

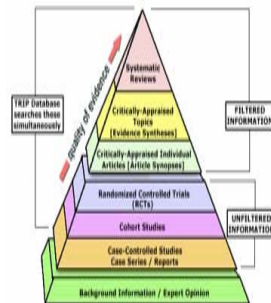
# Clinically Relevant Complex Systematic Reviews (CRCR's) & the Next Challenges in Comparative Effectiveness Research & Analysis

**Professor Francesco Chiappelli, Ph.D.**

fchiappelli@dentistry.ucla.edu


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UCLA Center for Maximizing Outcomes  
and Research on Effectiveness (C-MORE)




Comparative Effectiveness Research (CER)  
and analysis entails:

The two principal challenges  
in **Comparative Effectiveness  
Research & Analysis** for the  
next decade



*“...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...”.*

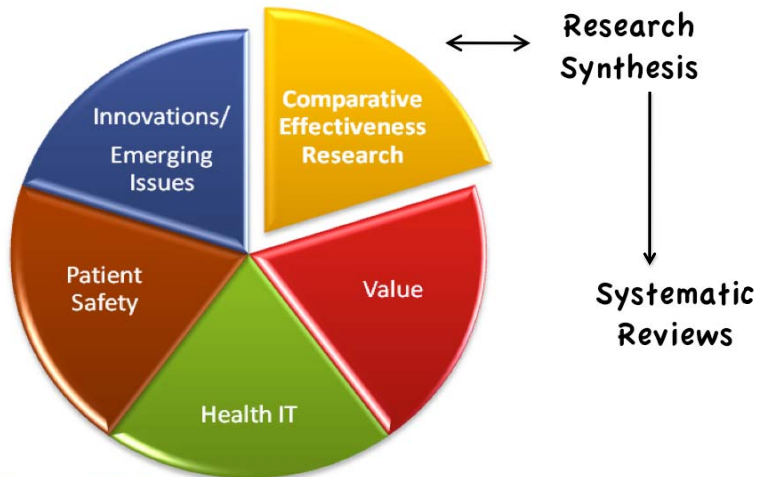
The purpose of CER is:



*“...to assist consumers, clinicians, purchasers, and policy makers to **make informed decisions** that will improve health care at both the individual and population levels...”.*

(The Institute of Medicine, 2009)

# AHRQ Portfolios



*Agency for Healthcare Research and Quality*

*Advancing Excellence in Health Care*

[www.ahrq.gov](http://www.ahrq.gov)

## *CER Funding as of 2009*

**Table 2: Estimated CER Grant/Study Counts FY 2006 – FY 2009<sup>1</sup>**

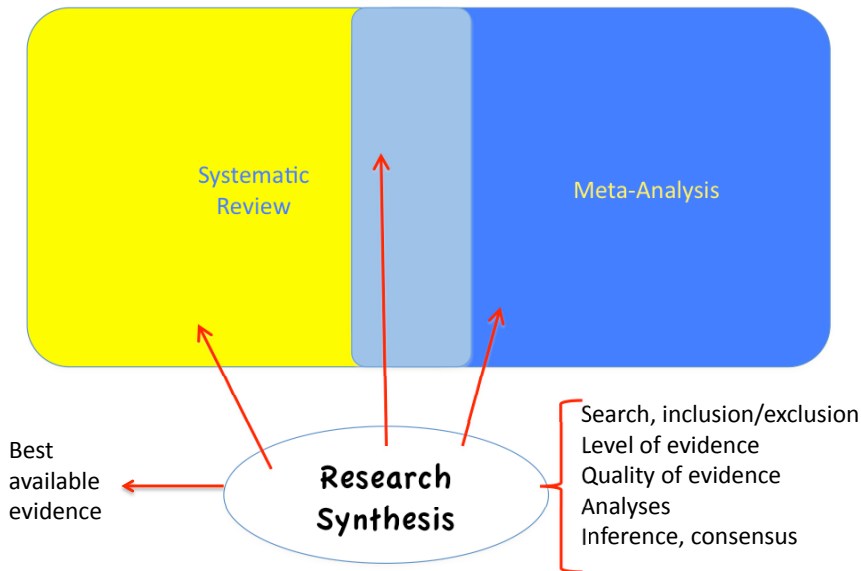
Agency	CER Grants/Studies FY2006-FY 2009 (YTD)
AHRQ	144
DoD	25
VHA	96
NIH <sup>2</sup>	463

