Thinking about how pediatric care can help population health

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3 presentations on health for all children

1. Social and economic factors that influence the health of children and their families
2. Thinking about how pediatric care can help the population's health outcomes
3. Effective relations between health, schools and other institutions

1. Scope of the problem and pediatric response
2. Structure and impact of hospital and health system response
3. Building a multi-sector response to help all children thrive
2019-20 Honor Roll Rankings

- #1 Boston Children's Hospital
  Boston, MA
- #2 Children's Hospital of Philadelphia
  Philadelphia, PA
- #3 Cincinnati Children's Hospital Medical Center (tie)
  Cincinnati, OH
- #3 Texas Children's Hospital (tie)
  Houston, TX

Ranked in the Top 10 in All 10 Specialties

- #3 Gastroenterology & GI Surgery
- #3 Nephrology
- #4 Neonatology
- #4 Neurology & Neurosurgery
- #4 Pulmonology
- #4 Urology
- #5 Diabetes & Endocrinology
- #6 Cancer
- #6 Cardiac Heart Surgery
Neighborhood asthma admission rate per 1000 children, Hamilton County, 3 year average (2010-2012)

Neighborhood Preterm Birth Rates per 100 births (2010-2012)

3rd Graders reading proficiently or above, by building, ODE, 2014-2015

Avondale
Price Hill

Avondale
Price Hill
Deliver exceptional, safe, and affordable care for every child and every family, every day

Help Cincinnati’s kids to be the healthiest in the nation through strong community partnerships

Transform child health with our collaborative culture of discovery, translation and learning

Improve the lives of children everywhere by creating deeper connections with families, care providers and organizations

Realize our full potential by engaging, inspiring and enabling all employees to make a difference
Morbidity and Mortality
Reduce annual infant deaths in Hamilton County
Reduce disparity in hospital bed days focusing on 2 high risk neighborhoods

Thriving
Ensure 5-year olds have a ‘healthy mind and body’*
Increase percent of children reading proficiently or above by 3rd grade in Cincinnati Public Schools

*Bundle measure: immunization, BMI, dental, behavior, vision, emergent literacy, speech, hearing
All Children Thrive Learning Network

**3rd Grade Reading**
- Cincinnati Public Schools
- Preschools
- Pediatric Clinics
- Libraries
- Parent/Grandparent networks
- Community Spaces

**Thrive at 5**
- Primary care clinics
- Public Health Department
- Behavioral Health Agencies
- Home Visiting
- Preschools

**Infant Mortality**
- Cradle Cincinnati
- Multiple birth hospitals
- City health department clinics
- Home visitors
- Community Health Workers
- Parent/Grandparent networks

**Bed Day Disparity**
- Inpatient staff and social work
- Subspecialists
- Primary care clinics
- Public Health Department
- City departments
- Community leaders
All Children Thrive Learning Network

Outcomes
- Infant Mortality
- Bed Day Disparity
- Thriving at 5
- 3rd Grade Reading

Improvement Teams
- OB’s, perinatal
- Inpatient Bed Days Collaborative
- Community Connected Primary Care
- Cincinnati Public School/Education

Enabling Supports
- Community Activation, Community Organizing, Social factors
- Community Quality Improvement Capability
- Measurement and Analytics
- Funding and Sustainability
Goal 1: Infant Mortality
Avondale: Extreme Preterm Births
<28 weeks gestation

50% of infant deaths occur by end of 2nd trimester

Kahn 2015
DEVELOPING EXPLICIT THEORY

SMART AIM

Reduce preterm births by 10% by June 2016

Early, trusted, evidence based care for every pregnant woman

Early, valued, coordinated support in the community

Activated mothers supported by engaged communities

Timely valued services that reduce hardships and deprivation

Transparent data sharing and community capacity to support continuous improvement
WHAT IS THE ‘SYSTEM’?

