LARC: Return on Investment
Virtual Learning Session

August 2, 2016
2:00-4:00p ET
For Audio: 866-740-1260, ext. 5273187#
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00</td>
<td>Welcome and Introductions</td>
</tr>
<tr>
<td>2:10</td>
<td>Basics of Economic Analysis and Return on Investment</td>
</tr>
<tr>
<td>2:40</td>
<td>High Level Overview of the Tool</td>
</tr>
<tr>
<td>3:00</td>
<td>Tool Walkthrough and Inputs Needed</td>
</tr>
<tr>
<td>3:30</td>
<td>Logistics</td>
</tr>
<tr>
<td>3:55</td>
<td>Next Steps</td>
</tr>
<tr>
<td>4:00</td>
<td>Adjourn</td>
</tr>
</tbody>
</table>
Webinar Objectives

- **Review** the basics of economic analysis and return on investment
- **Explain** the LARC return on investment tool and demonstrate its use
- **Explore** the return on investment tool
- **Discuss** the timeframe for pilots, feedback expected, technical assistance available, and other logistics.
Welcome and Introductions

Welcome from ASTHO

- Ellen Pliska, MPH
  Family and Child Health Director

- Christine Mackie, MPH
  Family and Child Health Senior Director
LARC: Return on Investment Participating States

States: GA, IA, LA, MA, MI, NY, OK, SC
Basics of Economic Analysis and Return on Investment

Rui Li, PhD
Lead Economist,
DHHS/CDC/ONDIEH/NCCDPHP/DRH/OD
Centers for Disease Control and Prevention
Return on Investment, Costs & Cost-Effectiveness: Terms & Applications in Economic Analysis of Public Health Programs

Rui Li, PhD

Lead Economist

Division of Reproductive Health
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention
Why Does Economics Matter in Public Health?
Real-world Scenarios for the State Public Health Programs

- Scenario 1
  - Your state legislatures are about to discuss the budget for the State Medicaid program. You want to show that the state should increase funding for preventing unintended pregnancies (UP).

- What information do you need to provide to the state legislatures to strengthen your argument?
• Adverse health outcomes associated with UP
• Cost consequences of UP in the state without intervention
  • Costs/economic burden of UP to the State Medicaid programs

Type of economic analysis
• Cost of illness (COI) – preventable economic burden associated with a disorder or risk factor
Example

**Unintended Pregnancies Cost Federal and State Governments $21 Billion In 2010**

*Increasing Publicly Funded Family Planning Services Could Substantially Reduce These Costs*

U.S. government expenditures on births, abortions and miscarriages resulting from unintended pregnancies nationwide totaled $21 billion in 2010, according to “Public Costs from Unintended Pregnancies and the Role of Public Insurance Programs in Paying for Pregnancy-Related Care: National and State Estimates for 2010,” by Adam Sonfield and Kathryn Kost. In 19 states, public expenditures related to unintended pregnancies exceeded $400 million in 2010. Texas spent the most ($2.9 billion), followed by California ($1.8 billion), New York ($1.5 billion) and Florida ($1.3 billion); those four states are also the nation’s most populous.

**Government expenditures on unintended pregnancies totaled $21 billion in 2010, and surpassed $400 million in 19 states**

![Map showing government expenditures on unintended pregnancies in 2010](https://www.guttmacher.org/pubs/mapunintended2010.jpg)
Scenario 2

- You know that increasing LARC use is an evidence-based effective intervention to prevent UP, how will you convince your state legislatures to allocate funding for this effort?
- Effectiveness of LARC use in preventing UP
- Medical cost savings from preventing UP with increased LARC use
- Intervention costs, including LARC devices, related services, and programmatic cost

Types of economic analysis

- Cost analysis – cost of implementing a preventive service or program
- Economic evaluation – balance of costs & health outcomes
- Cost-effectiveness analysis
- Budget impact or return on investment (ROI) analysis

Effectiveness of the program is the foundation for economic evaluation!
Example

Findings:
• 2012, cost of UP was $4.6 billion
• 53% attributable to imperfect contraception adherence
• If 10% of women aged 20-29 switching from OC to LARC
• Total savings were $288 million

