

# *Challenge of Measuring Incremental Change: Lessons from the US*

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*Thank you to the Creswick Foundation*

# Birth to kindergarten readiness

## Transforming Early Childhood Community Systems (TECCS)

- Goal: improve developmental and physical health outcomes for children 0-5 years with focus kindergarten readiness
- Collaboration of all committed disciplines:
  - physicians, early childhood education providers, social service agencies, home visiting agencies, public, parochial schools
- Clear shared objectives, improvement science methods
- Partners - United Way, Kellogg Foundation, UCLA
- Begin in East, Lower Price Hill – but focus on spreadable strategies



- Greater Cincinnati Metro area 2.9 million
- Hamilton County: 800,000
- Cincinnati: 295,000 people
- Price Hill: 1750 children 0-5 yr, child poverty rate >50%



## INTERVENTIONS

### Key Driver Diagram

#### GLOBAL AIM

Improve early childhood physical health, language, cognitive, and social and emotional development for all children 0-5 in East and Lower Price Hill

#### Goals: (by 12/31/2013)

##### Outcome Measures:

- <30% children "vulnerable" on  $\geq 1$  EDI domains at kindergarten
- >3% increase in children who score  $\geq 19$  on kindergarten literacy test
- <15% moderate risk on the 36 mo ASQ, <20% at risk on the ASQ:SE
- >10% annual increase in the percentage of families reading to children daily

#### KEY DRIVERS

Leadership that builds shared purpose to improve outcomes

Reliable linkages between services and supports for children and families

Parents empowered to meet their child's, family's and community's needs

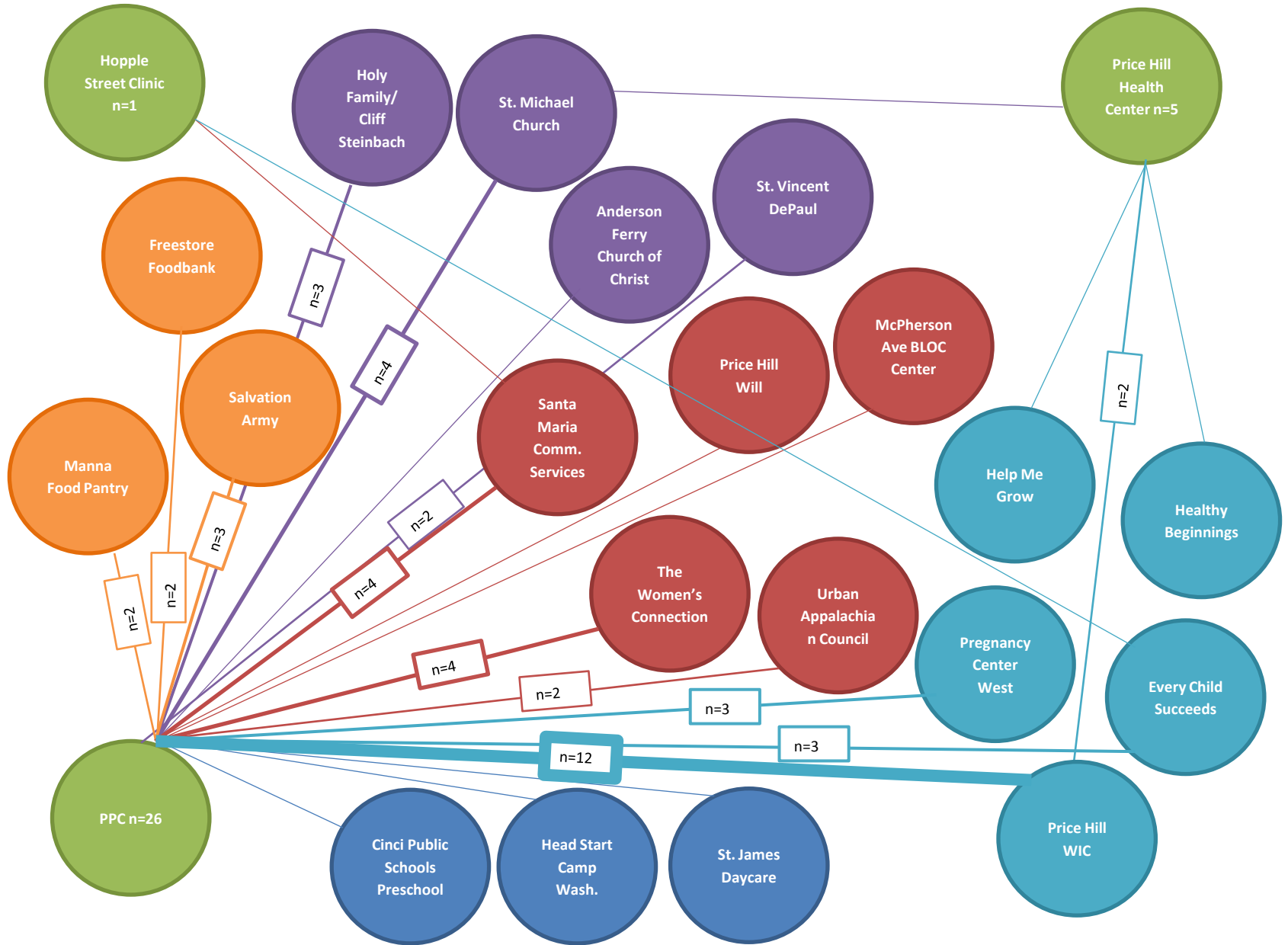
Effective and efficient services and supports for families with young children

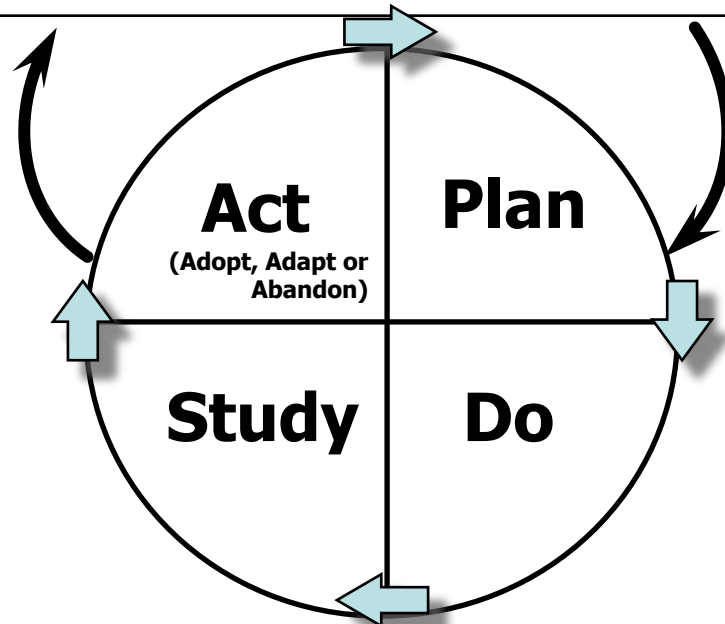
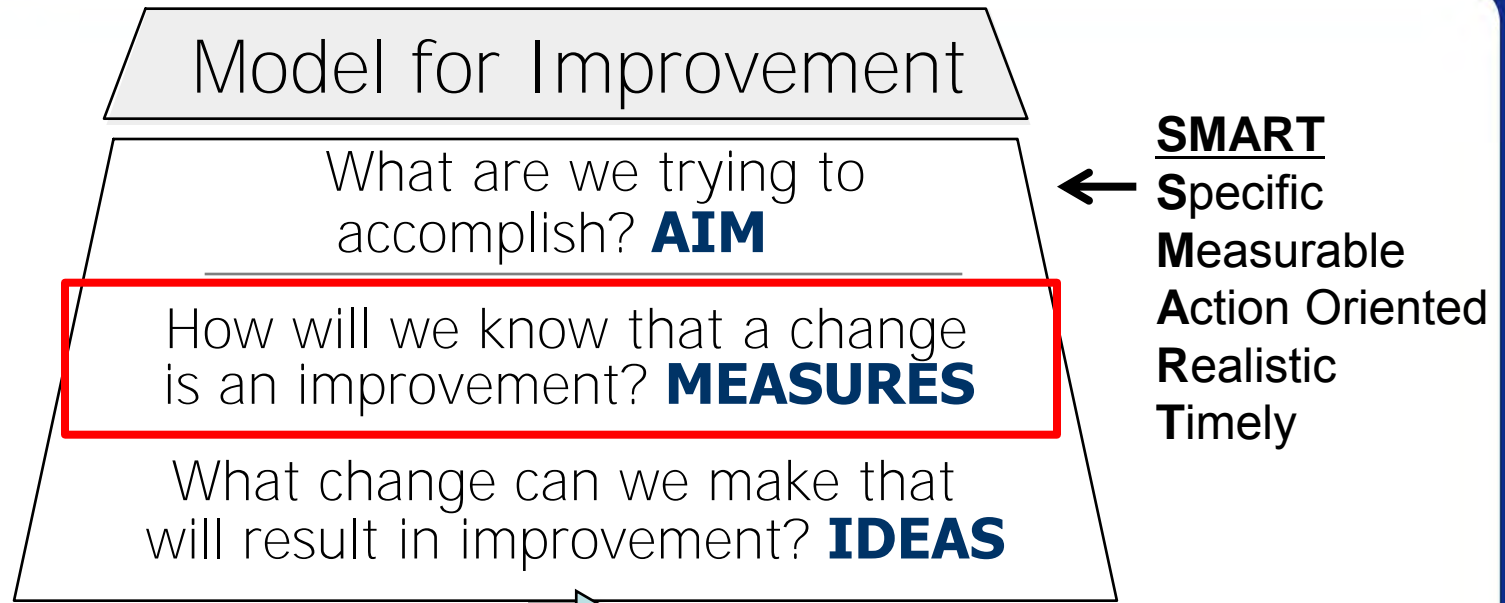
Transparent measurement and data sharing to drive continuous learning and application of QI

System of care meets the needs of every child in East and Lower Price Hill



# Multiple Agencies But No System – Agency Silos





Action Learning

# Useful Information Environment

*Measurement principles: combining art and science*

- The purpose is **learning** not **judgment**.
- **You can't improve what you can't (or don't) measure**
- Measures tell a story; goals (AIM) give a reference point.
- Measures should be meaningful. They reflect the aim and make it specific and tie in with the key changes.
- Measures should be useful, not perfect. Seek practicality rather comprehensiveness.



