



DAGU IMPLEMENTATION SCIENCE WORKSHOP

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PURPOSE OF THE WORKSHOP

To become familiar with **concepts and methods** within the area of implementation science and **to individually develop and defend** an implementation science project within the Dagu PhD plans.



TODAY

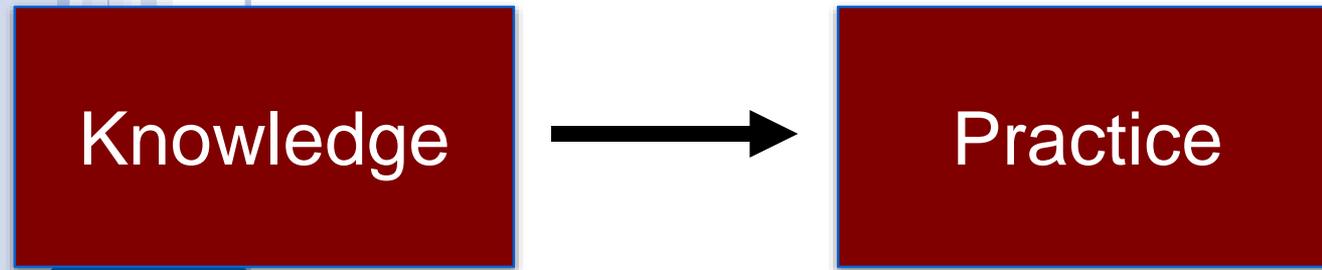
- INTRODUCTION TO IMPLEMENTATION SCIENCE
- WHAT IS EVIDENCE-BASED PRACTICES?
- COURSE OUTLINE
 - Schedule
 - Assignment



INTRODUCTION TO IMPLEMENTATION SCIENCE



KNOWLEDGE TRANSLATION



KNOWLEDGE TRANSLATION CONT.

“The **synthesis, exchange and application** of knowledge by **relevant stakeholders** to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health”

WHO, 2005



KNOWLEDGE TRANSLATION CONT.

Three key elements :

- **Knowledge synthesis**: contextualization and integration of research findings from individual studies within the larger body of knowledge on the topic
- **Knowledge exchange**: interaction between knowledge-users and the knowledge producers that result in mutual learning and knowledge use
- **Knowledge application**: iterative process by which knowledge is actually considered, adapted and put into practice.



KNOWLEDGE TRANSLATION APPLICATION

- **What** should be transferred?
- **To whom** should research knowledge be transferred?
- **By whom** should research knowledge be transferred?
- **How** should research knowledge be transferred?

