

RESEARCH SERIES

Seeking funding for research

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Emerg Med J 2003;**20**:359–361

This is the eighth paper in the research series. It focuses on the aspect of funding for research.

and an outline of the proposed research with justification of need and cost and a financial profile. The steps of the entire process are shown in box 1.

The costing process is usually one of the last aspects of planning to be carried out.

While not all research needs external funding it is true to say that any research that does need to be funded needs to be funded properly. Thus, once it becomes apparent that a research topic will require financial resources, the responsible researcher must make an effort to estimate the amount required and to establish possible sources.

The nature and design of the research project and the assessment and search for funding are intimately linked. It will not be possible to cost a poorly designed project accurately (nor is it likely that any funding body will fund such a project); similarly inaccurate estimation of the probable costs of a project will make it less likely to succeed (and again will make it less attractive to potential funders). An accurate assessment of funding will require not only a good grasp of the research to be undertaken but also a proper understanding of the necessary time course of the project. To complicate matters more the researcher must acknowledge the hidden costs of the research such as infrastructure use and non-research worker time.

Costs fall into a number of categories—the most obvious being equipment and staff time. During the financial planning process each cost identified should be categorised according to the particular nature of the expenditure expected. This process of attributing each expected cost to a particular category of spending is important both to the researcher (who develops a better understanding of the project), to the potential research funder (who is helped to understand exactly what the funds requested will support), and to the institution in which the research is to be carried out (which must ensure that proper division of responsibility for funding has been undertaken—see below).

Once the expected cost has been estimated the financial profile can be constructed. This entails a detailed prediction of what expenditure will be incurred and when it will occur. This will allow the funding body and the researcher to manage the project. It is important to try and make the profile as realistic as possible as many funders will expect any significant virement (variation) from the predicted figures to be explained as soon as it comes to light.

Finally the research proposal will need to be put together in the required format. Most research funding bodies will provide guidance notes stating their exact requirements. The minimum will be an introduction, a literature review,

Box 1 Summary of steps

- 1 Design project
- 2 Recognise need for funding
- 3 Identify potential funding sources
- 4 Assess costs by category
- 5 Construct financial profile
- 6 Write full research funding proposal

DESIGNING THE PROJECT

Research project selection and design have been dealt with in detail earlier in this series. All aspects of this process must be achieved before funding is considered. In particular researchers must ensure that the study question is accurately defined and that the research can be achieved in the proposed setting. An accurate estimate of the necessary size of the study (or of the power of the study if the size is already set) is of especial importance early on as this will greatly influence the resources required.

RECOGNISING THE NEED FOR FUNDING

Some research questions can be successfully answered without external funding. Others may require huge sums to be invested if the project is to have any chance of success. Still others may require pump-priming funds or funds to allow pilot studies to be undertaken to assess the viability of further studies. The researcher must decide early on whether funding is required and, if it is, exactly what degree of funding will be necessary. To help with this a number of questions must be asked. These are summarised in box 2.

Box 2 Essential questions

- Will extra staff time be necessary for this work?
- Will extra equipment be necessary for this work?
- Will extra consumables be necessary for this work?
- Is funding in place for
 - literature review?
 - statistical and health economic support?
 - secretarial time?
- Will other departments need to provide resources for this work?

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If any of the answers to the questions in box 2 are yes then research funding will be needed. The degree of funding will depend on how many questions are answered in the affirmative.

IDENTIFYING POTENTIAL FUNDING SOURCES

Having decided that funding is necessary the researcher is faced with the difficult task of finding a funding body willing to provide the money. The first part of this quest is to identify one or more research funding bodies that have an interest in the research area. Local research networks often distribute lists of funding bodies, and many advertise their availability in leading medical journals. The best advice, however, is usually obtained from researchers already active in the area of interest. This second approach also has the added benefit of promoting collaborative research—new researchers will usually have a greater chance of being successful if they team up with established teams.

