

Keeping up to date with reliable mental health research: the National Elf Service white paper.



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1. Background

Keeping up to date with high quality research relevant to mental health care is an increasingly challenging task for practitioners and clinicians. Year on year, we see increases in both the quantity and quality of clinical research. Information systems are struggling to keep pace and deliver this evidence in a usable, accessible form to the health and social care professionals who need it.

This paper aims to quantify the size of the task by assessing how much high quality research exists in the mental health field and how this has changed over the last 40 years.

"Doctors are overwhelmed by information, but can't find information when they need it".
- Richard Smith, Editor, BMJ, 2008

2. What we already know

- Health professionals need evidence more often than they get it
- Giving clinicians access to evidence reduces errors and improves outcomes
- Accessibility, usability and reliability are the key to providing effective evidence resources

A previous paper by colleagues in the core National Elf Service team, summarised the evidence about how often health professionals need evidence from systematic research and whether their needs are being met by the information systems available to them. The methods of this literature review are reported elsewhere [Badenoch & de Brun 2011].

We updated the Badenoch and de Brun search in 2015. This white paper augments the findings of the earlier review with new evidence published in the interim.

2a. Health professionals need evidence more often than they get it

Observational studies vary widely in their estimates of just how many clinical questions are generated in practice and how successfully they are dealt with. Yet a substantial proportion of their clinical questions go unanswered.

In our previous study, estimates ranged from two per patient [Covell 1985, Osherooff 1991, Hersh 1998] through one question for every five patients [Gonzalez-Gonzales 2007] to three times per month [Magrabi 2008]. Our heuristic aggregate yielded an estimate of between 58 and 87% of "evidence needs" being unmet in everyday practice. Reviewing more recent evidence has not changed this estimate substantially (see Table 1).

What is a "clinical question"?

In evidence-based health care (EBHC), we use this term to express a need for research evidence to inform clinical care. A clinical question usually comprises a patient, intervention and outcome, e.g. "In young mothers, does peer support reduce the risk of perinatal mental illness?" The explicit and conscientious formulation of uncertainty in this way is a cornerstone of evidence-based practice because it assists in the finding, appraisal and application of research evidence.

Table 1 - Overview of recent studies of clinical question-answering

Study	Setting	Method	Questions	Pursued	Answered
Del Fiol 2014	Out-patients	Observational	Two per patient	71%	48%
Anton 2014	Emergency department	Observational	112 over two 48-hour study periods	Not studied	62%
Kloda 2014	Therapists	Self-recording	129 over 3 weeks	50%	30%

Heterogeneity in the methods of measurement and clinical setting probably account for much of this variation. We note that studies tended to report a higher estimate of question-asking frequency when they used an external observer to record clinical questions at the time they arise instead of relying on clinicians recalling evidence needs after the event. This may be due to recall bias, but it may also be because of misclassification of questions (e.g. clinicians may under-report questions that they were able to answer quickly and easily).

2b. Giving clinicians access to evidence reduces errors and improves outcomes

There is good evidence that giving clinicians access to evidence-based, user-friendly summaries improves clinical knowledge and reduces error [Ely 2005, Hoogendam 2008, Ely 2007, Marcelo 2013].

However, lack of currency is a key issue that many “evidence-based” decision tools fail to deal with effectively [Banzi 2011]. There remains substantial demand for evidence-based analysis that responds quickly to new evidence being published.

As a result, clinicians use the internet to try to keep up to date, and change their practice based on what they find [Younger 2010]. One study indicated that although clinicians often retrieved inaccurate information using Internet search engines, they believed the information was reliable enough to use in patient care and subsequently performed poorly in tests of clinical knowledge [Schwartz 2010].

What the evidence says about evidence-seeking behaviour

- All clinicians generate clinical questions requiring evidence to inform patient care
- Not all of these are pursued
- Of those pursued, not all are answered successfully
- The majority of clinical questions are still going unanswered
- There is evidence of greater success in finding answers to clinical questions when evidence-based summaries are available.

Many sources of evidence-based summaries also have weaknesses in how they report their content production procedures [Banzi 2010]. If clinicians cannot trust these sources, or if the sources cannot be more transparent about their limitations, they may not be used.

