Laying the Groundwork for Economic & Budgetary Impact Analysis

ASTHO Delivery and Payment Reform Technical Assistance Call Series

John Auerbach, MBA, Office of the Associate Director for Policy, CDC
Richard Puddy, PhD, MPH - Office of the Associate Director for Policy, CDC
Kakoli Roy, PhD, MA - Office of the Associate Director for Policy, CDC
Michael Maciosek, PhD - Health Partners Institute for Education & Research
Marco Mesa-Frias, PhD – Office of the Associate Director for Policy, CDC

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OADP Priorities

Catalyze collaboration among public health, health care and other sectors, with special focus on those opportunities expanded by the ACA

Identify high value prevention and public health policies and interventions

Increase the understanding and use of credible evidence of prevention’s impact by policy makers, health care and public health
OADP 2015 Priority Activities

- Increase coverage and utilization of preventive services
- Strengthen our collaboration with CMS
- Improve CDC’s effectiveness in policy, economic analysis and adaptation to the transforming health system
- Advance the National Prevention Council’s implementation of the National Prevention Strategy
Policy Research, Analysis, and Development Office (PRADO)

Mission: Making the Case for Evidence Driven Policy to Improve Health

Functions:
- Research/Analysis
- Translation
- Capacity Building
- Policy Review

Teams:
- Policy Analysts
- Health Economists
Policy Research, Analysis, and Development Office (PRADO)

- Conducts Policy Analysis and Translates CDC science into policy action
  - Bridging the science to policy gap
  - Policy and economic/budgetary analysis

- Guidelines and standards for policy and economic/budgetary analysis

- Strengthening CDC’s policy capacity

- Policy and regulatory review and consultation
Economic and Budgetary Impacts
Why so Important?

- Abundance of opportunities to protect/promote health and save lives but resources limited in funding interventions
  - Value (*health return*) proposition alone may not always be persuasive
  - Demonstrating *economic return* is also critical!

- **Caveat**: Optimistic economic evidence can be informative
  - Be *right* in terms of science and also *effective* with policy

- Economics can strengthen evidence-based policy by making complex decisions *transparent* and *objective!*
Brief History of Economics at CDC

- Official initiatives to build economic capacity at CDC began in 1992 under then Director William Roper and other senior leaders (Dr. Steve Thacker, Martha Katz, et al.)

- Prevention Effectiveness Fellowship launched in 1995

- Economists have grown in size ~ 1 in 1992 to >75 PhD economists/modelers across CDC programs today

- Economics now integral to guiding policy and programmatic decisions at CDC

- As economists answered early basic questions, the policy context/issues have become more complex and challenging!
Public Health’s Critical Role in the Health Care System

OADP Mission: To identify and advance opportunities to use policy and leverage health system transformation and other sectors to improve the public’s health

- Focus on areas with a large preventable burden of disease
- Identify high impact clinical and community interventions
- Demonstrate improvement in health outcomes
- Describe cost implications and identify cost savings
<table>
<thead>
<tr>
<th>Policy Decision</th>
<th>Type of Analysis</th>
<th>Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACIP, USPSTF: Coverage recommendations</td>
<td>Cost-Effectiveness Cost-Benefit</td>
<td>Health System Societal</td>
</tr>
<tr>
<td>OMB: Regulations</td>
<td>Cost Benefit</td>
<td>Societal</td>
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<tr>
<td>CBO Scoring: Bills/Legislation</td>
<td>Budgetary Analysis</td>
<td>Federal Budget (spending and revenue)</td>
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<tr>
<td>ACA Delivery and Payment Reform</td>
<td>Budgetary Analysis</td>
<td>Medicare Medicaid Private Insurer</td>
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</table>
Critical Evidence Gaps

- Economic evidence rarely available from perspectives of all critical stakeholders
  - Default perspective: societal or health system
  - Important to identify who pays and who benefits

- Budgetary impacts rarely assessed
  - Evidence crucial for policymakers and payers
  - Focus of CBO scoring, CMS/CMMI, Private Insurers

- Objective: Catalyze researchers to focus on policy-relevant questions?
  - Need policy-informed research
  - Also need science-informed policy development and implementation
The Economics Team @CDC/OADP/PRADO

- 1st Analytic Team of Economists at the Office of the Director
- Established in 2011 ~ with 2 FTE economists and 1 PE Fellow
  - Current team: 3 FTE Economists; 3 PE/ORISE Fellows

- Overarching focus of work/activities:
  - Policy Relevant (always)
  - High-level (always)
  - Time-sensitive (often)
  - Crossing-cutting (generally)
Goal: Catalyze Efforts to...

