Evidence-based Practice in Speech and Language Therapy

Aufbau des weiterbildenden Masterstudiengangs "Evidenzbasierte Logopädie" im Rahmen des BMBF-Teilprojektes PuG

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Evidence-based Practice in Speech and Language Therapy

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A Information about the Author

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Dr. Hazel Roddam is a Speech and Language Therapist (SLT) with 25 years of experience as a clinician and service manager in NHS and Local Authority organizations, prior to joining the Allied Health Professions research unit at University of Central Lancashire, UK in September 2006. Hazel worked as a Specialist SLT in the field of motor movement disorders and learning disabilities and established a national reputation for her work in Alternative and Augmentative Communication (AAC) technologies.

Hazel has conducted research into evidence-based practice (EBP) across a wide range of healthcare professions since 1999. Most significantly Hazel has an extensive track record of supporting research capacity building in clinical services across UK: working with individual practitioners and teams to raise their awareness of the research environment, to implement research evidence into practice, to undertake practice-based research and service evaluations, and to disseminate innovative good practice. Hazel's research in EBP has also achieved significant impact and recognition world-wide, as reflected in her substantial list of invited international keynote lectures and advisory roles.

Hazel was the Chair of Council for the Royal College of Speech and Language Therapists (RCSLT) from October 2010 until September 2012, and continues to lead national working groups for the profession. Since 2008 Hazel has been the UK representative in the Professional Practice Commission in CPLOL (the European association of Speech and Language Therapy organizations). In May 2015 Hazel launched a new EU-wide research support network for SLTs (***ReSNet***) which already has 18 partner countries.

B Introduction to the workbook

"Principles of Evidence-Based Practice in Speech and Language Therapy"

This workbook will introduce you to the fundamental principles of Evidence-Based Practice (EBP). You will explore this topic to deepen your theoretical knowledge and to identify practical ways in which you can apply this learning.

Workbook content:

The **independent learning** activities of this workbook will comprehensively cover the traditional definitions of EBP and the published evidence of effectiveness for strategies to promote the uptake of research evidence in clinical practice. This

will encompass issues that are generic to all areas of healthcare practice as well as focusing on issues that are discipline-specific for Speech Therapy as a profession. You will be signposted to seminal literature and core reading. We highly recommend that you build a personal **Portfolio** of information and resources that are specifically relevant to EBP in your own field of practice. This can be either electronic or paper-based, whatever will help you best to organize your own notes and to save relevant published papers.

The references provided at the end of each learning unit are for supplementary reading. These will be useful background and most are easily accessible. The structured exercises include a number of specified papers as part of the independent learning units – the majority of these papers are open access. It is recommended that you progress in sequence through these units as they will incrementally build your understanding of related concepts and applied examples. The suggested **tasks** are directly mapped onto the **learning objectives** for each unit and have been purposefully designed to help you to apply your learning. At the end of each unit there are also some recommended actions for you to add to your personal **Portfolio**. The appendices include **template forms** for recording all your learning in a standard way.

We highly recommend that you should aim to put your new learning into practice. Understanding the principles of EBP is only the first step: the experiential learning of starting to embed EBP into your routine clinical practice is essential.

We hope that will start to feel increasingly more confident about what it means to be an evidence-based practitioner – and to spread the word to your colleagues too.

C Instructions before beginning the learning units

1. Please follow the learning units in order, as these have been prepared in sequence to build up your knowledge of concepts, theories and key publications that are directly relevant.

2. Carefully consider how much time you are going to spend to cover the total number of independent learning units in this workbook. You may not need to divide your time equally between each of the learning units, as this will depend on your prior knowledge of some of these aspects, as well as on how quickly you complete the exercises. The independent learning activities have been designed to help you to deepen your understanding and to affirm that you feel confident about the key aspects of each unit.

3. For each learning unit we recommend that you first quickly skim read all the content. This will help to give you a feel for the focus of each unit. It will also help you to decide how best to use your time on each unit, between reading recommended sources and completing the exercises. Then go back to read and consider the content of the unit in more depth: think especially about how you could explain these aspects to someone else in your own words – what are they key issues, and how can you relate these to your own work situation? As a guide, you may for example spend up to one hour on your first read through of the content and exercises, reflecting on how this fits with your prior knowledge and experience of these issues. You'll then re-read the content again and follow up some of the key references for another hour or so. And then you may wish to spend a couple of hours each on updating your personal Portfolio.

4. We recognise that not everyone will follow up all the suggested reading and resources for each unit. But we recommend that all the remaining references and sources will still be valuable resources for you to keep in hand for the future.

5. We recommend that the best way to test your own learning is through discussion with your colleagues: explaining what you have learned about EBP in your own words. We hope that you will enjoy your learning experience – and spread the message about EBP!

1 What does EBP mean?

Topic – This chapter will introduce the established definition of Evidence-Based Practice (EBP) as first introduced as Evidence-Based Medicine by David Sackett in 1997. The three distinctive pillars of EBP will be covered in turn, as well as Sackett's five-step model for undertaking EBP.

After completing this chapter you will be able to:

- **Describe in your own words how EBP was defined by Sackett**
- **Explain the three key components of EBP**
- **Explain the five-step model of EBP**

1.1 A brief history of EBP

Evidence-Based Practice (EBP) is a term that has been very widely used across healthcare services since the 1990s. In many cases this term has been over-used, or used inaccurately; so it is essential that we begin this module by establishing a distinctively clear understanding of what is EBP – and what it is not.

Over the 1970s and 1980s there was a steadily growing awareness of variability in medical practice. The general public was beginning to question why 'expert' clinical wisdom differed so widely, as traditional approaches up to this point had been predominantly based on apprenticeship-style training. Government and healthcare insurance agencies started to increasingly demand factual evidence for medical treatments, so that they could have a more objective basis for procuring the most clinically and economically effective healthcare available. Hence these political and financial drivers pushed forward the agenda for Evidence-Based Medicine (EBM), to assure greater consistency and continuity of best practice and effective healthcare treatments (Greenhalgh, 1997).

The EBM movement was closely followed across nursing and the allied health professions, emphasising that clinical decision-making should focus more explicitly on high quality scientific evidence, rather than on clinical intuition (Enderby & Emerson, 1995; Bury & Mead, 1998; Reilly et al., 2004). Professional associations now almost universally actively promote the EBP agenda, and link this with regulatory requirements for individuals to undertake Continuing Professional Development (CPD) and for services to be accountable for clinical effectiveness.

1.2 The classical definition of EBP

The most widely accepted original definition of EBM is that published by David Sackett and colleagues in 1996:

> *"evidence-based medicine is the conscientious, judicious and explicit use of current best evidence in making the decisions about individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available evidence from systematic research"* (Sackett et al., 1996, p. 2)

This statement identifies three distinctive component elements of EBM, referred to as the 'pillars' which will support best practice.

These are:

- **best quality research evidence,**
- **experienced clinical judgement,**
- **factors relating to the individual patient.**

Subsequently there was a predominant focus on research evidence, over and above the other two pillars. But that had not been intended: all three pillars were meant to be considered in balance and to be given equal weight – most often represented visually as three overlapping circles, or as the three points of a triangle. The perceived importance of scientific research caused deep resistance against EBP, as it was felt that this was overly prescriptive and was seen as a threat to experienced clinical practitioners (Bury & Mead 1998; Closs & Cheater 1999). Over the past decade there has been a shift towards a more balanced appreciation of Sackett's original proposal of three equally important factors, or pillars. There is the recognition that EBP represents a deep process of evaluating a range of evidence sources to inform our routine clinical practice. This naturally encompasses published research that is directly relevant to the case, but must also include the patient's unique clinical profile of presenting difficulties, as well as their preferences and priorities as we engage with them in shared decision-making about their care. And the experienced clinician always draws upon their own expertise and autonomy to determine the best treatment options in each case. In this way, each healthcare practitioner is accountable for keeping themselves updated with the published research in their own area of practice, and be able to justify the treatment approaches that they choose.

In terms of what can be agreed to comprise 'best quality' research evidence, we must remember the context of the medical model where there is a predominance of large scale group studies, including randomised controlled trials (RCTs). Whilst these research designs can assure robust scientific rigour to demonstrate effectiveness of interventions, they cannot address other valid questions about patient experience and the acceptability of treatments. Large group studies also have less direct relevance for patient populations where there is significant complexity and heterogeneity, low incidence cases, and of course highly complex interventions with multiple goals.

1.3 The 5-step model of EBP

To teach practitioners how to utilise the research evidence within an EBP approach, Sackett and colleagues presented a five step model (Sackett et al., 2000; see Figure 1) that has been well documented. In later learning units we will consider the inherent training needs for individuals to successfully and

confidently adopt these five steps, but the first step is to become familiar with this model and to understand what is expected.

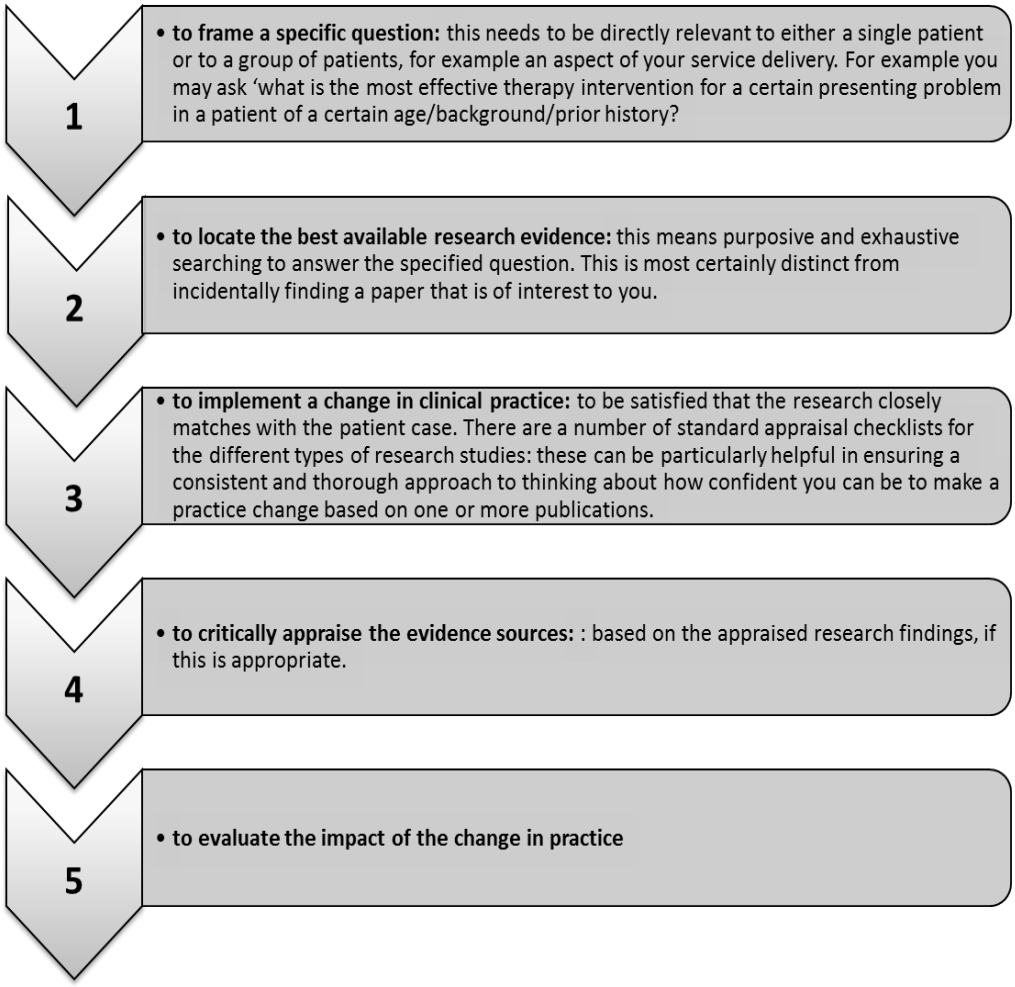

Figure 1: The 5-step model of EBP

It is also important to note that Sackett's model is intended to be an ongoing cycle. As the volume of newly published research continues to add to our existing professional knowledge base, so we need to be vigilant for new evidence-based recommendations that may indicate we need to change our practice again.

There are many challenges to the realistic implementation of this model: not least that this presumes a strong knowledge of research designs and that there is indeed an existing evidence base for all areas of our practice. Debates and discussions about what is expected in the face of limited research for effective

interventions, or a dearth of any evidence at all, will all be addressed in the course of this workbook. At this stage it is most useful to reflect on your own starting point: what is your current knowledge about research designs, processes and terminology that will help you to feel more confident about reading published papers? The activities below for this first learning unit include starting your personal portfolio, as well as building your own glossary of terms – these will build into a substantial personal resource that you will be able to tailor to your own practice, and will also be invaluable for sharing your learning with colleagues.

