Green & Healthy Homes Initiative®

Value-Based Purchasing Bootcamp

Addressing Health Risk Factors

An Overview and Roadmap

10 October 2017

Presenter Bio

Ruth Ann Norton | President & CEO
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Ruth Ann Norton, President and CEO of the Green & Healthy Homes Initiative, is an expert on health-based housing program design. Ms. Norton leads GHHI's ground breaking work in over 30 US cities that uses housing as a platform for improved health, economic and social outcomes. The architect of Maryland's 98% reduction in childhood lead poisoning, she has led the development of numerous action plans including GHHI's 5 year national *Strategic Plan to End Lead Poisoning – A Blueprint for Action* (2016) and a lead elimination plan for New Jersey (2017). She has authored 35 pieces of healthy housing legislation, served as a contributor to similar strategic plans for Pew Charitable Trust and the Center for Healthy Housing.

Ms. Norton has crafted numerous policy initiatives with a focus on advancing the role of the Medicaid, energy efficiency, education and philanthropic sectors as investors in healthy housing. An economist by training, Ms. Norton led GHHI to establish its cost benefit analysis practice to demonstrate the business case for scaling interventions that create healthy, safe and energy efficient housing. Honored by the Maryland AAP with its advocacy award, Ms. Norton served as a liaison for the CDC Advisory Committee on Lead Poisoning Prevention and was selected a Robert Wood Johnson Community Health Leader and Weinberg Foundation Fellow.

Andrew E Olson | Social innovation Specialist
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Andrew and avid dog-lover and recreational sport enthusiast, who's favorite type of animal is the non-bear bear.

His work includes health-policy planning and analysis, advanced economic and financial modeling, conducting state-wide medical claims analysis with predictive modeling, and publishing over a dozen works on public health including topics related to sustainable funding to address the social determinants of health through value-based purchasing, the economic dynamics of insurance markets, and innovative financing mechanisms such as Pay for Success..

He is an energetic and passionate former consultant specializing in areas of management, health care, finance, technology, and economic development. He currently holds six academic degrees or certifications in philosophy, psychology, foreign policy, international economic relations, business, and finance.

GHHI has transformed to lead the Social Innovation Financing space in Public Health.

1986 Founded
Parents Against Lead became the Coalition to End Childhood Lead Poisoning

2009 Becomes GHHI
Expand scope and scale to break the link between unhealthy homes and unhealthy families nationally

2014 Johns Hopkins PFS
CMMI proposal leads to exploration of Pay for Success with Johns Hopkins' MCO, Priority Partners

2015 Social Innovation Fund Award
Award expands to 6 national sites to advance Pay for Success across private business models

2016 Robert Wood Johnson Foundation
Award expands Pay for Success portfolio to 11 asthma projects including state governments

2016 National Lead Summit
Launched concept paper on addressing lead-poisoning through Social Impact Bond

2017 Multi-Agency Models
Began state-wide Social Innovation Financing projects bridging health and energy savings for healthy homes

Source(s): GHHI

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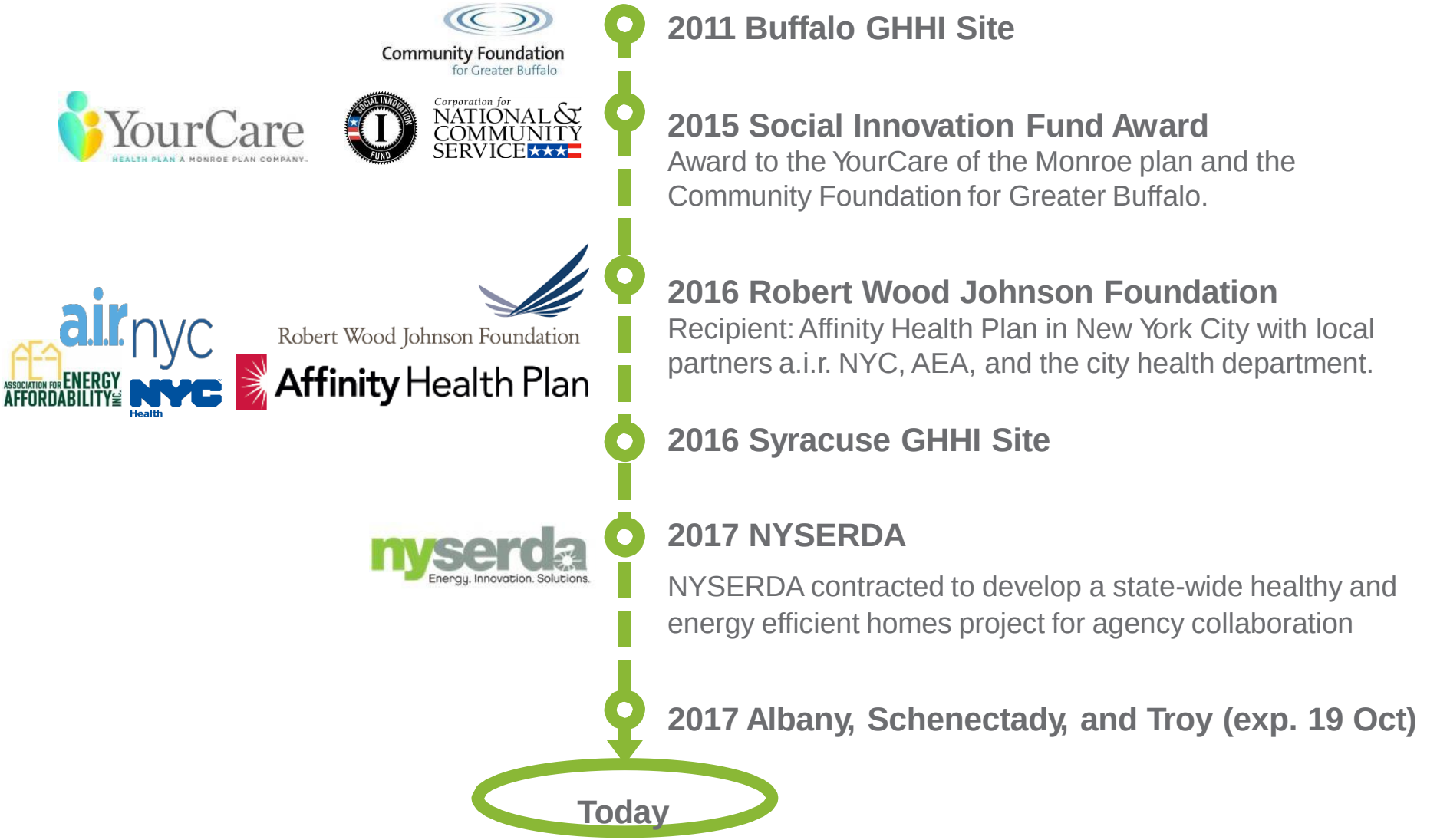
GHHI has 2 active sites, 3 more joining this month, and two innovation projects in New York.



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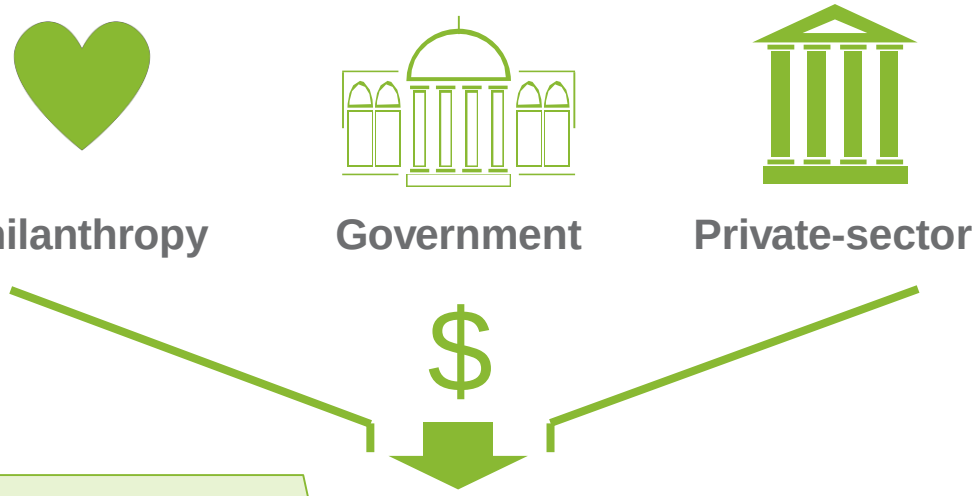
Breaking the link between unhealthy homes and unhealthy families to improve health, economic, and social outcomes.



System
- Single intake system
- Comprehensive assessment
- Coordinate services
- Integrated interventions
- Cross-trained workers
- Shared data

Outcomes
- Lead-hazard reduction
- Asthma-trigger control
- Household injury prevention
- Energy efficiency
- Weatherization
- Housing rehabilitation

Accomplishments
- 98% reduction of lead poisoning in Maryland
- 35 pieces of legislation passed
- 25 GHHI-designated sites across the country
- Over $300 million raised
- Over 500,000 integrated healthy homes, lead hazard reduction, and energy efficiency units in partnership with HUD

Source(s): GHHI

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How and why is a healthy and energy-efficient housing organization leading a value-based purchasing workshop?