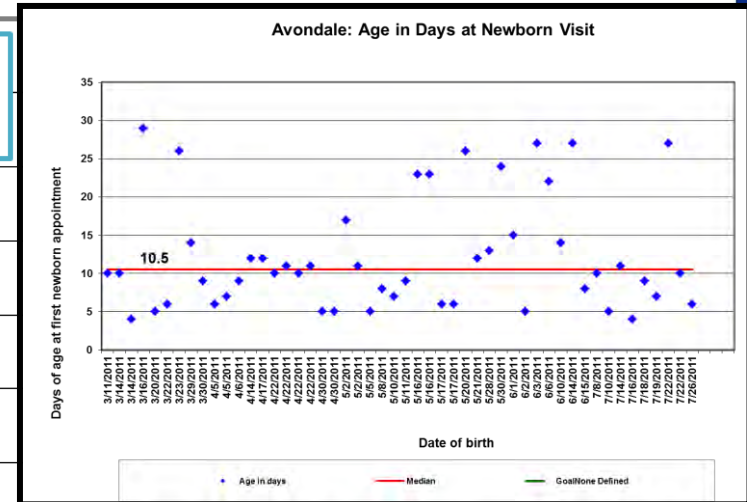
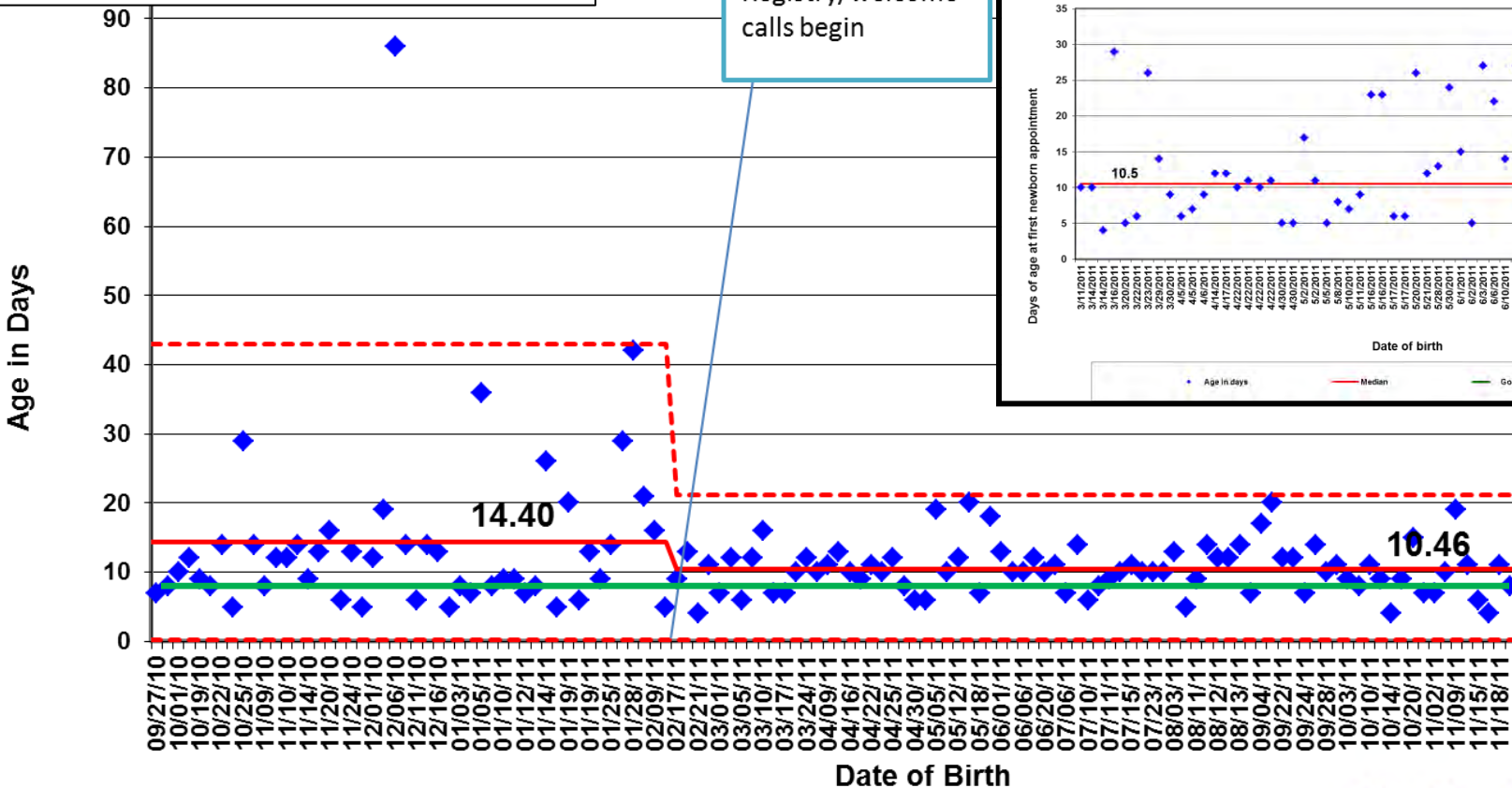
# Measures

- Process. What we do.
  - Represents the workings of the system
  - Examples:
    - Length of the waitlist for services
    - Rate of retention in services
    - Percent of all eligible children enrolled
    - Percent of referred children who reach intake (or 2<sup>nd</sup> visit)
- Outcomes. What the children, families achieve.
  - % of children at 4 years with a speech delay
  - % of children at kindergarten with basic literacy

# Birth hospital to Clinic – Getting Each Child into the System

## Age In Days At Newborn Visit

SMART AIM: Within 3 months, full term newborn first visits will occur at a median of 7 days



◆ Age in Days

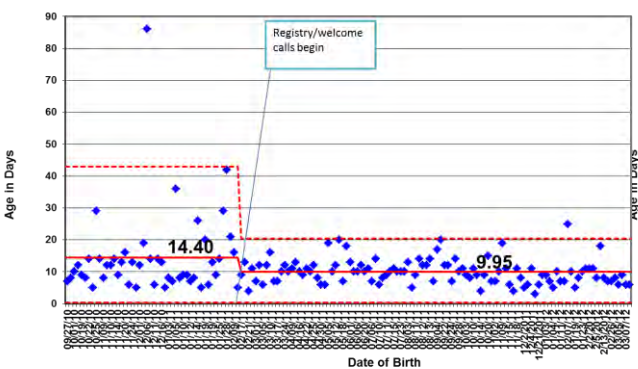
— Average Age in Days

- - - Control Limits

# Spread - Getting to the whole denominator EVERY baby born into Lower and East Price Hill...

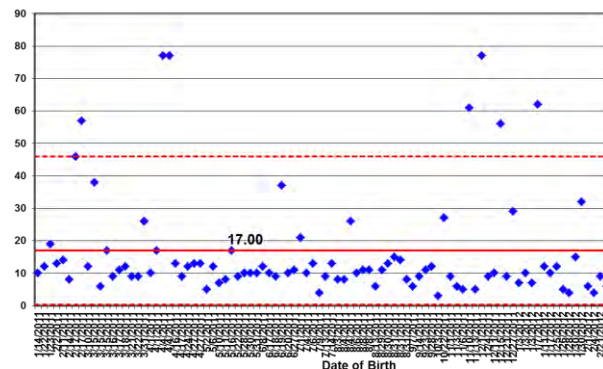
- To ensure each gets to his/her newborn visit, and connects long term to a medical home
- Aligning clinics that see ~65% of babies born in the area
- Redesigning medical roles to reach out to new parents

PPC 110 babies/yr



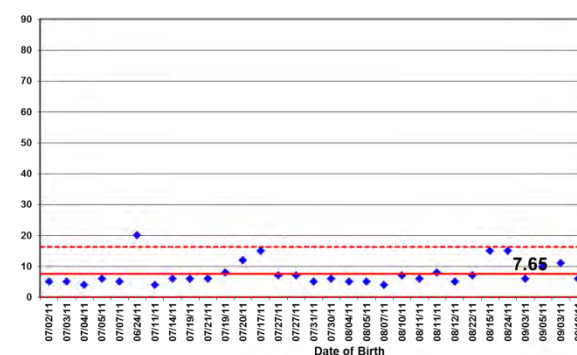
◆ Age in Days — Average Age in Days - - - Control Limits