At the end of the day, when healthcare practitioners are under pressure to see high numbers of patients in their daily practice, it is no surprise to encounter a defensive reaction that there is no time for EBP. In later learning units we will explore in greater depth the barriers to EBP – both actual and perceived. With this is mind, it can be very helpful to consider a statement made in a report to the UK government about EBP, that clarifies quite categorically the mandate for all clinicians to engage with the EBP agenda. EBP is not an optional luxury for when time allows, but needs to become embedded as a fundamental aspect of our professional identity: it is not expected that all healthcare practitioners will be research active, but it is expected that they will be active users of research (Culyer, 1994).

Keywords: Evidence-Based Medicine, Evidence-Based Practice

Exercises

1.1. Start your own personal Portfolio of EBP resources.

Use the template pages and index in the appendices. You may choose to organize some content as an electronic record or as a paper-based file, whatever is the most convenient way for you to save your notes and research papers that are relevant to your own practice.

1.2. Begin to write your own definitions into the Glossary of research terms.

Start by writing in your own words the definitions you are confident about. Throughout the rest of the learning units you will be prompted to write in more definitions. And we also encourage you to start to add in new terms that you come across for the first time.

1.3. What are the 3 key pillars of EBP according to Sackett?

Please write how you would explain the 3 pillars to a friend or relative.

Sackett's 3 "pillars" of EBP	How I would explain this to a friend
best quality research evidence	
experienced clinical judgement	
factors relating to the individual patient	

1.4. What are the 5 steps of EBP according to Sackett?

Please indicate how you rate your own levels of skills and confidence in each of the 5 steps. Also identify where you might think of finding help and/or relevant resources.

Sackett's 5 steps	How do I rate my own skills to do this? 0 = no prior training or skills 1 = some prior training and/or experience 2 = a lot of prior training and/or experience	Where could I look for helpful resources or assistance?
frame a specific question		
locate the best available research evidence		
critically appraise the evidence sources		
implement a change in clinical practice		

evaluate the impact of the change in practice		

1.5. Can you answer the fun EBP Quiz questions?

This is meant to be a fun activity that helps people to see how research terminology can sometimes be very confusing. You may think that this could be a useful and informal way to start to talk with colleagues about EBP and research. As you work through the rest of the learning units you may like to add some new quiz questions of your own. And if you feel unsure about the correct answers to any of these questions then you will be able to check again as you work through the learning units.

Tick all the answers that you think apply, there may be more than one correct item per question – or not!

1. Research can be carried out by …

☐ people with a formal qualification in research, such as a PhD
☐ doctors
☐ people who have done research before
☐ anyone

2. Good clinical research should …

☐ be carefully planned
☐ take ethical issues into consideration
☐ follow on from previous research findings
☐ make clear the implications for clinical practice

3. A research hypothesis is …

☐ a statement the researcher believes to be true
☐ a statement that the researcher wishes to test
☐ one of the sides of a triangle
☐ a long medical paper

4. In a research study, the “controls” are …

☐ the name given to people who edit journal papers
☐ the leaders of a research project
☐ people in a comparison group who do not receive the treatment

that is being tested
☐ people who do receive the treatment that is being investigated

5. In a research study, a “placebo” is ..
☐ an active treatment
☐ an inactive treatment that is identical in appearance to the active treatment
☐ a new American psychotherapy technique
☐ a treatment that has been shown not to work

6. “EBM” means …
☐ a term used in diabetic care
☐ a rare form of dementia
☐ evidence-based medicine
☐ a type of computer with an extremely fast processor

7. An experimental research design means …
☐ using a questionnaire
☐ using an observation technique
☐ an experiment with a particular style, often presented with coloured graphs and charts
☐ a specific type of research method or study

8. If a research result is “statistically significant” it means …
☐ is extremely relevant to the question being investigated
☐ the result may have happened by chance
☐ should always be published
☐ is very unlikely to have happened by chance

9. “Critical appraisal” of research means …
☐ obtaining as much information as you can from a paper
☐ a way of testing two or more experimental studies
☐ a process of assessing and considering a research report
☐ a report about a piece of research that is entirely critical

10. A research “review” is …
☐ a summary of a project
☐ a summary of research on a particular topic
☐ an article about a new play or a film
☐ research that has to be written up more than once wit corrections

1.6. Download and read this open access paper and add it to your Portfolio.

This is a fairly short commentary piece of writing that relates some interesting history about how the EBM movement became established. There is also a ten minute video interview with David Sackett speaking about his life and work that you may be interested to watch.

Smith, Richard, and Drummond, Rennie (2014). Evidence based medicine—an oral history. *BMJ*, 348.

http://www.bmj.com/content/348/bmj.g371.full.pdf+html

*To download this paper follow the weblink given here and click on "Download pdf" on the right side of the screen

Now complete a Reflective learning log (Portfolio section 19) to make a record of what you feel you have learned from this paper. Add this to your Portfolio.

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Smith, Richard, and Drummond, Rennie (2014). Evidence based medicine—an oral history. *BMJ*, 348.

2 Why do we need EBP?

Topic – This learning unit will link the key international drivers for Evidence-Based Practice in western medicine and healthcare, to your own national context and professional standards. This includes political agendas for quality assurance and cost-effectiveness of services, as well as professional and clinical challenges. The risks of professional practice that is not evidence-based will be explored. This unit ends with a consideration of what counts as 'evidence', with guidance on how you could begin to plan a realistic and achievable way to keep yourself updated with the published research in your own field of practice.

After completing this chapter you will be able to:

- **Understand your own national context for EBP**
- **Explain in your own words why EBP is essential for assuring quality standards and consistent approaches in healthcare delivery**
- **Understand the risks of healthcare decisions that are not evidence-based**
- **Plan an effective reading routine for keeping yourself updated in your own field of practice**

2.1 The international agenda for EBP

As you read in learning unit 1, the international drivers for EBP have come from 'Quality' agendas, where the political focus is on ensuring the highest quality healthcare that is best value-for-money. In these times of financial austerity more than ever before, there is the demand for greater standardisation of healthcare, to increase the consistency of services that are delivered across a nation and/or a healthcare service provider organisation. At the same time there are expectations that there will be provision for patient choice, and that clinicians will still be able to use their expertise to adapt case management to address the needs of individual patients.

The 'evidence' in this case is the proof that demonstrates a particular healthcare intervention or treatment approach has worked as it was expected to. In our context, it is expected that this proof will be presented through a systematic process, where there is precise detail given about the patients' condition, how the treatment was delivered, and how the effects were measured. Where successful reported outcomes have been reported in medical and healthcare research studies, it was at first expected that there would be an automatic uptake of the new treatment approaches. However, the gap between published research for best practice and the implementation of those research findings in real-world services is shockingly high – and is universal across all healthcare sectors: medicine, nursing and allied health. The anticipated spontaneous translation of healthcare research into practice has been shown not to occur without vigorous efforts: this was reported by Rosenberg and Donald, (1995) and multiple other authors since then. In learning unit 3 we will start to look in more detail at the key factors that influence this research-practice gap.

And this is where the EBM movement that you read about in learning unit 1 has focussed on promoting more widespread awareness and uptake of the best published research evidence into medical and clinical practice. As one key response to address this research-practice gap, the Cochrane Collaboration (http://www.cochrane.org/) was established to publish reviews of the highest quality research evidence for specified healthcare interventions. These systematic reviews constitute a research design in their own right, and provide a highly expert appraisal of all the individual primary research studies that had been published up to that date, within the explicit inclusion and exclusion criteria that are stated in their methods section. When you reach learning units 4 and 7, we will consider more deeply how valuable systematic reviews can be in helping us to keep updated with the research evidence base. There are however a limited number of systematic reviews that are explicitly focused on speech and

language interventions, as well as constraints on the nature of the questions that can by answered by a systematic review.

The Cochrane Collaboration have additionally published reviews of the effectiveness of a wide range of strategies for successfully achieving the translation of research into practice and achieving evidence-based changes in healthcare. These strategies have included different ways of disseminating research findings, education and training sessions for healthcare staff, and clinical audits to monitor adherence to recommendations based on evidence-based clinical guidelines. We recommend that you reflect on these evidence-based strategies – how could you make use of these approaches to influence colleagues to change their practice by adopting new research findings?

2.2 Local agendas for EBP

Moving from the international level to the political agendas in your own national context, it is important for you to be more familiar with the strategic policies of your own government and state healthcare regulatory systems. Most standards for healthcare professionals now stipulate that all individuals must be able to demonstrate that they

- **practice in an evidence-based way**
- **have the skills to evaluate research and other evidence to inform their practice.**

The exercises for this learning unit prompt you to investigate this for yourself. It is recommended that you begin with your own professional association and locate the guidance regarding EBP, which is likely to be one element of your Continuing Professional Development requirements. Your own employer or organisation may additionally have local protocols that specify that you must keep yourself and your practice updated. As this becomes increasingly standardised in workplace settings, so it will also be mirrored in professional education. Can you reflect on whether/how this was taught as an element of your own pre-qualification training?

2.3 Personal motivation for EBP

But apart from the strategic political and financial drivers to ensure that all clinical services increasingly update their practice in line with new research, there are also personal triggers that we can all recognise, that drive us to question our own practice at certain times. We have all come into our

professional role through a fundamental motivation to help our patients and their families to the best of our abilities. We all know the feeling of waking up and wondering whether we'd made the best decisions for our patient? Could there have been another treatment that would have helped them more? So we need to question our own routine practice, as well as that of our colleagues: why do we deliver our services this way? And why did we manage that patient's care in a certain way? Exercise *3.4.* will direct you to look at the American Speech-Language-Hearing Association's statements about EBP: *"Ultimately, the goal of EBP is providing optimal clinical service to that client/patient on an individual basis"* (http://www.asha.org/Research/EBP/ Introduction-to-Evidence-Based-Practice/; accessed 2016/02/26). In units 3 and 7 we will explore and comment on the information and resources on other pages of their website. These resources are all open access and not restricted only to ASHA members.

So even when we are experienced practitioners with a high level of confidence and intuition in our routine work, there are still always going to be two key triggers that should prompt us to seek for information and advice. These should be quite familiar experiences for us all -when we are faced with an unfamiliar case or situation, or when a patient is not responding to our interventions as we had expected them to do (Roddam and Skeat, 2010). Evidence-Based Practice means that we are accountable for the case management decisions that we make: what was our reasoning and what factors did we take into account? And are we certain that we are aware of the latest research in that specific clinical field that may have been relevant to our patient?

These are the prompts for us to seek out the most current research evidence. But let's remember that EBP is about our reasoning processes, not about the published scientific evidence in isolation. We can begin to see that EBP is more about ways of thinking, than a body of facts (McCurtin and Roddam, 2012). We are not required to necessarily implement the latest published treatment approaches; we would only do that if we can identify that the published studies are a sufficiently close match with our own patient's personal profile of clinical presentation. It is then our role to discuss treatment options with our patients and their families as far as this is appropriate, and support them to make their own informed choices. If we refer to, or rely on weak or outdated evidence sources then this is "bad science": we risk perpetuating a poor scientific model for our profession. But worst of all, we risk denying our patients' access to the optimal treatment or intervention in the most timely manner. Asking our patients and their families to engage with us and invest their time, energy (and often their money) in ineffective treatment regimes is ethically and morally unacceptable. It is also possible that some of you may already have had an

experience where the patient or their family come to you with some information they have found on the internet; asking you to explain it for them, or requesting that you treat them in a certain way. This situation also demands that we are equipped with the skills to be able to show them how we have already searched in a more scientific way to inform our case management plans for their treatment.

2.4 What is 'evidence'?

In learning unit 4 we will look more closely at different types of research publications and discuss ways to build your skills and confidence in reading published research. Some authors have been quite emphatic that we should not have a narrow definition of "research" that is exclusive to 'hard science' studies. They have argued that we need to value more highly other sources of clinical information (Rycroft-Malone et al., 2004). Schlosser and Sigafoos (2008) stated their view that the 'evidence' should also include the patient's own clinical history, most especially when we work with populations where each individual is entirely unique in their profile of difficulties, in the way they cope with that, and in their personal priorities and preferences. So, in unit 4 we'll also consider 'what counts as research evidence' and where we may need to turn next if we find that the current evidence base does not answer or clinical questions.