Our programs improve health…
Our national work saves insurance companies and Medicaid programs money by preventing asthma, lead poisoning, and household injuries.

… the health benefits save insurers money (and Medicaid)…
Our programs benefit states but are paid for by foundations, so we set out to find a way to get those savings dollars back into our services.

… but our work is paid for by foundations not insurers?
Baltimore alone would need tens-of-billions of dollars to address lead poisoning in housing alone.

We want to be a social enterprise
We want to make good health good business so we can sustainably grow and be accountable for delivering benefits – we'll save you money, if you share.

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Asthma is a $50 billion national problem and 40 percent of costs are tied to poor quality home environments that Medicaid does not address.

Asthma in the U.S. *Per annum*

6.	million children
8	million adults million
18.7	hospital days
1.58	billion in medical expenses
$50	

Asthma is:
- The single most prevalent chronic juvenile condition
- The leading cause of school absences and third-leading cause of hospitalizations among children
- Caused or triggered by environmental factors

An unhealthy home:
- Is a primary environmental factor in health
- Can have substantial hidden costs to families

Home-based interventions with managed care and remediation of environmental asthma triggers:
- Have proven to reduce hospitalizations, emergency department visits, and other medical expenses
- Can generate healthy ROI from medical cost savings

We could make a difference.

Sources: GHHI, 2015, Sustainable Funding and Business Case for GHHI Home Interventions for Asthma Patients
World Health Organization, 2013, http://www.who.int/mediacentre/factsheets/fs307/en/

The health system data records will target outreach and coordinate home-based environmental interventions that generate investor returns.

1 Referral

Staff recruit and refer eligible parties into the program focusing on warm-handoffs into existing community-based programs.

2 Assessment

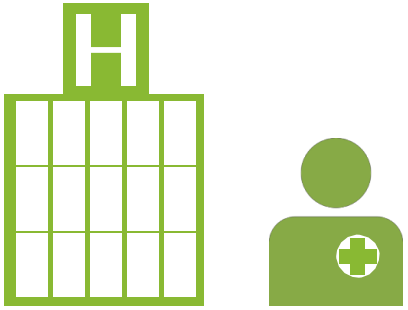
Comprehensive assessments identify the environmental links to asthma for education, management, and remediation.

3 Intervention

Targeted comprehensive home-based interventions address causes and triggers of asthma in the home.

Source(s): GHHI

The interventions build on the existing standard of care to prevent acute-care needs by addressing the causes and triggers of asthma.



Clinical care
Patients receive the existing standard of care for asthma, no appropriate services are denied to any person.

Education
Patients receive education on how to self-manage their specific environmental triggers in context.

Environment
The causes and triggers of asthma in the home are addressed to ensure immediate improvement.

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Each site will have its own tailored set of services based on patient need, housing stock, and service capacity.

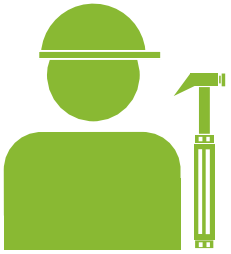
Healthcare professionals

Care management

- Manage referrals to the program
- Coordinate home visits
- Coordinate clinic visits

Home visiting

- Provide asthma education
- Follow up as needed
- Deliver supplies



Healthy housing professionals

Assessment

- Assess health, safety, and weatherization needs

Remediation

- Perform asthma-related home renovation and repairs:
  - Mold remediation
  - Kitchen/bathroom ventilation
  - Plumbing
  - Integrated Pest Management (IPM)
  - Carpet/flooring

Addressing environmental asthma triggers can produce significant results.

The Fulton Family purchased their first house at a foreclosure auction as a way to build a family home. Even after passing three separate inspections, they soon discovered faulty plumbing causing water leaks, sewage back-spill, and black mold, all made worse by a growing termite problem.

It left their asthmatic children to develop pneumonia, requiring frequent emergency department visits, expensive medications, and chronic respiratory problems. Mr. Fulton was transferred to new out-of-town location for work and the family was struggling to keep out of the quicksand.

Prior to intervention

- 111 medical utilization events; and
- $800.00 average cost per event.
- Expensive medications including inhalers, steroids, and breathing machines.

After the intervention

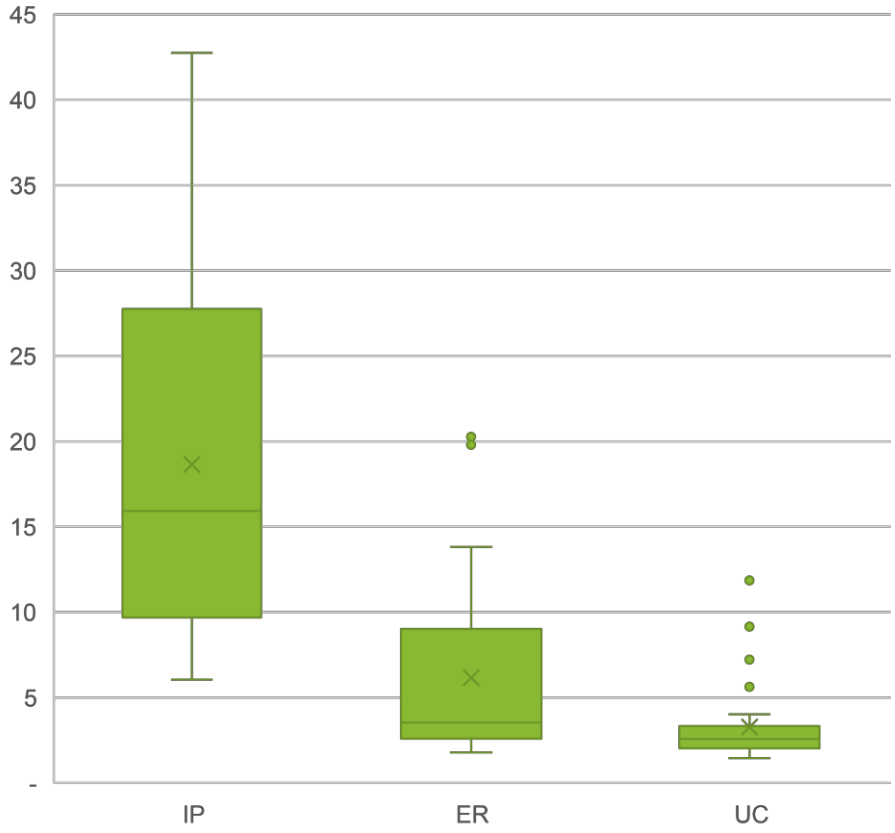
- 11 such visits the year after.
- The family has donated their breathing machines because they don't need them anymore.
- **Medical savings: $80,000 one year.**

Source: Materials provided to GHHI by Salt Lake County.

Asthma patients are high-cost enrollees so preventing hospitalizations to save money is a no-brainer, except…

Average Annual Cost to Medicaid Managed Care Company

$, thousands



Asthma costs

Managed care companies are paying between $7,500 and over $43,000 per year for individual asthma patients who have been hospitalized for respiratory issues.

Savings opportunity

If the research findings hold, we can save 40 percent of costs through comprehensive intervention strategies.

How do we get the savings dollars from our programs back into the services?

Source(s): GHHI primary research with actuarial firm Milliman LLC.

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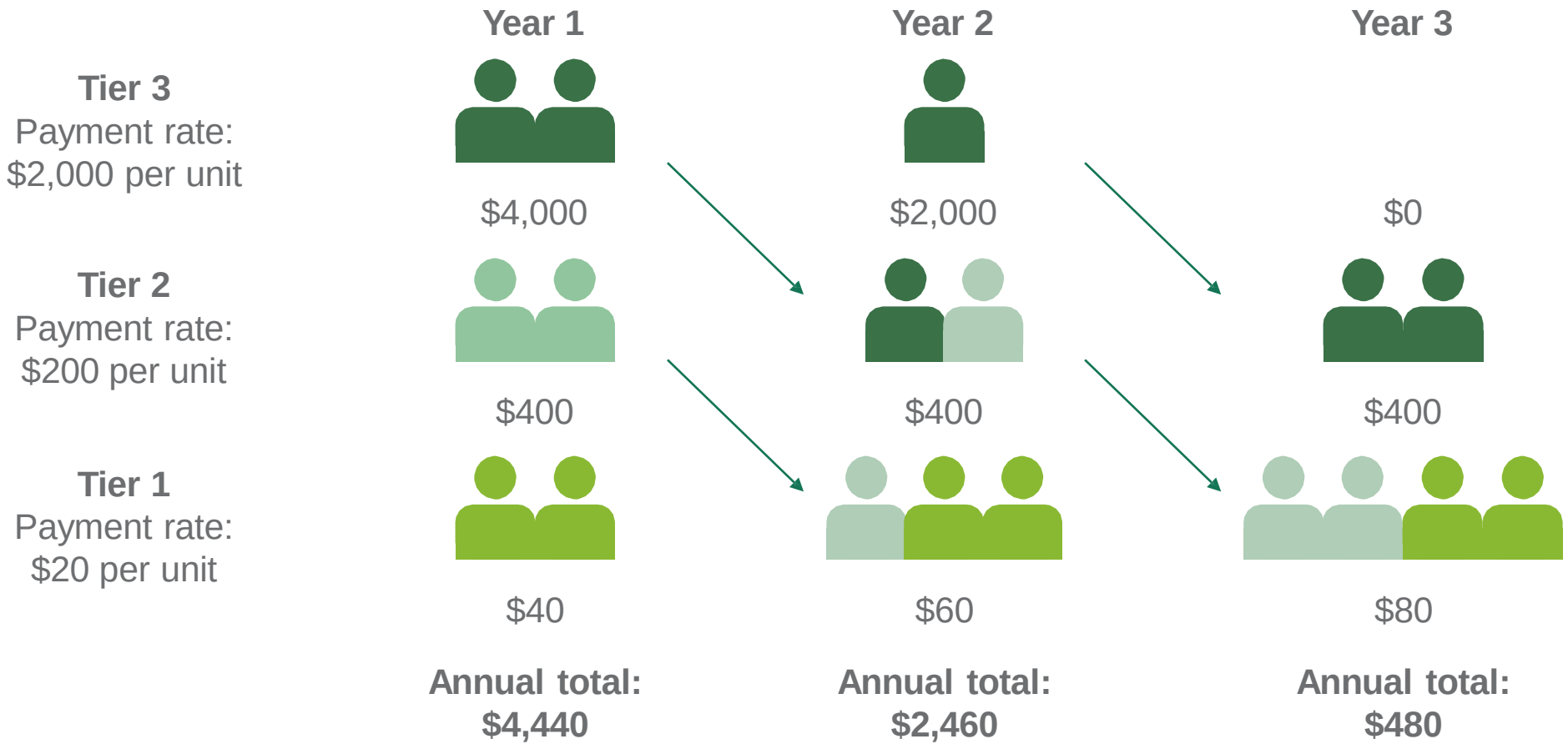
… when we save a managed care organization money, they lose out in the next year and have to pay for the outcomes.