Hopple 80 babies/yr



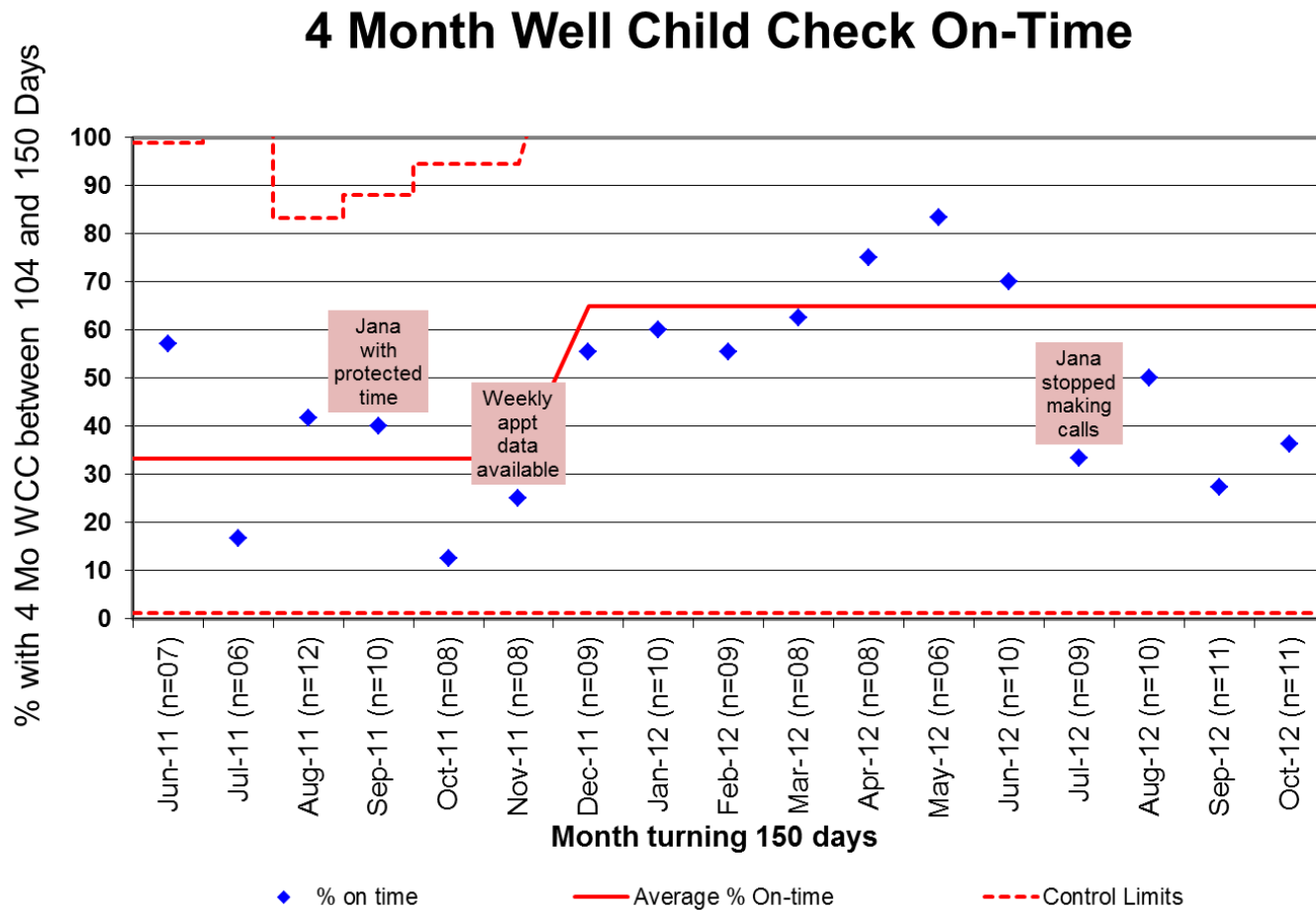
◆ Age in Days — Average Age in Days - - - Control Limits

Price Hill HC ~160 babies/yr



◆ Age in Days — Average Age in Days - - - Control Limits

# When roles aren't re-written

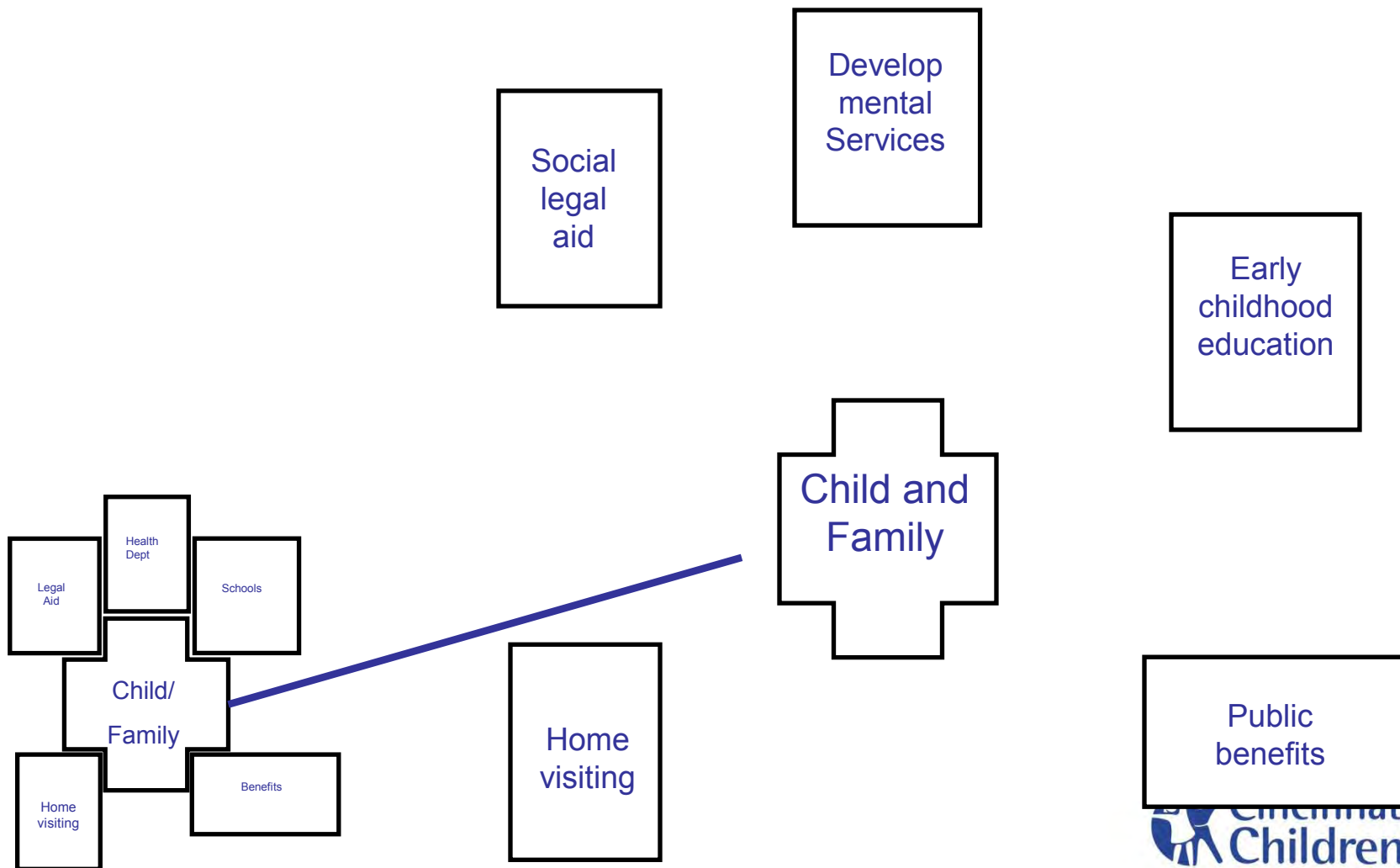


# Electronic registries - Health

Primary Care Visits for Hopple Street/Price Hill Infants Cohort

Birth Year	Birth Month	DOB	MRN	Patient Name	Date of NB Visit	Days Old	Mos Old	PRC NAME	Visit Date	Encounter Type	Appointment Status	Provider Name	Department	Primary Care Provider	WCC	ASQ
2011	1	1/14/2011	11201311		1/24/2011	5	0	HPC NEWBORN	1/19/2011	Appointment	Canceled	HPC OPENLIST	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP		
2011	1	1/14/2011	11201311		1/24/2011	10	0	HPC NEWBORN	1/24/2011	Appointment	Completed	HPC OPENLIST	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	0 mo-NB	
2011	1	1/14/2011	11201311		1/24/2011	49	1	HPC EST WCC	3/4/2011	Appointment	Completed	OLDHAM, MICHAEL S.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	2 mo	
2011	1	1/14/2011	11201311		1/24/2011	108	3	HPC EST WCC	5/2/2011	Appointment	Canceled	MCHERRON, TONY I.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP		
2011	1	1/14/2011	11201311		1/24/2011	122	4	HPC EST WCC	5/16/2011	Appointment	No Show	MCHERRON, TONY I.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP		
2011	1	1/14/2011	11201311		1/24/2011	166	5	HPC EST WCC	6/29/2011	Office Visit	Completed	PEDAPATI, ERNEST V.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	6 mo	
2011	1	1/14/2011	11201311		1/24/2011	311	10	HPC EST FU	11/21/2011	Office Visit	Completed	DOMINICK, KELLI R.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	9 mo-late	
2011	1	1/14/2011	11201311		1/24/2011	665	21	HPC EST WCC SIBLING	11/9/2012	Appointment	Scheduled	GOODWIN, EMILY J.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	18 mo-late	
2011	1	1/22/2011	11202364		2/3/2011	12	0	HPC NEWBORN	2/3/2011	Appointment	Completed	HPC OPENLIST	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	0 mo-NB	
2011	1	1/22/2011	11202364		2/3/2011	20	0	HPC ** EST ILL VISIT	2/11/2011	Appointment	Completed	DEBLASIO, DOMINICK J.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	1 mo	
2011	1	1/22/2011	11202364		2/3/2011	39	1	HPC EST FU	3/2/2011	Appointment	Completed	POLONSKY, SHELDON M.	HOP HOPPLE ST HEALTH	HOPPLE STREET HEALTH CENTER GROUP	1 mo	

