

Reach  
Out and  
Read®



# Quality Improvement for Child Health Promotion:

## Reach Out and Read as a Model

Lee M. Sanders, MD, MPH<sup>1</sup>

Regina Roberson<sup>2</sup>

Barbara Ducharme<sup>3</sup>

Judy Shaw, PhD<sup>4</sup>

<sup>1</sup> University of Miami Miller School of Medicine

<sup>2</sup> Reach Out and Read, Florida Coalition

<sup>3</sup> Reach Out and Read National Center

<sup>3</sup> Vermont Child Health Improvement Program

**Reach  
Out and  
Read®**



# Reach Out and Read (ROR)

- The Reach Out and Read program model has 3 components:
  - Literacy-rich environments, including waiting areas in which volunteers may model reading aloud techniques as children await their appointments
  - Medical providers encourage parents to read aloud and offer anticipatory guidance
  - At every health supervision visit, a child aged 6 mos. through 5 years receives a new developmentally-appropriate book to keep
- Reach Out and Read promotes early literacy through primary care clinics because medical providers:
  - Reach more than 95% of parents with children in ROR's age group
  - Have repeated one-on-one contact with families
  - Provide trusted guidance about children's development

Reach  
Out and  
Read®



**Reach  
Out and  
Read®**



# Reach Out and Read Key Facts

- **Locations: 4,500 Program Sites in all 50 states**
- **Reach: 3.8 million children served in 2009**
- **Team: 25,000 active, trained volunteer doctors and nurses**
- **Special Initiatives: Military, Spanish-Speaking Families and American Indian/Alaska Native Outreach Project**
- **Results: Standardized test scores 6 months higher**
- **Impact: Parents 4x more likely to read to their child**
- **Credibility: The ROR model of early literacy promotion is endorsed by AAP (Bright Futures) and NAPNAP**

**Reach  
Out and  
Read®**



# ROR Results

## Children

- **More books in their homes**
- **More hours of being read to than non-participating children**
- **Language comprehension and vocabularies 6 months higher than their non-participating peers**
- **Enter school ahead of their peers**

## Parents

- **4-fold increase in home literacy activities (reading aloud as a favorite activity, reading aloud nightly)**
- **Non-English speaking parents 10 times more likely to read to their children regularly**

## Rigorous evaluation

- **14 published peer-reviewed studies prove program impact**

**Reach  
Out and  
Read®**



# Quality Improvement (QI): Successes in Improving Health Outcomes

## Health and Hospital Systems (IHI)

- Improved Infection Control (1000s of lives saved)
- Reduced Surgical Complications (1000s of lives saved)

## Pediatric Health Systems (NICHQ / VCHIP)

- Improved Asthma Control (1000s of hospitalizations avoided)
- Improved Care Coordination for CSHCN (improved QOL, reduced HC costs)

## National Attention and Funding

- Million Lives Campaign
- Comparative Effectiveness Research (ARRA)



# Quality Improvement in Health Promotion: Reach Out and Read

**Little Effective QI in Child Health Promotion**

**Need for QI Models to Guide Implementation of Bright Futures Initiative (AAP)**

**ROR as a model for QI in Health Promotion**

- 1. Simple, reproducible model of anticipatory guidance**
- 2. Focused outcomes**
- 3. National and regional systems of technical support**

Reach  
Out and  
Read®



# Objectives

1. To assess the effectiveness and feasibility of a simple, clinic-based QI model to improve the delivery of the ROR model.
2. To develop QI Measurement Tools and a Change Package suitable for dissemination across the ROR network of > 4,500 medical sites.

**Reach  
Out and  
Read®**



# Methods

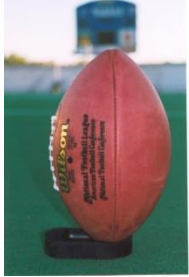
**Design: “Plan/Do/Study/Act” (PDSA) cycles**

**Setting: 40 ROR medical sites across 3 large counties in Florida**

**Procedures for each site:**

- 1. Background Data Extraction. (ROR National)**
- 2. QI Kickoff Meetings. (Regional and Clinic Staff)**
- 3. First PDSA Cycle**
  - Baseline Data Collection – One Week**
  - Change Implementation**
- 4. Three 4-week PDSA cycles**

**Reach  
Out and  
Read®**



## ROR QI “Kick-off”

**Attendees: “QI Team” from each clinic: provider (MD, ARNP, or nurse) and administrator**

**Interactive 2-hour workshop**

**Introduction to PDSA and “Change Packet” (i.e., best practices)**

**Each team reviews one year of background data and information on their clinic**

**Goals for each Team:**

- ▲ **identify current systems**
- ▲ **identify and plan for change**
- ▲ **Identify and plan for measuring change**

