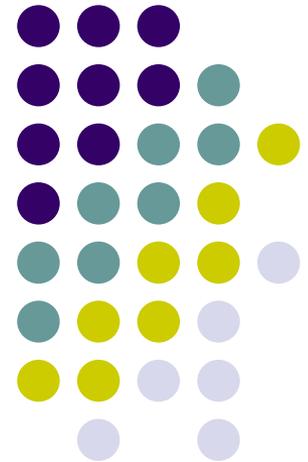
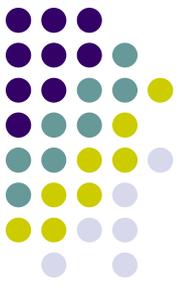


# Future prospects for evidence-based practice: getting closer to the destination

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# Presentation outline

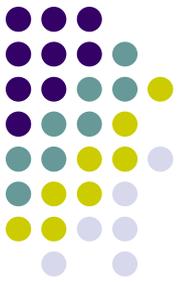
- Introduction to evidence based practice
- Achievements and limitations of evidence based practice
- From evidence based medicine to evidence based practice
- Summary
- Implications for health policy and research



# Background

- Clinical research is consistently producing new findings that may contribute to effective and efficient patient care
- The findings of such research will not change population outcomes unless health services and health care professionals adopt them in practice.

Grimshaw, Ward, Eccles (2001). *Oxford Handbook of Public Health*.



# Background

## Traditional paradigm of medicine

- Clinical decision making based upon intuition, unsystematic clinical experience and pathophysiologic rationale.
- Not conducive for rapid uptake of research findings.

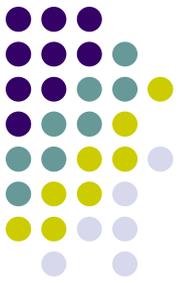
Guyatt, Rennie (eds) (2002). *Users' Guides to the Medical Literature. A Manual for Evidence-based clinical practice.*



# Evidence based medicine

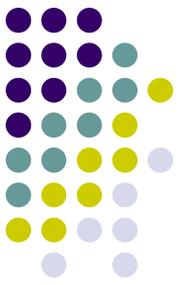
- Historical roots in Europe in mid 19<sup>th</sup> century.
- Sackett, Haynes, Tugwell (1985) *Clinical Epidemiology: a Basic Science for Clinical Medicine*.
- Evidence Based Medicine Working Group (1992) *JAMA*.
- Guyatt, Rennie (eds) (2002). *Users' Guides to the Medical Literature. A Manual for Evidence-based clinical practice*.

# Evidence based medicine



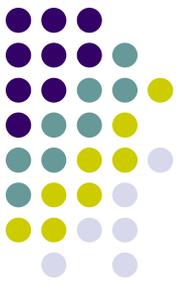
- (Evidence based medicine) is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

# Two fundamental principles of evidence based medicine



- Hierarchy of evidence addressing different types of clinical questions
  - Eg Treatment decisions
    - N of 1 randomised trial
    - Systematic review of randomized trials
    - Single randomised trial
    - Systematic review of observational studies
    - Single observational study
    - Physiologic study
    - Unsystematic clinical observations

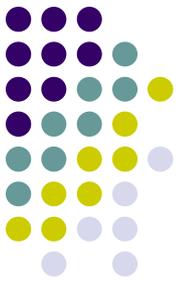
# Two fundamental principles of evidence based medicine



- Evidence is never enough in clinical decision making
  - Professionals consider variety of factors when making decisions including: knowledge of current patient, previous experience of similar patients, evidence base (benefits, harms, costs), likely impact of decision on professional-patient, other factors.
  - Values and preferences of the individual clinician, patient and health system also strongly influence decision.