2.5 Planning your reading

But firstly, how can we all find a realistic and achievable way to keep ourselves updated with the research evidence that is going to be most directly useful to us in our work? There are a few relatively simple steps that you can take to reduce the likelihood that you will become quickly overwhelmed by the volume of papers and not be able to sustain your momentum in being and evidence-based practitioner. Know what you want to look for and don't be tempted to read other publications just because they are easier to find but aren't directly relevant to you. If you can manage to stay selective and focused in your reading, and not be side-tracked by 'interesting' papers that do not have direct application to your clinical practice, then that will help enormously. Plan what you intend to look for – have a clear question in mind. In learning unit 4 we will look at structuring your search using a "PICO" system, which if it is new to you will be very helpful. Do have a regular planned routine for when you are going to keep yourself updated – the exercises for this unit will prompt you to decide what routine will best suit your own working pattern. Like any New Year's resolution, it is much wiser to make a plan that will be realistic and achievable for you – and if you do find that you start to increase your reading time after all, then that is a bonus.

- **Establish a regular reading routine – how often will you spend, and for how long?**
- **Be selective in your reading - including using pre-appraised sources if there are any**
- **Use a structured checklist – it will help you to focus your thinking**
- **Discuss with colleagues – read the same papers and compare your comments**
- **Save & organise your notes – in whatever way works best for you, but do be systematic.**

And, as we will revisit in learning unit 4, you should use your time in the smartest and most efficient way you can. When you have a specific clinical question in mind, look first for papers that report reviews, before individual primary research studies. And learn how to scan read quickly – your time is precious!

Keywords: Quality standards, clinical challenges, systematic reviews

Exercises

2.1. Understand your own national context for Evidence-Based Practice

Locate the relevant policies and standards (if any) that specify the requirement for EBP in your own professional association and employing organisation. Complete the table below to indicate any systems or processes that are in place to assist you to achieve these standards.

If you are unable to locate any directly relevant policies or standards, please list all the documents and/or sites that you searched, where you would have expected this to be specified.

My professional Association	***e.g. dbl, dbs***
Policy or Standard for EBP	*Insert here the specific requirement for EBP*
Systems/processes in place to support EBP	***eg clinical guidelines or best practice guidance***
My employer	
Policy or Standard for EBP	*Insert here the specific requirement for EBP*

Systems/processes in place to support EBP	***eg training courses in searching electronic databases, critical appraisal skills, clinical librarian staff***

2.2. Explain in your own words why Evidence-Based Practice is essential for assuring quality standards and consistent approaches in healthcare delivery

Please write in your own words how you would explain to a friend what is expected from you to demonstrate that your professional practice is "evidence-based". How can this assure that the way you work is in line with best practice standards for your profession?

(guideline maximum 150-200 words)

2.3. Plan an effective reading routine for keeping yourself updated in your own field of practice

i) Make a list of all the key journals that you think are most directly relevant to your own field of practice (you can find lists of journals on the internet; there may also be links from your own professional association webpages). Complete the table below and then print a copy to add to your Portfolio.

Journal name	Web link for journal homepage	How many issues per year?	Target audience eg multi-professional or uni-disciplinary? Aimed at clinicians or at other researchers?	Open access to full papers or abstracts only?	Your own comments about why this journal may be useful

ii) Make a list of the leading researchers you are aware of those work is most directly relevant to your own field of practice (for example, consider any papers you have recently read or heard about). Complete the table below and then print a copy to add to your Portfolio.

Researcher/ author names	**Where do they work? *(see their contact details on one of their published papers)***	**What is the key focus of their research?**	**Are there any recommendations from their findings that are directly relevant for your own practice?**	**What are the key differences between their published studies and your own work context?**

iii) Book dates and times in your own work diary for the next 12 months ahead that you feel would be a realistic and achievable reading routine to keep you updated with the published research that is directly relevant to your own field of practice.

For example, you may plan to spend 1 hour every month checking online to see what new papers have been published in your priority journals, or by the key researchers you have identified. Or you may find it fits better with your working hours to book a half day every 3 months to search for papers, read and make notes in your Portfolio.

References

McCurtin, A., and Roddam, H. (2012). EBP: SLTs under siege or opportunity for growth? The use and nature of research evidence in the profession. *International Journal of Language and Communication Disorders, 47* (1), 11-26.

Rosenberg, W., and Donald, A. (1995). Evidence-based medicine: an approach to clinical problem solving. *British Medical Journal*, *310*, 1122-1126.

Rycroft-Malone, J., Seers, K., Titchen, A., Harvey, G., Kitson, A., and McCormack, B. (2004). What counts as evidence in evidence-based practice? *Journal of Advanced Nursing, 47* (1), 81-90.

Schlosser, R. W., and Sigafoos, J. (2008). Identifying 'evidence-based practice' versus 'empirically supported treatment' (Editorial). *Evidence-Based Communication Assessment and Intervention*, *2* (2), 61-62.

Web references

1. http://www.cochrane.org/
2. http://www.asha.org/Research/EBP/ Introduction-to-Evidence-Based-Practice/

3 What skills are required for EBP?

Topic – This learning unit will consider the pre-requisite skills and competences for individual practitioners to undertake evidence-based approaches in their practice. This includes skills in accessing, understanding and implementing research evidence into their clinical work. It will also justify the need for a sound understanding of research designs, so that the participant realises what types of studies are needed to answer a range of clinical research questions.

After completing this chapter you will be able to:

- **Understand the importance of taking a systematic approach to searching electronic databases of published research literature**
- **Identify sources of expertise to assist you to learn and practice your skills in accessing published research**
- **Understand which research designs are appropriate to answer a range of distinctive research questions**
- **Know where to find critical appraisal checklists for specified research designs**

3.1 The range of EBP skills and training needs

When we started to consider Sackett's 5 step model of EBP (Sackett et al., 2000), it became apparent that this is underpinned by a number of implicit skills. Please don't allow yourself to feel daunted by this, there are many sources of help available, and through undertaking these learning units you will steadily increase in confidence in all these skills. We highly recommend that when you have completed the whole workbook you should look back at the notes you made at the start – that will help you to see how much you have learned.

Following the sequence of Sackett's steps, we will now begin to consider in turn the skills needed for

- **Searching for and accessing published research evidence**
- **Understanding research designs and processes**
- **Reading and critically evaluating published papers**
- **Implementing and evaluating clinical change.**

These comprise the key skills needed for individual practitioners to undertake an EBP approach in their work. In this learning unit we will mostly focus on the first two of these steps, as our later units will cover more comprehensively how to critically read a paper (unit 4) as well as the influences on being able to make changes in our clinical practice (units 5 & 6). Some of you may feel that you already have quite recent training and/or experience in the skills for searching electronic databases: we trust that you will find this section a helpful recap to refresh your knowledge. We also recommend that you still add the links we will signpost in this unit into your own personal Portfolio as it will be valuable to have these all to hand in one place. As website pages are frequently updated, it is also a useful exercise to check that any bookmarked links you may have saved a while ago are still active. In the next learning unit we will ask you to undertake critical appraisal of papers that you have located in the course of the search exercises in this unit. Sometimes people feel that they are quite happy to talk about the principles of critical appraisal and why we need to do this, but it is essential to actually sit down to complete an appraisal checklist to discuss with colleagues to ensure you have fully appreciated all the strengths and weaknesses of a particular study.

So, we need to know ***how to search*** for published sources, ***where to search,*** and ***what to search for.*** Whilst there are multiple electronic databases and search engines available to us, it is essential that we know how to use these in a systematic way. As we've already stated, our time is at a premium so we don't

want to waste this on ineffective searching, nor to end up feeling totally overwhelmed by the volume of papers that may seem to offer confusing or ambiguous findings.

3.2 How to search

The first step in Sackett's EBP model directs us to think about having a specific question in mind: this is quite distinct from incidentally finding an interesting paper. And he advocates that we adopt a systematic search approach that is not haphazard or random. If we have asked a question – say for example 'what is the most effective treatment approach for this new patient whose clinical presentation seems quite complex or unusual'? We may happen to have find a single paper that seems to be relevant. But if we take that as our only source without looking any further, how can we be certain that another study has not reported quite contradictory findings? Or possibly there is an important factor that may influence the potential success of the intervention, which could be either an 'intrinsic' variable (their age, or concomitant difficulties) or an 'extrinsic' variable (the timing of the treatment, setting or level of additional support). So it is essential that we have searched exhaustively and comprehensively for reported studies, using the precise keywords that accurately match all aspects of our patient's condition as well as the nature and delivery of treatment options.

A very useful approach to building your 'keyword search' is the PICO approach. One exercise in this unit is to build your own PICO search by focusing on a case that is directly relevant in your own current practice setting.

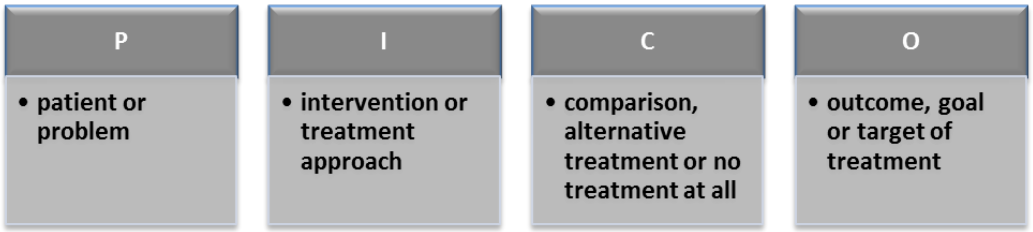

Figure 2: PICO approach

For example, if you work with pre-school children (under the age of 5) who have Autism Spectrum Disorders, you may want to know whether using manual signing or picture symbols can help to promote verbal speech development. It is important to be very specific in building your enquiry, otherwise your search will generate very high numbers of hits that are not directly relevant – it is likely that you've already had that experience as most of us have found when we first begin searching.

A properly structured approach like this one helps to focus our thinking and direct our searching. However please be aware that this is most relevant when we are looking for evidence that has been generated through 'experimental' studies, where treatment effects are measured and reported in a quantitative way (https://my.ucs.ac.uk/Library/Subject-Guides/Nursing,-Midwifery--ODP/PICO-Searching2.pdf; accessed 2016/02/26).

The best way to learn the technical skills of searching electronic databases is to sit alongside an experienced librarian who can help you to undertake some searches based on your own specified topics. They will introduce you to building structured searches and help you to understand MESH (Medical Subject Headings) and Boolean operators that will maximise the efficiency and success of your searches. It is not within the remit of this workbook to cover these search techniques in depth, so if you have identified this as a personal development need then we recommend that you make this a priority action to access an introductory training session, for example with a local hospital library service or your local university department.

3.3 Where to search

Just over one decade ago Sheena Reilly published an important overview of the research evidence base at that time for our international professional community (Reilly et al., 2004). This was a seminal piece of work as it comprised a timely revelation of the 'big picture' of the state of our collective knowledge base for effective therapy approaches as well as evidence-based assessment and diagnostic tools. It confirmed that there were pockets of high quality research evidence, but very many gaps when viewed across all the clinical populations with whom we work. This challenged us as a world-wide profession that we need to have a more systematic and co-ordinated approach to prioritising our future research efforts and investments, rather than continuing to pour research funding into the same popular avenues.

So that book was particularly valuable in helping us to think about "mapping" out the research evidence base; we need to do this to prevent us from being overwhelmed by the vast volume of publications in any clinical topic area. Textbooks can provide an ideal introductory text to a specified clinical area, but we need to look to peer-reviewed research journals for the most current reports of high quality evidence. You need to know where to find any collected 'maps' of the current research evidence that may exist, and then we need to have an appreciation that the distinctive research designs can answer quite different questions. The exercises in this unit signpost you to a number of free access

databases where you can find abstracts of all the relevant work that has been published matching your search terms. You need to be aware that access to the full papers is not always free, so we encourage you to investigate now how you will be able to address this in the future. Undertaking the exercises in this unit will help to build your familiarity with databases most relevant to the healthcare aspects of our profession, but you should also investigate where you can access educational research publications if you are working in school settings or with colleagues from psychological services. Starting conversations with colleagues from other disciplinary backgrounds or professions can be very helpful to begin to gain a common ground in awareness of the multiple research evidence bases that underpin our work with different patient populations and client groups.

3.4 What to search for

When we think of experimental (intervention) studies, we often think first about large group studies, or Randomised Controlled Trials (RCTs) that are hailed as the 'gold standard' as the robust design minimises the possibility that the measured outcomes could have happened by chance. For many of the patient populations or client groups we work with, these large group studies are less relevant (or even feasible) due to the heterogeneity of their presenting profiles and highly variable patterns of communication difficulties. But there are of course other types of research studies that answer other questions that are highly relevant too when we are considering treatment options. We need to know about the normal development of speech, language and communication skills; population incidence and prevalence of clinical conditions; patterns of spontaneous recovery from disease or injury; predictors of risk and of recovery. These are just some of the key factors that we need to know before we can assert that progress in development or rehabilitation can be attributed to our therapy interventions. And these research questions are addressed by a range of specific designs and methods. The exercises for this learning unit may prove to be a simple refresher for those of you who have relatively recently studied research methods. If you feel that this is particularly new territory, please don't feel too daunted. Using the exercises as a guide should help you to grasp the clinical relevance of the research design issues.

