

# Using QI Methods to Spread Improvements in Developmental Services and Well Child Care

Peter Margolis, MD, PhD  
Center for Health Care Quality  
Cincinnati Children's Hospital Medical Center

change the outcome®

1

# Outline

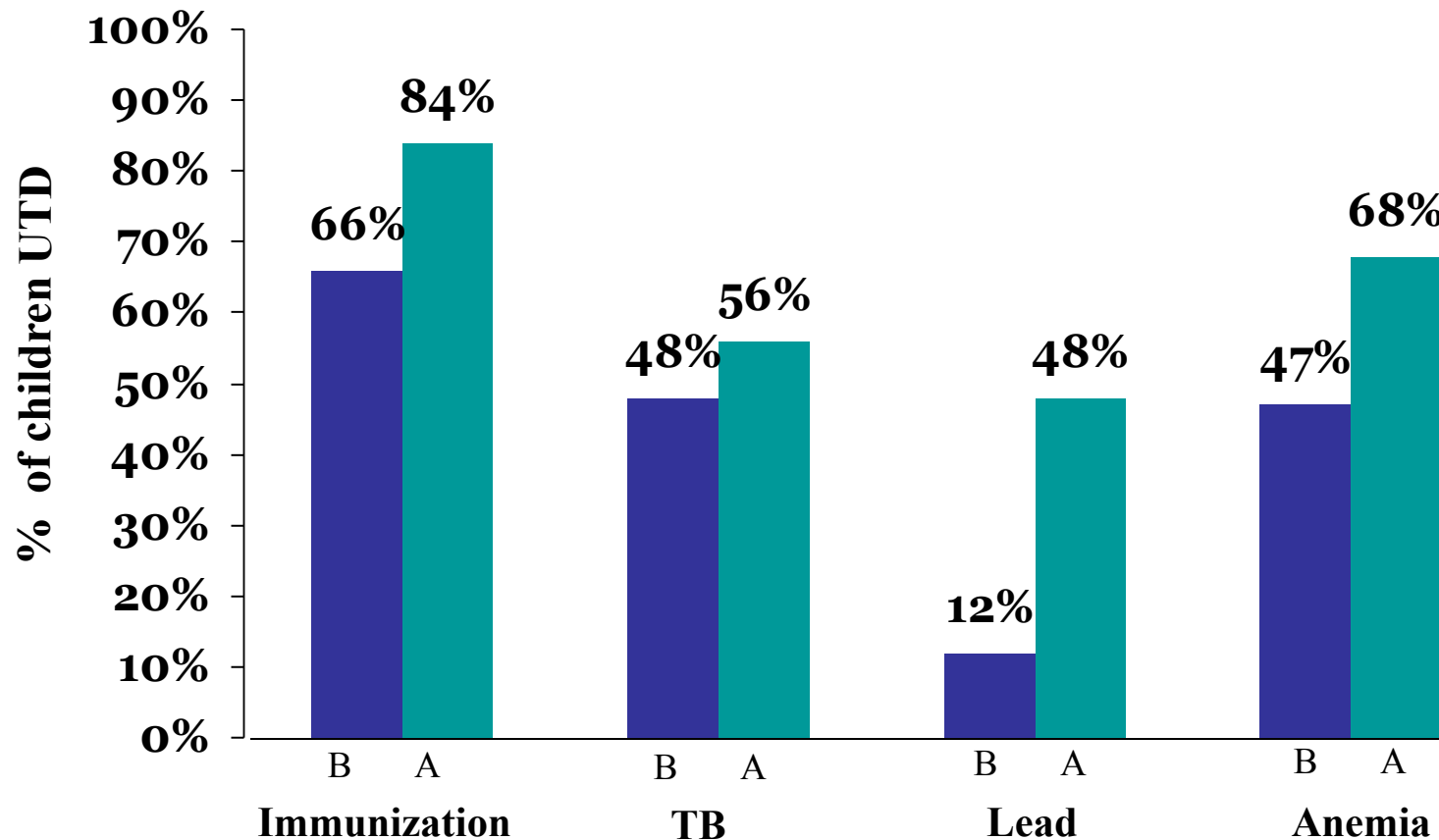
- Evidence that QI approaches work in improving preventive and developmental care
- What is Quality Improvement Science?
- Three models for supporting practice-based improvement
- From pilot testing to large scale spread
  - Next session

# Evidence that practice-based assistance is effective

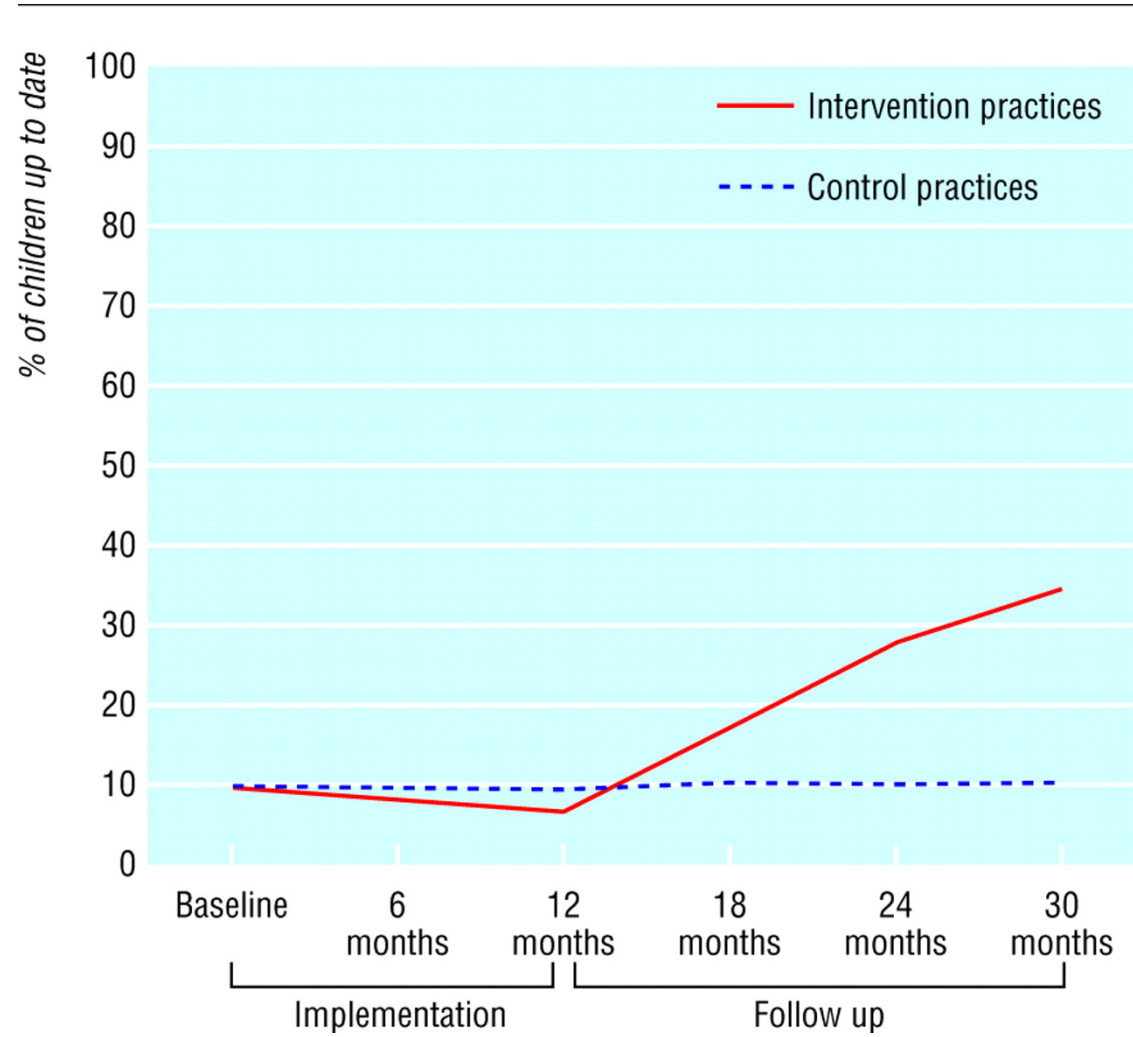
change the outcome®

3

# Preventive Services in Eight Pediatric Practices Before and After Intervention



**Fig 2 Proportion of children with up to date records of all four preventive services**



change the outcome®

# Evaluation of a Learning Collaborative to Improve the Delivery of Preventive Services by Pediatric Practice. PC. Young, GB. Glade, GJ Stoddard, C Norlin.

