

The Changing Pediatric Landscape

Child Health Corporation of America



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October 27, 2010



Agenda

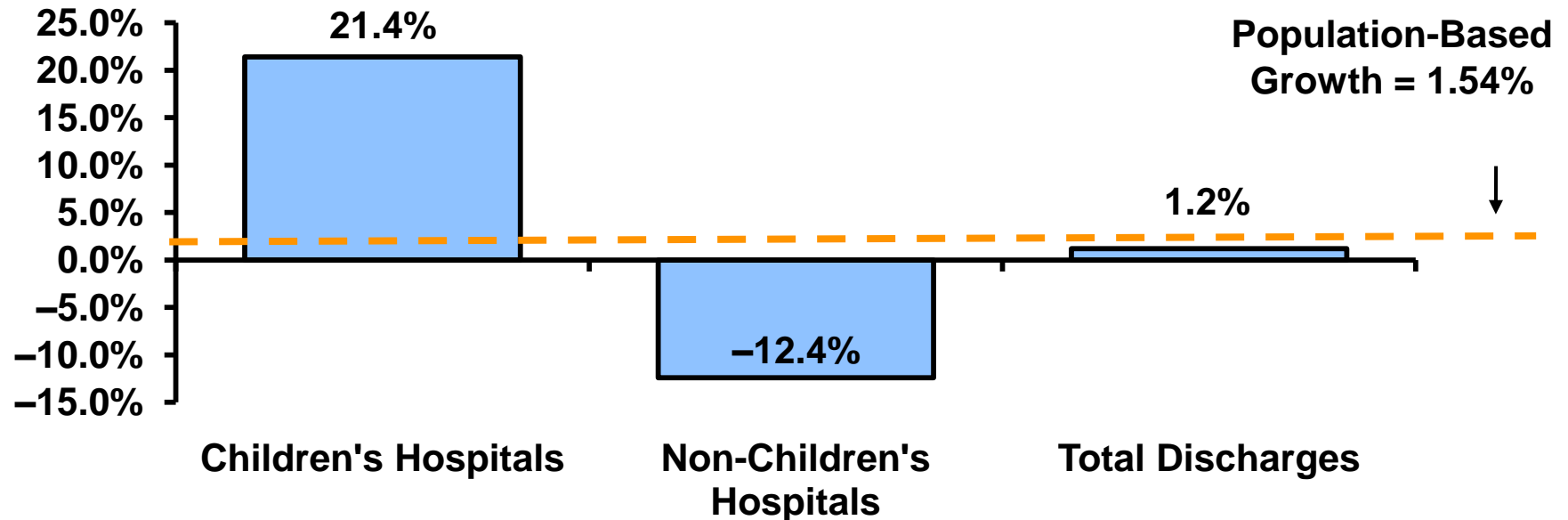
Current Landscape: Putting Data to Work

Future Trends Redesign Care Delivery

Care Evolution Has Changed the Pediatric Landscape

As overall pediatric admissions are declining to below population-based growth levels, tertiary providers are consistently growing their inpatient (IP) admissions.

Pediatric Medical/Surgical* Discharge Growth by Provider Type† Ages 0–17, US Market, 2000–2006



*Excludes diagnosis-related group (DRG) 391 (normal newborns).

†Provider type established with NACHTYPE codes, defined by the National Association of Children's Hospitals and Related Institutions and used within the Agency for Healthcare Research and Quality Kids' Inpatient Database (KID).

Sources: KID 2000, 2003 and 2006 databases. www.hcup-us.ahrq.gov/kidoverview.jsp. Accessed May 2009; Sg2 Analysis, 2009.

Trends Impacting Where Children Seek Care

Trends Impacting Pediatrics

1. Increased chronic disease
2. Improved survival
3. Physician shortage
4. Heightened consumer expectations

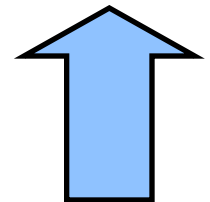
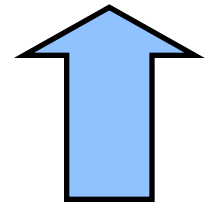
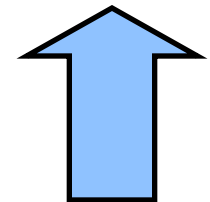
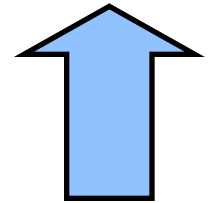
Implications

Utilization for complex services

Demand for subspecialists

Demand for high-investment niche care

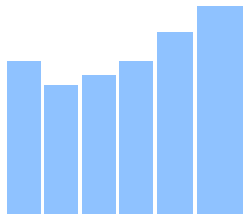
Shift from community to tertiary providers



That Was Then. This Is Now...



One thing for certain in healthcare is change.



Important to recognize that the historic drivers of growth are changing.

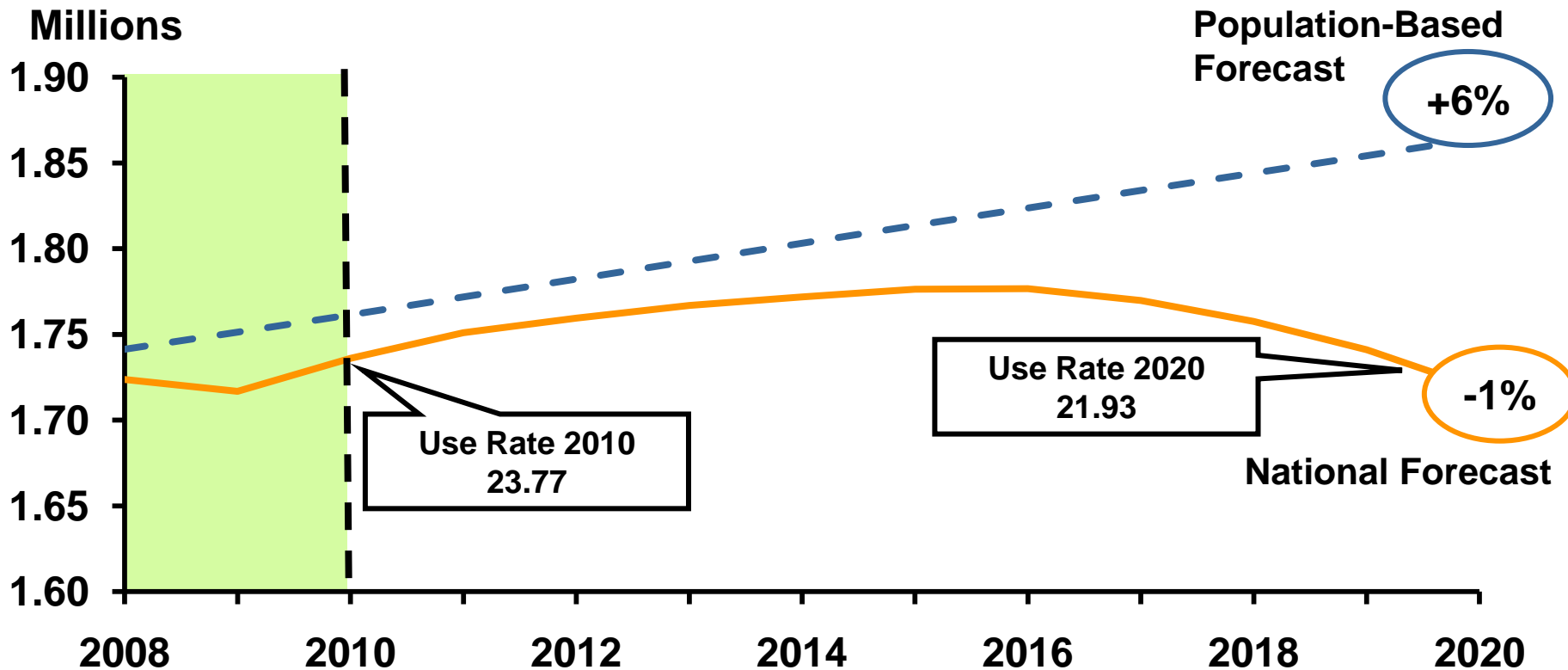


What will demand and case mix changes be in the future?

Anticipate Pediatric Inpatient Utilization to Decline Nationally



Inpatient National Pediatrics Discharge Forecast* US Market, 2010–2020



Note: Use rate is calculated by total discharges/population × 1,000.