# Systems of Care – Developing functional bridges and links



# Process: Referrals from Primary Care to Speech or Audiology - Brown

INTERVENTIONS

CURRENT PROCESS

FAILURE MODES

a) Post reminders on green sheets  
b) RN/MA tell family during Discharge  
c, d) Standardize talking points, give meaningful handout

a, b, c, d, e, f, g)  
Call with or for parent at time of referral  
d) Call to remind  
g) Offer use of clinic phone  
i) Coordinate w other appts

All: Offer same-day walk-in eval  
a, d) Reminder calls  
b, e, f) provide good info about location, Medicaid transportation

A, c) Create system for early identification and mitigation of no-shows  
**b) Make someone accountable**

a, d) Reminder calls  
b, e, f) provide good info about location, Medicaid transportation

Referral Made

Parent calls to schedule appt

Pt attends appt

If missed, parent reschedules appt

Pt attends rescheduled appt

a) MD forgets to put order in Epic  
b) MD forgets to give parent the phone number  
c) Referral not conveyed with sense of importance  
d) Unclear Instructions about how to make appt  
e) No order from primary doctor for ABR

a) Tried and couldn't get through  
b) Schedule wrong appt  
c) Language barriers  
d) Forgot  
e) Didn't think It was important  
f) Thought someone was going to call Them  
g) No phone minutes  
h) Other family member says no  
i) Competing priorities

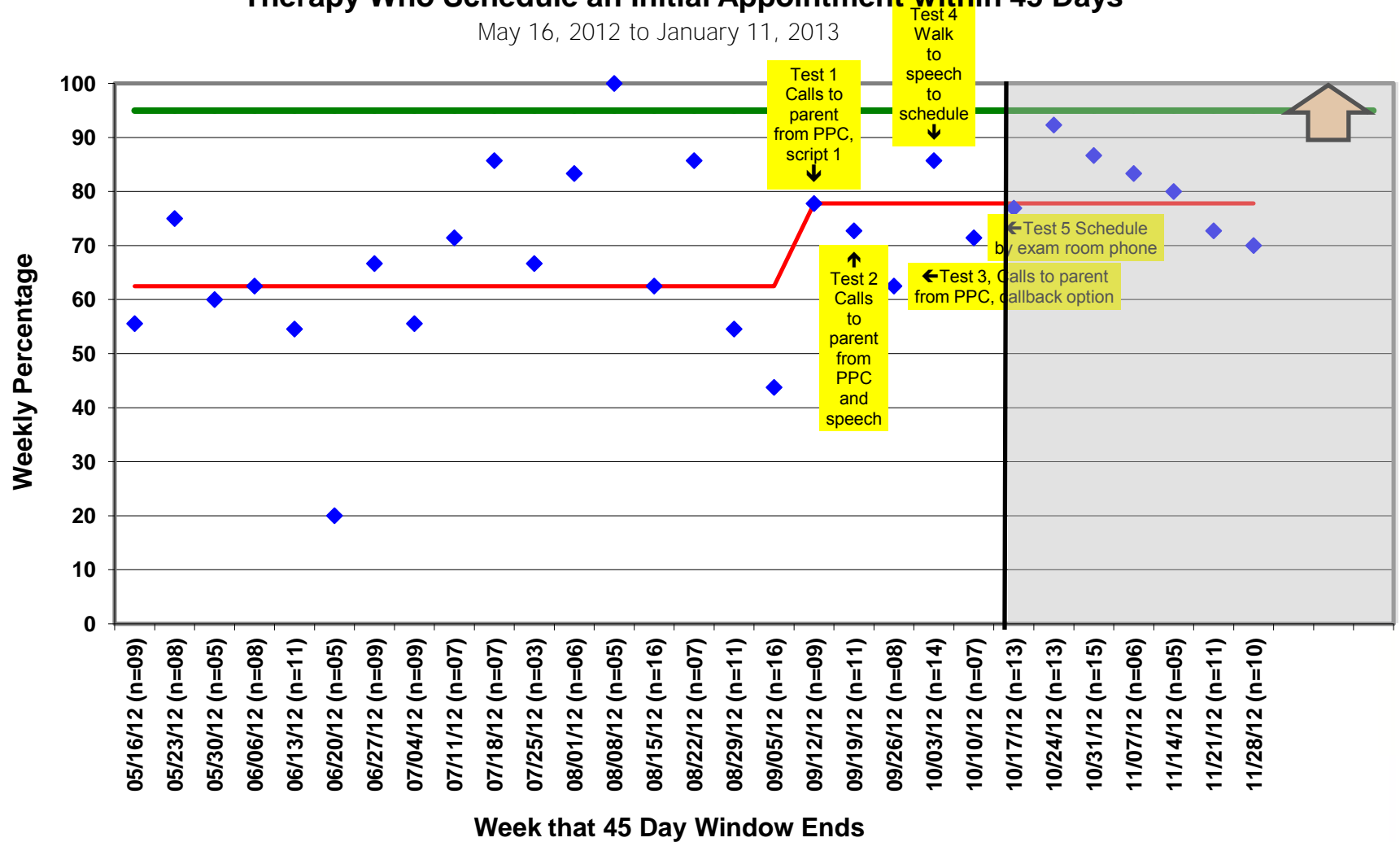
a) Forgot  
b) Transportation  
c) Childcare  
d) Didn't think it was important  
e) Wrong location  
f) Anxiety about where to go  
g) Late  
h) Competing priorities

a) Notifications about lack of follow-through lack adequate Information  
b) Large volume of incomplete referrals, "life threatening" ones are prioritized  
c) Lag time of at least 30 days until notification is sent

a) Forgot  
b) Transportation  
c) Childcare  
d) Didn't think it was important  
e) Wrong location  
f) Anxiety about where to go  
g) Late  
h) Competing priorities

## Percentage of PPC Patients 0-3 Years Old Referred to Audiology or Speech Therapy Who Schedule an Initial Appointment within 45 Days

May 16, 2012 to January 11, 2013



◆ Weekly Percentage

— Median

— Goal (95)

☐ = Window not yet closed; data point can still



# “Micro-surveying”

7) How many children's books do you currently have at home?

- None
- 1-3 books
- 4-8 books
- 9-14 books
- more than 15

8) How many days during a typical week do you or your family members read stories or look at picture books with your child (aged 0 -5)? Please check one.

- No days (0 days)
- 1-2 days
- 3-4 days
- 5-6 days
- Everyday (7 days)

9) How many days during a typical week do you or your family members play literacy games with your child? Please check one. (Patty Cake, Patty Cake, Rhyming Poems and Singing Songs, I Spy)

- No days (0 days)
- 1-2 days
- 3-4 days
- 5-6 days
- Everyday (7 days)

10) Do you visit the public library with your child(ren)?  Yes  No

If yes, do you and your child participate in the library reading programs?  Yes  No

If no, do you need information on how to get a library card for your child (ren)?  Yes  No

11) Where do you hear about the importance of reading from the following:

(check all that apply)

- |   |                                       |
|---|---------------------------------------|
| <input type="checkbox"/> Library                            | <input type="checkbox"/> Home Visitor |
| <input type="checkbox"/> Church or other Faith Based Center | <input type="checkbox"/> Child Care   |
| <input type="checkbox"/> Doctor/Pediatrician                | <input type="checkbox"/> Other _____  |

