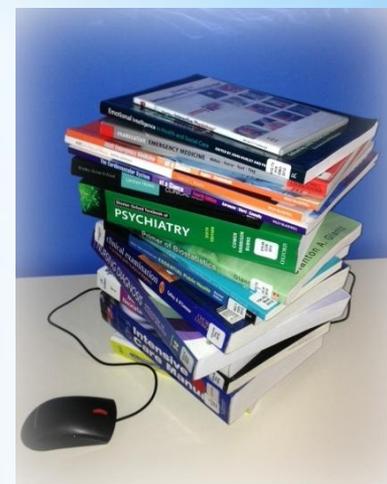


* Finding the evidence



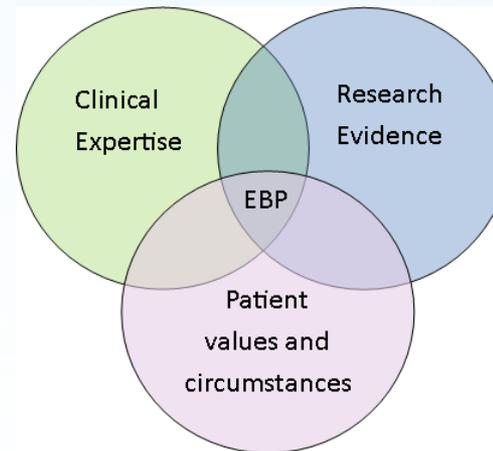
PMBH Library

- * What is evidence based practice?
- * What is the “hierarchy of evidence”?
- * What type of study is appropriate for your research?
- * How do you develop your research question?
- * How do you develop a search strategy?
- * How and where do you find the literature?
- * How do you evaluate the literature you find, relevant to your specific research?

* In this presentation...

* “Integrating the best available research evidence with clinical expertise and the patient’s unique values and circumstances”¹

David Sackett (pioneer of EBM)



* Evidence Based Practice

1. Straus SE, Glasziou P, Richardson WS, Haynes RB. **Evidence Based Medicine: How to Practice and Teach it.** 4th ed. 2010. Churchill Livingstone, Edinburgh, UK.

- * PRIMARY - Original individual studies such as controlled trials, cohort studies, case studies
- * SECONDARY - Assimilated body of evidence obtained from quality primary studies. Includes systematic reviews, meta-analysis, evidence summaries



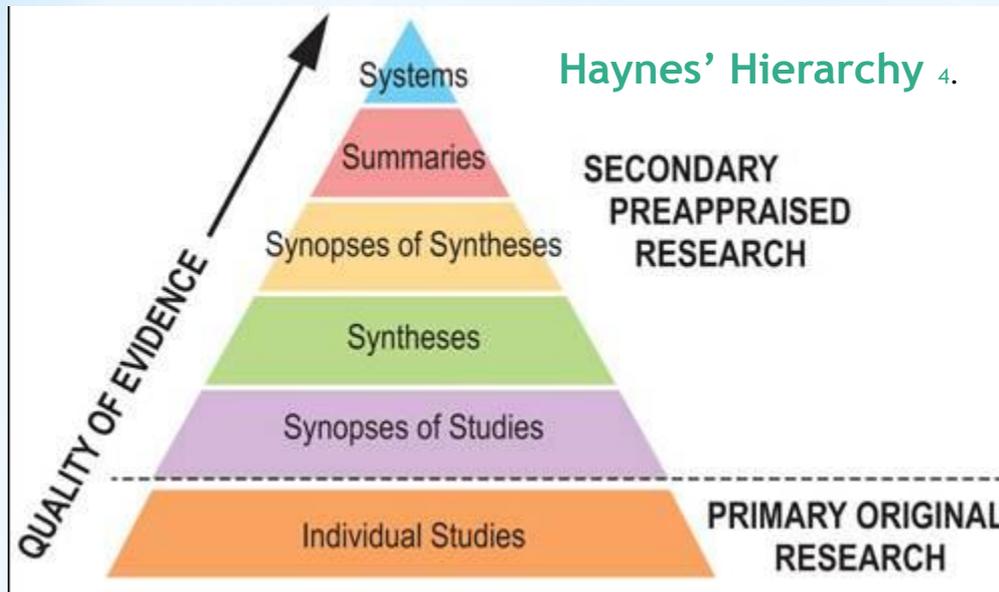
* Types of evidence

- * Many models, including a very complex one from the NHMRC ².
- * Popular currently is a 6 level model by Brian Haynes ³.
- * A clinician should start at the top to see if the body of evidence has been appraised, and then work down, using primary sources as a final resort.