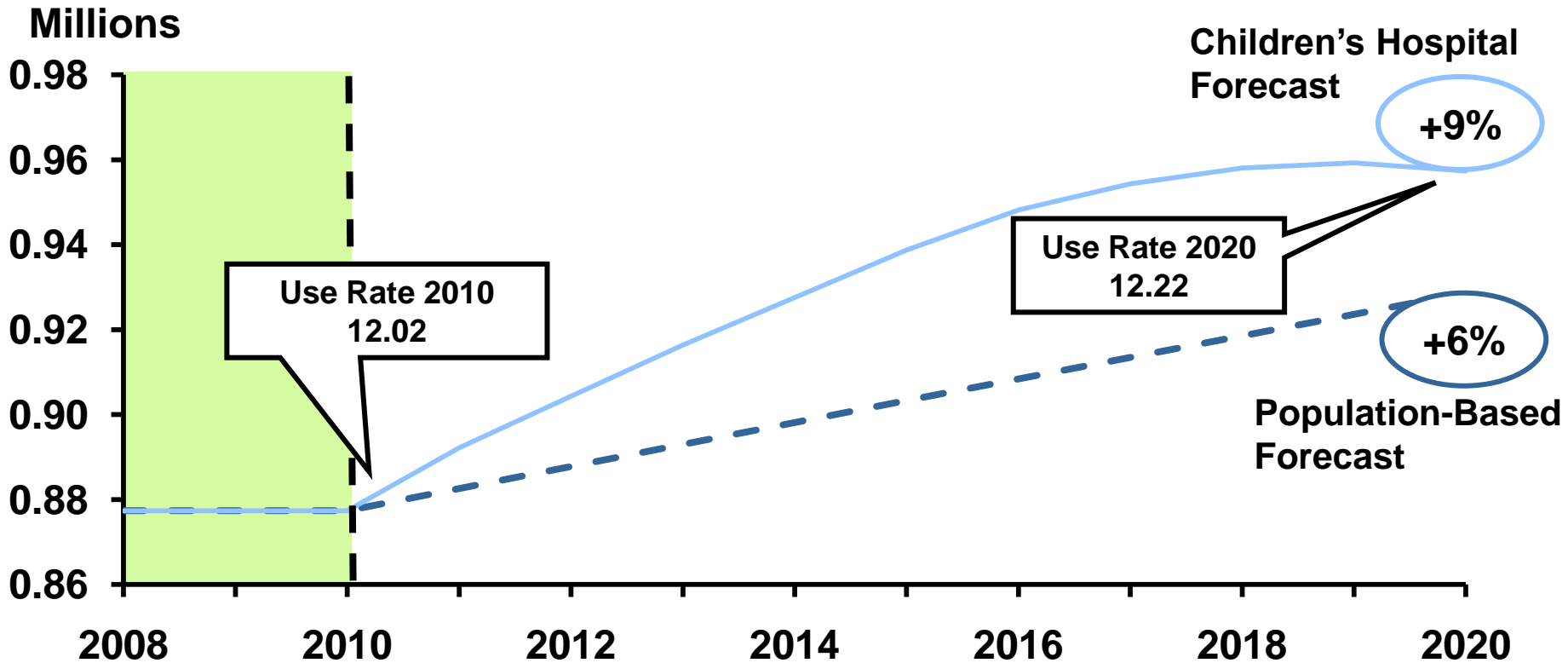
*Analysis excludes obstetrics, psychiatry, normal newborns, neonatology and gynecology.

Sources: Impact of Change® v9.0; NIS; Sg2 Analysis, 2010.

Discharge Growth for Children's Hospitals Continues at Slower Pace



Children's Hospital Inpatient Discharge Forecast* US Market, 2010–2020



Note: Use rate is calculated by total discharges/population × 1,000.

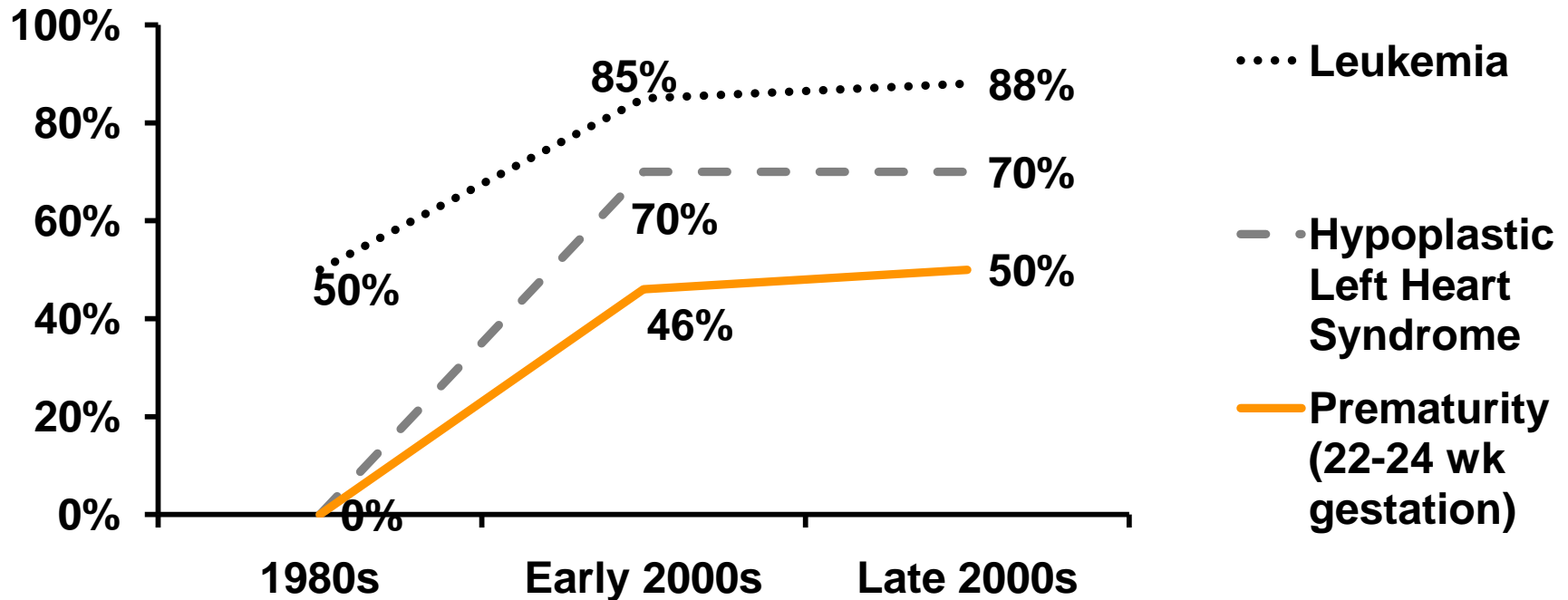
*Analysis excludes obstetrics, psychiatry, normal newborns, neonatology and gynecology.

Sources: Impact of Change® v9.0; NIS; Sg2 Analysis, 2010.

Dramatically Improved Survival Rates Leave Less Room for Improvement

Improved long-term survival has dramatically increased demand for complex care, so future demand will necessarily slow from historic pace.

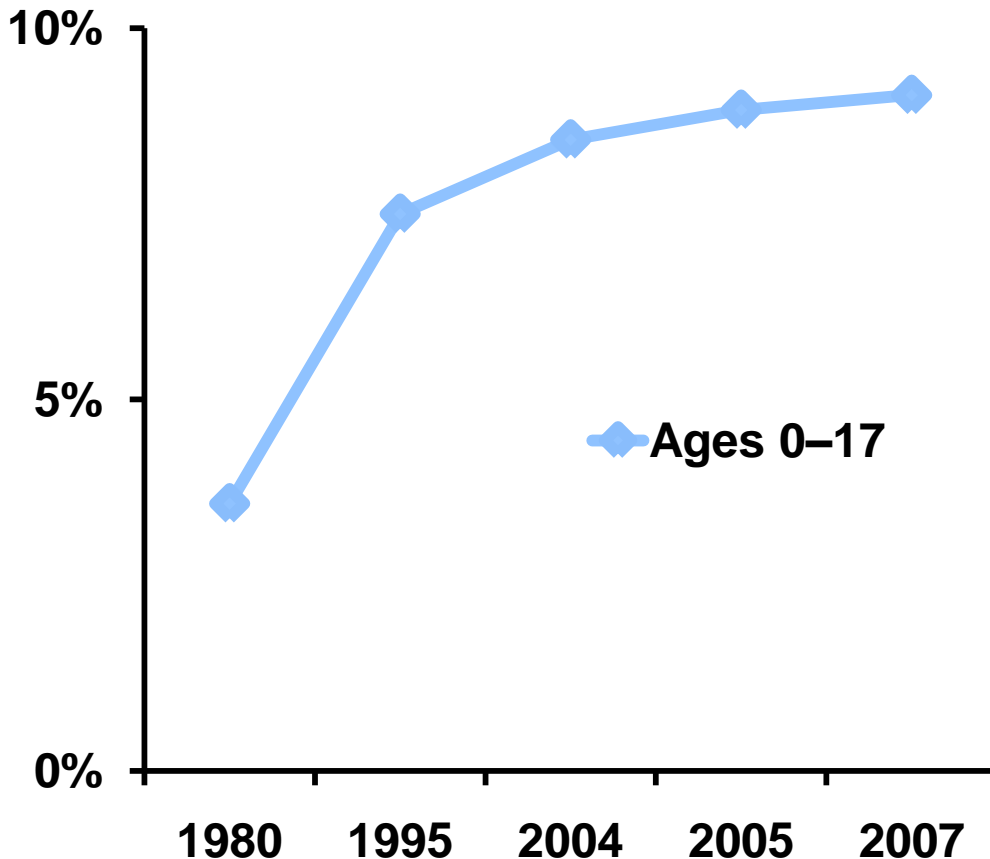
Survival Rates, Select Complex Pediatric Conditions