3.5 Research that explores the patients' views

A particular aspect of research design that we ask you to consider is the patient's experience, not least as this is highly relevant to Sackett's three pillars of EBP that we looked at in learning unit 1. Working as closely as we do with families, we already have our own insights into the experience of living with a

communication or swallowing difficulty. The impact is not only on the individual themselves but also on their whole family. So it is crucial for us that our research evidence base encompasses well-designed and well-reported studies of patients' experiences of disabilities as well as their experiences of care and services. Let's say that a new treatment approach has been shown to be effective in achieving clinical gains; we may wonder about whether the delivery of the treatment has been reported as being acceptable to patients and their families? What do they think about the regime for home practice, any side effects, or whether the reported statistical improvements in their speech or language scores have really made a worthwhile difference to them? For example, if you are working with someone who has post-stroke dysarthria and ask them to undertake a strict daily practice routine of articulatory exercises, you'll be aware that they may find it difficult to maintain full adherence or compliance with your advice on a daily basis. Or if you are working with someone who has an expressive word-finding difficulty, has the one standard deviation improvement in their vocabulary score really helped them to feel more successful and independent in their communication? So, we need to be sure to look for different types of research studies to help us consider all aspects of new intervention approaches: what we may think of in simple terms as both quantitative and qualitative studies.

There is a growing body of literature demonstrating the use of qualitative research methods in speech and language therapy. Qualitative approaches allow researchers to understand complex phenomenon, and to look 'in-depth' at a participant's views and experiences. Grounded theory is just one research methodology that utilises qualitative data and enables theory-building in order to understand and model complex social actions and interactions. There has been very little description of this methodology in speech and language therapy, so one of the exercises for this learning unit is to read a paper that has been selected as a particularly relevant and readable introduction, then to reflect on how this may relate to your own area of clinical practice.

Keywords: Database searching, research designs, primary research, secondary research

Exercises

3.1. Review your personal skills and update your Portfolio with useful contacts and resources.

3.2. Review the list of research skills and training needs that you generated in learning unit 1

You may wish to prioritise some actions to further build your skills and confidence in some of these areas. Consider any other 'barriers' you can identify against you being able to be more evidence-based in your practice. Add this list to your Portfolio section 9.

3.3. Identify sources of help for searching electronic databases and accessing full published papers

In your Portfolio section 21, list all contacts you have found where you may be able to seek assistance in searching electronic databases and for accessing full papers, for example

- **a hospital librarian service,**
- **your professional association,**
- **your local university or training school speech therapy department,**
- **a research-active colleague**

3.4. Add the following links for databases to your Portfolio section 20

Make sure that you are familiar with the American Speech-Language-Hearing Association list of Research databases (http://www.asha.org/research/researcher-tools/databases; accessed 2016/02/26) and add this link to your Portfolio.

Make sure that you are familiar with the American Speech-Language-Hearing Association list of Systematic Reviews (http://www.asha.org/Research/EBP/EBSRs/;accessed 2016/02/26) and add this link to your Portfolio.

Make sure that you are familiar with the American Speech-Language-Hearing Association list of Evidence Maps

(http://www.asha.org/Evidence-Maps/; accessed 2016/02/26) and add this link to your Portfolio.

Make sure you are familiar with using the Speech BITE database. This is a Speech Pathology database for best Interventions and Treatment Efficacy (http://speechbite.com/; accessed 2016/02/26).

3.5. Understand how you can best use the Speech BITE resource

Read the article:
Munro et al. (2013) "A bird's eye view of speechBITE™. What do we see?" JCPSLP 15 (3). 125-130.

http://speechbite.com/wp-content/uploads/2013/09/Munro-et-al-2013-Copyright-Speech-Pathology-Australia.-Reprinted-with-permission..pdf (accessed 2016/02/26)

Complete a reflective learning log (Portfolio section 19) and add this to your Portfolio to generate a record of what you have understood and how you can use this in the future.

3.6. Understand which research designs are appropriate to answer a range of distinctive research questions

Follow this link to the CASP webpage where you will find a brief but helpful description of some of the most common research designs used in healthcare studies. This is not exhaustive but will be a valuable recap: http://www.casp-uk.net/#!checklists /cb36 (accessed 2016/02/ 26)

Download a copy of each of the CASP critical appraisal checklists on this webpage (see Figure 2) and save these in your Portfolio section 11. We will start to use these in the next learning unit.

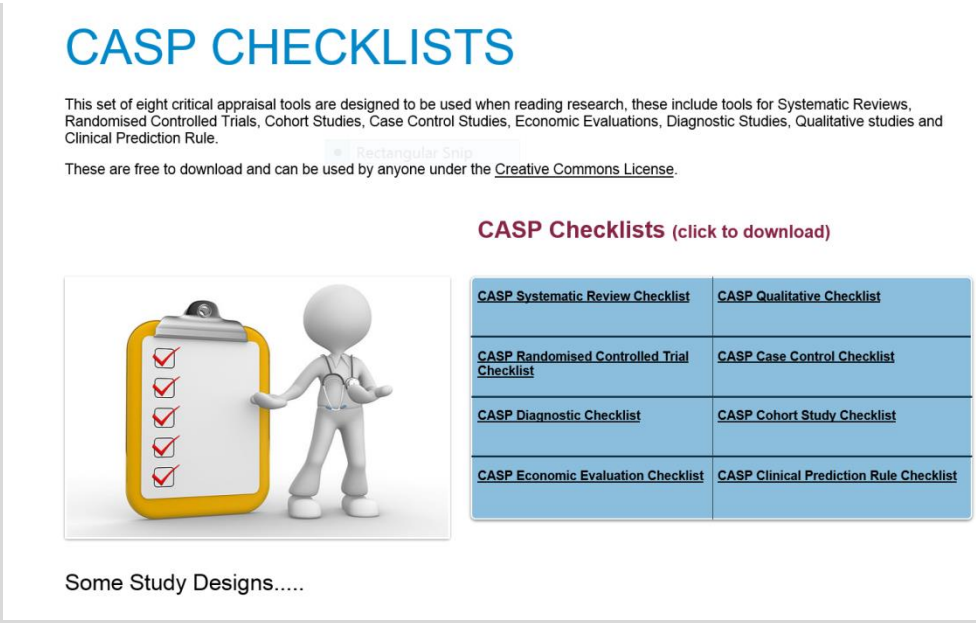

Figure 3: Critical Appraisal Skills Programme (CASP) (http://www.casp-uk.net/#!checklists/cb36; accessed 2016/02/26).

3.7. Locate two research papers in your own area of clinical interest

We want you to be able to confidently understand the difference between **secondary research** (for example a Systematic Review) and **primary research** (for example an intervention study for a specified treatment approach). In your own area of clinical practice please locate one review paper and one primary research study. For each paper please download a copy of the pdf of the **full paper** (not only the abstract) and add this to your Portfolio sections 17 and 18 respectively. You will use these 2 papers for the critical appraisal exercise in the next learning unit.

Complete the table below to show which papers you have chosen:

	Paper 1 – primary research	**Paper 2 – secondary research**

Paper title		
Authors		
Year		
Journal citation (reference)		
Research design/study type		

3.8. Understand the value of exploratory (qualitative) research approaches for our clinical practice

Download a copy of this paper and save in your Portfolio together with a completed reflective learning log (portfolio section 19 after you have answered the questions below).

Skeat, J. and Perry, A. (2008). Grounded Theory as a method for research in speech and language therapy. *International Journal of Language and Communication Disorders* 43 (2): 95-109

This paper provides an overview of two major modes of grounded theory, including the key elements of theoretical sampling, iterative data collection and analysis, constant comparison, use of memos and the theory of product itself. The

potential usefulness of this methodology for research in speech and language therapy is explored in the paper and we would like you to consider the relevance of this in your own area of work.

1. There are two main grounded theory approaches; does this cause confusion?
2. What types of SLT research questions could utilise grounded theory methodology?
3. Do you have sufficient understanding of the methodology to utilise it?
4. Is grounded theory a useful methodology for SLT?
5. Could this research approach be used to answer any of the clinical questions you have listed in exercise 3 of this learning unit?

3.9. Review the Glossary in your Portfolio

At the end of this learning unit you may feel ready to add some further definitions to the Glossary you started in your Portfolio in learning unit 1. You may also want to review some of the definitions you have already written to see whether you now feel you can refine them and express them any more clearly? It is also time to add any new research terms you have come across in your reading that are not already listed.

References

Munro, N., Power, E., Smith, K., Brunner, M., Togher, L., Murray, E., McCabe, P. (2013). A bird's eye view of speechBITE: What do we see? *Journal of Clinical Practice in Speech-Language Pathology*, *15* (3), 125-130, Copyright 2013 Speech Pathology Australia. Reprinted with permission.

Reilly, S., Douglas, J., and Oates, J. (2004). *Evidence based Practice in Speech Pathology.* London: Whurr.

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Skeat, J. and Perry, A. (2008). Grounded Theory as a method for research in speech and language therapy. *International Journal of Language and Communication Disorders* 43 (2): 95-109

Web references

1. http://www.asha.org/research/researcher-tools/databases/
2. http://www.asha.org/Research/EBP/EBSRs/
3. http://www.asha.org/Evidence-Maps/
4. http://speechbite.com/
5. http://www.casp-uk.net/#!checklists/cb36

4 What is the best way to read and understand published research?

Topic – This learning unit will consider the reasons why we need to undertake critical appraisal of published research papers. It will guide you through the most effective way to read a paper and how to use checklist questions to evaluate the quality of the way the research has been carried out and reported. Being able to discuss a research paper with colleagues has many advantages, especially before you make a decision to change your clinical practice based on what may be relatively limited research evidence.

After completing this learning unit you will be able to:

- **Understand why we need to undertake critical appraisal of published research**
- **Be familiar with using critical appraisal checklists to help you evaluate published papers**
- **Know how to read a paper in the most effective way**
- **Reflect on the potential benefits of discussing critical appraisal with colleagues in "journal clubs"**

4.1 The purpose of critical appraisal

We have already made the point very clearly in earlier learning units that you need to be very wise and economical in the use of your time. Reading research evidence is essential to keep ourselves updated, but if we are to do this in a meaningful and productive way it needs to be realistic, achievable and most of all –purposeful. What are we looking for when we read research papers? And how will we know when we have found it? We may even question why we need to evaluate or 'appraise' research papers that have already undergone a review process before they are published in the journals? As you work through this learning unit you will understand more clearly the answers to these challenges – and will be able to more confidently explain this to others as well.

In the first of the exercises for this unit (see exercise *4.1, 4.2.* and *4.6.*), we direct you to read a particularly highly cited and well-written commentary piece that covers the main rationale for critical appraisal.

We must not be so naïve to assume that all journal papers are of equal quality, or that there is no such thing as 'publication bias'. A systematic approach to questioning the quality of how a research study has been carried out and how clearly it has been reported is essential. For example, if the paper reports a therapy intervention, we need to know very precisely how the treatment was delivered, and to which specified sub-group of patients: otherwise how could we expect to generate the same treatment effects? Do the demographics of the study participants match closely with our own local patients? And what resources or specialist skills might we need to be able to deliver this same treatment approach ourselves?

When you read the results and conclusions sections of reported studies, you need to reflect on your own insights as an experienced practitioner: how have the researchers measured the study outcomes and how meaningful do you think these gains in terms of clinical significance for the patients, rather than merely statistical significance?

Critical appraisal is not about re-calculating the results tables in published research: that most certainly should not be necessary. But as stated here, you should reflect on the results that have been reported by the paper authors. Are these findings what you might have expected? Are there other results that seem to be missing – and do you wonder whether those outcomes weren't measured – or maybe are simply not reported here? In your judgement, are the claims made

by the authors fully supported by the findings they have presented? This is crucial if you are going to consider changing the way you practice based on this paper. (Just at this point, consider who you could turn to if you needed assistance to understand the statistics presented in a research paper that you are really interested in? Add their name now to the list of useful contacts in your Portfolio section 21).

At the end of the day, if a study has been reported with sufficient clarity and accuracy, it should be possible for others to replicate the study in exactly the same way. It is relevant to search to see whether you can find any subsequent papers that have been reported which cite the paper you are looking at – has anyone tried to replicate this therapy approach yet? Or have you found any contradictory studies? These questions begin to show the value of secondary research – reviews that pool together the findings of individual primary research in a systematic way. Systematic Reviews can demonstrate the collective evidence of effectiveness, provided that the same outcome measures have been reported.