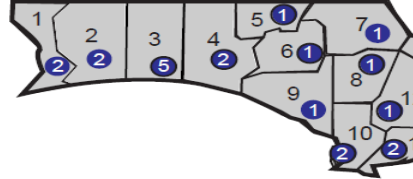


Reach Out and Read®



# Florida Sites

District I - Panhandle 28 SITES



District II - N. FL 21 SITES

District III - Gainesville & N. Central FL 27 SITES

District V - Tampa 18 SITES

District VI - Sarasota & Ft. Myers 11 SITES

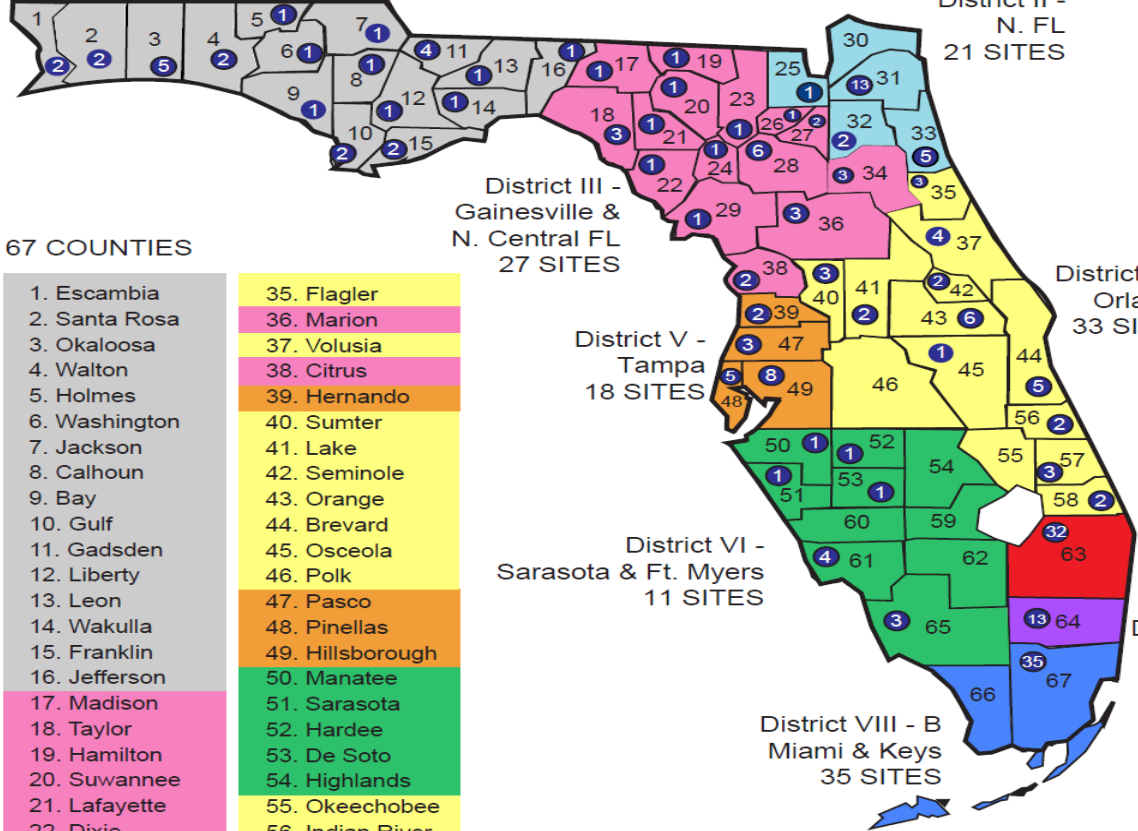
District VIII - B Miami & Keys 35 SITES

District IV - Orlando 33 SITES

District VII - Palm Beach 32 SITES  
District VIII - A Broward 13 SITES

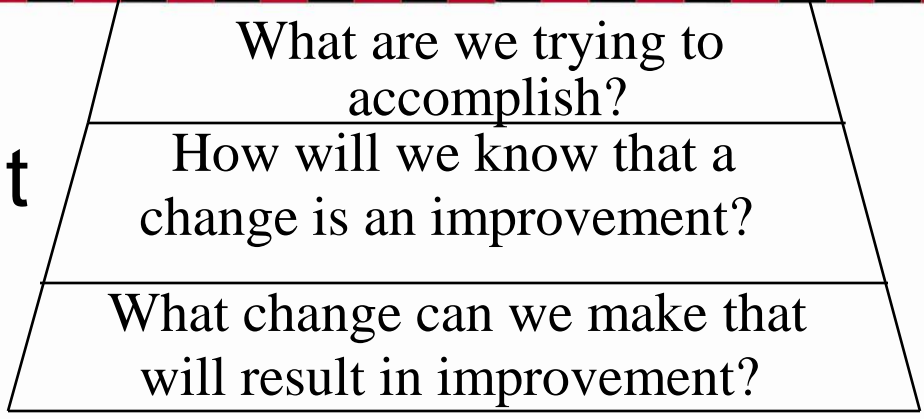
67 COUNTIES

1. Escambia	35. Flagler
2. Santa Rosa	36. Marion
3. Okaloosa	37. Volusia
4. Walton	38. Citrus
5. Holmes	39. Hernando
6. Washington	40. Sumter
7. Jackson	41. Lake
8. Calhoun	42. Seminole
9. Bay	43. Orange
10. Gulf	44. Brevard
11. Gadsden	45. Osceola
12. Liberty	46. Polk
13. Leon	47. Pasco
14. Wakulla	48. Pinellas
15. Franklin	49. Hillsborough
16. Jefferson	50. Manatee
17. Madison	51. Sarasota
18. Taylor	52. Hardee
19. Hamilton	53. De Soto
20. Suwannee	54. Highlands
21. Lafayette	55. Okeechobee
22. Dixie	56. Indian River
23. Columbia	57. St. Lucie
24. Gilchrist	58. Martin
25. Baker	59. Glades
26. Union	60. Charlotte
27. Bradford	61. Lee
28. Alachua	62. Hendry
29. Levy	63. Palm Beach
30. Nassau	64. Broward
31. Duval	65. Collier
32. Clay	66. Monroe
33. St. Johns	67. Miami-Dade
34. Putnam	

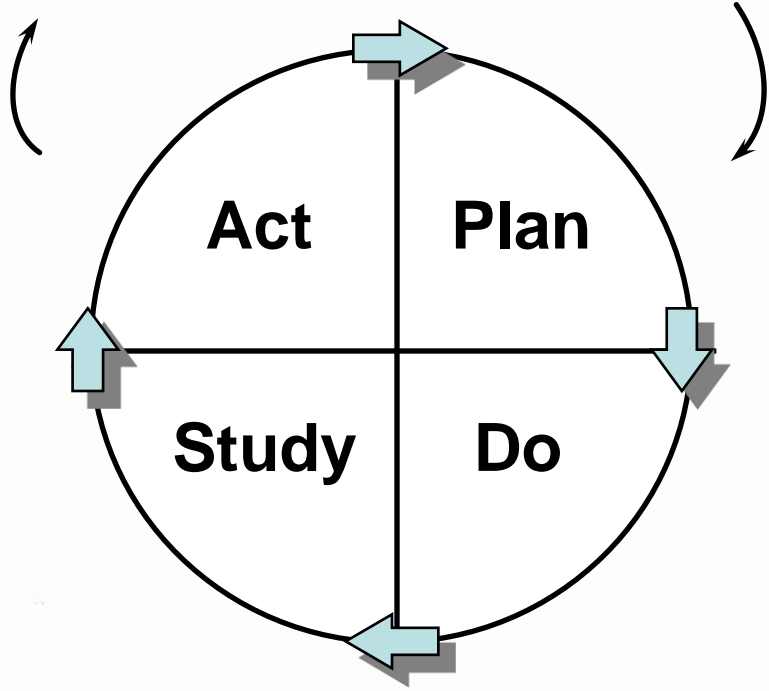




# Model for Improvement



**Aim**  
**Measures**  
**Ideas**



From: Associates in Process Improvement

Reach  
Out and  
Read®

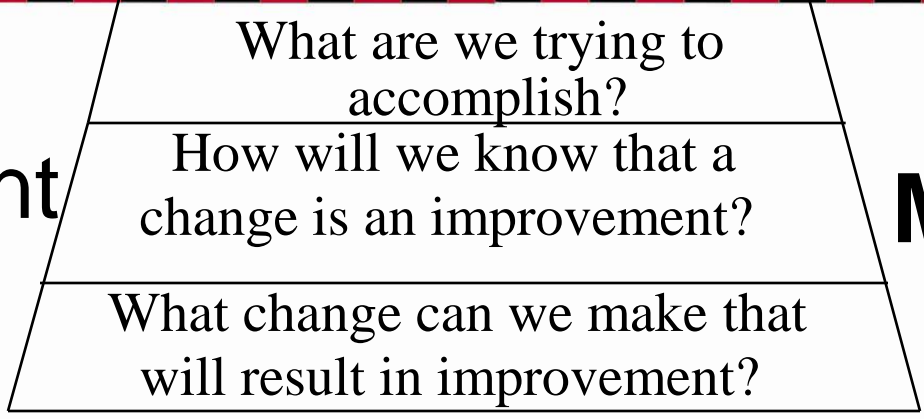


## ROR QI: Aims

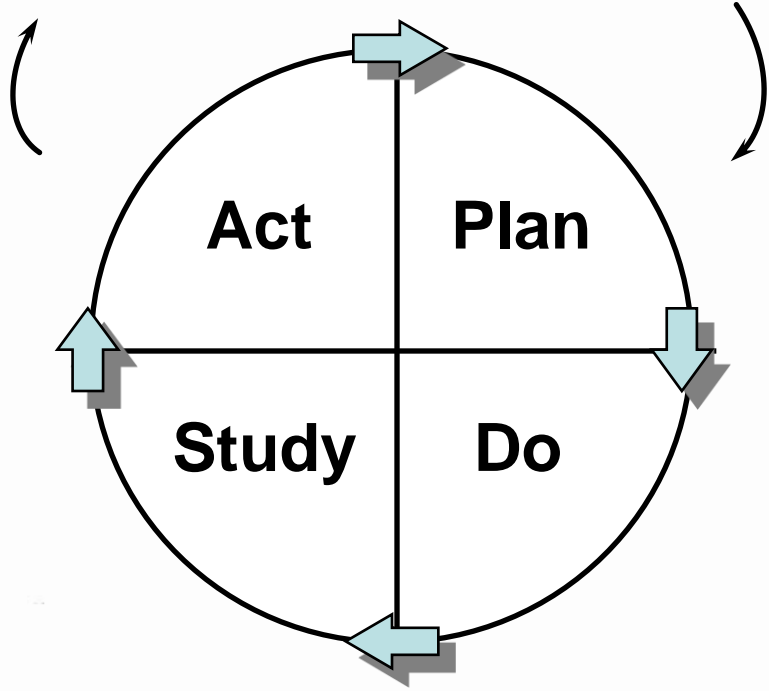
1. To increase the proportion of eligible children that receive a book from the healthcare provider.
2. To increase the proportion of parents that receive reading aloud advice from the healthcare provider.