Grimshaw et al, 2012

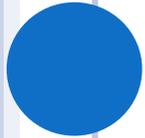
THE KNOW-DO GAP

Knowledge



Practice

Or Evidence or Innovation

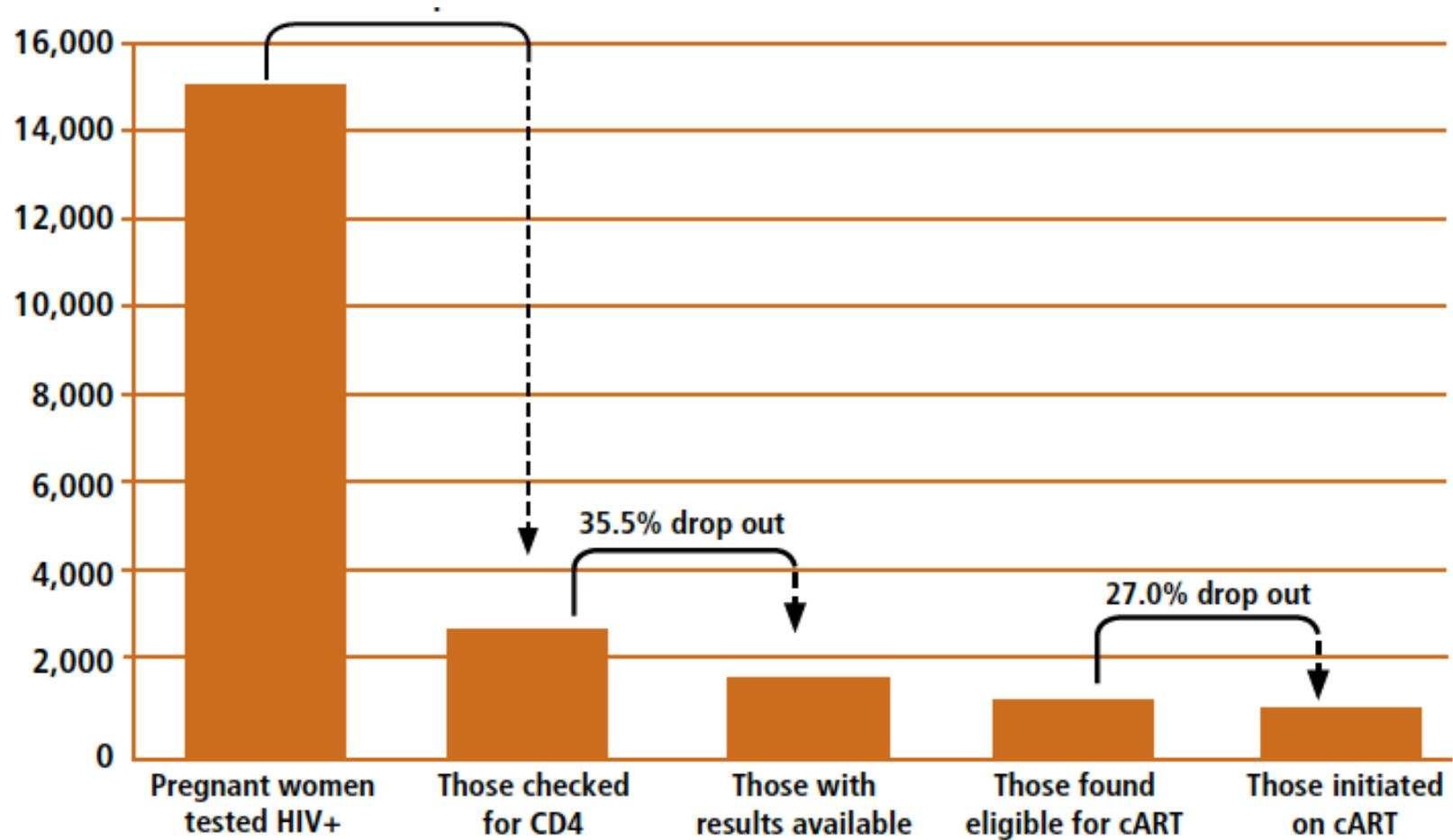


THE KNOW-DO GAP CONT.



Implementation science is needed for us to move from “what works” to “what works where and why”.

AN EXAMPLE....



IMPLEMENTATION SCIENCE DEFINITION

“Implementation science is the scientific study of methods to **promote the systematic uptake of research findings and other evidence-based practices into routine practice**, and, hence, to improve the quality and effectiveness of health care”

Eccles and Mittman, Impl Sci 2006



IMPLEMENTATION SCIENCE DEFINITION CONT.

A science creating **generalizable knowledge** that can answer central questions such as:

- Why do established programs **lose effectiveness over time**?
- Why do tested programs **exhibit unintended effects** when transferred to a new setting?
- How can multiple interventions be **effectively packaged** to capture cost efficiencies and to reduce the splintering of health systems into disease-specific programs?”

Malaria Free Future

CONCEPTS

Evidence/Knowledge/Innovation

- New treatment for patients
- New service delivery model (team based, triage etc)

Implementation strategy

- Help clients and providers to use what is new
- Enable organizations to change their service delivery model
- Enable what is new to reach policy



CONCEPTS CONT.