<sup>1</sup>As of June 2009, based on review of agency/department websites and agency/department generated lists

<sup>2</sup>NIH is in process of cataloging CER. This primarily represents FY 2008.

NOTE: Roughly 86% of the CER studies across agencies focus on at least one priority disease/condition, among which leading are mental health disorders, substance abuse, cardiovascular disease, and diabetes

# The Process of Generating & Synthesizing Research Evidence & how to *quantify* it and how to operationalize it



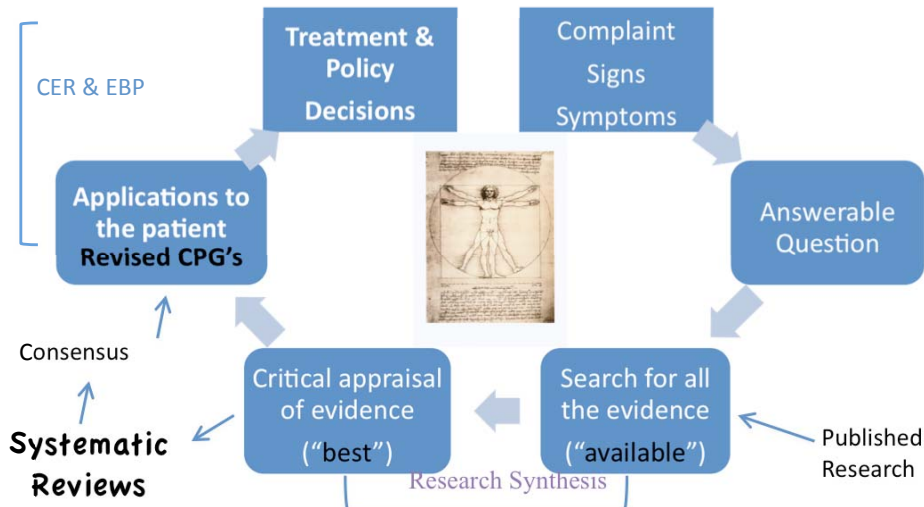
## From Systematic Reviews (SR's) to Clinically Relevant Complex Systematic Reviews (CRCSR's)



SR's & CRCSR's in Effectiveness vs. Efficacy Decisions

CER Agenda for the Next Decade

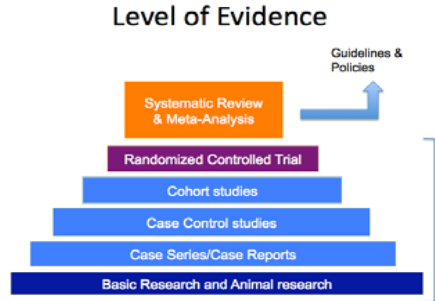
# Systematic Reviews (SR's) = Reports on Research Synthesis



The body of research is evaluated for:  
the level of evidence (what was done)



AND



the quality of evidence (how it was done:  
based on common criteria of methodology,  
design, data analysis)