2c. Accessibility, usability and reliability are the key to providing effective evidence resources

Studies of literature searching show that the vast majority of clinicians view only the first results provided by search engines such as PubMed, in spite of using it frequently. Their searches tend to be simplistic and fail to make use of advanced features [Durieux 2013].

There is consistent evidence that clinicians struggle with conventional databases such as PubMed and the Cochrane Library, which often contain reliable evidence, but are difficult for the uninitiated to use. Clinicians often fail to find answers in these databases. Time, awareness, skills and access are the key barriers [Shibuya et al 2013].

In conclusion, there is clear and compelling evidence that what health professionals need is accessible, usable and reliable summaries of new evidence:

- **Accessible** in that they require no login, no special software and can be accessed anywhere on smartphones as well as desktop computers
- **Usable** in that they make finding answers easy and express the results in terms that clinicians can easily understand
- **Reliable** in that they critically appraise the research they summarise, express these assessments transparently within the evidence summary, and remain open for ongoing discussion and re-evaluation.

3. How much high quality mental health evidence is published each year?

- Over the last 40 years we have seen a huge increase in the quantity of published mental health research
- The quality of research is also increasing
- It is impossible for clinicians to keep up to date with research by reading all of the relevant papers

We have designed and managed electronic libraries of mental health evidence for the UK National Health Service for over 15 years, and have first-hand experience of the huge increase in high quality published evidence during that time. However, it is important to quantify this increase by focusing on high quality mental health treatment studies (systematic reviews, meta-analyses and randomised controlled trials).

3a. Search strategy

We searched PubMed for mental health research by exploding the MeSH “Psychiatry and Psychology Category”. We then used the “Systematic [sb]” subset search to identify Systematic Reviews (SRs) and Meta-

Systematic review

A systematic review (SR) summarises all of the valid previous research on a given clinical question using rigorous, explicit and transparent methods. Good quality SRs are regarded as the most reliable type of clinical evidence [CEBM 2015].

Meta-analysis

A meta-analysis combines data from different studies using statistical methods. Many systematic reviews contain a meta-analysis to arrive at a precise estimate of the effects of an intervention.

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analyses (MAs) and the “Randomized controlled trial” publication type to identify RCTs (see Table 2).

Table 2: PubMed search strategy (search carried out on 15th January 2015)		
	Search string	Results
#1	"Psychiatry and Psychology Category"[Mesh]	3,439,479
#2	systematic [sb]	233,015
#3	randomized controlled trial [pt]	380,197
#4	systematic [sb] OR randomized controlled trial [pt]	610,925
#5	(("Psychiatry and Psychology Category"[Mesh])) AND ((systematic [sb]) OR randomized controlled trial [pt])	164,842

We then limited our search to years of publication and focused on the last 40 years.

3b. Since 1973, we have seen a huge increase in the quantity of published mental health research

Comparing 1973 with 2013, we found:

- a 5.7-fold increase in the total number of mental health articles published,
- a 95.4-fold increase in the total number of Systematic Reviews (SRs), Meta-analyses (MAs) and Randomized Controlled Trials (RCTs), and
- an 81.8-fold increase in the number of mental health SRs/MAs/RCTs (see table 3).

Table 3: Mental health research indexed on PubMed					
	1973	1983	1993	2003	2013
All Mental health	31,910	41,852	61,570	100,810	182,139
All SRs/MAs/RCTs	588	3,206	9,861	20,902	56,093
Mental health SRs/MAs/RCTs	183	685	1,998	5,764	14,980

3c. Extrapolating from PubMed to a worldwide perspective

PubMed is one of the leading biomedical databases, but it only provides access to a proportion of all the medical research published globally. We extrapolated our findings based on data from a recent BMJ paper [Fraser et al, 2010], which states that in 2011 there were 25,400 medical journals worldwide and this number is increasing by 3.5% each year. This means that in 2013 there were 27,209 medical journals, which makes the 4,500 journals indexed by PubMed in that year just 16.5% of the total literature relevant to health professionals. Multiplying the PubMed numbers by 6.06, to gain our best estimate of the total published SRs/MAs and RCTs, provides the following estimated worldwide figures (see table 4).