Key insight
Long-term investment value is captured by the State not Managed Care providers, so MCOs have little ability or incentive to invest in prevention.

Source(s): GHHI analysis of publicly available information

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Paying for Value

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Setting up the value-based purchase is relatively straight forward, if there is an existing service provider who can take the financial risk for success.

Development
Determine what programs you want to run, what the evidence base is and how to move forward.

Implementation
Build mechanisms for enrollment, service-delivery, evaluation, and payment.

- ***Enrollment***: *Who is eligible for the program?*
- ***Services***: *What will you be doing for them?*
- ***Evaluation***: *How will you measure success?*

Payment
Determined by the terms of the value-based purchasing arrangement not standard service-reimbursement.

Source(s): GHHI

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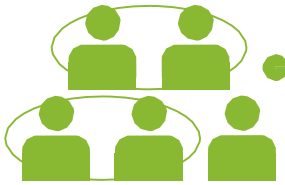
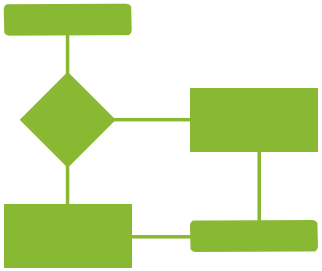
Setting up a program means getting key elements right.



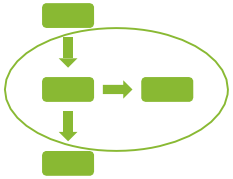
Technical feasibility
Will your program have the desired impact on the population you've selected (evidence base)?



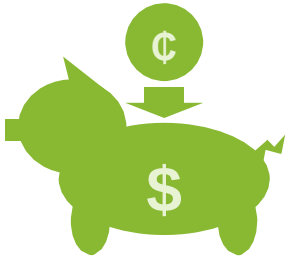
Operational feasibility
Can your program operators implement the model with fidelity at scale – who will do what?

Economic feasibility
Will the health impact produce enough cash-flow to scale the project?

Sociopolitical feasibility
Is the program internally and externally supported?



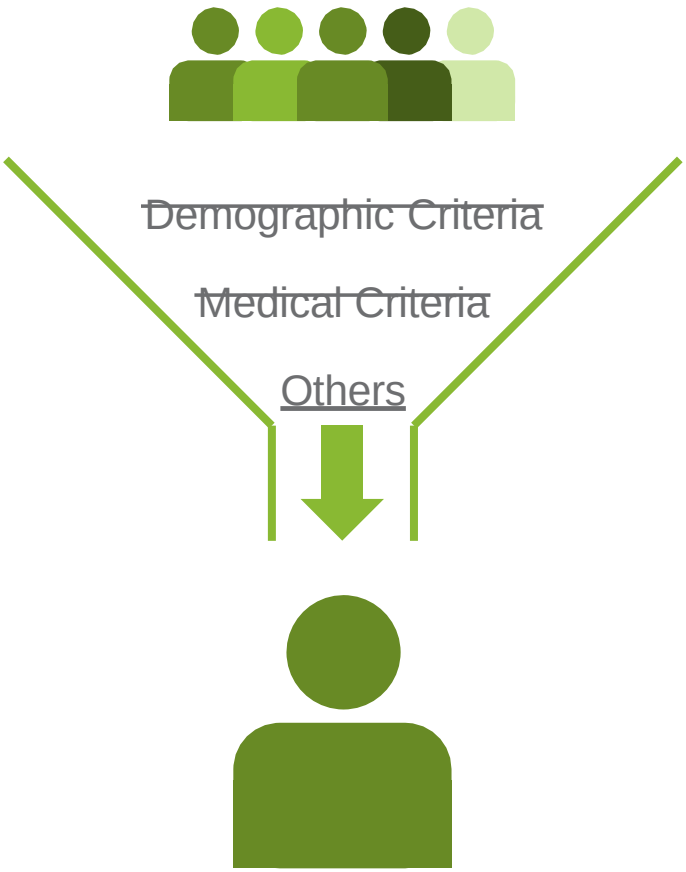
Payment Mechanism feasibility
Can you set up a workable payment arrangement?



Capital availability
Can you solve for the cash-gap?

Source(s): GHHI

Determining who will be eligible for your program and how to enroll them will shape your project.



Target population size
You will be allowed and required to have the services available to anyone who meets your enrollment criteria under Medicaid rules.

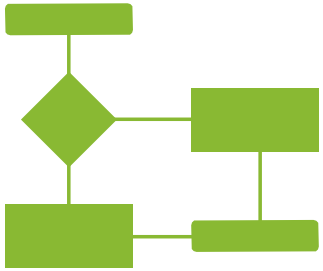
Process elements
Your enrollment triggers may determine what the best way to enroll people into your program (ex. Hospitalization, diagnosis, or social service)

Determining payment through evaluation
When determining the effectiveness of your program, you may need to apply similar criteria to your comparison group.

Source(s): GHHI

Determining what services to offer is a key issue because the service provider is accountable for the cost-benefit, not the insurer.

Necessary components
What are the key elements of the research intervention that made a difference?



Process flow
- Who will do what, when, and how?
- Is it the same for all enrollees?
- How will you manage the process and the associated data as it flows?

Source(s): GHHI

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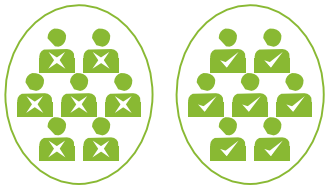
Key question: Which design options should you consider?

Are you trying to prove your intervention works in the first place? (Medicaid appropriate?)

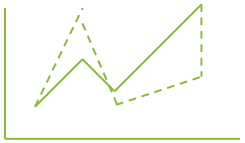


Randomized control trial

Are you trying to prove your intervention has broad impact?

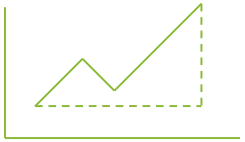
Matched comparison

Are you trying to prove your intervention works at scale?



Comparative index

Are you trying to prove that the business model of providing interventions at scale is viable?



Historical index

Do you know that the business model is viable and your are trying to stand up a new program to deliver services?

Target setting

What you're trying to accomplish makes a world of difference.

Source(s): GHHI

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Example Project: GHHI Asthma Cohort

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GHHI builds evidence-based programs that leverage existing community resources to address local problems, using feasibility studies as a vehicle.

Development
Conducting a feasibility study and capacity-building effort is an effective and comprehensive method.

Implementation
Build mechanisms for enrollment, service-delivery, evaluation, and payment.

- ***Enrollment***: *Medically-based enrollment criteria*
- ***Services***: *Networks of local service providers*
- ***Evaluation***: *Using more-rigorous actuarial analysis than standard for Medicaid*

Payment

- Only after savings is payment disbursed to the service provider.
- Solve the cash-gap with innovation: Community Benefit Dollars, Pay for Success, and other innovations.

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GHHI uses comprehensive feasibility studies to develop projects.

Technical feasibility
Using NIH meta-analysis, surgeon general's call to action, and CDC recommendations or findings.

Operational feasibility
Local service providers with decades of experience working with local populations.

Economic feasibility
Advanced stochastic economic and financial modeling using actuarial analysis determines economic profile.

Sociopolitical feasibility
Leveraging community to build community support.

Payment Mechanism feasibility
National value-based purchasing standards.

Capital availability
Industry leader in Pay for Success project development.

The health system data records will target outreach and coordinate home-based environmental interventions that generate investor returns.