R-Wong 2006

R-AMSTAR 2010

Ex-GRADE 2011



## Bridging the Gap between Acceptable sampling & Clinical Relevance



The best available evidence suggests this treatment for You

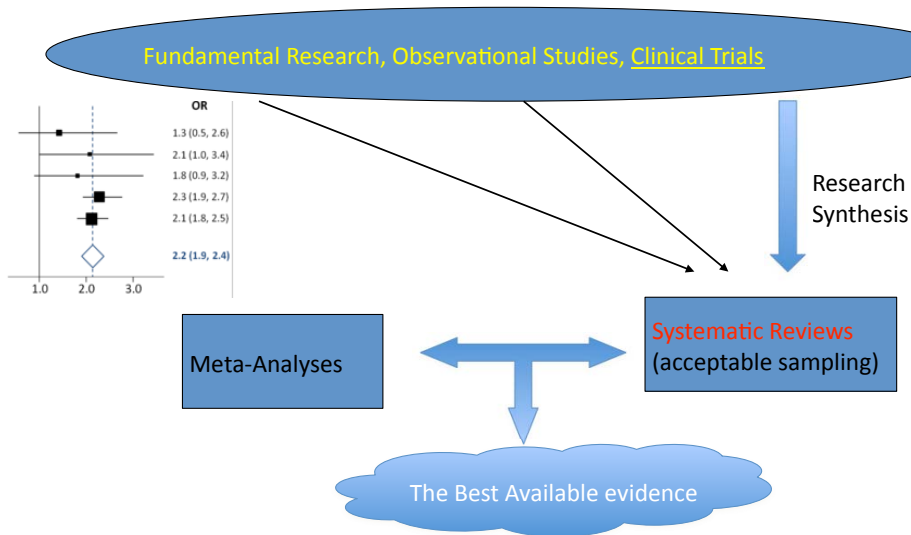
PICO	Paper	R-AMSTAR <sup>a</sup>	%ile	Rank <sup>b</sup>
PTSD	1	32.50	83	B
	2	33.00	85	B
	3	32.50	83	B
	4	39.00	100	A
	5	32.00	82	B
	6	25.50	65	D
	7	33.00	85	B
	8	29.50	76	C
	9	30.00	77	C
	5	35.00	100	A
	11	30.00	77	C

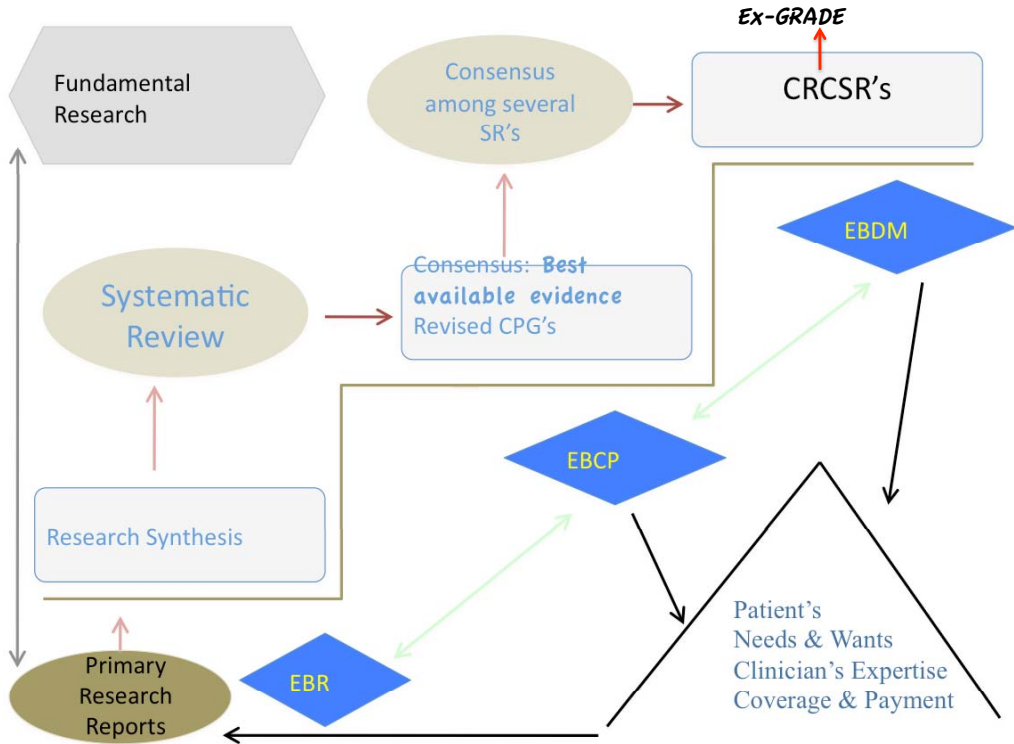
Reports	1	2	3	4	5	6	7	8	9	10	11	Total
1	4.00	1.00	4.00	2.00	3.50	3.50	3.50	3.50	1.00	1.00	1.00	28.00
2	3.50	2.50	4.00	4.00	3.50	4.00	3.50	2.50	3.50	1.50	1.00	33.50
3	4.00	4.00	3.50	4.00	1.50	2.50	3.50	3.50	2.50	1.50	1.00	31.50
4	4.00	2.00	4.00	4.00	2.00	4.00	3.50	3.00	3.50	1.00	1.00	32.00
5	3.50	4.00	4.00	3.00	2.50	4.00	4.00	4.00	2.50	1.00	2.50	35.00
Mean	3.80	2.70	3.90	3.40	2.60	3.60	3.60	3.30	2.60	1.20	1.30	32.00
SD	0.27	1.30	0.22	0.89	0.89	0.65	0.22	0.57	1.02	0.27	0.67	2.62