Implementation/implementation strategy

- Actions and supports provided to enable people or organizations to change
E.g. new wound care project team, training, providing feedback.

Implemented

- Establish a change in practice, or to a service, or to a patient or population.
E.g. routine wound-care procedure



CONCEPTS CONT.

Sustainability

- Will it last? Can the change or results be maintained?

Spread or scale-up

- Copying something found effective + the implementation strategy in another place or with more patients



CONCEPTS CONT.

The change being implemented \neq
implementation/implementation strategy

- Antibiotic prophylaxis 1 hr before surgery
- Actions to achieve this change: training, reminders, performance data collection and feedback

Efficacy * Implementation (in context) = Effectiveness



SOCIAL OR SYSTEM INTERVENTIONS FOR PERINATAL SURVIVAL

Definitely reduce perinatal mortality at population level

- Education for women
- Birth preparedness on the part of women & their families
- Skilled care at delivery ('skilled birth attendance')
- Institutional delivery where basic emergency obstetric care is available and comprehensive care is available through a transfer system
- Home visits after delivery by community health workers
- Community mobilisation initiatives to build awareness of perinatal health and link families and health facilities

SOCIAL OR SYSTEM INTERVENTIONS FOR PERINATAL SURVIVAL CONT.

Lack strong evidence of effect on perinatal mortality at a population level, but are unequivocally beneficial for other reasons

- Institutional perinatal care audit
- Elimination or reduction of user fees
- Counting perinatal deaths: strengthening systems to report stillbirths and neonatal deaths

SOCIAL OR SYSTEM INTERVENTIONS FOR PERINATAL SURVIVAL CONT.

Reduce perinatal mortality in principle, but lack evidence of effect at a population level

- Task shifting providers of obstetric care
- Transport systems for access and emergency transfer
- Maternity waiting homes
- Conditional cash transfers or voucher systems for maternity care
- Training health workers in essential newborn care
- Training and support for traditional birth attendants

SOME OTHER EXAMPLES...

- Studies in the USA and the Netherlands suggest that about 30-40% of patients do *not* receive care according to present scientific evidence
- 20-25% of care provided is not needed or potential harmful

Grol & Grimshaw, Lancet 2003

- Up to 3/4 of patients do not get the information they need for decision making
- Up to 1/2 of physicians do not get the evidence they need for decision making

CIHR



BRIDGING THE GAP

Bridging the know-do gap is one of the most important challenges for public health in this century. It also poses the greatest opportunity for strengthening health systems and **ultimately achieving equity in global health.**

WHO, Bridging the “Know–Do” Gap, 2006



YET...

- 97% of research grants for improved child health in “developing” countries focus on developing new technologies compared to researching how available technologies should be delivered/utilized