## ABSTRACT

**OBJECTIVE.** Effective delivery of preventive services is an essential component of high-quality pediatric health care. However, both variation in and deviation from accepted guidelines have been reported. Learning collaboratives (LCs) have been shown to result in improvement in several aspects of pediatric care. The objective of this study was to determine whether pediatric practices that participated in a preventive services LC would improve their delivery of preventive services.

**METHODS.** After conducting an initial audit of the medical records of twenty 2-year-olds and twenty 4-year-olds for documentation of preventive services on the basis of national standards, practice teams attended a quality improvement workshop. They were presented with evidence to support the value of preventive services and the results of their audits and taught quality improvement methods, eg, rapid cycles of change. Each team developed plans to improve 1 or more services. Brief audits with feedback and monthly conference calls were used to support practices to conduct rapid cycles of change, to discuss barriers and solutions, and to monitor progress. The results of final chart audits of twenty 2-year-olds and 4-year-olds were compared with the initial chart audits. A Preventive Service Score (PSS) was assigned to each practice on the basis of the number of services provided, and initial to final comparisons were made.

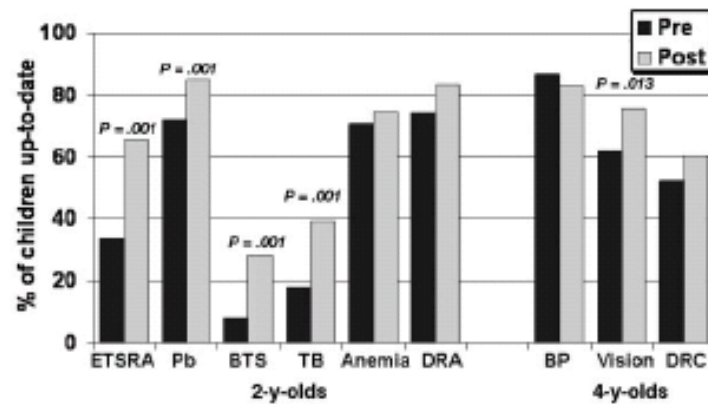
**RESULTS.** Fourteen practices participated. PSSs improved for all practices after the LC. Mean PSS for 2-year-olds increased from  $4.0 \pm 1.1$  to  $4.9 \pm 1.2$  and for 4-year-olds increased from  $3.8 \pm 1.8$  to  $5.6 \pm 1.9$ . The proportions of children who received 9 of the 10 individual preventive services also improved significantly.

**CONCLUSION.** LCs are a potentially effective method of improving the quality of care that is delivered by pediatric practices.

## Statewide Quality Improvement Outreach Improves Preventive Services for Young Children

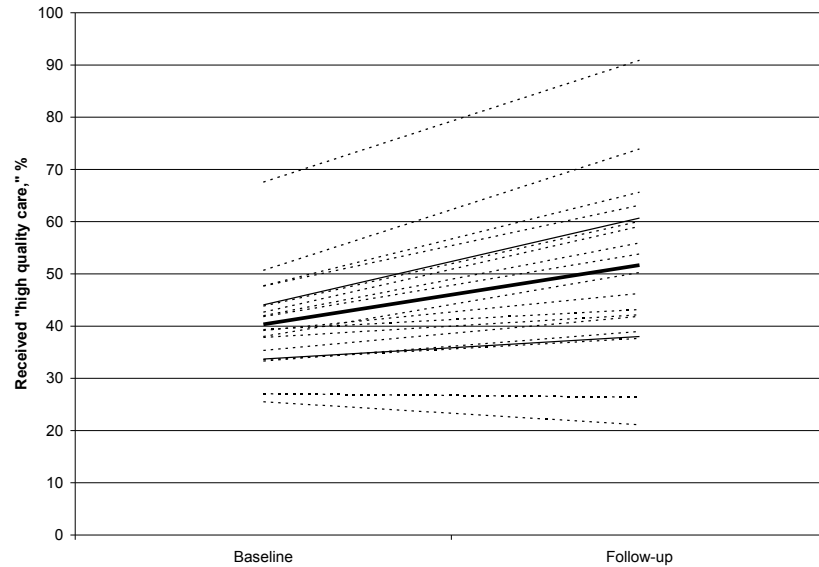
Judith S. Shaw, Richard C. Wasserman, Sara Barry, Thomas Delaney, Paula Duncan, Wendy Davis and Patricia Berry  
*Pediatrics* 2006;118;e1039-e1047

**FIGURE 2**  
 Mean changes before and after for all practices on each of the preventive services areas measured in both 2- and 4-year-olds. ETSRA indicates environmental tobacco smoke risk assessment; Pb, lead screening; BTS, back-to-sleep counseling; TB, tuberculosis risk assessment and indicated screening; Anemia, anemia screening (hematocrit); DRA, dental risk assessment; BP, blood pressure screening; Vision, vision screening; DRC, dental referral or care.

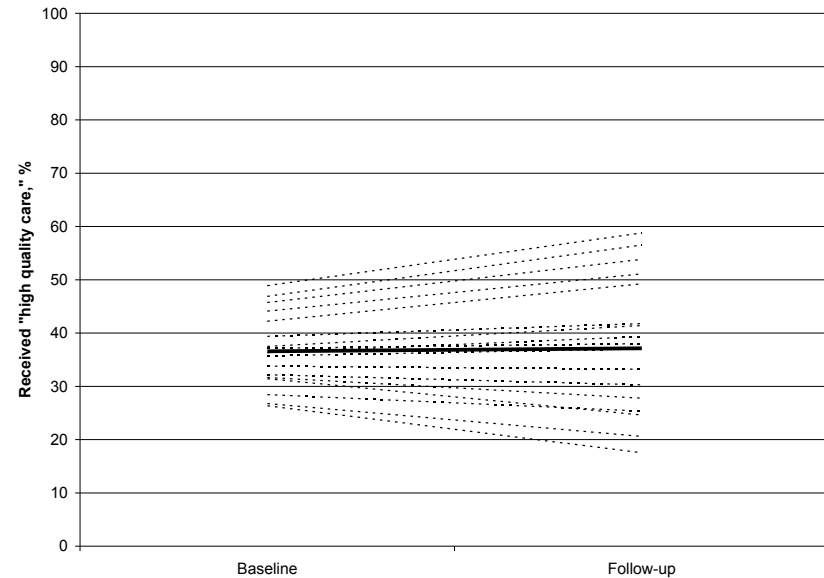


# Healthy Development Collaborative NC and VT

Children receiving “high quality care”\* at baseline and follow-up based on parents’ reports



Collaborative Practices



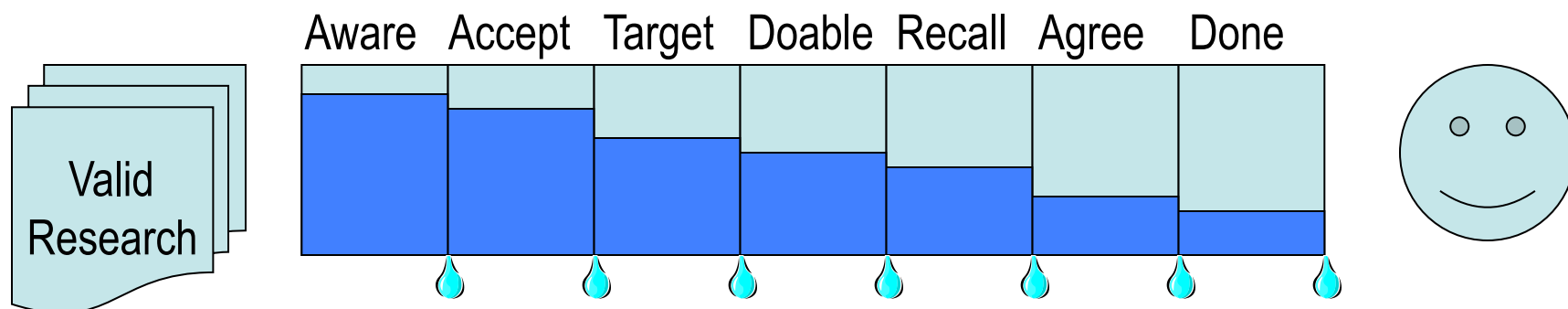
Comparison Practices

change the outcome®

# Many necessary stages between research and practice

- Are doctors aware of the evidence?
- Do they accept it?
- Is it targeted correctly at their patients?
- Is the necessary change in practice doable?
- Is the information recalled at the right moment? (does the doctor remember what to do?)
- Does the patient agree with the doctor's recommendation?
- Does it actually happen?

