Evidence-informed Health Policy Workshop for Vermont State Legislators and Staff

February 27-28, 2017

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EVIDENCE-BASED POLICY CENTER FOR

Presenters

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An endowed operating foundation that works to improve the health of populations by connecting leaders and decision makers with the best available evidence and experience.

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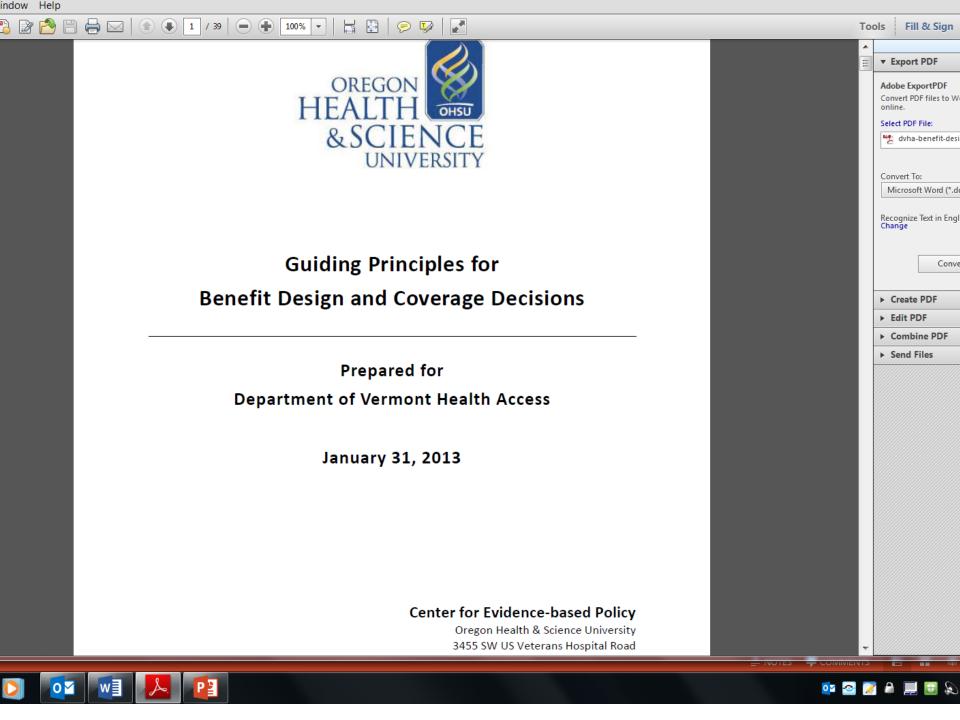Milbank Memorial Fund

Center for Evidence-based Policy

Based at Oregon Health & Science University, the Center works with federal, state and local policymakers in more than 20 states to use high-quality evidence to guide decisions, maximize resources and improve health outcomes.

www.centerforevidencebasedpolicy.org

COI: We receive no funding from industry or advocacy groups.

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Guiding Principles for

Benefit Design and Coverage Decisions

Prepared for

Department of Vermont Health Access

January 31, 2013

Center for Evidence-based Policy
Oregon Health & Science University
3455 SW US Veterans Hospital Road

Today's Objectives

- Gain a better understanding, i.e. "*What* is evidence-informed health policymaking (EiHP)?"

- Compare evidence-informed health policymaking with its alternatives, i.e., "*Why* should I care about this?"

- Provide an answer to, "*How* can I, as a policymaker and through fiscal decisions, promote evidence-informed health policymaking on important issues before the Vermont Legislature?"

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Health policy questions for Vermont

- Does permanent supportive housing (PSH) benefit Medicaid recipients? How might it look in Vermont?

- What programs work best to prevent and treat opioid dependence?

- Is driving under the influence of marijuana dangerous?

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What influences decisions?

What influences decisions around sponsoring or supporting policy legislation or a budget item?

- Media coverage
- Constituent requests
- Other legislators' opinions
- Trusted advocates' positions
- Other elected officials (local, state, federal)
- Anecdotes
- "Expert" opinion
- Fiscal issues (surpluses and deficits)

Is there an alternative to help inform policymaking?

- Ideally, strong, unbiased evidence – studies and research that are credible, well-designed and result in the desired result or benefit

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What is EiHP?