4.2 Start by reading review papers

So, considering the limitations on your own time, this is why review papers are your recommended starting point, rather than beginning from the outset looking for individual primary studies. Systematic Reviews of the highest quality are undertaken by groups of experts and will have a sharply focused question. Reviews published by the Cochrane Collaboration (http://www.cochranelibrary.com/cochrane-database-of-systematic-reviews; accessed 2016/02/26) that you first looked in in learning unit 5 will be of the highest quality, and there is now a growing number of these reviews that are specific to communication and swallowing questions. Nonetheless, it is still necessary to read these reviews with a number of questions in your mind: who undertook the review? and what specific patient groups were included/excluded in the review? Being more aware of how these research processes helps you to be more thoughtful about the direct relevance of the recommendations for your own practice.

Using the links you have already added to your Portfolio, search for any Systematic Reviews or Evidence-based Clinical Guidelines that match closely to your own area of work. As an example, here is a link to the review of speech and language therapy to improve the communication skills of children with cerebral palsy (http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003466.pub2/abstract ; accessed 2016/02/26).

Download any Cochrane review, to familiarise yourself with how they are presented (http://onlinelibrary.wiley.com; accessed 2016/02/26).

There is an easy to read summary of the review; followed by what appears to be a very extended report. As you look more closely you begin to see that a very large proportion of the report is comprised of tables of evidence ie all of the individual studies that have been reviewed by the panel. What an excellent source for you to have this digest of all previously published studies on a specified topic: then you can use that as a starting point to search for papers published after the date of the review.

4.3 Using appraisal checklists

This section of the learning unit is about being as smart as you can be in your approach to reading any published research literature. In the last learning unit we directed you to locate and download the full set of CASP checklists. These are sets of questions that support you in questioning the paper as you read it: once you have identified which checklist to use that matches most closely with the study design. There are other published sets of appraisal questions too, and you should be aware that these sets of checklists are not exhaustive to match with every type of research design. You need to read the abstract, and sometimes also the Methods section of the paper first to determine which set of checklist questions will be most useful. As you become more confident in reading you may feel that you no longer need to rely on those question prompts, but you should still aim to be able to summarise a paper in your own words based around the same systematic sequence of

- **What is the research question or purpose?**
- **Exactly what was the research design and methods – how the study was conducted?**
- **What were the results – and how were they measured?**
- **What are the direct implications for clinical practice?**
- **What are the limitations or weaknesses of the study?**

This last question doesn't mean that we should be overly critical of the study: research is rarely perfect. But say you identify that the patient population had no other concomitant health problems at all; you may consider that to be a weakness in the study design that they had applied such strict exclusion criteria for patient selection, and you would need to be more cautious about expecting to achieve similar results with your own client group.

The best advice of all is of course to resist starting by reading the Introduction section of the paper. This will tell you about all the prior work that the authors have found on this topic. Whilst this may well be an excellent resume to enhance your general background knowledge, it doesn't tell you straight away what this current study has done: that is the most important factor for you to decide whether or not it's worth you investing your time to read on, especially if you ae going to decide that the paper isn't directly relevant to your question after all!

We suggest you develop your own "coffee break appraisal style". Can you skim read the methods sections of several papers while you drink your cup of coffee? And then you know precisely how to best use your time for serious reading and appraisal when you get back to work!

4.4 Organising your sources

It is highly likely that you will already have a number of research papers that you have read recently and kept hold of because these are directly related to your own area of practice. We recommend that from now onwards you should organise and store these references (or full copies of the paper downloads) in a more systematic way. There is absolutely nothing worse than wasting precious time searching for a paper that you know you've seen but can't remember where you stored it! You may wish to use sections 18 and 19 of your Portfolio for at least keeping an index of papers that are relevant to your own area of practice.

4.5 What is a 'journal club'?

Now we will consider what is meant by "Journal clubs". Most simply put, this is the opportunity to discuss papers with other colleagues. Much has been published about how this can boost skills – and most importantly – confidence in research appraisal. And we also know a lot about what seems to work best, for example, discussions on a high priority topic, so everyone wants to understand what the paper/s may offer for their own practice setting. This is very different to the perception that the journal club is simply a training exercise, where the topic and choice of paper is only nominal. Secondly, we also know that it is also more productive to engage in discussions with colleagues who work in the same field as you. That may be fellow-professionals, but could equally be a multi-professional team who work together. The book chapter by Boyes and Sutcliffe (2010) referenced below gives a very practical insight into how it can be possible to enthuse other colleagues to join in with this type of initiative, as long as you can clearly emphasise the direct links with their routine clinical practice and service planning.

And journal clubs don't only have to be face-to-face meetings on a set date and time. Interestingly there have been a number of recent on-line platforms for journal clubs and "tweet chats" that have generated massive interest. Sometimes the comments and responses happen so quickly that it would be impossible to follow all the conversation threads at the same time. But afterwards the host, or session curator will post a summary of the discussions onto a website. That also means that the interesting professional dialogue is available and accessible for everyone to read and reflect on, even if you are not on Twitter (yet!).

Follow this link for more information about how to get starting by simply 'listening in' to a tweet chat, and then when you feel ready, you could start to add in some comments of your own. Tweet chats are focused on a pre-specified topic; an excellent idea to hear the views and comments from other professionals (see for an example: http://resnetslt.blogspot.co.uk/p/tweetchat.html; accessed 2016/02/26).

And follow this link to very new twitter journal club for speech and language therapy: http://resnetslt.blogspot.co.uk/ (accessed 2016/02/26). For these online journal clubs the paper and a set of prompt questions have been publicised in advance. The papers will always be open access, or we have negotiated a temporary open access with the publishers for a few weeks before and after the online event. And if you are not on Twitter (yet!) then don't worry, there will be a summary of the previous – and upcoming – papers for discussion.

Keywords: Critical appraisal, Journal clubs, Cochrane Collaboration

Exercises

4.1. Understanding why we need critical appraisal of research papers

4.1.1. Access this well written commentary, read it and complete a reflective learning log to include in your Portfolio:

"How to read a paper : getting your bearings (deciding what the paper is about)"

(http://www.bmj.com/content/315/7102/243.full?ijkey=jNSEJgxehHAWQ&keytype=ref&siteid=bmjjournals; accessed 2016/02/ 26)

4.1.2. In your own words please list 3 key reasons why we need to undertake critical appraisal of published studies? Add this to your Portfolio section 11 for this learning unit.

4.2. Understanding critical appraisal of Systematic Reviews

Access this well written commentary, read it and complete a reflective learning log to include in your Portfolio:

"How to read a paper: Papers that summarise other papers (systematic reviews and meta-analyses)"

(http://www.bmj.com/content/315/7109/672.full?ijkey=i4KrZYjNSaatI&keytype=ref&siteid=bmjjournals; accessed 2016/02/26)

4.3. Complete a critical appraisal of your chosen secondary research paper

Use the paper that you selected at the end of learning unit 3 and the CASP critical appraisal checklist for a Systematic Review.

a) Read the "Methods" section of the paper first until you feel really certain that you understand exactly how these authors conducted their study.

b) Next read the "Results" section carefully until you can explain in your own words what the study found.

c) Next read the "Discussion" and "Conclusion" sections until you can identify what – if any – are the implications for clinical

practice

d) Complete the CASP checklist questions as best you can and upload your completed form for this online exercise. If you find any of the questions too difficult to answer, try to write down the reason why – is it that you don't understand the question? Or maybe that item is not directly relevant to the paper you are reading? Or do you find it hard to interpret the way the authors have written that part of their paper?

4.4. Complete a critical appraisal of your chosen primary research paper

Use the paper that you selected at the end of learning unit 3 and the CASP critical appraisal checklist that you deem is the most relevant for the research method described in this paper.

a) Read the "Methods" section of the paper first until you feel really certain that you understand exactly how these authors conducted their study.

b) Next read the "Results" section carefully until you can explain in your own words what the study found.

c) Next read the "Discussion" and "Conclusion" sections until you can identify what – if any – are the implications for clinical practice

d) Complete the CASP checklist questions as best you can.

If you find any of the questions too difficult to answer, try to write down the reason why – is it that you don't understand the question? Or maybe that item is not directly relevant to the paper you are reading? Or do you find it hard to interpret the way the authors have written that part of their paper? Complete a critical appraisal of your chosen primary research paper

4.5. What are the potential benefits of "journal clubs"?

Based on what you understand about journal clubs, reflect on how you feel you might benefit from the opportunity to discuss with colleagues the critical appraisal exercises you have just completed now? Make a list of your thoughts and add this page to your Portfolio section 12.

Please start to search for and save any reports of journal clubs and how they have been conducted. You may find reports in professional newsletters, or by discussing with colleagues about their own prior experience in other work settings.

4.6. Review your Glossary

In the course of this learning unit and exercises you are likely to have found some new research terms that you can now add to your Glossary in your Portfolio.

Have you added "IMRAD" yet? This abbreviation was explained in the piece you looked at for exercise *4.1.1.* above.

And what about "publication bias" that was mentioned above in the content of this unit? Think about what this could mean and add it to your Glossary too.

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Boyes, S., and Sutcliffe, G. (2010). Clinical effectiveness: not just a journal club. In H. Roddam and J. Skeat (Eds), *Embedding evidence-based practice in Speech and Language Therapy*. *International examples* (pp. 43-50). Chichester: Wiley-Blackwell.

More literature with respect to journal clubs

Bannigan, K., and Hooper, L. (2002). How journal clubs can overcome barriers to research utilisation. *British Journal of Therapy and Rehabilitation*, *9*(8), 299-303.

Gilbody, S. (1996) Evidence-based medicine: an improved format for journal clubs. *Psychiatric Bulletin*, *20*, 673-675.

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2. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003466.pub2/abstract
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4. http://resnetslt.blogspot.co.uk/p/tweetchat.html
5. http://resnetslt.blogspot.co.uk/
6. http://www.bmj.com/content/315/7102/243.full?ijkey=jNSEJgxehHAWQ&keytype=ref&siteid=bmjjournals
7. http://www.bmj.com/content/315/7109/672.full?ijkey=i4KrZYjNSaatI&keytype=ref&siteid=bmjjournals

5 What are the other main reported challenges to embedding EBP in clinical practice?

Topic – This learning unit will introduce the growing body of research into the reasons that healthcare professionals report difficulties in implementing an EBP approach. These challenges include factors related to the individual practitioner, factors related to the context where we work, and issues related to the research evidence base.

After completing this learning unit you will be able to:

- **Understand the barriers to EBP that have been reported internationally, and across all healthcare professions**
- **Identify the factors that have influenced your own personal attitudes towards EBP**
- **Understand how to use Clinical Decision Making tools to support you in EBP, even where there are gaps in the research evidence base**

5.1 Barriers to EBP reported by practitioners

Over the past two decades there have been a plethora of "barriers reports", starting first of all with surveys of nurses' perceptions of using research in their practice (Funk, 1991). Surveys of allied health professionals based on adaptations of Funk's survey have included both uni-professional and mixed-professional cohorts, across a wide range of countries. Maybe you are aware of such a survey published in your country? Generally the findings of these surveys have shown positive attitudes towards the principles of EBP (including Upton 1999, Metcalfe et al., Vallino-Napoli and Reilly, 2004). However, some in-depth qualitative studies have indicated that many individuals express considerable levels of uncertainty and anxiety about how they are expected to implement EBP for themselves (Tse et al., 2004). Some practitioners have reported feeling "guilty" about prioritising time for EBP activities (such as searching for relevant research evidence for patient management) over direct contact time with their patients. This will always be a difficult balance to achieve to some degree, as the express purpose of the EBP activity is to enhance patient care.

One of the reports specific to our SLT profession was by Pennington (2001). In line with all of the other reports, these SLTs listed skills gaps and training needs highly as barriers to EBP, in addition to the perennial issue of time constraints that features unsurprisingly in every study. The knowledge and skills required to be able to search for and critically appraise published research is widespread; as well as an acknowledged lack of competence and confidence in applying the evidence in practice and measuring change.

5.2 Influences of workplace culture on attitudes towards EBP

The attitudes of individuals towards EBP have been shown to be a strong predictor of their intentions to implement research evidence in practice (Bonetti, 2005). Models of planned behaviour (for example Ajzen, 2002) that come from psychology and social sciences, show us that understanding and addressing these perceptions is essential. Within the workplace there needs to be an explicitly supportive culture that promotes the value of EBP. For example, a work context that provides satisfactory access to research information and skills training. What access do you have at work to full research papers in relevant journals, not only abstracts listed on databases? And is there a culture that encourages and rewards evidence-informed good practice?

A number of studies have highlighted the specific influence of the workplace culture on perceptions and attitudes towards EBP. Zipoli and Kennedy (2005)

demonstrated the particular impact of a student's clinical placements and first employment: so you are asked to read this paper (exercise *5.2*.) and to reflect on what was your own personal experience of colleagues' attitudes towards EBP when you were training, and in your first job? And how aware are you of the attitudes you convey to the SLT students you meet?

