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Demystifying research: how to make it happen

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Abstract

In the current climate, there is an unprecedented need to demonstrate the clinical effectiveness and value of healthcare interventions. Health professionals need to ensure that their decisions are evidence-based, and able to withstand financial and clinical scrutiny. When planning a piece of work to evaluate an aspect of clinical practice, the first step is to identify whether the intention is to undertake research, a service evaluation, a quality improvement project or an audit. It is also important to be clear about when an ethical review is necessary for governance and insurance purposes, and to ensure that the final paper will be publishable. There are multiple ways to engage with research, including undertaking a project in practice, completing a higher degree, seeking external funding or pursuing a clinical academic career. Research is not something that can be done alone – it requires teamwork. Having completed a piece of research, there is then a professional and moral duty to disseminate the findings appropriately, not only at conferences, but also in peer-reviewed publications. Given that engaging in evidence-based practice is a regulatory standard of proficiency, the challenge is for all health professionals to produce at least one high-quality piece of evidence during their career, and disseminate their work in a peer-reviewed academic journal in order to help develop and protect the future of their profession.

Keywords: clinical academic career, clinical effectiveness, healthcare, research, resources.

Introduction

“Everyone in healthcare really has two jobs when they come to work every day: to do their work and to improve it.” (Batalden & Davidoff 2007, p. 3)

In the current climate, there is an unprecedented need to demonstrate the clinical effectiveness and value of healthcare interventions. Evidence is used to: inform national and international guidance; update commissioning; standardize service delivery; and improve safety, outcomes and the patient experience. Therefore, healthcare professionals must ensure that their decisions are evidence-based, and able to withstand financial and clinical scrutiny. Furthermore, standard 12 of the Health and Care Professions Council’s *Standards of Proficiency – Physiotherapists* (HCPC 2013, p. 10) states that registrant

physiotherapists must “be able to assure the quality of their practice”, and specifically describes engaging in evidence-based practice, audit, systematic evaluation of practice and assessing the responses of service users.

While research is at the heart of generating new knowledge, and answering clearly defined questions, the clinical effectiveness agenda is much broader than this. It also encompasses service evaluation, quality improvement and audit, which can all have pivotal roles in evaluating practice. Therefore, when planning a piece of work to evaluate an aspect of clinical practice, the first step is to identify whether the intention is research, service evaluation, quality improvement or audit. The key differences are highlighted in Table 1.

The aims of the present paper are to:

- (1) summarize the difference between audit, service evaluation, quality improvement and research;
- (2) identify ways to engage with research (e.g. undertaking a project in practice, completing

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Table 1. Key differences between the aims of research, service evaluation, quality improvement and audit (after HRA 2017): (RCE) research ethics committee

Research	Service evaluation (including quality improvement)	Audit
Generates new knowledge	Defines or judges current care	Delivers the best care
Addresses clearly defined questions, aims and objectives	Measures current service without reference to a standard	Measures against a standard
Usually involves collecting data additional to routine care	Usually involves analysis of existing data, but may include administration of an interview or questionnaire	Usually involves analysis of existing data, but may include administration of an interview or questionnaire
May involve randomization	No randomization	No randomization
Normally requires RCE review	Does not require RCE review*	Does not require RCE review*

*It is essential to be clear at the outset whether a planned project needs to be reviewed by an RCE. Not only is this imperative for governance and insurance purposes, it can also determine whether the final paper can be published in a peer-reviewed academic journal (many journals will not publish work if the authors cannot provide evidence of ethical approval). For the purposes of research governance, “research” means the attempt to derive generalizable new knowledge by addressing clearly defined questions with systematic and rigorous methods (HRA 2017). Although some research projects include evaluation, where a project is considered to be solely an audit or service evaluation, it will not be managed as research within the National Health Service or social care (HRA 2017). The Health Research Authority provides an online decision tool that can help to determine whether an intended project requires ethical review or not (<http://www.hra-decisiontools.org.uk/ethics/>). Keeping a copy of this, or any correspondence with an RCE, can provide useful evidence to send to editors proving that a formal review was not required.