# Model for Improvement



**Aim**  
**Measures**  
**Ideas**



From: Associates in Process Improvement

**Reach  
Out and  
Read®**



# ROR QI: Measure of Books Given

Site Name \_\_\_\_\_  
 Site Number \_\_\_\_\_  
 Site Phone Number \_\_\_\_\_

Week of	Number of Well child visits	Number of books distributed	Postcards Given
1/19/2009			
1/26/2009			
January Baseline Data Collection Total			

Week of	Number of Well child visits	Number of books distributed
2/02/2009		
2/09/2009		
2/06/2009		
2/23/2009		
February Data Collection Total		

Week of	Number of Well child visits	Number of books distributed	Postcards Given
3/2/2009			
3/9/2009			
3/16/2009			
3/23/2009			
March Data Collection Total			

Week of	Number of Well child visits	Number of books distributed
3/30/2009		
4/6/2009		
4/13/2009		
4/20/2009		
April Data Collection Total		

Submitted by: \_\_\_\_\_

Submitted via:                      fax                      e-mail                      Mail

Date Submitted: \_\_\_\_\_

Reach  
Out and  
Read®



# ROR QI: Measure of Advice Received

1. Did your child's doctor give your child a book today?  
¿Le dió a su hijo un libro su pediatra en la visita de hoy?

yes/sí       no

2. Did your child's doctor talk with you about reading aloud with your child?  
¿Le habló a Ud. su pediatra de leerle a su hijo en voz alta?

yes/sí       no

3. In the past 7 days, on how many days have you read aloud with your child?  
Durante la semana pasada, ¿cuántos días ha leído Ud. con su hijo en voz alta?

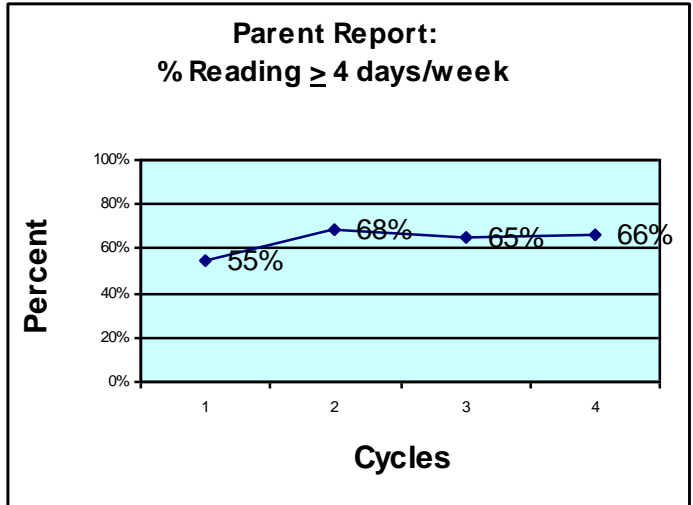
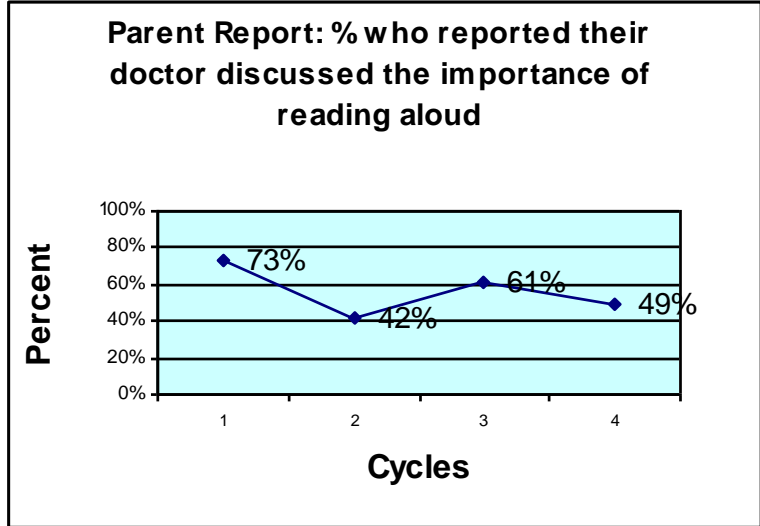
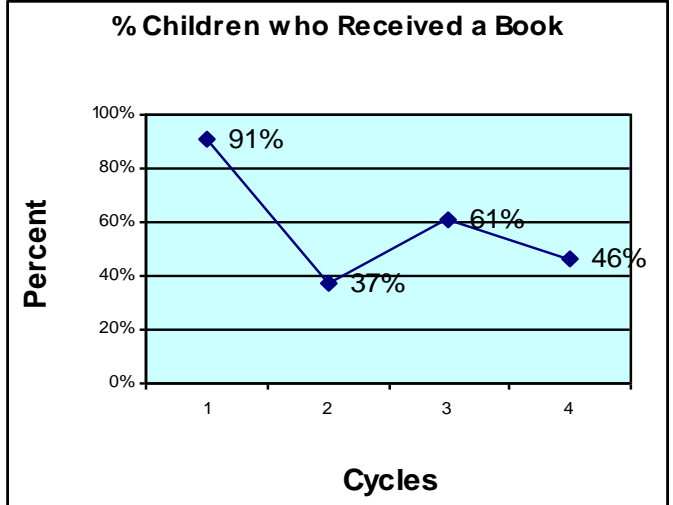
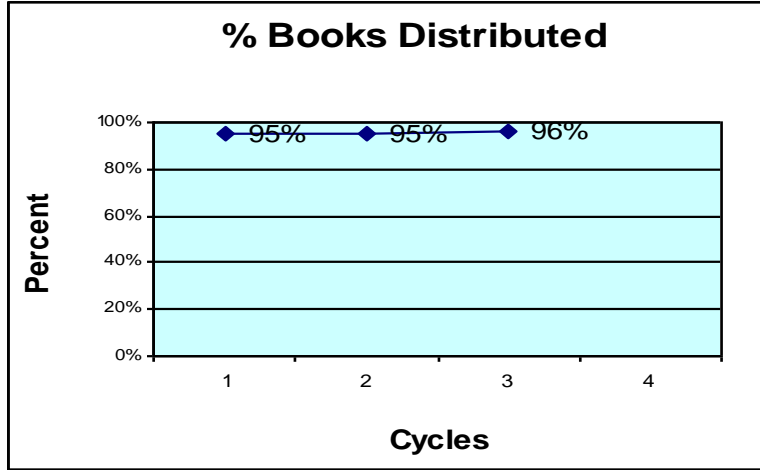
0     1     2     3     4     5     6     7

THANK YOU!  
¡GRACIAS!