Recently some excellent internet resources have become available (<http://www.rdinfo.org.uk/>). These are particularly helpful as they are both current and usually allow rules and application forms to be downloaded immediately.

ASSESSING COSTS BY CATEGORY

As it is not possible to bid for unspecified amounts of money it is important to get an exact idea of the funding required. To do this the costs should be assessed by category. The categories are shown in box 3.

Box 3 Types of cost

- Staff
- Equipment
- Consumables
- Research support
- Administrative support
- Other

Staff

In clinical research staff costs often represent the major proportion of funds requested. Having decided that research time must be funded three questions need to be answered so that the staff cost can be calculated. These are shown in box 4.

Box 4 Staff questions

- Number of hours per week
- Profession of researcher
- Grade of researcher

Hours per week

These can only be calculated by drawing up a weekly work plan for the post. This should include all fixed sessions (such as clinics and laboratory sessions) and should also encompass time for data entry and analysis. The amount of time assigned to thinking will vary with the nature of the post. A research assistant will have less contemplative time than a research fellow—this reflects their relative responsibility for the direction and interpretation of the project. Many researchers will be taking higher degrees and time should be allocated for this activity; most funding bodies are keen to support appropriate training—but it is worthwhile checking their attitude to this before putting the bid together.

Profession of researcher

The professional background of the research worker will have a significant effect on the size of the wage bill, and should be given some thought. In general researchers with a medical background will cost more than those with other training; research students straight from a first degree will be cheapest of all. Funding bodies will generally not want to pay for staff with inappropriately high levels of training—especially if this costs significantly more. Bids for medically trained researchers must be justified either in terms of required skills (only a doctor is able to undertake the research) or delivered training (MD or PhD programmes). Some funding bodies favour particular professions and it is worthwhile bearing this in mind when deciding where to seek money for particular projects.

Grade of researcher

As well as deciding the professional background of the researcher it is also necessary to decide the appropriate grade as this too will greatly affect the amount of funding required. The worker must have enough experience to operate effectively at the expected level—while attainment of a particular grade does not guarantee this, it is a good guide. It may be necessary to appoint fairly senior staff if there is a significant amount of liaison involved in the research process and this should be borne in mind.

Equipment

Research funders will look especially closely at requests for equipment. It is therefore very important to think clearly about this area of a research bid. Equipment may be necessary for the research itself, for the treatment of the patients who are being investigated, or to help with data handling. The first of these is clearly the responsibility of the funding body as the research will not be possible without this input. Equipment that is used during treatment (for instance, monitors, imaging devices, or therapeutic instruments) should be noted but, as discussed below, may need to be funded from non-research sources. Computers and other equipment needed for data handling must also be acknowledged at this stage, but again funding may need to be from different sources.

Consumables

As with equipment consumables used by the research project may be attributed to the research activity, to the treatment of the patients taking part in the research or to the administrative support of the project. Researchers must attempt to identify all consumables—not just those that are obvious such as test kits. The best way to do this is to imagine the path of a particular patient through the research process. All items that are used during the process—from high cost disposable clinical equipment to the sheets of paper used to write down the results must be listed. Each item can then be costed. This process will also allow the marginal cost (that is the additional cost per additional patient) to be calculated as this will consist of consumable costs only.

Research support

Some institutions will fund research support units as part of their core funding and it will not be necessary to bid for additional funds for any costs associated with their use. In other settings research support will have to be sourced from outside the institution and will therefore have to be funded. The most common requirement is for statistical services—the level of support may vary from full collaboration to ad hoc advice and the cost will vary accordingly. In a similar way other advice or specialist inputs such as health economics or computer modelling will need funding to the level required.

Administrative support

All research projects will need some administrative support. Researchers must make a realistic assessment of the probable administrative load and decide whether this can be supported within existing resources, whether the work can be covered by bidding for additional hours for existing staff, or whether additional part time or full time appointments will be necessary.

Administrative support may not be needed at the same level throughout the project and the peaks and troughs of demand should be noted and accounted for.