- a higher degree, seeking external funding or pursuing a clinical academic career); and
- (3) identify advice and resources that are available to clinicians when they begin their research.

Getting started in research

“Research is a high-hat word that scares a lot of people. It needn’t. It [. . .] is nothing but a state of mind – a friendly, welcoming attitude toward change . . . going out to look for change instead of waiting for it to come. Research [. . .] is an effort to do things better. [. . .] It is the ‘tomorrow’ mind instead of the ‘yesterday’ mind.” (Kettering 1961, p. 91)

There are several routes to undertaking research in clinical practice. It can be done either by: doing a single piece of work (e.g. conducting a systematic review of what is known about a topic); joining an established research team; commencing a higher degree; or pursuing a clinical academic career.

There are now more opportunities to conduct research than ever before. Unfortunately, it is almost impossible for non-medical clinicians to undertake a sizeable research project of their choice, and still receive their current salary, with academic fees paid, and maintain their job security. It is important to understand this in order to avoid unrealistic expectations at the outset, and thus, appreciate that pursuing research will require some degree of compromise.

Scoping a topic

Before deciding to undertake a research project, it is necessary to scope the topic in order to establish what is already known, what work is currently in progress and whether there are any gaps in the evidence base. Therefore, it is essential to develop the skills required to be able to identify primary sources of literature, and also to appraise these publications critically to determine their quality.

As part of this process of critical appraisal, it is necessary to judge the quality of the data collection, the analysis of the results, and the interpretations and recommendations made in any research study. This will enable an assessment to be made of the strength of the evidence that the research provides, and hence, its usefulness. A hierarchy of evidence ranked on the basis of study design is shown in Table 2.

Randomized controlled trials (RCTs) may not always be the most appropriate way to answer some research questions, of course. Furthermore, not every RCT is reflective of level 1 evidence because of errors in design, methodology and the interpretation of data, and studies rarely consider non-specific treatment effects (Roberts *et al.* 2017). When considering potential approaches to a topic, it is important to avoid over-reliance on low levels of evidence, such as case series, since these cannot demonstrate efficacy.

If you are fortunate to work in an organization with an academic library, the staff are an excellent resource, and can help you to refine your search strategy and ability to find salient literature. As well as electronic databases, it is important to

Table 2. Levels of evidence in research (after Sackett *et al.* 2000): (RCT) randomized controlled trial

Level of evidence	Type of study
1a	Systematic reviews of RCTs
1b	Individual RCTs with narrow confidence intervals
2a	Systematic reviews of cohort studies
2b	Individual cohort studies and low-quality RCTs
3a	Systematic reviews of case-controlled studies
3b	Case-controlled studies
4	Case series, and poor-quality cohort and case-control studies
5	Expert opinion

search the grey literature (i.e. information that is not available through the usual bibliographic sources, such as a database or index), which may include reports, theses and conference proceedings, for example. If such skills are new to you, registering for a module dealing with research methods in higher education can help you to develop the skills and confidence that you will need. Such courses can also facilitate your access to the electronic resources and librarian support that are essential to making the task more achievable. While it is possible to read some journals without charge through open access, it is important to be aware that Internet searches are a poor substitute for bibliographic databases when scoping the evidence. Googling should not be used as the sole search strategy since this can result in key references being missed.

As well as systematically searching the literature, it is important to check existing registries of clinical trials in order to identify any work in progress that has not yet been published. This is also a useful way of identifying other researchers in the field, which will allow you to start building your research networks.

Developing your research question

Having reviewed the topic and relevant literature, the next stage is to move from considering an idea to posing a research question, which will then determine the most appropriate methodology to use. The question needs to be specific, focused and answerable.

