Pediatric Population Health

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Objectives

• Understand what “Population Health” is and what the implications are for how we deliver care.
• Understand how population health is different in pediatrics than adult care
• Understand practical strategies for improving care through population health management
• Understand the health system changes needed to support value-based pediatric care
Summary

This US spends the most of all industrialized countries on health care and has some of the poorest health outcomes. Lowering costs will depend on redesign of care delivery.

Better outcomes will depend on how we address the social determinants of health.
Crisis In Healthcare

• Unsustainable Costs
• Poor Outcomes
US Spending on Healthcare

Average Spending/Yr Person = $9086

Source: OECD Health Data 2015.
Health Spending on Children As A Percentage of Total Spending on Children 1960-2013

State Expenditures on Medicaid and K-12 Education

Source: NASBO State Expenditure Reports

Health Spending on Children
Distribution of Spending

Only 2% of Medicaid recipients account for 25% of program’s spending

Kaiser Commission for Medicaid and the Uninsured for Center for Health Care Strategies
Figure 2

Medicare per capita spending was nearly four times higher for decedents than survivors in 2014

*Average Medicare per capita spending for decedents and survivors in traditional Medicare, 2014*

<table>
<thead>
<tr>
<th>Category</th>
<th>2014 expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>All traditional Medicare beneficiaries</td>
<td>$10,126</td>
</tr>
<tr>
<td>Decedents</td>
<td>$34,529</td>
</tr>
<tr>
<td>Survivors</td>
<td>$9,121</td>
</tr>
</tbody>
</table>

NOTE: Excludes beneficiaries in Medicare Advantage.
SOURCE: Kaiser Family Foundation analysis of a five percent sample of 2014 Medicare claims from the CMS Chronic Conditions Data Warehouse.
Distribution of spending for health care services by spending group for children in Medicaid.

<table>
<thead>
<tr>
<th>Spending Group</th>
<th>Spending per Child</th>
<th>Top 5 Health Services With the Most Spend</th>
<th>Percentage of Total Expenditures Within Each Spending Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least Expensive</td>
<td>&lt;$291</td>
<td>Primary Care</td>
<td>Primary Care</td>
</tr>
<tr>
<td>80% of Children</td>
<td></td>
<td>Dental</td>
<td>Dental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty</td>
<td>Specialty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Testing</td>
<td>Testing</td>
</tr>
<tr>
<td>Next Most Expensive</td>
<td>$292–680</td>
<td>Mental Health</td>
<td>Mental Health</td>
</tr>
<tr>
<td>15% of Children</td>
<td></td>
<td>Therapy</td>
<td>Therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency</td>
<td>Emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inpatient</td>
<td>Inpatient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary Care</td>
<td>Primary Care</td>
</tr>
<tr>
<td>Next Most Expensive</td>
<td>$680–2610</td>
<td>Mental Health</td>
<td>Mental Health</td>
</tr>
<tr>
<td>4% of Children</td>
<td></td>
<td>Inpatient</td>
<td>Inpatient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy</td>
<td>Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty</td>
<td>Specialty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Therapy</td>
<td>Therapy</td>
</tr>
<tr>
<td>Most Expensive</td>
<td>&gt;$2610</td>
<td>Inpatient</td>
<td>Inpatient</td>
</tr>
<tr>
<td>1% of Children</td>
<td></td>
<td>Mental Health</td>
<td>Mental Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty</td>
<td>Specialty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy</td>
<td>Pharmacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Therapy</td>
<td>Therapy</td>
</tr>
</tbody>
</table>

Average Spending/Yr Child = $2664
Drivers of Increasing Cost

Population Changes
- Population growth – esp baby boomers
- Living Longer/More Chronic Conditions
- Less healthy environments
Drivers of Increasing Cost

Health System Financing
  • Fee-for-Service/Pay for Volume
  • The ‘business’ of healthcare
Drivers of Increasing Cost

Health Care Delivery System

• Biomedical Advances/Procedure oriented care
• Waste - Fragmented, uncoordinated care – redundant care