Sources: Pearson HA. *Pediatr Res* 2002;52:979–992; The Leukemia & Lymphoma Society. *Facts 2008-2009*; Ohye RG et al. Hypoplastic left heart syndrome and the staged Norwood procedure. *eMedicine* July 15, 2008.

Key Pediatric Diseases Are Also Beginning to Plateau

Prevalence of Pediatric Asthma

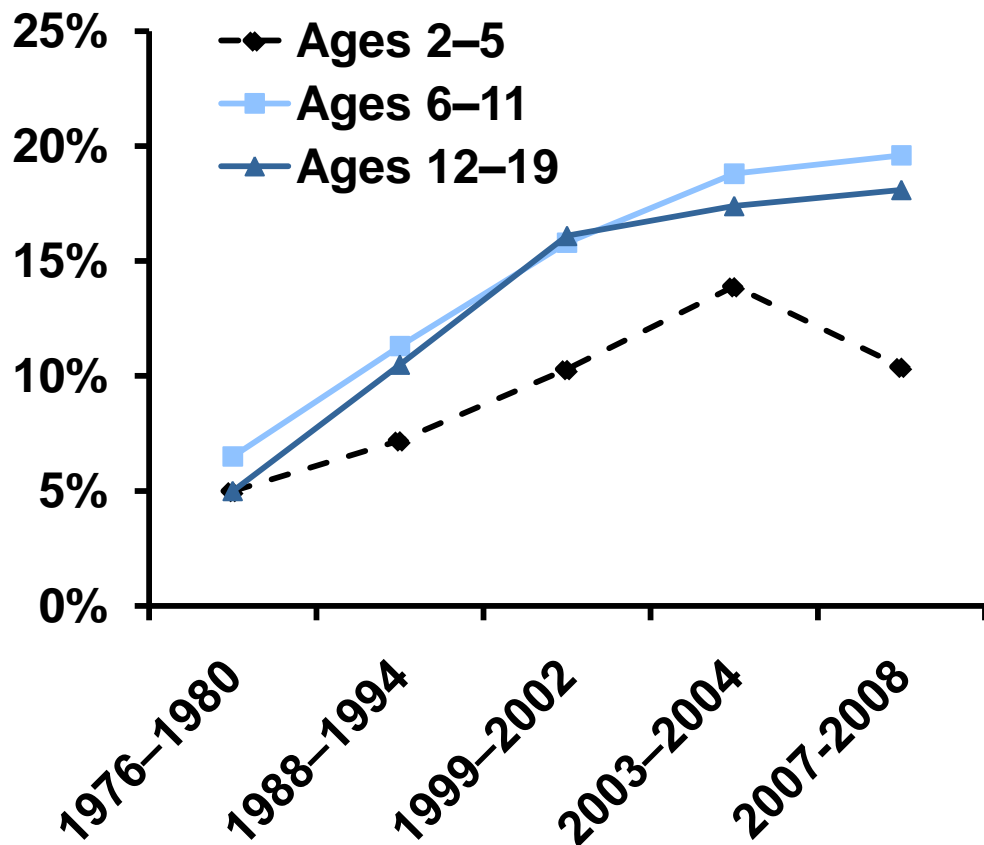


- Asthma prevalence rates showed dramatic increases from 1980 to late 1990s (3.5% to 7.5%) and then plateaued.
- Despite the plateau in asthma prevalence, ambulatory care for asthma has grown since 2000.
- IP discharges showed decline from 2000 to 2006:
 - Asthma without procedure: -11%
 - Asthma with procedure: -33%

Source: CDC. Summary Health Statistics for US Children. National Health Interview Survey 2007. www.cdc.gov/nchs/data/series/sr_10/sr10_239.pdf . Accessed June 2009.

Rising Childhood Obesity Leveling Off?

Prevalence of Pediatric Obesity

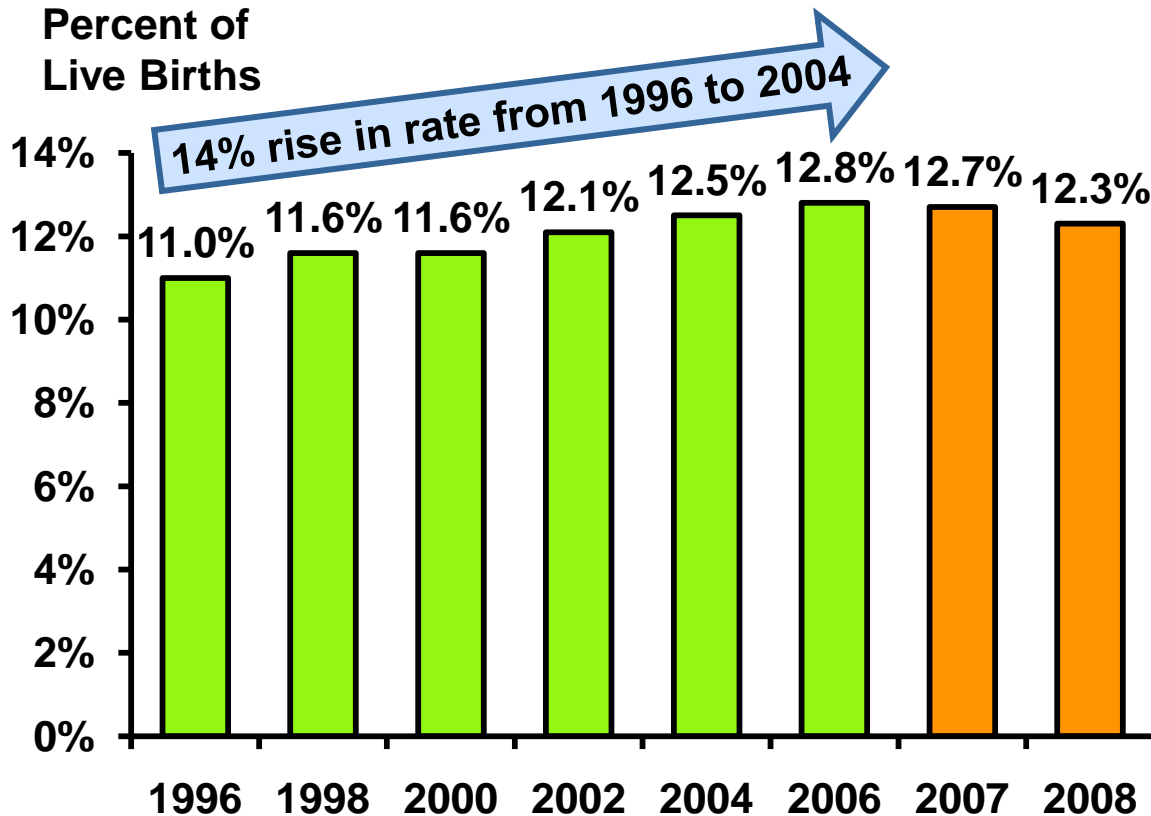


- Nearly 17% of children are obese today.
- However, recent CDC data show a leveling off:
 - From 1999 to 2008, the rate of high body mass index remained stable.
- Prevalence of high BMI actually declined from 2005-2008 for Ages 2-5 years.
- Obese children have more than twice the rate of hospitalization and emergency department visits

Source: Centers for Disease Control and Prevention (CDC). Overweight and obesity. www.cdc.gov/obesity/childhood/prevalence.html. Accessed August 2010; Thompson Healthcare and Child Healthcare Corporation of America. Pediatric Obesity: Implications for Pediatric Healthcare Providers, 2007; HealthLeaders Media, May 2008. Source; Kids' Inpatient Database 2000-2006.