Enrollment Criteria

Health system filters its patient population for specific criteria.

Defining the target population in medical terms

The target population is defined as:

- Medicaid Managed Care Member,
- Hospitalized or seen in ED with asthma as any diagnosis code.

Stratification by subpopulations:

1. Hospitalized during timeframe,
2. Emergency department visit during timeframe, or
3. Both.

Asthma defined within diagnosis code family: 493

- *493.00, 493.01, 493.02, 493.10, 493.11, 493.12, 493.20, 493.21, 493.22, 493.81, 493.82, 493.90, 493.91, 493.92 – ICD9 codes only*

Above listing is incomplete and representative of the type of work done.

Source(s): GHHI

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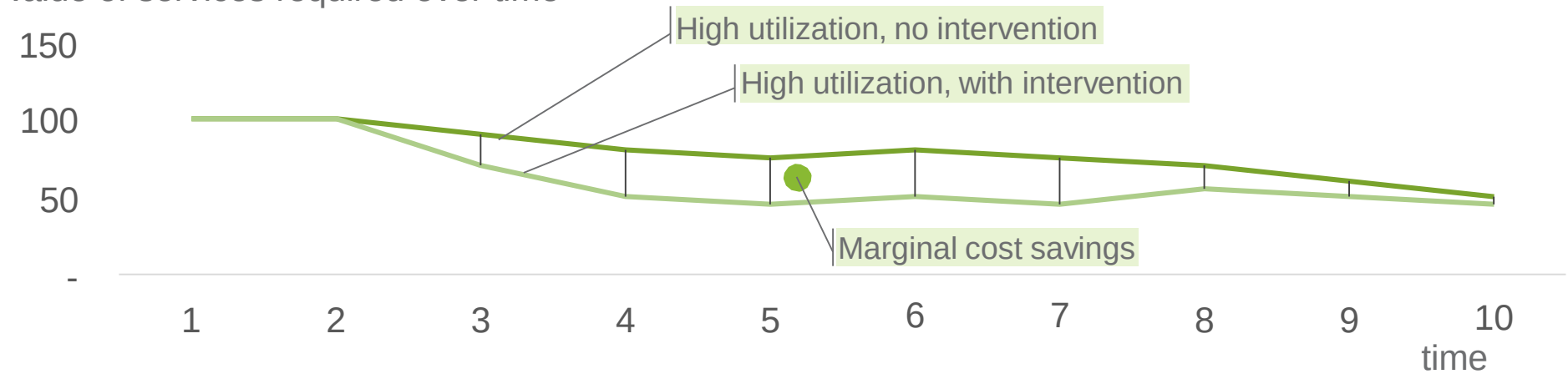
The goal of the evaluation is to determine the marginal impact of marginally adding asthma intervention services.

Medical utilization

Value of services required over time



Without intervention group

Selected from the same enrollment criteria as the target population, ideally from broader data:

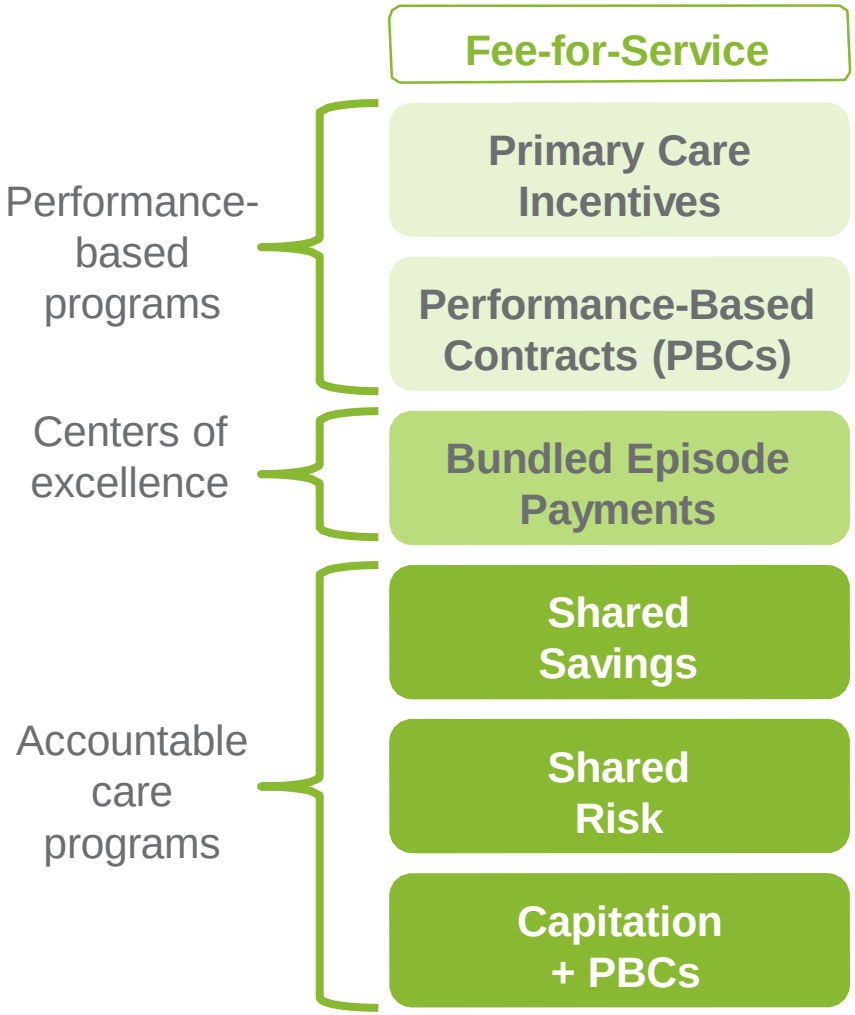
- Standard access to clinical services;
- Includes elements of ongoing community programs and provider group initiatives.

With intervention

This group is selected from the same enrollment criteria as the without intervention group:

- Same clinical services availability;
- Assessment of existing services they use; and
- Only provide new services not already getting.

We typically recommend arrangements that transform the actual payment for medical services, which makes them reimbursable.



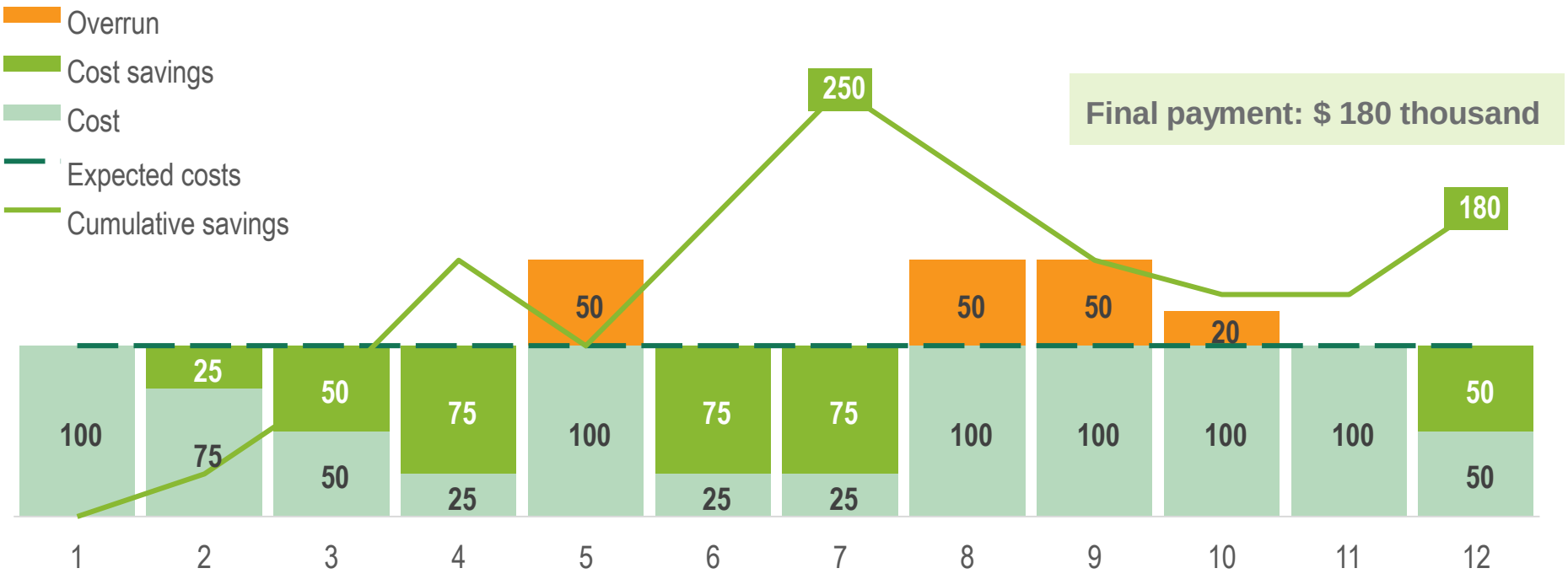
Outcomes-based payments included in your capitation are accountable care programs

- Start with your existing capitation rate;
- Add in performance contracts for:
  - Shared-savings,
  - Risk-sharing, or
  - Paying for quality outcomes.
- The result is an advanced value-based purchase that allows you to:
  - Secure federal matching funds,
  - Drive down the cost of care by investing in prevention, and
  - Use investment dollars to improve local communities.