5.3 Issues related to the research evidence base

Being able to access research publications is not the full solution as we have already realised, as there are a number of issues around the evidence base. There are notable gaps in the research evidence map – you will already have identified this for yourself in the earlier learning units and exercises. However, it is not an acceptable defence against EBP to assert that there is no evidence at all, since we know that there is a vast volume of new work being added constantly. We need to be certain that we have looked recently – and thoroughly – before we claim "there's no research"! Some of this evidence may still be of variable quality, and that is why we need to encourage each other to take responsibility to be confident to appraise what we read for ourselves, not to be solely dependent on others to evaluate the evidence for us.

We must acknowledge that there is a specific issue around the validity of the published research for your own clinical population. In the ideal world we would have normative data sets for speech and language development in each country and each maternal language; there would be standardised assessment tools validated on your own local populations; and we would be able to see results for clinical effectiveness of complex interventions with patients who may have multiple co-morbidities – all much closely mirroring the real life patients that we treat in our own practice. Whilst there are strategic level drivers towards these goals, we need to determine how we should best proceed in the face of uncertainty. A relatively recent development that is being promoted across healthcare professions is the advent of Clinical Decision Making support aids, which we will look at next.

5.4 Clinical Decision Making tools

Evidence-based clinical decision-making tools are intended to support healthcare practitioners at all stages of their careers. These tools provide a step-by-step guide to the clinical decision-making process, taking you from assessment through to the selection and evaluation of interventions for individual clients. These tools expressly include the scenario that there is no directly relevant published evidence to answer the question faced by the practitioner. Clearly

these tools are built as algorithms that are generic in nature, although some are interactive and may incorporate hyperlinks to research evidence sources. The UK's Royal College of Speech and Language Therapists (RCSLT) developed a decision-making tool that was piloted across a wide range of clinical services and settings. This has now been made open access for all SLTs to use. In exercise *5.3.* you are encouraged to try to use this tool to help you answer a real clinical question – do you feel this is a useful support?

Keywords: Barriers to research use, context, culture, clinical decision making

Exercises

5.1. Understand the reported 'barriers' to EBP for SLTs

Download and complete a critical appraisal checklist.

Stephens, Kirsty, and Upton, Dominic (2012). *Speech and Language Therapists' Understanding and Adoption of Evidence-Based Practice.* International Journal of Therapy and Rehabilitation (formerly the British Journal of Therapy and Rehabilitation), *19* (6), 328-334.

5.2. Consider the factors that have influenced your own perceptions of EBP.

Read the following paper and then write up a reflective log to add to your Portfolio.

Zipoli, R**.**, and Kennedy, M. (2005). Evidence-Based Practice Among Speech-Language Pathologists: Attitudes, Utilization, and Barriers. *American Journal of Speech-Language Pathology*, *14*, 208-220.

Can you answer these questions:
What was your own personal experience of colleagues' attitudes towards EBP when you were training, and in your first job? And how aware are you of the attitudes you convey to the SLT students you meet?

5.3. Understand Clinical Decision Making tools

Access the RCSLT Clinical Decision Making tool. The RCSLT have made this an open access resource and encourage all SLTs to make use of it.

http://www.rcslt.org/members/research_centre/e_learning/launch_evidence_based_clinical_decision_making_tool (accessed 2016/03/15)

Reflect on how useful this could be in your own clinical practice and complete a Reflective Learning Log to add to your Portfolio.

5.4. Review and add to your Glossary

Remember to note new research terminology as you read more widely and add this to your own personal Glossary list. Have you added “Clinical Decision Making”?

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McCormack, B., Kitson, A., Harvey, G., Rycroft-Malone, J., Titchen, A., and Seers, K. (2002). Getting evidence into practice: the meaning of 'context'. *Journal of Advanced Nursing, 38* (1), 94-104.

Stetler, C. B. (2003). The role of the organization in translating research into evidence-based practice. *Outcomes Management*, *7* (3), 97-103.

Thomas, LH., Roddam, H., French, B., Burton, C., and Baker, P. (2011). Indicative facilitating factors for research-based practice in Allied Health Profession departments. *International Journal of Therapy and Rehabilitation*, *18* (2), 71-78.

Web reference

http://www.rcslt.org/members/research_centre/e_learning/launch_evidence_based_clinical_decision_making_tool

6 How can we measure EBP?

Topic – This learning unit discusses the various levels at which EBP has been measured. This includes assessment of an individual's new knowledge and skills from EBP training, as well as measurement of systems and processes in the workplace that can support EBP. We will consider approaches to measuring the impact of EBP on patient care and patient outcomes, for example the use of clinical audits of evidence-based clinical guidelines.

After completing this learning unit you will be able to:

- **Understand the meaning of "self-efficacy" in EBP**
- **Identify the workplace factors that influence a supportive context and culture for EBP**
- **Understand the difference between measuring knowledge about EBP and measuring practice change that results from EBP**

6.1 Measuring EBP for individual practitioner

As you now can see more clearly, EBP is not about the routine application of research findings in practice: it represents the clinical decision-making processes that direct our case management and service planning. We need to have a better understanding of the most effective ways of teaching and communicating about EBP, both for current practitioners and for the cohorts of students who will become the next generations of professional practitioners. We can anticipate that there will be differing training needs, particularly including the individual's prior knowledge of research designs and processes: that is the rationale for the structured sequence of the learning units, to establish a common understanding for a baseline knowledge of research designs and the nature of questions that each research approach can answer. More in-depth learning about specific research designs and approaches is outside the remit of this workbook.

The learning exercises for this unit (exercise *6.1.*) begin with an important piece of work by Bea Spek in Netherlands. These 2 linked papers describe the development and then the findings of a very brief and simple survey tool to elicit SLT students' understanding of EBP, together with their expressed confidence – self-efficacy - in using EBP approaches in their (future) practice. Although the survey only comprises 2 main questions, Spek et al. have robustly tested the psychometric properties of internal validity of the component constructs, as reported in their paper. The questions have been translated into English for this paper publication, so what still remains to be demonstrated is the validity of the same questions when translated into other languages as well. Spek's approach to incremental integration of EBP teaching over their 4-year SLT programme is clearly described in her chapter in Roddam and Skeat (2010), where you can also find a chapter from USA by Professor Paula Leslie about her distinctive approach to instilling EBP with their clinical doctorate students who are all highly experienced practitioners returning to study.

6.2 Measuring workplace culture and context for supporting EBP

Over the past 15 years, since the focus began to shift more towards the influence of workplace culture and context for increasing the adoption of EBP, there have been a number of key papers that have discussed the inherent challenges for measurement options (Stetler et al., 2003). It was quickly recognised that whilst the term "workplace culture" conveys an indication of the ethos and values communicated by and to the professional staff members, this is essentially intangible and challenging to measure consistently. So it became recognised that what was in fact being measured were organisational systems and processes that

helped to support EBP activities – for example how research information is disseminated and shared across clinical teams. The work reported by French et al. (2009) comprised an exhaustive review of all the published research relevant to EBP in allied health services, both theoretical papers and empirical measures of practice. We then developed a self-rating tool for services to be able to capture their capacity and success in supporting and promoting EBP at an organisational level. This checklist was advocated to be used as a 'benchmarking' tool: so that teams and services could compare themselves against the performance of other (anonymised) similar services, as well as checking their own progress in improving their EBP systems and processes. Services were asked to collect supporting evidence that could be subject to audit, to justify their self-rating scores for their level of success on each item. The full tool is still available on request to the authors. This can be used by allied healthcare services to plot their own performance, however there is no support for accessing benchmarking reports from other services as that was funded by a time-limited research grant in UK.

A further publication from that same study (Thomas et al., 2011) presents the findings of a more exploratory investigation of the nature of the supporting evidence that the allied healthcare teams provided as justification for their supportive EBP workplace systems and processes. The exercise *6.2.* below encourages you to reflect on the themes from that analysis, to see where your own service setting already has some strengths, but possibly also some opportunities for improvement.

6.3 Measuring the impact on patient care

Standards of patient care are often measured by clinical audit. There is a very specific meaning for clinical audit that is distinct from a survey of patient outcomes. An audit measures performance against a recognised standard of care, for example a published evidence-based clinical guideline. The measure of success is expressed in terms of percentage adherence or compliance with each item from the specified standard. The EBP training programme for SLT departments in England reported by Pennington et al. (2005) used a clinical audit of compliance with the published guidelines for post-stroke dysphagia as the primary outcome measure. This was a Randomised Controlled Trial (RCT) study across 17 SLT teams with a total of over 1000 patient case note records. The paper describes a summary of the two EBP training packages that were delivered: the first arm of the study provided a basic introduction to EBP principles, the second group received more extended training with guided tutorials on the relevant published evidence-based clinical guidelines. The

findings of the RCT showed no statistically significant differences between the two groups in terms of the scores on the clinical audit of patient records. However there was a statistically significant effect of the workplace context and culture on the SLT teams' adoption of the clinical guidelines. The key factors in the workplace that effectively supported EBP are those reported in the paper by Thomas et al. (2011) that you were directed to in the section 6.2. immediately above. An essential point to make about the use of clinical audit as an indicator of the impact of practice change on patient care is explained in the linked paper by Burton et al. (2006). You are directed to read and appraise this paper in exercise *6.3.* for this learning unit. It is not an entirely easy paper to digest, but it is important to understand the key limitations of the internal validity and consistency of clinical audit tool design – if you want to make a clinical audit of practice you are strongly advised to seek advice from a local medical audit service, which you may be fortunate to be able to access through your hospital or healthcare organisation. The final point is to remember that this will only ever be an audit of record keeping – and not of actual clinical practice! That would require a very different research design to observe patient care, with the inherent influence of research effect on changing practice that is under the spotlight.

As you saw in Sackett's 5 step model presented in learning unit 1, the ultimate expected goal is to achieve changes in patient care, not only increased knowledge for the professionals. The last exercise for this unit is to read the paper by Coomarasamy and Khan (2004). This is a particularly well-written succinct review report of studies that delivered training in EBP. Although all the studies resulted in educational gains (ie increased knowledge about EBP), the collective findings clearly demonstrated the difference in effectiveness of the training in impacting on practice change by the professionals. When you have completed the last exercise for this learning unit you will be able to answer the question in your own words about the key factor that was shown to influence practice behaviour.

It is acknowledged that there is still a dearth of studies that relate EBP approaches directly to impact on patient outcomes. Whilst adoption of evidence-based best practice may indeed improve patient care – and the patient' reported experiences of care – there still remain many other potential influences that will result in variable patient outcomes. The paper by Plsek and Greenhalgh (2001) presents scenarios from community general practice doctors that well illustrates the complexities of many inter-related factors regarding patients' health-seeking behaviours, as well as professionals' healthcare delivery choices. Their point is that whilst these real world issues pose multiple complexities in terms of

measurement, as long as we can identify the component factors then the measurement challenge becomes less complicated. Consider for yourself the methodological complexities of a research design to robustly demonstrate effectiveness of care using patient outcomes, rather than processes of care, as the measurement: you know that each family you work with is unique and distinctive in their situation and in their expectations of the care you will deliver. So the measurement of the impact of EBP on patient outcomes will continue to be mostly reported by “proxy indicators” of success.

Keywords: Self-efficacy, EBP culture, practice change

Exercises

6.1. Understand your own self-efficacy in EBP

Read the following 2 papers that describe the development and then the findings of a self-report survey of SLT students in Netherlands.

Spek, B., Wieringa-de Waard, M., Lucas, C., and van Dijk, N. (2013). Competent in evidence-based practice (EBP): validation of a measurement tool that measures EBP self-efficacy and task value in speech–language therapy students. *International Journal of Language & Communication Disorders*, *48* (4), 453-457.

Spek, B., Wieringa-de Waard, M., Lucas, C., and van Dijk, N. (2013). Teaching evidence-based practice (EBP) to speech-language therapy students: are students competent and confident EBP users? *International Journal of Language & Communication Disorders*, *48* (4), 444-452.

Can you answer the questions in Spek's survey? And what insights to your own self-efficacy in EBP have you gained? Write up a reflective log to add to your Portfolio.

6.2. Identify the factors that could best support you in EBP in your own work setting

Read the following paper and then write up a reflective log to add to your Portfolio.

Thomas, LH., Roddam, H., French, B., Burton, C., and Baker, P. (2011). Indicative facilitating factors for research-based practice in Allied Health Profession departments. *International Journal of Therapy and Rehabilitation*, *18* (2), 71-78.

Which of these factors are relevant to you in your workplace?

6.3. Understand the process and limitations of using clinical audit to measure impact of practice change on patient care

Read the following paper and complete a critical appraisal checklist to add to your Portfolio.