# Charts Sent to Each Site

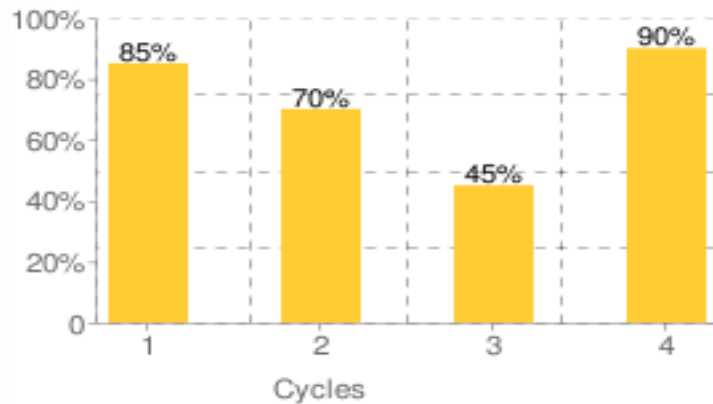


Reach  
Out and  
Read®

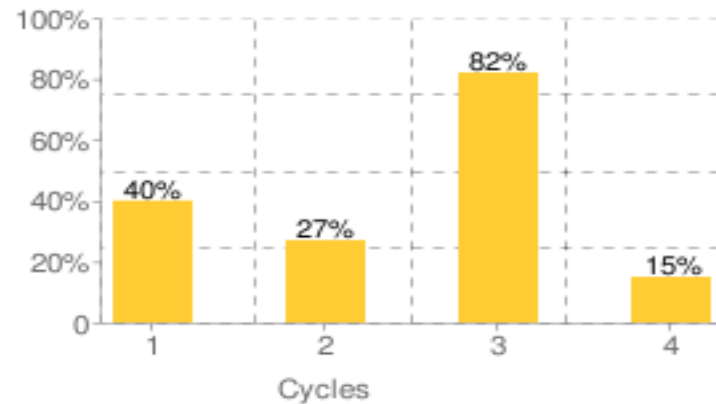


# QI Results - Graphed

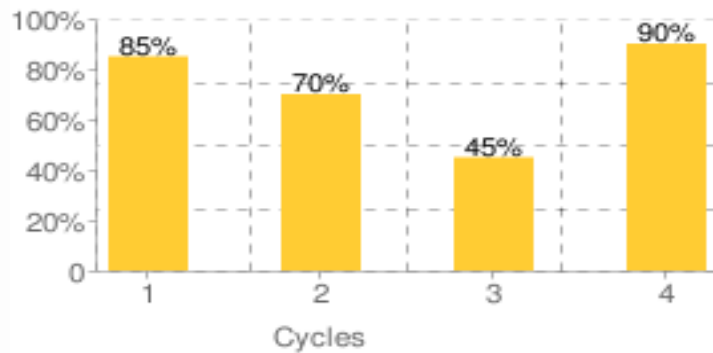
% Books Distributed



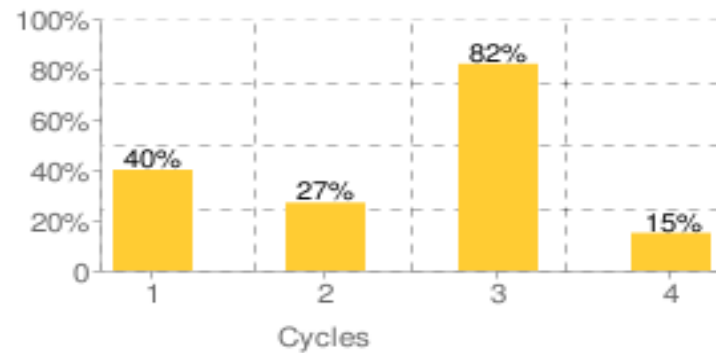
% Children Who Received A Book



Parent Report: % who reported their doctor discussed the importance of reading aloud