Rise in Number of Premature Infants Will Decline With Care Innovation

Number of Preterm* Births, US, 1996–2008



- Perinatology advances decreased infant mortality but increased incidence of preterm births.
- There has been a 36% rise in preterm births since the 1980s.
- 2007 reported the first decline in preterm births.
- Care innovations (ie, molecular diagnostics, focus on lowering C-section rate, Gestiva™, advanced ART) will add small declines in preterm births in the next 5 to 10 years.

*Preterm = birth less than 37 weeks' gestation.

ART = assisted reproduction technologies.

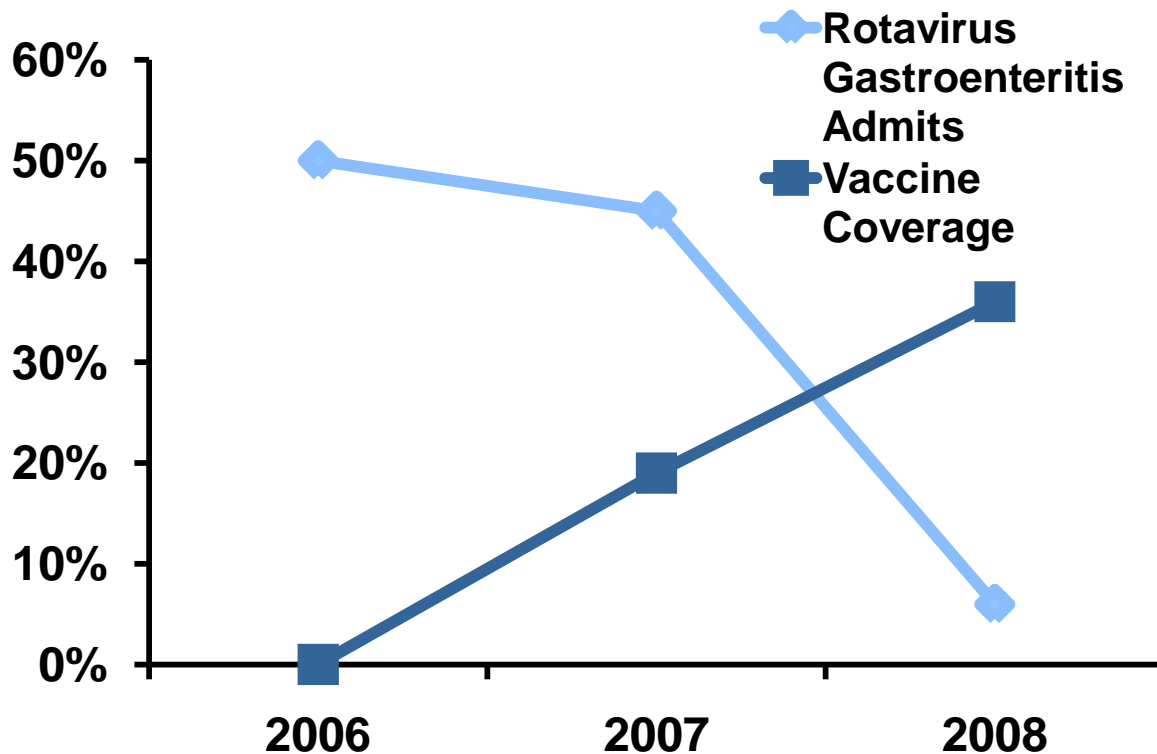
Sources: National Vital Statistics, April 2010. Final Natality Data. www.marchofdimes.com.

Accessed January 12, 2007; American College of Obstetricians and Gynecologists (ACOG), 2007.

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Vaccines Lead to Significant Declines in Infectious Disease Admissions

Rotavirus hospitalizations declined 84% from January 2006 to June 2008—after February 2006 licensure of Rotateq®.



- Data for children <3 years—from 3 US counties
- If extrapolated to US population, would account for a reduction of 22,000 hospitalizations for the year 2008

Source: CDC. *MMWR Morb Mortal Wkly Rep* 2008;57:697–700; National Respiratory and Enteric Virus Surveillance System. www.cdc.gov/surveillance/nrevss. Accessed June 2009; New Vaccine Surveillance Network. www.cdc.gov/vaccines/stats-surv/nvsn/default.htm. Accessed June 2009; Dr David Payne, Pediatric Academic Societies Presentation, Baltimore 2009.

Eligible Patient Population for Prenatal Genetic Screening Will Expand

Clinical application of genomics for reproduction will expand.

Today: Genetic carrier screening is offered to high-risk couples.

Established Tests

- Carrier screening (ie, Fragile X Syndrome, Tay Sachs Disease)
- Amniocentesis for fetal chromosomal abnormalities

Tomorrow: Genetic testing will be offered to all couples.

Emerging Tests

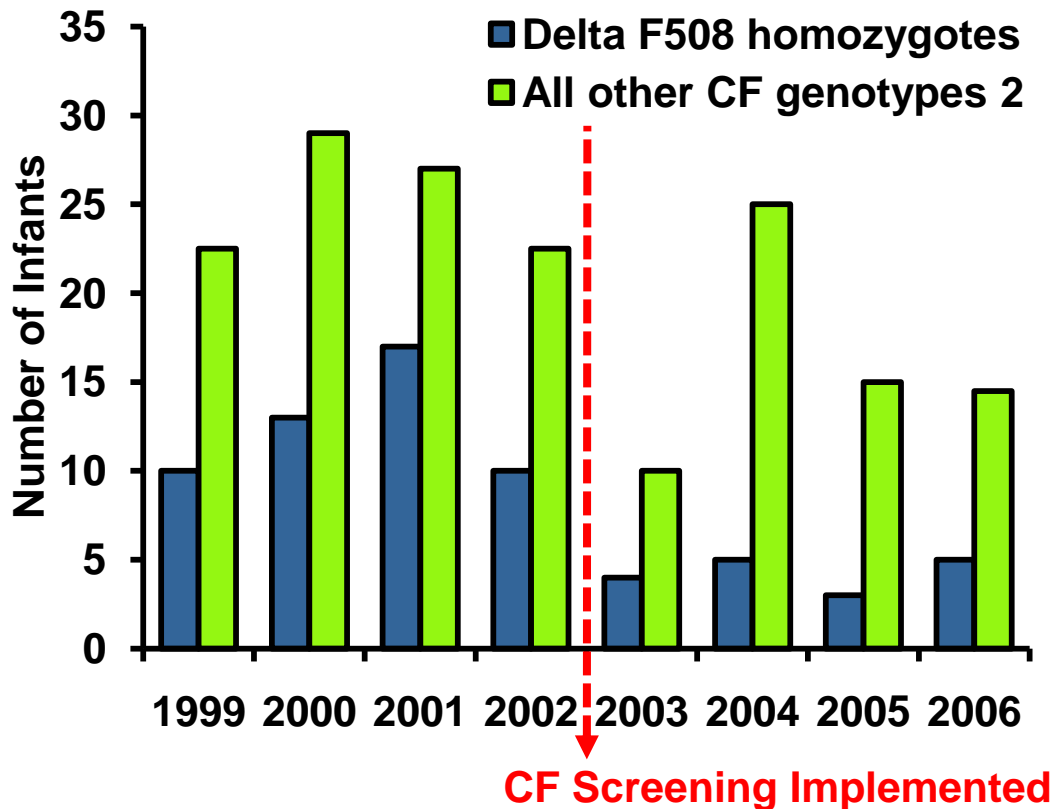
- Universal CF carrier screening
- Cell-free fetal DNA in maternal blood for chromosomal abnormalities
 - Fetal nucleic acid for aneuploidy, including Down syndrome

Key Considerations

- Providing comprehensive services will require genetic counselors and experienced technicians and pre-implantation genetic diagnosis services.
- Advanced screening capabilities will require high-tier ultrasound capability and access to lab-based testing facilities.
- Increased early identification of genetic disorders in the fetus or carrier status in the parents will lead to a decrease in births for certain disorders.