Leroy et al. Am journal of public health 2007



IMPLEMENTATION SCIENCE

Knowledge transfer

Research utilization

Knowledge uptake

Diffusion of Innovation

Knowledge translation

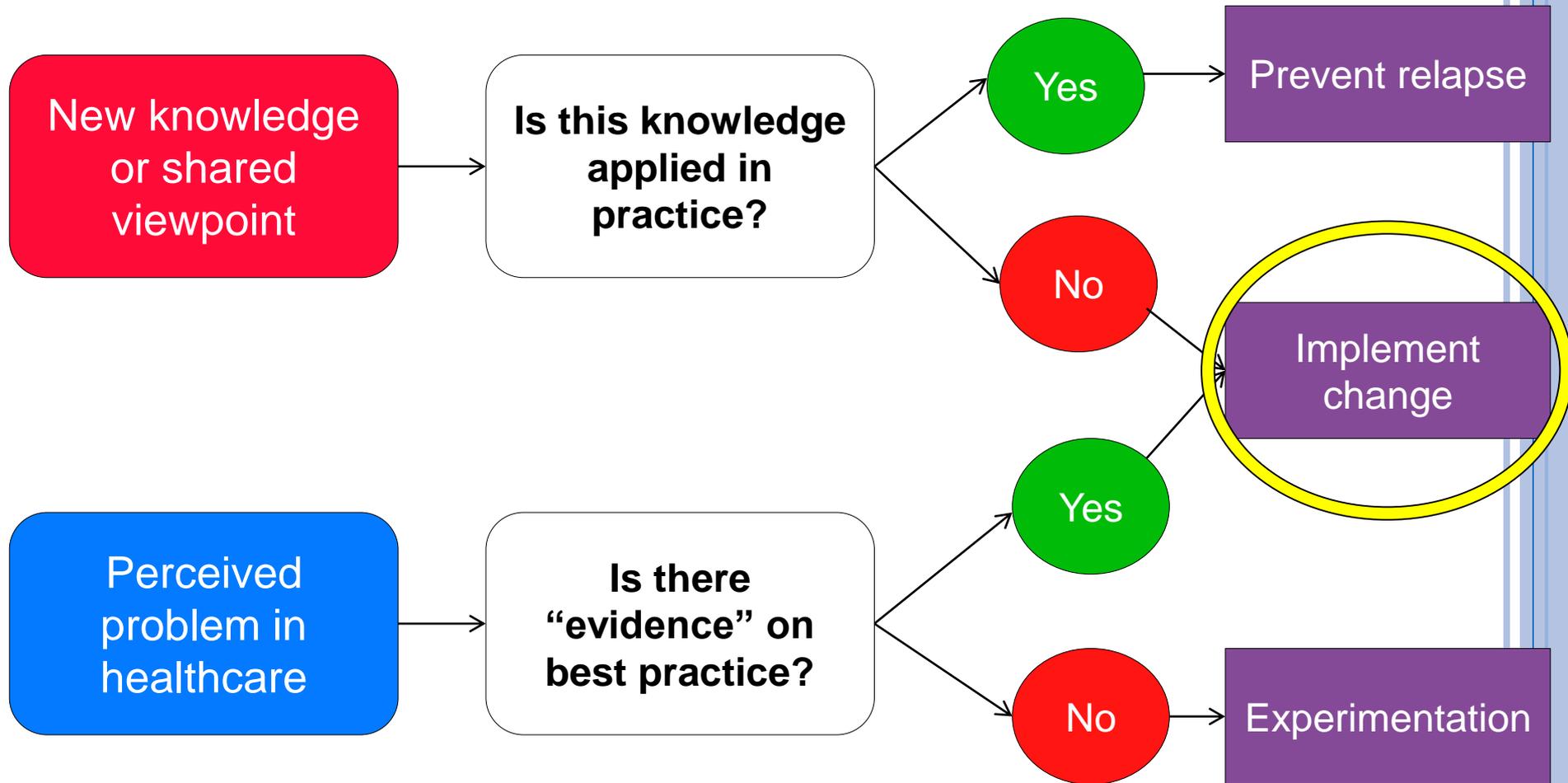
Continuing Education

Adoption

Continuing Professional Development



IMPLEMENTATION: WHEN?



TYPES OF IMPLEMENTATION RESEARCH

1. Quantify **gap between routine and potential care** with proven or promising interventions,
2. **Barrier analyses** to understand hinders for change to occur
3. Describe **what they do** to implement a change
4. Enable **successful** adaptation and implementation of interventions
5. Assess implementation and outcomes
6. Understand sustainability of changes



CHALLENGES

How to ...

- **Measure implementation** in healthcare (knowledge/skills/practice)
- **Tailor** implementation strategies
- Include **context** in the planning and evaluation
- Measure **fidelity** of planned interventions
- Achieve **sustainable** improvement



EVIDENCE-BASED PRACTICES



THE ROLE OF EVIDENCE

If you are poor, actually you need more evidence before you invest [in health], rather than if you are rich.