# Many “Leaks” from Research to Practice



**Even if 80% is achieved at each stage then**  
 **$0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 = 0.21$**

# Quality Improvement Science

A rational, effective and reasonably fast method to produce enduring improvement in outcomes at a population level

# The Science of Improvement

Dr. W. Edwards Deming stressed the importance of studying four areas to become more effective in leading improvement:

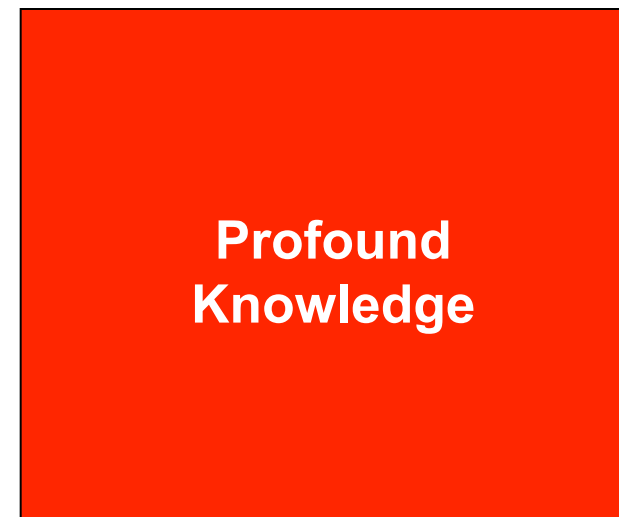
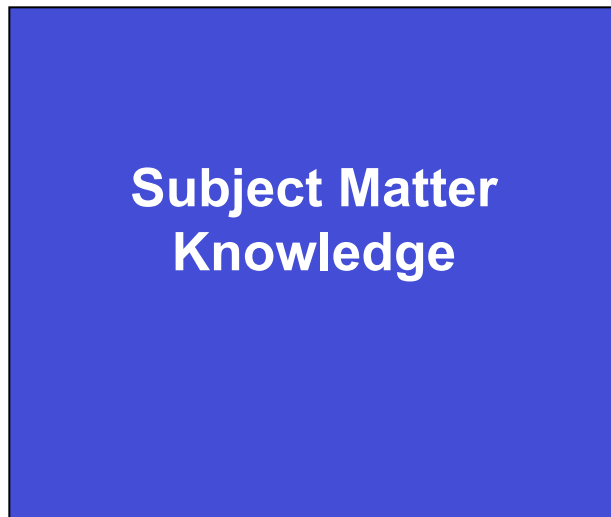
- Appreciation of a system
- Understanding variation
- Theory of knowledge
- Psychology



Deming called the interplay of these four areas “Profound Knowledge”

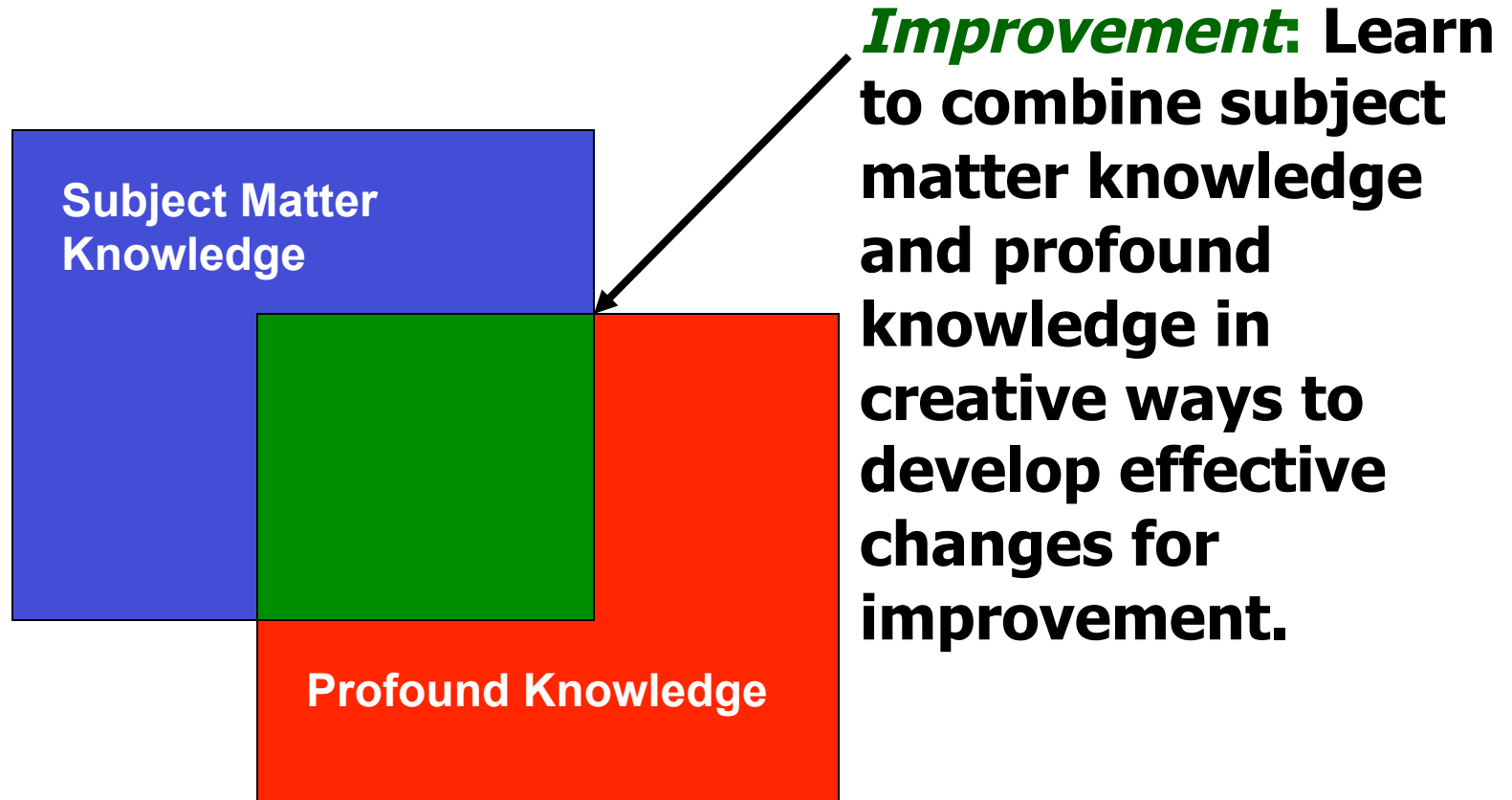
# Two Types of Knowledge

***Subject Matter Knowledge:*** Knowledge basic to the things we do in life. Professional knowledge.



***Profound Knowledge:*** The interaction of the theories of systems, variation, knowledge, and psychology.

# Knowledge for Improvement



# Elements of QI Science

- Appreciation for care as a system
- Will to change the system
- Flexible improvement model
- Sequential building of knowledge
  - Testing changes on a small scale
  - Spread of improvements to similar sites
- Efficient and effective use of data
  - Usefulness not perfection

