

A young girl with curly hair, wearing a pink dress with a floral design, is blowing bubbles. She is holding a bubble wand in her mouth, and several bubbles are floating around her. The background is a soft, out-of-focus green, suggesting an outdoor setting.

**Innovations in Population  
Health: *Perspectives from an  
Integrated Child Health  
System***

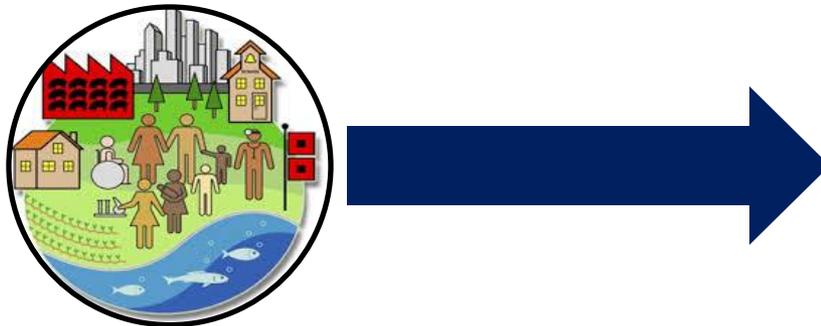
**Debbie I. Chang, MPH  
Vice President, Policy & Prevention**

**June 13, 2013**

**Nemours®**

# Approaches to Population Health

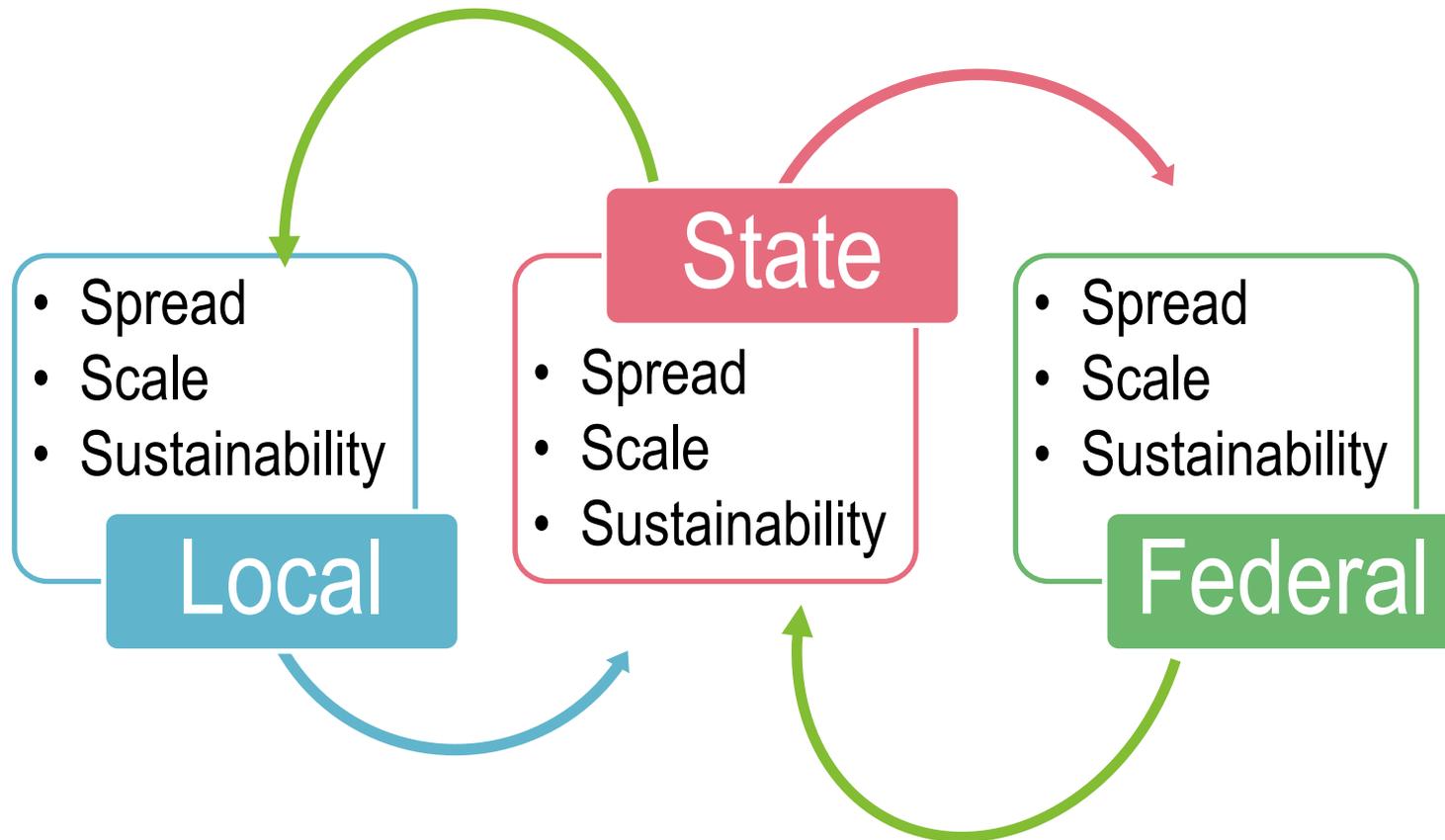
- Two ways to approach population health:
  - Start from the Community