Guyatt, Rennie (eds) (2002). *Users' Guides to the Medical Literature. A Manual for Evidence-based clinical practice.*

# Evidence based medicine



- Evidence based medicine involves:
  - Identification of clinically important questions based upon direct patient care
  - Systematic identification and appraisal of evidence relating to question
  - Consideration of evidence during clinical decision making

# Achievements of evidence based medicine



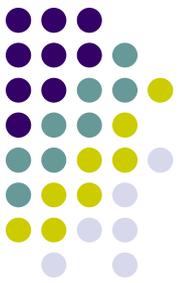
- Change in health care culture internationally
- Improve scientific methods
- Development of practical tools for clinicians to identify, appraise and apply evidence at the bedside
  - Users' Guides to the Medical Literature
- Increased production of research syntheses
  - Cochrane Collaboration
  - Clinical Practice Guidelines

# Users' Guides to the Medical Literature



- 33 articles published in JAMA between 1993 and 2000
- Provide practical advice to readers about how to appraise medical literature
  - Eg Therapy articles
    - Finding the evidence
    - Are the results valid?
    - What are the results?
    - How can I apply the results to patient care?

Guyatt, Rennie (eds) (2002). *Users' Guides to the Medical Literature. A Manual for Evidence-based clinical practice.*

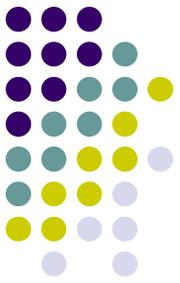


# Cochrane Collaboration

- The Cochrane Collaboration is:  
*‘An international organisation that aims to help people make well informed decisions about health by preparing, maintaining and ensuring the accessibility of systematic reviews of the benefits and risks of healthcare interventions.’*

Cochrane Collaboration (1997). *Cochrane Library*.

# Cochrane Collaboration



- Cochrane Library includes:
  - *Cochrane Database of Systematic Reviews*  
(database of protocols and systematic reviews undertaken by members of Cochrane Collaboration - currently includes 1669 reviews and 1266 protocols)
  - *Cochrane Controlled Trials Register*  
(register of randomised and controlled trials identified by electronic and hand searching currently includes 362540 trials)
  - *Cochrane Review Methodology Database*
  - *Database of Abstracts of Reviews of Effectiveness.*

# Cochrane Back Group



- Randomized controlled trials (RCTs) and controlled clinical trials (CCTs) of primary and secondary prevention of neck, back pain, and other spinal disorders
- Dr Alf Nachemson was one of the Founding Co-Editors
- Initial supported through Swedish Council on Technology Assessment in Health Care
- Based at the Institute of Work Health
- 24 reviews, 10 protocols (Dr Alf Nachemson co author on review of lumbar supports for prevention and treatment of low back pain)

# Limitations of evidence based medicine



- Evidence is never enough
- Shortage of coherent, consistent scientific evidence
- Unique biological attributes of individual patients
- Limited resources for health care
- Need for clinicians to develop new skills

Guyatt, Rennie (eds) (2002). *Users' Guides to the Medical Literature. A Manual for Evidence-based clinical practice.*

# From evidence based medicine to evidence based practice



- Consistent evidence of failure to translate research findings into clinical practice
  - 30-40% patients do not get treatments of proven effectiveness
  - 20–25% patients get care that is not needed or potentially harmful

Schuster, McGlynn, Brook (1998). *Milbank Memorial Quarterly*

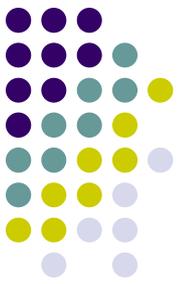
Grol R (2001). *Med Care*

# From evidence based medicine to evidence based practice



- It may be too soon to expect substantial changes in clinical practice due to evidence based medicine
- Evidence based medicine largely focuses on the individual clinician at the bedside assuming:
  - Professionals have motivation, skills, energy and time
  - Professionals work within supportive environments that are conducive to evidence based practice
  - Evidence based practice is largely determined by the individual professional