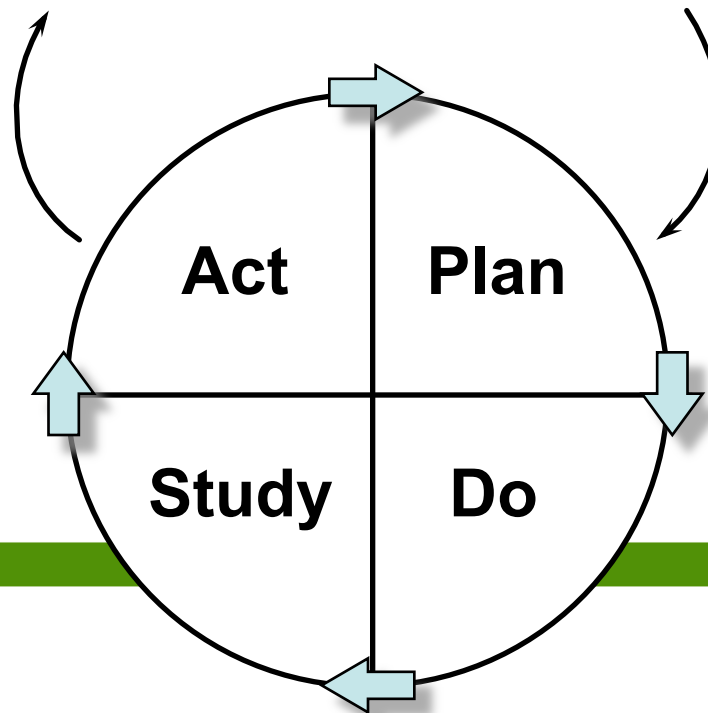
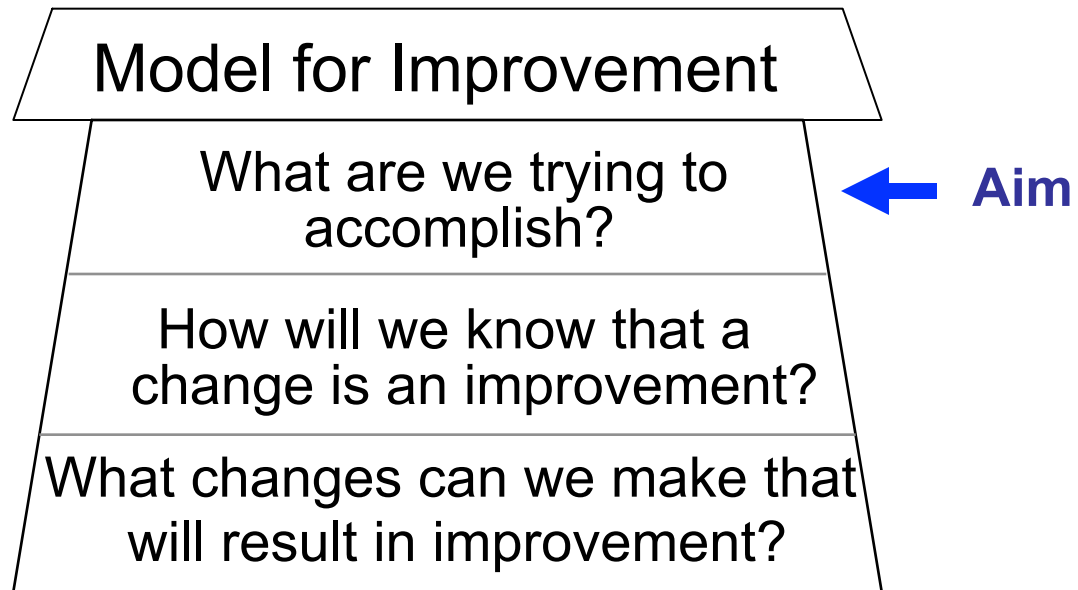
# The Chain of Effect in Improving Health Care Quality



Cartoon removed

# Elements of QI Science

- Appreciation for care as a system
- Will to change the system
- Flexible improvement model
- Sequential building of knowledge
  - Testing changes on a small scale
  - Spread of improvements to similar sites
- Efficient and effective use of data
  - Usefulness not perfection



