P301: Evidence-based medicine: OTC prescribing & critical appraisal

- Over-the-counter (OTC) medicines
  - Context - New Zealand (NZ) & overseas
  - Rules surrounding supply
  - OTC prescribing & responding to symptoms
  - An evidence based approach

Aims: OTC prescribing

- To define what is meant by evidence-based medicine in an OTC prescribing context
- To discuss the skills & understanding required to apply an evidence-based approach
- To explore the importance of the EBM perspective to OTC medicine supply
- To discuss the different perspectives of evidence

Aims: Critical appraisal

- To review what is meant by critical appraisal
- To discuss the skills and understanding required to undertake critical appraisal
- To develop and apply an evidence-based approach to managing and advising patients
  - Lectures
  - Workshops
  - EBM assignment
What is an OTC?

- "Medicine" which can be obtained from the pharmacy without a prescription
- Older style OTCs have historical availability
- Now it tends to be newer products
  - Greater responsibility for pharmacists
  - Increased access for consumers

New Zealand Classification of medicines

- Medicines Act - 3 classification categories
  - Prescription medicine
  - Restricted medicine (Pharmacist Only Medicine)
  - Pharmacy Only Medicine
- General Sale Medicines not listed in classification schedules

www.medsafe.govt.nz

Recent switches to Restricted

5.2 Recommendation on Chloramphenicol for eye use

That chloramphenicol for ophthalmic use should be reclassified from prescription medicine (except when sold in practice by a registered optometrist) to restricted medicine (except when sold in practice by a registered optometrist).

That this recommendation be delayed until training has been provided to pharmacists and appropriate written information on the self-management of eye conditions is able to be given to all patients purchasing the medicine.

Sumatriptan - Restricted

Sumatriptan for oral use in medicines for the acute relief of migraine attacks with or without aura in patients who have a stable, well-established pattern of symptoms when in tablets containing 50 milligrams or less per tablet and when sold in a pack containing not more than 2 tablets which has received the consent of the Minister or the Director-General to its sale as a restricted medicine.


Oseltamivir (Tamiflu)

“Prescription except when sold in a pharmacy between the months of May to September inclusive, or for the duration of the Influenza A (H1N1) Pandemic, by a registered pharmacist who is satisfied that the medicine is for the treatment of a consumer who is resident in New Zealand, is 12 years of age or more, and currently has symptoms of influenza; except when supplied from a Community-based Assessment Centre established and operated by a district health board in accordance with a protocol approved by the National Incident Controller for the Influenza A (H1N1) Pandemic.”


What is OTC prescribing?

Responding to symptoms (Symptom based request)
- Diagnosis
- Treatment/management
- Advice

Responding to request for product (Direct product request)
- Further questioning
- Product?
- Advice
OTC prescribing and “retailing

- Different from many other forms of retailing – in order to minimise harm requires:
  - knowledge
  - skills
  - expertise
  - systems

Putting the pieces together

W = Who is the medicine for?
W = What is the medicine for?
W = What are the symptoms?
H = How long have they had symptoms?
A = Action already taken?
M = Medicines taken for other reasons?

WWHAM
WWHAM is only one tool

- Protocols, Standard Operating Procedures (SOP) & guidelines
  - Australia
    - WHAT - STOP-GO
    - CARER
    - Evidence based & medicine specific
  - United Kingdom
    - WWHAM
    - ASMETHOD
  - New Zealand - www.pharmacycouncil.org.nz

Need a structured process

- Flexible enough for real life
- Comprehensive yet realistic
- Allows your communication skills to shine through
- Consistently applied & supported by training
- Checklist

Interpretation

- Do we have all the information?
  - About the patient’s symptoms?
  - About patient preferences?

- What is happening here?
  - What is your diagnosis?
  - What does that mean? – treat or refer?
  - When would you be unhappy to manage this condition with advice and OTC medicines?
Management

- Treat or refer
- What is the best medicine?
  - Do you know how it works?
  - Why are you choosing this one?
  - Where is the information to support this?
- What about patient preference?
- What do we tell the patient?

More medicines available OTC

- Governments encouraging self medication
- Greater consumer autonomy & responsibility
- Do the public actually want this? Are there risks?
- Professional & ethical responsibility to facilitate good choices
- Beneficence – doing good
- Non-maleficence – doing no harm

More medicines available OTC

- Many prescription medicines now available OTC
- Consensus on safety, low toxicity in overdose and for minor self-limiting conditions
- Concerns about pharmacists’ ability to “diagnose”
- Pharmacist concerns about “responsibility”, knowledge and skills
- OTC use might mask more serious illness
- However – leads to increased independence and autonomy for patients
3 types of evidences

- Consumer behaviour - what do they do?
- Pharmacy behaviour - what do we do?
- Clinical evidence - what works best?

Consumers & OTC prescribing

- Pharmacy as a supply source
  - Direct product request transactional
  - ‘Determined purchaser’ or ‘Assertive consumer’
  - Do not expect advice - does not mean they will not welcome it.
  - Medicines are commodities
  - Consumer consider risks when prompted but then it is about ‘other new users’
- Concern that consumers are unaware of their ‘information deficit’

Consumers: what is the evidence?