# Potential barriers to evidence based practice



- Structural (e.g. financial disincentives)
- Organisational (e.g. inappropriate skill mix, lack of facilities or equipment)
- Peer group (e.g. local standards of care not in line with desired practice)
- Professional (e.g. knowledge, attitudes, skills)
- Professional - patient interaction (e.g. problems with information processing)
- Patient (e.g. knowledge, attitudes, skills)

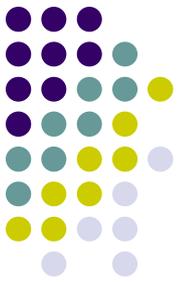
# Towards evidence based practice



- Increased research and policy interest in active implementation strategies.
- However most of the approaches to changing clinical practice are more often based on beliefs than on scientific evidence
- *‘Evidence based medicine should be complemented by evidence based implementation’.*

Grol (1997). *British Medical Journal*.

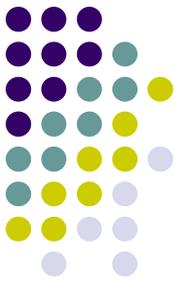
# Towards evidence based practice



- Ferlie and Shortell suggested four levels at which interventions to improve the quality of health care might operate:
  - the individual health professional;
  - health care groups or teams;
  - organisations providing health care (e.g., NHS trusts);
  - the larger health care system or environment in which individual organizations are embedded.

Ferlie, Shortell (2001). *Milbank Quarterly*

# Towards evidence based practice



## Levels of engagement

- Policy
  - Macro (national/provincial)
  - Meso (organisational)
- Managerial
- Provider
- Consumer

# Towards evidence based practice



- Hierarchy of evidence

- (N of 1 randomised trial)

- Systematic review of randomized trials

- Single randomised trial

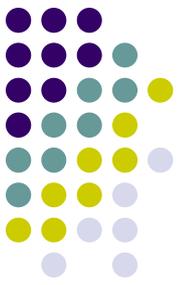
- Systematic review of observational studies

- Single observational study

- Behavioural study

- Unsystematic clinical observations

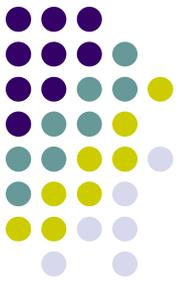
# Cochrane Effective Practice and Organisation of Care (EPOC) Group



EPOC aims to undertake systematic reviews of interventions to improve health services delivery and health systems including:

- Professional interventions (e.g. continuing medical education, audit and feedback)
- Financial interventions (e.g. professional incentives)
- Organisational interventions (e.g. the expanded role of pharmacists)
- Regulatory interventions

# Cochrane Effective Practice and Organisation of Care (EPOC) Group

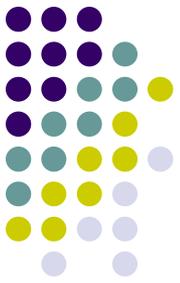


## Progress to date - register and reviews

- Register of 2500+ primary studies
- 27 reviews, 21 protocols
- Collaborating with over 100 researchers from 12 countries
- Regular contact with health care professionals, policy makers

Alderson, Bero, Grilli, Grimshaw, McAuley, Oxman, Zwarenstein (2003). *Cochrane Library*.

# Systematic review of guideline dissemination and implementation strategies



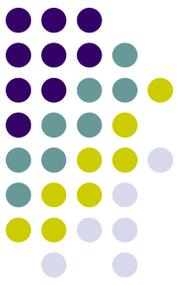
## Objective

- Systematic review of the effectiveness and efficiency of guideline dissemination and implementation strategies to promote improved professional practice.

