Teaching Comparative Effectiveness Research (CER)

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Background

"More than half of the treatments provided to patients lack clear evidence that they are **effective** at all." - Institute of Medicine (IOM)

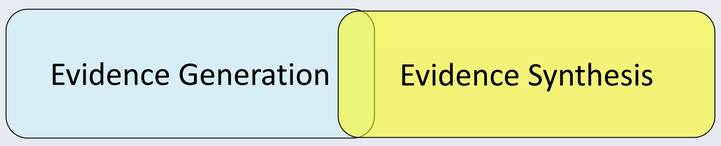
Goal of Health care:

Improve health care by delivering the right **treatment** to the right **patient** at the right **time** in the right **setting**.

How Do We Achieve Goal?

Comparative Effectiveness Research (CER)

What is Comparative Effectiveness Research (CER)?



Comparative Effectiveness Research (CER): the generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat, and monitor a clinical condition or to improve the delivery of care. The purpose of CER is to assist consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels.

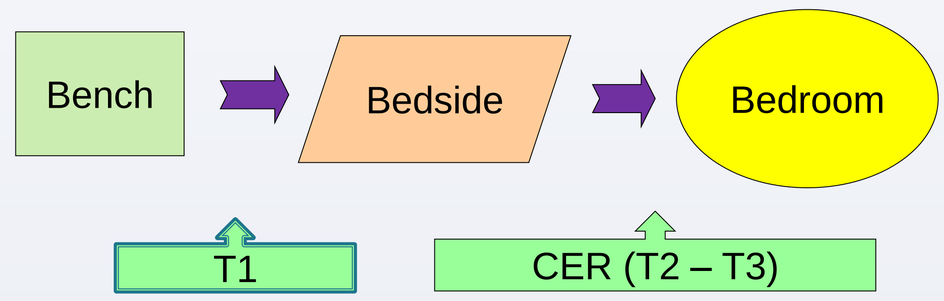
Core Competencies of CER

- Conceptual Models, Frameworks
- Experimental Studies – RCT, Pragmatic / Practical Clinical Trials
- Observational Studies –
  - Case-control , Registry, Administrative claims, Electronic medical records
- Data Analysis and Synthesis
  - Including secondary data analysis
  - Generalized Linear Mixed Models
  - Meta-analyses
  - Systematic Reviews and Comparative Effectiveness Reviews
  - Cost-Effectiveness Analysis (CEA)
  - Incremental Cost-Effectiveness Ratio (ICER) that is the basis for cost-effectiveness comparisons.

$$\text{ICER} = \frac{\$\ \text{Cost Intervention A} - \$\ \text{Cost Intervention}}{\text{Health Outcome Intervention A} - \text{Health Outcome Intervention B}}$$

- Modeling (e.g., Marginal Structural Modeling, SEM, Bayesian Methods)
- Dissemination & Implementation
  - Scientific Communication, Knowledge Transfer

Role of Comparative Effectiveness Research



Translational Research

Translational Research (T1)	T2 –T3 Research
RCT	Pragmatic / Practical Clinical Trials (PCT)
Lab setting usually	Real-world community settings
Efficacy	Effectiveness, Benefits, Harms May include cost effectiveness analyses
Placebo comparison accepted	Active Comparators
Many inclusion and exclusion criteria	Fewer inclusion & exclusion criteria
Findings less generalizeable	Findings more generalizeable

Implications

Practitioners may be collecting data in the near future or using the evidence of CER to inform practice. Educators and researchers will need to continue generating and systematically comparing evidence.

Conclusions

Occupational therapy practitioners will need to know comparative effectiveness research, because it is a form of EBP and can inform decision-making. To be a science-driven profession, our graduates will need to understand and apply comparative effectiveness research to help deliver patient-centered, evidence-based care.

Resources

1. Olsen, L., Grossman, C., & McGinnis, J. M. (2011). **Learning what works: Infrastructure required for comparative effectiveness research: workshop summary. The National Academies Press.** http://www.nap.edu/catalog.php?record_id=12214
2. **Journal of Comparative Effectiveness Research** http://www.futuremedicine.com/page/journal/cer/teaser.jsp
3. **Agency for Healthcare Research and Quality**. What is comparative effectiveness research. http://effectivehealthcare.ahrq.gov/index.cfm/what-is-comparative-effectiveness-research1/

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