- Start from Clinical Approach



# Leveraging the Cycle



# Nemours Integrated Child Health System

- **Nemours is a non-profit organization dedicated to children's health & health care**
- **Nemours offers pediatric clinical care, research, education, advocacy, and prevention programs. Nationally, the goal is to improve child health and wellbeing, leveraging clinical and population health expertise**
- **Nemours operates Alfred I. duPont Hospital for Children and outpatient facilities in the Delaware Valley and a new state-of-the-art Children's Hospital in Orlando and specialty care services in Northern/Central Florida.**
- **Nemours focuses on child health promotion and disease prevention to address root causes of health**
  - Preventing childhood obesity and emotional/behavior health were the first initiatives
  - Complements and expands reach of clinicians using broader, community-based approach



# Roots of Problem/Environmental Drivers

## Main Determinants of Health

- 40% Behavior (tobacco, alcohol, obesity, auto safety, etc.)
- 20% Environment and social circumstances
- 30% Genetics
- 10% Health care delivery



## High Cost

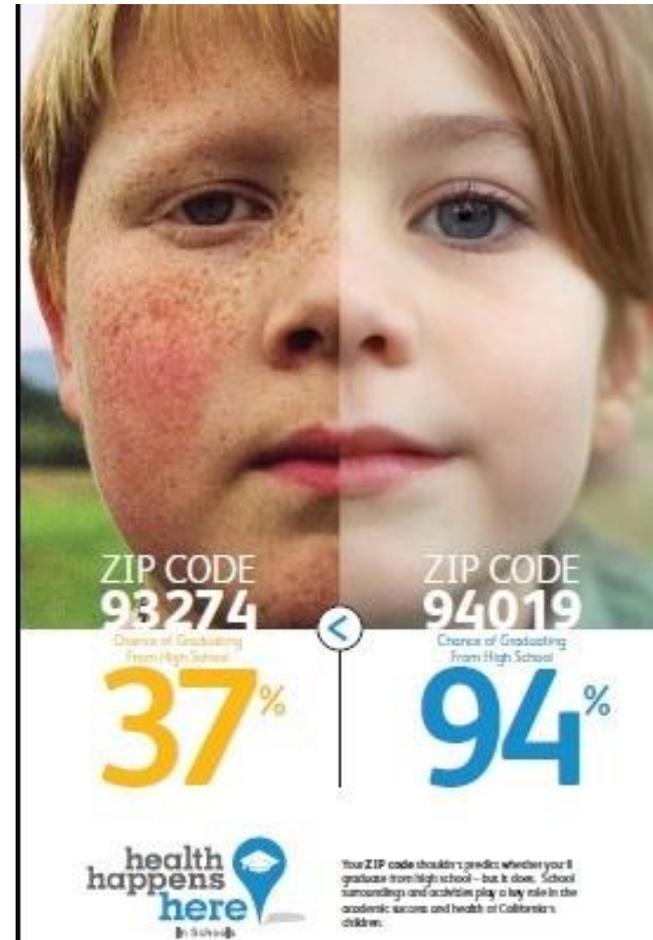
- In 2007, \$7,123 per person spent on health care in U.S.
- Below average life expectancy compared to 30 other developed countries
- Children: 26% of population, 13% of health care dollars
- 15% of children have chronic diseases accounting for 70%+ of pediatric health costs

McGinnis JM & Foege WH. Actual causes of death in the United States. JAMA 1993; 270(18):2207-12