There are a number of free sources of support that can help you to develop your ideas. For example, the Council for Allied Health Professions Research (CAHPR) was created to encourage research within the allied health professions in order to “strengthen evidence of the professions’ value and impact for enhancing service user and community care, and enable the professions to speak with one voice on research issues, thereby raising their profile and increasing their influence” (CAHPR 2017). It is a UK-wide network of regional hubs with expertise in facilitating

research, and welcomes contact with clinicians to help them start their research journeys.

Another key resource is the Research Design Service (RDS), which is a national network, funded by the National Institute for Health Research (NIHR), that provides support to health and social care researchers on all aspects of developing a grant application, including, research design, research methods, identifying funding sources, and involving patients and the public (NIHR 2018a).

Joining an established team in practice

This is an excellent way to share your clinical expertise while developing research skills. Through contacts like the RDS and CAHPR, you can find out about research projects that are being conducted in your area, and what opportunities are available for getting involved. For example, it may be that academic facilitators in a CAHPR hub have some data that they are working on, and would welcome some clinical expertise in interpreting the findings and developing their ideas further.

Internships

Internships can be an excellent way for clinicians to gain some practical experience of research over a finite period. These can either be paid positions (e.g. financed with a stipend that can be used to provide cover for clinical commitments), or may be undertaken on a voluntary basis, providing an intern with opportunities to gain some academic credentials (e.g. co-authorship of a peer-reviewed paper). The regional Health Education England (HEE) organizations (e.g. HEE Wessex), charities (e.g. Arthritis Research UK) and universities can be good sources of funding.

Undertaking a higher degree

Essentially, there are five main types of higher degree, three Master’s qualifications and two doctoral-level awards:

- *Master of Science (MSc)*. These postgraduate programmes vary, but usually comprise a

series of taught modules and written assignments that amass academic credits. There is also a research component, which normally takes the form of a short thesis (approximately 10 000–15 000 words) or a research paper.

- *Master of Research (MRes)*. While containing some taught modules, an MRes has a stronger focus on research skills than an MSc. It normally takes 1 year of full-time study or 2 years of part-time work, and can be assessed on the basis of a thesis or a research paper, with or without a viva. An MRes is an excellent platform for doctoral study.
- *Master of Philosophy (MPhil)*. This is a research degree, but it is less advanced than a doctorate and is often completed after approximately 2 years of full-time study. An MPhil requires a candidate to undertake an investigation, but the work may be more limited in its scope and originality than a doctoral degree. Some universities require doctoral candidates to register on an MPhil/PhD programme, and then undergo an upgrade viva partway through their studies. This will determine whether they can continue to a doctorate or exit with an MPhil.
- *Professional doctorate*. These programmes vary in both content and assessment. However, professional doctorates usually comprise: a series of taught modules with written assignments about aspects of research and professional practice; and a supervised research study that is assessed via either a thesis (of variable word count) or a series of papers, and a viva. It can be completed on a full-time (usually within 3 years) or part-time basis (up to 7 years). It is worth noting that some professional doctorates are not considered eligible for entry onto the clinical academic pathway, or by some bodies awarding research grants. On completion of the award, recipients can use the title “Doctor”.
- *Doctor of Philosophy (PhD or DPhil)*. This is a research degree involving an original piece of research that is completed and assessed through either a thesis (often around 75 000–100 000 words) or a series of papers, and a viva. It can be completed on a full-time (usually in 3 years) or part-time basis (up to 7 years). Programmes typically include formal research training, and candidates work both independently and with their supervisors to develop their ideas. On completion of the award, recipients can use the title “Doctor”.

Undertaking a higher degree can be both rewarding and challenging, and requires a considerable personal and financial investment. Good support systems are essential.

Seeking funding

Rather than undertaking a higher degree to learn research skills, it may be that your focus is on a specific project, and you have access to a range of colleagues with appropriate research and clinical experience to form a strong investigative team. The NIHR was established to improve the health and wealth of the nation through research, and provides a range of different sources of funding to support everything from individual projects to full programmes. The RDS can assist you in identifying the best funding streams to apply to, and are designed to help support applications by providing peer review, mentoring and advice. A complete list of NIHR funding streams is available online (www.nihr.ac.uk).

