BSC206
Introduction to Research Methodology and Evidence Based Practice

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Introduction to Evidence-Based Practice

1. Understand the role of Evidence-Based Practice (EBP) in the clinical decision-making.

EBP = the integration of best research evidence with clinical expertise and patient values

Clinical expertise – use skills and experience to identify each patient's unique health state and weigh potential interventions

Research evidence – clinically relevant research into diagnostic tests, prognostic markers, interventions

Patient characteristics – unique preferences, concerns and expectations of each patient which must be integrated into decision-making

2. Understand research methods that support EBP.

Reasons for need for EBP:

1. Information overload
2. Gap between experience and performance
3. Variations in practice
4. Gap between when we know something to be true and when it is implemented

3. Understand how to find, interpret and appraise evidence to guide clinical practice.

Developing a question:

- Population
- Intervention
- Comparison
- Outcome

Example: In hospitalised patients over 60 years of age, how effective is a falls-prevention program in comparison to the standard care already given by 50%.

Consulting the evidence:
Evidence = the results of clinically relevant research, often from the basic sciences of medicine, but especially from patient-centred research

Appraising the evidence:

- Validity (how close to the 'truth' is it?)
- Impact (how big is the effect?)
- Applicability (will it be useful in my practice?)

Fundamental principles of EBP:

1. Evidence alone is never enough (clinical expertise/judgement, individual patient values, cost/benefit analysis)
2. Not all evidence is equal

For a specific clinical question, gather and critically appraise evidence, then translate your critical appraisals into direct clinical action and assess your performance.

Types of Evidence

Evidence Sources

Lower level evidence
- often contain useful info
- should not be entirely dismissed
- should not be first choice for evidence
- appraised very carefully

Information from colleagues
- potentially biased/unreliable
- obtain copies of sources colleague relied on
- verify validity of material and accuracy

Textbooks
- useful background information
- printed is usually not current
- online textbooks are usually more updated

Trade journals/ magazines/ professional newsletters
- useful synopsis on topics
- time-efficient way to obtain current information
- typically, only reviewed by editor
- quality varies

Conferences
- most up to date
- not effective for everyone (passive)

Websites
- quality websites often sponsored by medical groups and provide valuable up to date info
- some rigorously screen material before inclusion

Evaluating Health Websites

Indication of unreliable website
- anecdotal information
- sweeping generalisations
- points to rare and extreme practices

Indications of reliable website
- author(s) and affiliations listed
- references provided
- conflicts of interest disclosed

Secondary sources
- review articles – summarise current understanding on topic based on previous published research
- first choice for evidence because pre-appraised

Peer-review
- "one that has submitted most of its published articles for review by experts who are not part of the editorial staff"

Blinded peer review
- critically assesses manuscripts with minimum bias (don't know author's identity)

Indexing
- Journals must be of high-quality to be accepted for inclusion in many database
- Must include research that is relevant to the database's area of emphasis

Impact Factors

$$\frac{\text{Number of times articles published in a journal were cited in indexed journals}}{\text{Number of citable articles published by the journal}}$$

Trustworthy?
- Peer reviewed
- Indexed
- Impact factor
- Primary or secondary sources
- Conflicts of interest
- Insufficient or outdated references