McGinnis JM, Williams-Russo P, & Knickman JR. The case for more active policy attention to population health promotion. Health Affairs 2002; 21(2):78-93

Slide content borrowed from Dr. Bailey 10/26/10 LDI presentation

# Place Matters



# Expanding the Model: Promoting Health and Prevention

## Traditional Medical Model

Rigid adherence to biomedical view of health

Focused primarily on acute episodic illness

Focus on Individuals

Cure as uncompromised goal

Focus on disease



## Expanded Approach

Incorporate a multifaceted view of health

Chronic disease prevention and management

Focus on communities/ populations

Prevention as a primary goal

Focus on health



# Connecting Clinical Care and Population Health

## An Integrated Health System

Our Community

Resources, Policies and System Change

Health Policy      Health Promotion Practice Change      Self-Management Support



Informed, Activated Patient, Family and Community Partners

Our Health System

Health Care Organization

Delivery System Design      Decision Support      Clinical Information Systems



Organized, Prepared, Proactive Health Team with patient/family

Productive Interactions & Spreading Change

Improved Health Among Patients  
Improved Health for Delaware's Children

# Approaches to Population Health: Starting from Community and Starting from Clinical

- Nemours has been able to take advantage of funding opportunities provided through the ACA to launch innovative projects that advance the field of population health
- Two ways to approach population health:
  - **Case 1: Starting from the Community**
    - Obesity Prevention in Delaware
    - Spread, scale and sustainability
      - Healthy Kids, Healthy Future
      - CDC Early Care and Education Learning Collaboratives (ECELC)
  - **Case 2: Starting from the Clinical Setting**
    - CMMI Health Care Innovation Award
    - Spread, scale and sustainability



# Case 1 Approach: Starting from the Community



# Obesity Prevention in Delaware

## *Key Elements of the Strategy*

- **Defined the geographic population and a shared outcome**
  - Reducing prevalence of overweight and obesity by 2015 for children in DE, ages 2-17
- **Established multi-sector partnerships where kids live, learn and play**
  - Engaged child care, schools, primary care and other community settings
- **Pursued policy changes**
  - Systems changes, including capacity/infrastructure in multiple sectors
  - Licensing and regulation requirements – e.g. Child and Adult Care Food Program/child care licensing
- **Pursued practice changes to assist in implementation of policy changes**
  - Established learning collaboratives in various sectors (e.g. schools, child care and primary care)
  - Developed and/or adapted tools to promote practice change and adoption of new policies in multiple sectors
  - Provided tools and technical assistance to providers, and state professional associations, including train-the-trainer model