Avondale: ~205 births per year, 18% PTB rate

SERVICES: Eviction, Partner Violence, Public Benefits, Food Assistance, Mental Health Svcs

- UC Prenatal Care
  - Prenatal Clinic 2
  - Prenatal Clinic 3
  - 90% in PNC by 12 weeks
- University Hospital
  - 90% Referred for Resources by 18 weeks

- Good Samaritan Prenatal Care
  - Prenatal Clinic 5
  - Prenatal Clinic 6
  - 90% Enrolled in HV by 15 weeks
- Good Samaritan Hospital
  - Newborn seen by 9 days

Community Health Worker Agency 1
Community Health Worker Agency 2

Home visiting nurses

90% in PNC by 12 weeks
90% Enrolled in HV by 15 weeks
Infant mortality rate by subcounty area: 2007-2011
Hamilton County
Infant mortality rate by subcounty area: 2012-2016
Hamilton County
Goal 2: Inpatient Bed Day Disparities
Hot Spots: High Admission Rates in Avondale, Price Hill

Hospitalization density per half-mile square
SMART AIM

To reduce by 10% the child inpatient bed-day rate for two high morbidity, high poverty Cincinnati neighborhoods by June 2020
## Development of Explicit Theory

- Families are partners in co-creation of improvement strategies
- Families receive right care in right place at right time
- Families trust they are receiving the right care for them
- Clinical decision-making is standardized, but can be adapted to patient and family needs
- Families are well-equipped to self-manage acute and chronic disease symptoms
- Proactive supports assist families in removing barriers to health
- Healthcare system is accountable to population, and able and willing to address disparities in care settings
- Families and the community are activated in support of achieving health equity

**Child and family at center of improvement efforts**

**Agile, accountable system driving toward health equity**

**Engaged, activated partners**
Average Annual CCHMC Inpatient Bed Days
Per 1000 Population Age 0-18, By Hamilton County Neighborhood, FY 2018

Significant decrease in bed days from baseline

Bed days per 1000 population

Overall Avg
Goal 3: Thrive at Five
### PHYSICAL HEALTH

- **Fully vaccinated**: patient has received all state-required vaccines for Kindergarten entry.
- **Healthy teeth**: patient free of dental pain at most recent well child visit, per parent report. "In the past two months, has your child had pain in the teeth, mouth, or jaws?" [Options: yes, no, I don’t know.]
- **Healthy vision**: patient has a normal vision screen since their 4th birthday (screened with or without corrective lenses).
- **Healthy hearing**: normal hearing screen in primary care or audiology since their 4th birthday.
- **Healthy weight**: patient has had a healthy range of BMI (<85th percentile and >3rd percentile) recorded since their 4th birthday.

### LANGUAGE/COMMUNICATION/COGNITIVE DEVELOPMENT

- **Normal speech**: Normal communication domain on developmental screening (ASQ) in primary care at age 4 years.
- **Normal literacy**: Normal early literacy screen at 4 year well child visit using validated screener “Get Ready to Read” (short form).

### SOCIAL COMPETENCE AND EMOTIONAL MATURITY

- **Normal social-emotional health**: Normal social-emotional screen (ASQ-SE/SDQ) in primary care since their 3rd birthday.
Patient Population Level
How: Teaching Quality Improvement
What are we trying to accomplish? **AIM**

How will we know that a change is an improvement? **MEASURES**

What change can we make that will result in improvement? **THEORY AND IDEAS**

**Model for Improvement**

- **Act** (Adopt, Adapt or Abandon)
- **Plan**
- **Study**
- **Do**

Then test ideas that are linked to theory and see if results change

**SMART**
- Specific
- Measurable
- Action Oriented
- Realistic
- Timely

*Langley et al. 1996*
SMART AIM

- **Specific**
- **Measurable**
- **Actionable (and achievable)**
- **Relevant (and realistic)**
- **Time-bound**

Reduce preterm births by 10% by June 2016

Reduce inpatient bed-day rate 10% for 2 neighborhoods by June 2020
Explicit Theory

