



HEALTH

Evaluation of Organizational System Changes and PROs

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Example

- **Organizations are trying to improve their chronic care by introducing Patient Reported Outcomes and other systemic changes that are part of the Chronic Care Model.**
- **How should we evaluate the impact of PROs?**
- **How can Patient Reports help the evaluation of other quality improvement interventions?**

Outline of Talk

- **The Chronic Care Model**

<http://improvingchroniccare.org>

- **Evaluating Systemic Change**

Using Patients in their own Chronic Care

- **Historic focus on acute problems**
 - Infection: diagnosis + treatment → cure.
- **Instead shift care to cheapest, most interested provider ...**
- **Support “providers” with best information**
 - Clinical knowledge
 - Patient goals and status
- **Manage the entire episode (rest of life)**

The Chronic Care Model

Health System Organization

Leadership commitment to quality

Self-Management Support

Skilled clinical educators
Psychosocial support
Change plans, PROs

Delivery System Design

Nurse case manager
PROs
Planned follow-up

Decision Support

Feedback
Guidelines
Consultation

Clinical Information Systems

Registry
Reminders
PROs

+ Links to Community Resources

**Informed,
Activated
Patient**

**Productive
Interactions**

**Prepared
Practice
Team**

Better Functional and Clinical Outcomes

The Improving Chronic Illness Care Evaluation

- We studied 30 organizations that paid IHI to participate in yearlong quality improvement collaboratives for Diabetes, CHF, Asthma
 - <http://www.ihl.org/ihl>
- Teams attended four 2 day meetings, were instructed on CCM, change methods, and specific disease ideas
 - worked between meetings on implementation
- We collected data from 3869 patients and 681 staff before and after participation.
 - <http://www.rand.org/health/ICICE>

Outline of Talk

- **The Chronic Care Model, Collaboratives**
 - **Evaluating Systemic Change**

Drug RCT paradigm

Aims at internal validity of treatment estimates

– Reduce unwanted variation by

- **Many subjects**
- **Tight criteria for enrollment**
- **Tight protocols for treatments**

– Eliminate potential bias by

- **Randomization**
- **Blinding**

• How much of this paradigm can be retained in evaluating systemic change in organizations?

Is Patient Randomization Feasible?

- **Organizations want to improve care, not do research**
 - **Fear patients won't like being subjects**
- **Many changes are at site level: new appointment system; staff training; new information system.**
 - **Hard to apply to half the patients at the site**
 - **Sites might be randomized, but not patients**
- **So patient RCTs are not feasible in these evaluations, but many reviewers for medical journals believe non-RCTs have little value.**

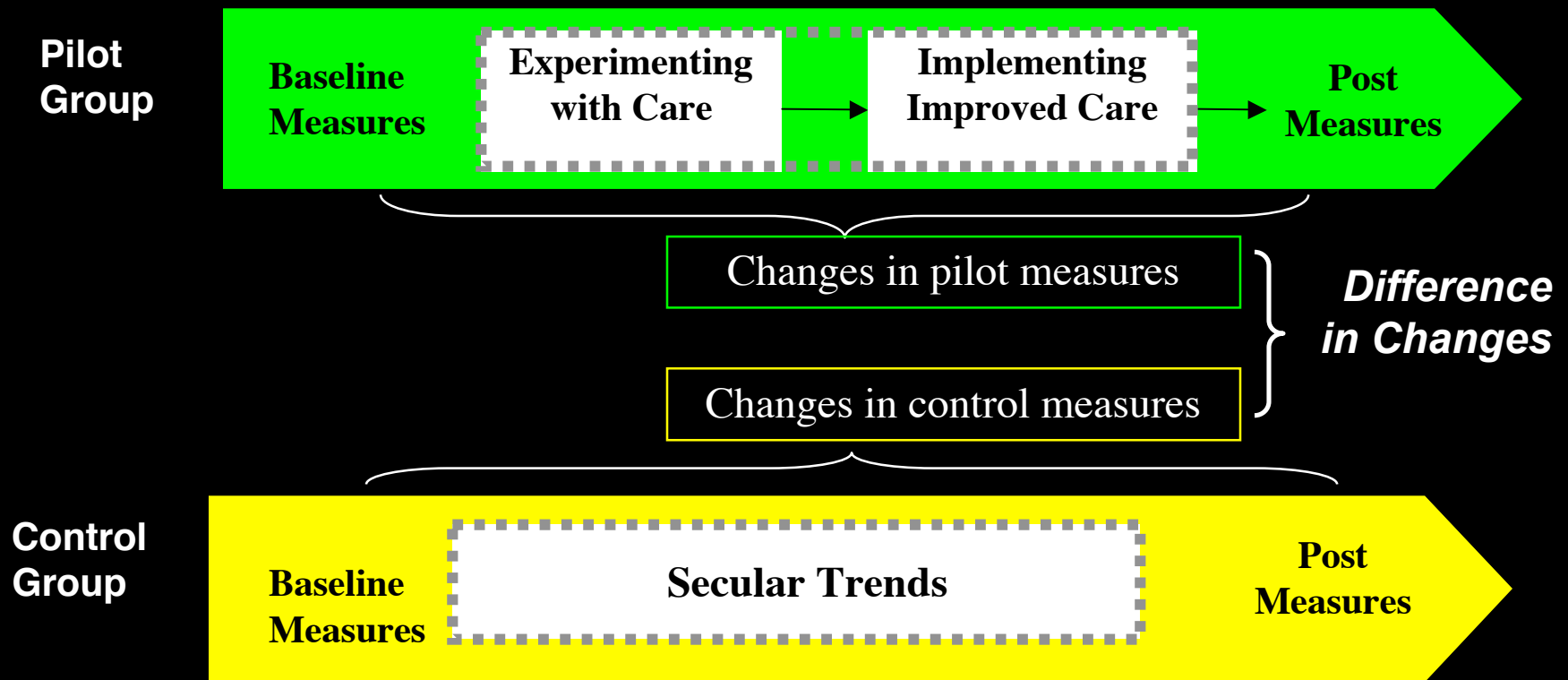
Non RCT evaluations gain strength from:

- **Well thought out study questions**
- **Before and after data with a matched control group**
- **An evaluation logic model**
- **Multiple sources of data**
- **Planning for and testing potential biases**

Evaluation Questions

- **Refining these questions can guide design, help with resource trade-offs.**
- **What happened?**
 - **Did the Collaboratives induce positive changes?**
- **Did it work as hoped?**
 - **Did implementing the Chronic Care Model improve processes of care and patient health?**
- **What did It cost?**
- **What factors were associated with success?**

Evaluation Design



An Evaluation of Collaborative interventions to improve Chronic Illness Care: Framework and Study Design”, Cretin S et al., *Evaluation Review*, 2004

Logic Model

- **Write down assumed sequence of steps from changes in inputs to measured outcomes.**
- **Example: hire nurse educator --> more weight management counseling --> better knowledge --> better self-management --> fewer crises --> less hospitalization**

Standard Logic Model Format

Inputs	Outputs: activities	Output: targets	Intermed. outcomes	Final outcome
Labor	Training	Staff patients	Knowledge	Pain, Function
Equip- ment	Hotline		Behavior	Hospital, death
Money	Make, use registry	Nurses, doctors	Disease control	

<http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html>

Benefits of Logic Model

- **Design: Study each step in chain of action**
- **Consistent results add credibility to statistical results of final outcomes.**
- **Or can pinpoint at which step the intervention broke down.**

Evaluation Data Sources



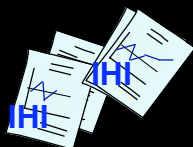
Patient Telephone Surveys



Medical Record Abstraction



Clinical & Administrative Staff Surveys



Monthly Progress Reports



Final Calls with Leader



Telephone Survey and Chart Review

- **Patient is best source for education, knowledge, adherence, satisfaction, communication, general and disease specific health**
 - **But surveys are snapshots**
- **Charts are best source for technical process of care and clinical illness**
 - **can compare before and after if patient was there in both periods, as planned**
 - **Can add baseline patient data if surveys delayed**
 - **But charts are imperfect record of what was done.**

Patient Reports in Evaluation

- **Goal of care is not just physiology, but functioning, pain relief etc.**
 - **Generic vs Disease-specific measures**
 - **Only disease-specific results were signif.**
- **Patient reported process**
 - **Are changes documentation creep, or really done? (cross-validation with charts).**
 - **Lots of chronic process is done by patient: e.g. weighing, drug titration, crisis management**
 - **It's not what doctors tell them, but what patients understand and do.**

Lowering cost of evaluations

- **Reducing data collection costs esp. for PROs**
 - **Electronic medical record with patient input**
 - **Clever use of existing data, like claims**
 - **Web-based and other unconventional surveys**
- **Reducing multi-site IRB and consent costs:**
 - **Study QI in organizations**
 - **with many sites**
 - **with prior patient consent for quality improvement and QI research activities.**
 - **With regular patient surveys**

Example: evaluating PRO intervention

- **Logic Model: what happens, and what is that supposed to do?**
- **Can patients be randomized?**
- **If not, what is good control group -- can you measure their outcomes without bleed?**
- **How can costs of study be limited?**

Controlling for selection biases in nonRCT studies

- **Collect data and compare participating with non-participating or lagging units.**
- **Example: some organizations in the collaborative did not agree to be in the evaluation**
 - **Faculty gave 1-5 ratings of success at end.**
 - **Participating organizations averaged 4.1, non-participating had 3.9, non-significant**
- **Volunteer Organizations: can't generalize to organizations that do not care to improve quality.**