Other sources of external funding include research council grants from bodies such as the Medical Research Council, or the Engineering and Physical Sciences Research Council. There are also many charitable foundations that support healthcare research, such as Arthritis Research UK, the Bupa UK Foundation, the Dunhill Medical Trust, the Leverhulme Trust and the Wellcome Trust. It is not only important to spend time searching the relevant scope and eligibility criteria, but also to try to make contact with researchers who have made successful applications to learn from their experiences.

Clinical academic careers

One exciting recent development in the non-medical professions is the establishment of clinical academic careers. Health Education England (HEE) has a statutory responsibility to promote research (HSCA 2012). This organization is required to foster a workforce who embrace research and innovation, and support clinical academic careers for healthcare professionals (HEE 2017), to enable them to become the research leaders and academics of the future [UKCRC SNCR(W) 2007]. Therefore, following in the footsteps of the medical profession, a pathway has now been developed in which these roles are well-established.

One of the most inspirational examples of a clinical academic in the field of obstetrics was Dr Ignaz Semmelweis, a Hungarian physician (Fig. 1). In 1847, while working as an assistant to the professor of the maternity clinic at

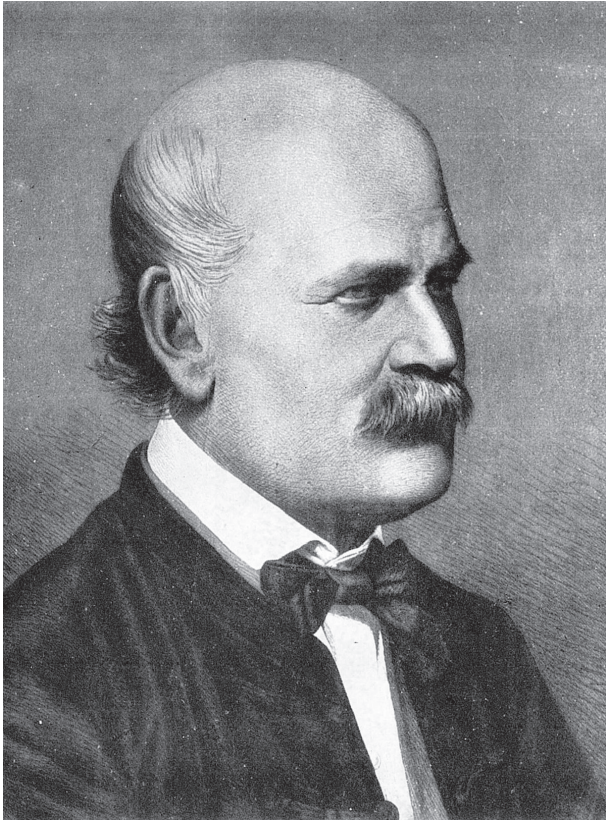


Figure 1. Dr Ignaz Semmelweis (copperplate engraving by Jenő Doby dated 1860).

the Vienna General Hospital in Austria (SSI 2009; Zoltán 2017), Semmelweis noted that the mortality rate due to puerperal fever (“childbed fever”) was 13.10% on one ward (Rangappa 2015), and many women preferred to give birth on the street than be brought there. This compared to a mortality rate of 2.03% on a second ward in the same hospital that used the same techniques. The only difference was the individuals who worked there: the first was the teaching service for medical students while the second was for the instruction of midwives (Rangappa 2015).

The medical staff believed that the deaths were a result of “poison air” on the ward. However, when Jakob Kolletschka, a pathologist, died from septicaemia after a scalpel injury sustained during an autopsy, Semmelweis noted that the findings from his colleague’s own post-mortem were similar to those of the women who had succumbed on the ward.

