The Translational Toolbox

Ralph Gonzales, MD, MSPH
Henry Lee, MD, MS
June 2011

Henry Lee
• Assistant Professor of Pediatrics, Division of Neonatology
• Associate Director of Data Analysis, California Perinatal Quality Care Collaborative
• UCSF CTSI KL2 Scholars Program

Ralph Gonzales
• Professor of Medicine, Epidemiology & Biostatistics
• Director, UCSF Program in Implementation and Dissemination Sciences (IDS)
• Associate Director, CTSI KL2 Scholars Program

Background Taxonomy
Translating “Evidence”...

1. Level of “evidence”; establishing “evidence”
   Efficacy, effectiveness, systematic reviews, guidelines/recommendations

2. Translating “evidence” into practice
   Innovations that improve health/outcomes
   2a. Processes of Care
       • Influence health outcome
          – Behaviors, tests, treatments, procedures, etc
   2b. Health Care Interventions
       • Influence processes of care
          – Translational Tools; Implementation strategies; Policies

Which are Processes of Care?

• Decision support tools
• Health coaches
• Prenatal vitamins
• Electronic health records
• Telemedicine
• Antiretroviral therapy
• Cognitive behavioral therapy
**Processes of Care vs. Tools**

- Decision support tools
- Health coaches
- Prenatal vitamins
- Electronic health records
- Telemedicine
- Antiretroviral therapy
- Cognitive behavioral therapy

**OUTLINE**

- Classifying Tools
  - 3 Dimensions
- Exemplars
  - Patients: Decision Support
  - Clinicians: Practice Guidelines
  - Community: CBPR
Translational Tool

- A strategy, program, mechanism, tool used to translate evidence into practice.
  - Evidence = processes of care directly linked to health outcomes
- Although final process always involves patients/persons, behavior change targets of translational tools can vary.

Tool Dimension #1: Target

You Can Lead a Horse to Water—Improving Physicians’ Knowledge of Probabilities May Not Affect Their Decisions

ROY M. FODES, MD, RANDALL D. CEBUL, MD, ROBERT S. WINTON, MD

(abstract) To determine whether improving physicians’ judgments of the probability of three common diagnoses for patients with acute illnesses would affect their choice of antibiotics or affect the utilization of care. Among 1175 patients admitted to an acute care hospital, a constant series of the Kansas City Scale of Patients’ Health Status was administered in the emergency department, the inpatient service, and the ambulatory outpatient departments. The instrument was designed to measure the patient’s perception of the extent to which his health status was affected by an acute illness. The results showed no significant difference in the proportion of patients prescribed an antibiotic drug between the intervention and the control groups, indicating that improving the patients’ knowledge of probabilities of illness does not affect their choice of antibiotics or the utilization of care.
**Tool Dimension #2: PRECEDE**

1. **Predisposing Factors**
   - *Rx*: Why you should change
   - Examples: Media Campaigns; Education; Guidelines

2. **Reinforcing Factors**
   - *Rx*: Align rewards/penalties
   - Examples: Incentives; Feedback; Opinion Leaders; Laws/Regulations

3. **Enabling Factors** *(make it easy to do it)*
   - *Rx*: Make it easy to do it
   - Examples: Skills; Decision Support; Authorization; Registries; Reminders
### Tool Dimension #3: Platform

**Examples:**
- **Education**
  - Brochures; Computerized; Video; Mass Media; In-Person
- **Decision support**
  - Computerized; HealthCoach; Action Plans; Telephone Advice Nurse
- **Laws and regulations**
  - Federal/state laws; work-place regulations; school regulations; licensing

### The Translational Toolbox
- individual behavior change tools

<table>
<thead>
<tr>
<th>Community</th>
<th>Patient</th>
<th>Clinician</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Health fairs</td>
<td>• Education</td>
<td>• Education</td>
</tr>
<tr>
<td>• Mass media</td>
<td>• Computer</td>
<td>• CME</td>
</tr>
<tr>
<td>• Advice lines</td>
<td>• Internet</td>
<td>• Detailing</td>
</tr>
<tr>
<td>• Support groups</td>
<td>• Video/multi-media</td>
<td>• Guidelines</td>
</tr>
<tr>
<td>• Conditional payments</td>
<td>• Decision Aids</td>
<td>• Prior Auth'n</td>
</tr>
<tr>
<td>• Taxes</td>
<td>• Disease management</td>
<td>• Decision support</td>
</tr>
<tr>
<td></td>
<td>• Coaches</td>
<td>• Registries</td>
</tr>
<tr>
<td></td>
<td>• Action plans</td>
<td>• Reminders</td>
</tr>
<tr>
<td></td>
<td>• Copayments</td>
<td>• Audit &amp; feedback</td>
</tr>
<tr>
<td></td>
<td>• Motivational interviewing</td>
<td>• P4P</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Opinion leader</td>
</tr>
</tbody>
</table>
**Background**
- Despite the availability of monitoring tools and effective therapy, asthma control is suboptimal and long-term management falls far short of the goals set in the guidelines.
- Self-monitoring, education, and specific medical care are important aspects in improving the lives of patients with asthma.
- However, many patients with mild or moderate persistent asthma do not attend checkups regularly or visit their physician with symptoms of the disease.
- Internet technology is increasingly seen as an appealing tool to support self-management for patients with chronic disease.