## Included studies

- Included 285 reports of 235 studies, yielding 309 separate comparisons

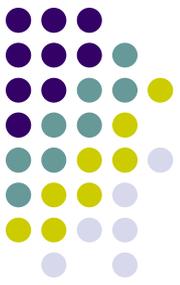
# Systematic review of guideline dissemination and implementation strategies



## Conclusions

- Improvements in direction of effect in 86% of comparisons
- Reminders most consistently observed to be effective
- Educational outreach only led to modest effects
- Dissemination of educational materials may lead to modest but potentially important effects (similar effects to more intensive interventions)
- Multifaceted interventions not necessarily more effective than single interventions

# Systematic review of guideline dissemination and implementation strategies



## Conclusions

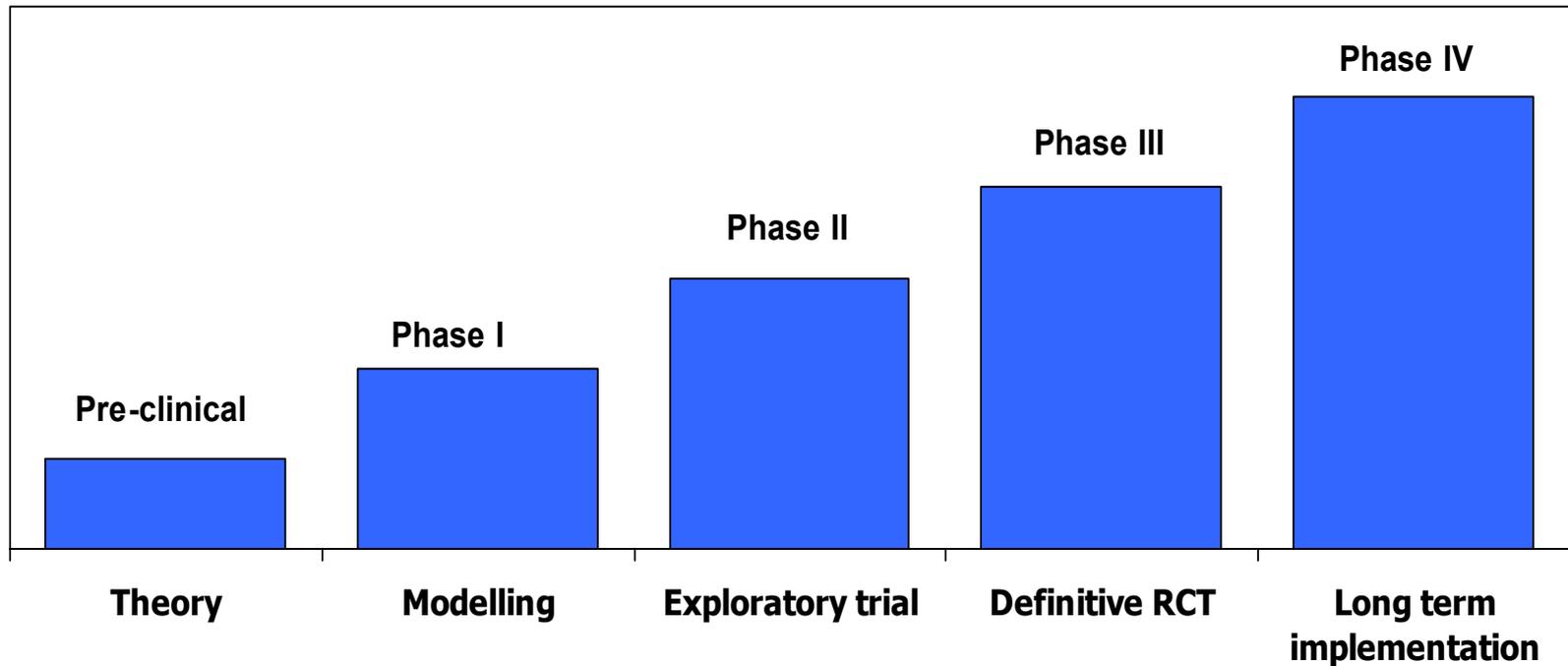
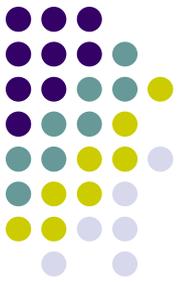
- Imperfect evidence base for decision makers
- Many current rigorous evaluations have methodological weaknesses (eg unit of analysis errors)
- Poor reporting of study settings, barriers to change, content and rationale of intervention
- Generalisability of study findings is frequently uncertain