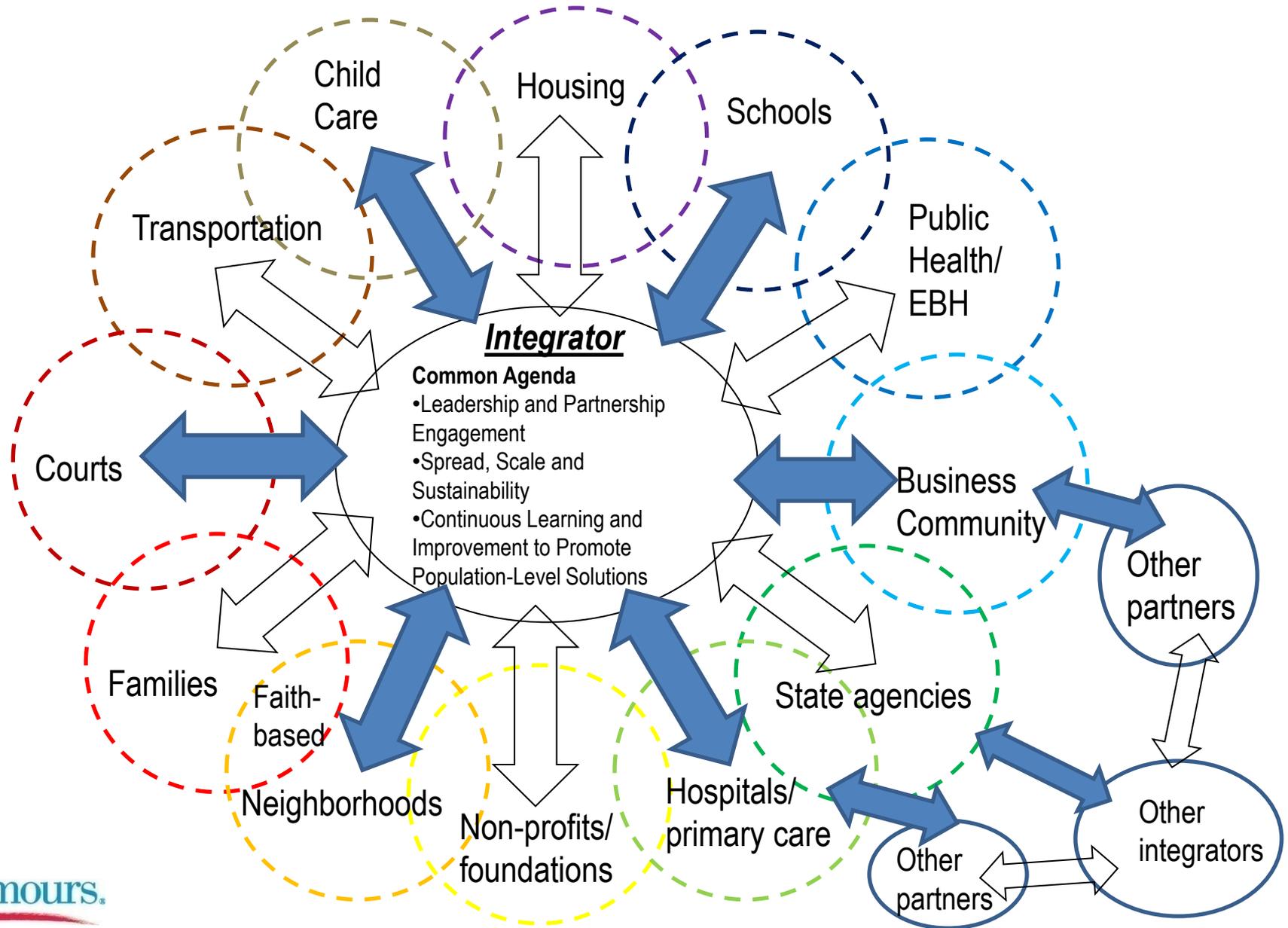
# Obesity Prevention in Delaware

## *Key Elements of the Strategy, Cont.*

- **Developed 5-2-1-Almost None healthy lifestyles social marketing campaign**
  - Eating at least five servings of fruits and vegetables a day
  - Limiting screen time to no more than two hours a day
  - Getting at least one hour of physical activity a day
  - Drinking almost no sugary beverages
- **Leveraged technology**
  - Used our Electronic Health Record to establish a childhood obesity quality improvement initiative to alert users when a patient's BMI is above the healthy weight range and outline appropriate follow-up and counseling for families
- **Served as an “integrator” that works intentionally and systematically across sectors to improve health and well-being**
  - See full description at:  
[http://www.improvingpopulationhealth.org/Integrator%20role%20and%20functions\\_FINAL.pdf](http://www.improvingpopulationhealth.org/Integrator%20role%20and%20functions_FINAL.pdf)



# Working Across and Within Systems in a Community



# Nemours' Evidence of Population Impact

- Delaware Survey of Children's Health (DSCH)
  - Rates of overweight/obesity among Delaware's children have leveled off since the survey was first administered in 2006
  - Overweight and obesity decreased among African-American males and white females
- This finding was supported by additional behavior change findings:
  - Over half (51.3%) of all Delaware children get the recommended five servings of fruits and vegetables per day
  - Declines in the consumption of sugar sweetened beverages among Delaware children were observed in all three iterations
  - Overall levels of physical activity increased - percentage of children who met the physical activity recommendation of an hour per day increased significantly from 38.9% in 2008 to 44.8% in 2011



# Nemours' Evidence of System Impact

- In **SCHOOLS** where we piloted 150 minutes of PA, students were 1.5 times more likely to achieve an indicator of physical fitness than students in the control group.
  - Recent data show a clear and consistent relationship between fitness and academic achievement and fitness and student behaviors.
- In **CHILD CARE**, 100% of participants in the first learning collaborative made significant changes in healthy eating or physical activity; 81% made significant changes in both.
- In **PRIMARY CARE**, Nemours EMR data indicate that lifestyle counseling related to healthy eating/physical activity was provided to 95% of our primary care patients
  - Almost double the national average of 54.5%.