- Promote appropriate and timely use of existing economic evidence to inform policy
- Anticipate and conduct timely analyses to inform key policy decisions

Selected CDC-wide Initiatives …

- Evidence Repository (in development)
- Technical Assistance to internal/external partners
- Economic and Budgetary Impact Analysis of Critical Policies
- Special Issue on Economics & Policy in the American Journal of Preventive Medicine
# Selected Economic and Budgetary Impact Analysis @PRADO

<table>
<thead>
<tr>
<th>Topic</th>
<th>Policy/Issue</th>
<th>Mcare</th>
<th>Mcaid</th>
<th>Pvt Ins.</th>
<th>Health System</th>
<th>Prod. Loss</th>
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<tbody>
<tr>
<td><strong>CVD</strong></td>
<td>Hypertension (HTN) Awareness</td>
<td></td>
<td></td>
<td>Y</td>
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<tr>
<td></td>
<td>Improve HTN Drug Adherence</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td></td>
<td>Sodium Reduction</td>
<td>Y</td>
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<td>Y</td>
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<tr>
<td></td>
<td>**Team Based Care for HTN (<strong>HPIER Contract</strong>)</td>
<td>Y</td>
<td>Y</td>
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<td></td>
<td>Trans Fat Elimination*</td>
<td>Y</td>
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<td></td>
<td>Zero copay for Generic HTN Medications*</td>
<td>Y</td>
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<tr>
<td></td>
<td>Zero copay for Generic Cholesterol Meds*</td>
<td>Y</td>
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<td><strong>Million Health Targets</strong></td>
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<td>Y</td>
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<tr>
<td><strong>Obesity</strong></td>
<td>Reimburs for Screening &amp; Management*</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td></td>
<td>Increase School-based PE*</td>
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<td></td>
<td>Cost of Obesity over Time</td>
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<tr>
<td><strong>Tobacco</strong></td>
<td>Tips Campaign*</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>Reduce copay for Tobacco Cessation*</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td><strong>Reproductive Health</strong></td>
<td>Teen Pregnancy Prevention</td>
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<td></td>
<td>Increase LARC uptake for Adult Women to prevent unintended pregnancy</td>
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<td><strong>Global Health</strong></td>
<td>Malawi - HTN Management among HIV+</td>
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<td>Barbados - HTN Management Guideline</td>
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<td><strong>Injury</strong></td>
<td>Opioid Overdose Prevention Policy</td>
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<td><strong>Cross-cutting</strong></td>
<td>CVD Costs related to Physical Inactivity</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Absenteeism Cost for Select Conditions</td>
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<td><strong>Totals</strong></td>
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Modeling the Potential Impacts of Achieving the Million Hearts ® Target with Blood Pressure Control

Marco Mesa Frias,
Office of the Associate Director for Policy
Policy Research, Analysis and Development Office

March 24, 2015
The Million Hearts® Goal is to prevent 1 million hearts attacks and strokes by 2017 (or, about 200,000 cases per year)
The Case for Cardiovascular Disease Prevention. Published studies suggest:

- **110,000** stroke and heart disease deaths per year may be **preventable** - *(MMWR, 2014; CDC study)*

- Over **100,000** cardiovascular disease deaths per year may be **preventable** from improved cardiovascular care - *(AJPM, 2010; Farley TA et al / NYCDHMH study)*
Million Hearts® (MH) focuses on achieving its goal by promoting the *ABCS* of clinical prevention:

- *Aspirin – when appropriate*
- *Blood pressure control*
- *Cholesterol management*
- *Smoking cessation*
The Million Hearts® Target for Blood Pressure (BP) Control vs. Baseline National BP Control Rates?

- **Baseline BP Control Rates (2011-2012)**
  - Men 48.9%
  - Women 54.6%

- **Million Heart® (MH) Target for BP Control Rate**
  - Population-wide target ~65%

- **Minnesota Success in BP Control Has Shown That The MH® Target for BP Control May Be a Realistic Goal (2007-2009)**
  - Men 66%
  - Women 72%

*Source: MMWR May 30, 2014 ; Luepker et al 2012*
Study Objective

- To estimate the health and economic impacts for reaching the MH® target for BP control nationally

- To illustrate innovative ways of using scenario-based model to help inform the prioritization of health policies and evaluate potential implications under an alternative scenario
The model estimates the changes in population health by modifying the population distribution of exposure to a risk factor (i.e. BP level) and comparing such changes using a counterfactual (or, alternative) scenario to the current baseline.

