Comparative effectiveness research: Moving the field ahead and disseminating results

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Collaborators

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Funding through AHRQ Evidence-based Practice Center Contracts
Why the focus on CER now?

- Not new - providers have always chosen among competing treatments
- Greater number of available treatments for patients and providers to choose from
- Paucity of head-to-head comparisons
- “Noisy” environment, with competing messages, direct to consumer marketing, etc.
- Rate of rise of health care costs not sustainable
- Critical issues of undertreatment of some populations, overtreatment of others, need to improve efficiency of care
Comparative effectiveness research

• “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.”

IOM 2009
Schematic for comparative effectiveness research

- Phase III trials (Efficacy trials)
- Phase IV trials (Effectiveness trials)
- Secondary data analyses
- Systematic review of evidence
- Economic and organizational analyses
- Dissemination + implementation
- Community collaboration
- Practice QI
Types of CER

- Systematic reviews
- Secondary data analyses
  - Claims data, EMR, etc
- Randomized trials
- Observational studies
  - Controlled trials
  - Registries
  - Cohort studies
- Health systems interventions
- Dissemination of results to appropriate constituencies
Audience(s) of CER

- Research colleagues
- Patients and the public
- Advocacy groups
- Policymakers
- Providers
- Professional organizations
- Legislators
Research agenda setting

• Years may pass after a study is completed prior to addressing gaps found
• There will always be more questions than funding, time or talent to conduct the work
• Current methods time consuming, highly variable across foundations and federal agencies, non-transparent, somewhat ‘political’
• Issues exploration forum initiatives
• Public not generally involved
• Future research needs as a follow-on to systematic reviews
Research gaps and needs

• Getting beyond:
  – “More research is needed in this important area..”
  – “Larger sample size is needed”
  – “Trials should be of higher quality”

• Should be component of every study

• Collegiality vs. giving away the store

• Moving from a research gap to a research question?
Closing the loop

- Explicit identification of research gaps
- Use of ‘stakeholders’ to prioritize gaps into research needs
  - Clinicians/professional societies; advocates (patients?); funders; researchers; insurers
  - Criteria must be generated to prioritize
- More rapid generation of actionable evidence
- Downside: Decreased investigator creativity?
Role of the public

• Ability to comment on work at multiple phases
• Role in agenda setting
• Role in expert panels and future research needs efforts
• Public vs. advocacy groups vs. patients vs. stakeholders
• AHRQ Citizen’s Forum project
Defining a question

• Can be broad
• Needs to be amenable to an answer
• Who will care?
• Can you explain it to your mom?
• Important questions to:
  – Patients
  – Payers
  – Clinicians
  – Policymakers
Developing the question

• Key step!
• Define:
  – Population
  – Intervention
  – Comparator (control)
  – Outcome of interest
  – Time frame
  – Setting
• Example: Is screening for depression an effective technique?
Developing a better question

Is screening of adults for depression and feedback of results to providers more effective than no screening and feedback in improving 6 month outcomes of major depression in primary care settings?
Sources of research gaps

• The original review
  – Gaps section of review, but also results, derived manuscripts, IOM report
  – Report authors
• Additional literature search
  – Can be extensive if time gap between report and FRN
• Scan of existing research projects
  – Occasional pivotal trial, possibly many small trials, K awards, etc. Little detail, stakeholders generally aware of pivotal studies.
• Input from investigator team
• Key informant or expert interviews outside of stakeholder group
• Stakeholder input
  – Valuable, may be beyond scope of CER report
Future research needs components

1. Systematic Review
2. Identification of Evidence Gaps in Literature
3. Engagement of Stakeholders
4. Priority Ranking of Evidence Gaps
5. Transformation of Evidence Gaps Into Research Questions with PICOTS Framework
6. Re-Ranking of Priorities by Stakeholders
7. Addition of Study Design Considerations
8. Publication of Future Research Needs Document
AHRQ priority criteria

- **Appropriateness**
  - Relevant to Medicare, Medicaid, SCHIP, and other Federal health-care programs.
  - Represents one of the priority health conditions designated by the DHHS

- **Importance**
  - Represents a significant disease burden
  - Affects health care decision-making, outcomes, or costs for a large proportion of the U.S.
  - Was nominated/strongly supported by one or more stakeholder groups.
  - Represents important uncertainty for decision-makers.
  - Incorporates issues surrounding both clinical benefits and potential clinical harms.
  - Represents important variation in clinical care or controversy in what constitutes appropriate clinical care.
  - Represents high costs due to common use, high unit costs, or high associated costs to consumers

- **Avoid Duplication**
Gaps in specific populations

- Dissemination study design and content may be quite different depending on the population of interest
- Gender, age, etc.
- Condition subtypes
  - Stakeholders provided guidance on importance
- Interests in patients with multiple comorbidities
- Setting of care vs. type of patient or condition
- Perspectives of researchers and advocates/patients may be different
Level of detail needed?