Source(s): Adopted from the Arizona Health Care Cost Containment System (AHCCCS)
https://www.azahcccs.gov/shared/Downloads/ACOM/PolicyFiles/300/315_16_A.pdf

We recommend use of shared savings or risk payments based on matched-comparison groups in most of our projects.

Outcomes based payments mechanism, 12 month period
$ thousands



Key insight
Despite variability, outcomes-based payments allow repaying investments over their useful life up to the cost-savings value.

Note(s): * Expectations could be based on historical projections or comparisons against a selected target population.

Source(s): GHHI analysis of publicly available information

Advanced value-based purchasing arrangements let service providers innovate with no risk to federal or state money but create a cash-gap.

Service providers costs

- Service providers need capital to run their programs by the initial enrollments.
- May need funds to hire new staff and invest in new equipment as soon as signing the contract.

Cash Gap

Service providers compensation

- Service providers don't get paid until well after the services and only if they produce savings.
- Full compensation may not occur until after several payment cycles, which can take years.

How do you run a program without upfront funds?

Source(s): GHHI

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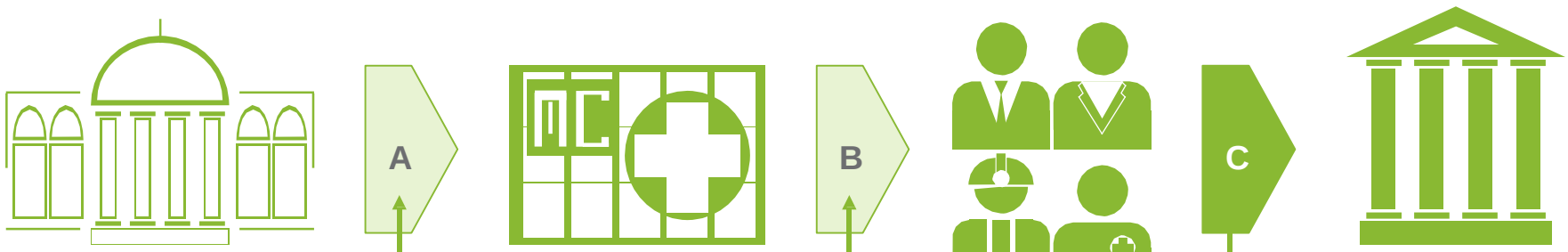
At GHHI, we finance our projects with outside resources, usually a collective of philanthropic and investment interests call Pay for Success.



State and federal programs remain largely agnostic to provider financing programs.

Managed care entities do not need to be involved.

Financing

- The service provider raises funds by promising to pass on their future payments.
- They can pay for it themselves, raise funds through traditional means, or **innovate** with partners.

Financing innovations

- Evergreen community benefit funds use community benefit dollars to fund program start-ups where the payments create sustainable businesses.
- Pay for Success financing brings together philanthropy and investors to take risks on new public-goods.

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At GHHI, we finance our projects with outside resources, usually a collective of philanthropic and investment interests call Pay for Success.

Value-based purchasing
Affinity agrees to pay service-providers for total cost of care reductions among enrolled persons v. a comparison group meeting the same criteria.

Service provision
Service providers finance their future payment opportunity with social-impact investors.

Financing: Pay for Success arrangement
The service provider gets paid up-front while the philanthropic partners and other funders agree to inherit the service-provider's repayment from Affinity.

Specific arrangements are still in negotiation

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Discussion

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Each item in the playbook will be the focus of our webinar series.

Registration links (all times eastern):

1.Coalition Meeting: 15 September 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/5043759288665528835

2.Playbook Overview: 22 September 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/8805253438473426947

3.Value-Based Purchasing Policy Analysis: 29 September 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/5942087776349479171

4.Contract Options for Innovation: 06 October 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/7663281970167756803

5. Evaluating Medicaid VBPs: 13 October 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/7098737724886279427

6.Outcomes-Based Payments Handbook: 20 October 2017 at 13:00 hrs
https://attendee.gotowebinar.com/register/7083387608569128899

Green & Healthy Homes Initiative®

We're always here to help.

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Thank you for your time.

Source(s): GHHI

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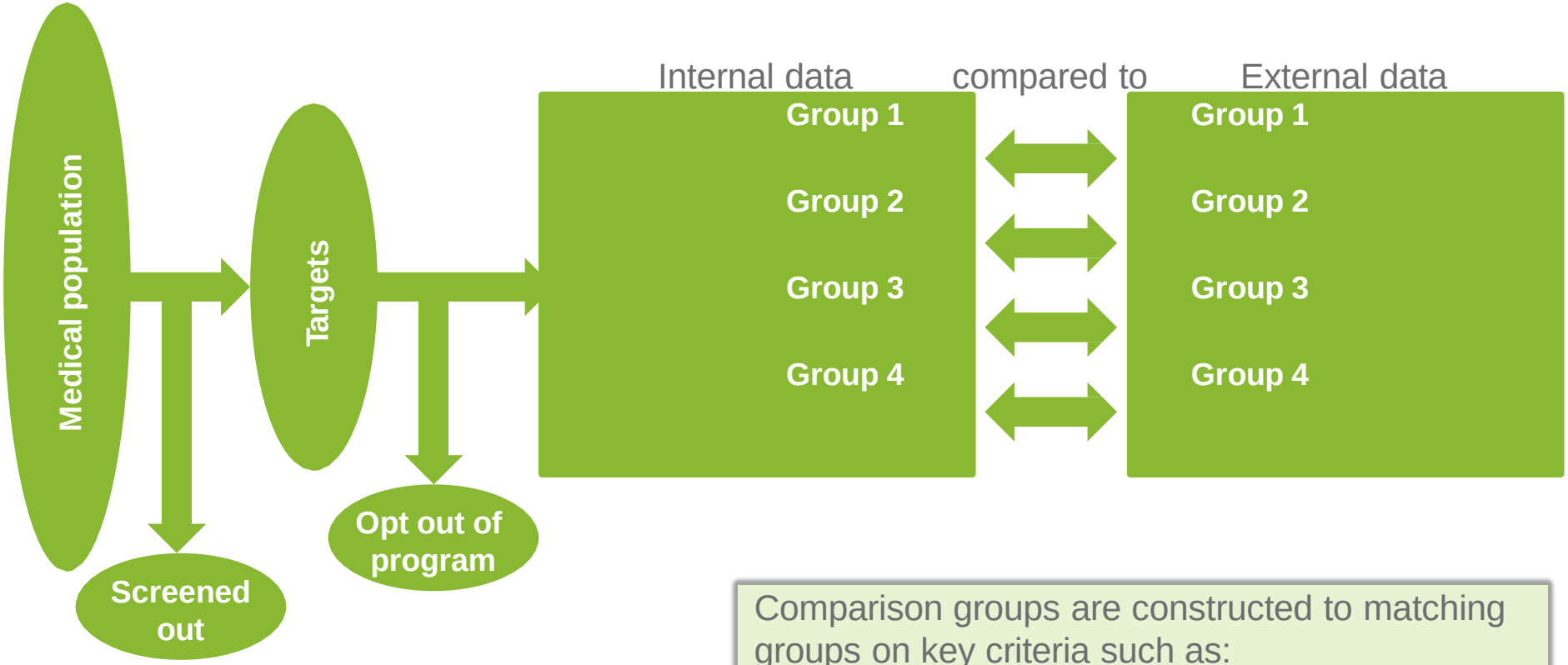
Thank you for your time!

With access to detailed information, matched comparison groups can be composed to increase validity in the comparison of sub-groupings.

External matched comparison group diagram



Comparison groups are constructed to matching groups on key criteria such as:

- Age,
- Comorbidities,
- Gender,
- Geography,
- Insurance plan,
- Medical risk,
- Family relations, and
- Others

Source(s): GHHI

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Issue #1:

Reimbursements and revenue losses

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In the following demonstration we make a number of simplifying assumptions.

Assumptions

- The medical expense in a year determines revenue in the following year.
- Investments are not considered medical expenses.
- All parties are happy with a break-even scenario.[1]
- We do not investigate administrative budgets or medical loss ratio yet.
- Investments in preventative care can either have a one year or lifetime impact.

