Evidence-based medicine (EBM)

- Process of locating and evaluating most relevant research findings and using results as the basis for making clinical decisions
    - Use scientifically generated evidence produces greatest likelihood of therapeutic success
    - Recommending interventions in accordance with best available evidence may reduce morbidity and mortality
    - Patients have increasing access to scientific literature – expect health practitioners to recommend treatments based on sound medical evidence

Type of study	**Description**
Case series/ Observational	Characteristics of group of patients (series of cases) observed, described and published – slightly biased (no controlled variables) Case-control/retrospective studies - Potential risk factors (e.g. diet) and exposure to treatment/intervention of one group with the outcome/disease are compared with similar information obtained from a control group – "looking backwards" - Patients must recall info from past – responses influenced, aspects omitted – less reliable; required data not obtained at the time - Require fewer subjects and can be completed in a shorter time Cohort/prospective studies - Large group of individuals studied over a period of time to investigate the outcome of a particular risk factor or exposure – "looking forwards" - Know what you're looking for, but may not have right people so large group is required for statistical significance
Uncontrolled trials	Post-test studies – only outcomes of intervention are recorded (no comparisons) Pre-test/post-test studies – outcomes are measured in subjects before and after exposure to intervention (allows comparison)
Concurrent control	Two or more groups – one acts as control (continue on normally), other receives something new or varied – comparison made from each groups' outcomes
Historical control	Outcomes for a group of subjects exposed to the new treatment/intervention are compared with a group treated in the past
Randomised controlled trials (RCT)	Similar to concurrent control trail, but subjects are randomly allocated to groups, e.g. placebo/control or intervention/treatment, to reduce bias
Systematic reviews	Systematic location, analysis and synthesis of evidence from all available published scientific studies
Meta-analyses	Quantitative statistical analysis of several separate but similar and comparable studies, in order to test the pooled data for statistical significance

Eliminating bias

- Randomisation – relies on statistical principles to reduce bias
- Placebos – pharmacologically inert medication which looks, tastes and smells the same as the active medication – in theory has no pharmacological effect
    - Allows researcher to compare active drug with placebo – control
    - Placebo effect – patient experiences response (therapeutic or side effects) to placebo as if taking the real medication
- Blinding – Single blind trials – patients don't know whether they receive active drug or placebo
    - Double blind – patients and researchers don't know who is getting the treatment
    - Triple blind – patients, researchers and analysts unaware
- Crossover designs
    - Each group receives one treatment for specific period
    - Patients act as their own control, e.g. one treatment -> washout/break -> other treatment
        - Can be two treatments (e.g. different dosages) or treatment vs. control
    - Ethical/practicality issues, e.g. cancer treatment

Sources of bias

- Non-randomised trials
- Non-comparability – 2 groups are initially different, e.g. people with higher cholesterol respond better to drug (than mild cholesterol)
- Different co-morbidity and co-treatment – groups differ in the other treatments received
- Different measurement methods – e.g. historical controls or prolonged studies

Confidentiality and ethics

Scenario	**Issue**
Person collecting prescription is not the patient themselves	- Collector may be wrongly using medication for themselves - Clinical advice/details may not be passed on to patient - Confidentiality – patient's medical information is being accessed by others ∴ Provide printed information and place in paper bag along with medication
Some medications have more than one use	- Clear any pre-conception of a patient's condition or reason for medicine use - Clarify patient's intended use prior to counselling - Interact with patients in a discrete manner

- Health practitioners are unable to disclose a patient's medical information to others, regardless of the patient's age
- Pharmacies may maintain the privacy of consumers by hiding name of medicines on tax printouts
- Releasing private information without the knowledge/consent of the patient is breaching the patient-pharmacist confidentiality code

Characteristics of a profession

- Code of conduct/professional code
- Autonomy – determines its own standards
- Specialised body of knowledge and skills primarily held by members of that profession
- Standards must be met through a form of assessment
- Public service
- Individuals of the profession identify with that profession (i.e. is part of their identity)

National Competency Standards Framework for Pharmacists in Australia 2010

- Competency Standards describes the skills, attitudes and attributes (e.g. values and beliefs) which together enable an individual to practise effectively as a pharmacist
    - Capacity and ability to perform tasks, including knowledge and communication skills
    - Professional and ethical practice, leadership, communication, collaboration, preparing pharmaceutical products, supplying prescribed medicines, delivering primary and preventative health care, promoting optimal use of medicines, research, education
- Professional Practice Standards relate to the systems, procedures and information used by pharmacists to achieve a level of conformity and uniformity in their practice
    - Refers to the way the activities are performed
    - Professionalism, ethical practice, maintenance of consumer privacy and confidentiality
- Personal competence and the adoption of quality standards are both required to ensure professional services deliver optimal health outcomes for consumers
- Continuing professional development (CPD) – mandatory for all pharmacists seeking annual re-registration to practice – read relevant articles and answer questions to submit for assessment

Laws	Sets of rules, imposed on each of us by our own community, which we must obey
Ethics	Sets of standards which we impose on ourselves, either individually or as a group
Standards	E.g. codes of conduct, professional standards