**Problem and Intervention**

**What is the evidence? Medical management**
**What is the quality gap? “under-utilization”**
**Is the quality gap linked to the outcome gap? yes**

**Tool:** decision support tool

**Target:**
**PRECEDE:**
**Platform:**
**Patient Behavior Change**

**Problem and Intervention**

What is the evidence? Medical management
What is the quality gap? “under-utilization”
Is the quality gap linked to the outcome gap? yes

Tool: decision support tool

Target: patients with asthma/internet access
PRECEDE: knowledge; skills; feedback
Platform: internet
Patient Decision Aids

“Informed Decision Making”

Patient Decision Aid Specs
O’Connor AM et al. Cochrane Reviews 2003

• What is it?
  – An adjunct to counseling that
    • explains options
    • clarifies personal values for the benefits vs. harms
    • guides patients in deliberation and communication

• Outcomes
  – Improve Decision Quality
    • Decisions are informed (knowledge; risk perception)
    • Decisions based on personal values (congruence)

• Most common conditions
  • Breast, prostate and colon cancer screening & treatment
  • Menopause options
  • Cardiovascular disease management
  • Prenatal testing
Patient Decision Aid Specs
O’Connor AM et al. Cochrane Review 2003

• Cost: development... low-medium—person-hours
• Feasibility: very feasible
• Complexity: potential for high complexity
• Efficacy/Effectiveness:
  - Most RCTs measured process/intermediate outcomes (knowledge; realistic expectations; decisional conflict)
  - Main effects are on knowledge and realistic expectations, with OR about 1.4-1.6.
  - Reductions in decisional conflict appear modest
  - 5/9 studies showed improvement in satisfaction with decision

Patient Behavior Change Tools
Predisposing
• Patient education

Enabling
• Decision support
• Action plans

Reinforcing
• Reminders
• Coaches
OUTLINE

• Classifying Tools
  – 3 Dimensions

• Exemplars
  – Patients: Decision Support
  – Clinicians: Practice Guidelines

Clinician Behavior Change

Background
• In 2004, the U.K. government introduced a pay-for-performance scheme with 136 indicators for family practices.

• Payments make up approximately 25% of family practitioners' income, and 99.6% of family practitioners participated in the pay-for-performance scheme, which is voluntary.

Clinician Behavior Change

Problem and Intervention
What is the evidence? Asthma, diabetes, CHD care
What is the quality gap? underperformance
Is the quality gap linked to the outcome gap? Yes

Tool: Financial Incentives/P4P

Target:
PRECEDE:
Platform:
Clinician Behavior Change

Problem and Intervention
What is the evidence? Asthma, diabetes, CHD care
What is the quality gap? underperformance
Is the quality gap linked to the outcome gap? Yes

Tool: Financial Incentives/P4P

Target: Family Practices
PRECEDE: Reinforcing
Platform: Governance

Results

![Graph showing clinical practice guidelines](image)

Clinical Practice Guidelines
### Practice Guideline Specs

<table>
<thead>
<tr>
<th>What is it?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost:</td>
<td>person-hours</td>
</tr>
<tr>
<td>Feasibility:</td>
<td>buy-in; participation</td>
</tr>
<tr>
<td>Complexity:</td>
<td>varies</td>
</tr>
<tr>
<td>Summary of evidence</td>
<td>ineffective in isolation</td>
</tr>
</tbody>
</table>

### Ideal uses

- Target behaviors: single, simple actions
- Target barriers: knowledge/attitudes

### Conclusion:

It’s all about 'implementation'

### Practice Guidelines seem to be most effective...

- for acute care conditions
- when quality of evidence is superior
- when compatible with existing values
- when decision making complexity is low
- when desired performance/behavior is clearly understood
- when new skills or organizational support is not necessary for behavior change
The influence of intervention strategy and organisational factors on practice guideline effectiveness. Adapted from Dijkstra et al, BMC Health Services Research 2006;6:53

**PLATFORM**
- Educational Meeting
- Educational Material
- Consensus Meeting
- Reminders
- Feedback
- Patient-Mediated Outreach
- Opinion Leader
- Revision of Prof Roles
- Financial
- Organisational

**SETTING**
- Inpatient
- Outpatient

**OUTCOMES**
- Behavioral
- Clinical

**ORGANISATIONAL EFFECT MODIFIERS**
- Leadership (Management Support)
- Learning Environment (Academic)
- Physician Type and Specialty
- Local Consensus (Development)