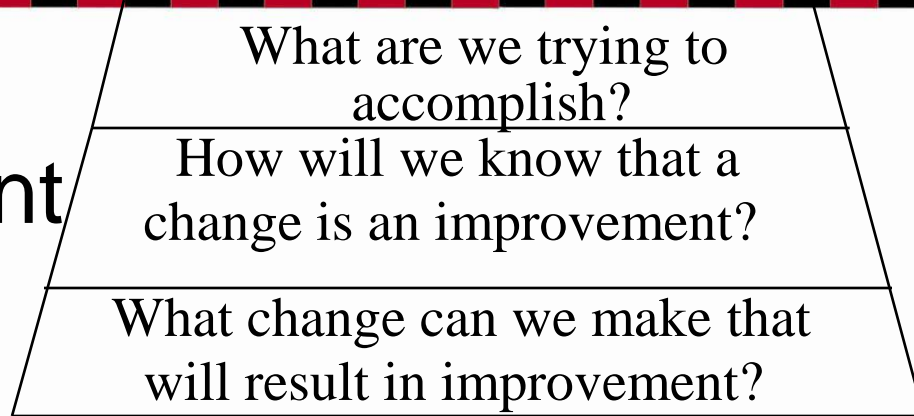


Parent Report: % Reading > 4 days/week

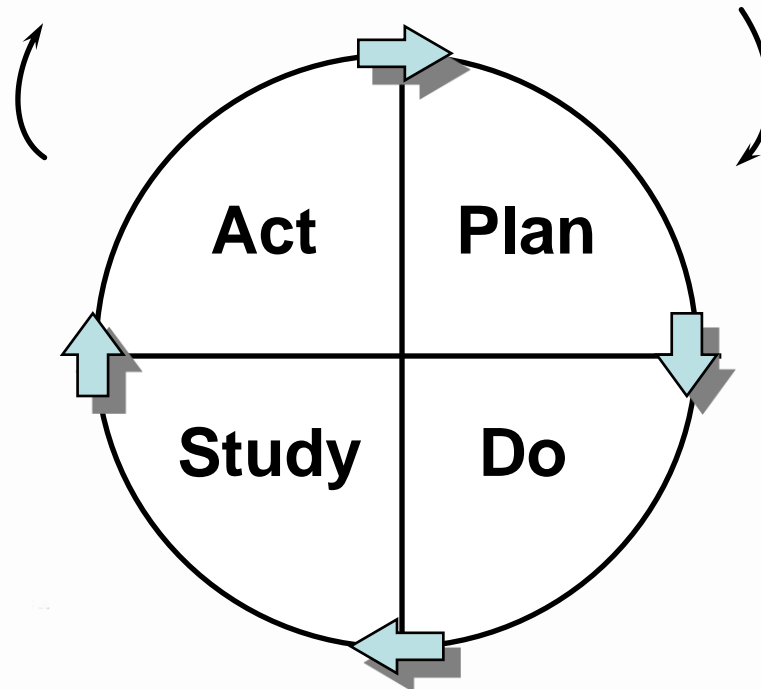




# Model for Improvement



**Aim**  
**Measures**  
**Ideas**



From: Associates in Process Improvement

Reach  
Out and  
Read®



# IDEAS, Anyone?

## Bi-weekly Conference Calls

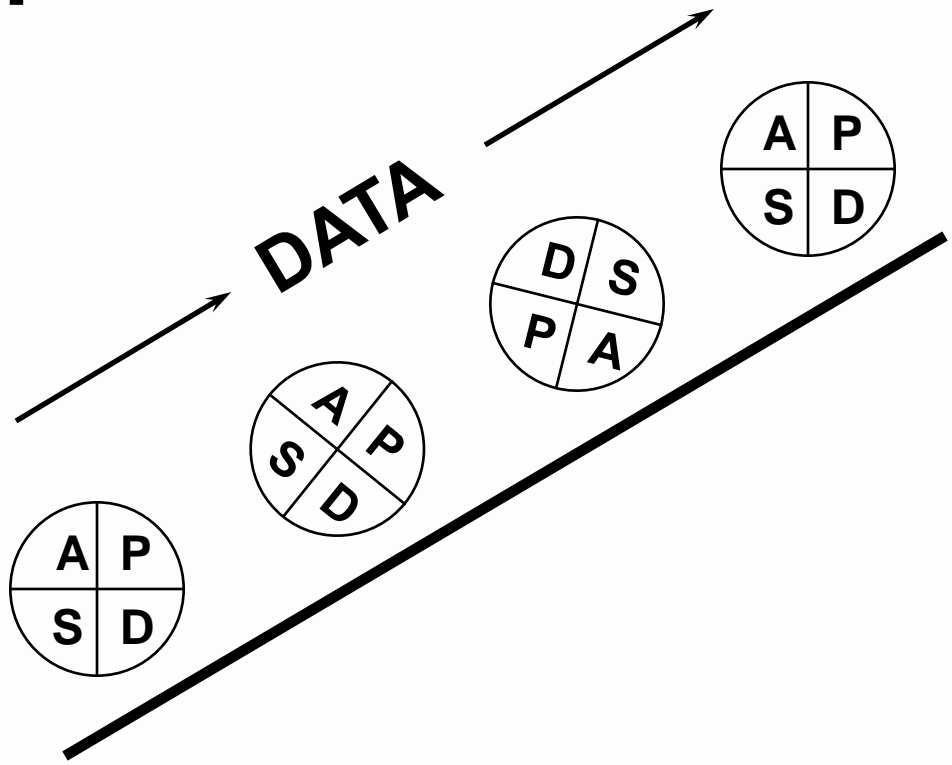




# 4 Cycles per Site

Changes That Result in Improvement

Hunches  
Theories  
Ideas



Reach  
Out and  
Read®



Η Σταχτοπούτα



Reach  
Out and  
Read®



# Results

Reach  
Out and  
Read®

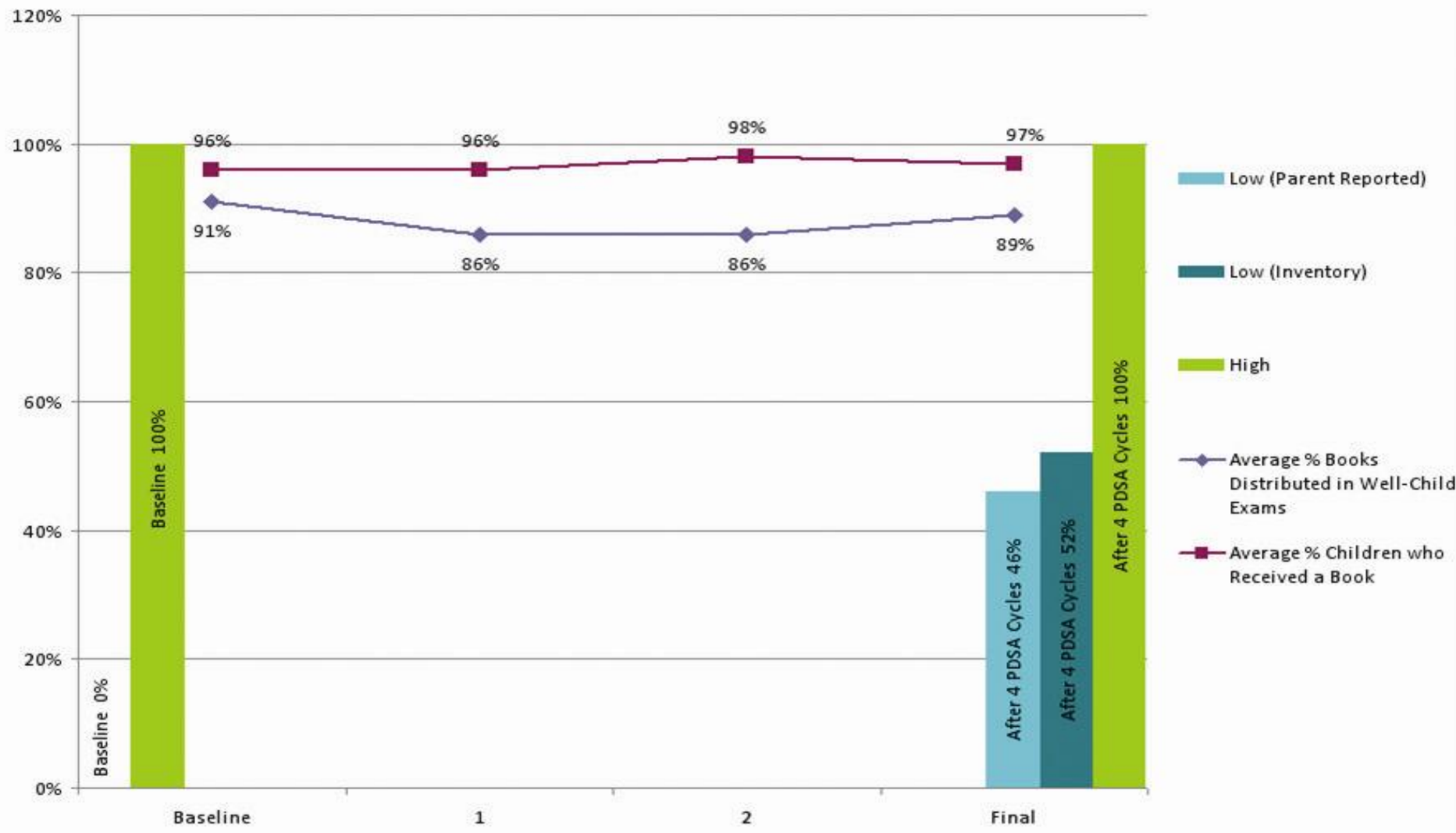


## Characteristics of Medical Sites

N = 40 Program Sites	Median (Range) or N (%)
Number of Eligible Child Visits per Month	135 (3 – 960)
Number of Pediatric Providers	10 (1 – 63)
Private (Not-for-profit and For-profit)	27 (78%)
Public (Community Health Center, DOH Clinic, FQHC, or Native American Clinic)	9 (22%)
Hospital-based or Training Clinic	4 (10%)