A structured way to use studies and research to better understand and evaluate what works, recognizing that:

- There is usually more than one study on a given question
- Not all studies are created equal
- Some studies may not be relevant to policymaking
- Transparency in using studies is important
- Sometimes the evidence just isn't enough…

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What's the Value of EiHP?

- Support and develop programs that provide the most benefit to the public – and stop doing what doesn't work

- State budgets must balance, so funding is always limited—we want to invest in the policy or intervention that has the best chance of being effective

- We want to know what evidence is available and how strong it is as part of decision making—where there's not enough evidence, but a pressing challenge to confront, we want options for moving forward

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Evidence-informed Health Policy Workshop

Understanding Evidence

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The Challenge of Using Evidence

- There are an estimated 24 million studies in PubMed, each a potential piece of evidence

- Studies often reach conflicting results

- It's easy to pick and choose the evidence that best supports a given position

- How do you know what evidence is most accurate and reliable?

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Why Are Some Studies "Good" and Some Studies "Bad"?

- Some studies are not designed to fairly answer the question they pose

- Studies can be biased to favor certain results, intentionally or unintentionally

- Conflict of interest results in a bias toward favorable results

- It's time consuming and takes some technical sophistication to sort through studies to assess quality and summarize results

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The Evidence Hierarchy

Confidence in the Outcomes ↑

Quality of the Research ↑

Systematic reviews and meta analyses

Randomised controlled trials

Cohort studies

Case-control studies

Cross-sectional surveys

Ecological studies

Case series and case reports

Ideas, editorials and opinions

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14

Systematic Review and Meta-analysis

Systematic Review

- Focused summary of research and studies that uses clearly defined steps to:

  – Perform a comprehensive search for the evidence

  – Select which studies to include

  – Assess quality of each study

Meta-analysis

- Systematic review PLUS a conclusion that combines results across studies
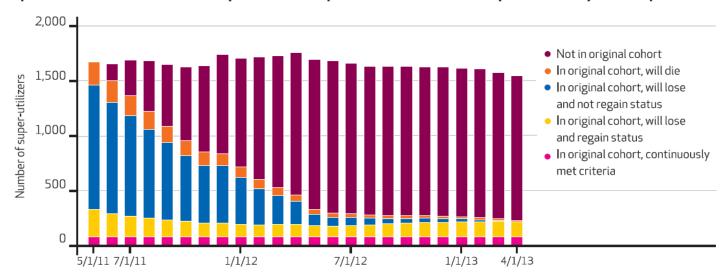
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Regression to the mean

Particularly limits the usefulness of uncontrolled before-and-after studies for utilization

Population- And Individual-Level Analyses Of Adult Super-Utilizers In Denver County, Colorado, May 1, 2011–April 30, 2013

Legend:
- Not in original cohort
- In original cohort, will die
- In original cohort, will lose and not regain status
- In original cohort, will lose and regain status
- In original cohort, continuously met criteria

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Johnson, et al. (2015). Health Affairs. 34(8):1312-19.

Publication bias

- Positive studies are more likely to be published than negative studies (particularly for smaller studies)
- Sometimes negative data is intentionally withheld
- This creates a risk for systematic reviewers

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Conflicts of interest (COI)

- Cochrane review of the effects of industry-sponsorship on published results
    - 37% more likely to report efficacy
    - 87% more likely to downplay harms or adverse events
    - Overall, 31% more likely to reach positive conclusions about the drug or device
- COI goes beyond financial conflicts

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Lundh, et al. (2012). Cochrane Database of Systematic Reviews. Issue 12:MR000033.

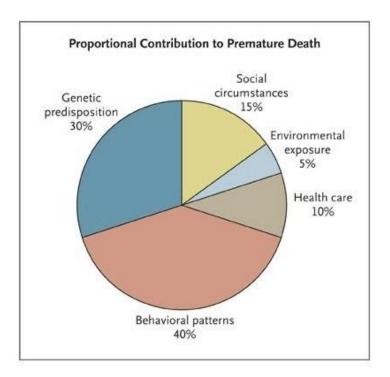# Permanent Supportive Housing: Assessing the Evidence

- Maine: PSH for Formerly Homeless Adults with Disabilities
  - Simple before and after design
- Veteran's Administration: HUD-VASH Placement
  - Before and after with control groups
- New York City: New York III PSH
  - Natural experiment with difference-in-differences design

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Background

- Health care is a minor contributor to individual and population health

Proportional Contribution to Premature Death

Genetic predisposition 30%

Social circumstances 15%

Environmental exposure 5%

Health care 10%

Behavioral patterns 40%

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Schroeder, S.A. (2007). We Can Do Better – Improving the Health of the American People. *New England Journal of Medicine, 357*(12), 1221-1228.