Dr Hassan Mshinda

Director General of Tanzania Commission for Science and Technology



HISTORY

“...before the subject [scurvy] could be set in a clear and proper light, it was necessary to remove a great deal of rubbish”

Lind, 1753

“...is scattered through a great number of volumes, many of which are so expensive, that they can be purchased for the libraries of public societies only, or of very wealthy individuals”

Duncan, 1773

“critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomized controlled trials”

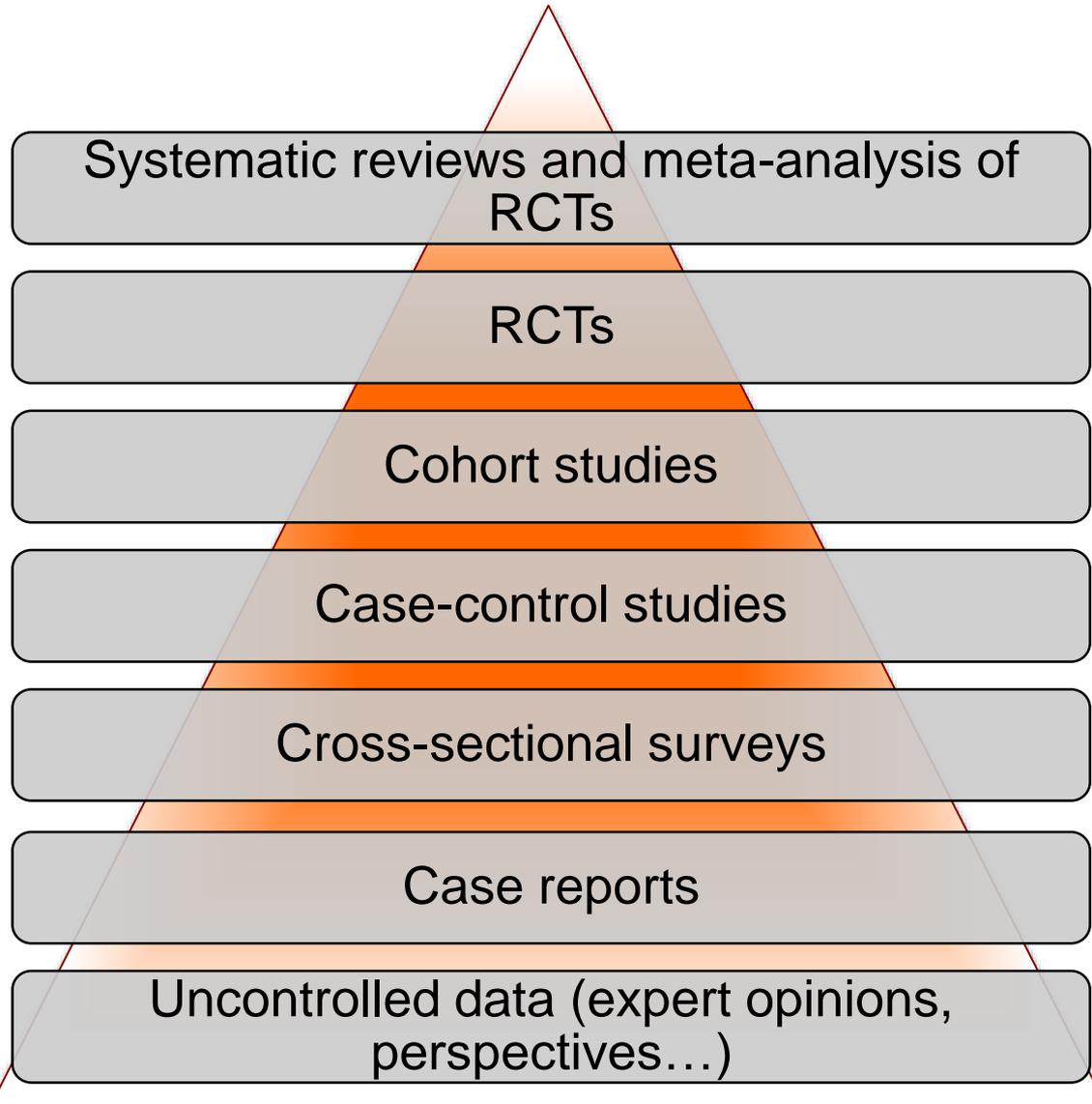
Cochrane, 1979



History cont.