( $p=0.001$ , Friedman non-parametric ANOVA equivalent)

Adapted from Kung et al, 2010

# In brief: SR's for Obtaining the Best Available Evidence





From Systematic Reviews (SR's) to Clinically Relevant Complex  
Systematic Reviews (CRCSR's)

SR's & CRCSR's in Effectiveness vs. Efficacy Decisions



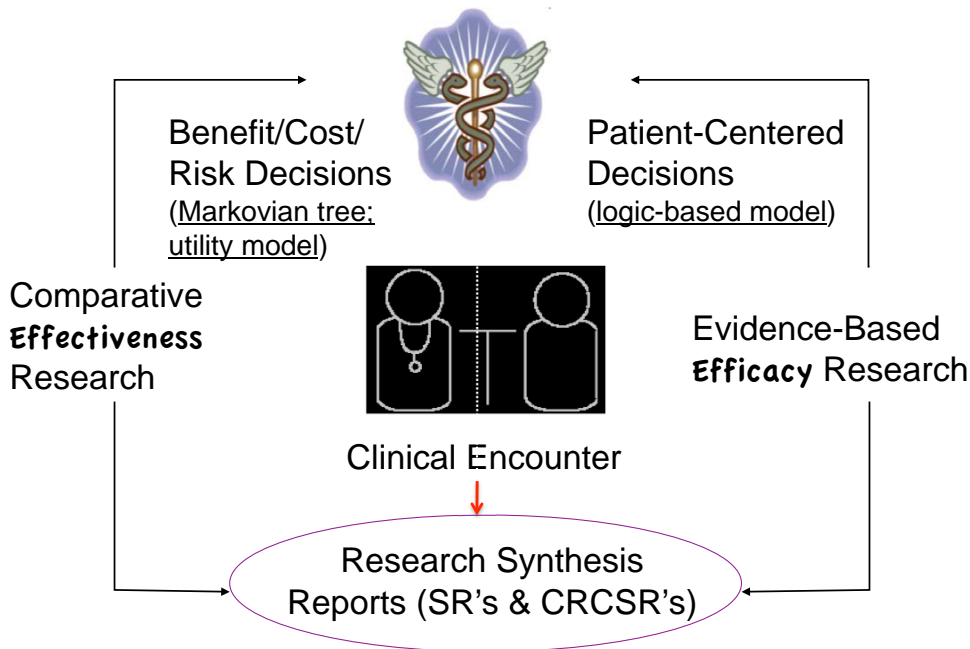
CER Agenda for the Next Decade

## ***Comparative effectiveness differs from efficacy research***

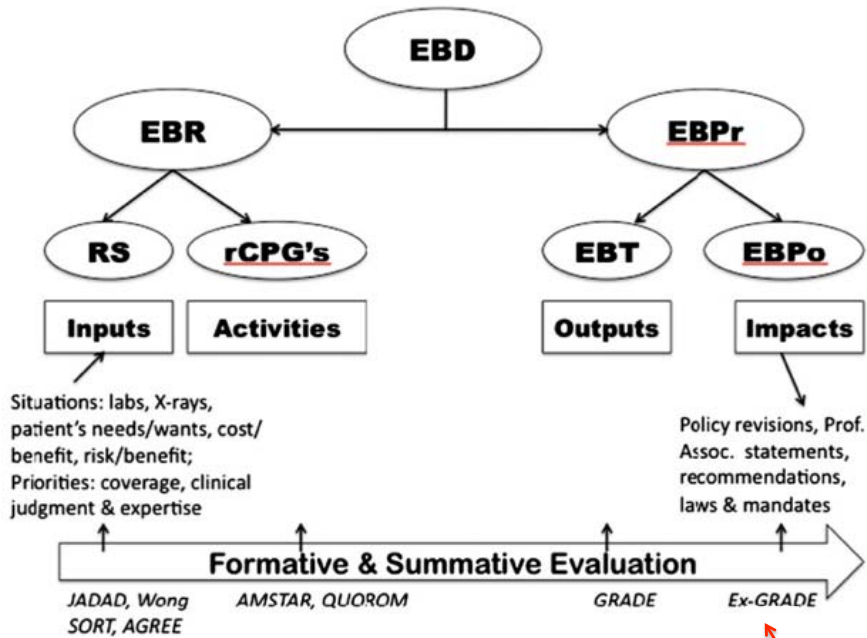
because it (**comparative effectiveness research**) ...  
[applies]... to real-world needs and decisions faced by  
patients, clinicians, and other decision makers [generally  
including assessment of **risks, costs vs. benefits**].

[by contrast, i]n **efficacy research**, ...the question is typically  
whether the treatment is efficacious [i.e., **works clinically**]  