Background

- States with a higher ratio of social services spending to health care spending have better outcomes for:
  - Obesity
  - Asthma
  - Mentally healthy days
  - Lung cancer, heart attack, and diabetes related mortality

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Bradley, E.H., Canavan, M., Rogan, E., Talbert-Slagle, K., Ndumele, C., Taylor, L., & Curry, L.A. (2016). Variation in Health Outcomes: The Role of Spending on Social Services, Public Health, and Health Care, 2000-09. *Health Affairs, 35*(5), 760-768.

Supportive Housing - General

- Good quality review of 8 SRs, 7 RCTs, 5 quasi-experimental studies (limited to adults)

- Moderate quality evidence

- Consistent improvements in housing outcomes

- Subset of Housing First programs also showed reductions in ED use and hospitalization

- Mixed evidence on behavioral health and substance use outcomes

- Some evidence of racial differences in outcomes

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Rog, D.J., Marshall, T., Dougherty, R.H., George, P., Daniels, A.S., Shoma Ghose, S., & Delphin-Rittmon, M.E. (2014). Permanent Supportive Housing: Assessing the Evidence. *Psychiatric Services, 65*(3), 287-294.

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Supportive Housing – Specific Populations

- Serious mental illness (SMI)
  - Improved housing outcomes for people released from inpatient psychiatric wards
  - Reduced inpatient psychiatric days
- Substance use disorder (SUD)
  - Fewer shelter and sobering center nights with savings of $2,500 per person per month
- SMI+SUD
  - Fewer homeless days and reduced need for SUD treatment
- HIV/AIDS
  - Improved housing stability
  - Decreased ED utilization in as-treated analysis

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23

Fitzpatrick-Lewis, D., Ganann, R., Krishnaratne, S., Ciliska, D., Kouyoumdjian, F., & Hwang, S.W. (2011). Effectiveness of Interventions to Improve the Health and Housing Status of Homeless People: A Rapid Systematic Review. *BMC Public Health, 11,* 638.

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Supportive Housing – Program Evaluations

- Numerous program evaluations in the grey literature
- Many simple before-and-after designs, but some with more rigorous quasi-experimental designs
- Many only report savings for those who remain housed
- Most report significant cost-savings ranging from about $1,000 to $10,000 per person per year

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Supportive Housing – Cost-offsets

- Good quality narrative systematic review of 4 RCTs, 8 quasi-experimental studies, and 22 before-and-after studies of Housing First that reported on costs

- 21 of 22 before-and-after studies, 4 of 8 quasi-experimental, and 1 of 4 RCTs showed cost-savings

- Authors question whether it is certain that Housing First programs will pay for themselves

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Supportive Housing – Case Study

- Bud Clark Commons (Portland, OR)
  - Opened in 2011
  - 130 units of permanent supportive housing
  - Priority given to most vulnerable people experiencing homelessness
  - Housing First model (no abstinence requirement)
  - Physical and behavioral health partnerships and on-site providers
  - On-site case management

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Supportive Housing – Case Study

- Keys to success
  - Focus on most vulnerable individuals
  - Care integration with FQHC and CMHC

- Identified barriers
  - Some residents still lack good primary care integration
  - Coverage for "value-added" services like drop-in counseling or group visits with a behaviorist

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Supportive Housing – Case Study

- Results:
  - Prior to placement in supportive housing, the per-member-per-month (PMPM) Medicaid expenditure averaged $1,626
  - In the 12 months after housing PMPM spending dropped to $899
  - Driven primarily by reductions in ED visits, behavioral health admissions, outpatient labs and radiology, and specialist care
  - Increased use of outpatient primary care and behavioral health

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Wright, B.J., Vartanian, K.B., Li, H-F., Royal, N., & Matson, J.K. (2016). Formerly Homeless People Had Lower Overall Health Care Expenditures After Moving Into Supportive Housing. *Health Affairs, 35(1), 20-27.*

Why are systematic reviews so important?