- **2 million articles published in medical journals/year**
Mulrow, BMJ 1994
- **1966 -1995, > 76 000 journal articles were published from randomized controlled trials (registered in MEDLINE).**
 - 1966-1970: < 1%
 - 1990-1995: > than the previous 25 years combined.
Chassin, JAMA 1998
- **There are now 75 trials, and 11 systematic reviews of trials, published per day - a plateau has not been reached**
Bastian, PLOS Med, 2010

EVIDENCE HIERARCHY



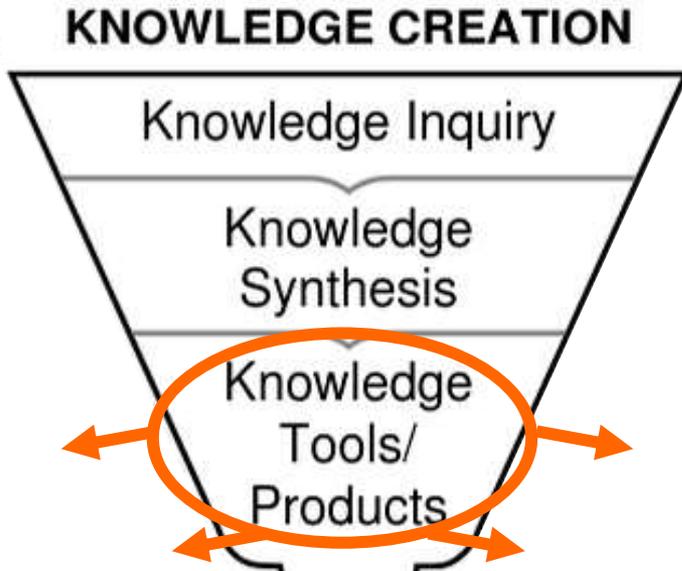
People with/without condition (prospect)

People with/without condition (retrospect)

No control groups



KNOWLEDGE CREATION



1. Deriving knowledge from **primary studies** (e.g. RCTs/qual studies)
2. Synthesizing primary studies to form **secondary knowledge** (e.g. systematic reviews or meta-analyses)
3. Generating **third-generation knowledge** (e.g. practice guidelines)



THE PROMOTING ACTION IN HEALTH SERVICES (PARIHS) FRAMEWORK

‘sources of knowledge as perceived by multiple stakeholders’

Four sub-elements constitute the concept of evidence in the PARIHS framework

- 1) Research evidence
- 2) Clinical experience
- 3) Patient preferences
- 4) Locally derived data

Rycroft-Malone J et al, J Adv Nurs. 2004



EVIDENCE-BASED MEDICINE 1.0

The conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient.

/.../

Because it requires a bottom up approach that integrates the best external evidence with individual clinical expertise and patients' choice, it cannot result in slavish, cookbook approaches to individual patient care.