Evaluation supported in part by the Robert Wood Johnson Foundation. Source: Chang D, Gertel-Rosenberg AS, et al. "A Statewide Strategy to Battle Childhood Obesity in Delaware." HEALTH AFFAIRS 29, NO. 3 (2010): 480–489



# Spread, Scale and Sustainability

## Multi-pronged strategy:

- Bringing together the right people - recognize and engage the multiple influences on child health and well-being
- Building expertise and harnessing the learnings
- Working across and within systems – think in terms of collective impact instead of isolated impact
- Spreading what works



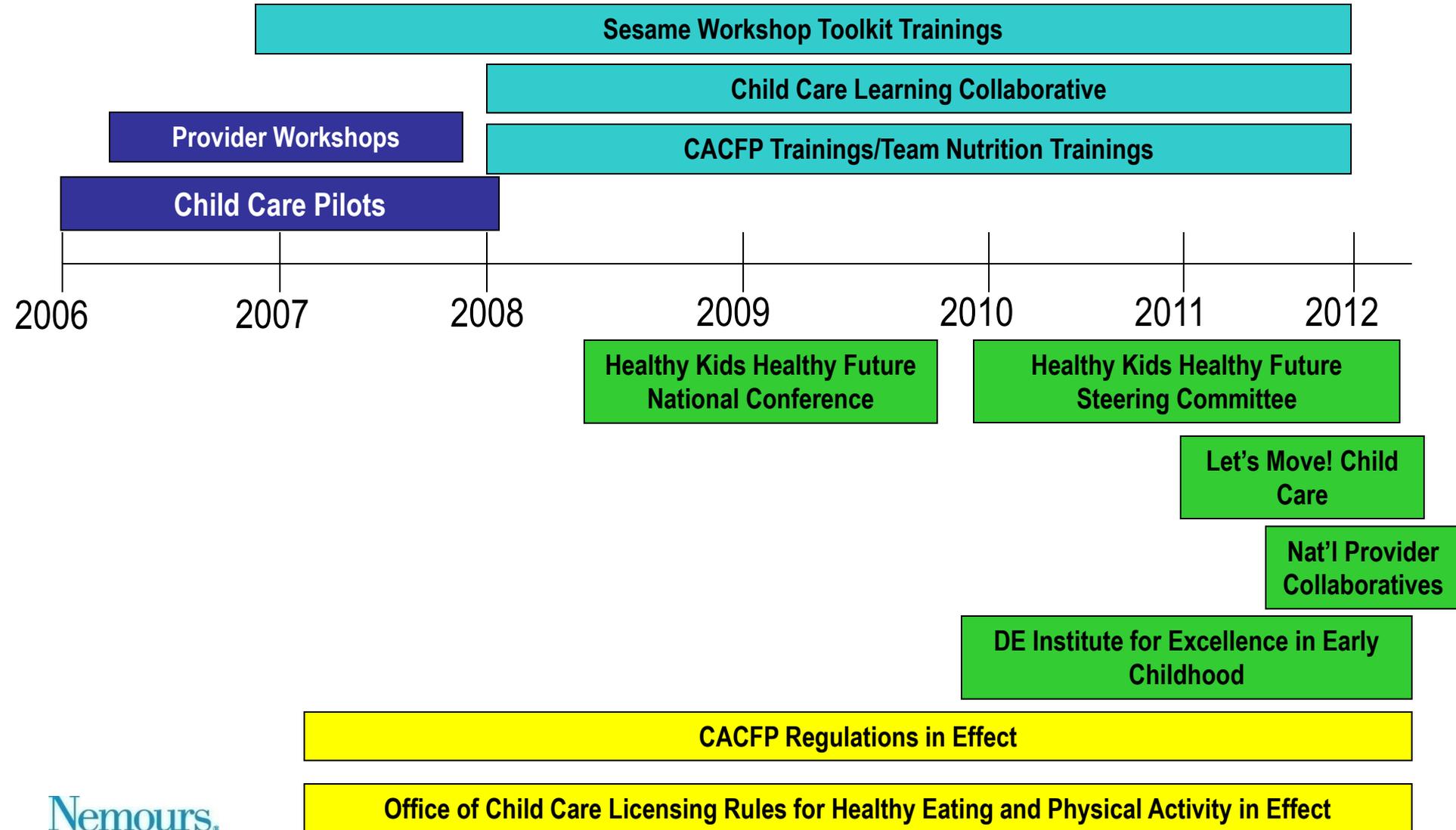
# Bringing Together the Right People

## Healthy Kids, Healthy Future

- Began laying the national groundwork for supporting obesity prevention in child care in 2009
- Co-chaired by Nemours and Centers for Disease Control and Prevention (CDC)
- Approximately 40 ECE and obesity prevention **experts** *bringing two siloed sectors together to be a catalyst for positive changes*
- Discuss and act on key issues including practice change, policy, and research and keep attention and momentum going