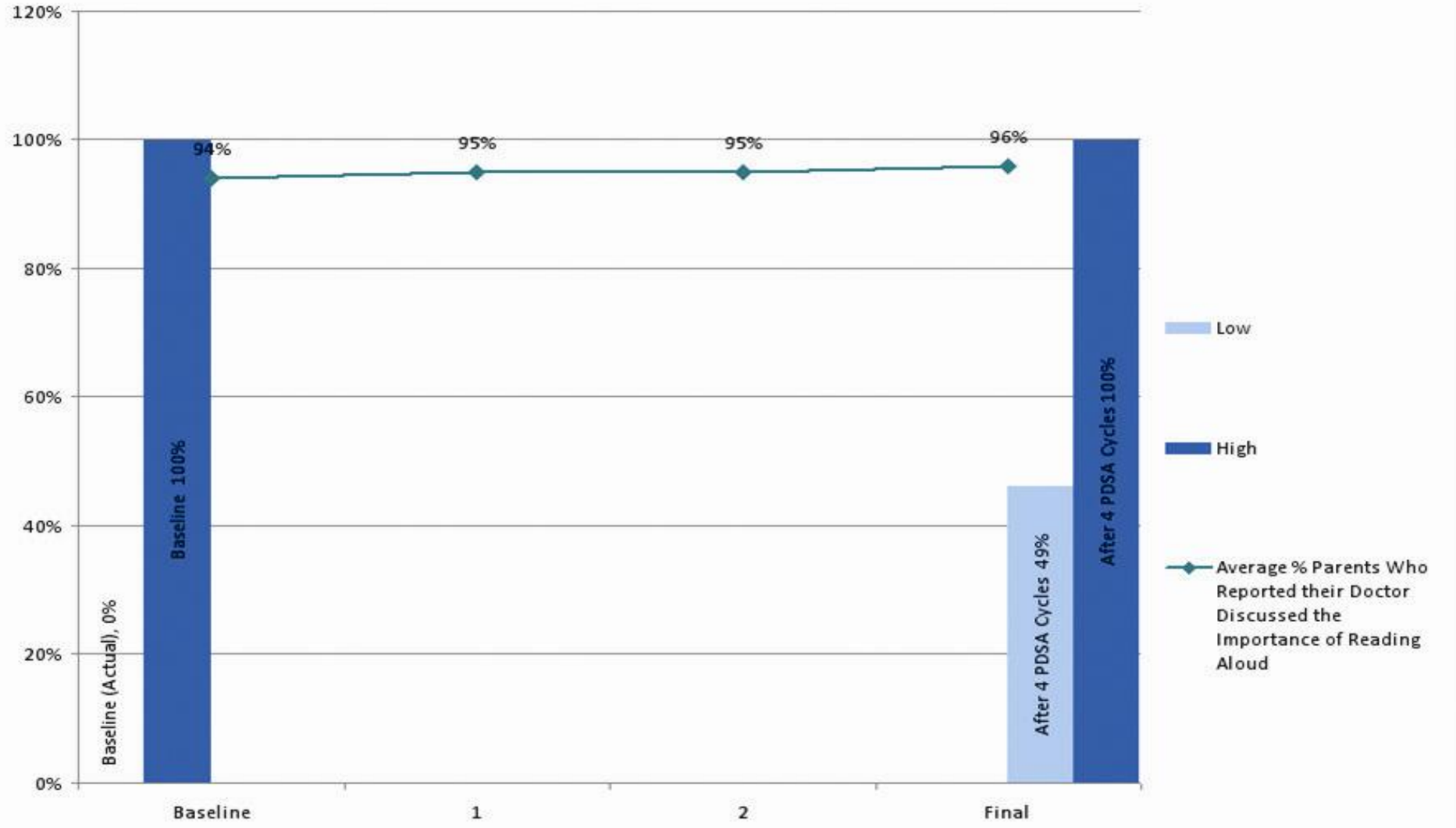


## Outcome #1 Delivery of Books to All Eligible Children



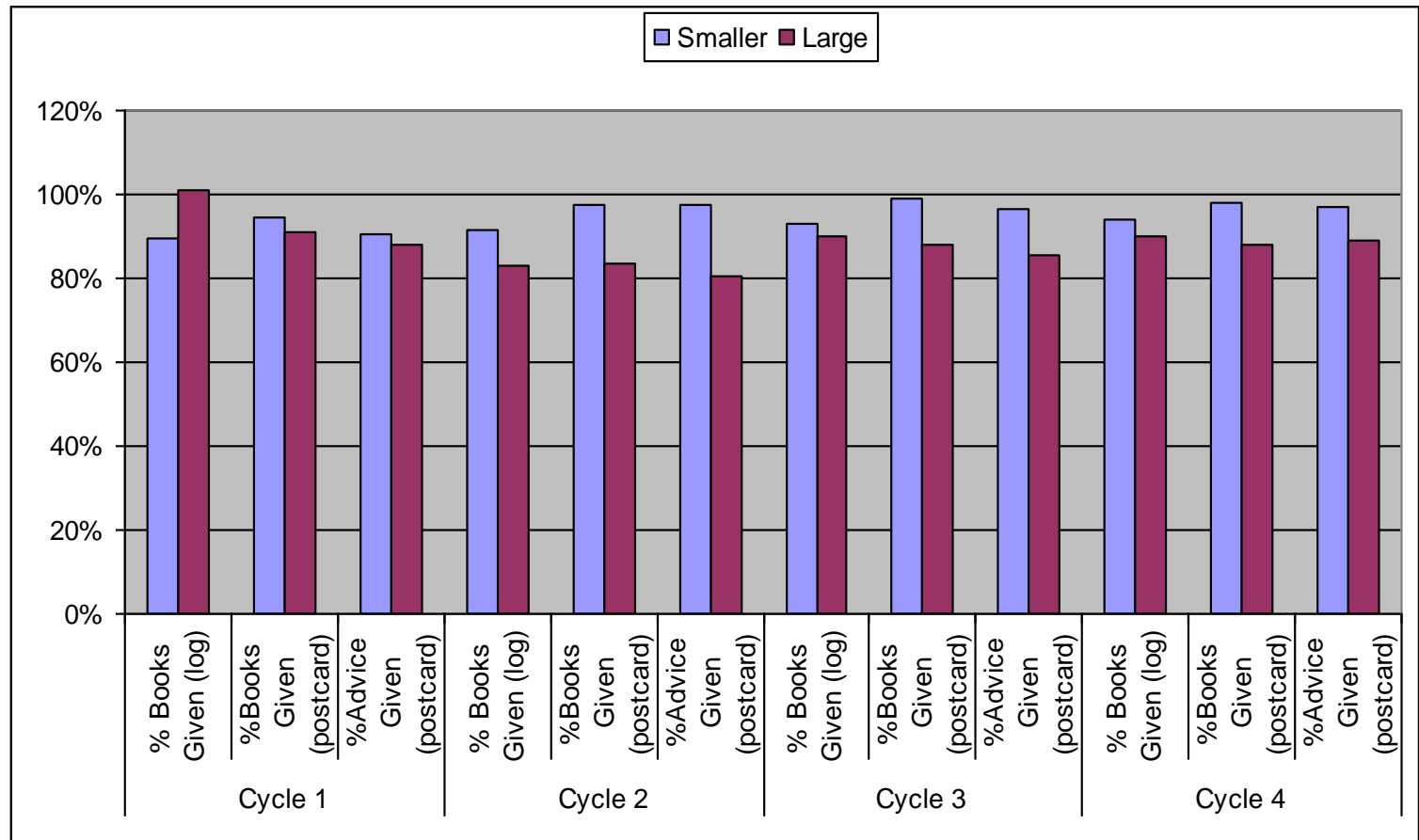


## Outcome #2 Delivery of Anticipatory Guidance to Parents



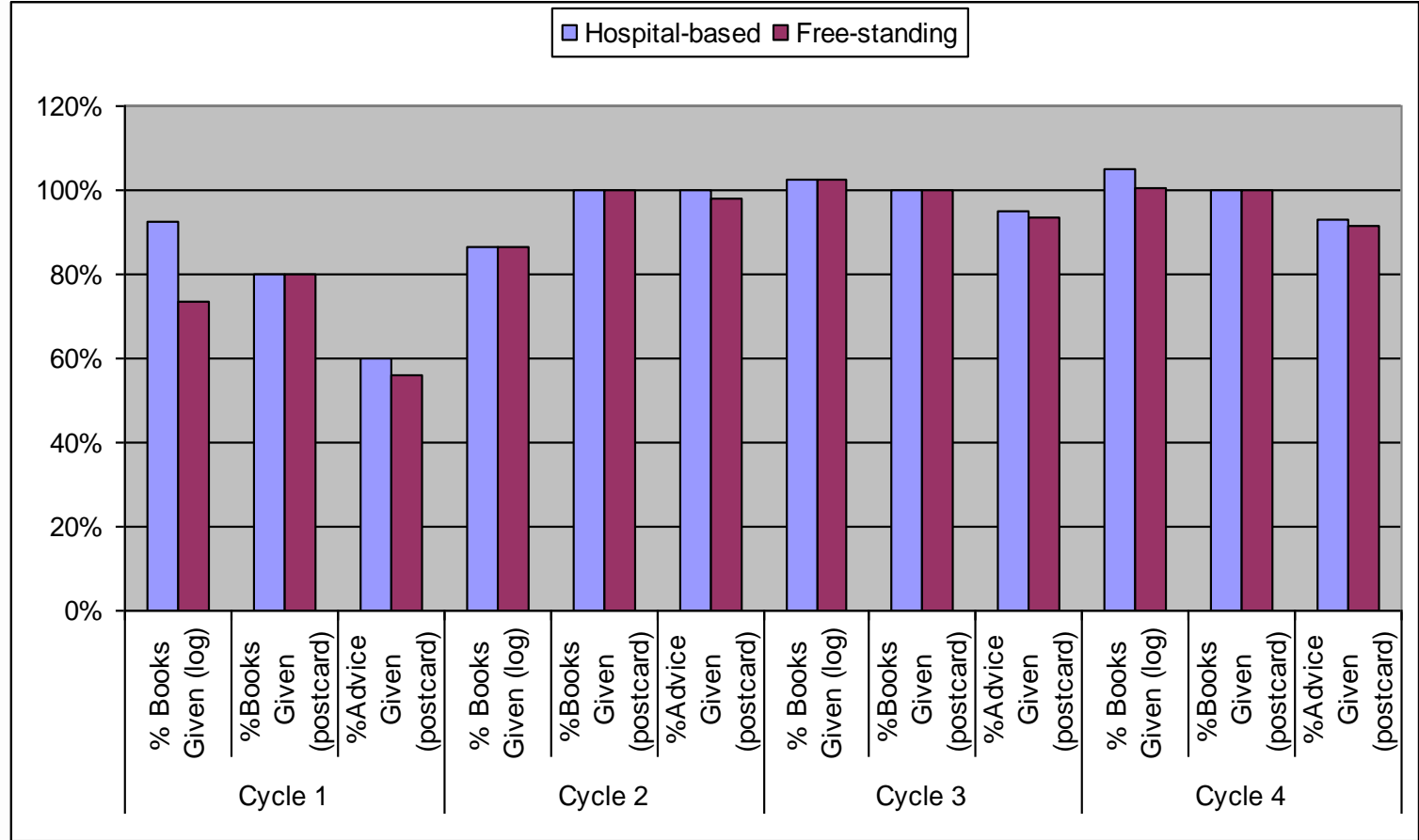


# Improvement Patterns, by Clinic Size



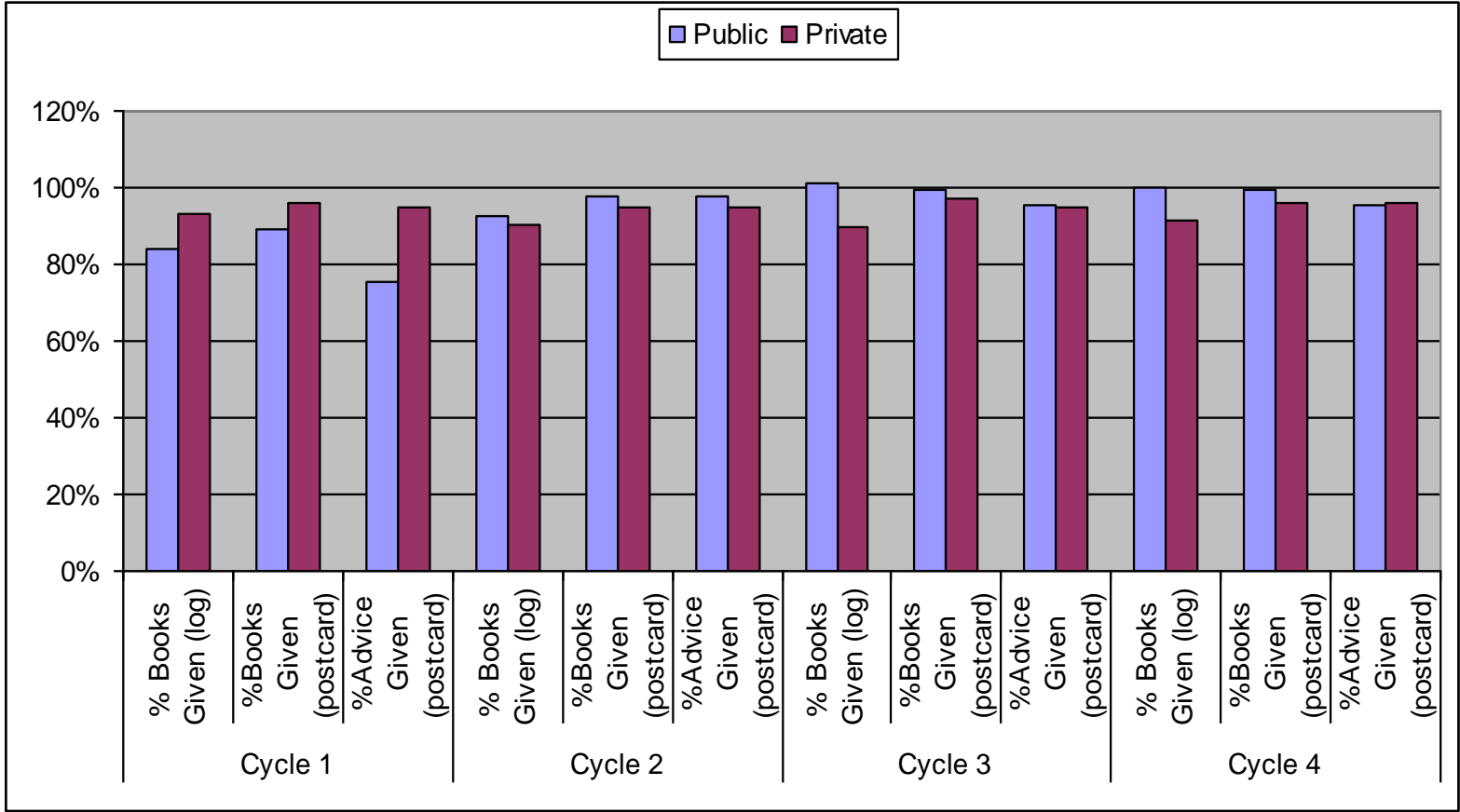


# Improvement Patterns, by Clinic Type





# Improvement Patterns, by Payor Mix



Reach  
Out and  
Read®



## New Tools Created

- QI Training Curriculum
- Change Package
- Measurement Tools
- Web-based Tool

Reach  
Out and  
Read®



# “Change Package”: Improving Advice from Provider

KEY CHANGES	EXAMPLES
1.Prompts in child’s well-child encounter form (medical record)	<ul style="list-style-type: none"><li>•Check box on paper or EMR</li><li>•Book-specific developmental milestones</li></ul>
2.Prompts elsewhere in the exam room wall	<ul style="list-style-type: none"><li>•Poster: “Did the doctor talk to you about reading aloud with your child?”</li><li>•“Read to Me” sticker at check-in</li><li>•Prescription to read</li><li>•Book marks</li></ul>
3.Provider training that models exam room conversation	<ul style="list-style-type: none"><li>•DVD (ROR National)</li><li>•“Scripts” for providers</li><li>•ESL Resources</li><li>•Picture-only books</li></ul>