Other

It is very easy to forget some of the costs of research as they do not obviously fall into one of the categories discussed above. While some of these (such as advertising costs) are fairly easy to quantify others, such as travel and study leave may be more difficult to assess accurately. Some of these costs are listed in box 5.

Box 5 Miscellaneous expenses

- Job advertisement
- Travel
- Conference fees
- Higher degree tuition fees

THE RULES

Many research funders will only fund those costs directly associated with research. In the UK the guidance about this has been updated (HSG(97)32).¹ Researchers should be familiar with this document before bidding for funds.

In general terms the NHS recognises two types of research: commercial and non-commercial. The rules around commercial research are simple—the commercial funder must fund all cost of the research. Those around non-commercial research are more complex as it has been agreed that only the research cost of this research will be met by funding bodies. The treatment cost—that is those costs that would have been incurred by the responsible authority had the patient been treated outside the research project—remain the responsibility of the usual funder (in the current model the Primary Care Trust). This is a particular problem if the cost of the research treatment is greater than the cost of the comparator usual treatment. There are three ways of funding this difference. Firstly, the usual funder may agree to increase their payment to cover the new treatment costs; secondly, the extra costs can be met from commercial sources (this does not make the research commercial as the research costs are being met by the external funder). Finally (and exceptionally) the extra costs (that is, the cost above that of the usual treatment) may be met by the research funder—this is termed excess treatment cost funding. Service support costs (that is, the cost of the staff involved in the treatment and the use of the building with its associated heating and lighting) must be met by the host institution. Additional support for research (such as statistical support discussed above) will usually only be available to institutions not in receipt of R&D funds that cover such costs for the entire centre.

CONSTRUCTING THE FINANCIAL PROFILE

Very few funding bodies pay grants as lump sums at the start of a piece of research. Therefore, having determined both the total value of the funding needed and also the time the project

will take, it usually necessary to draw up a timetable for payments. This timetable must fulfil the needs of both the institution in which the research is to be carried out and also those of the funders. Some institutions (such as most NHS Trusts) are happy to receive payments quarterly in arrears while others (such as small research charities) will need payments in advance. Accurate financial profiling is very important to most funding bodies as it allows them to plan their own financial affairs properly. For this reason profiles are often difficult to change once agreed.

Financial profiling is, in fact, not particularly difficult if costs have been accurately assessed. The total costs and the nature of the expenditure will be clear if the process described earlier in this article have been carried out well. The timing of payments depends mostly on the type of expenditure. It is probable, for instance, that staff salaries will be required on a monthly basis throughout the period of the grant, whereas most funding for equipment is needed at the start of the research. Other costs will be required at different times (see fig 1).

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Staff					
Equipment					
Consumables					
Other					
Total					

Figure 1 Suggested format for a financial profile.

If the project will last for a number of years both wage inflation and incremental seniority payments must be planned for. Many funding bodies have specific regulations about these issues and these should be adhered to.

WRITING THE FULL RESEARCH FUNDING PROPOSAL

In the end, however much effort has gone into the planning of a research application, the funding body will only have the written proposal in front of them when they decide whether or not to support the research. The preparation of the document is therefore very important.

The first, and only, rule is to adhere to the format and length specified. This requires both clarity of thought and a degree of self control—it is always very tempting to try and put in a little bit more than anyone else. Correct formatting is probably most difficult to achieve when reworking failed proposals for different funders. The time it takes is always a worthwhile investment as proposals in the incorrect format will often not even be considered. Other obvious advice is to submit in time for deadlines (use guaranteed delivery services if the date is close) and send the correct number of copies.

Remember funding bodies are asking themselves two questions. Firstly, they want to know if the research question is worth answering, and secondly they want to know whether the applicants can answer it successfully. As a final check read through the proposal and ask these questions yourself—if the answer to either is no, then start again.

REFERENCE

¹ **NHS Executive.** HSG(97)32 *Responsibilities for meeting patient care costs associated with research and development in the NHS.* Leeds: NHSE, 1997.