# Start Local – Spread and Scale



— FIGURE 1 —

## Spectrum of Opportunities for Obesity Prevention in Early Care and Education Settings



# Building Expertise in Early Care and Education (ECE)

- **Nemours Health and Prevention Services (NHPS) developed the Child Care Learning Collaborative (2008-present)**
  - Empowers child care providers with the tools to increase opportunities for healthy eating and physical activity for children in their care
- **Positive Results**
  - 100% of participating centers made changes to **either** healthy eating or physical activity practices and policies
  - 81% of participating centers made changes to **both** healthy eating and physical activity practices and policies
- **Examples of practices and policies changed:**
  - Making self-serve water available to children at all times
  - Replacing whole milk with 1% or skim milk, and
  - Creating a policy that devotes at least 60 minutes per day to active play



# Spreading What Works: Early Care and Education Learning Collaboratives (ECELC)

- CDC funding provided via cooperative agreement using **2012 Prevention and Public Health funds** from Health Reform Act
  - 5 year (2012-2017) project period
  - First year funding is \$4.2 million; up to \$20 million over 5 years
  - Project launched October 2012
- Nemours will bring its **evidence-based learning collaborative model** to scale nationally to achieve critical outcomes entered on:
  - (1) Increasing the number of child care facilities that meet the *Let's Move!* Child Care best practices in healthy eating, physical activity, breastfeeding and screen time; and
  - (2) Growing the numbers of young children attending programs that meet those best practices



# Spreading and Sustaining Success: Project Goals and Impact

Funding from the cooperative agreement will:

- ***Build on and adapt*** the curriculum developed and used by Nemours in Delaware
  - *Arizona*, Florida, Indiana, Kansas, Missouri and New Jersey
- ***Change outcomes*** in the following areas:
  - Increase percent of children who eat fruits and vegetables daily
  - Decrease percent of children who consume sugar drinks daily
  - Increase percent of children who have no more than 30 minutes per week of screen time
  - Increase percent of children who are provided age-appropriate physical activity daily

First year impact → Estimated 840  
ECE centers, serving 84,500 children  
in six states



# Case 2 Approach: Starting from the Clinical Setting



# Health Care Innovation Award: The Nemours/AIDHC Model

- Nemours expanded its population-based strategy to explicitly link to primary care
- **Project Goals**
  - To reduce asthma-related emergency department use among pediatric Medicaid patients in Delaware by 50% and asthma-related hospitalization by 50% by 2015, with incremental declines in 2013 and 2014
  - Other goals include:
    - Reduce asthma-related admissions and readmissions.
    - Improve the rate of flu counseling and/or vaccinations
    - Increase complete clinical adherence to evidence-based asthma guidelines
    - Increase the number of children reached by implemented policy, systems and environmental change strategies to support asthma-related child well-being from baseline of 0 to 50,000



# Optimizing Health Outcomes for Delaware's Children

## DRIVER DIAGRAM

**Overall Aim:** Integrate medical care with community-based, population health -with a focused intervention to improve health, improve health care, and reduce costs for children with asthma for A) Children receiving care at each of three Nemours primary care sites located in Wilmington, Seaford, and Dover; B) Children living in the surrounding communities as identified by the following ZIP codes: Wilmington (19801, 19802), Dover (19901, 19904), Seaford (19973 and 19956).

### Better Health

**By December 31, 2012: For population A:** 1) Reduce asthma admissions from a current rate of 0.7% to the lowest (good) national quartile: **0.1% (100 per 100,000)**. 2) Reduce Nemours asthma readmissions by half: **from 2.8% to 1.4%**. 3) Reduce Nemours asthma-related ED visits by half: **from 42% to 21%**.

**By June 30, 2013: For population A:** Reduce the average number of school days missed by 25% for the 2012-2013 school year as compared to the 2011-2012 school year.

**By June 30, 2015: For population A and B:** 1) Decrease asthma related ED use among pediatric patients. 2) Decrease asthma related ED use among pediatric patients on Medicaid from 25% to 12.5%. 3) Decrease asthma related hospitalizations among pediatric patients. 4) Decrease asthma related hospitalizations among pediatric patients on Medicaid from 0.3% to 0.15%.

