risk categories. In the United States audit has been based largely on examination of the notes.³ We decided to find out how hypertensive patients, identified by these red tags, blood pressure recordings with diastolic pressures over 100 or systolic pressures over 160, and diabetic patients in the practice were followed up. During each surgery the diabetic patients and hypertensive patients attending for consultations were identified. The notes were tagged unless this had already been done. The names and addresses were then entered in a separate disease register for hypertension and diabetes. The date of birth was added so that a check could be made on the continued registration with the practice through the age/sex register if the notes

all written honestly and personally from the position of experience; experience of failures as well as successes, but almost always experience of excitement and interest which we hope to encourage many more to try for themselves.

The general sequence of research can helpfully be divided into five stages: thinking, planning, doing, analysing, and reporting. This article comments briefly on each of these parts of a project.

Thinking

Without doubt, the *thinking* about research is the most important part of the research process. Few good research projects are conceived and carried out without a lot of careful reflection and, conversely, most rushed projects prove unsatisfactory and either fail to justify their full potential or, more often, collapse completely. This phase includes the process of asking a question about any aspect of one's work and this is followed by a period, usually of weeks or even months, refining the question through discussion with anyone willing to listen and make suggestions and through suitable reading. As this crucial evolutionary period passes, the question will almost certainly be refined and reframed, and indeed it may emerge that the aspect of the original question asked that in the end seems most interesting is quite different from the one expected. Often this period of thinking results in a possible explanation or answer being postulated and a hypothesis proposed. It is always helpful to have a hypothesis when it comes to defining the scale and detail of the eventual research methods to be used (this of course applies less if the research is "descriptive" and only aiming to map out a field of which more specific questions will then be asked). There are various ways of approaching the reading of literature, but space does not allow this to be dealt with in detail here. (The librarian at the Royal College of General Practitioners is one of the people likely to be able and willing to help, and more extensive information on this and other aspects of research referred to in this chapter is available elsewhere.)⁴ It is a mistake to spend too much time reading round one's subject, as this may lead to a feeling that nothing is left to be done; but it is equally wrong to ignore the stimulus and direction that carefully selected reading gives to any research.

Unfortunately, many who could do and would like to try research never get beyond this stage because they do not recognise the starting points that are so easily available in their daily work. Any problem, success, or failure, from the most unexpected to the most routine, can spark a question. It need not appear to split the atom, nor even be completely original. An old idea in new surroundings or a new mind may produce fascinating opportunities. All that is needed is that the question asked seems interesting and important to the person asking it (and preferably to those whose help will be needed in answering it). Good questions for research are also answerable ones—and answerable within the time available before interest runs out and conditions change. The best research question has been defined as the most difficult that the researcher feels he can answer—now anyone can start!

Planning

In the ideal scientific experiment a reaction in a test medium between known constituents is compared with that in another, equal in all respects except one, and under standard conditions; outcome is measured by totally reliable (thus repeatable) observations. In general practice research, however, the conditions are rarely clearly-defined and constant end-points. The ideal general practice research method approximates as closely as possible to this model. The hazards of collecting data in the medium of general practice are quickly obvious; no two patients are exactly the same, and even nearly—the same; few clinical end-points are clear—

cut; both observers and subjects are liable to contribute, usually in good faith, to inconsistent and biased assessments; and the passage of time allows drifting of standards and criteria quite apart from itself introducing a new variable. The virtue of a clearly stated and simple research question quickly becomes obvious at the design stage and, given this as a starting point, common sense and a "feel" for the field in which the research is being done are the best guides to choosing methods.

When appropriate, decide whether the research should cover "patients ALL of whom have condition x" or "ALL patients who have condition x." This will affect both how information has to be collected and, later, how it is analysed and presented. The first choice is easier than the second.

Research is usually retrospective (using data already collected for some other purpose) or prospective (collecting new data). Retrospective research is less likely to be biased by influences of observers or subjects, but the data are often seriously incomplete and lacking in standardisation. Prospective data have the merits of depth and detail but introduce risks of bias in the observations noted. Information is usually abstracted onto some form of questionnaire. Questionnaires may have been designed for specific purposes (the GHQ—general health questionnaire; or MRC chronic bronchitis questionnaire are examples) or may be purpose-built. They may ask "closed" questions (was the temperature above 38°C—Yes/No) or "open" questions (what was the temperature?) and may or may not use pre-coded answer forms. They may be self-administered or administered by postal or interview means. (Barnes and Ritchie's readable monograph⁵ is highly recommended reading.) Remember, data may be captured on film or on tape-recording, or, in truth, by any method that seems interesting and appropriate.