* The “Hierarchy” of evidence

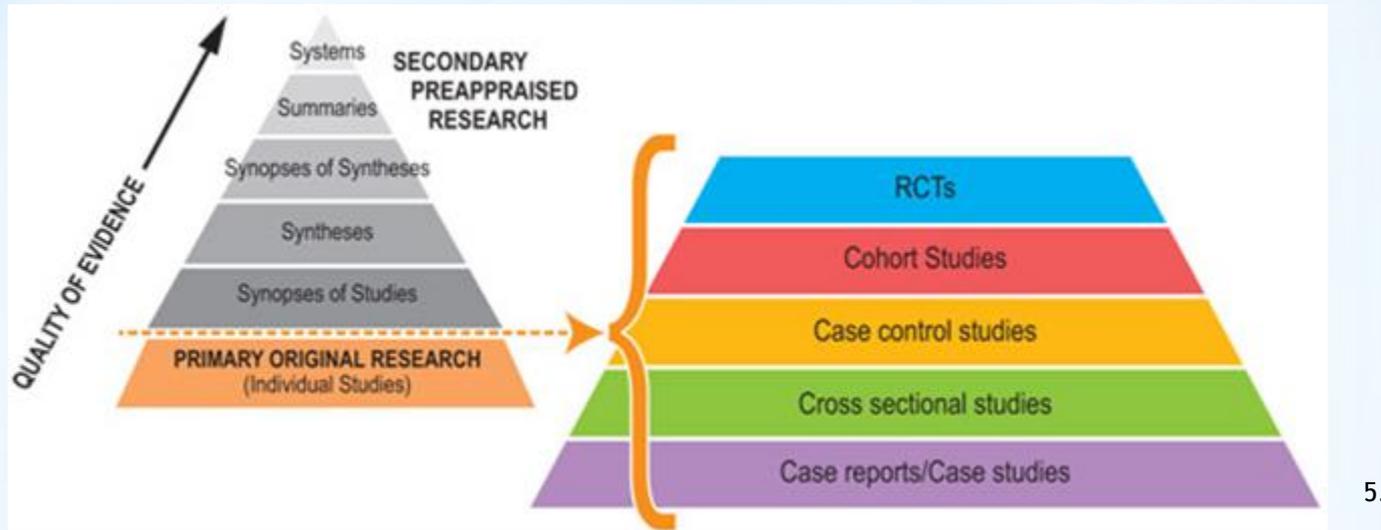
2. http://www.nhmrc.gov.au/files_nhmrc/file/guidelines/evidence_statement_form.pdf

DiCenso A., Bayley L, Haynes B. “Accessing preappraised evidence: fine-tuning the 5S model into a 6S model”. ACP Journal Club 2009; Vol 151 Issue 3: P1-1



Search for secondary studies (or preappraised evidence) using sources such as Cochrane, UpToDate, Joanna Briggs, BMJ Best Practice, ACP Journal Club. Many systematic reviews and meta analyses are also listed in citation databases such as Medline, Embase, Cinahl, PsychInfo, Informit and others

*Secondary research



When you cannot find any high level evidence you need to look for primary research - individual studies - using citation databases or registers of controlled trials

* Primary research

Used to explore and understand people's beliefs, experiences, attitudes, behaviour and interactions. They generate non-numerical data. For example:

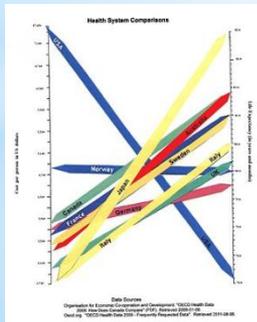
- * **Documents** - study of documentary accounts of events, such as meetings
- * **Passive observation** - systematic watching of behaviour
- * **Participant observation** - the researcher also occupies a role or part in the setting, in addition to observing
- * **In-depth interview** - face to face conversation to explore issues or topics in detail
- * **Focus group** - method of group interview which explicitly includes and uses the group interaction to generate data.