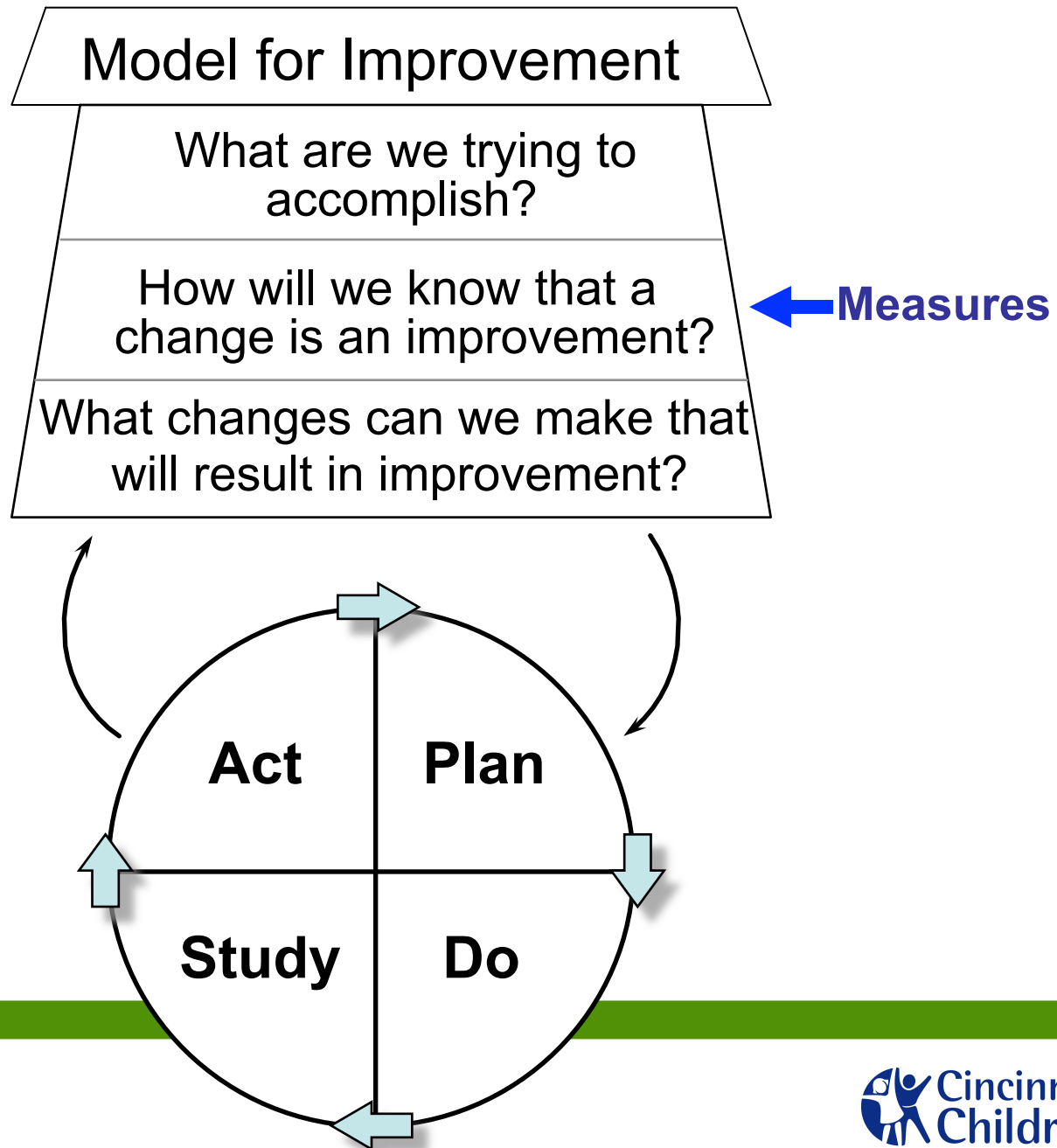
change the outcome®

# ABCD Screening Academy

---

## **Aim**

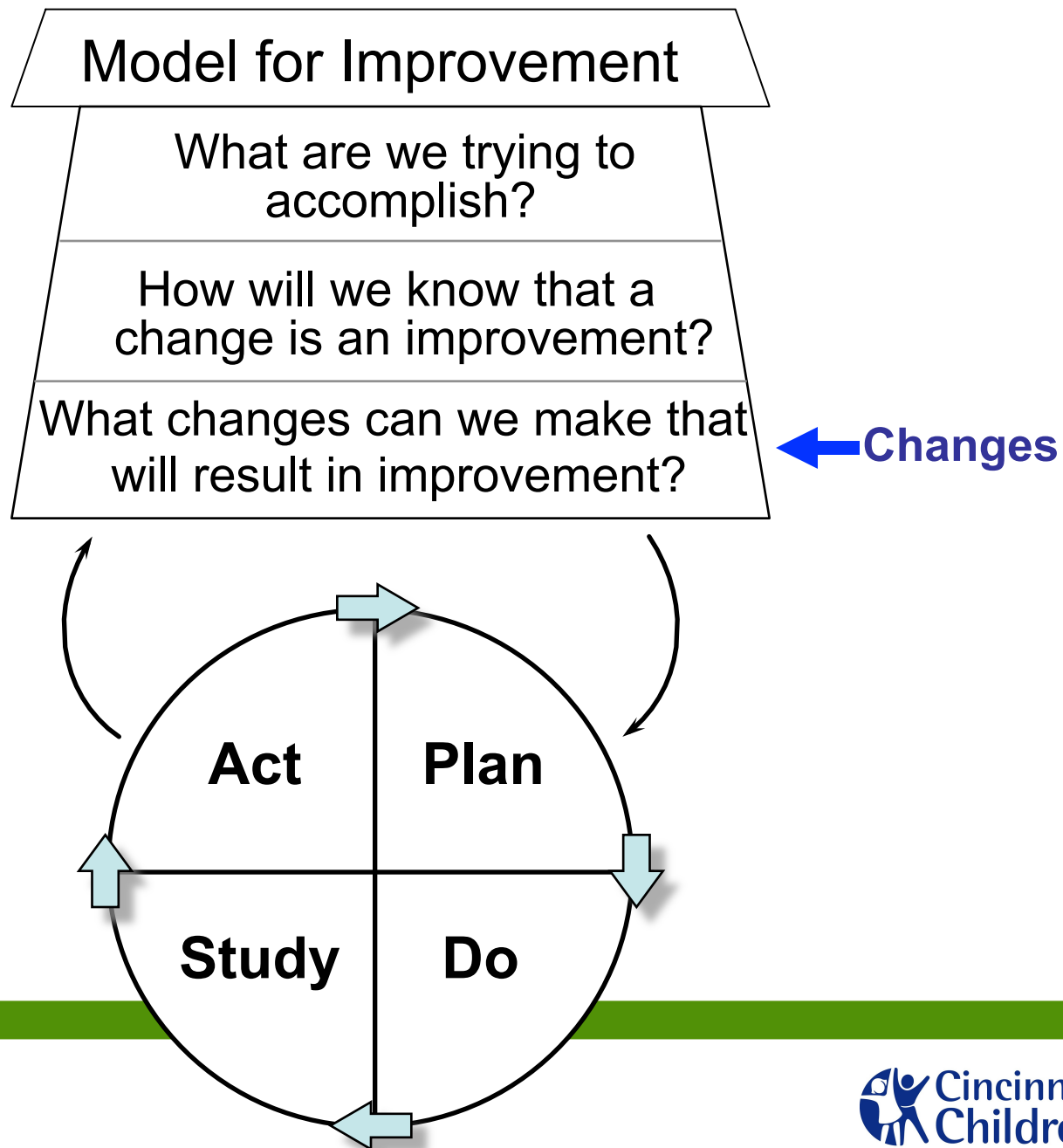
Support states to implement policy and practice changes needed for wide-spread adoption of developmental surveillance and screening as part of standard well-child care

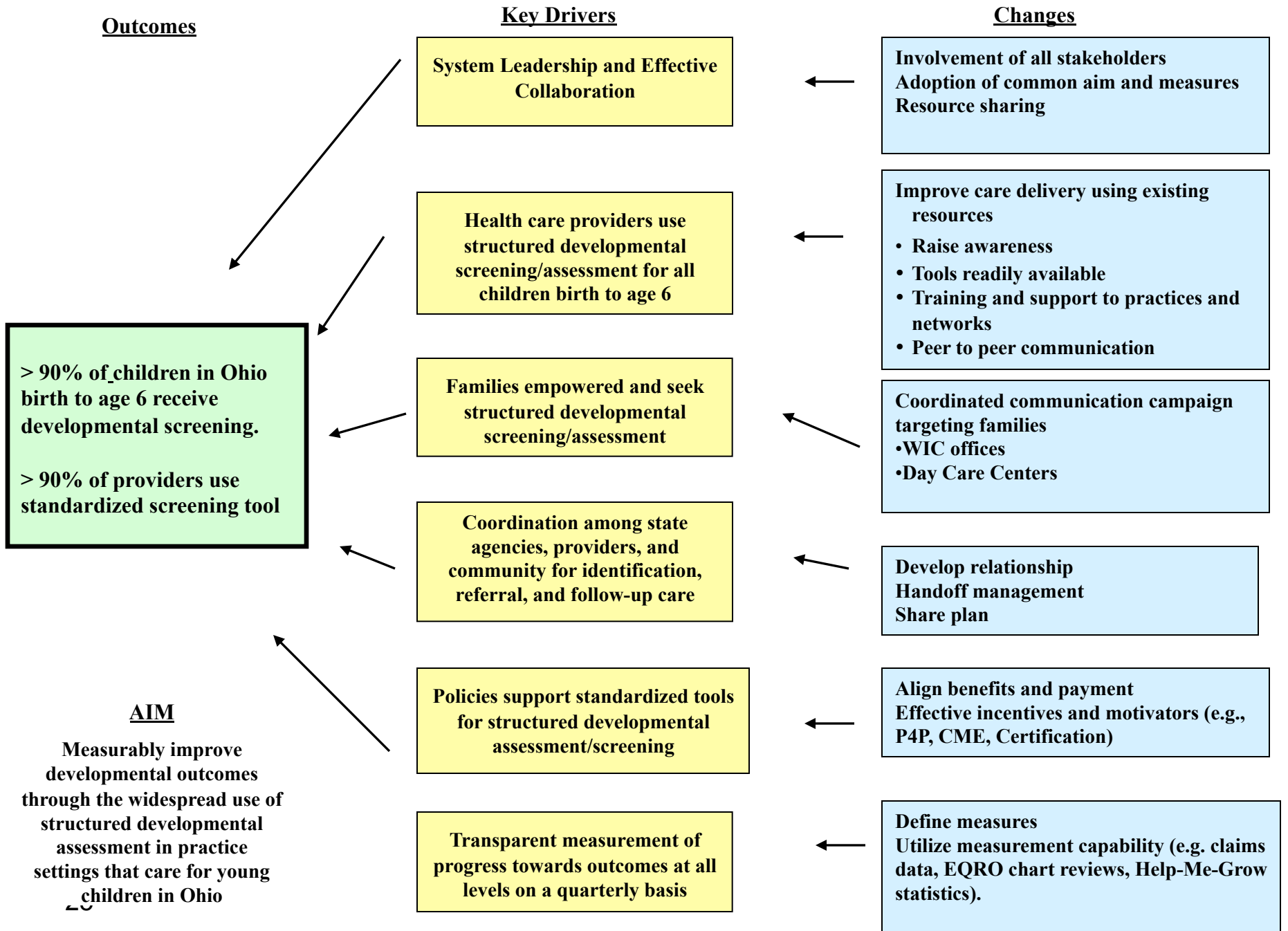


Cartoon removed

# Measurement in Screening Academy

- Potential measures
  - % of children screened
  - % of children referred
  - % of practices involved