Burton, C., Pennington, L., Roddam, H., Russell, I., Russell, D., Krawczyk, K., and Smith, H. (2006). Assessing adherence to the evidence-base in the management of post-stroke dysphagia. *Clinical Rehabilitation*, *20*, 46-51.

6.4. Understand the difference between measuring EBP knowledge, practice change, and impact on patient care

Download and read the following paper and complete a critical appraisal checklist to add to your Portfolio.

Coomarasamy, A., and Khan, S. K. (2004). What is the evidence that postgraduate teaching in evidence based medicine changes anything? A systematic review. *British Medical Journal*, *329*, 1017-1019.

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7 What do we know about EBP in SLT?

Topic – This learning unit considers the state of the art in relation to the current research evidence base for SLT professional practice. We reinforce the value and the processes for weighing the published research evidence to answer your own clinical practice questions. And we indicate the essential contribution of well conducted service evaluation reports as another complementary evidence source for SLT services.

After completing this learning unit you will be able to:

- **Locate the key evidence sources for your own field of practice**
- **Understand the value of an evidence review to answer a clinical question**
- **Understand the importance of service evaluation approaches to complement scientific research sources**

7.1 The underpinning research evidence base for SLT practice

What are strengths in our professional evidence base, and where are the gaps? And what is known about how far the existing research evidence is being implemented to change our practice? As explained in learning unit 3, there is a pressing need for us to have a strategic research agenda as a collective professional research community, to ensure that we cease perpetuating research built around the interests of individuals. We need to work to set the research priorities, which can then be undertaken in a collaborative way to co-construct evidence for practice between experienced clinicians and experienced academics. And we also need to encourage much higher levels of reflexivity, transparency and accountability for clinical decision making that is evidence-informed, ethically-based and values-driven.

Sheena Reilly's seminal work (2004) in mapping out the research evidence base for speech and language therapy served as a crucial catalyst for the profession to take this wider view of the knowledge that underpins our practice. But naturally, all such reviews will be essentially out-dated the day they are published, such is the volume and pace of new work. One of the best maintained repositories of reviews of SLT research is ASHA's Evidence Maps (http://www.asha.org/evidence-maps/; accessed 2016/03/15). You were directed to find this resource in learning unit 3, if you were not already aware of it. It is advisable to check this regularly for updates as part of your new effective reading routine!

7.2 Weighing the evidence to answer a clinical question

In learning units 3 and 4 we advised you that the smartest way to spend your time reading is to begin with pre-appraised sources that are directly relevant to your field of practice: in particular look for systematic reviews. These reviews may relate directly to your own clinical population, or may present the evidence for a similar intervention approach but with a different patient group. Say for example you are working with patients who have motor speech difficulties: this may be apraxia of speech, developmental dysarthria due to cerebral palsy, or an acquired dysarthria due to a neurological condition – Parkinson's Disease, or post-stroke. It is likely that you are perplexed about whether or not you should invest your time (and the patient's energies!) on practice of Non-Speech Oro-Motor exercises (NSOMs) – this is one of the current hot topics of debate across a number of patient groups, including childhood phonological and articulatory disorders. If you read the systematic review by Bislick et al. (2012), you will find of the 5 studies that met their inclusion criteria, only one study showed positive

effects of an intervention based on principles of motor learning. As with many other published systematic reviews, these findings do not mean that we should cease current practice: the balance of the evidence is still insufficient and we need further well-conducted research to unpick the relative weight of all the practice variables (eg nature, frequency and duration of exercises), as well as to predict patient sub-groups or phenotypes who are optimal for these approaches. So the conclusions for clinical practice in most cases will be – proceed with caution! But it is nonetheless essential to keep watching for new studies that report similar intervention approaches across the range of patient groups, not only your own.

But what should you do if there are no systematic reviews published yet? The answer is that you will need to undertake your own evidence review to address your own clinical question. One exercise (exercise *7.2.*) for this learning unit uses the paper by Smith et al. (2012) as an exemplar of Sackett's 5 steps to answer a genuine real-world clinical question. Undertaking this exercise will prompt you to reflect on your own experiences of seeking answers from the literature. Our advice, as proposed in learning unit 4 about Journal Clubs, is that you should find one or more colleagues to share this activity – "two heads are better than one".

7.3 The place of service evaluations

In common with most of the other allied health professions, we have an evidence base that is predominantly focused on measuring the effectiveness of traditional direct face-to-face therapy interventions. Whilst in reality we are increasingly working in many new indirect roles, including giving advice and training for others to carry out therapy – for example, classroom assistants, nurses, family members. So what is the reason that we still do not have research that exactly mirrors our new ways of working and evolving roles? There are two immediate answers to explain this research gap. Firstly is the methodological complexity of measuring complex interventions with multiple variables. There is an increasing recognition of the need for mixed methodologies in research studies that will generate deeper insights for our therapy - including not only "does it work?" but also "how does it work" (Enderby and Emerson, 1995). But secondly, there is the glacial pace of research that is inescapable. And in real world clinical services we very often need to be able to demonstrate the effectiveness of our models of service delivery, and to bid competitively for new services to be funded: and we simply cannot wait for all these questions to be resolved by scientific research.

In the hierarchy of scientific evidence that we referred to earlier (where Randomised Controlled Trials are the most rigorous research design), this evidence gap for service delivery is mostly met by consensus professional opinion level. So to a great extent services across a country will be generally organised and delivered in a similar way, that is driven by established and accepted 'good practice'. But therapists are essentially creative and innovative, and many unique practices have evolved that appear to be effective and well received by local stakeholders (including patients, families and other professional colleagues). It would be thoroughly unscientific for us to rely on anecdotal-level evidence to support the case for these services: we need to have a systematic and structured approach to evaluation of our services so that we can soundly demonstrate their effectiveness and value. In this way we can confidently disseminate best practice. Most national SLT associations publish regular newsletters and professional magazines to promote such examples of good practice. But as these lack the same rigour of peer review for publication in scientific journals, we need to be alert to question just how accurately and appropriately these service reviews have been conducted. One of the exercises in this learning unit (exercise *7.3.*) asks you to find an example of a service review report and to appraise it in the same way as you would a research report: is the service described sufficiently clearly that you would be able to replicate this way of working? And were there any steps at all to ensure a level of independence in the evaluation? Whilst we urge caution against changing practice based too heavily on service reports alone, there are strongly pragmatic reasons to consider service evaluation reports as an important element of the evidence base for effective ways of providing SLT services.

Keywords: Evidence maps, evidence review, service evaluation

Exercises

7.1. Locate the key evidence sources for your own field of practice

Go to the ASHA Evidence Maps http://www.asha.org/evidence-maps/ (accessed 2016/03/15) and locate the link for your own field of practice.

Add this link to your Portfolio section 20.

7.2. Understand the value of an evidence review to answer a clinical question

Download and read this paper and then answer the questions below.

Smith, S. K., Roddam, H., and Sheldrick, H. (2012). Rehabilitation or compensation: time for a fresh perspective on speech and language therapy for dysphagia and Parkinson's disease. *International Journal of Language and Communication Disorders*, *47* (4), 351–364.

http://onlinelibrary.wiley.com/doi/10.1111/j.1460-6984.2011.00093.x/abstract

a) This paper's clinical question was about dysphagia management approaches for patients who have PD – have you recently searched the evidence base for an answer to a clinical question?

Was your focus on an individual complex case, or more about service delivery models? Did you undertake this search on your own or together with colleagues?

b) What was your awareness of the strength of the research evidence for current practice before you began to evaluate this more deeply?

Is current practice based on national guidelines/local protocols/systematic reviews/individual primary research studies/professional consensus? Where did you locate the evidence for current practice?

c) What are the gaps in the research evidence base that you have identified?

Have you found contradictory evidence for alternative approaches to current practice? How have you weighed these evidence sources against each other?

d) Where did you find assistance for weighing the evidence for practice?

e) Have you found support for changing practice based on your review of the evidence?

f) What advice would you give to colleagues about undertaking reviews of the evidence?

g) Have you disseminated the findings of your evidence review?

7.3. Understand the importance of service evaluation approaches to complement scientific research sources

Locate a report about a professional service initiative or new service development, for example published by your professional association or local colleagues. Consider the critical appraisal questions you would ask if this was a research study – does the report give you sufficient information about how the service was delivered so that you could adopt this new way of working? What details does the report give about how the evaluation was conducted?

Complete a Reflective learning log to add to your Portfolio.

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Web reference

http://www.asha.org/evidence-maps/

8 Has anything changed about the way we think about EBP?

Topic – This chapter will help you to understand how the emphasis of EBP has shifted over the past two decades. Initially there was a predominant focus on the need for each individual to attain a high level of skills and self-efficacy in critical appraisal of published scientific research literature, often including an expectation of advanced competences in statistics. There was then growing recognition that there may be contextual factors in the healthcare setting that mitigated against implementation of research evidence to effect practice change. Most recently there has also been a growing consensus for a more pragmatic perspective of individualised patient-centred care which reinforces the rationale for ethically-based practice which is 'evidence-informed'.

After completing this learning unit you will be able to:

- **Understand the debate about the influences on the success of the wider uptake of EBP**
- **Understand the potential for negative implications arising from EBP**
- **Reflect on your own personal opportunities and challenges for embedding EBP**

8.1 Review of the Evidence-Based Medicine movement

We began these learning units with a brief history of the Evidence-Based Medicine movement and presented the drivers for this agenda. The imperative is still unchanged – we need to assure highest quality of patient care, and to protect patients from potentially ineffective, or even harmful, treatments. But over these past decades the landscape has continued to change: there is increasing pressure for cost-effectiveness – and for cost-cutting as services are rapidly restructured with increasing frequency. Patients are approaching their healthcare professionals armed with information and opinions about their own treatment gleaned from the internet. And the professionals themselves are quite literally drowning in the sea of journal papers that has become an academic industry with a life of its own. Some members of the original EBM movement have been so concerned that the essential focus of EBP has been lost, that they have called for a campaign to refocus on the essential ethos and core values. Greenhalgh's 2015 paper "Evidence-based medicine: a movement in crisis?" has been selected as the focus for one exercise in this learning unit, to prompt you to consider where you feel are the parallels – if any – with our own SLT profession. This paper is an opinion piece that is short and clear to read, written by some of the leading UK authors on Evidence-Based Medicine (EBM). They give a very clear history of EBM and highlight the gains achieved and the gaps still remaining – it certainly hasn't fulfilled everything that was hoped for. So do you think this paper has direct relevance for Evidence-Based Practice (EBP) in SLT and the other Allied Health Professions? Where are we now? And where are we heading?

8.2 Focus on scientific thinking

As you have worked through these learning units, you will have observed for yourself the shift in focus: starting with an explicit spotlight on the skills of each individual practitioner, to the importance of the influence of the workplace culture and context. Sackett's clean model of distinctive step-by-step process for EBP has been roundly challenged by Gabbay and LeMay (2004, 2011), who proposed that in reality the judgements and practice decisions made by healthcare professionals are subject to an intricate 'web' of simultaneously competing influences. They coined the phrase "mindlines" to counter the impression of rigidity of practice conveyed by (evidence-based) "guidelines". The study on which they based their conceptual model was in UK general practice settings, with multi-professional primary healthcare teams of doctors, nurses and ancillary staff. This work echoes Schon's (1983) seminal theories of how experts make reflective judgements in the midst of their working practice. In their paper

addressed to an audience of SLTs, McCurtin and Roddam (2012) exhorted practitioners to reframe EBP as “a way of thinking”: this was to counter-balance the predominating focus on the scientific evidence base of Sackett’s intended three-pillar model of EBP.

8.3 Potential negative implications of EBP

In learning unit 5 we highlighted the influence of personal attitudes and values on the successful adoption of EBP. This helped us to recognise that there are multiple reasons for the research-practice gaps that have been documented in many areas of healthcare. When we consider our own specific areas of SLT practice, we know that the research evidence base is inconsistently spread, with some areas having attracted more substantial research investment than others to date. But even where high quality research studies exist, we cannot assume a linear translation of that knowledge into practice.

An exploratory study of speech and language therapists working in Australia with patients who have acute aphasia (Foster et al., 2015) uncovered some startling insights into the direct impact of professionals’ values and attitudes on their clinical practice. The SLTs in this study reported feeling so overwhelmed by the published research literature that this generated a resistance to reading or applying any of the evidence. This sense that the principles of EBP effectively made the clinicians feel disempowered needs to be urgently addressed in pre-registration clinical education, as well as through continuing education with qualified clinicians. There also remains a challenging question of whether these same findings would be generated with groups of SLTs working with other clinical populations, or in other countries? This paper forms the basis of one of your exercises in this learning unit (exercise *8.1*). You are directed to complete a reflective learning log based on how far you can recognise these negative perceptions to EBP in colleagues working in your own area of clinical practice.