- Single studies rarely settle an issue

- Systematic reviews provide a more balanced view of the research and studies

- Critical assessment of evidence quality is already done

- Expands outcomes that might not have been considered in a single study

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Overall Quality of Evidence

30

GRADE Ratings & Interpretation

- Quality of evidence ratings:
    - High = this is "correct"
    - Moderate = we are close to being "correct"
    - Low = we are very uncertain
    - Very low = we have no idea

GRADE(ing) the Evidence

Study Design	Confidence in Estimates
RCT →	High
	Moderate
Observational Study →	Low
	Very Low

DOWNGRADE IF:

- Risk of bias
- Inconsistency
- Indirectness
- Imprecision
- Publication bias

UPGRADE IF:

- Large effect
- Dose response
- All plausible confounding is accounted for

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Evidence for Medication Assisted Treatment of Opioid Dependence

- Systematic review of 31 randomized trials comparing buprenorphine, methadone, and placebo for people seeking opioid treatment

- Overall, patients receiving high dose buprenorphine or methadone are about 1.5 to 3 times more likely to remain in treatment and were significantly more likely to abstain from use of illicit opioids

- A separate systematic review concluded that the adding psychosocial supports does not offer greater benefit

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Mattick, 2014; Amato, 2011.

Cannabis and Driving: A case of limited evidence

Study	Results	Quality of Evidence
Elvik (2012) Meta-analysis of 66 observational studies	No difference in the odds of a fatal or injury accident Odds of being involved in a property damage crash were about 1.25x greater for cannabis users	Very low to low
Asbridge (2012) Meta-analysis of 9 observational studies (8 included above, 1 additional study from Canada)	Odds of being involved in any collision were about 2x greater for cannabis users	Very low
Compton (2015) Large case-control study of 15,000 people in Virginia	After accounting for age, gender, and concomitant alcohol use, there was no difference in the odds of a collision for cannabis users	Low

Cannabis and Driving: A case of limited evidence

- There is some limited evidence that cannabis use could be associated with a small increase in the odds of a motor vehicle collisions

- Additional studies (or the inclusion of the NHTSA study in the next systematic review) could change that conclusion

- This evidence doesn't answer questions about whether or how to assess for impairment in cannabis users (as a legal matter)

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Using the Evidence

- Single studies can usually be cherry-picked to present only one side of the evidence

- When systematic reviews are available, they are the best way to get a complete picture of the evidence and understand how much confidence to have in it

- When systematic reviews aren't available, we do our best to find all the relevant studies and judge their quality

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Key Questions to Assess the Evidence

1   What is the quality of the evidence? Was it a case study, randomized controlled trial, or systematic review?

2   Who produced the evidence? Are there conflicts of interest?

3   Do other studies support your position, or are there different results?

4   Who are the other stakeholders on this issue (e.g., providers, consumers, payers, governmental agencies), and would they agree with your interpretation of this study?

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PSH Design and Implementation questions

- Whom should we serve?
  - For example, see differences in cost outcomes in of the NYC report and population characteristics in Maine study
- Which supportive housing model should we use?
  - Single or scattered site?
  - Housing First?
  - Other services, such as primary care and behavioral health treatment available onsite?
- What entities are needed to succeed?

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PSH Design and Implementation questions

- How aggressively should we implement?
  - What is the supply of supportive housing units?
  - Should we focus on geographic areas with the greatest concentration of our target population?
- How should we measure the impact of the program?
  - Medical, behavioral health, criminal justice, housing stability, employment, child welfare, cash and food assistance use?
  - Spending impact: state only, or state and local government?

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PSH Design and Implementation questions

- How should we finance the program?
  - Medicaid for supportive services: 1915(i) SPA, state plan service, 1115 waiver, or state-only funding for supportive services to allow more flexibility?
  - Funding for room and board component?
- Should we fund an evaluation component?
  - By whom and what design?

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Dealing with insufficient evidence

What to do when there's a compelling challenge, but there is a lack of sufficient (high confidence) evidence on effective interventions:

- Look for common elements across interventions studied that appear to contribute to effectiveness
- Weigh the opportunities and risks associated with implementing what could be a promising practice
- Consider implementation with evidence development—funding research and evaluation as part of program implementation
- Pilot programs or phased implementation – must include outcomes data.