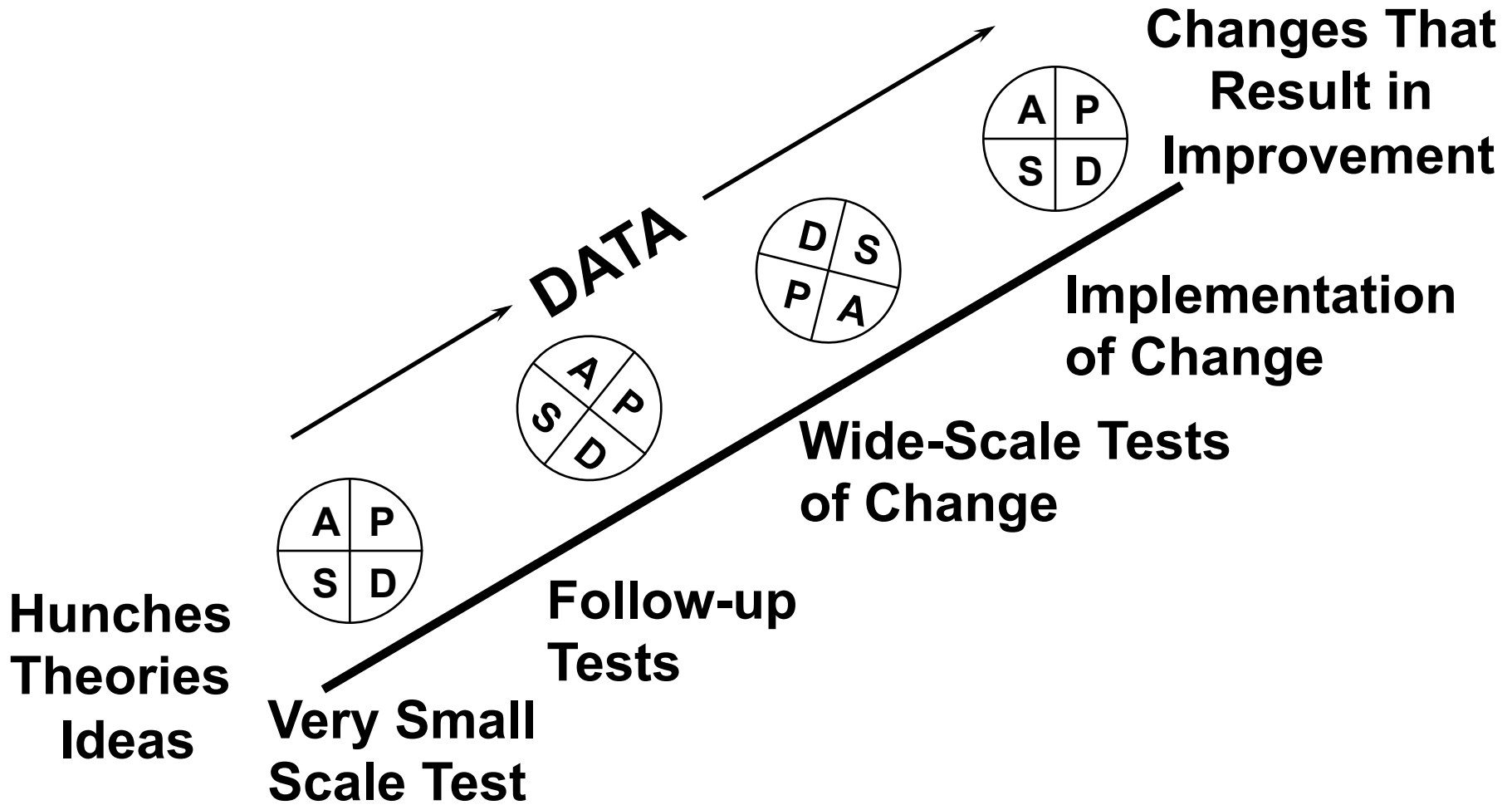


# Elements of QI Science

- Appreciation for care as a system
- Will to change the system
- Flexible improvement model
- Sequential building of knowledge
  - Testing changes on a small scale
  - Spread of improvements to similar sites
- Efficient and effective use of data
  - Usefulness not perfection

# Sequential Building of Knowledge

*Repeated Use of the PDSA Cycle*

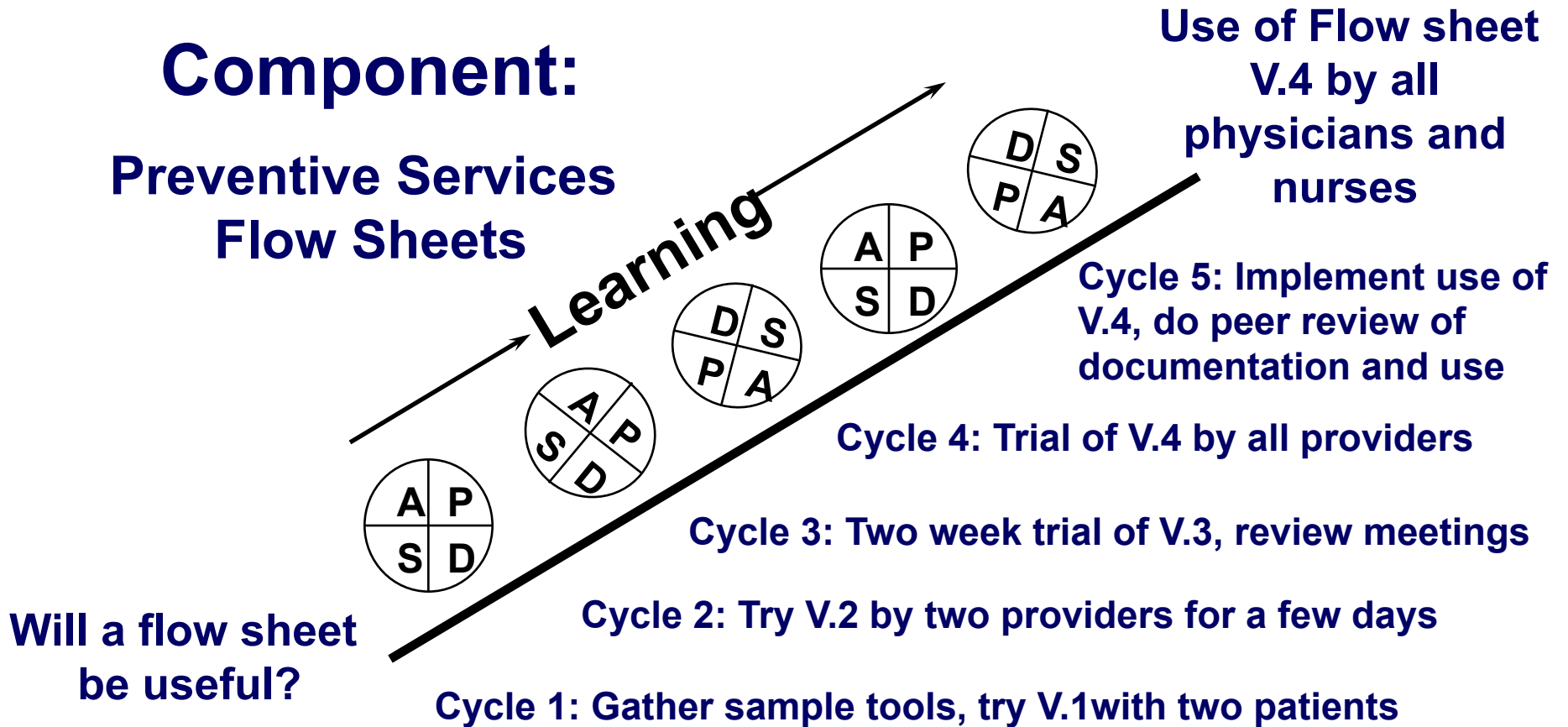


change the outcome®

# Multiple Cycles to Test and Implement Components of the Framework

## Component:

### Preventive Services Flow Sheets

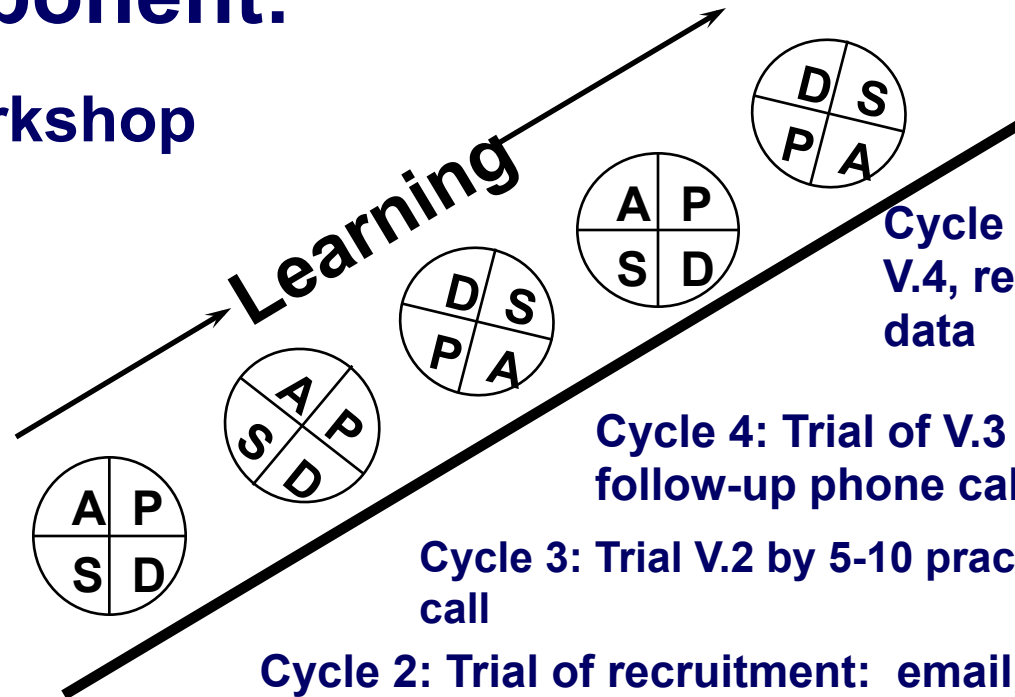


# Multiple Cycles to Test and Implement a Practice Assistance Model

## Component:

Workshop

Use of workshop  
in multiple  
regions



Cycle 5: Implement use of V.4, recruitment, follow-up, data

Cycle 4: Trial of V.3 with recruitment and follow-up phone calls and data collection