### Better Health Care

**By June 30, 2013: For population A:** 1) Increase the % of children with asthma who are connected with a community resource for non-medical, health-related needs from 0% to greater than 50%. 2) Increase provision of directed educational and community resources from 0% to >75% of families identified as being at high risk for smoking exposure to the child.

**By June 30, 2015: For population A:** 1) Improve the rate of flu counseling and /or vaccine from 25% to >75%. 2) Increase complete clinician adherence to evidence-based asthma guidelines from 0% to 100%. 3) **For the state of Delaware:** Increase the number of children reached by implemented policy, systems and environmental change strategies to support asthma-related child well-being from baseline of 0 to 50,000.

### Reduced Costs

**For population A:** Reduce overall cost of care for patients with asthma, including Medicaid beneficiaries from a baseline annual cost of \$11,132,936 to: **\$10,020,458 by June 30, 2013; \$8,519,668 by June 30, 2014; \$6, 389,751 by June 30, 2015.**

### Primary Drivers

Enhancement of family-centered health home

Deployment of a "navigator" workforce

Development of "integrator" model surrounding each primary care site

Optimizing use of Information Technology

Model Sustainability

### Secondary Drivers

Develop a well-coordinated interdisciplinary approach to care

Provide case management of non-medical needs for high-need families

Hire Community Health Workers as part of practice teams to identify and address non-medical and community issues

Integrate Community Liaisons into practice teams

Partner with community leaders to affect environmental changes

Embed best practice guidelines in Nemours EMR and provide feedback to clinicians to guide practice improvement

Provide family-centered age-appropriate electronic health communications

Track service utilization statewide through the DHIN (Delaware Health Information Network) and use rapid cycle quality improvement strategies to make needed changes to model

Use data from this model to work with Delaware Medicaid and the Governor's Office to propose reimbursement strategies that would expand the model throughout the state of Delaware.

# Nemours' Proposed Model: DE Pilot

## Nemours Pediatrics patients with asthma

- Care coordination facilitated by registry
- One-on-one education
- Follow-up with care team, community health workers, psychologists and others as needed

## Nemours Pediatrics patients

- Team-based care
- Prevention focused
- Family centered medical home
- Patient and family education
- Shared decision making and parent/family empowerment

## Children with asthma in 6 targeted ZIP codes

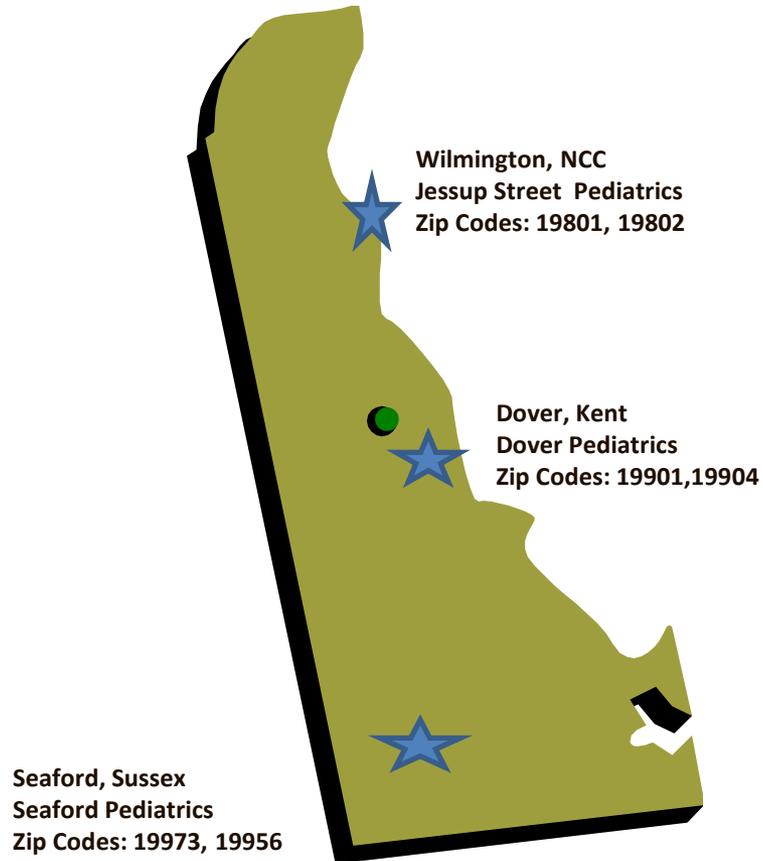
- Increased community capacity to work with children with asthma
- Coordination with school nurses and child care providers
- Community-wide asthma education
- Increased access to physical activity