• Are gaps and research needs best presented at a general or granular level?
• Tendency of FRN’s to ‘explode’, often become granular, then aggregated
• Sufficient detail in gap and FRN to inform an RFA- similar to specific aim or research question in a proposal?
Future research needs and priority setting

- Stakeholders are a critical part of the future research needs (FRN) process
- They do not meet personally, have had variable personal contact in the past
- Qualitative discussions
- Ranking 1-xx
- Multiple rounds
- 1-5, 1-100 Likert scales
- Forced choice voting
Role of study design considerations

• First order guidance to funders, researcher, advocates regarding how a future research need might be addressed
• More explicit than ‘more and/or larger studies are needed’
• Several study design options might be appropriate for each future research need
• Not intended to be restrictive to creative solutions
<table>
<thead>
<tr>
<th>Study design categorization</th>
<th>Need for consistent terminology</th>
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<tbody>
<tr>
<td>• Randomized trial</td>
<td>• Non-concurrent cohort study</td>
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<tr>
<td>• Non-randomized trial</td>
<td>• Nested case-control study</td>
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<tr>
<td>• Prospective cohort study</td>
<td>• Case-control study</td>
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<tr>
<td>• Retrospective cohort study</td>
<td>• Interrupted time series</td>
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<td>• Interrupted time series with comparison group</td>
<td>without comparison group</td>
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<td>• Controlled before-after study</td>
<td>• Before-after study</td>
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<tr>
<td>• Modeling</td>
<td>• Cross-sectional study</td>
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<tr>
<td>• Systematic review</td>
<td>• Non-comparative study</td>
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List adapted from “Developing and testing a tool for the classification of study designs in systematic reviews of interventions and exposures,” Alberta EPC 01/11
Attributes to consider for proposed study designs specific to a future research need

1. Resource use, size, and duration
2. Availability of data and/or ability to recruit subjects
3. Ethical, legal, and social issues
4. Advantages of study design for producing a valid result to fill the research gap

These attributes can be generally described for each study design, however some aspects may vary when considered in the context of a specific study question and health condition, because these influence study duration, data collected, recruitment costs, etc.
Future research need in chronic low back pain

• Among adults with chronic low back pain, does a structured exercise program lead to reduced time off work and improved functioning compared with primary care without structured exercise?
  – P-Adults with LBP > 3 months
  – I- 8 group exercise sessions
  – C- Primary care with exercise instruction booklet
  – O- Roland Morris scale, days off work
  – T- 6 and 12 month measurements
  – S-Primary care and specialty spine clinics
Ongoing discussions

- Method of presentation
- Level of detail
- Sample size calculations?
- Study design considerations for high priority needs only?
- Generated after stakeholder prioritization?
- Reviewed and commented on by stakeholders at the time of public posting?
Methods issues in existing research

• Some groups identified needs that are not specifically research areas, such as need for improved dissemination of research findings
  – Explicit discussion of dissemination methods

• Some discussion of need for consensus building mechanisms such as standards for outcome measurement, registries, or reporting metrics
Ranking: pros and cons

• Likert scales or 0-100 most similar to everyday activities
  – Distinctions may be modest 88 vs 86?
• Rank order > 7 items may be difficult
• Forced choice may provide greater ‘spread’ of preferences, emulates reality in which choices are essential
• Qualitative discussion very useful
**Integration of mental health/substance abuse and primary care: Future research needs**

Instructions for step 2: For the following exercise we would like you to vote on the identified gaps. We have provided you with twenty total votes. You may use up to five votes on any one gap. Your votes will count toward an overall ranking of the gaps. Gaps are listed in alphabetical order. To add votes to a selection, position your mouse over the dots in the right-hand column.

If you have any questions, please contact Karen Cutty at 933-966-7672 or kcutty@hdrcc.ucr.edu.

No votes remain. Since a limited number of votes are allocated, to continue voting you must first reduce the vote for something you already voted on. To complete the survey, please click "Save and Continue" at the bottom of the screen.

