Managing Clinical Effectiveness:
‘achieving better patient outcomes’

Rod Jackson
Tabriz, April 2012
Clinical governance (CG)

- CG requires the director of a healthcare organisation (e.g. the hospital chief) to be responsible for patient outcomes as well as for financial outcomes.
What is clinical effectiveness?

- Clinical effectiveness is about *improving patients’ ‘total experience’* of their healthcare.
- Clinical effectiveness is aimed at *making clinical practice more explicitly evidence based*, with the goal of *improving the effectiveness of clinical practice & service delivery*.
- Clinical effectiveness & clinical audit are essential components of the Clinical Governance agenda to improve & assure quality.

http://www.ashfordstpeters.nhs.uk/clinical-effectiveness-and-audit
What is clinical effectiveness?

“the application of:
• the best knowledge from research
• clinical experience and
• patient preferences
to achieve the best processes and best outcomes of care for every patient.”

the best system of care

UK Department of Health (1996) Promoting Clinical Effectiveness
Clinical effectiveness is about doing:

• **the right thing:** evidence-based practice requires health care decisions to be based on best current, valid & reliable evidence

• **in the right way:** developing a skilled & competent workforce to deliver the care required

• **at the right time:** accessible services providing treatment when patients need them

• **in the right place:** location of treatment/services

• **with the right outcome:** clinically effective & maximising health gain for a population

Worcestershire Mental Health Partnership NHS Trust Clinical Effectiveness Strategy (2008)
Clinical effectiveness = Quality healthcare

Safe
Timely
Effective
Efficient
Patient-focused
Managing Clinical Effectiveness

• CE involves “the application of the best knowledge, derived from research, clinical experience and patient preferences to achieve the best processes and outcomes of care for patients.

• Managing CE involves a framework of: 1. informing practice with CE, 2. changing & monitoring practice to improve CE”

UK Department of Health (1996) Promoting Clinical Effectiveness
1. Informing Practice decisions with the best evidence integrated with clinical experience/patient preferences

a. training evidence-based practitioners
b. producing & using systematic reviews
c. producing & using evidence-based guidelines
2. Changing practice to improve CE and monitoring practice to maintain CE

Quality improvement initiatives
(e.g. rapid PDSA cycles & Clinical audit)
1. Informing Practice with the best evidence integrated with clinical experience/patient preferences

a. training evidence-based practitioners
b. producing & using systematic reviews
c. producing & using evidence-based guidelines
a. Training Evidence-Based Practitioners: what is Evidence Based Practice (EBP) & why its necessary?

‘how to inform decisions more explicitly with the best, up-to-date evidence, mainly from clinical epidemiology’

Rod Jackson 2012
Evidence Based Practice emphasises ‘current’ best evidence from clinical epidemiology about outcomes directly relevant to people.
X-factor: making evidence-based decisions

Practitioner expertise: ‘putting it all together’ - the art of practice

Clinical expertise in the era of evidence-based medicine and patient choice. EBM 2002;736-8 (March/April)
Evidence-Based Practice

‘informing decisions more explicitly with the best up-to-date evidence, particularly from epidemiology’

by using this evidence:

• more efficiently
• more critically
• more systematically
Why do we need to use evidence efficiently?

more efficiently

EBP: informing decisions with the best up-to-date evidence
Health-related evidence increasing so rapidly we need better skills to keep up-to-date more efficiently than previous generations of health professionals.
Why do we need to be more critical? because many clinicians cannot tell good from poor quality research

BMJ study of 607 reviewers
   – 14 deliberate errors inserted

Detection rates
   – On average <3 of 9 major errors detected
   – Poor Randomisation (by name or day) - 47%
   – Not intention-to-treat analysis - 22%
   – Poor response rate - 41%

   Schroter S et al, accepted for Clinical Trials

more critically EBP: informing decisions with the best up-to-date evidence
Teaching with GATE: 
**Graphic Appraisal Tool for Epidemiological Studies**
- *a framework for appraising the evidence*
Why do we need to use evidence more systematically?

“Because clinicians have not systematically used all the relevant evidence, advice on some life-saving therapies has been delayed for more than a decade, while other treatments have been recommended long after controlled research has shown them to be harmful”.
Using evidence more systematically

Total mortality from trials of β-blockers in 2° prevention after MI.

Black square & horizontal line correspond to odds ratio (OR) & 95% confidence interval (CI) for each trial. The size of the black square reflects the weight of each trial. The diamond represents the combined OR & 95 CI, showing a 22% reduction in odds of death.

Using evidence more systematically

Cumulative meta-analysis of total mortality results from trials of oral β-blockers after MI.

Cumulative odds ratios (95% CI)

Size of squares reflect amount of statistical information available at a given point in time

In the 19th century we made great advances in health through the provision of clean, clear water; in the 21st century we will make the same advances through clean, clear (systematically reviewed) information.

Muir Gray
Teach searching for & appraising SRs / meta-analyses using the acronym - FAITH

- **F**ind appropriate studies?
- **A**ppraise selected studies?
- **I**nclude only valid studies?
- **T**otal-up (synthesise) appropriately?
- **H**eterogeneity *adequately* addressed?
What skills do practitioners need to keep up to date with the best evidence?