Books have been written on designing research and only a few very simple points can be made in the space of a short article. Three are worth emphasising. The first is to take your own idea to one or probably two or three advisers for comment. One adviser ought to be a colleague in one's own field and one ought to have some statistical competence. The second is to assume that fewer patients will have the combinations of signs and symptoms than you expect and to base the size and scope of your study accordingly, also realising that others who offer to help will rarely do so as accurately and enthusiastically as you hope, nor for longer than about a year. The third is to recognise that alternative approaches to the "experimental" model I have outlined do exist and may fit what a researcher thinks he wants; but the risk of the "collect-lots-of-data-and-see-what-comes-out" approach is that it all too often leads to nothing except frustration. *No statistical tests can make impracticable and unreliable information satisfactory.*

When a reasonable amount of thought and discussion has taken place, think of a short pilot study and about finance. The pilot study is often invaluable in highlighting misleading questions and unclear instructions. Finance is nowadays often necessary for postal, secretarial, and analytical purposes (the BMA booklet on research funding and the various valuable reference works), but help required will usually be modest—ideas and cost are not related.

Once the method is ready and helpers are properly briefed, aim for a realistic starting date and avoid the inevitable early periods of epidemics—unless of course the nature of the research requires study of these. Then get going while enthusiasm is and remains high.

Doing

Not a lot needs to be said here about *doing* research. The phase of data collection is usually comparatively easy if planning and thinking have been thorough. Two suggestions are worth remembering. The first is that it is worth looking at the data as it comes in, in part to see if there are any areas of confusion or incompleteness, and in part to sense trends that may help

could not be found. In a group of 60 patients with hypertension 13 had not had their blood pressure recorded during the previous three months, and of 32 patients with diabetes, 20 had not had a diabetic check in the previous six months.

FOLLOW-UP

As the patients with these conditions were identified and entered in the disease register their names were passed to the practice sister who kept a similar register. A system of follow-up was then designed. The hypertensive patients were followed up quarterly and the diabetic patients every six months. The sister's disease register had columns ruled for the four quarters of the year for the hypertensives and twice yearly for the diabetics. Each time the patient attended the relevant column was ticked. Patients who did not attend were sent for. When the hypertension had been stabilised on treatment the patients were sent to the sister. The levels of blood pressure recording at which the patients were to be referred back to the doctor were established. If patients remained stable the doctor was not concerned in follow-up apart from writing repeat prescriptions. The diabetic patients saw the sister every six months and their weights, blood pressures, blood sugar concentrations, blood urea concentrations, and five urine sugar concentrations over the previous day were recorded. These patients were then referred to the doctor who examined the fundi, circulation, and sensation at the periphery, and discussed treatment and diet.

The doctor's disease register was used as a check on how the system was working, the patient's notes periodically being extracted and examined.

Discussion

This record system allows (a) identification of patients with major diseases from tagging the outside of the notes; (b) an easy identification of current and past problems from the summary cards; (c) identification of risk factors for one group of patients; (d) audit of the treatment of certain disease groups; (e) patients are identified and routinely followed if they are hypertensive or diabetic and are sent for if they do not attend.

Each step in the development of this system was approached with trepidation because of the extra work anticipated. On each occasion the modification was made with little disturbance to established work patterns. In making the changes we used simple materials, were not dependent on high technology, and the changes were easily understood by ancillary staff.

References

- 1 Elliott A. Medical records V—A4 record system and all that. *Br Med J* 1981;282:1363-5.
- 2 Wood JO. Improved record keeping in general practice. *J R Coll Gen Pract* 1974;24:865-74.

Research in General Practice

Anatomy of a research project

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A paraphrase of the many available definitions of research suggests that it is the process of critical and organised inquiry aimed at answering a question. In practical terms it is the means of testing the truth of impressions, guesses, or hunches. There are some fields where the research process can hope to establish "truth" and "facts" with some confidence. But, in medicine, more often than not research can do no more than narrow the range of uncertainty, which remains so considerable still, and enable individual decisions and general policies to be based on more secure probabilities than might otherwise be the case. As well as helping to establish the factual basis on which clinical practice is founded and teaching is constructed, research offers and requires opportunity to think about the problems and pleasures of life and work in a manner that must combine sensitivity and discipline, common sense and organisation. Whether or not the general practitioner wants to participate in research is less important than that he recognises that the processes of research are influencing his every professional

activity in one way or another, consciously or subconsciously, and that research is an aspect of life that cannot be escaped from. Silly and bad research ought to be criticised and discarded; sensible and properly constructed research should be studied and discussed—sometimes accepted and acted on. The neutral position is arguably that of opting out of professional—and personal—development.