---

**SUMMARY**

**CPG Interventions**

- **Development**
  - identify clinician knowledge and behavior gaps
  - identify barriers to change
  - evidence-based "best practice"
  - quantify benefit of CPG compliance on system, practice and patient
  - local input & endorsement

- **Implementation**
  - opinion leader; clinical champion
  - point-of-service reminders
  - feedback/profiling

---

**Clinician Behavior Change Tools**

<table>
<thead>
<tr>
<th>Predisposing</th>
<th>Enabling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines</td>
<td>Decision support</td>
</tr>
<tr>
<td>CME</td>
<td>Teams</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reinforcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opinion Leaders</td>
</tr>
<tr>
<td>Financial Incentives</td>
</tr>
<tr>
<td>Penalties</td>
</tr>
</tbody>
</table>
• Classifying Tools
  – 3 Dimensions
• Exemplars
  – Patients: Decision Support
  – Clinicians: Practice Guidelines
  – Community: CBPR

Public Behavior Change

Background
• In India, neonatal mortality accounts for up to 70% of infant mortality. Most deaths happen at home, and many could be avoided with changes in antenatal, delivery, and newborn care practices.

• Primary and secondary health-care systems have difficulties in reaching poor rural residents. In Makwanpur district, Nepal, for example, 90% of women give birth at home, and trained attendance at delivery is uncommon.

Translational Tool: CBPR
Public Behavior Change

Problem and Intervention
What is the evidence being translated? Prenatal/postnatal care
What is the quality gap? see Table 4 control group
Is the quality gap linked to the outcome gap? yes

Tool: CBPR

Target: pregnant women
PRECEDE: knowledge; decision support; social support
Platform: CBPR; “facilitators”

Results

<table>
<thead>
<tr>
<th>Interactions</th>
</tr>
</thead>
</table>
| Control: $9.07$ | $9.34$
| Intervention: $9.07$ | $9.34$

Is the quality gap linked to the outcome gap? yes

Tool: CBPR
Target: pregnant women
PRECEDE: knowledge; decision support; social support
Platform: CBPR; “facilitators”

Public Behavior Change Tools

Predisposing
- Health Fairs
- Mass Media
- Outreach
- Health Coaches

Enabling
- Built Environment
- Self-Efficacy

Reinforcing
- Reminders
- Opinion Leaders
- Conditional Payments
- Co-Payments
SUMMARY

• Guidelines/Knowledge/Awareness is a necessary starting point, but rarely sufficient to create behavior change

• Think about an intervention strategy that uses multiple tools across the spectrum of predisposing, reinforcing and enabling factors depending on the relevant theory

• Tools don’t work by themselves. **Implementation is the key**

Translational Tool Resources

AHRQ Innovations Exchange (http://www.innovations.ahrq.gov)

Cochrane Effective Practice and Organisation of Care Group (EPOC) (http://www.epoc.cochrane.org)

National Guidelines Clearinghouse (www.guideline.gov)

References

CASE STUDY: The IMPAACT Trial
Supported by AHRQ (1 R01 HS013935) and VA HSR&D (AVA-03-239)

- Emergency Department Intervention:
  1. Provider education (practice guidelines) delivered by local opinion leaders
  2. Group audit and feedback
  3. Patient education

- Sites provided individualized adaptation of components

IMPAAACT Intervention Sites
### Group Audit and Feedback

<table>
<thead>
<tr>
<th>Disease</th>
<th>EMNet Average year 1</th>
<th>Truman year 1</th>
<th>Truman year 2</th>
<th>EBM Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>40</td>
<td>80</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>AECB</td>
<td>60</td>
<td>100</td>
<td>120</td>
<td>140</td>
</tr>
</tbody>
</table>

*URI, Bronchitis, Pharyngitis excludes COPD, and antibiotic-responsive secondary diagnoses. AECB as 1st diagnosis, or URI/bronchitis 1st diagnosis in patient with PMHx COPD.*

### Patient Education

- Waiting Room Patient Education
  - Pamphlets/Cards
  - Informational Kiosk

- Examination Room Materials
  - Bronchitis Posters

### Exam Room Poster

**ACUTE BRONCHITIS (CHEST COLD) AND ANTIBiotics IN ADULTS**

- Too many antibiotics may be harmful to your health.
- Do not use antibiotics to treat viral infections like the common cold.
- Antibiotics do not fight viruses.
- Check with your healthcare provider before taking antibiotics.
- Always follow the instructions on the label when taking antibiotics.
- Discard unused antibiotics to prevent accidental overdosing and resistance development.
KIOSK

- Waiting room signs directed patients to kiosk
- Patients were encouraged to use kiosk by ED staff
- Rotating messages on screen suggested content
- All text on screen could be heard through speakers
- Bilingual educational printout at end of program

Kiosk Care Plan
(Spanish and English)
Adjusted Abx Rx Rates for URI/AB

Adjusted Abx Rx Rates for all ARIs

ABx Treatment of URIs/Bronchitis Decreased at Intervention Sites

References & Resources


References & Resources