* Qualitative studies

Generate numerical data or data that can be converted into numbers.
Examples include:

- * **Case report** - report on a single patient
- * **Case series** - report on a series of patients (no control group)
- * **Case control study** - identifies patients with a particular outcome (cases) and control patients without the outcome. Useful in aetiology research
- * **Cohort study** - identifies two groups (cohorts) of patients one which received the intervention and one which did not. Follows these cohorts forward for the outcome of interest. Useful in both aetiology and prognosis research.
- * **Randomized Controlled Trial (RCT)** - a clinical trial in which participants are randomly allocated to a test treatment and a control; involves concurrent enrolment and follow-up of both groups; gold standard in testing the efficacy of an intervention



* Quantitative studies

- * To examine the body of research already conducted on your subject
- * To test your research ideas against what is already known
- * To identify gaps in the evidence, areas of consensus, areas of debate, areas of risk
- * To fit your research into the cumulative body of scientific literature



* The Literature search

- * Formulate your clinical query into an answerable question. Eg: Would improved education to clinicians increase referral to palliative care?
- * Break your question down into concepts. One way is using the PICO formula

P - Population	Referring clinicians in the oncology department of a regional Australian hospital
I - Intervention	Education to clinicians
C - Comparison	No education (status quo)
O - Outcome	Increased numbers of referrals to palliative care



* Develop your
research question

- * From your PICO, identify 2-4 main **concepts**, which will become keywords in your search (eg: palliative care, oncology department, physician referrals, education)
- * For each concept consider **synonyms** that may be used in the literature, including different spellings.
- * Consider **limits** which may restrict your search - such as English only, date of publication, type of study, age group.

TIP: Resist limiting by full-text - the library can usually find the articles if they are not readily available on the database!



* **Develop a search strategy**

- * **Cochrane Library** - systematic reviews and clinical trials
- * **Joanna Briggs** - Australian based evidence, mainly nursing
- * **Medline** - National Library of Medicine, US
- * **Embase** - Biomedical & pharmaceutical literature - European
- * **Cinahl** - Nursing and Allied Health literature (not on CIAP)
- * **Informit Health Collection** - Australian, includes grey literature
- * **PsychInfo** - psychological, social, behavioural, and health sciences



* **Choose relevant
databases**

Clinical Information Access Program | CIAP - Windows Internet Explorer

http://www.ciap.health.nsw.gov.au/home.html

Learning Centre Support & Contact My CIAP Account About Offsite Login Search CIAP

Clinical Information Access Portal (CIAP)

CIAP provides access to clinical information and resources to support evidence-based practice at the point of care.
CIAP is available to all staff working in the NSW public health system.

- Medications
 - MIMS (Australian Drug Information)
 - Micromedex (Drug Information | Interactions | I.V. Compatibility | Calculators)
 - Australian Medicines Handbook (AMH)
 - Therapeutic Guidelines (eTG)
 - Australian Immunisation Handbook (AIH)
 - Australian Injectable Drugs Handbook (AIDH)
 - Pharmaceutical Benefits Scheme (Government Subsidised Medicines)
 - Natural Standard (Complementary Medications, Foods & Therapies)
 - Australian Medicines Handbook (AMH) Aged Care Companion (AMH Aged Care)
 - Australian Medicines Handbook (AMH) Children's Dosing Companion (AMH Children)
 - BNF for Children (British National Formulary for Children)
 - Paediatric Pharmacopoeia (Paediatric Drug Information)
 - TOXINZ (Australian & NZ Poisons Information & Toxicology)
 - TOXNET (Toxicology Information including Breastfeeding)
- Evidence-Based Practice
- Guidelines
- Diseases & Conditions
- Emergency Care
- Journals
- Books & Dictionaries
- Databases
- Tools
- Patient Education
- Browse by Specialty & Links

5 CIAP Events

For detailed information see the CIAP Learning Centre.

19 Aug	Introduction to Ovid Search Platform Live Online Training 09:00 - 10:00	19 Aug	Medline Live Online Training 11:00 - 12:00	19 Aug	Introduction to Ovid Search Platform Live Online Training 14:00 - 15:00	19 Aug	EMBASE Live Online Training 15:00 - 16:00
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Latest CIAP News

Read previous CIAP Newsletters.

Need Help? Mobile Help

Email CIAP 24 Hour CIAP Help

Local intranet | Protected Mode: Off

12:20 PM 1/08/2014

- * Some of the articles you find will be available in full text on the database where you searched
- * If not, go to the Library's e-journals site at <http://atoz.ebsco.com/Titles/6417> or use the link on your desktop
- * Still can't find it? Email library.pmbh@ncahs.health.nsw.au and we will send it to you (usually) within a day or two - sometimes within the hour!



* Find the articles

Once you have asked your question and searched for the evidence, you need to appraise the evidence in order to

- * Cut down on information overload and
- * Find studies clinically relevant to your situation

Remember that different types of questions are best answered by different types of studies. The most common questions are about interventions or therapies, and randomised controlled trials are most useful for this. But what if you want to know about diagnosis, prognosis, epidemiology or aetiology?