<table>
<thead>
<tr>
<th>A resource where researchers and policy makers can go to identify existing programs that already show return on investment related to different levels of integration.</th>
</tr>
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<tbody>
<tr>
<td>Cost effectiveness of integrated models</td>
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<tr>
<td>Effective methods of integrating primary care into specialty mental health practice settings</td>
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<tr>
<td>Effective models/strategies for bipolar disorder</td>
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<tr>
<td>Effective models/strategies for postpartum depression</td>
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<td>Effective models/strategies for alcohol abuse</td>
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<td>Effective models/strategies of integration for anxiety disorder</td>
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<td>Effective models/strategies of integration for attention deficit hyperactivity disorder</td>
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<tr>
<td>Effective models/strategies of integration for mood disorders</td>
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<tr>
<td>Effective models/strategies of integration for post traumatic stress disorder</td>
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<tr>
<td>Effective models/strategies of integration for severe mental illness</td>
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<td>Effective models/strategies for somatization</td>
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<tr>
<td>Effectiveness and use of electronic medical records</td>
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<tr>
<td>Effectiveness of cross-cutting models/strategies for integration of mental health into primary care</td>
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<td>Effectiveness of current treatments and treatment combinations in relation to</td>
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<td>Effectiveness of integrated care in the presence of comorbidities</td>
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<tr>
<td>Effectiveness of integrated care on health disparities</td>
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<tr>
<td>Effectiveness of integration in community settings, particularly when addressing multiple mental health problems rather than single conditions (such as depression)</td>
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<tr>
<td>Effectiveness of measurement-based care for case identification, monitoring and disease management</td>
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<tr>
<td>Effectiveness of the medical home as a model/strategy for integrated care</td>
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<tr>
<td>Effectiveness of very brief psychotherapy that may be more readily delivered in primary care settings as part of an integrated treatment approach</td>
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<tr>
<td>Effectiveness of web-based psychotherapies in combination with primary care pharmacotherapy</td>
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<tr>
<td>Studies assessing the populations most likely to benefit from integrated care</td>
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<tr>
<td>Studies comparing integrated care to systematic practice (i.e. some variation of usual care)</td>
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<tr>
<td>Studies examining models/strategies of integrated payment for integrated care</td>
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<tr>
<td>Studies examining integrated care for severe mental illness as a population of focus</td>
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<tr>
<td>Studies examining sustainability of integrated care independent of grant funding</td>
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<tr>
<td>Studies examining the business case for integration</td>
</tr>
<tr>
<td>Studies examining the fidelity of integration principles (evidence-based intervention, communication among clinicians, follow-up) to what is delivered in integrated care</td>
</tr>
<tr>
<td>Studies examining the translation/adoption/implementation of successful models/strategies in community settings</td>
</tr>
<tr>
<td>Studies examining the use of information technology (IT) including telemedicine, text messaging, and use of the internet</td>
</tr>
<tr>
<td>Studies identifying the various components of integrated care and determine the value added by each component individually and synergistically</td>
</tr>
<tr>
<td>Studies testing the comparative efficacy and effectiveness of explicit variations of integration</td>
</tr>
<tr>
<td>Studies which examine generalizability of current integration models</td>
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Research Need #3: Studies examining the use of information technology (IT) including text messaging, use of the Internet, and effective use of electronic health records for integrated mental and general medical health care.

**Population:** Individuals with mental health diagnoses seen in primary care settings using integrated care.

**Intervention:** Use of IT to deliver mental health care to patients seen in primary care settings. Mental health providers would need to be involved in the delivery of care. Sharing of queries among providers and movement of text-based data by the mental health provider into the primary care electronic health record will be an important component of ‘meaningful use.’

**Comparator:** Integrated care that does not utilize electronic IT.

**Outcome:** Both process and patient-centered measures could be used. Process measures would include the number of patients treated through the intervention per mental health professional, the quality of care provided using standard metrics, the costs of the intervention, and the satisfaction of providers and staff with the IT intervention. Outcome measures would include the proportion of patients who respond to treatment and the satisfaction of patients with the IT intervention.

**Timeframe:** IT interventions have a substantial learning curve. A minimum of 6 months is generally used prior to examination of the effect of an IT intervention. The duration of the observation should be at least 1 year.

**Setting:** Primary care clinics wishing to utilize integrated care for mental health problems.

**Study Design Considerations:** We could envision several study designs to enhance understanding of the use of information technology in the integration of mental health into primary care.

- Demonstration projects at a limited number of sites could be used to assess the feasibility of such interventions.
- Randomized trials or observational studies with a contemporaneous control group. The practice would need to be the unit of randomization. Randomizing patients within a practice would likely not be possible due to administrative complexity and possible contamination of the control patients.
- **If the comparison arm is integrated care without health IT components, the effect on outcomes would likely be modest. This would necessitate a very large sample size on the order of 12,000 patients (see power analysis below).**
Research priority setting

• It’s not our money
• Responsive to funders/public/congress
• Decrease duplication
• May speed progress (?)
• May stifle innovation (?)
• If feedback present might be functional
Future of CER

Acronym proliferation?

Funding and Politics

- ARRA funds allocated
- PCORI established, but not yet fully functional
- AHRQ has substantial infrastructure
- NIH/CTSA developmental
- Coordination across entities needed
- Educational initiatives starting: T-32, K-12, KM-1
- Broadly applied vs. focused funding
- ~$30M to be transferred to AHRQ annually for dissemination and implementation

Methods

- EPC, DEcIDE and others now conducting greater methods work
- IOM developing ‘standards’ for CER
- PCORI methods committee
- Increasing methods work
  - Priority setting on topics
- Tension among:
  - Methods consistency
  - Need to innovate
  - Transparency vs. sophistication
Dissemination of CER
Labile policy environment

• Regularly published by high impact journals
• AHRQ website and consumer materials
• Consumer reports ‘best buy drugs’
• Changing roles of NIH, AHRQ, and Patient Centered Outcome Research Institute (PCORI)
• Funds to be transferred from PCORI to AHRQ for dissemination (Eisenberg Center, ?others)
• Dissemination research likely to increase, including training grants
Next steps

• Research community must fully engage in the process in order to continue progress
• Public input will require sustained engagement
• Need is ongoing regardless of politics, but some rocky moments will be likely
• CER likely to touch clinical, policy, and methods work