What probably puts people off research is the belief that it is a game for academics. It is certainly true that general practice research is often remarkably difficult to plan because of the enormously important contribution of values and attitudes to determining goodness of practice. Numbers, the shorthand language of research, are often hard to apply, and errors are made in reading more into them than the methods used justify. But if sensible guidelines are followed anyone can design a useful and worthwhile project for himself, a partnership, or a group of doctors sharing a common interest. This series of articles on research in general practice aims to identify these guidelines; to call them rules would take the initiative away from individuals and the fun from the chase, but at the same time the researcher who departs substantially from the ordered sequence outlined below does so at his peril. Unfortunately, all of us who do and have done research have learned (and still are learning) the hard way, often disregarding advice and repeating mistakes we have made before. The articles in this series are

decide which analyses of the information will be most useful. The researcher who is close to his own data will be able to make the most imaginative use of it and, more important, will know when correlations and associations will be misleading or meaningless.

The second suggestion is to remember the importance of good personal management. Feedback due to a project is always appreciated and, if giving early results might risk influencing later data collection, this can always be restricted to material of a very general nature. It is likely that a good idea will generate its own momentum, but a mistake to assume that even the best project will not benefit from close attention to its day-to-day running.

Analysing

There are three parts to *analysing* information. Firstly, it has to be summarised and coded, then it has to be coded, and finally interpreted. Well thought out and well planned research is easy to analyse; badly conceived research is either difficult or, more often, impossible to salvage at this stage. For most people trying to research on their own or for the first time the quantity of data to be used should be relatively light and able to be classified or coded by the researcher himself and counted by simple methods—often by hand. There is, indeed, a lot to be said for analysing one's own data at this stage, familiarising with its strengths and weaknesses as well as allowing recognition of trends or unexpected associations or events that can be lost if only machine-created tables are available for assessment. Coding and counting may sometimes be monotonous; unimportant they never are.

Coding is an important part of the research process. Each category should be designed to include all material that belongs to that category and no material that does not. A decision has to be taken on how small or detailed categories should be. Small categories can be added later, but too many small categories may confuse later data handling. A category for "all responses" and unclassifiable returns is needed and some data should be recoded by a second or the same coder, or both, to check reliability of the methods being used.

Data can be counted from coding sheets (or coded original returns) by hand or using simple "desk-top" aids (knitting needles plus edge-punch cards) or more complex methods ranging from counter-sorter and feature cards to minicomputers and main-frame computers. Computers have the advantage of speed and accuracy as well as (often) the facility to provide statistical analysis; they have the disadvantage of sometimes having to be queued-up for; they do not make bad material into good.

Interpretation and statistical analysis is a science in itself. Professional help is often necessary but only the researcher can know the fundamental validity of his material. If formal statistical tests of significance or correlation are required only the well-informed should do these on their own; errors of application of tests are widespread and may invalidate otherwise good work.

The differentiation between statistical significance and clinical significance is important and should be carefully considered. Statistically significant differences between groups of figures (especially when the numbers compared are large) may have no clinical importance, whereas differences that are not statistically formal tests of statistical significance because these are based on too small numbers for confidence in their meaning to be expressed mathematically. Research is an attempt to advance knowledge or understanding using the processes of observation, measurement, and analysis. Considering the complexities of biological science and human behaviour, it is wise to be cautious in interpretation of even the most carefully made observations. Research, at least in general practice, contributes more often to better understanding than to the provision of new "facts."

References

- 1 Howie JGR. *Research in general practice*. London: Croom Helm, 1979.
- 2 Bennett AE, Ritchie K. *Questionnaires in medicine*. London: Oxford University Press, 1975.
- 3 British Medical Association. *Research funds guide*. 3rd ed. London: BMA, 1976.
- 4 Thomas G. *Thorn's better medical writing*. 2nd ed. Tunbridge Wells: Pitman Medical, 1977.

THE PHYSICIAN The only part he studies to perform with effect the chamber scene, in which he is generally most impressively great. The ceremony of feeling the pulse, of exhibiting the watch, of arranging the features, so as to look wise when he is most ignorant, of inquiring into every minutiae of the patient's history, of ignoring the professions great esteem for the patient and his family; is particularly polite to the apothecary and all the attendants, and takes every opportunity of ensuring the physician's position, by ignoring the pretensions and hypocrisy. To the apothecary he is politically a friend, and to the undertaker unintentionally so, to the progress of nature he is a decided enemy, because of the time he wastes in trade of fees. In fashionable company he is always "at home," but if a properly educated practitioner happens to be present, he refuses to enter into conversation on subjects connected with medicine, by observing that "the topic smells of the shop." If a medical man is not present, he will talk most learnedly on medicine, and by quoting Hippocrates and Galen, and by making an allusion to the fact that he generally succeeds in inducing his wondering hearers to suppose that he is a very clever fellow. (*Gazette of Health* 1823;8:571.)