* **Evaluate your
evidence**

“A process of carefully and systematically examining research to judge its trustworthiness, value and relevance in a particular context”⁵.



*Critical Appraisal

Papers with **significant positive results** are more likely to be:

- * submitted and accepted for publication (**publication bias**)
- * published in a major journal written in English (**Tower of Babel bias**)
- * published in a journal indexed in a literature database (**database bias**)
- * cited by other authors (**citation bias**)
- * published repeatedly (**multiple publication bias**)
- * ... and quoted by newspapers



* Sources of
publication bias

- * Our question: Would improved education to clinicians increase referral to palliative care?
- * Suppose we have found nothing in secondary, preappraised literature and have now found this article in Medline:

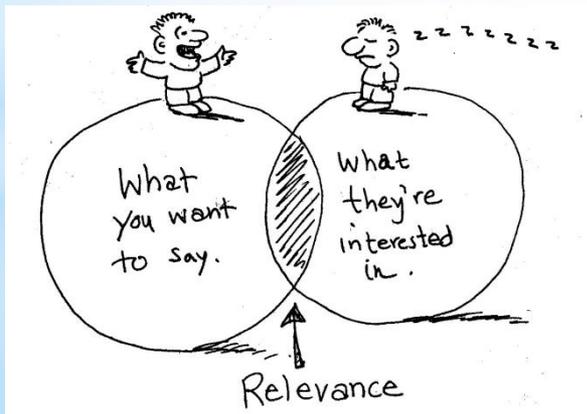
Revoll, B et al. "Education and referral criteria: impact on oncology referrals to palliative care". *Journal of Palliative Medicine*, 16(7) 2013 pp. 786-789.



* Appraising a specific study

* Is this study relevant to your circumstances? Test using PICO for this article:

- P - Population** Referring clinicians in the oncology department of a 700 bed urban teaching hospital in the USA (Our Population was clinicians in a smaller regional hospital in Australia)
- I - Intervention** Education to clinicians and reassessed referral criteria (our Intervention could be slightly different but this article could give us some ideas)
- C - Comparison** No education (status quo)
- O - Outcome** Increased numbers of referrals to palliative care



* **Relevance**

RAMMbo method is one way to quickly appraise ⁷.

- * **R - Recruitment** - were the subjects chosen in the study representative of the target population? Were there enough subjects to make the study valid? (Probably not)
- * **A - Allocation** - was the trial randomised? (No)
- * **M - Maintenance** - Was the status of the control group and study group maintained throughout the trial? Were they treated the same way apart from the intervention? (There were 4 years between pre and post-intervention data collection, so no)
- * **M - Measurement (blinding, objective measures)** - were the outcomes measured objectively and the subjects blinded to the intervention? Was bias eliminated as much as possible? (No)



* **Quality of study**

- *Were the results meaningful?
- *Were statistical tests applied and did they result in a significant impact from the intervention?
- *Could the results have been due to chance or to something in the study which was not controlled?



*Results

- * Did the researchers answer your original question?
- * How can the study be applied in your clinical setting?
- * Are your patient/clinician groups similar to this or quite different?
- * Is the intervention feasible in your clinical setting? What objections could be raised?
- * Do the possible benefits outweigh the possible adverse effects?
- * Would the study be economically viable and time-efficient?
- * What are possible alternative interventions?



* **Applicability**

CIAP - eLearning Modules on searching for evidence and integrating it into practice

<http://www.ciap.health.nsw.gov.au/learning/modules.html>

PMBH LIBRARY

Catalogue: <http://tinyurl.com/pmbhlibrary> ...find lots of books on research and EBP such as:

- * Greenhalgh, Trisha How to read a paper : the basics of evidence-based medicine, 4th ed. 610.72 GRE 2010
- * Crombie, Iain K. The pocket guide to critical appraisal 362.1072 CRO
- * Brettell, Alison. Finding the evidence for practice: a workbook for health professionals 610.73072 BRE
- * Aveyard, Helen. Doing a literature review in health and social care : a practical guide. 362.1072041 AVE 2010
- * Gosall, Narinder K. The Doctor's guide to critical appraisal 610.72 GOS 2012
- * LoBiondo-Wood, Geri Nursing research : methods and critical appraisal for evidence-based practice 610.73072 NUR 2014

Electronic full text journals list: <http://atoz.ebsco.com/Titles/6417>

Email for article requests, search requests, training and more: library.pmbh@ncahs.health.nsw.gov.au

* Further information