8.4 Personal readiness for embedding EBP

As you have now understood from all the units you have covered in this workbook, the original definitions of EBP appear to be rather overly simplistic, in relation to all the factors that influence our practice and our clinical decision making in real world settings.

At the outset of the EBM/EBP movement the major focus was on each individual practitioner, with an apparent expectation that we would all be engaging regularly in Sackett’s 5 steps of database searching and critical appraisal of

published papers to support all our case management decisions. The 'Barriers' studies that you have read in learning unit 5 have resoundingly highlighted the factors that will always mitigate against this – not least of all, the implications for all the time this would take. As a manager or team leader, it would be impossible to sanction the duplication of effort and hours that this level of activity would demand. And by now you will have started to consider some pragmatic and very practical ways to address the challenges for promoting the use of research evidence in routine practice. This includes the need to build skills for yourself and for your colleagues so that we are all more confident to undertake the EBP steps when required – for example when faced with an unusual case, or when the usual therapy does not seem to be working well.

We also ask you to start thinking about yourself in the role of being an effective change agent and influencer, to spread the word amongst your colleagues to help them to better understand the "campaign for real evidence-based practice" that you reviewed (Greenhalgh et al., 2015).

Keywords: Embedding EBP, evidence-informed practice, patient-centred care

Exercises

8.1. Understand the debate about the influences on the success of the wider uptake of EBP

Download and read the following paper and then answer the questions below.

Greenhalgh, T. (2014). Evidence based medicine: a movement in crisis? *British Medical Journal*, 348.

http://www.bmj.com/content/348/bmj.g3725

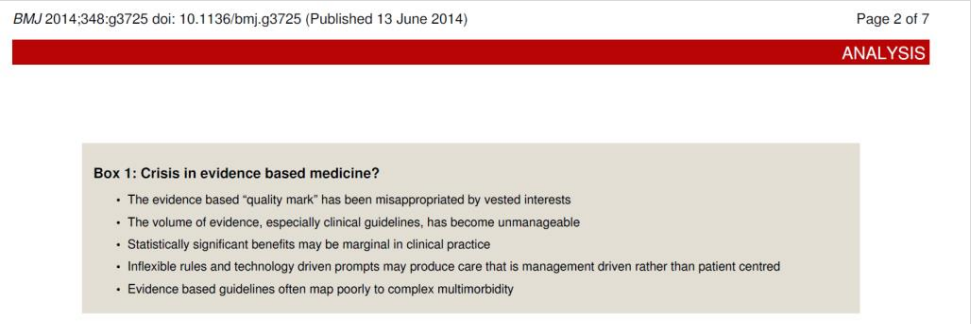

Figure: Crisis in evidence based medicine? Greenhalgh, T. (2014). Evidence based medicine: a movement in crisis? *British Medical Journal*, 348.

a) Do you agree with their 5 challenges for achieving Evidence-Based Practice (EBP)? Which is the biggest barrier in your own experience?

b) Do you identify any other additional barriers for achieving evidence-based practice?

c) Shared decision-making (SDM) between professionals and patients is the key goal proposed here, using "appropriate decision aids". Have you had any training in SDM, or used any clinical 'decision making aids'?

d) What do you think is needed to improve training in EBP for Allied Health practitioners?

e) Has reading this paper changed the way you think about EBP? Has reading this paper made you want to join the "campaign for

real evidence based medicine"?

8.2. Understand the potential for negative implications arising from EBP

Read the following paper and then complete a reflective log form to add to your Portfolio.

Foster, A., Worrall, L., Rose, M., and O'Halloran, R. (2015). That doesn't translate': the role of evidence-based practice in disempowering speech pathologists in acute aphasia management. *International Journal of Language & Communication Disorders*, *50* (4), 547-563.

To what extent do you recognise these negative perceptions of EBP in colleagues within your own area of clinical practice? What do you feel is the main contributing factor to these perceptions? Do you agree that this barrier can be fully addressed by education approaches alone?

8.3. Reflect on your own personal opportunities and challenges for embedding EBP

Think about your personal goals to communicate about EBP with your colleagues, as well as to embed your resolutions for your own new and more regular commitment to EBP.

Complete a reflective learning log to add to your Portfolio section 16.

8.4. Review your understanding of research-related terminology

Please take time to review the Glossary that you have made in your Portfolio. Can you now refine or amend any of the definitions you wrote so that you feel confident to explain these terms to colleagues? If there are still some research terms or phrases that you have listed that you don't fully understand, please note your action plan to pursue this.

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Unit 2

1. http://www.cochrane.org/
2. http://www.asha.org/Research/EBP/Introduction-to-Evidence-Based-Practice/

Unit 3

1. http://www.asha.org/research/researcher-tools/databases/
2. http://www.asha.org/Research/EBP/EBSRs/
3. http://www.asha.org/Evidence-Maps/
4. http://speechbite.com/
5. http://www.casp-uk.net/#!checklists/cb36

Unit 4

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2. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003466.pub2/abstract
3. http://onlinelibrary.wiley.com
4. http://resnetslt.blogspot.co.uk/p/tweetchat.html
5. http://resnetslt.blogspot.co.uk/
6. http://www.bmj.com/content/315/7102/243.full?ijkey=jNSEJgxehHAWQ&keytype=ref&siteid=bmjjournals
7. http://www.bmj.com/content/315/7109/672.full?ijkey=i4KrZYjNSaatI&keytype=ref&siteid=bmjjournals

Unit 5

http://www.rcslt.org/members/research_centre/e_learning/launch_evidence_based_clinical_decision_making_tool

Unit 7

http://www.asha.org/evidence-maps/

II. Keywords

Barriers to research use	Unit 1.3 Unit 5.1
Clinical challenges	Unit 2
Clinical decision making	Unit 5.3 – 5.4 Unit 7.1 Unit 8.4
Critical appraisal	Unit 3.1 Unit 4.1 Unit 8.4
Cochrane Collaboration	Unit 2.1 Unit 4.2
Context	Unit 2.1 – 2.2 Unit 5.2 Unit 6.2 – 6.3 Unit 8.2
Culture	Unit 5.2 Unit 6.2 – 6.3 Unit 8.2
Database searching	Unit 3.1 – 3.4 Unit 8.4
EBP culture	Unit 6.1 – 6.3
Embedding EBP	Unit 8.4
Evidence-Based Medicine	Unit 1.1 – 1.2 Unit 8.2
Evidence-Based Practice	Unit 1.1 – 2.3 Unit 8.1

	Unit 8.4
Evidence-informed practice	Unit 8.1 – 8.4
Evidence maps	Unit 7.1
Evidence review	Unit 7.2
Journal clubs	Unit 4.5 Unit 7.2
Patient-centred care	Unit 8.1 – 8.4
Practice change	Unit 6.3
Primary research	Unit 2.1 Unit 2.5 Unit 4.1
Quality standards	Unit 2.2
Research designs	Unit 1.2 – 1.3 Unit 3.3 Unit 6.1
Secondary research	Unit 4.1
Self-efficacy	Unit 6.1
Service evaluation	Unit 7.3
Systematic reviews	Unit 2.1 Unit 4.1 – 4.2 Unit 7.2

III. Glossary of research terms

As you progress through these learning units you will be directed to start writing in definitions of these terms in your own words. We suggest that you begin with any that are already familiar to you, and then write in the definitions of others as you encounter them in each of the learning units. Of course you can always revise your definitions later if you feel that you can express this better.

We also encourage you to continue to add further terms of your own to this list as you encounter them in your reading or in discussions.

The definitions you write in this list will be useful for your own future reference as well as for sharing with colleagues.

Research terms	Definition in your own words
Clinical audit	
Clinical effectiveness	
Clinical guidelines	
Clinical outcomes	
Co-construction of research	
Collaborative research	

Cost effectiveness	
Critical appraisal	
Dissemination of research	
Embedding EBP	
Hierarchy of evidence	
Implementation of research	
Intervention effectiveness	
Intervention efficacy	
Journal club	

Levels of evidence	
Mixed methods research	
Patient choice	
Patient consultation	
Patient experience	
Pre-appraised research	
P value - probability	
P value – power calculation	
Qualitative research	
Quality of life measures	

Quality of research evidence	
Quality of research reporting	
Quantitative research	
Randomised controlled trial (RCT)	
Research abstract	
Research database	
Research methods	
Research methodology	
Research-practice gap	
Research question	

Search strategy	
Search terms	
Service outcomes	
Single case research designs	
Systematic Review	

IV. Portfolio for Evidence-Based Practice

Please make your own Portfolio as an ongoing resource where you can store and organise copies of all the exercises you have completed, as well as many other relevant notes, references, full papers you have downloaded etc.

You may well choose to keep an electronic Portfolio, but we ask that you make a paper version of your completed exercises as well as other records as directed in the learning units.

Index of Portfolio sections

1. Cover page – name
2. Background information

- **a. your professional qualifications**
- **b. any specific previous training in research +/or EBP**
- **c. current clinical role / population/s that you work with**

3. Clinical research topics and questions

- **a. list your specific questions from your own practice and experience**

4. Glossary of research terms
5. Learning unit 1 table – rating your current skills and confidence in EBP skills
6. Learning unit 1 – copies of your responses to all the exercises
7. Learning unit 2 – include copies of clinical guidelines and policies that you have located

- **a. your professional association guidance or policies for EBP**
- **b. your employer/organisation guidance or policies for EBP**

8. Learning unit 2 – copies of your responses to all the exercises
9. Learning unit 3 – list of the barriers to EBP in your own personal experience
10. Learning unit 3 – copies of your responses to all the exercises
11. Learning unit 4 – critical appraisal checklists of questions for published research
12. Learning unit 4 – copies of your responses to all the exercises

13. Learning unit 5 – copies of your responses to all the exercises
14. Learning unit 6 – copies of your responses to all the exercises
15. Learning unit 7 – copies of your responses to all the exercises
16. Learning unit 8 – copies of your responses to all the exercises
17. Systematic Review papers – list of references +/or copies of full papers
18. Intervention effectiveness papers – list of references +/or copies of full papers
19. Reflective learning log
20. List of web-based resources
21. List of personal contacts
22. EBP QuiZ

Reflective learning log (Portfolio section 19)

Using this Reflective learning log will help you to organize, think about and reflect upon the activities that you have undertaken, the degree to which these help you to develop your understanding of EBP, and importantly how you can apply your learning in your everyday clinical practice. There is no standardized way in which you should record your experiences but we do have some general advice:

A. What should be recorded?

The log is not just a diary. It provides evidence of what you've done accompanied by your own **critical reflection.**
Critical reflection can include responses to questions such as:

- How did I do in the activity and what do I think about this?
- What did I learn?
- What if anything could I have done differently?
- What can I do differently in the future?
- What conclusions can I draw from this insight?

Remember, what's important is YOUR views of your experiences. It's not easy to reflect upon what you have done in this way but it's highly informative as a learning tool provided, **YOU ARE HONEST WITH YOURSELF**.

B. Constructing a Learning Log

After each new learning experience, just write something. You can edit what you have recorded at any time but it's important to capture your thoughts and feelings whilst they're fresh.

When doing this, it may be useful to give some thought to:

- The activity. Can you describe it accurately?
- Your thoughts about the experience e.g. Was it helpful? Have I achieved anything? If so, what? Did I put theory into practice?
- Your feelings e.g. Why did I feel nervous?
- How well it went e.g. Was it a complete or partial success or even failure and if so, why?
- What you learnt e.g. Has this helped me to progress my research career? If so, how?

- What learning do you wish to consolidate and how can you use this experience to plan new learning? What can I do to build upon the experience?
- What (if anything) you might do differently in the future? Should I avoid this kind of experience?

Consider also:

Are my views (perceptions) of my skills and abilities changing as I progress through this module? If so, how and in what ways? For example, am I becoming more confident in understanding EBP? And am I more effective in communicating this to other people? What informs my view?

Remember, research awareness and skills rarely develop quickly. Learning new knowledge and applying it usually takes time and effort. Through self-reflection we can gain increasing insight into how we learn, what learning tasks we like and dislike and what we think about these. The Learning Log is an important tool in this process of reflection. Please engage with it fully.

You can use any form of written presentation that helps you. The following template is one way of structuring your conversation with yourself. Use it, amend it or construct an alternative as you wish.

L E A R N I N G L O G

What did I do?

How do I feel about this?

How successful was I?

Did I learn anything new?

Would I do anything differently next time and if so, what?

How will I do it differently?

What have I achieved?

What do I now know about myself?

Have I begun to develop new insights or skills?

How can I use this self-knowledge to plan for the future?

How can I use this insight to develop my EBP skills?