DEVELOPING EXPLICIT THEORY

Early, trusted, evidence based care for every pregnant woman

Early, valued, coordinated support in the community

Activated mothers supported by engaged communities

Timely valued services that reduce hardships and deprivation

Transparent data sharing and community capacity to support continuous improvement

Development of Explicit Theory

Child and family at center of improvement efforts

Agile, accountable system of care toward health equity

Engaged, activated partners

Families are partners in co-creation of improvement strategies

Families receive right care in right place at right time

Families trust they are receiving the right care for them

Clinical decision-making is standardized, but can be adapted to patient and family needs

Families are well equipped to self-manage acute and chronic disease symptoms

Proactive supports assist families in removing barriers to health

Healthcare system is accountable to population, and able and willing to address disparities in care settings

Families and the community are activated in support of achieving health equity
Early Valued Support in the Community: Community Health Workers

**Interventions**

- Posted reminder
- EPIC prompt
- Planned CHW supply

**Current Process**

1. CHW/HV offered w/ in 2 days
2. CHW/HV accepted
3. Referral/ sent assigned
4. CHW/HV informed
5. CHW/HV contacts
6. Visit scheduled
7. Visit happens within 10 days

**Failures Mode**

- No show
- No CHW/HV available
- No Trust
- Bad previous experience
- Problems at home
- Referral lost
- Fax doesn’t go through
- Forgets to send
- No way to contact CHW
- Assigner not available
- Wrong number
- Doesn’t answer
- Mom has no phone
- Mother declines
- Work schedule
- Not home
- Can’t find home
- Won’t come to door

**Flexible Scheduling**
- Focus on benefits
- Meet at clinic
- Engage other trusted person
- Check-In process
- Automate reminder
- Open dialogue
- Mom focused
- 100% follow through
- Planned
- EPIC prompt
- Posted reminder

**Double check address**
- GPS
- Call to remind
Community Quality Improvement Course

Build improvement leaders: schools, public health, child welfare
6 month course
Methodology is the Model for Improvement

- Measurement and analysis
- PDSA and PDSA ramp strategies
- Introduction to reliability
- Psychology of change management
- Systems thinking
- Sustainability & Spread
Partnership Elements

Clear shared vision and goals
Inherently motivated leaders
Measurement system that connects all the dots
Children and family centered
Quality improvement approach
  • Frequent testing, transparent results, data for improvement not evaluation
Be gracious enough to share, humble enough to learn together
QUESTIONS?

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https://www.actnowcincy.org/
All Children Thrive Learning Network Core Principles

Equity is foundational to improving children’s health. We believe that financial, social, environmental and racial inequities affect the health and well-being of children. Solutions must address basic needs of families first.

Children are at the center of our work. We will work across family, community, organizational and funding boundaries to ensure the system works for children and their health. As we design solutions, we will view the system from the perspective of the family and child. We believe the opportunities and solutions come from within families and communities.

We work together on solutions, building relationships and trust. Family, community and organizational partnerships are a critical aspect of successful improvement. The network is designed to inspire and continuously develop relationships across Cincinnati that work together in a system focused on what works for children.

We all teach and we all learn. Network participants must humbly share and gratefully learn from others. The network is built on the fundamental belief that by transparently sharing successes and failures and by learning from one another, participants can achieve their goals more effectively and quickly than working alone.

We are action-oriented and sustainable-results focused. Participants within the network are employing the methods of improvement science to reach goals. This emphasis on creating quality improvement capability will sustain the network to improve children’s health. We must act with urgency and discipline, focusing on results for children.
Hamilton County infant mortality rate 12-month moving average

Source: Hamilton County Public Health. Updated by Stuart Taylor, 7/16/19
8.4 days per 1,000 children per month = ~75 days per month, ~900 per year
Avondale & Price Hill IPBD rate

Monthly rate

Average rate

UCL

LCL

6.9 days per 1,000 children per month

(18% reduction)
No change in IPBD rate (or hospitalization rate from baseline to intervention phase)