<i>Table 4: Mental health research published worldwide (figures extrapolated from PubMed).</i>	
	2013
All Mental health	1,103,762
All SRs/MAs/RCTs	339,924
Mental health SRs/MAs/RCTs	90,779

3d. The quality of research is increasing

In the last 40 years (1973-2013), nearly 1 million (an estimated 952,329) SRs, MAs and RCTs relevant to mental health have been published worldwide. We have seen a dramatic year on year increase in the quality and quantity of mental health research, with the proportion of high quality studies steadily rising (see table 5).

<i>Table 5: The percentage of mental health studies that are SRs/MAs/RCT.</i>				
1973	1983	1993	2003	2013
0.6%	1.6%	3.2%	5.7%	8.2%

3e. It is impossible for clinicians to keep up to date with research by reading all of the relevant papers

The amount of reading time available to health and social care professionals varies enormously and time for reading research tends to decrease as people move further away from their training [Sackett, 1999]. Keeping up to date with just the high quality treatment research (SRs/MAs/RCTs) relevant to mental health has been a tall order since the early 1970s. Moreover the number of papers we would have to read to keep up to date with all of the important evidence has become astronomical in recent years (see table 6).

<i>Table 6: Number of papers that health professionals would have to read every day to keep up to date with all of the SRs/MAs/RCTs relevant to mental health.</i>				
1973	1983	1993	2003	2013
3	11	33	96	249

4. Conclusions

"Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?"
- from "The Rock" by T.S. Eliot

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- The currency of clinicians' knowledge degrades over time
- Research papers are inaccessible to most professionals who don't have the skills to appraise them or act upon their findings
- Blogs and social media are essential tools for all health and social care professionals

We have shown that the body of evidence relevant to mental health practice continues to grow. More than ever, practitioners simply do not have the time to keep track of everything they need. As a result, the currency of their knowledge tends to degrade over time.

The good news is that accessible, usable and reliable evidence summaries can and do help professionals keep up to date and improve the currency of their knowledge.

Social media opens up further opportunities for engaging with readers during “down-time”. Our own studies of usage of the National Elf Service emphasizes the importance of this “connectedness” in helping readers to feel that clinical research is something they can use without needing specialist knowledge.

One of the problems with research is that it is mostly written by researchers for other researchers; not for non-researchers. It is full of jargon and hard to understand for people who don't have the necessary skills. This includes many health and social care professionals, as well as the general public.

To make matters worse, published research also often gets buried in journals behind pay-walls and logins, and unpublished research remains a major problem that skews the results of systematic reviews (All Trials, 2015).

The vast majority of health and social care professionals lack the time and skills needed to find, read and interpret new research. By mobilizing a community of research-savvy bloggers, the National Elf Service is breaking down these barriers and opening up new avenues for disseminating the best available evidence to those who need it.

“Blogging helps me think critically about what is written; not just when I blog, but whenever and whatever I read!”

- Mark Smith, IAPT therapist

5. Strengths and limitations

It is possible that our method of calculating the total worldwide number of published SRs and RCTs is an overestimate because the PubMed database from which we extrapolated our results may contain a greater proportion of these types of studies, compared with other databases.

The evidence in this review is based on a narrative synthesis, due to the complexity of the issues we addressed.

Many of the individual studies of clinical knowledge and behaviour are observational studies, which could be prone to selection bias and ascertainment bias. It could be that the most proactive clinicians are the ones who are most likely to use “new-fangled” evidence-based resources. However, this potential source of bias emphasises further the importance of the user-friendly approach adopted by the National Elf Service.

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We think that the balance of evidence is broadly supportive of our hypothesis that current, evidence-based summaries of important new research can help clinicians keep up to date and thereby improve patient care.

Throughout the development of the National Elf Service, we will continue to amass further evidence on this hypothesis and refine the offering to maximize the impact of reliable research in everyday practice.

"I never considered much of a 'writer' per se and even less of an 'academic' psychiatrist; teaching and clinical work being my clear interests. What blogging has allowed me to do (with the support and structure of The Mental Elf) is demystify wordy, academic pieces into useful, clinically applicable information for anyone to use."

- Kirsten Lawson, Liaison Psychiatrist

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