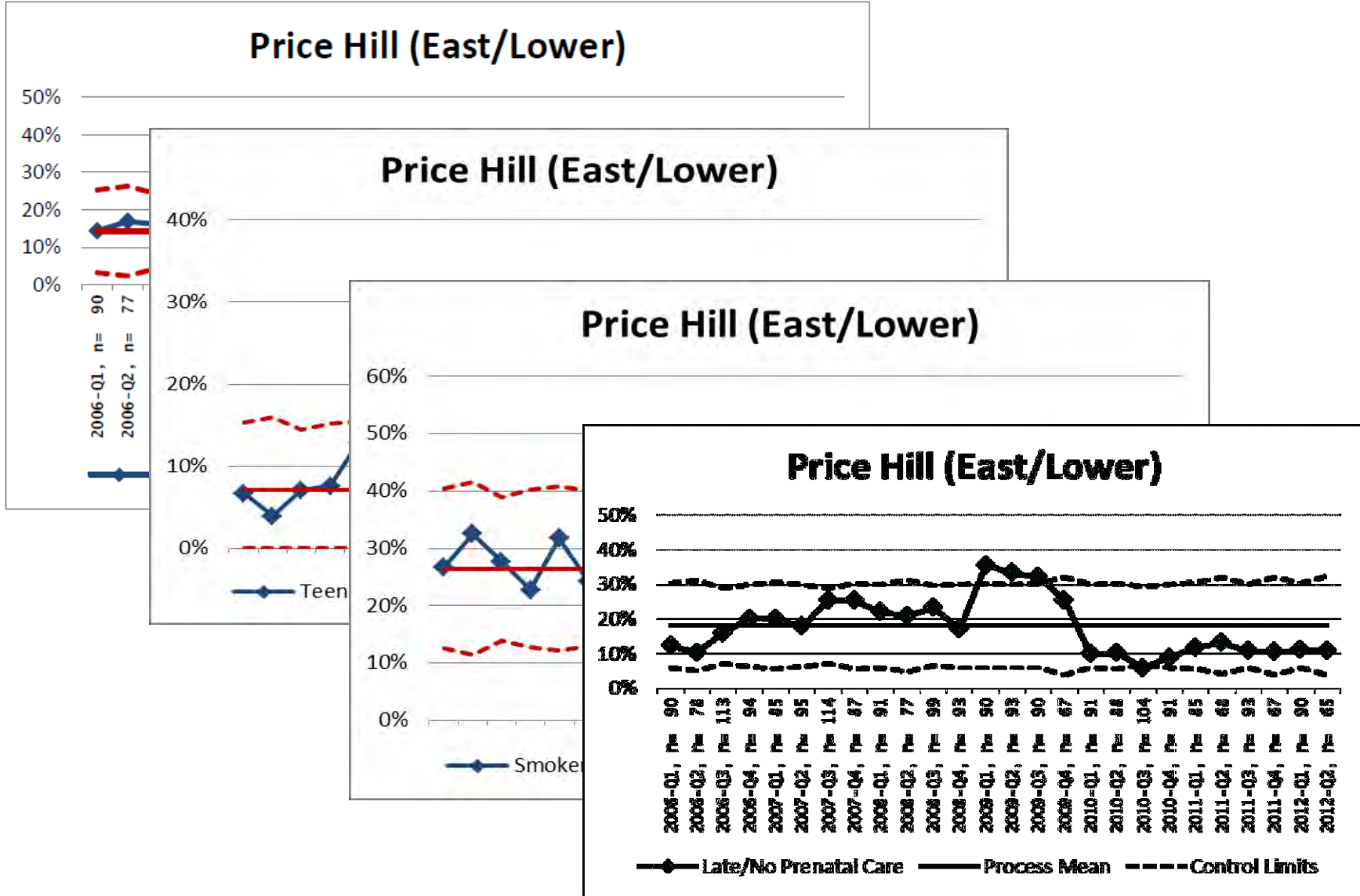
# Vital Statistics: Pregnancy and Birth Outcomes

Price Hill (East/Lower)

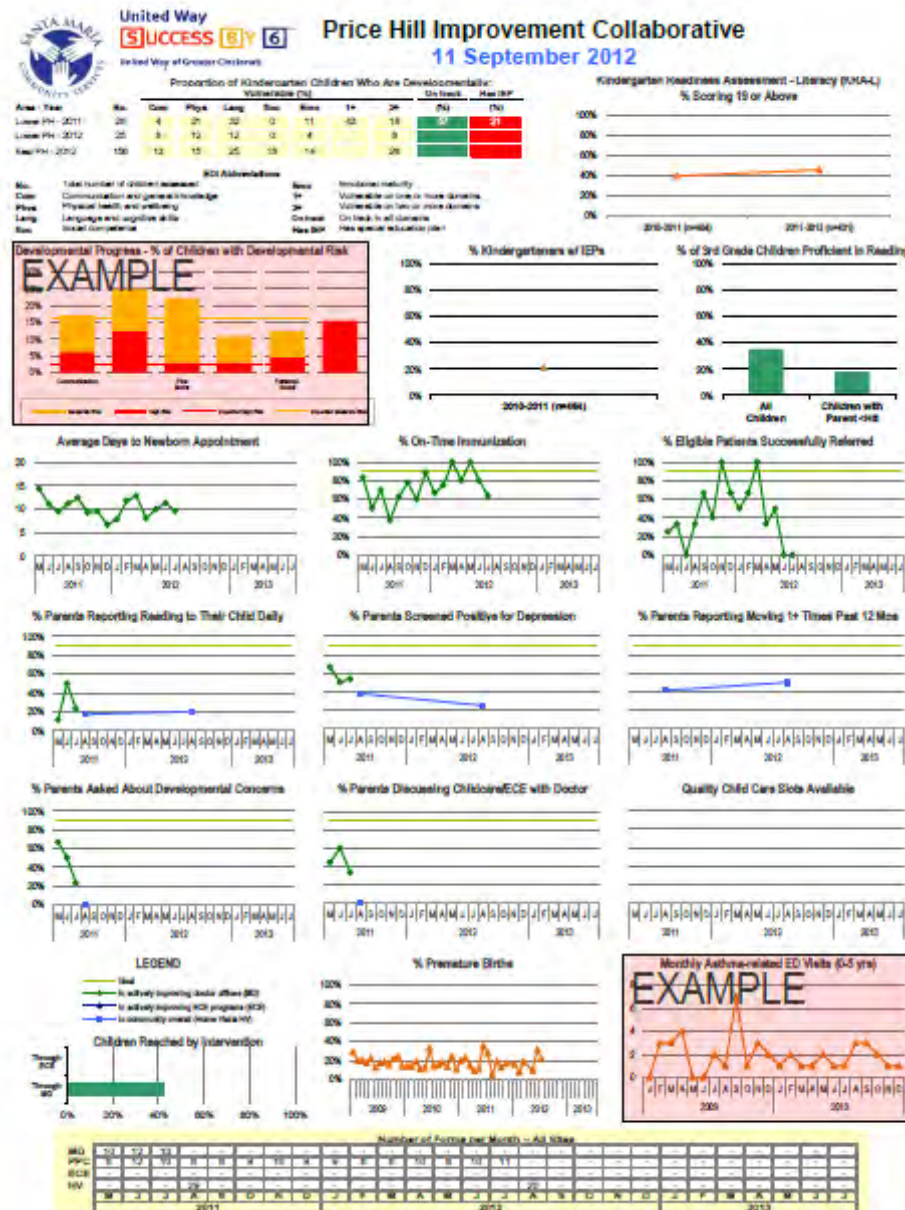
Price Hill (East/Lower)

Price Hill (East/Lower)

Price Hill (East/Lower)