Analytic Strategy

1. **Provide estimates of population distribution of exposure to a risk factor**
   - NHANES 2011-2012 Systolic BP Distribution

2. **Model transitions from current distribution of exposure to a risk factor towards the “ideal” distribution:**
   - AHA Heart Disease and Stroke Statistics 2013; Luepker et al 2012

3. **Dose-response relationship**
   - Capewell et al 2010; Lewington et al 2002; Smith-Spangler 2010

4. **Estimates of disease burden and cost**
Methods: Current BP Control Rate (Baseline Scenario) vs. Improvement in BP Control Towards the MH® Target (Counterfactual Scenario)

- **National control rate**
  - Men: 48.9%
  - Women: 54.6%

- **Million Hearts Target**
  - ~65% control rate

Progress towards the Million Heart Target
Methods: Impact of Changes in Population Blood Pressure Distribution on CVD Burden

Systolic blood pressure (SBP) Distributions Among All Hypertensive US adults 25+ NHANES 2011-2012

**Scenario 1**
before intervention (baseline)

**Scenario 2**
achieving the Million Hearts Target in BP control nationally

Reduction in BP

Reduction in SBP mmHg

Reduction in Mortality Stroke CHD

Systolic blood pressure (SBP) Distributions Among All Hypertensive US adults 25+ NHANES 2011-2012
Results
Achieving a Population-based MH® 65% Target with BP Control Nationally Would Prevent around 56,000 First Acute Stroke Events per Year

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>25-44</td>
<td>2,587</td>
<td>2,136</td>
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<tr>
<td>45-54</td>
<td>7,408</td>
<td>5,858</td>
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<tr>
<td>55-64</td>
<td>7,506</td>
<td>6,936</td>
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<tr>
<td>65-74</td>
<td>7,123</td>
<td>7,195</td>
</tr>
<tr>
<td>75-84</td>
<td>7,195</td>
<td>5,797</td>
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</tbody>
</table>

*Based on United States, 2011-2012 year data
Achieving the MH® 65% Target with BP Control Nationally Would Prevent around 80,000 First Myocardial Infarction Events per Year

*Based on United States, 2011-2012 year data
Achieving the MH® 65% Target with BP Control Nationally Would Prevent around 10,000 Stroke Deaths per Year

<table>
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<th>Age groups</th>
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<th>Female</th>
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<tbody>
<tr>
<td>25-44</td>
<td>325</td>
<td>222</td>
</tr>
<tr>
<td>45-54</td>
<td>800</td>
<td>503</td>
</tr>
<tr>
<td>55-64</td>
<td>1,245</td>
<td>782</td>
</tr>
<tr>
<td>65-74</td>
<td>1,556</td>
<td>1,217</td>
</tr>
<tr>
<td>75-84</td>
<td>2,252</td>
<td>1,503</td>
</tr>
</tbody>
</table>

*Based on United States, 2011-2012 year data
Achieving the MH® 65% Target with BP Control Nationally Would Prevent around 29,000 CHD Deaths per Year

*Based on United States, 2011-2012 year data
Improved CVD Outcomes/year would avert around $7 billion in Lifetime Healthcare Costs and $17 billion in Lifetime Productivity Losses from Premature Mortality Prevented**

**Life-time NPV with 3% discount rate based on Dehmer 2012 (2005 cost adjusted to 2013 dollars)
Summary Findings

Achieving the MH® 65% with BP control would prevent between:

- 122,000 to 149,000 first acute cases of stroke and heart attack per year
- 35,000 to 43,000 CHD and stroke deaths per year
- $6.3 to $7.5 Billion in lifetime healthcare costs
- $15 to $18.5 Billion in lifetime productivity losses from premature mortality prevented
Conclusion

- Million Hearts® focusses on achieving its goal by promoting the ABCS of clinical prevention:
  - Aspirin – when appropriate
  - Blood pressure control
  - Cholesterol management
  - Smoking cessation

- The study findings indicate that by reaching the MH® target for BP control alone would prevent between 122,000 to 149,000 stroke and heart attack cases per year
  - Substantial progress towards the MH® Goal can be achieved by just reaching the MH® target for BP control
Acknowledgements

Yuling Hong, MD, MSc (CDC - Division of Heart Disease and Stroke Prevention)

Barbara Bowman, PhD (CDC - Division of Heart Disease and Stroke Prevention)

Kakoli Roy, MA, PhD (CDC – Office of the Associate Director for Policy)

Richard Puddy, PhD, MPH (CDC – Office of the Associate Director for Policy)

For more information please contact the Office of the Associate Director for Policy

Office of the Associate Director for Policy, Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333  MS:D-28
Telephone: 404-639-0210  Fax: 404-639-5172
E-mail: ADpolicy@cdc.gov  Web: www.cdc.gov/policy

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
Questions and Discussion
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Telephone: 404-639-0210  Fax: 404-639-5172
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Thank you!

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