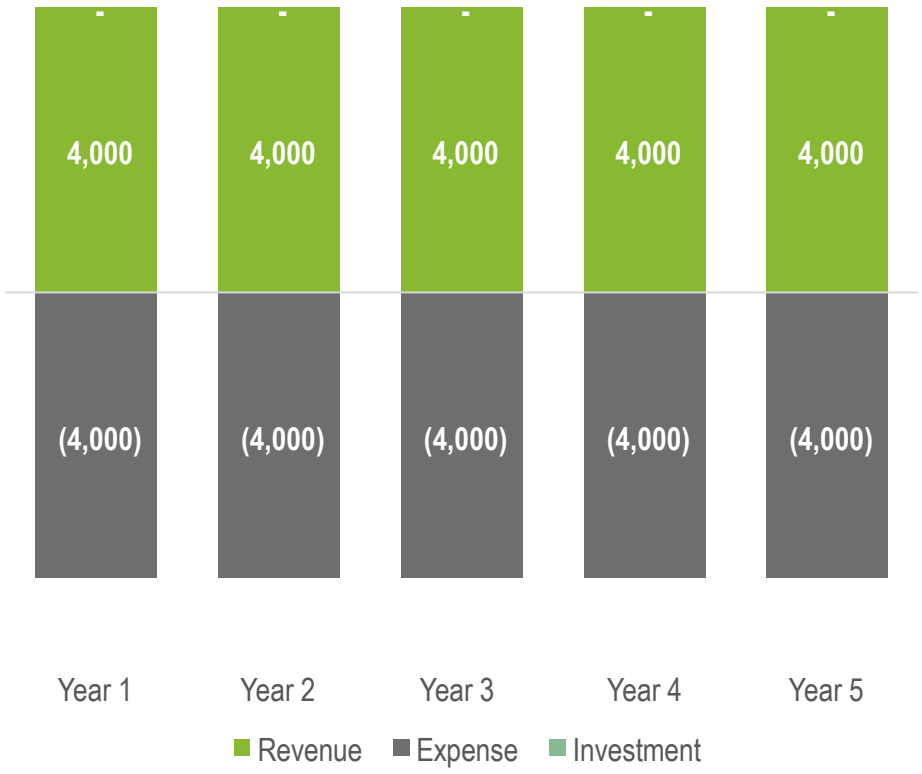
Note(s): We understand that this is not always the case but it functions as a simplifying assumption that can be worked into negotiations.

Source(s): GHHI

The baseline scenario is caring for a population will cost $ 4 million, care is provided, no investments are made, and everything stays steady.

Budgetary implications of investments

$ thousands



Baseline MCO scenario	$ thousands
Revenue	20,000.
Expense	(20,000)
Investments	(0,000)
Gain (loss)	**0**

Key insight

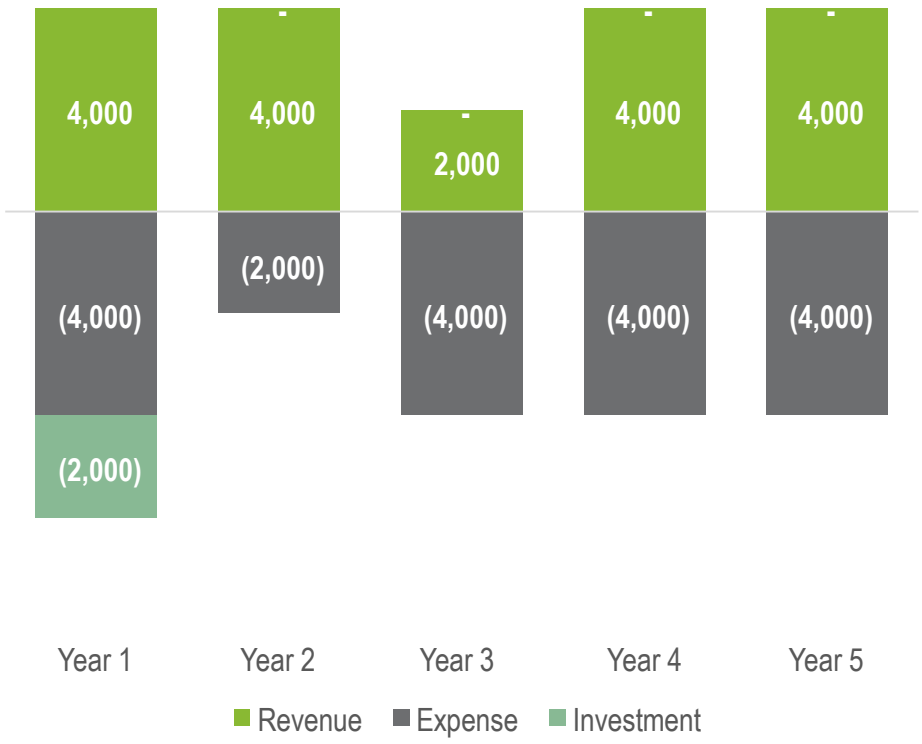
A steady state program neither costs nor benefits the managed care provider, but carries with it little risk.

Source(s): GHHI analysis of publicly available information

If an MCO invests in prevention that reduces the cost of care, it will be penalized in later revenue losses due to the redetermination process.

Short term investment impact

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000.	18,000
Expense	(20,000)	(18,000)
Investments	(0,000)	(2,000)
Gain (loss)	**0**	**(2,000)**

Key insight
Even an investment that offsets it's own value causes a net loss because it is not considered in the cost of care.

Source(s): GHHI analysis of publicly available information

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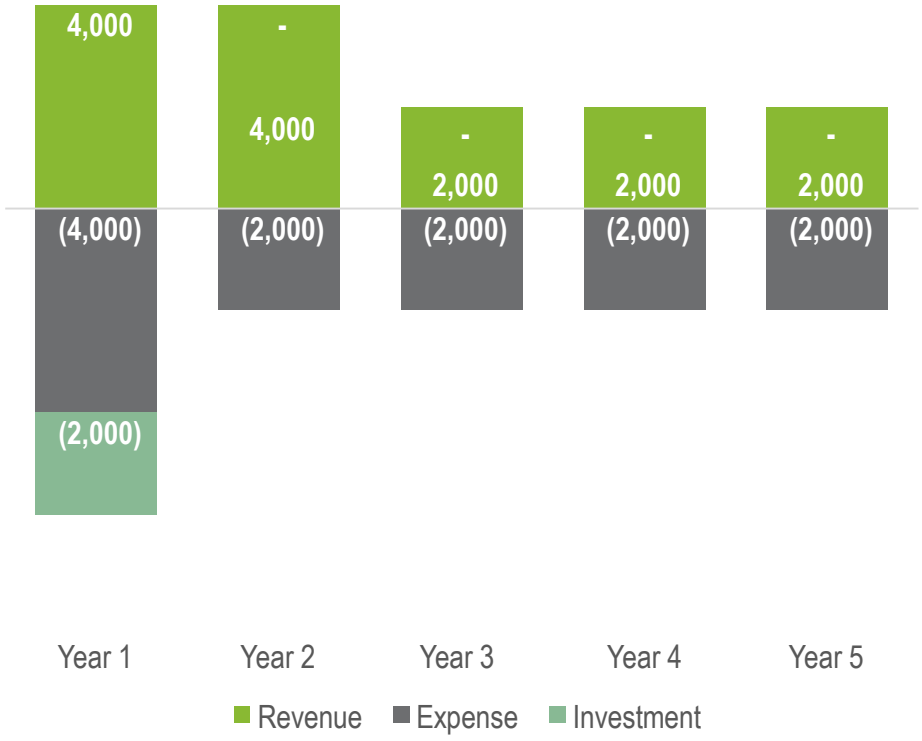
If continuous investments in preventative care are required, it would result in losses for the MCO as investments are included in redetermination.

Budgetary implications of investments

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000	14,000
Expense	(20,000)	(12,000)
Investments	(0,000)	(2,000)
Gain (loss)	**0**	**0**

Key insight

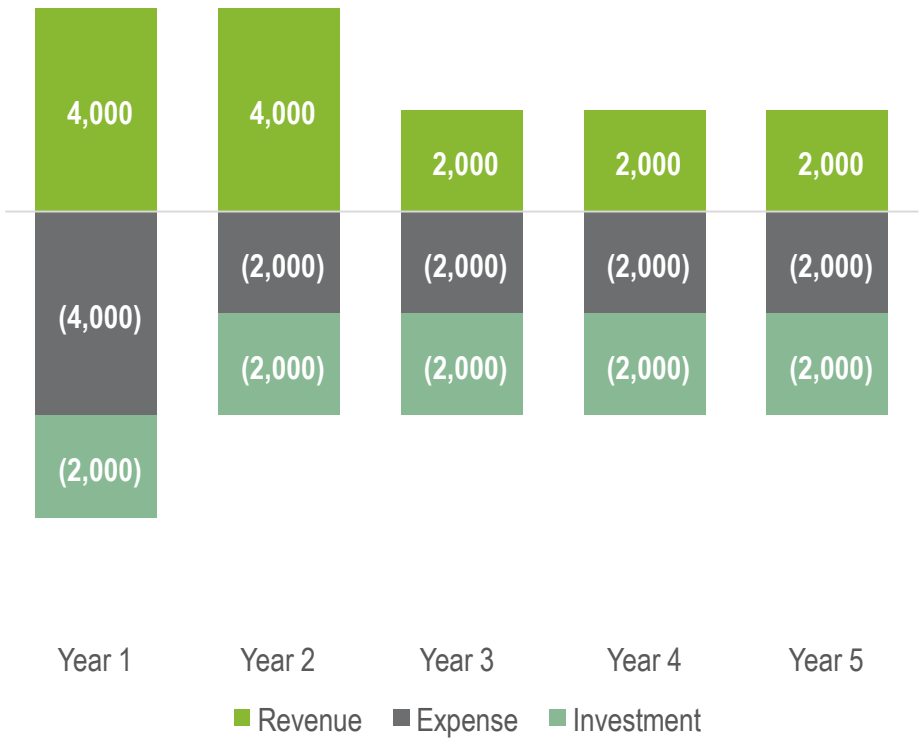
One-time investments that reduce the cost-of care by the amount of the investment have no benefit for a managed care provider. Being risk-averse, they have no incentive to proceed.