# Towards evidence based practice

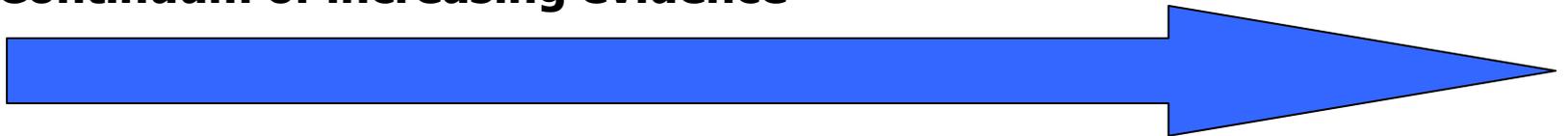


- Hierarchy of evidence
  - (N of 1 randomised trial)
    - Systematic review of randomized trials
    - Single randomised trial
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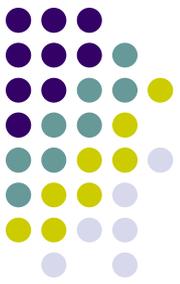
# UK MRC Framework for Evaluating Complex Interventions



**Continuum of increasing evidence**

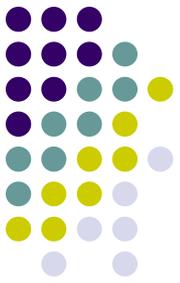


# Summary



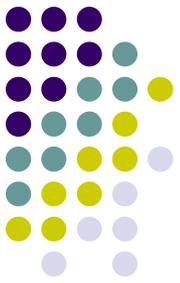
- Evidence based medicine has changed culture of health care internationally
- Considerable achievements within relatively short timescale
- Evidence based medicine has not (yet) led to evidence based practice
- Additional system, continuing education and quality improvement interventions are likely to be required for evidence based practice

# Implications for health service policy



- Stewardship and accountability agendas require decision making in face of imperfect evidence.
- Decision makers need to use considerable judgement about how best to use the limited resources for implementation based upon consideration of:
  - the potential clinical areas for clinical effectiveness activities;
  - the likely benefits and costs required to introduce guidelines;
  - and the likely benefits and costs as a result of any changes in provider behavior.

# Implications for health service policy



## The experimenting society

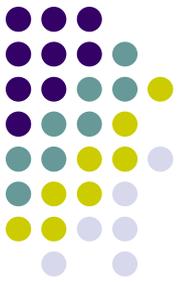
- Campbell (1971) introduced concept of ‘the experimenting society’ which would be:
  - *active society* preferring exploratory innovation to inaction;
  - *honest society* committed to reality testing;
  - *scientific society* valuing honesty, open criticism, experimentation, willingness to change once advocated theories in the face of evidence;
  - *accountable, challengeable, due-process society.*

# Implications for knowledge translation research

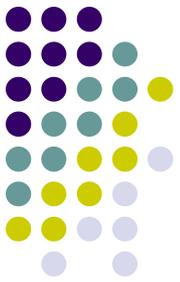


- Research into methods of promoting uptake of research findings
- Aims are to develop generalisable knowledge base about likely effectiveness and efficiency of dissemination and implementation strategies in different settings
- To inform policy decisions about how best to use resources to improve uptake of research findings and maximise benefits

# Implications for knowledge translation research



- Further research is required:
  - To develop a better theoretical understanding of professional behavior and behavior change;
  - To identify modifiable by exploring provider and organisational factors for potential intervention;
  - To estimate the effectiveness and efficiency of dissemination and implementation strategies in the presence of different barriers and effect modifiers.



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<http://www.epoc.uottawa.ca/index.htm>