From: Chris Trimble, Beyond the Idea
Drivers of Increasing Cost

Health Care Delivery System
  • Biomedical Advances/Procedure oriented care
  • Waste - Fragmented, uncoordinated care – redundant care
## Select Population Health Outcomes and Risk Factors

<table>
<thead>
<tr>
<th></th>
<th>Life exp. at birth, 2013*</th>
<th>Infant mortality, per 1,000 live births, 2013*</th>
<th>Percent of pop. age 65+ with two or more chronic conditions, 2014b</th>
<th>Obesity rate (BMI&gt;30), 2013c,d</th>
<th>Percent of pop. (age 15+) who are daily smokers, 2013e</th>
<th>Percent of pop. age 65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>82.2</td>
<td>3.6</td>
<td>54</td>
<td>28.3c</td>
<td>12.8</td>
<td>14.4</td>
</tr>
<tr>
<td>Canada</td>
<td>81.5c</td>
<td>4.8c</td>
<td>56</td>
<td>25.8</td>
<td>14.9</td>
<td>15.2</td>
</tr>
<tr>
<td>Denmark</td>
<td>80.4</td>
<td>3.5</td>
<td>—</td>
<td>14.2</td>
<td>17.0</td>
<td>17.8</td>
</tr>
<tr>
<td>France</td>
<td>82.3</td>
<td>3.6</td>
<td>43</td>
<td>14.5cd</td>
<td>24.1d</td>
<td>17.7</td>
</tr>
<tr>
<td>Germany</td>
<td>80.9</td>
<td>3.3</td>
<td>49</td>
<td>23.6</td>
<td>20.9</td>
<td>21.1</td>
</tr>
<tr>
<td>Japan</td>
<td>83.4</td>
<td>2.1</td>
<td>—</td>
<td>3.7</td>
<td>19.3</td>
<td>25.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>81.4</td>
<td>3.8</td>
<td>46</td>
<td>11.8</td>
<td>18.5</td>
<td>16.8</td>
</tr>
<tr>
<td>New Zealand</td>
<td>81.4</td>
<td>5.2c</td>
<td>37</td>
<td>30.6</td>
<td>15.5</td>
<td>14.2</td>
</tr>
<tr>
<td>Norway</td>
<td>81.8</td>
<td>2.4</td>
<td>43</td>
<td>10.0d</td>
<td>15.0</td>
<td>15.6</td>
</tr>
<tr>
<td>Sweden</td>
<td>82.0</td>
<td>2.7</td>
<td>42</td>
<td>11.7</td>
<td>10.7</td>
<td>19.0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>82.9</td>
<td>3.9</td>
<td>44</td>
<td>10.3d</td>
<td>20.4d</td>
<td>17.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>81.1</td>
<td>3.8</td>
<td>33</td>
<td>24.9</td>
<td>20.0d</td>
<td>17.1</td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td><strong>78.8</strong></td>
<td><strong>6.1c</strong></td>
<td><strong>68</strong></td>
<td><strong>35.3d</strong></td>
<td><strong>13.7</strong></td>
<td><strong>14.1</strong></td>
</tr>
<tr>
<td>OECD median</td>
<td>81.2</td>
<td>3.5</td>
<td>—</td>
<td>28.3</td>
<td>18.9</td>
<td>17.0</td>
</tr>
</tbody>
</table>

* Source: OECD Health Data 2015.

b Includes: hypertension or high blood pressure, heart disease, diabetes, lung problems, mental health problems, cancer, and joint pain/arthritis. Source: Commonwealth Fund International Health Policy Survey of Older Adults, 2014.
What Do We Need To Do?