Sackett et al, BMJ, 1996



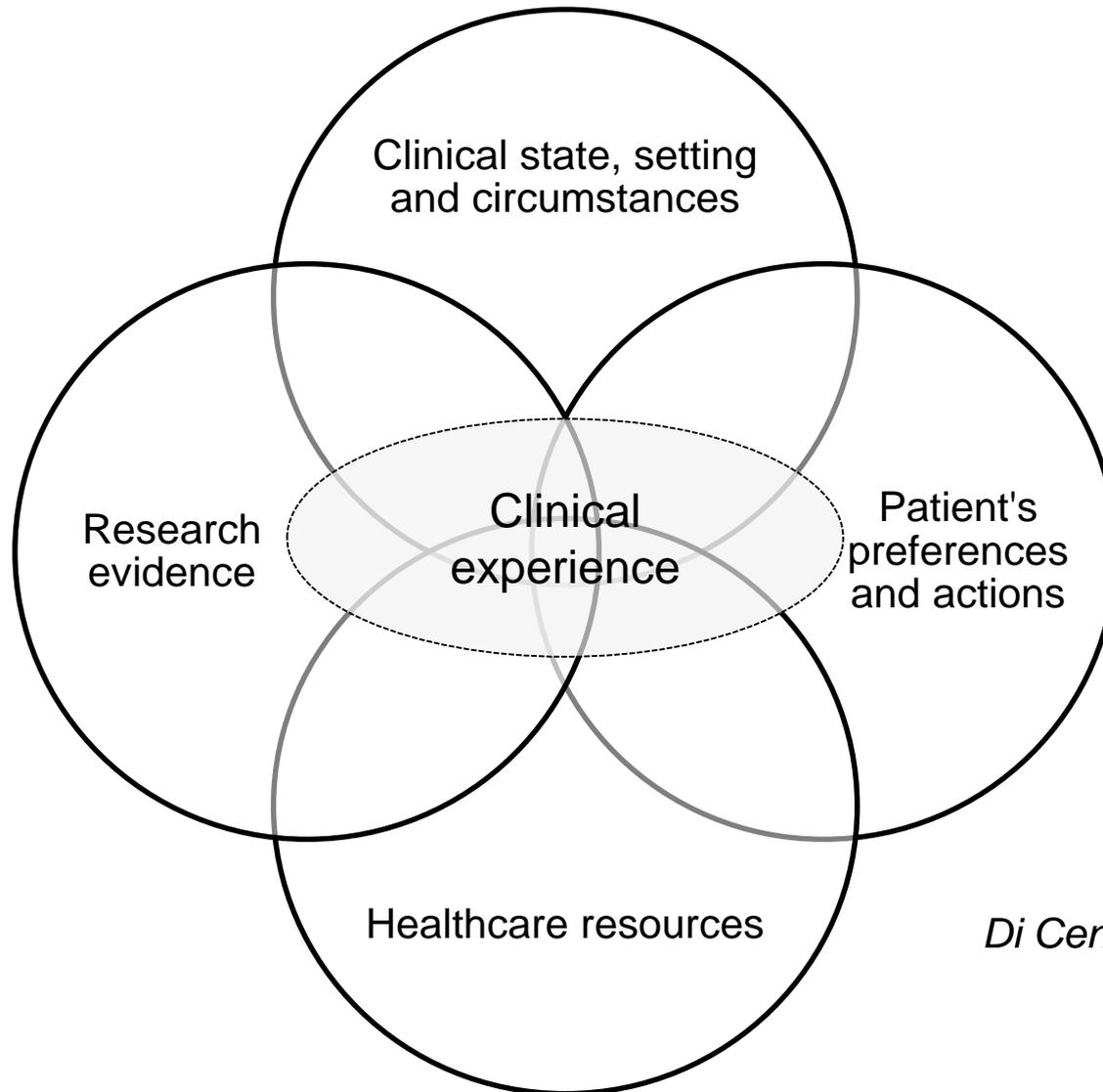
THE PROMOTING ACTION IN HEALTH SERVICES (PARIHS) FRAMEWORK

‘the process of shared decision-making between practitioner, patients and others significant to them based on research evidence, the patient’s experience and preferences, clinical expertise or know-how, and other robust sources of information’

Rycroft-Malone J et al, J Adv Nurs. 2004



EVIDENCE-BASED (MEDICINE) PRACTICE 2.0



Di Censo et al, 2005

TO SUMMARIZE



GOOD LUCK!