Genetic Carrier Screening Will Have New Implications

Cystic Fibrosis (CF) Incidence Rates Before and After Screening Implementation



- In 2001, ACOG and the National Institutes of Health recommended making preconception and prenatal CF screening available.
- New England Newborn Screening Program and the Massachusetts Cystic Fibrosis Newborn Screening Work Group compared incidence rates for CF before and after screening was implemented in Massachusetts.

Source: Hale JE et al. *N Engl J Med* 2008;358(9):973–974.

Down Syndrome Screening Expanded to All Pregnant Women

American College of Obstetricians and Gynecologists
Practice Guidelines, 2007



“Screening and invasive diagnostic testing for aneuploidy should be available to all women who present for prenatal care before 20 weeks of gestation regardless of maternal age.”

“First-trimester screening using both nuchal translucency measurement and biochemical markers is an effective screening test for Down syndrome in the general population.”

Discussion Section: Group Exercise I

1. Where has your organization experienced growth in complex and chronic disease?
2. How is your organization addressing changes in care demand and rising acuity?
3. Based on what you heard today, do you see the national trends described here applying to your local community?

Agenda

Current Landscape: Putting Data to Work

Future Trends Redesign Care Delivery

Expanded Coverage Begins Early for Kids

Rules & Revenue

Coverage Expansion

The Rest



2010 – 2012

- New revenue
 - ✓ 0.9% Medicare tax > \$200,000
 - ✓ Tax on dividends
 - ✓ Tax on devices
 - ✓ Reduced market basket update
- Insurance rules
 - ✓ **Guaranteed issue/renewal**
 - ✓ **Dependent coverage <26yrs**
 - ✓ **100% well child care coverage**

2013 – 2015

- Coverage expansion
 - ✓ Medicaid to 133% of FPL
 - ✓ Mandate on individuals/employers
 - ✓ Creation of insurance exchanges
- **Disproportionate Share Hospital (DSH) payment reductions begin**
 - **Medicaid reimbursement increased to 100% Medicare for pediatric care**
- Insurance rules
 - ✓ 3:1 rating band
 - ✓ Rescissions

2017

- Excise tax on “Cadillac” insurance plans
- **Disproportionate Share Hospital (DSH) payment cuts top out at 5.6 billion (30% reduction from 2009 total payments)**

Impact of Health Care Reform Will Shape Payment Incentives

Consequences of Health Care Reform Are Expected

Short Term

- Improvement in children's access to primary care services will stress capacity
- The benefits of a medical home are unfunded.
- Shift in payer mix will pose operational and profitability challenges for hospitals

Long Term

- DSH payment cuts will challenge children's hospitals ability to provide unprofitable services.

- Shifts in payment structure will incentivize prevention and reduce inpatient utilization

2010

2012

2014

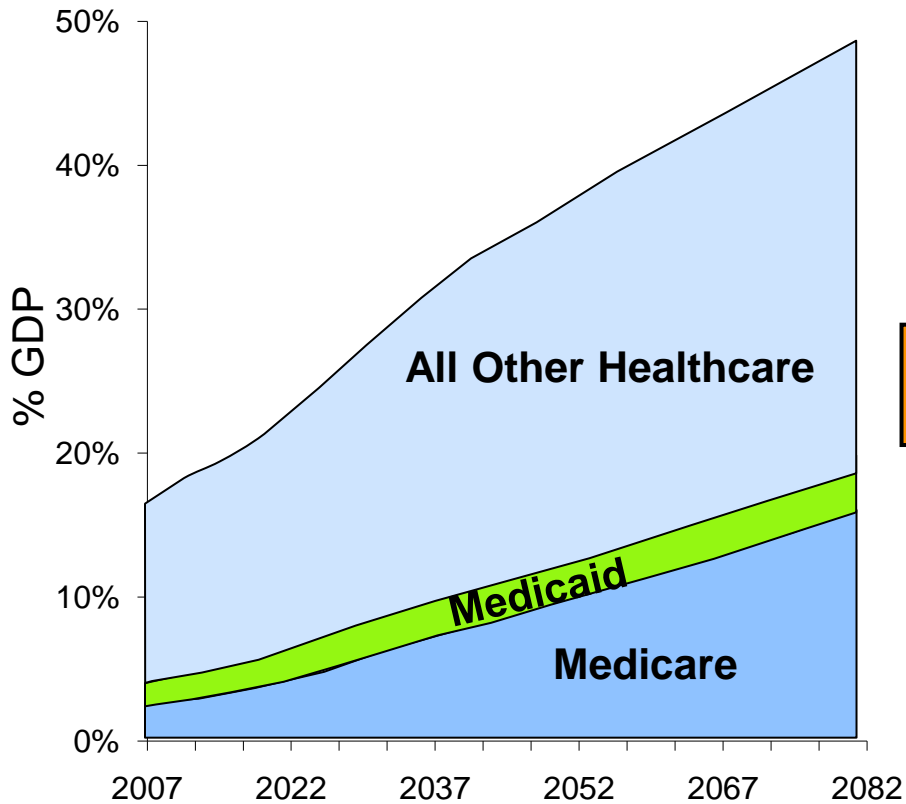
2016

2018

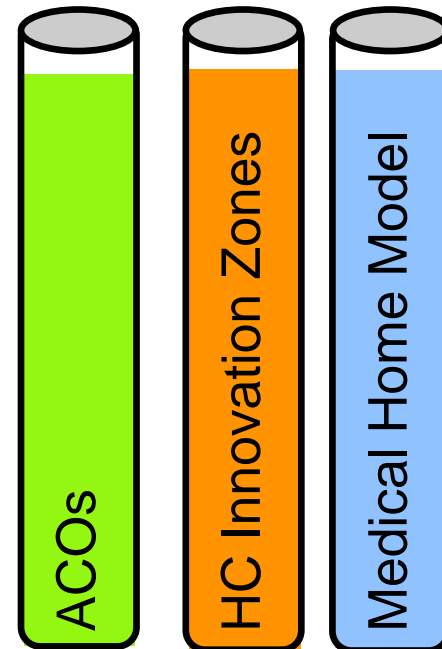
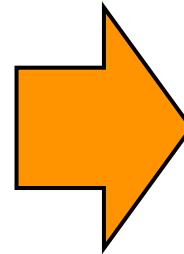
2020

Unsustainable Spending Will Force Providers to Assume More Risk

Projected Spending on Health Care as a Percentage of GDP, 2007–2082



- Bundled Payments
- Capitation 2.0
- Global Payments

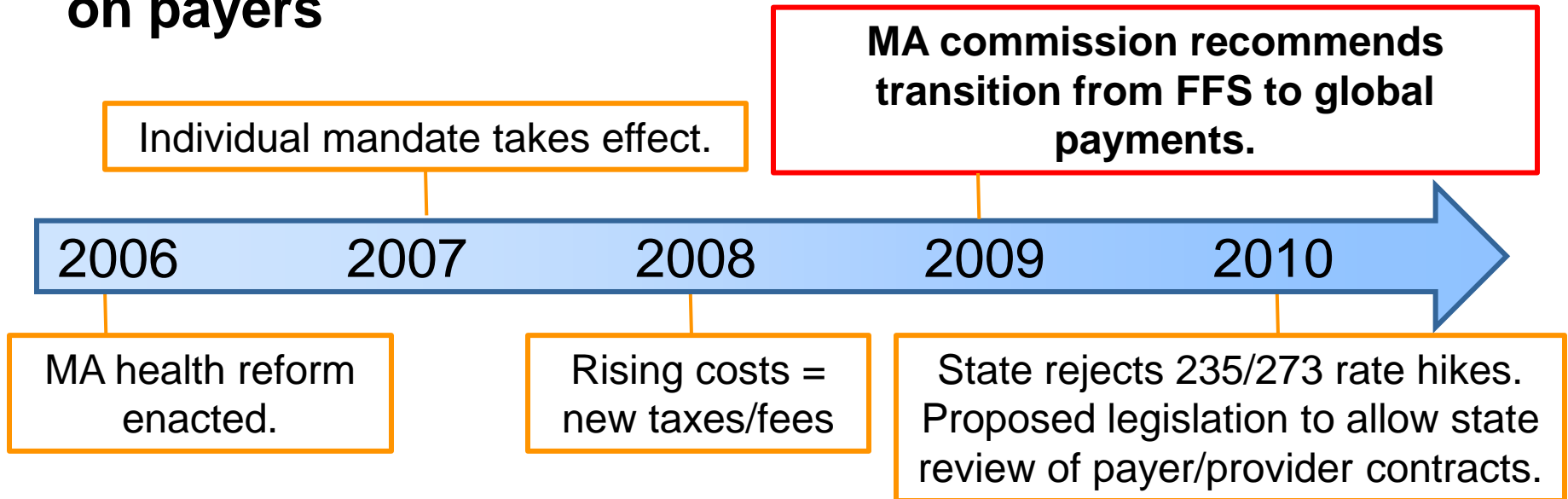


GDP = gross domestic product.