- Conflicting evidence of their ability to self-diagnose & self-treat illness
- Women previously diagnosed with thrush opted to self-treat more serious symptoms
- 46% of consumers inappropriately selected H2-antagonists even with history of gastric disease
  - Warning on package labelling did not alter choice
- 46% of consumers inappropriately used NSAIDs for dysmenorrhea
- Diabetics have inappropriately used OTCs - unaware
What about the pharmacy evidence?

What are benefits to us the pharmacist?
- Wider choice of treatments
- Ability to treat more effectively
- Increase in sales
- Increase in professional status

What are some issues for pharmacists?
- Increased professional responsibility
- Increased need for training
- Increased need to give advice
- Decrease in prescription income
- Impact of advertising on patient choice
- Is advertising evidence-based?
- Making claims for effectiveness when no evidence?
Clinical evidence - what works best?

“... the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of EBM means integrating individual clinical expertise with the best available external clinical evidence from systematic research”. Sackett, et al, 1996

EBM is a way of staying current - every case is a learning opportunity.

Why do we need EBM?

- Continual generation of new evidence
- Difficult to get information in a timely manner.
- Up-to-date knowledge and clinical performance deteriorate over time.
- Tradition medical CE doesn't help.
- A new approach to clinical learning is needed.

How can we keep up to date?

- Learn how to practice EBM
- EBM summaries or guidelines devised by others (experts)
  - http://www.besttreatments.co.nz
  - Clinical Evidence
- By accepting evidence-based practice protocols developed by colleagues
- Develop a desire for, and practice of life-long learning
How do we do EBM?

1. Identify the case
2. Identify answerable clinical questions
3. Search for clinically-relevant evidence with which to answer the above questions
4. Critically appraise the evidence for its validity and applicability
5. Apply the results to patient care

1. Identify answerable clinical questions

What is a good clinical question:

PI CO
1. Patient or problem
2. Intervention, prognostic factor, or exposure
3. Comparison
4. Outcomes

2. Search for clinically relevant evidence

- Patient information/history
- Personal experience
- Peer-reviewed literature
- Current awareness; clinical alerts
- Systematic reviews
- Literature reviews
- Meta-analyses
- “Expert” opinion
- Asking others
What are the sources of this information

- Books
- Databases (e.g. Medline)
- EBM websites (e.g. Cochrane, TRIP)
- Clinical queries websites
- Journals
- Own knowledge
- Experts

Current Information

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Evidence Based Guidelines

- EBG are result of evidence being reviewed, assessed and linked with clinical expertise
- EBG provides guidance on best practice - and tells you how much evidence supports it
- See: http://www.nzgg.org.nz/
- Database - Clinical evidence
3. Critically appraise the evidence for its validity and applicability

- Randomised controlled trial
- Non-randomised controlled trial
- Uncontrolled clinical trial
- Retrospective studies (cross-sectional, case-control)
- Case series
- Case report

Hierarchy Evidence

- Meta-analysis of RCTs
- Systematic review
- Randomised controlled trials
- Non-randomised trials
- Cohort studies
- Case control studies
- Cross sectional studies
- Surveillance data
- Case reports

Randomized Controlled Trial

- Tests if one intervention better than another
- Concerned with effectiveness
- May include control (placebo) group
- May have test drug, standard drug AND placebo
- Random allocation of patients to the groups
- Tries to ensure that any difference noted due to intervention only
### Cohort studies
- Looks at “what happened next”\(^*\)? - always looking forward
- E.g. how long patients with back pain take to recover
- May include a control group e.g. if looking at incidence of disease in an exposed group
- Identify set of individuals at one time-point (NOW) and follow-up to FUTURE
- Might also select a time point in PAST and see how are NOW

### Case control studies
- Looks at “what makes a group different”
- Often looking at cause of a disease
- Select group of patients with defining feature(s)
- Match with a control group without the feature
- Looks back to understand cause

### Surveys
- Ask “how things are”
- Often called “cross-sectional” studies
- A sample of individuals from a “population”
- Ask sample certain questions - e.g. activities, attitudes, measurement at 1 time point
Critical appraisal

Process of assessing and interpreting evidence by systematically considering its validity, results and relevance to the case at hand

e.g.
• Is it relevant to my question?
• Has research been carried out correctly?
• Have data been analysed appropriately?
• Have data been presented accurately and fully?
• Does discussion relate to findings?
• Can I use what I find?

Why do we want to read papers/articles/books

- Most up-to-date evidence available
- To answer a specific clinical query
- To review research before embarking on a new study
- To help with assignments or for revision
- Range of evidence in terms of breadth and timeframe
- Cover different perspectives

How to search literature

- Use databases such as Medline, International Pharmaceutical Abstracts, Cochrane reviews
- Use Google, but LOOK AT QUALITY OF WEBSITES!
- www.scholar.google.com
- Ask librarians for help
- Databases – Clinical Evidence
Questions to ask

- Is it of interest to me
- Why was it done
- How was it done
- What has it found
- What are the implications
- What else is of interest


Some of the issues

- Outliers
- Skew
- Non-independence
- Bias
- Confounders

Standard checklist

- Are the aims clearly stated?
- Was sample size justified?
- Are measurements likely to be valid and reliable?
- Are statistical methods described?
- Did anything unusual happen during study?
- Was bias adequately described?