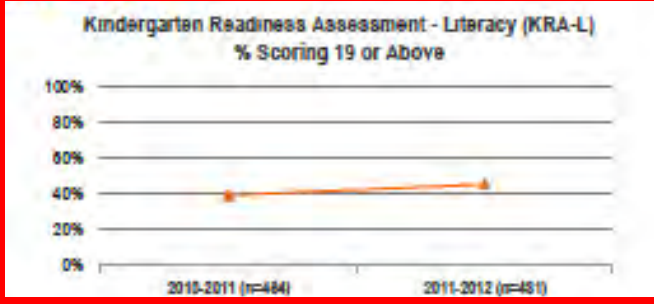
# Price Hill TECCS Dashboard: *Draft*



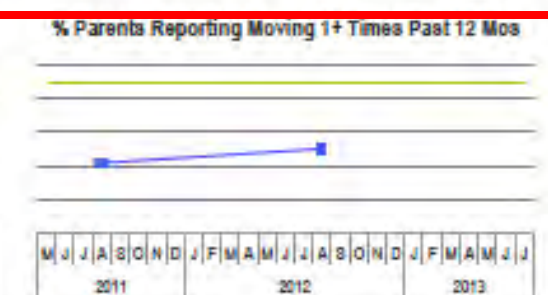
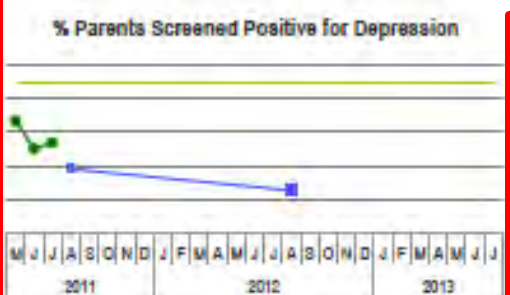
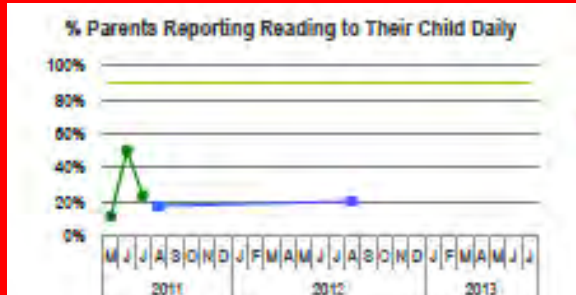
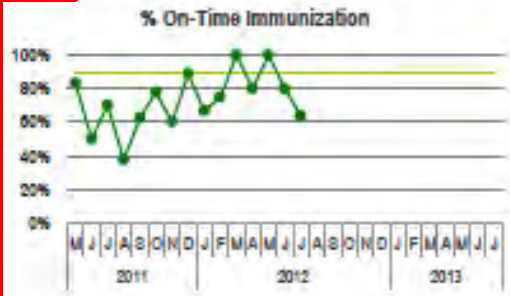
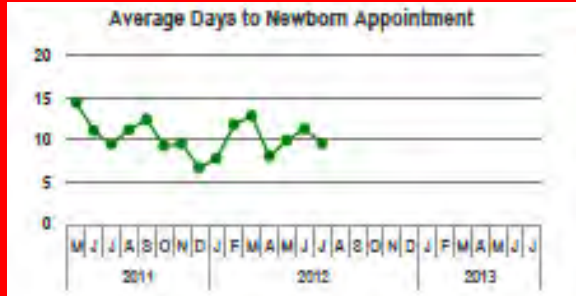
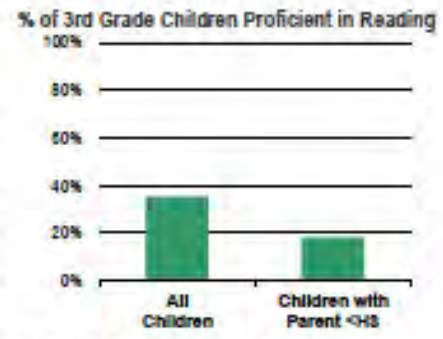
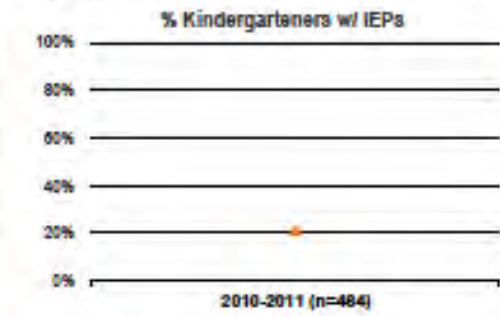
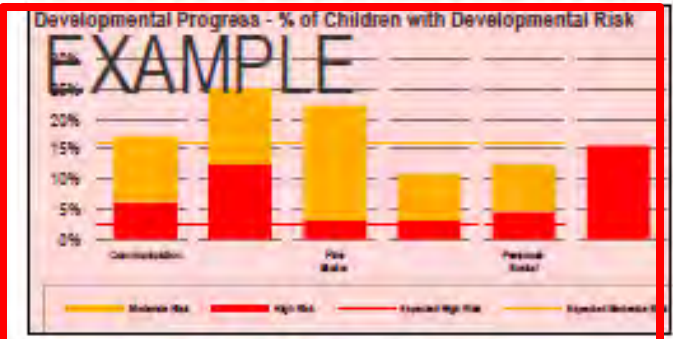


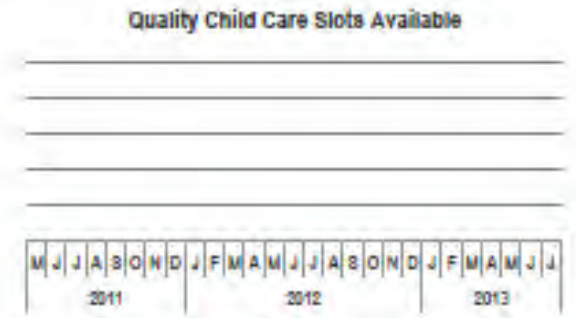
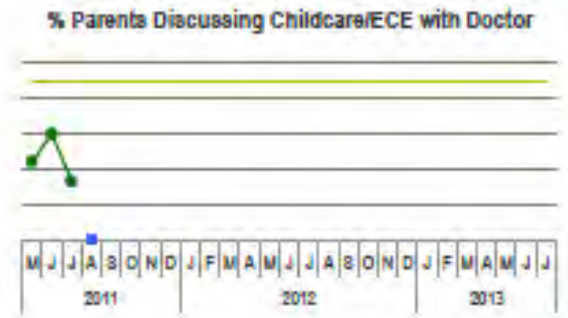
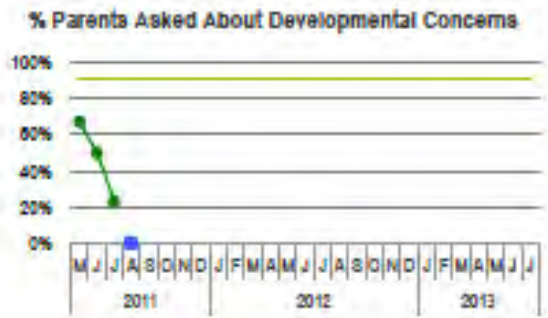
Proportion of Kindergarten Children Who Are Developmentally Vulnerable (%)

Area - Year	No.	Developmental Domains						On track (%)	Has IEP (%)	
		Com	Phys	Lang	Soc	Emo	1+			
Lower PH - 2011	28	4	21	32	0	11	43	18	37	21
Lower PH - 2012	25	8	12	12	0	4		8		
East PH - 2012	156	13	13	25	10	14		26		

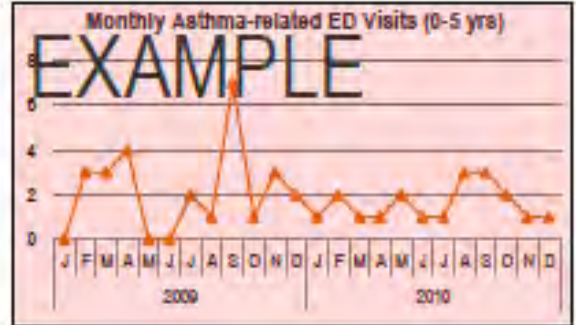
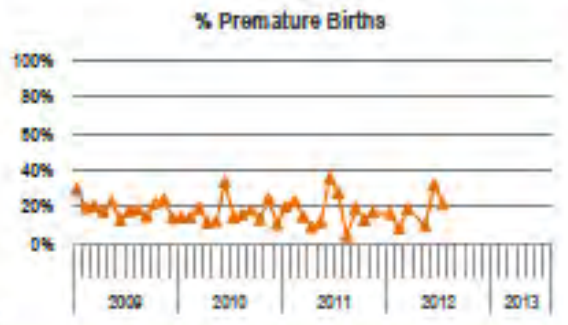
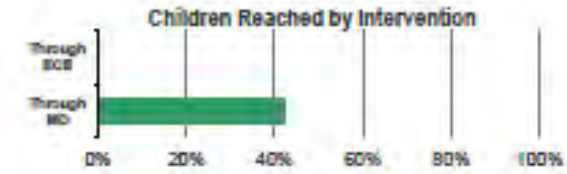


**No.** Total number of children assessed  
**Com** Communication and general knowledge  
**Phys** Physical health and wellbeing  
**Lang** Language and cognitive skills  
**Soc** Social competence  
**Emo** Emotional maturity  
**1+** Vulnerable on one or more domains  
**2+** Vulnerable on two or more domains  
**On track** On track in all domains  
**Has IEP** Has special education plan





- LEGEND**
- Goal
  - In actively improving doctor offices (MD)
  - In actively improving ECE programs (ECE)
  - In community overall (Home Visits HV)