Source(s): GHHI analysis of publicly available information

Continuous investments in preventative care result in net-losses for MCOs due to revenue losses because investments are not considered.

Short term investment impact

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000.	14,000
Expense	(20,000)	(12000)
Investments	(0,000)	(10,000)
Gain (loss)	**0**	**(8,000)**

Key insight

Because preventative care investments are not considered medical expenses, any program that requires regular upkeep will cause a managed care provider losses on a continuous basis.

Source(s): GHHI analysis of publicly available information

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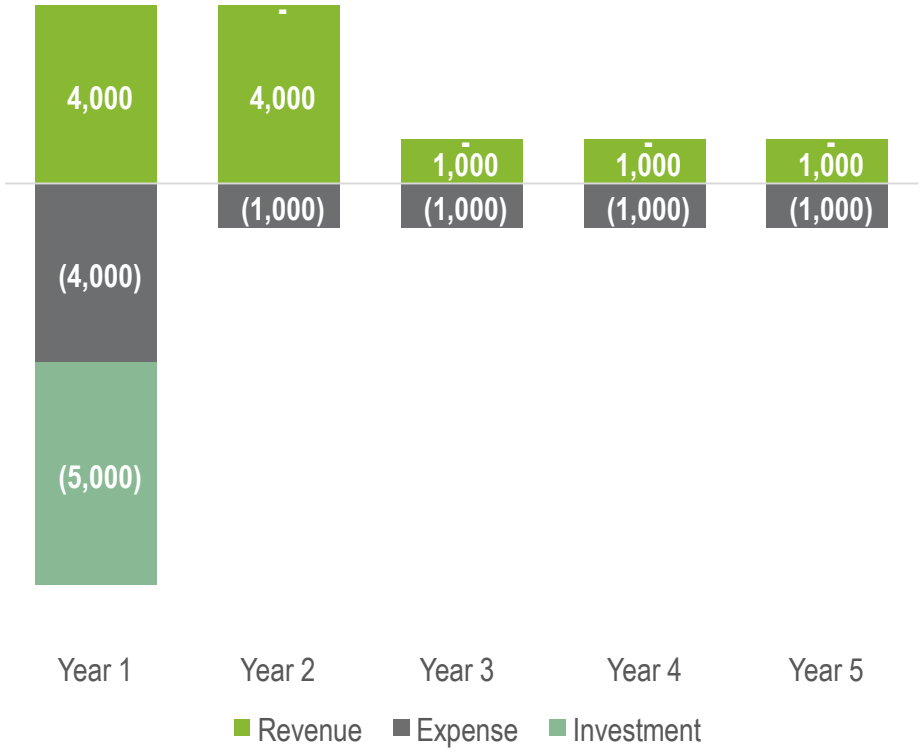
So even highly-beneficial investments cause losses when investments are not considered in reimbursement because of the rate of revenue adjustment.

Long-term investment impact

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000	11,000
Expense	(20,000)	(8,000)
Investments	(0,000)	(5,000)
Gain (loss)	**0**	**(2,000)**

Key question

How does $9 million in savings cause $2 million in losses?

Source(s): GHHI analysis of publicly available information

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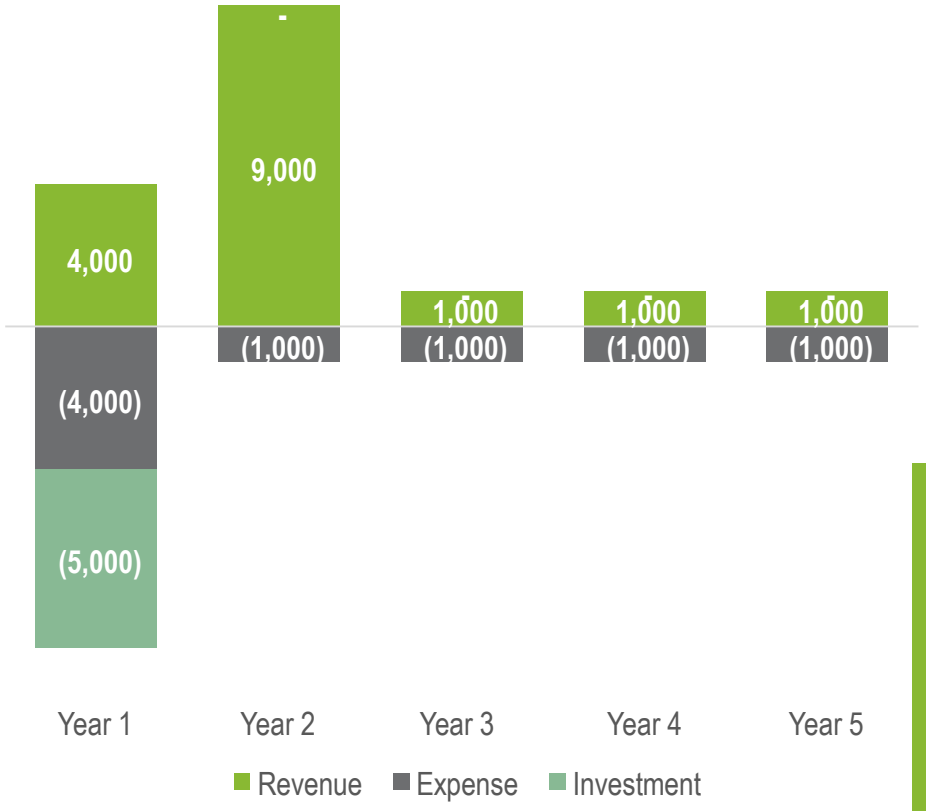
Ideally the system would reimburse parties for investments that reduce future costs, generating a win-win situation where savings are shared.

Long-term investment impact

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000	16,000
Expense	(20,000)	(8,000)
Investments	(0,000)	(5,000)
Gain (loss)	**0**	**3,000**

Key insight

A substantial one-time long-term investment of $5 million in preventative care can result in:

- $4 million in CMS and state savings; and
- $3 million in MCO net gains; but
- $5 million in initial investment required.

Source(s): GHHI analysis of publicly available information

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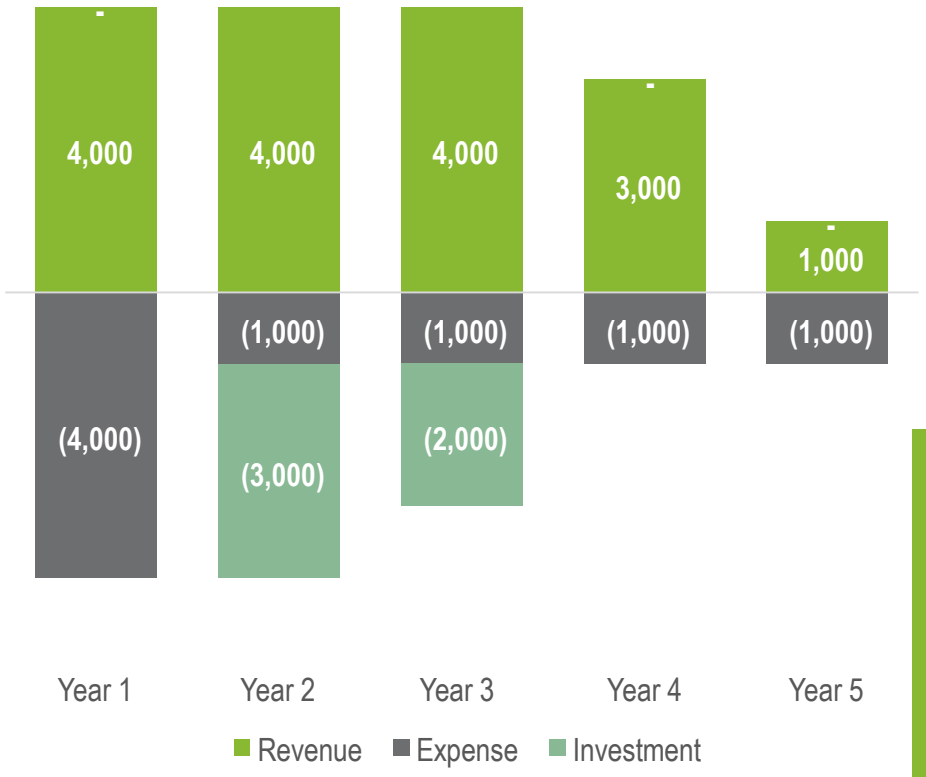
Value-based purchasing can offset the initial need for investment instead using outcomes-based payments to limit risk for MCOs and public payers.

Long-term investment impact

$ thousands



$ thousands	Baseline	Scenario
Revenue	20,000	16,000
Expense	(20,000)	(8,000)
VBPs	(0,000)	(5,000)
Gain (loss)	**0**	**3,000**

Key insight

By using savings to make payments, the project can generate savings for all:[1]

- $4 million in CMS and state savings,
- $3 million in MCO net gains, and
- $5 million in outcomes-based payments.

Note(s): Some component of savings would be needed to provide investors a return to compensate them for the risk taken funding the program.

Source(s): GHHI analysis of publicly available information

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Issue #2:

Spending classification

How investing in prevention of medical expenses reduces revenue, forces budget cuts, and penalizes managed care providers.