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Embed Evidence Expectations

- Standardize practices in hearings – always ask

- New member orientation

- Formal evidence structures (commissions, boards)

- Procedural expectations in executive branch
  - By practice/tradition
  - By statute

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Embedded Evidence Expectation in VT

Subchapter 002 : Secretary

(Cite as: 3 V.S.A. § 2222a)

§ 2222a. Health care system reform; improving quality and affordability

(b) The Director shall ensure that those Executive Branch agencies, departments, and offices responsible for the development, improvement, and implementation of Vermont's health care system reform do so in a manner that is coordinated, timely, equitable, patient-centered, **and evidence-based**, and that seeks to inform and improve the quality and affordability of patient care and public health, contain costs, and attract and retain well-paying jobs in this State.

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Embedded Evidence Expectation in VT

Title 18 : Health
Chapter 091 : Prescription Drug Cost Containment
Subchapter 002 : Evidence-based Education Program
(Cite as: 18 V.S.A. § 4622)
§ 4622. Evidence-based education program

(a)(1) The department of health, in collaboration with the attorney general, the University of Vermont area health education centers program, and the department of Vermont health access, shall establish an **evidence-based prescription drug education** program for health care professionals designed to provide information and education on the therapeutic and cost-effective utilization of prescription drugs to physicians, pharmacists, and other health care professionals authorized to prescribe and dispense prescription drugs. To the extent practicable, the program shall use the **evidence-based standards** developed by the Blueprint for Health. The department of health may collaborate with other states in establishing this program.

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Communicating About Evidence

Evidence Quality = Confidence in Concrete Outcomes

"The evidence makes us very confident that MAT will increase the number of people who stay in drug treatment and won't start using illegal drugs again"

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Communicating About Evidence

Certain outcomes might be more persuasive to different audiences

- – "We're pretty confident – based on the evidence - that drug courts will reduce recidivism and make communities safer"

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Communicating About Evidence

Insufficient evidence = uncertainty

– "The evidence isn't complete enough to give us much confidence about the results."

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In the End…

Good evidence is a tool for good governing. It allows more confidence that a proposed policy can:

- Achieve its intended goal
- Be the best use of limited resources
- Not have to be abandoned (or be a never ending zombie program)

Where there is insufficient evidence but a policy imperative to act, there are opportunities to implement innovative interventions and test them at the same time, building the evidence

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In the End…

We recognize that evidence is one input.

Values. Culture. Politics. Fiscal Reality. Unexpected events.

Increasing the role of evidence does not eliminate the other factors. But it can help to manage them for better outcomes.

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Putting Money in the Mix: Evidence From Economic Analysis

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Key Point

Cost-effectiveness ≠ cost savings or return on investment

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Types of economic analysis

	Numerator	Denominator	Question
Cost-effectiveness	Costs of intervention	Natural effects (e.g. deaths, unintended pregnancies, etc...)	How much does it cost per unit of effect?
Cost-utility	Costs of intervention	Measures of utility (QALYs, DALYs)	How much does it cost per utility-adjusted effect?
Cost-benefit	Costs of intervention	Monetized effects or utilities	How much does it cost compared to the costs avoided by the outcomes?

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Cost-effectiveness

- Most cost-effectiveness studies really just tell you how much you should expect to pay in order to achieve an outcome

- Pure cost-effectiveness doesn't make any assumptions about how much it's worth it to pay to produce a good outcome

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Return on Investment

- Much rarer than cost-effectiveness studies

- Requires assumptions about the monetary value of certain outcomes

- Many health interventions require decades to pay off, but not all…

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Cost-benefit analysis

- Colorado Adolescent Maternity Program study in 2014
- Pregnancy after immediate post-partum placement of LARC vs standard care

	1 year	2 year	3 years
LARC	2.6%	8.1%	17.7%
Standard care	20.1%	46.5%	83.7%

- Each dollar invested in LARC saves $6.50 for the Colorado Medicaid program over 3 years

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Han, L. et al. (2014). AJOG. 211:24.e1-7.

PLoS one

The Return on Investment of a Medicaid Tobacco Cessation Program in Massachusetts

Patrick Richard[1][¤], Kristina West[1], Leighton Ku[2][*]

- MassHealth and DPH invested $205 in smoking cessation strategies
- The percentage of MassHealth beneficiaries who smoke dropped from 38% to 28% over 2 years
- Smoking cessation led to 46% decrease in hospitalization for heart attacks
- For every $1 invested in smoking cessation, $312 of hospital costs for heart attacks was avoided

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