Cycle 3: Trial V.2 by 5-10 practices with follow-up call

Cycle 2: Trial of recruitment: email, phone call

Cycle 1: Find sample curriculum try V.1 with 2 practices

Will a produce  
change?

change the outcome\*

Cartoon Removed

# Potential Assistance Models

- Learning collaboratives
- CME group workshops and conference calls
- In-office consulting

# What is required to get started?

- Tools
  - Curriculum
  - List of change strategies or concepts
  - Sample materials and examples (e.g., screening tools, office flow sheets)
  - Communication materials (e.g., video testimonials)
- Models for practice assistance and faculty
- Performance measurement and transparent data sharing
  - Measures
  - Data collection and reporting on a regular basis (monthly to quarterly)

# Faculty - Roles

- “Subject experts”
  - present research evidence and identify gaps between best and existing practice
- Subject experts and quality methods experts
  - chosen for credibility with participants
- Clinical experts
  - legitimize changes and motivate by explaining the practical changes participants can test, ideally because they have made the changes themselves
- Patient experts
  - may add a valuable dimension when deciding which targets to set and changes to make

# “Learning Collaborative” Model

change the outcome®



# The Breakthrough Series

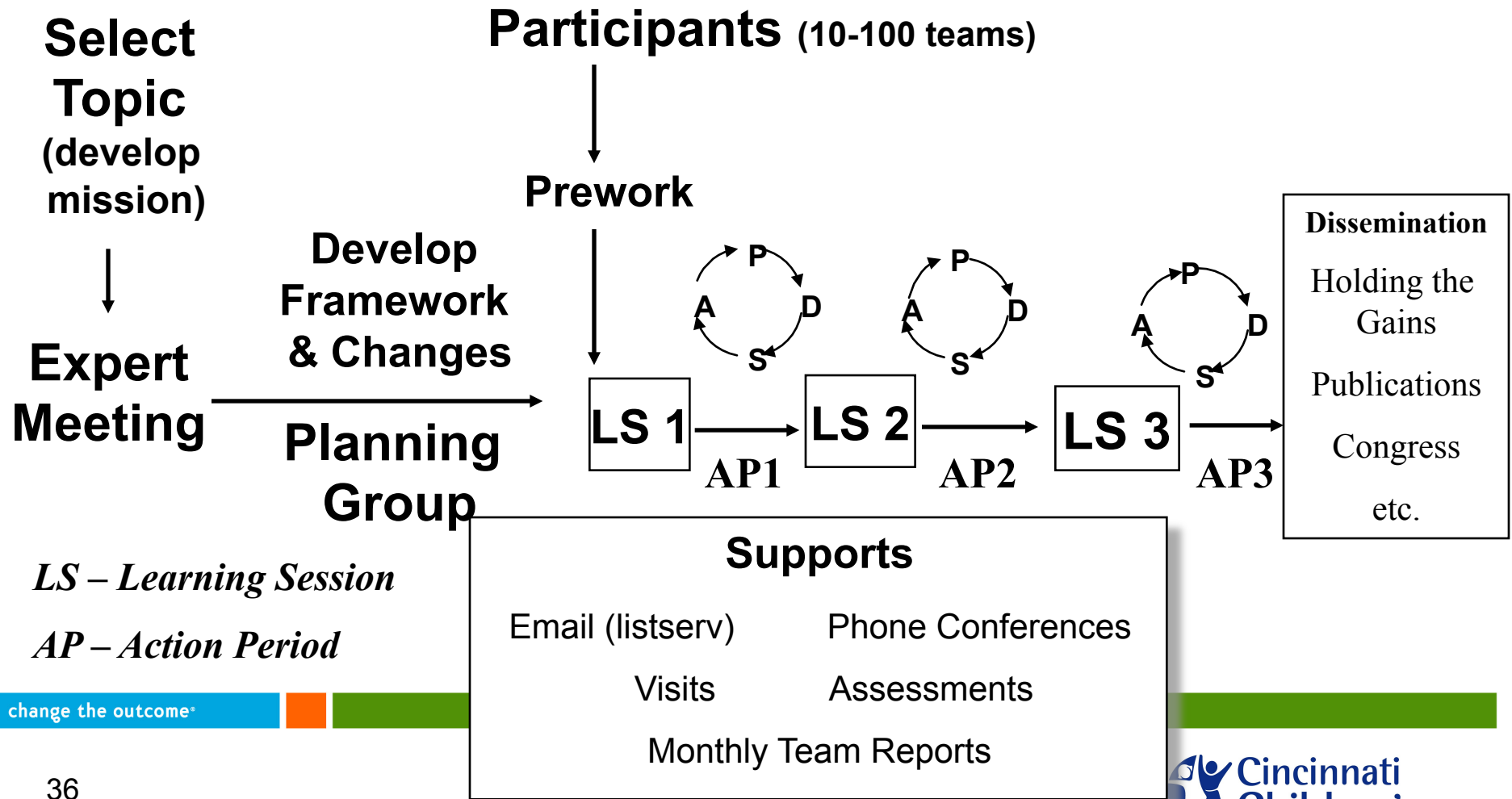
An improvement method that relies on spread and adaptation of existing knowledge to multiple settings to accomplish a common aim.

BTS is not:

1. Research for new knowledge
2. Single-setting (team) focus
3. **Small changes** to existing systems

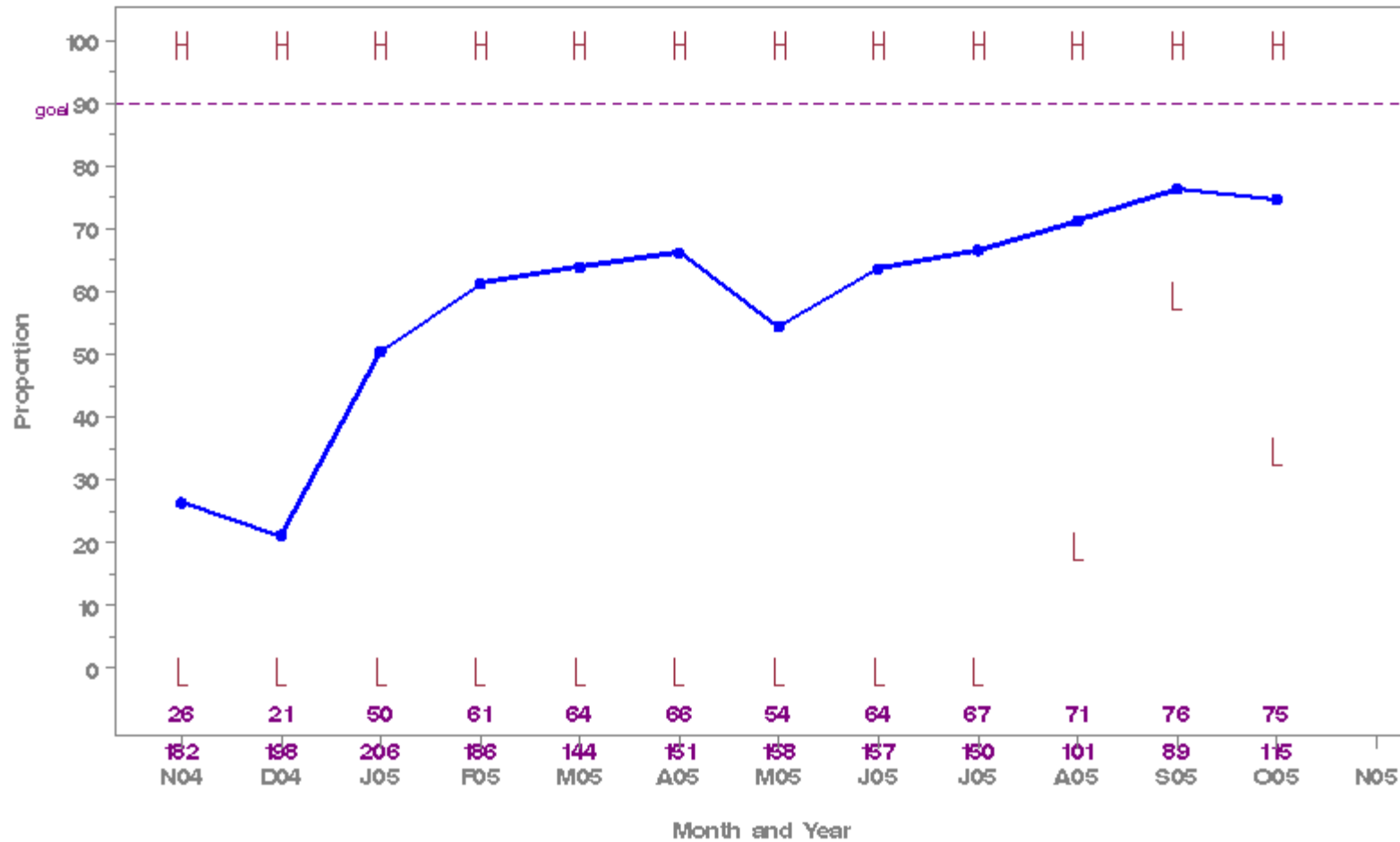
# IHI Breakthrough Series

(6 to 18 months time frame)



change the outcome®

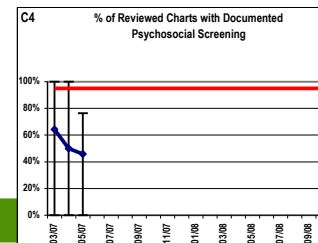
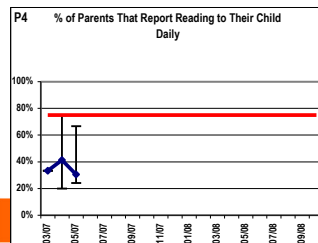
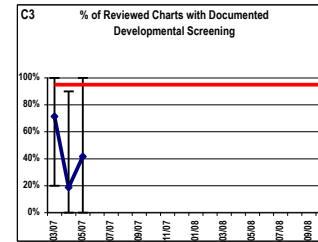
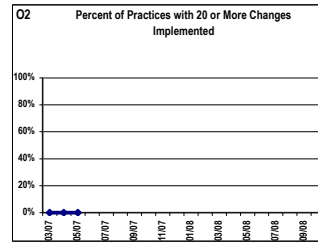
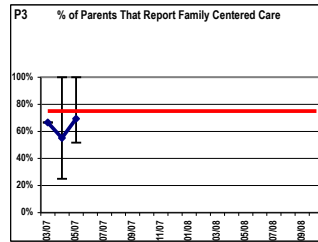
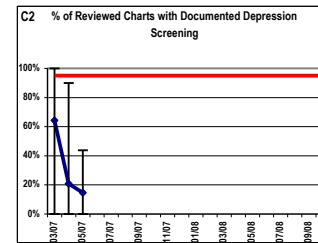
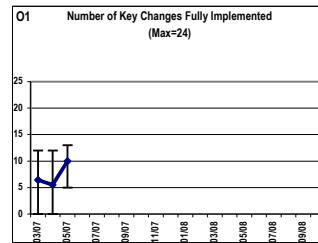
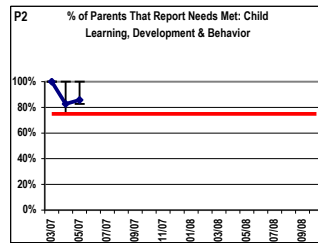
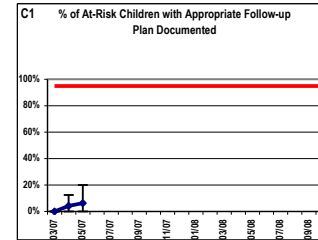
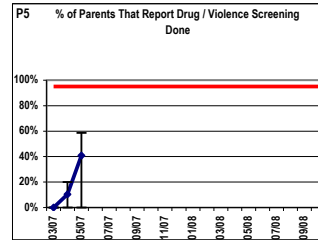
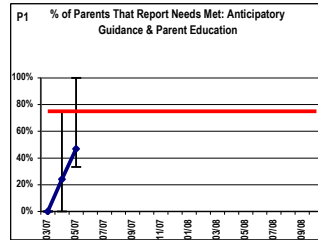
**Bright Futures – Monthly Measures Report**  
**Average Proportion of Patients With Preventive Services Summary Sheet**  
**Measure 1**  
**All Practices**



Note: Across all Practices

L = lowest observed    H = highest observed    N = number

Aggregate Run Charts with Highs and Lows



change the outcome®

Number of Forms per Month

Chart Review	14	48	48															
Parent Survey	3	29	49															
	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07	/07

# Learning Collaborative

## Strengths

- One to many
- May produce clinical leaders
- Moderate scalability
- Supports multiple changes at once
- Potential to adopt as core infrastructure by existing networks

## Limitations

- More complex to organize
- Expensive because of sustained level of support

# Workshop

- Balance of content and practical implementation  
For example,
  - Video testimonials and examples
  - Comparison of screening tools
  - Implementation planning tools
- Can incorporate performance data if available
- Should include brief training about how to adapt changes to practice-specific setting
- Can include follow-up conference calls and reports to promote action
  - Take advantage of on-line survey tools

# Workshop

## Strengths

- More familiar
- One-to-many
- Focus on a one primary change
- Can be coupled with follow-up to encourage action
- Least complex to organize

## Limitations

- More limited QI support
- Minimal peer-to-peer interaction
- Less evidence for effectiveness

# In-office Consulting

- QI consultant possibly with others (e.g., MD, community agency representatives)
- “Academic detailing” (focused on decisions)
  - Investigate knowledge and motivations
  - Focus on specific categories of physicians as well as opinion leaders
  - Clear educational and behavioral objectives
  - Credibility through respected organizational identity
  - Referencing authoritative and unbiased sources of information
  - Presenting both sides of controversial issues
  - Stimulating active physician participation
  - Concise graphic educational materials
  - Highlighting and repeating the essential messages
  - Positive reinforcement of improved practices in follow-up visits
- Multi-phase consulting for technical support to adapt changes

# In-office Consultation

## Strengths

- One-on-one coaching
- Stronger evidence
- Can customize tools
- Opportunity to work with office staff for training
- Potentially useful for practices that are having more difficulty

## Limitations

- Most expensive
- Consultants must have QI and content knowledge
- Support for only limited number of sites
- Least peer-to-peer communication
- More expensive to sustain

# Considerations in selecting a model

- Available resources
  - Area Health Education Centers (AHEC)
  - Professional organization chapters
  - Quality Improvement Organizations (QIO)
  - Some academic centers and CME departments
  - Some health systems and practice networks
  - Some managed care groups
- Previous experience and documented impact on outcomes

# From initial project to scale-up

- Spread depends on ability to provide useful assistance *from practice perspective*
- Small group of practices (15-30)
  - Early adopters (will be more tolerant)
  - Range of practice types
  - Involve networks (they may have infrastructure)
- Do not be afraid to set high expectations
- Keep working until you get results
  - Collect and report data monthly on outcomes
  - Keep system leaders engaged by sharing results on a regular and formal basis
  - Expect some “fabulous failures”
- Identify target for spread at the beginning

# Summary

- QI methods provide a means to manage the development and spread of new ideas
- Opportunity to adapt changes prior to scale up
  - Contain risks by providing time for learning
  - Develop local experience and leaders
- Establish needed linkages across policy, health system, practice and community levels towards a common aim

# Additional References

- The Breakthrough Series. Institute for Healthcare Improvement Innovation Series 2003. [www.ihl.org](http://www.ihl.org)
- Ovretreit J et al. Quality collaboratives: lessons from research. *Qual Saf Health Care*. 2002 Dec;11(4):345-51
- Lesar TS et al. The VHA New England Medication Error Prevention Initiative as a model for long-term improvement collaboratives. *Jt Comm J Qual Patient Saf*. 2007;33:73-82.
- Langley J, Nolan K, Nolan T, Norman, C, Provost L. *The Improvement Guide*. San Francisco: Jossey-Bass 1996
- Rogers E. *Diffusion of Innovations*. New York: The Free Press, 2004.
- Gladwell, M. *The Tipping Point*. Boston: Little, Brown and Company, 2000.