- Improve lower the costs of our care delivery system
- Improve health outcomes for our population
Redesigning Health Care

Triple Aim

- Improve individual experience
- Improve population health
- The best care
- For the whole population
- At the lowest cost
- Control inflation of per capita costs
Value in Health Care

Value = Quality/Costs

VMMC Quality Equation

\[ Q = A \times \left( O + \frac{S}{W} \right) \]

- **Q**: Quality
- **A**: Appropriateness
- **O**: Outcomes
- **S**: Service
- **W**: Waste
Health care Innovation:
Impact of Delivery Innovation
Redesign - Remove Clinical Wastes

**WASTE**
- Variation in treatment
- Too Much Care
- Fragmented care
- Too little care
- Patient non-compliance
- High costs setting
- Poor Access
- Episodic of care

**CARE CHANGE**
- Clinical Standardization
- Integration
- Shared info
- Treat panel
- Patient Engagement
- Care Teams
- Holistic Care
Redesign - Areas of Clinical Need in Pediatrics

Majority of Kids
- Primary Care
- Emergency Care
- Behavioral Health
- Therapies

Minority of Kids
- Inpatient
- Specialty
Pediatric Care Redesign to Improve Care/Costs

- Primary Care Panel Management
- Enhanced Access
- Integrated Behavioral Health
- Care Management & Coordination
- Children with Medical Complexity
Patient-Centered Medical Home

- Patient-Centered Access
- Team-Based Care
- Population Health Management
- Care Coordination
- Performance Measurement and Quality Improvement
- Care Management

PCMH
Pediatric ACO's

Bridging the Gap

Fee for Service | Accountable Care
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Accountable Care Core Components

<table>
<thead>
<tr>
<th>Population Health &amp; Risk Stratification</th>
<th>Patient Centric Systems of Care</th>
<th>Coordinate Care Across Providers</th>
<th>Payor Partnerships</th>
<th>Payment Reform</th>
</tr>
</thead>
</table>
| IT Infrastructure
Better Health, Better Care, Lower Cost
WHAT IS POPULATION HEALTH?

NARROW DEFINITION
• SPECIFIC INTERVENTIONS TO ADDRESS THE HEALTH NEEDS OF ATTRIBUTED AND DISCRETELY DEFINED SUBPOPULATIONS
• AKA POP HEALTH MANAGEMENT

BROAD DEFINITION
• THE HEALTH OUTCOMES OF A GROUP OF INDIVIDUALS, INCLUDING THE DISTRIBUTION OF SUCH OUTCOMES WITHIN THE GROUP
• SEEKS TO ADDRESS THE LARGE-SCALE SOCIAL, ECONOMIC, AND ENVIRONMENTAL ISSUES THAT IMPACT HEALTH OUTCOMES
Population Health: Conceptual Framework

Health outcomes and their distribution within a population

Health determinants that influence distribution

Policies and interventions that impact these determinants

Morbidity
Mortality
Quality of Life

Medical care
Socioeconomic status
Genetics

Social
Environmental
Individual
Determinants of Health
Which is more important to Health Outcomes – Genetic Code or Zip Code?
Life Expectancy – King County
Determinants of Health

Source: Elizabeth Bradley, PhD at http://www.slideshare.net/UHCF/e-bradley-quinnipiac42515
Health and Social Care Spending as a Percentage of GDP

Notes: GDP refers to gross domestic product.
Ratio of spending on social:health services and impact on Health Outcomes in US

Social Needs, Health and Navigation

• Social Needs Assessment at all clinic and urgent care visits
  • Navigation (phone and in person) vs. Handwritten material
• Follow-up after 4 months
  • Social needs were lower after navigation
  • Global Health was improved after navigation
Adverse Childhood Experiences

ACEs Study Findings
- Physical abuse – 10.8%
- Sexual abuse – 22%
- Emotional abuse – 11%
- Mother treated violently – 12.5%
- Substance misuse within household – 25.6%
- Household mental illness – 18.8%
- Household member incarcerated – 3.4%

Source: Centers for Disease Control and SAMHSA
Impact of ACE’s on Adult Disease

- Graded relationship to
  - Presence of adult diseases
    - Ischemic heart disease, cancer, chronic lung disease, skeletal fractures, liver disease
  - Risk factors for leading causes of death in adults
    - Smoking, alcoholism, promiscuity, obesity, substance abuse