## All children in 6 targeted ZIP codes

- Policy and practice changes to support healthy living
- Community Leadership Teams
- Environmental health training for providers
- Triple P and other parenting supports
- Smoking cessation and youth tobacco prevention programs

# The Population

## Delaware: The First State



# Current Status: 'In Progress and On Track'

- Partnerships/relationships
- Recruiting, hiring, training and deploying workforce
- Implementing Family Centered Medical Home
- Integrating Psychologists in Primary Care
- Integrating Navigator Workforce
- Establishing an Integrator Model
- Extending EMR to school setting so school and clinical systems are linked
- Monitoring Progress of CMMI
  - Robust evaluation – individual, systems and population outcomes
  - Systems for self monitoring in place
  - Implementation of self monitoring and QI processes
  - Alignment with Nemours strategic management system
  - CDC/CMMI
  - Revised Driver Diagram
- Population health learning collaborative
- Dissemination of early wins and lessons learned



# Stories from the Field

- Case story:
  - Community health worker introduced to Hispanic family of 4 year old boy in the office
  - Visited where he lived and found:
    - Lives in a trailer
    - 15 candles lit under the sink
    - No medicine in home
  - At the visit with Dr. 2 weeks previously, albuterol and preventive meds were prescribed but **never picked up**
  - Father doesn't think child has an asthma problem; believes child is "just fat and lazy"
  - Mother eventually brought what she did have: box with 2 brand new spacers in sealed plastic wrapping
- A mother's perspective:
  - Mother to Doctor:
    - *"You've really got to stop making me come in to the office for asthma follow-up; I can't keep missing work like this."*



# Spread, Scale and Sustainability

- Sustain change through impacting policies and practices in collaboration with community partners
- Pursue financial sustainability via various methods
  - Investigate opportunities to employ multiple funding streams simultaneously (pooling, blending, braiding, connecting, reallocating)
  - Develop innovative financing and payment systems to optimize population health and contain costs
  - Explore points of leverage (e.g., community benefit, civic goals, and/or cross-sector savings)
- Apply the model to other populations



# Exploring Financial Sustainability through Medicaid

- Myths about allowable use of Medicaid funds persist despite demonstrated success in the states in leveraging Medicaid for prevention initiatives
  - You can utilize non-traditional providers
  - You can provide services in non-traditional settings
  - You can provide non-medical services
  - You can reach beyond enrolled individuals
  - You can provide local programs
- Nemours releasing paper, ***Medicaid Funding of Community-Based Prevention – Myths, State Successes Overcoming Barriers and the Promise of Integrated Payment Models*** (June 2013)



# Lessons Learned

- Lessons from the innovation of CMMI awardees should be ***disseminated and translated*** into new policy and practice.
- ***Partnerships and collaboration between public health and Medicaid leaders*** are needed to increase investments in community-based prevention services.
- ***Financing*** is needed to support integrators who lead efforts to integrate Medicaid and public health to achieve goals.
- ***Evaluation of integrated payment models*** over a longer period of time is needed to give prevention strategies time to demonstrate return on investment and support actuarial analyses of prevention.
- ***Pathways for incremental reforms*** are needed to help states achieve the long term goals of delivery reform and population-based health.



# Summary of Key Principles

- Focus on child well-being outcomes for a geographic population and intervene early to prevent problems;
- Coordinate programs and connect services so that program silos are eliminated and children are better served;
- Develop a shared measurement system focused on improving child and family outcomes;
- Consider sustainability at front end and throughout the life of the project
- Reach children where they live, learn and play;
- Create policy and systems change/development to impact populations with sustainable change - essential elements of a comprehensive children's system in addition to practice changes;
- Be intentional about harnessing lessons learned to inform spread, scale and sustainability; and
- Identify the integrators and support them.



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**Debbie I. Chang, MPH**

Vice President, Nemours Policy and Prevention  
1201 15<sup>th</sup> Street, NW, Suite 520, Washington, DC 20005  
(p) 302.444.9127  
(e) [deborah.chang@nemours.org](mailto:deborah.chang@nemours.org)

[www.nemours.org](http://www.nemours.org)

[www.HealthyKidsHealthyFuture.org](http://www.HealthyKidsHealthyFuture.org)