Semmelweis then observed that the doctors and students carried out autopsies of women who had died of fever in the morning, before examining women in labour. He hypothesized that “cadaveric particles” were transferred to these women and were the source of their infection. His simple intervention was to institute a policy of using

a solution of chlorinated lime for washing hands before each examination, and the mortality level dropped from 12.24% to 2.38% (Rangappa 2015). During 1848, Semmelweis widened the scope of his washing protocol to include all instruments coming into contact with women in labour, and this action virtually eradicated the *Streptococcus* responsible. His views did not concur with the medical beliefs of the time, and he encountered significant resistance. Semmelweis’ work was not recognized, and he resigned. When he left, the doctors went back to their old ways and the mortality rates increased. It took a further 20 years before his findings were universally accepted. Despite no funding and no RCT, this improvement initiative had a considerable impact in terms of saving lives.

Clinical academic careers were established in response to the moribund state of the discipline of academic medicine. Among the reasons cited for this decline were the lack of a clear entry route and transparent career structure (Funston *et al.* 2015). In response to the UK Clinical Research Collaboration report [UKCRCSNCR(W) 2007], HEE and the NIHR developed the Integrated Clinical Academic Programme. This was created for the benefit of non-medical healthcare professionals who wish to develop careers that combine clinical research and research leadership with continued clinical practice and development (NIHR 2018b). It is a pathway that is intended to allow health professionals to progress from pre-Master’s-level internships to senior researcher posts (Fig. 2).

These roles are new, and sometimes there is a lack of understanding about such positions in both clinical practice and academia. For example, some academics have described themselves as clinical academics because they work closely with clinicians and deliver clinically relevant research. This should be true of all staff working in academia in healthcare, and does not constitute a clinical academic role, where individuals typically spend 40–50% of their time in clinical practice, both working directly with patients and providing clinical leadership.

To help support people in these roles, the NIHR has established a cohort of training advocates, who work as ambassadors and mentors for those undertaking non-medical clinical academic careers. These individuals promote training opportunities and sources of support, especially for clinicians and early-career researchers in the field. The list of advocates can be found at the NIHR website (NIHR 2018c).



Pre-doctoral Clinical Academic Fellowship Scheme

Figure 2. Summary of the Integrated Clinical Academic Programme for non-medical healthcare professionals (HEE 2018).

Audit

One of the most accessible ways to engage with the clinical effectiveness agenda is to undertake an audit. In this form of assessment, aspects of clinical practice can be measured against predetermined standards so that good practice can be celebrated, and any suboptimal procedures can be identified and appropriate plans put in place to address these issues.

Clinical audit has been defined as: “a quality improvement cycle that involves measurement of the effectiveness of healthcare against agreed and proven standards for high quality, and taking action to bring practice in line with these standards so as to improve the quality of care and health outcomes” (Burgess 2011, p. xi).

It is intended to embody three key attributes:

- “[r]ecognisably high standards of care”;
- “[t]ransparent responsibility and accountability for those standards”;
- “[a] constant dynamic of improvement” (Hughes 2012, p. 5).

Therefore, if no reference is made to standards, a project is *not* an audit. This term is much maligned in practice when clinicians refer to service evaluations as audits, without making any reference to standards. Furthermore, it is important that the clinical audit process is seen as a cycle, whereby: an issue is identified; standards are then set; data are collected and analysed to compare practice/performance against the standards; and an action plan is devised in order to

make any necessary improvements. Once any changes have been made, the service must be re-audited to measure any effect that the actions may have had. Without this final step, the audit cycle is incomplete. The cycle can then be repeated as many times as are required to achieve or exceed the set standards.

Setting standards

In clinical audit, it is worth noting that standards may be set at a baseline level, i.e. a minimal level of acceptance, or they may be aspirational, i.e. specifically intended to drive up the quality of service. It is important to be aware of this during the initial planning stages when standards are agreed, since the former are more likely to be achievable.