Source: Congressional Budget Office.

Massachusetts Foreshadowing: High Costs Lead to Payment Reform

Massachusetts provides clues to the impact of reform on payers



- 32% of BCBS HMO MA business has moved to global payments
- 20% of Tufts Health Plan business has moved to global payments

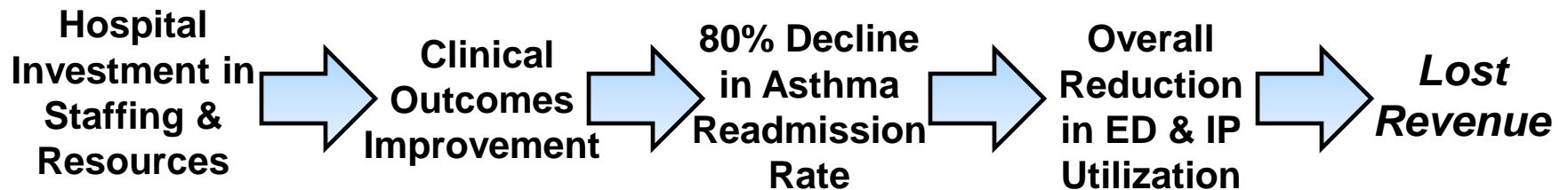
FFS = fee for service. Sources: Health care hikes rejected. *Boston Globe* April 2, 2010; Massachusetts Faces Costs of Big Health Care Plan. *New York Times* March 15, 2009; Sg2 Analysis 2010

The Fee For Service Conundrum

Successful Asthma Prevention Programs Result in Empty Beds

Children's Hospital Boston Community Asthma Program:

- Nurse Home visits
- Home inspections (mold, pests)
- Case Management
- Education to patient/families and public awareness (schools, community)
- Training on medication administration



Current Payment System Lacks Incentives for Prevention

Medical Home Model: Back to the Basics

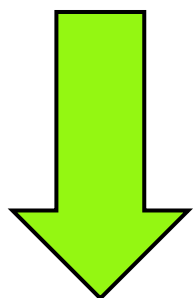
Call to Action

In 2000, 41% of Colorado private practices surveyed accepted Medicaid—by 2003 this decreased to only 24%.

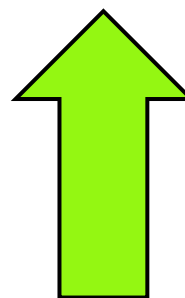
- Physicians reimbursed by Medicaid at only 50% of overhead cost
- Administrative challenges with Colorado Medicaid



Medicaid children without a primary care physician have increased health care costs and worse quality outcomes:



- Primary care visits
- Preventive care visits
- Immunization rate



- ED utilization rate
- Hospitalization rate

Sources: Todd J et al. *Pediatrics* 2006;118(2):577–585; Berman S et al. *Pediatrics* 2005;116(6):1474–1479; Interview with Dr. Steven Poole, the Children's Hospital, Aurora, CO.


Colorado Implements Incentives That Support the Medical Home Model

Solution—Colorado Children’s Healthcare Access Program (CCHAP) provides services and increased reimbursement to approved practices that agree to accept Medicaid.

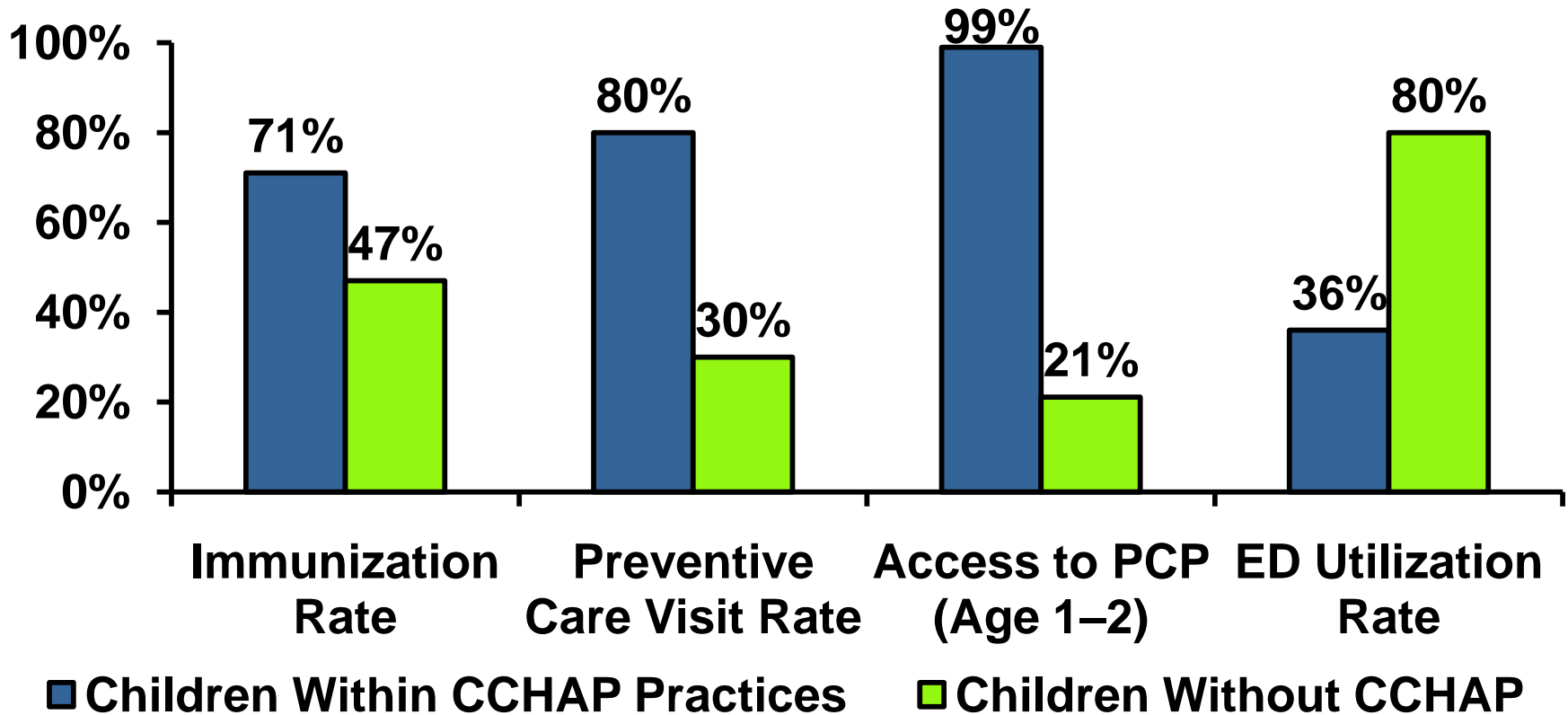
90% of CO private practices now accept Medicaid:

- 110 primary care offices throughout the state
- About 400 providers
- Over 80,000 kids

The numbers change every week

- 
- Enhanced provider reimbursement
 - Enrollment and eligibility assistance
 - Business systems review
 - **Social services support**
 - Mental health services
 - Case management/care coordination
 - Transportation
 - Becoming an effective medical home

Improved Clinical Outcomes and Lower Costs for Medical Home Model patients



- ✓ Children with CCHAP were one-third less likely to be hospitalized
- ✓ Staff and Family Satisfaction rates increased to >97%

PCP = primary care physician.

ACO's Introduce Standardization, Aligned Payment...