Burden of unintended pregnancy in the United States: potential savings with increased use of long-acting reversible contraception
James Trussell, Nathaniel Henry, Fareen Hassan, Alexander Prezioso, Amy Law, Anna Filonenko

Original research article
Contraception 87 (2013) 154–161
Elsevier
Example: LARC Medicaid Reimbursement Tool
Return on Investment (ROI)

- Standard definition of ROI analysis: calculation of net financial cost to a single stakeholder (e.g., a health plan, a hospital, or a state health department)
- The Return on Investment Formula
  - ROI=(Gain from the investment-Cost of the investment)/Cost of the Investment
Cost-Effectiveness Analysis (CEA)

- Method for comparing net cost per health outcome
- For each pair of options (e.g., with lifestyle program vs. without lifestyle program for people with prediabetes)
  - Assess total outcomes and costs
  - Exclude dominated options that cost more and less effective
  - Calculate incremental cost-effectiveness ratio (ICER) for two strategies that are non-dominated
  - E.g.: cost for diabetes case prevented, cost per life year gained, cost per QALY gained

- ICER = \[
\frac{Cost \ A - Cost \ B}{Outcome \ A - Outcome \ B}
\]
Cost-Effectiveness and Cost-Savings

- If one strategy results in lower total direct costs than another strategy, it is *cost-saving*.

- Among the clinical preventive services recommended by US Preventive Services Task Force, about 1/5 are *cost-saving*.

- Return on Value (ROV)

Cost-Benefit Analysis

- All costs and benefits are in the same metric (dollars)
  - All health outcomes must be assigned dollar values, controversial
- Outcome measures: net benefit and benefit-cost ratio
  - Economists prefer net benefit; benefit-cost ratio is less reliable
  - net benefit of intervention = benefits – costs
  - benefit-cost ratio = benefits / costs
Key Concept 1: Study Perspective —Value Is In the Eye of the Stakeholder

- **Stakeholder types**
  - Health care payers
    - Public – Medicare, Medicaid
    - Private – insurers, employers, consumers
  - Health care providers
  - Public health programs
  - Patients and families

- **Analytic perspectives**
  - Societal – all costs to all payers
  - Health system— all medical costs no matter who pays
  - Payer – just costs incurred by one payer
Key Concept 2: Time Frame Vs. Analytical Horizon

- **Time Frame**
  - Period during which the interventions are implemented
  
  *e.g., if an anti-smoking mass education campaign lasts 6 months, those 6 months are the time frame*

- **Analytical Horizon**
  - Period over which the costs and benefits related to the intervention are considered
  
  - Usually longer than time frame
  
  - Could even cover clients’ lifetime
  
  - Depending on stake holder types
  
  - For many chronic disease prevention programs, more benefits accumulated for longer period
Key Concept 3: Different Types of Economic Costs

- **Direct cost**
  - Medical
  - Non-medical
  - Education services
  - Justice system

- **Indirect cost – Lost productivity for affected persons**
  - Mortality
  - Morbidity and disability
  - Parental time cost – direct cost in US

- **Intangible costs**
  - Pain and suffering
  - Loss of well-being
Key Concept 4: Cost Analysis—Program Cost

- Define program or intervention to evaluate
- Decide which costs to include
- Decide on time frame for cost analysis
- Collect cost data
  - Program budgets
    - Need to be able to disaggregate by activity
    - Activities and budgets may not coincide
  - Micro-costing approach
    - Quantities of inputs (staff time, equipment, consumables, overhead)
    - Values of inputs
Framing an Economic Evaluation of a Public Health Program

- What is the disorder(s) of concern?
  - Calculate the economic costs associated with the condition (COI)
- Is there an intervention that is well accepted?
  - If not, can still estimate potentially preventable burden –COI
  - If yes, assess the costs of intervention and numbers of people who are likely to be identified or helped
    - Cost and cost-comparison analyses
- Is there evidence of prevention effectiveness?
  - Quantify the health outcomes or impact of intervention
    - Cases of disease, disability, or unintended births avoided
- Calculate CEA, CBA, and/or ROI, valuing outcomes