If national/international or professional standards already exist, the task of auditing becomes easier. However, where no standards exist, a local/expert group can agree these based on other sources of evidence; for example, published literature. This practice is more open to challenge than using established standards, and therefore, it is important to peer-review the standards as widely as possible in order to enhance the credibility of the audit.

Service evaluation

In the current climate, there is a great emphasis on new models of service provision, and a continued focus on quality improvement,

innovation, productivity and prevention (HEE 2014). Therefore, striving for improvement is part of all health professionals' job plans. Service evaluation is a means of evaluating current practice, without any predetermined standards, to generate useful information about a service, which can be used to help plan future audits or research, or to aid with decision-making. Surveys of patients' experiences are examples of this category, since these determine patients' perceptions of a service based on a recent experience.

Quality improvement

Batalden & Davidoff (2007, p. 2) defined quality improvement as "the combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)".

The principal aim of quality improvement is to secure positive change in an identified service, often using process improvement techniques adapted from industry (e.g. Lean Six Sigma); Plan–Do–Study–Act cycles are particularly popular (Portela *et al.* 2015). In a typical quality improvement project, measurement and monitoring of the target of change are key activities, and these can be especially useful in providing a "proof of concept" that can then be tested in larger studies (Portela *et al.* 2015).

Despite the popularity of these approaches, the fidelity and standard of reporting in quality improvement initiatives can be problematic, as can the interpretation of the data (often leading to stronger claims than are warranted), and caution is needed in treating the outputs as generalizable new knowledge (Portela *et al.* 2015).

Dissemination

Having completed a piece of research, there is a professional and moral duty to disseminate the findings appropriately, not only at conferences, but also in peer-reviewed publications. It is essential that clinicians completing a higher degree also submit their work to an academic, peer-reviewed journal.

When choosing where to submit, it is important to think about both a periodical's target audience, and also the journals that are cited in the literature review. There is also the impact factor to consider: used as a relative measure of the

importance of a journal in academic circles, this is based on the number of times articles published in it are cited. Having chosen a journal, it is essential to adhere strictly to the guidelines for authors. Furthermore, carefully scrutinizing examples of papers already published in the target journal can help with planning the weighting of different sections, and numbers of figures, tables, quotes and references, for example. If you are uncertain whether your work is likely to be of interest, it is worth contacting the editor first to discuss this.

Writing a paper and then trying to decide which journal to send it to is very likely to result in failure: it is essential to select a publication first before writing the first word of a paper.

There are guidelines for reporting studies in academic journals, and these are used by referees and editorial boards when making decisions about whether to accept a paper. These can be accessed through the Enhancing the QUALity and Transparency Of health Research (EQUATOR) Network (www.equator-network.org), and provide an extremely useful checklist that will give a paper the best chance of success. A summary of the main guidelines and a list of relevant acronyms are presented in Table 3.

Dispelling myths

There are many myths about research that can be detrimental to thinking and practice, and these need to be dispelled:

- *Research is not only for those who aspire to be consultants or educators.* Research cannot be left to a handful of physiotherapists within the academic community. To ensure that research has direct clinical relevance, who better to get involved than the clinicians who are directly involved in patient care?
- *Research is not superior to audit, service evaluation or quality improvement.* There is a place for research, audit, service evaluation and quality improvement initiatives, since these fulfil different purposes. These can all be pivotal in bringing change in clinical practice, and it might be that: a service evaluation is necessary to identify research ideas; or an audit may be appropriate for measuring whether research findings have been implemented in practice. Many National Health Service (NHS) organizations value service evaluations and quality improvements highly, and often prefer these to research. This is because the primary motive of these bodies is to

Table 3. Guidelines for reporting different types of studies: see the Enhancing the QUALity and Transparency Of health Research (EQUATOR) Network (www.equator-network.org)