Case Example: Geisinger Health System, Danville, PA

Goal: Standardize evidence-based practice so patients receive the same level of care every time

Standardization Across the System of CARE

- Redesigned care delivered in pregnancy episode, using standard, evidence-based practices consistently
- Targeted modifiable processes by trimester, including education, testing and documentation
- Used consensus of providers to implement protocols

Payment for Episode of Care

- Implemented a bundled payment, based on a set cesarean section rate, for all pregnancy episodes

Preliminary Results After 8 months

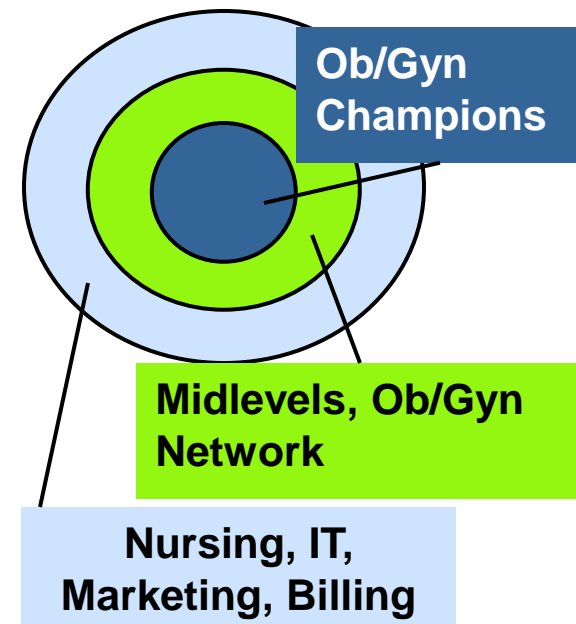
- Decreased c-section rate from 32% to 24%
- A decline in C-sections reduced adverse neonatal outcomes
- Significant cost savings was distributed to all physicians

IT = information technology.

Source: Sg2 Interview with Leslie Laam, Andrea Wary, Ruth Nolan and Kerry Potsko, Geisinger Health System, March 2010.

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Geisinger Concentric Circles of Consensus



Today's Metrics Will Shape Care Delivery Practices, Standardize Care

Today's Trends	Quality and Safety Measures	Tomorrow's Trends?
Rising Caesarean Section Rate	<ul style="list-style-type: none"> ▪ Newborn respiratory complications ▪ Birth trauma ▪ Maternal hemorrhage 	<ul style="list-style-type: none"> ▪ Decline in early, elective c-section rate due to increased neonatal complications
Asthma	<ul style="list-style-type: none"> ▪ Asthma readmission rate ▪ Asthma action plan ▪ Discharge follow up appointment scheduled 	<ul style="list-style-type: none"> ▪ Decline in asthma admissions and ED visits due to improved disease management
Diabetes	<ul style="list-style-type: none"> ▪ Hemoglobin A1C ▪ Area Level complicated diabetes admission rate 	<ul style="list-style-type: none"> ▪ fewer admissions for uncontrolled diabetes due to improved disease management and care coordination
Central Line-Associated BSI	<ul style="list-style-type: none"> ▪ Number of infection-free catheter days ▪ Compliance with infection control protocols 	<ul style="list-style-type: none"> ▪ Declines in length of stay due to universal adoption of infection control protocols

BSI = bloodstream infection.

Comparative Effectiveness Research Will Reshape Pediatric Care Delivery

CER is the direct comparison of existing interventions to determine which treatment works best, for whom and under what circumstances.

Sample of Institute of Medicine priorities for CER:

- Comprehensive care coordination programs (ie, medical home) for children with severe chronic disease.
- Screening, prophylaxis and treatment interventions in eradicated MRSA.
- School-based interventions in preventing and treating overweight and obesity in children and adolescents.
- Comprehensive support services models for infants and families following NICU discharge.
- Pediatric quality improvement strategies in disease prevention, acute care, chronic disease care and rehab services.
- Therapy management in children with cerebral palsy.
- Health outcomes of care coordination with(out) clinical decision support tools in chronically ill children using care.

50% of IOM priorities will impact pediatric care delivery.

25% are pediatric specific research.

\$1.1 billion of 2009 ARRA dedicated to CER.

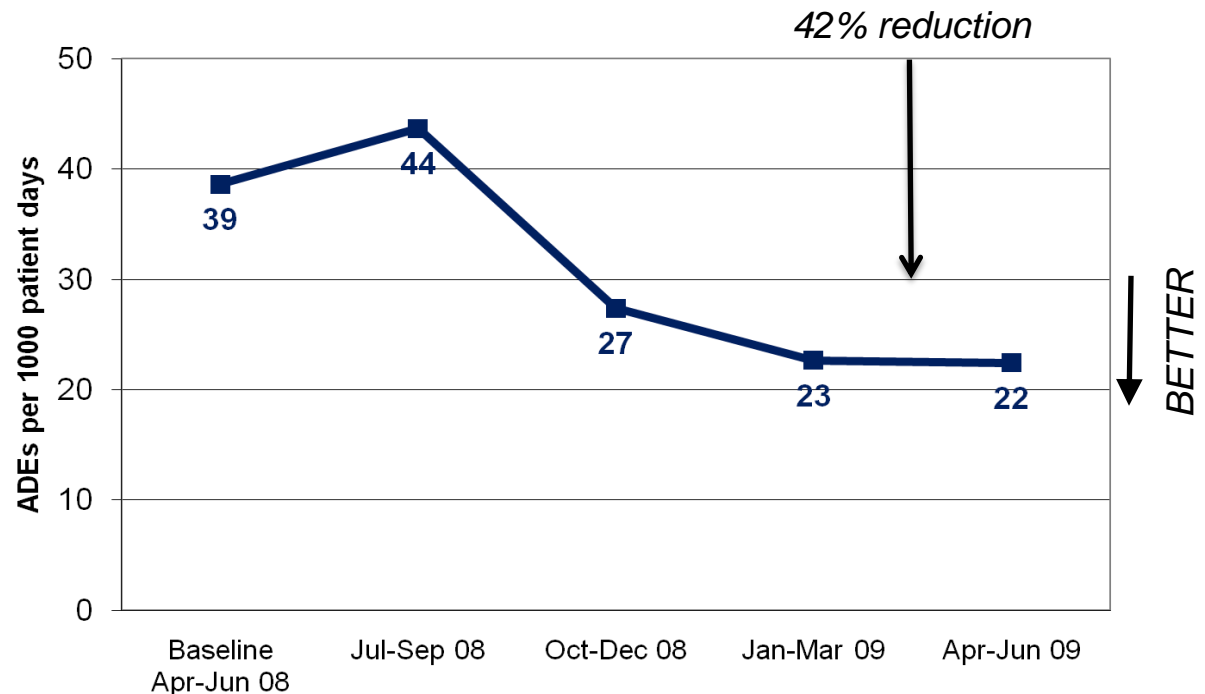
Source: IOM. 100 initial priority topics for comparative effectiveness research. In: Initial National Priorities for Comparative Effectiveness Research. National Academies Press: 2009. AARA = American Recovery and Reinvestment Act.

Performance Improvement Should be a Continuous Process

CHCA Adverse Drug Event Collaborative: Series II: 2008-2009

Second project in an ongoing series to reduce ADEs. Took lessons learned from 1st series and honed in on 4 drug classes, refined care protocols.

- ✓ Opioids
- ✓ Anticoagulants
- ✓ Insulin
- ✓ Total Parenteral Nutrition (TPN)



Results = 42% Reduction in ADEs and Estimated \$14M Savings

Innovation Around Family Needs Changes Care Delivery Standards

Family-Centered Care

- Parents are no longer “visitors,” they are now partners in care.
- Incorporates family centered rounding, 24/7 visitation policy, staffing designed for continuity of care, family education programs.
- Family amenities, including sleeping space, toilet and shower areas and respite, must be provided.
- Family advisory committees provide key input and perspective
- Special education programs reduce parental stress and result in decreased LOS.
- Encourages active family interaction with care team