- Associated with
  - General health, social functioning
    - Relationship problems, high perceived stress, difficulty in job, poor self-rated health, early pregnancy
  - Poorer mental health
  - Depression, sleep disturbances, anxiety, poor anger control, memory disturbances

Impact of Early Childhood – Return on Investment

Figure 2: Rate of Return on Investments in Early Childhood Programs and Interventions

Upstream Interventions

Higher Trajectory:
- Social-emotional
- Physical, and
- Community Function

Lower Trajectory:
- With Diminished Function

Well Being and Function

- Prematurity
- Prenatal Care
- Health Leads / Social Services
- Early Child Ed
- Early Child Reading Programs
- Mentoring and Job Training
- Illiteracy
- Lack of Role Models
- Toxic Stress

Prenatal | Birth | Infancy | Early Childhood | School-age | Adolescence | Early Adult | Adult
Pediatric Care Redesign to Address all Determinants of Health Outcomes
### The Four Underlying Concepts of Cost Containment Through Payment Reform

| Tying payment to evidence and outcomes rather than per unit of service | “Bundling” payments for physician and hospital services by episode or condition |
| Reimbursement for the coordination of care in a medical home | Accountability for results - patient management across care settings |
Alternative Payment Models

Source: HCP LAN, Alternative Payment Model Framework, 2016
Healthier Washington 2021 Vision: 90% of Provider Payments Under State-Financed Health Care Will be Linked to Quality and Value

<table>
<thead>
<tr>
<th>VBP Goals (consistent with HCP-LAN Framework)</th>
<th>DY1</th>
<th>DY2</th>
<th>DY3</th>
<th>DY4</th>
<th>DY5</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCP LAN Category 2C-4B</td>
<td>30%</td>
<td>50%</td>
<td>75%</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>Subset of goal above: HCP LAN Category 3A-4B</td>
<td>-</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: Washington HCA
Challenges in Designing VBP models for Children’s Health Care

- Most children generate little medical expense
- There are very few children with high medical needs
- Present and future health status is largely defined by factors not under the control of clinicians.
WCAAP’s Recommendations for Two Child-Focused VBP Models

1. Pediatric Primary Care Advanced Payment Model

2. Population health model for Children with Medical Complexity
Pediatric Primary Care Advanced Payment Model

This payment model is designed for primary care pediatric providers not to place financial risk but to:

- Adequately fund traditional and non-tradition value-based care
- Provide delivery service flexibility
- Encourage appropriateness of care and setting
- Provide Incentives to Continually Improve

There are four elements to the VBP model:

- A bundled pediatric primary care payment;
- care coordination fees;
- targeted fee-for-service, and
- performance bonus opportunity
Challenges

- Costs for care at the beginning of life will necessarily go up because:
  - FFS Medical care for pediatric patients has been underfunded by public payers (2/3 Medicare rates; ½ costs of delivery)
  - Investments will be needed (HCP-LAN Category 2A payments)
    - Pediatric care redesign elements/infrastructure less well established – risk-adjustment; care coordination; care management; performance measures; IT investment; etc.
  - Care essential for improved lifetime health outcomes is not currently reimbursed (SDH screening/coordination)
Conclusions

The US spends the most on health care and has some of the poorest outcomes. (We spend the least on children).

The **biggest impact** of **cost reduction** will come by addressing wastes in how we manage the health care of adults

The **biggest impact** on **health outcomes** will come from how we provide health care to children and address the social determinants of health

Therefore how we reform health care delivery and payment systems need to address both adult and pediatric population
What Can You Do?

1. Recognize your own importance in redesigning the health care system

2. Focus on a project large or small that will improve the health outcomes of your patients

3. Advocate at your system, community, and/or state level
Resources to Transform Pediatric Care

• WCAAP
  • Peds TCPI – CMMI funded pediatric clinical practice transformation grant – Washington State Department of Health www.wcaap.org/pediatricctcpi
  • WCAAP Health Care Transformation Committee – www.wcaap.org

• AAP/APEX

![AAP System Transformation Page](www.aap.org/SystemTransformation)