Type of study	Reporting guideline	Acronym
Systematic review	Preferred Reporting Items for Systematic Reviews and Meta-Analyses	PRISMA
Randomized trial	Consolidated Standards of Reporting Trials	CONSORT
Observational study	STrengthening the Reporting of OBServational studies in Epidemiology	STROBE
Diagnostic/prognostic study	STAndards for Reporting of Diagnostic accuracy studies Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis	STARD TRIPOD
Qualitative research	Standards for Reporting Qualitative Research CONsolidated criteria for REporting Qualitative research	SRQR COREQ
Case report	CAse REport guidelines	CARE
Quality improvement study	Standards for Quality Improvement Reporting Excellence	SQUIRE
Economic evaluation	Consolidated Health Economic Evaluation Reporting Standards	CHEERS
Study protocol	Standard Protocol Items: Recommendations for Interventional Trials Preferred Reporting Items for Systematic Reviews and Meta-Analyses – Protocols	SPIRIT PRISMA-P
Clinical practice guideline	Appraisal of Guidelines, REsearch and Evaluation Reporting Items for practice Guidelines in HealThcare	AGREE RIGHT

boost quality quickly, rather than identifying which particular aspect of any change resulted in the improvement and testing different facets individually. Meanwhile, many academic institutions prefer research; for example, in order to identify the specific agent of change.

- *Audit, service evaluation and quality improvement projects can be published.* Good-quality audits, service evaluations and quality improvement projects can be published in high-quality, peer-reviewed journals. (N.B. Consider the issues of ethical review discussed above, and the relevant guidelines presented in Table 3).
- *Quantitative studies are not superior to qualitative research.* Again, this hierarchical notion is outdated because these approaches are used to answer different questions. In quantitative research, data are usually collected from a large sample, unless it is a pilot study. In the latter case, it is recommended that a sample size of at least 12 participants are included per group (Julious 2005) under normal circumstances, and the researcher is able to control how data are gathered. There are still sources of bias, and researchers consider how representative their sample is of a wider population. By contrast, qualitative research collects data from smaller numbers of participants, but in greater depth. Using selection techniques such as purposive sampling, researchers try to collect data from as broad a range of participants as possible, and do not seek to make the sample representative. In qualitative research, there is greater emphasis (“reflexivity”) on the

impact that the researcher has had on the data collection.

Conclusions

The need for evidence-based healthcare has never been greater. Health professionals have a responsibility to ensure there is a constant output of well-conducted research studies that have the power and potential to inform and modify outdated practices (Hicks 2004). Therefore, they must be aware of, informed about and engaged in research to ensure that their professions reach their potential, and deliver safe, effective and evidence-based care.

Given that engaging in evidence-based practice is a regulatory standard of proficiency, the challenge is for every health professional to contribute at least one high-quality piece of evidence and disseminate their work in a peer-reviewed academic journal during their career, and thereby, help to develop and protect the future of their profession. What will your legacy be?

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Lisa Roberts is an associate professor at the University of Southampton, and a consultant physiotherapist at University Hospital Southampton NHS Foundation Trust. She currently holds an NIHR senior clinical lectureship. Building on her earlier postdoctoral fellowship funded by Arthritis Research UK, Lisa’s research focuses on the communication and decision-making that occur during consultations between physiotherapists and people with back pain. Her other research interests include: developing web-based resources for people with back pain; non-specific treatment effects in complementary therapy; families’ experiences of surgery for children with developmental dysplasia of the hip; and rehabilitation through ballroom and Latin American dancing. Alongside her clinics in the NHS, Lisa leads the clinical effectiveness agenda for eight professions, and has a strategy role within the trust. She led the team to implement a hugely popular self-referral scheme, enabling staff to access musculoskeletal physiotherapy services. Lisa was awarded a fellowship by the Chartered Society of Physiotherapy in 2013 for her work as a leader, clinician, researcher and educator. She is the immediate past president of the Society for Back Pain Research, and was delighted to have this opportunity to help demystify research at the 2017 POGP Annual Conference.