UNIVERSITY OF MIAMI MILLER SCHOOL OF MEDICINE  
 HEALTH MAINTENANCE ASSESSMENT 6 MONTH VISIT  
 CHDS PEDIATRIC ASSOCIATES

Date: \_\_\_/\_\_\_/\_\_\_ Actual Age: \_\_\_\_\_ Name: \_\_\_\_\_  
 Here with: \_\_\_\_\_  
 Vital Signs Phone#: \_\_\_\_\_  
 HT: \_\_\_\_\_ HT %: \_\_\_\_\_ WT: \_\_\_\_\_ WT%: \_\_\_\_\_ HC: \_\_\_\_\_ HC %: \_\_\_\_\_ T: \_\_\_\_\_ P: \_\_\_\_\_ R: \_\_\_\_\_

**INTERVAL ILLNESS/MEDICATIONS:**

Concerns: \_\_\_\_\_  
 Allergies: \_\_\_\_\_  
 Medications: \_\_\_\_\_  
 Past Medical Hx: \_\_\_\_\_  
 Visit to Other Providers: \_\_\_\_\_

**DIET**  
 Breast \_\_\_\_\_ Bottle \_\_\_\_\_ Solids \_\_\_\_\_ WIC \_\_\_\_\_  
 Stools \_\_\_\_\_ Urine \_\_\_\_\_

**Sleep**  
 Sleeping Arrangements \_\_\_\_\_  
 Position \_\_\_\_\_

**Development**  
 Childcare \_\_\_\_\_  
 Reaches and Transfers  Lifts cup  
 Turns to name  Rolls over  
 Weight bearing  Sits with support  
 No head lag  "dada" "dada"  
 Who lives in home? \_\_\_\_\_ Smokers? Y / / N

**IMMUNIZATION/SCREENING** Up to Date? Y / / N  
 HepB# \_\_\_\_\_ IPV# \_\_\_\_\_  
 DTap# \_\_\_\_\_ Prevnar# \_\_\_\_\_ Other \_\_\_\_\_  
 Hib# \_\_\_\_\_ Rotavirus# \_\_\_\_\_  
 Immunization side effects Discussed? Y / N / /  
 Handouts given? Y / N Handout Date / /

**ASSESSMENT:**

**PLAN:**

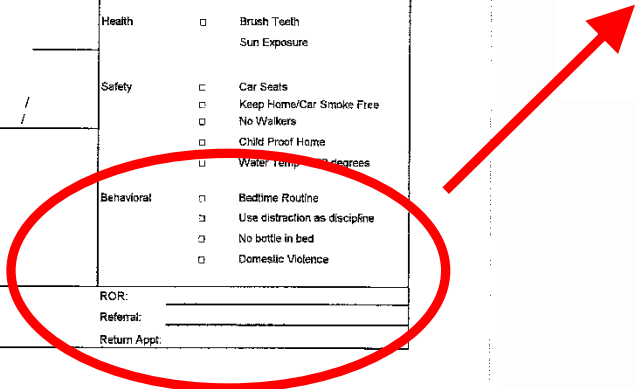
PCP Signature: \_\_\_\_\_

TIME:	Normal (NL)	Abnormal
General:		
Skin:		
Head:		
Eyes:		
RR:		
Strabismus:		
Ear:		
Nose/throat:		
Mouth/Teeth:		
Neck:		
Lungs:		
Heart:		
Abdomen:		
Genitalia:		
Extremities:		
Muscle tone:		
Neuro/Reflexes:		
Peripheral Pulses:		

- ANTICIPATORY GUIDANCE:**
- Nutrition
    - Introduce Solids
    - Start cup
    - Choking Hazards
  - Health
    - Brush Teeth
    - Sun Exposure
  - Safety
    - Car Seats
    - Keep Home/Car Smoke Free
    - No Walkers
    - Child Proof Home
    - Water Temp. \_\_\_\_\_ degrees
  - Behavioral
    - Bedtime Routine
    - Use distraction as discipline
    - No bottle in bed
    - Domestic Violence

- Behavioral**  Bedtime Routine
- Use distraction as discipline
- No bottle in bed
- Domestic Violence

ROR: \_\_\_\_\_  
 Referral: \_\_\_\_\_  
 Return Appt: \_\_\_\_\_





Reach  
Out and  
Read®



# “Change Package:” Increasing Delivery of Books

KEY CHANGES	EXAMPLES
1. Book distribution system redesign	Books placed in medical chart at check-in Books given from MD (not RN) hands Books are tracked for inventory Distributed books are documented in medical record
2. Use nationally or regionally standardized book lists	ROR National / Scholastic list ROR Florida list ROR Miami list
3. Use culturally appropriate books	Clinic-based or regional book-selection committee

Reach  
Out and  
Read®



# Web Based QI Tool

- Aim: To make rapid-cycle data entry simple and intuitive
- Providers and Coordinators can track QI Progress at single or multiple sites
- ROR National Center can track QI Progress in aggregate across regions and across the nation

Reach  
Out and  
Read®



# Technical Information for Web-based QI Platform

- Users required to log in to myROR using personal, authenticated web-based login
- System programmed in ASP.NET, powered by SQL Server 2005 backend database
- Graphs dynamically created using Google Charts
- All data will be made available for download into MS Excel at user's convenience

Reach  
Out and  
Read®



# Conclusions

1. A quality improvement process was implemented successfully through 14,209 well-child visits at 40 diverse medical sites across Florida.
2. This QI process improved the delivery of children's books and of physician advice at all Program Sites.
3. Outcome variability decreased across all Program Sites.
4. Larger clinic sites (>200 visits per month) reported worse outcomes in Cycles 2 and 3 before they improved.

Reach  
Out and  
Read®



## Lessons Learned

1. Measurement Tools are susceptible to social desirability bias and quickly reach a ceiling effect.
2. Effective QI training was dependent upon a regional or statewide coach with prior QI experience.
3. Effective QI implementation was dependent upon a motivated (often non-MD) champion at each Site.

Reach  
Out and  
Read®



## Future Work

- Integrating Web-based QI Tool with a Distance Learning QI Curriculum to satisfy ABP Maintenance of Certification requirements.
- Using ROR QI model as a framework for future research in primary care
  - Health promotion
  - Health communication
  - Cost effectiveness / Comparative effectiveness

Reach  
Out and  
Read®



# Acknowledgements

- US Department of Education
- The Berkman Trust
- Vermont Child Health Improvement Program (*VCHIP*)
- ROR National Center
- ROR Florida Coalition

Reach  
Out and  
Read®