under ideal, rather than real-world, settings ...[and]....[t]he  
results ... are ... not necessarily generalizable to any given  
patient.





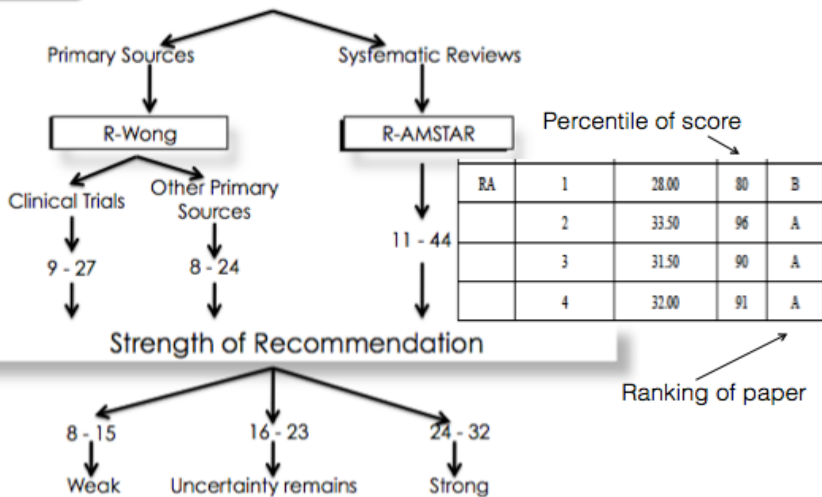
*Clinical Decision Models in Effectiveness vs. Efficacy Research*





Ex-GRADE

## Quality of Evidence



*Extension of the Gradings of Recommendations  
Assessment, Development, and Evaluation*

From Systematic Reviews (SR's) to Clinically Relevant Complex  
Systematic Reviews (CRCSR's)

SR's & CRCSR's in Effectiveness vs. Efficacy Decisions

**CER Agenda for the Next Decade**



# Unprecedented Investment in Research Synthesis

## **Until today...**

- 2005-2009 - AHRQ received \$129 million from Congress for comparative effectiveness research

## **For the next decade...**

- 2009 - The American Recovery and Reinvestment Act contained \$1.1 billion for comparative effectiveness research...