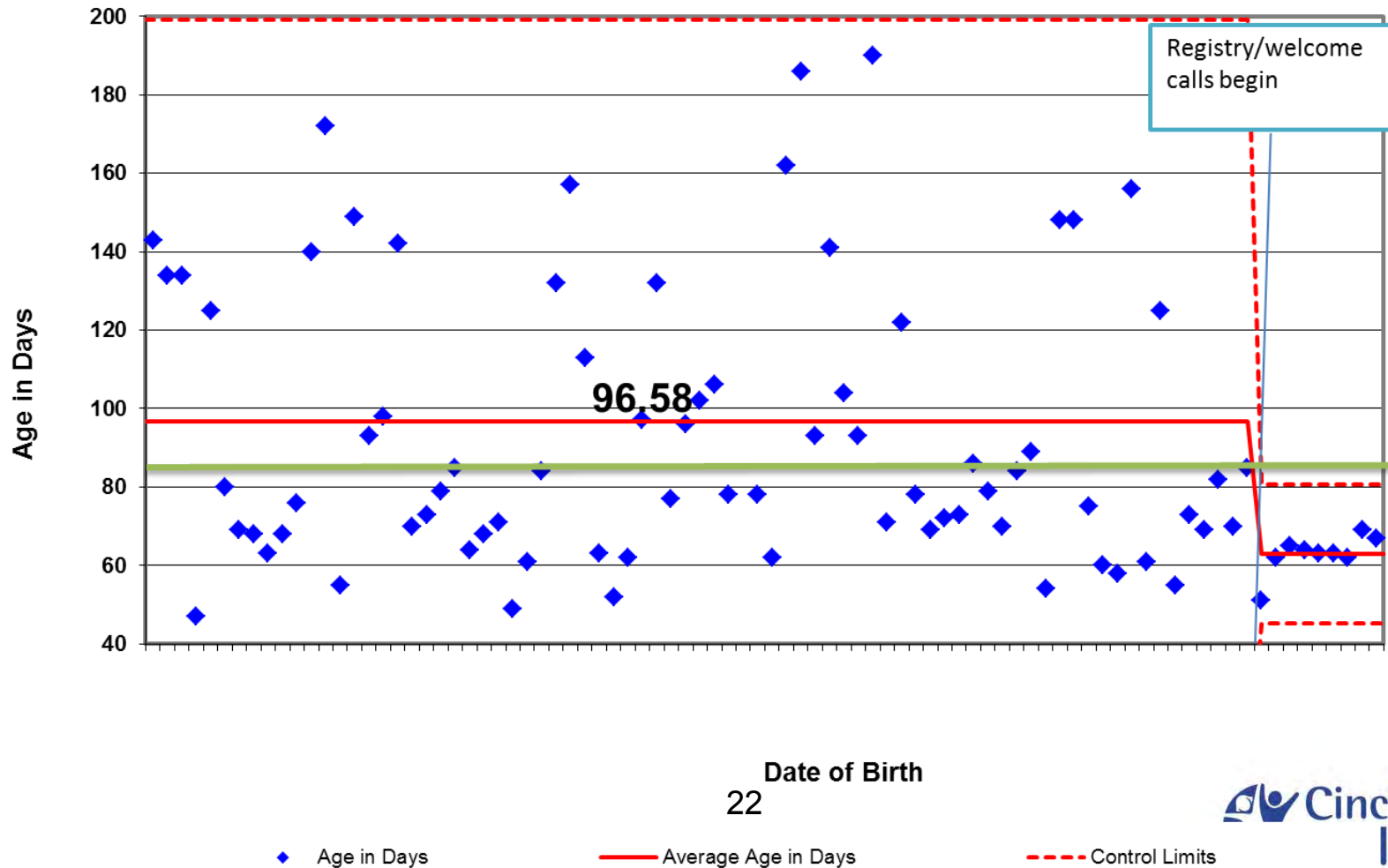


### Number of Forms per Month – All Sites

	10	12	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD	10	12	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PPC	6	12	10	8	8	9	10	9	8	6	10	8	10	11	-	-	-	-	-	-
ECE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HV	-	-	-	29	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-
	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	2011						2012						2013							

# Spreading Change

## Age In Days At 2 mo Well Visit: Hopple

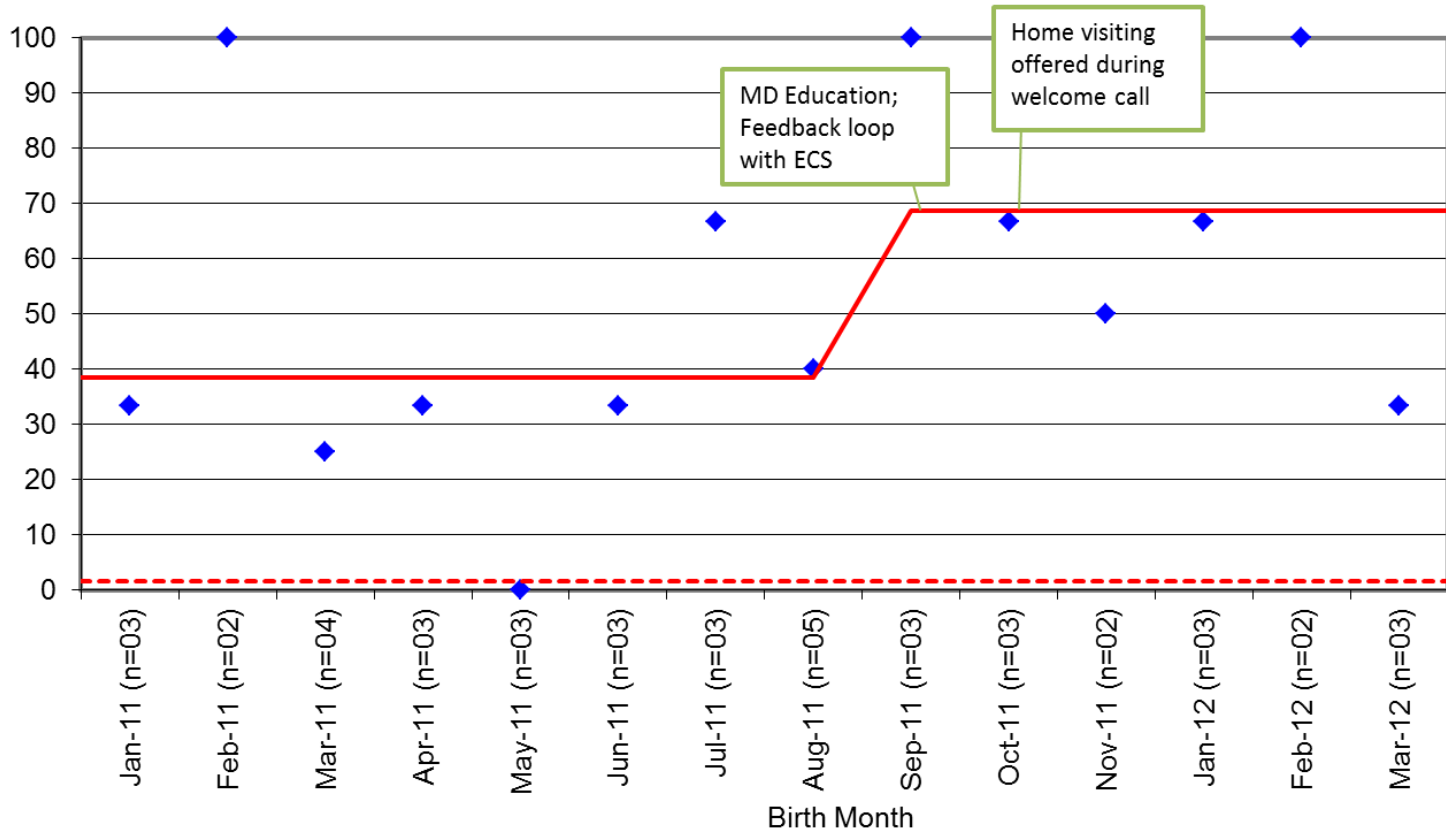


# Can we achieve 'warm' handoffs?

## Health care to Home Visitor

% of Eligible Families **Sharing developmental test results**

Percentage of Eligible Families Completing Intake



◆ % completing intake

— Average % Completing Intake

- - - Control Limits

# Place based literacy: Program inventory

## 2011 Price Hill Early Reading Audit

Agency	Contact(s)	Activities	Notes
Cincinnati Early Learning Center	Patti Gleason, Deborah Smith	HIPPY	Not currently in Price Hill
Cincinnati Public Schools	Michael Benton, Karen Walker-Jones, Deborah Bradshaw	Books in Action, Books Alive, Summer Bridge Program	
4C for Children	Carolyn Brinkman, Angie Good	Family Child Care Providers Literacy Program and (Read Aloud Pilot) Read to Know, Read to Grow Activities Program	Read Aloud is a new program coming to Price Hill
The Children's Home of Cincinnati "SPARK"	Susan Conrad, Susan Halloran	Through the SPARK program, books and specific activities are provided each month. They also promote the Library Backpacks. Type B Family Child Care Providers are invited to a Dialogic (Shared) Reading session at the Library where they receive free books and materials. These Child Care providers can also have the Librarian visit them as a follow-up.	Each month parents are asked to report how often they read to their child/ren on average, each week
Cincinnati Children's Hospital Medical Center - Pediatric Primary Care Clinic	Courtney Levinson	Reach Out and Read Program	
Literacy Center West	Chellie McLellan	Reach Out and Read Program - Adapted for GED Program	
Price Hill Clinic	Kathy Bain	Working to bring the Reach Out and Read Program Back	
Every Child Succeeds	Julie Massie, Julie McGregor	A book to each family monthly from 3 months of age until 36 months. Bringing Literacy Home curriculum and materials. Part of Parents as Teachers curriculum. Multiple books as part of graduation packet	
Cincinnati Union Bethel (CUB)	DeeAnn Camp	<ul style="list-style-type: none"> <li>Education Manager leads lesson plans in take home activities – reading literacy activities.</li> <li>Public library ECE librarian coming to center to teach dialogic reading – then given free books. Through Hamilton County (Nancy Strubling) engages parents in training and gives out book bags with 6-7 new books.</li> <li>Key times with parent's ear, two-fold art and literacy parent night this year - Art work by children and parent's bid on artwork...given a pledge for how often to read to families. Children's museum staff involved is engaging children while parents were looking at artwork.</li> <li>There is also a log that goes home with parents to record how often parents engage their child/ren in literacy activities.</li> </ul>	<p>Identified on strategic plan last year for the Education Manager's to do list this year.</p> <p>Camp Washington site for Art Show</p> <p>40 parents</p> <p>Buy books for families in Spanish and English Greatest barrier - # of parents who can't read.</p>