**Standard checklist**

- Do the numbers add up?
- Was statistical significance assessed?
- What do the main findings mean?
- How are "non" findings interpreted?
- Are important effects overlooked?
- How do results compare with previous reports?
- What implications does the study have for your practice?

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**Appraising clinical trials**

- Were treatments randomly allocated?
- Were all patients accounted for?
- Were outcomes assessed blind?
- Could choice of subjects influence results?
- How were they randomised?
- Ambiguities in description of treatment?
- Are outcomes clinically relevant?
- Were groups same at baseline?
- Were results analysed on "intention to treat" basis?
- Were side effects reported?
- Was a suitable comparison used suitable dose?

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**Interpreting case control studies**

- How were cases obtained?
- Is control group appropriate?
- Were data collected same way for both groups?
- Is design appropriate for aims?
- Where are the biases?
- Could there be confounding?

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Interpreting cohort studies

- Who was studied?
- Was a control group used?
- Should a control group have been used?
- How adequate was follow-up?
- Was design appropriate for stated aims?
- Was intervention accurately measured?
- Were relevant outcomes ignored?
- Did analysis allow for passage of time?
- What else might influence findings?


Appraising surveys

- Who was studied?
- How were they sampled/selected?
- What was the response rate?
- Was the design appropriate?
- Where could bias arise?
- Can results be generalised?


Effectiveness of therapy – problems of generalisability

- Initial selection of “population”
- Selection of study population – usually omits pregnant, elderly, people with other concurrent illnesses
- Loss to follow-up may be due to adverse events, or even lack of effect
- Non-compliance

5. Apply the results to patient care

- Findings must relate to the question at hand – no point looking at papers on elderly females, if case is middle aged man
- Need to assess evidence AND patient-related factors (e.g. cost, acceptability of treatment)
- Need to assess risk

Other things to consider:

- Do I have all of the information?
- How can I identify causes of disease?
- What are the possible causes of a patient's clinical problem?
- How can I rank causes by likelihood, seriousness and treatability?
- How can I select and interpret diagnostic tests (precision, accuracy, acceptability, expense, safety, etc.)?
- How will patient be over time?
- How can I select treatments?
- Which treatments do more good than harm?
- How much do treatments cost?
- How can I reduce the chance of diseases occurring?
- How can I diagnose disease early by screening?

Example

- Mrs Jones, a 63 year-old regular patient at the pharmacy has been feeling quite “down” recently since she was diagnosed with arthritis. Although the ibuprofen seems to be working for the pain, she feels that it’s a sign of “getting old”. She has previously had amitriptyline for depression and found it worked for her, but made her feel very drowsy and she suffered from constipation. This time she has decided she doesn’t want to take any “drugs”. She has heard that St John's Wort is “good” for depression and asks whether you would recommend it for her.
What questions need to be asked in order for you to be able to have a complete history?

- How long has she been feeling “down”
- What are her symptoms?
- Is she taking any other medications (including OTC)?
- Does she have any other medical conditions?
- Why doesn’t she want to try the prescribed antidepressants?
- Has she tried them before?
- Why does she prefer the idea of St John’s Wort?

What if too many questions arise?

- Patients may have several active problems
  - possible questions about diagnosis, prognosis, therapy for each problem
  - your questions may be too numerous to even ask, let alone answer.
- What is the most important issue for this patient now?
- Which question, when answered, will help me most?
- Then selecting from the many the few questions that are most important to answer right away.

What are the EBM questions which need to be answered?

- What is the likely diagnosis for Mrs Smith?
- Is St John’s Wort effective as an antidepressant?
- How effective is St John’s Wort when compared to amitriptyline?
- Are there any side-effects or contraindications specific to this patient?
- How long can a person use St John’s Wort
Assignment

1. Search the literature
   a) Library workshop
   b) Search strategy
   c) Select articles
2. Review the evidence
3. Make an evidence-based decision & justify your answer
4. Advise the patient

Further support materials have been provided

P301 EBM assignment

- Mrs X comes into your pharmacy and asks you for your opinion on whether she should purchase Echinacea for the family. She read somewhere that it is good for the immune system and she thinks it might be a good idea this year considering the amount of influenza H1N1 that is around. Some members of her family seem prone to colds and she is quite concerned about them getting the new flu. Mrs X. has 2 daughters (5 years old and 8 years old), a 14 year old son with asthma and her husband has high blood pressure.

P301 EBM assignment

- Due 5pm Monday 21st September
  - 2000 word limit (increased)
  - Submit via Turnitin (will provide ID & password)
  - Submit to Pharmacy office
  - Marks affected by late submission or plagiarism
- New in 2009 - literature searching
  - Register for library workshop
  - Literature search
    - Search strategy
    - Selection of articles