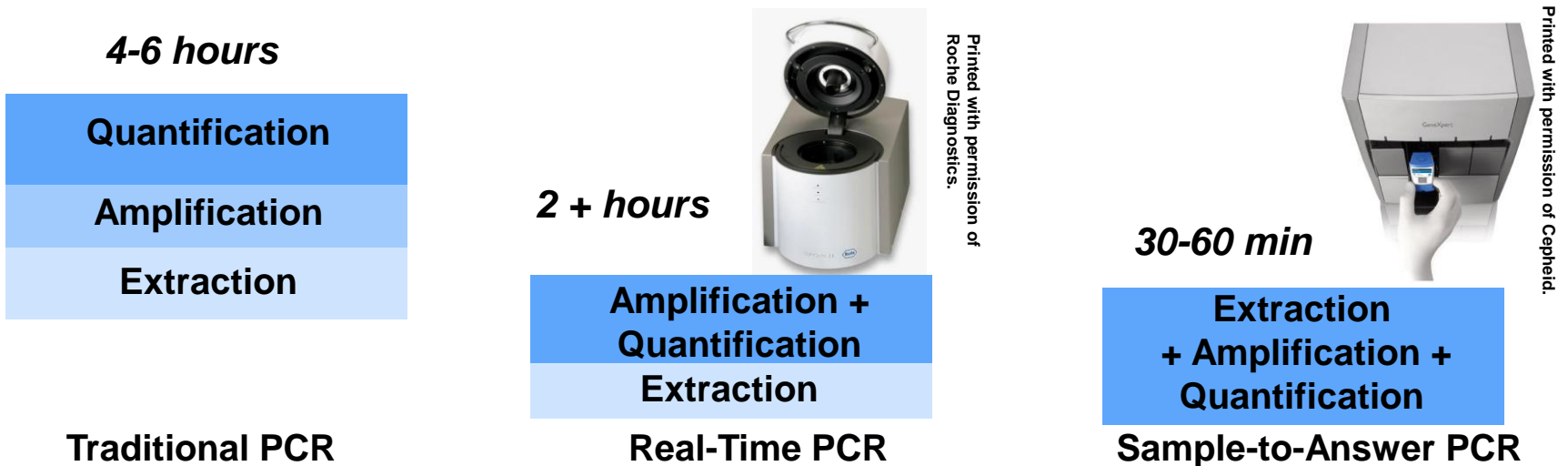
“Family-centered care in pediatric generally results in earlier discharges from hospitals, fewer re-hospitalizations, improved staff satisfaction and few lawsuits.”

American Academy of Pediatrics

Sources: Cincinnati Children’s Hospital Medical Center PAS Workshop, May 14, 2005; Muething SE et al. *Pediatrics* 2007;119:829–832; Sisterhen LL et al. *Teach Learn Med* 2007;19:319–322; Sg2 Analysis, 2010.

Technology Advances Alter Traditional Care Pathways

Molecular Tests Move to Frontline Patient Management



Migration Away From the Centralized Lab

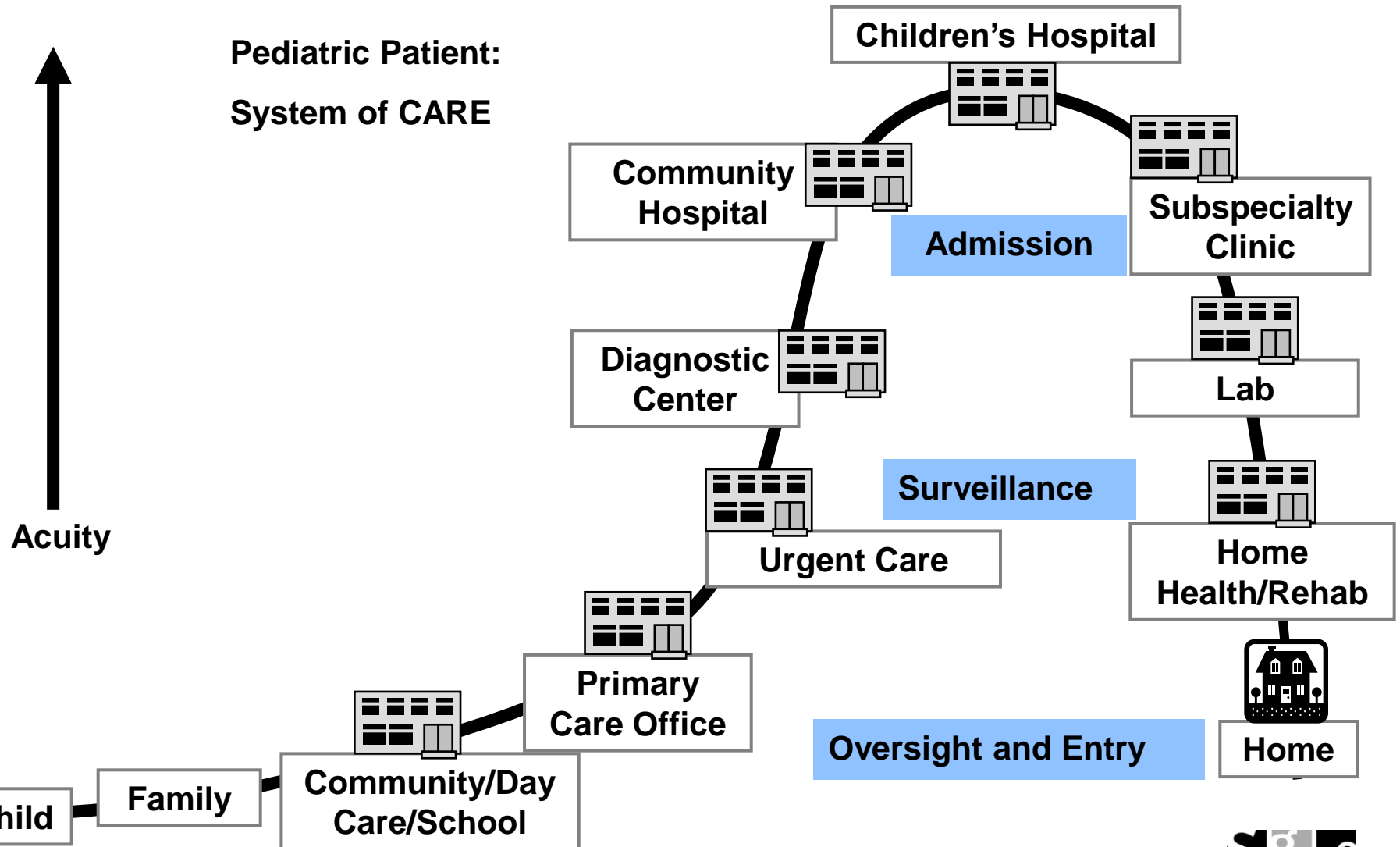
OR, ED, delivery, ICU, physicians office

- ✓ Allows for rapid identification of a microorganism
- ✓ Waiting for culture results will become obsolete
- ✓ Improves ED Triage and allows for outpatient shift for many viral infections
- ✓ Replaces empirical use of broad spectrum antibiotics with targeted therapies

Rapid Infection Test Offerings Address a Variety of Conditions

Scenario	Relevant Tests	Advantages
Suspected meningitis	Enterovirus	<ul style="list-style-type: none"> ▪ Distinguishes viral from bacterial meningitis ▪ Reduces inappropriate admissions
Respiratory infection	Respiratory viral panel (RSV A/B, Flu A/B, emerging ,epidemic strains)	<ul style="list-style-type: none"> ▪ Distinguishes viral strains and subtypes important for patient management, public health and pandemic surveillance
ICU, admission, pre-surgical	MRSA, VRE, VISA (mecA, vanA, vanB genes)	<ul style="list-style-type: none"> ▪ Detects carriers to reduce HAIs ▪ Improves antibiotic use ▪ Reduces transmission and outbreaks
UTI, BSI, tissue infection	Speciation and rapid antimicrobial sensitivity	<ul style="list-style-type: none"> ▪ Used for rapid diagnosis of suspected drug-resistant infections speeds time to appropriate treatment
Diarrhea	<i>Clostridium difficile</i>	<ul style="list-style-type: none"> ▪ Sensitivity surpasses EIA; TAT surpasses toxic culture and other gold standards
Preterm delivery	Group B streptococcus	<ul style="list-style-type: none"> ▪ Detects colonization or infection in peripartal mothers to prevent transmission to infants
Abdominal pain	Chlamydia/Gonorrhea	<ul style="list-style-type: none"> ▪ Rapid rule out for STD-related pelvic inflammatory disease, may replace pelvic exam

Shift your Perspective from a Facility to an Integrated Network

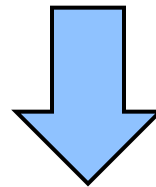
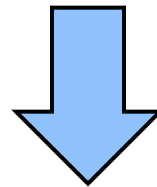
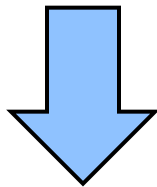
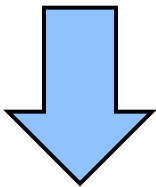


Discussion Section: Group Exercise II

1. How are you reshaping your organization in response to health care reform?
2. Based on what you heard today, do you see the medical home model or other payment models impacting your organization?

The Changing Pediatric Landscape: Key Takeaways

- Pace of survival rate gains will slow down.
- Incidence rates for key chronic diseases will plateau.
- Shift to more government funded and regulated health care will focus on prevention and outcomes data.
- Clinical outcomes data will direct care delivery and be linked to payment.
- Clinical innovation in pediatrics will improve diagnosis, prevent disease, and treat more effectively a variety of conditions.



Transformation in Care Delivery



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