# About Price Hill.....

## Population

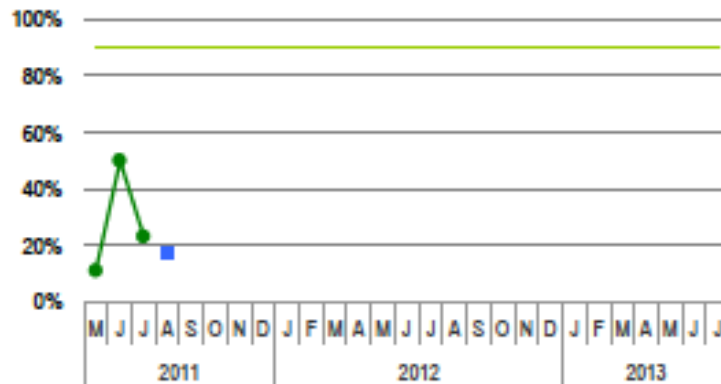
	All races M + F All ages	All races M+F 0 to 17	All races M+F 0 to 5	All races M+F '09 Births
East & Lower	16,415	5,106	-	339
East		4,656	1,594	305
Lower		450	-	34

339 x 5 = 1,695  
children ages 0-5

## Kindergarten Readiness Assessment-Literacy (KRA-L)

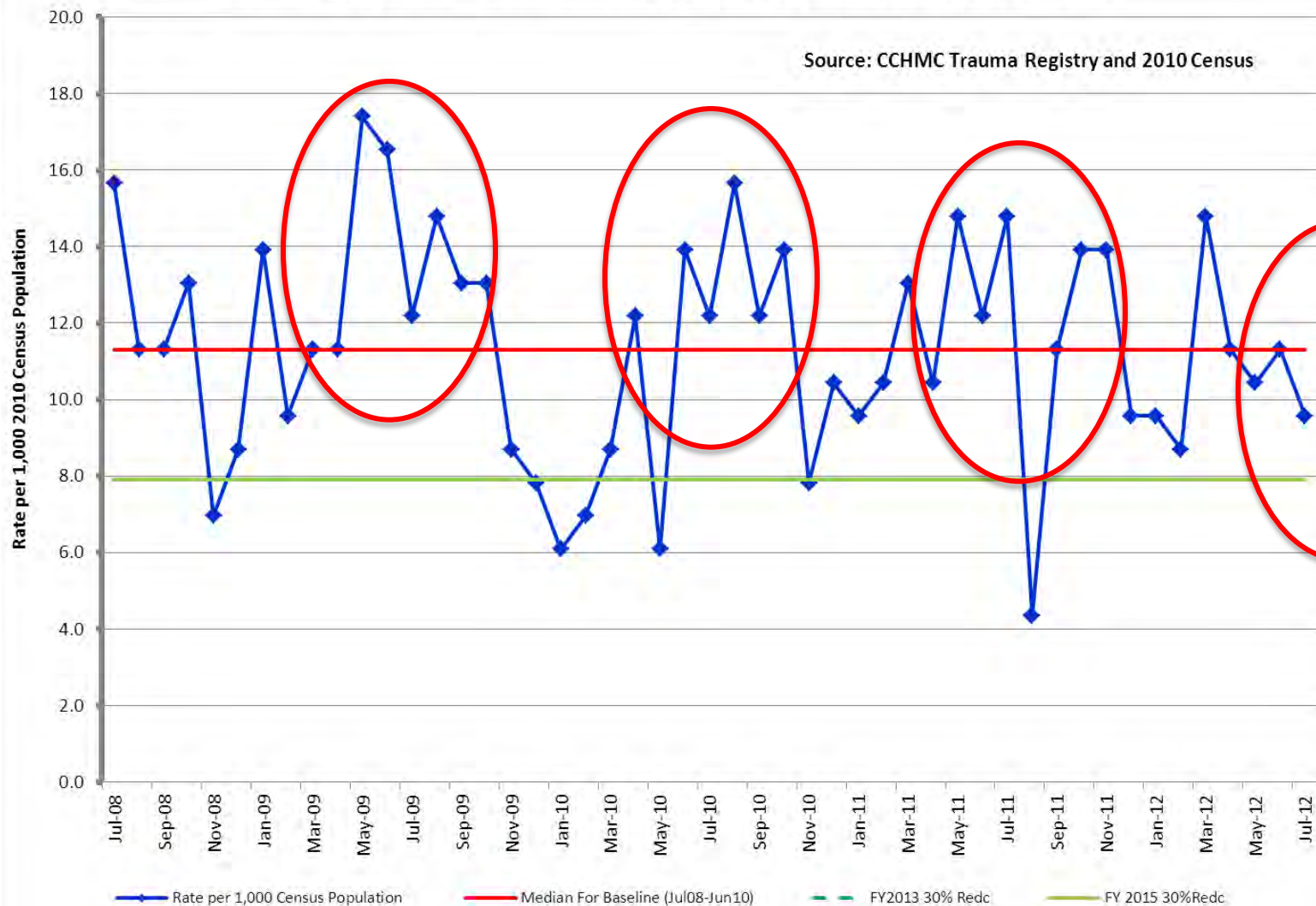
Combined Parochial & Public	Year	# of Students Assessed	Percent Ready - Cutoff of 19 Points	Overall Mean (0-29)	% "Low Income"	Total # of students ready
All 10 Schools	2010-2011	464	42.9%	17 (58.5%)	n/a	199

## % parents reporting reading to their children daily



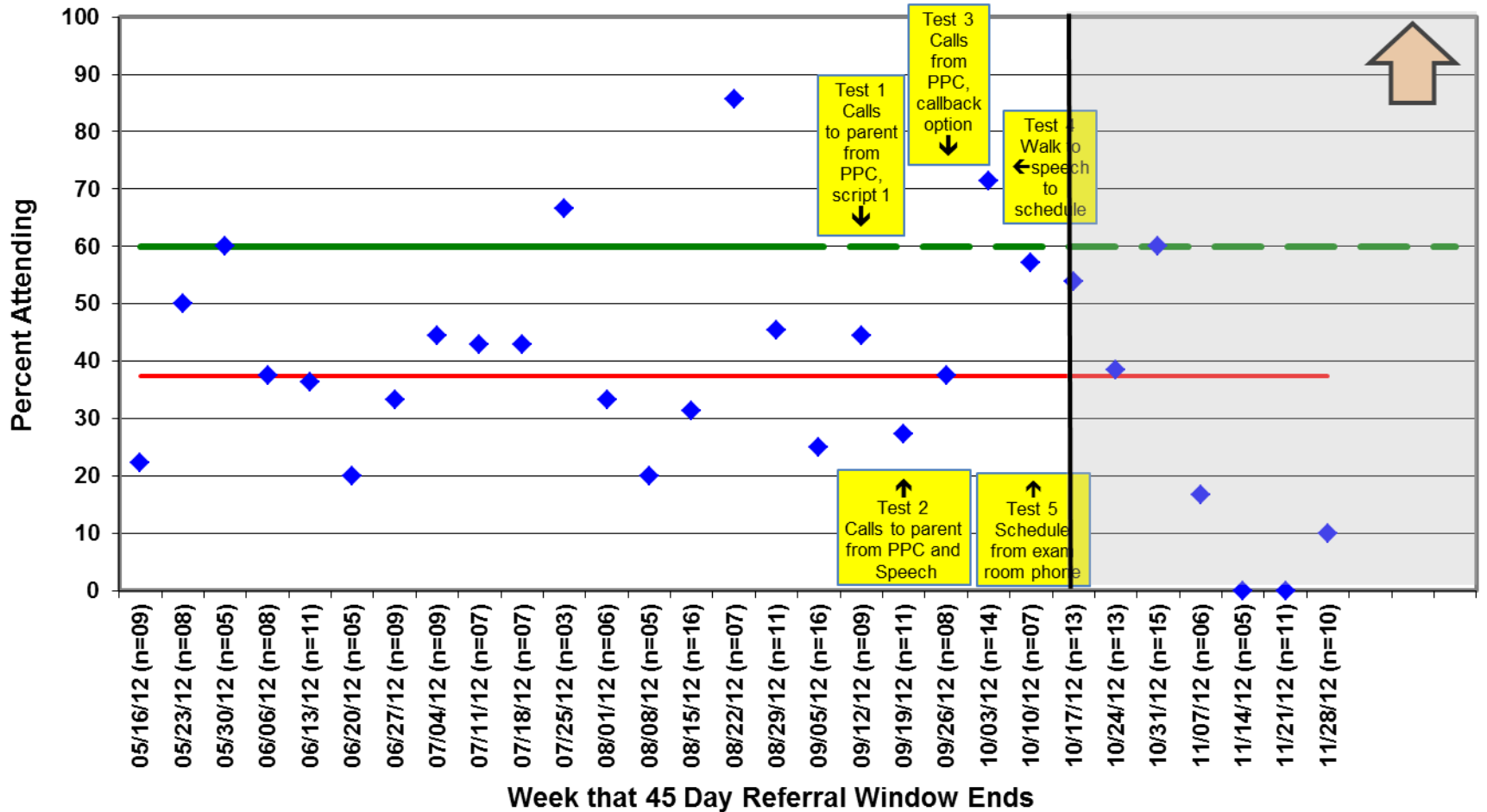
### Monthly Injury Rate - All Mechanisms, Ages 1-4yrs (Norwood Zip Code, 45212)

Source: CCHMC Trauma Registry and 2010 Census



# Percentage of PPC Patients 0-3 Years Old Referred to Audiology or Speech Therapy Who Attend an Initial Appointment within 45 Days

May 16, 2012 to January 11, 2013



◆ Weekly Percent Attending

— Median

— Goals

☐ = Window not yet closed, data point can still improve