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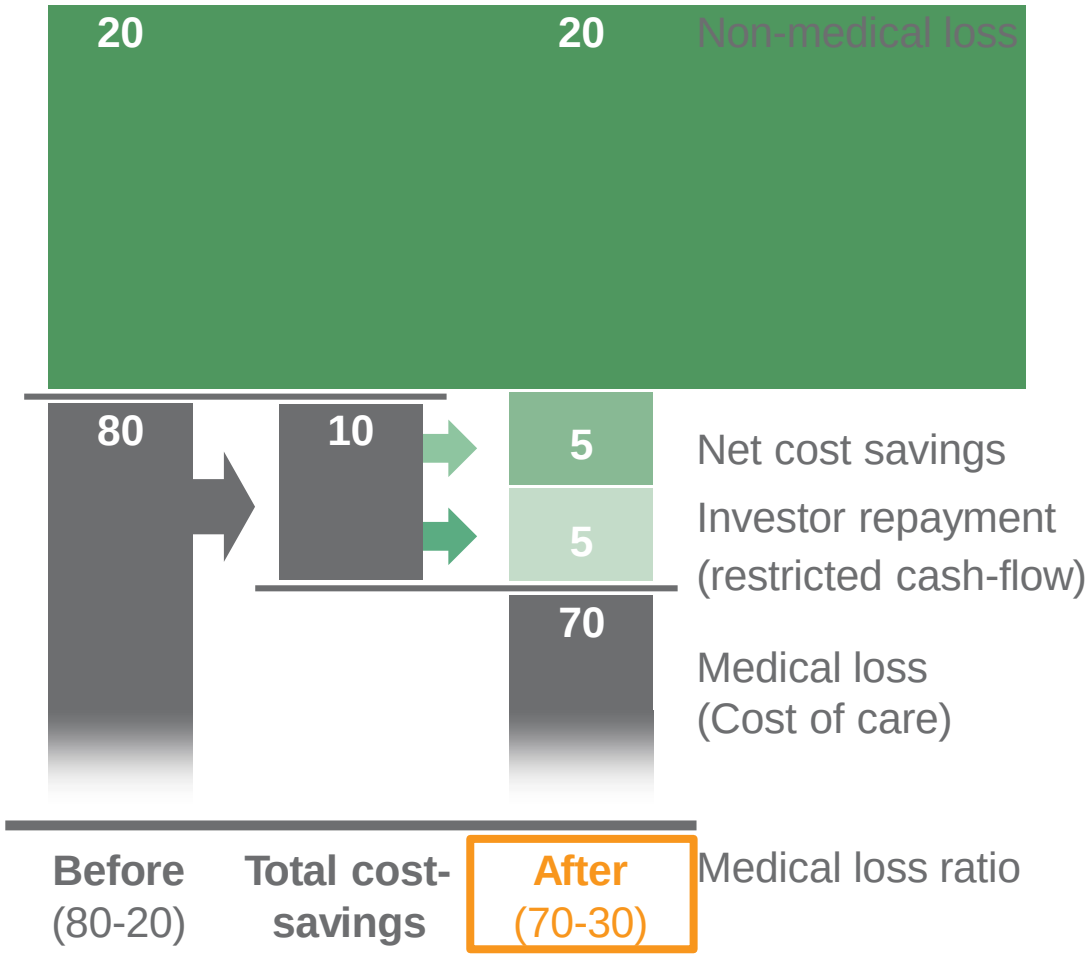
Current policy does not treat preventative care measures not listed on the state plan as medical expenses.

Organizational spending classification

$ millions



Scenario

A MCO with a $100 million budget and existing 80-20 medical loss ratio undertakes a Pay for Success project that:

- Reduces cost of care by $10 million per annum, and
- Repays investors $5 million per annum.

Result

- Subsequent compensation will be based on 7/8ths the real cost of care due to investor funding and repayment.
- Penalties for dropping below the MLR set at 80:20.

Note(s): Investor repayments for investments would be amortized initial investments, which can be aligned to outcomes-based payments.

Source(s): GHHI analysis of publicly available information

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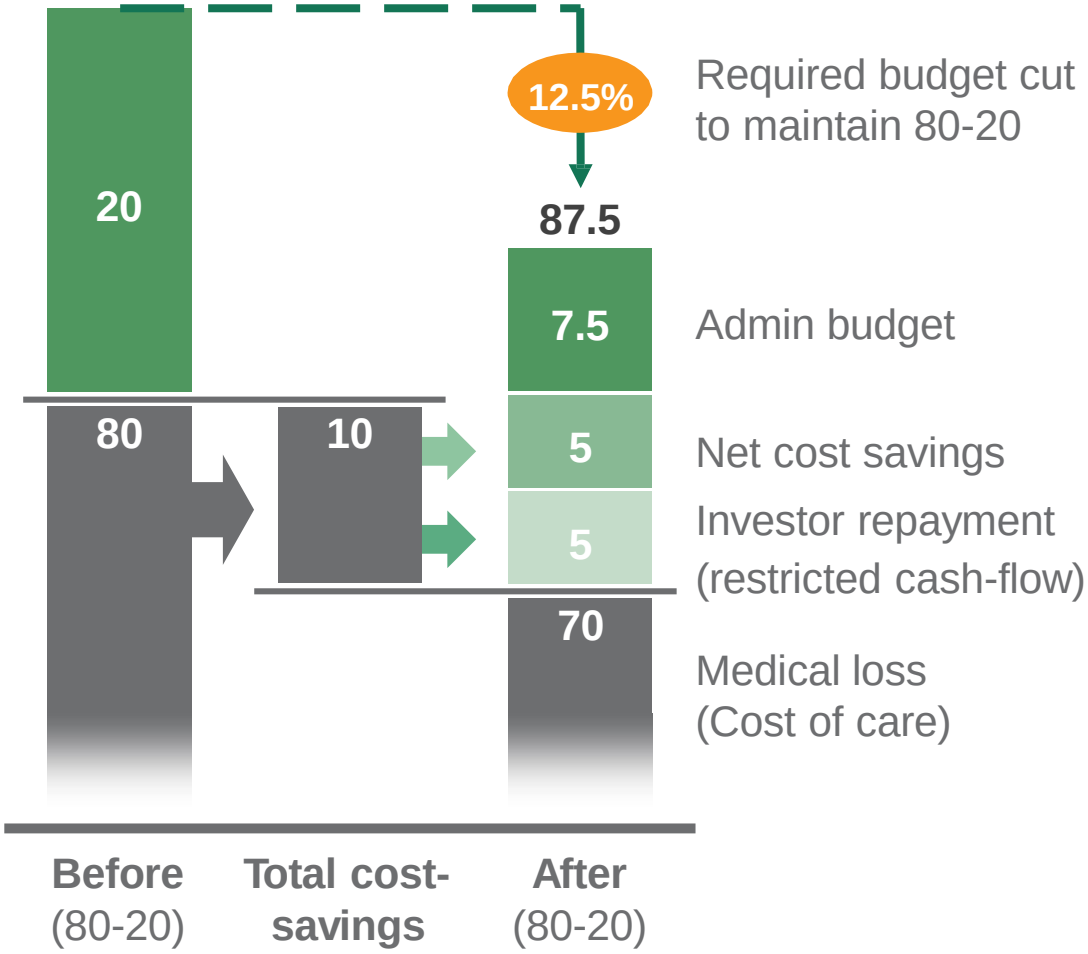
The compensation policies result in unintended consequences for innovative programs, including decreased compensation and forced budget cuts.

Organizational spending classification

$ millions



Results of $10 million project

- **12.5 percent** (100 to 87.5) reduction in total budget; and
- **37.5 percent*** (20 to 12.5) reduction in non-medical budget (excluding investor repayment as a restricted cash-flow).

Key insight

Each dollar of Pay for Success savings will result in:

- $1.25 reduction in overall budget; and
- Between $0.25 and $1.25 reduction in admin budget ($0.75 shown).*

Note(s): * If all savings are repaid to an investor in a given year, the unrestricted admin budget would be just $7.5 million or 62.5 percent less.

Source(s): GHHI analysis of publicly available information

Green & Healthy Homes Initiative®

Our project starts with a strong evidence base.

2007

National Institutes of Health

Patients who have asthma at any level of severity should:

- Reduce, if possible, exposure to allergens to which the patient is sensitized and exposed.
- Know that effective allergen avoidance requires a multifaceted, comprehensive approach; individual steps alone are generally ineffective.

2009

Surgeon General's Call to Action to Promote Healthy Homes

- Describes the steps to protect themselves from disease, disability and injury that may result from home health hazards
- Know that effective allergen avoidance requires a multifaceted, comprehensive approach; individual steps alone are generally ineffective.

2011

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

…**the Task Force recommends the use of home-based, multi-trigger, multicomponent interventions with an environmental focus for children and adolescents with asthma**, on the basis of strong evidence of effectiveness in reducing symptom-days, improving quality of life scores or symptom scores, and reducing the number of school days missed.

Source(s): NIH EPR 3 Asthma Guidelines (http://www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines)
CDC, Community Guide for Asthma (https://www.thecommunityguide.org/asthma/index.html)