1. **Ask** a focused question.
2. **Access** (systematically search for) epidemiological evidence to help answer question.
3. **Appraise** evidence found for its validity, effect size, precision (ideally all the relevant evidence).
4. **Apply** the evidence in practice:
   a. **amalgamate** the valid evidence with other relevant information (values & preferences, clinical/health issues, & system issues) and **make an evidence-based decision**; and
   b. **act** (implement) the decision in practice.
About 1/2 of ‘valid’ evidence today is out of date in 5 years.

About 1/2 of valid evidence is not implemented.

"...and, as you go out into the world, I predict that you will, gradually and imperceptibly, forget all you ever learned at this university."

ScienceCartoonsPlus.com
The 5\textsuperscript{th} step of EBP

5. **Audit** practice (i.e. check if there is a difference between actual practice and ‘best’ evidence-based practice, as determined by Steps 1-4)
How can busy clinicians be Evidence Based Practitioners?
1. Informing Practice with the best evidence integrated with clinical experience/patient preferences

a. training evidence-based practitioners
b. producing & using systematic reviews
c. producing & using evidence-based guidelines
1. Read evidence-based abstraction journals ( & cancel other journals): ½ of all EBM/ACP articles come from 5 top sources ( & other ½ from 95!)


Dilks-Walker, EBM Journal, 2004
2. use systematic reviews of best evidence*

The number of systematic reviews in healthcare 1990-2010

Bastian, Glasziou, Chalmers PLoS 2010 Vol 7 | Issue 9 | e1000326
3. Use evidence-based guidelines*

The New Zealand Guidelines Group leads a movement towards the delivery of high quality health and disability service throughout New Zealand through a change of culture based on evidence and effectiveness.

‘Ko koe ki tena ko au ki tenei kiwai o te kete’

2nd Guidelines International Network Conference
1-3 November 2004 - Wellington, New Zealand
CLICK FOR MORE DETAILS
4. use evidence-based “electronic decision support systems”*

= electronic EB guidelines  * when available
Improving clinical effectiveness

Reasoning based on pathopharmacy

Randomised controlled trials

EB Guidelines

Improved health care

Reasoning based on observational studies

Systematic reviews
Managing clinical effectiveness = providing quality care for all patients

**Safe**

**Timely**

**Effective**

**Efficient**

**Patient-focused**

- inform practice (EBP training, SRs, guidelines)
- change practice (e.g. PDSA cycles)
- monitor practice (clinical audit)
Extra slides
What is clinical effectiveness?

“Clinical effectiveness is the extent to which specific clinical interventions do what they are intended to do, i.e. maintain and improve the health of patients securing the greatest possible health gain from the available resources”

NHS Quality Improvement Scotland (NHS QIS 2005)
Using evidence more critically

Validity: Most articles can be ignored

EBM Journal Process

- 140+ journals scanned
  - 60,000 articles
- Is it valid? (<5%)
  - Intervention: RCT
  - Prognosis: inception cohort
  - Etc
- Is it relevant?
  - 6-12 GPs & specialists asked: Relevant? Newsworthy?

- < 0.5% selected

Number Needed to Read to find 1 valid is 20+

Number Needed to Read to find 1 valid & relevant is 200+

more critically

EBP: informing decisions with the best up-to-date evidence
Distribution of study results relating physician age to clinical performance in various domains.

- **Gets worse with “duration in practice”**

**Type of Quality Assessed**

- □ Studies in which length of time in practice or age was associated with lower performance for all outcomes.
- □ Studies in which length of time in practice or age was associated with lower performance for some outcomes; no effect was found for other outcomes.
- □ Studies in which there was a concave relationship between length of time in practice or age and performance.
- □ Studies in which no association was found between length of time in practice or age and performance.
- □ Studies in which length of time in practice or age was associated with higher performance for some outcomes; no effect was found for other outcomes.
- □ Studies in which length of time in practice or age was associated with higher performance for all outcomes.
GATE: Graphic Approach To Evidence Based Practice
- a framework for learning the skills of EBP
Relative usage of the Cochrane Library by population

- Australia
- Norway
- UK
- New Zealand
- Ireland
- Netherlands
- Switzerland
- Taiwan
- Thailand
- Belgium
- Hong Kong
- Singapore
- USA
- Italy
- Germany
- France
- Portugal
- Greece
- Japan
- Malaysia
- Pakistan
- China

- National provision
- No national provision

THE COCHRANE COLLABORATION®
5-S levels of organisation of research evidence pyramid: 5. appraise original studies

- Systems
  - Summaries
  - Synopses
  - Syntheses
  - Studies

Examples
- Computerized decision support
- Evidence based textbooks
- Evidence based journal abstract
- Systematic reviews
- Original journal articles

Source: Haynes, B. *Evid Based Med* 2006; 11:162-164
What skills do practitioners need to keep up to date with the best evidence?

• to find the evidence more efficiently
• to appraise the quality of the evidence more effectively
• to use good quality evidence more systematically
Managing clinical effectiveness

“the application of the best knowledge, derived from research, clinical experience and patient preferences to achieve optimum processes and outcomes of care for patients. The process involves a framework of: 1. informing, 2. monitoring and changing practice”

UK Department of Health (1996) Promoting Clinical Effectiveness