***Priority Recommendations: ARRA funding portfolio (M\$400)***

**I.**

***data infrastructure,  
including HIT***

**III.**

***comparing priority  
patient groups &  
priority types of  
interventions***

**II.**

***dissemination and  
translation of CER  
findings***

**IV.**

***methods and training  
viewed as essential to  
the CER enterprise***

***“...doing so empowers doctors and patients, and helps make our practice  
of medicine more evidence-based...”*** 

## *Federal Coordinating Council - Priority ONE:*

*Further Development of CER methodologies to generate evidence about the comparative effectiveness, comparative safety, and cost effectiveness of clinical interventions*

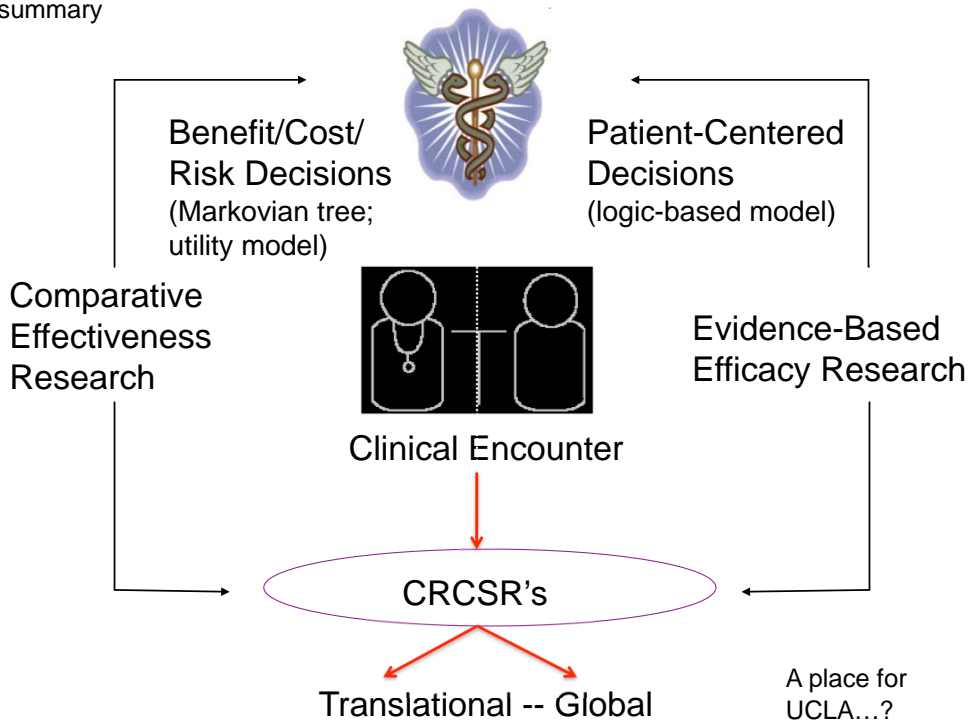
How should CER best be undertaken?

**Need for a broad Federal CER enterprise that cuts across treatment, prevention, promotion, and health-determinant interventions designed for both people and populations.**

**Need for information principles and tools to prioritize CER investments on those studies where there is a greater likelihood that the research will lead to changes in practice.**

**Need for funding instrument to support research, including multi-center research, into “the science of CER” to build a foundation for this work, and to ensure generalizability of the findings.**

In summary



Thank you for  
your attention

**...and thank you for my collaborators in these endeavors:**

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Linda Phi



"Knowledge is of two kinds: we know a subject  
ourselves, or we know where we can find  
information upon it."

— **Samuel Johnson** (1709 - 1784)

English author and critic