

# Creating Energy Plus Health Collaborations

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# Efficiency Vermont



**IAQ & Energy** 2020  
CONFERENCE





# Emerging Technologies & Services





# Healthy Homes Vision

*Through efficiency, Vermont homes are safe, affordable, comfortable, durable and resilient resulting in an improvement in population health and a reduction in greenhouse gases.*





# Market Gaps & Barriers

- Awareness
- VT knowledge
- Under-utilization
- Policy
- Disparate resources
- Health care reform
- Sustainable funding





# Healthy Homes Goals

Goal 1: Provide **cost-effective services** that **improve health outcomes** while **reducing energy burden**.

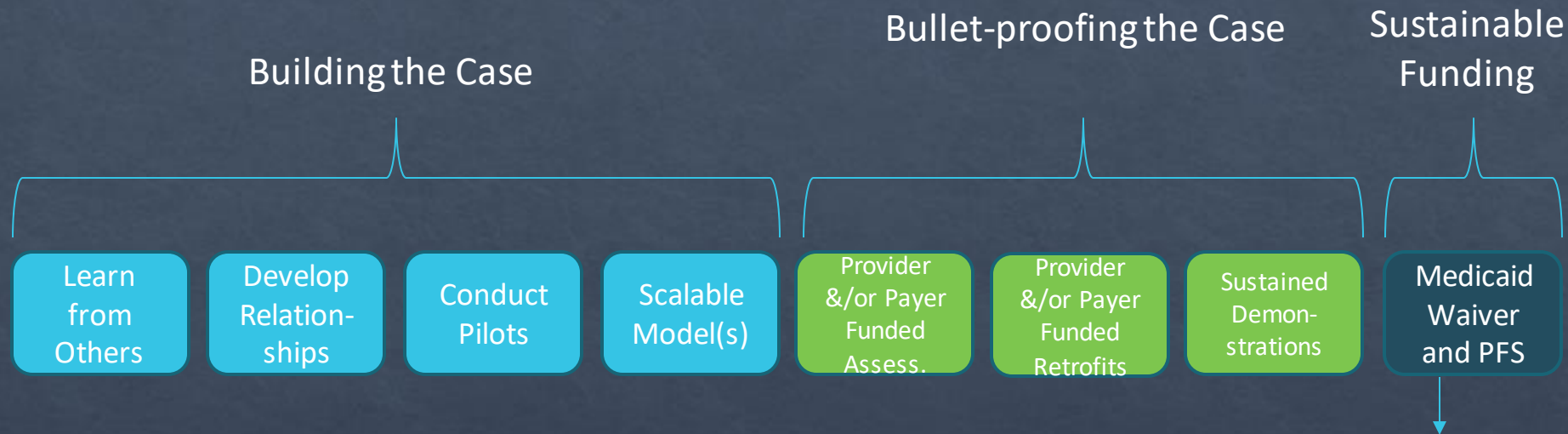
Goal 2: **Increase impact** through strong, mutually beneficial healthy-home **partnerships**.

Goal 3: Be a **credible and valued partner** in the health/energy nexus.

Goal 4: Create a **clear statewide strategy** for healthy, affordable homes.



# Getting to Sustainable Funding



Note: Mechanism may change but outcome is the same.









# Energy plus Health Pilots & Programs

- LI hospital pilots on COPD / asthma (2) and trips and falls (1)
- Market rate hospital pilot on cystic fibrosis / asthma
- Virtual Healthy Home Energy Visits
- IAQ monitor loan program
- Contractor-led Healthy Home Energy Assessments
- Online IAQ training
- Air purifier bonus
- Zero Energy Modular - farms, homeless and rentals
- School IAQ grant program
- DPS health reimbursement





# Agenda

- About the Playbook
- National trends
- Energy plus health program elements
- Other resources





# Energy-Plus-Health Playbook



July 2019

## **Section 1**

Introduction and Playbook Organization

## **Section 2**

Making the Case for Energy-Plus-Health Programs

## **Section 3**

Choosing the Energy-Plus-Health Program Model that is Right for You

## **Section 4**

Designing a Successful Energy-Plus-Health Program

## **Section 5**

Navigating Health Care Industry Partners as You Build Collaboration

## **Section 6**

Energy-Plus-Health Program Case Studies

## **Section 7**

Energy-Plus-Health Program Resources and Sample Materials





# Energy Sector Trends

- **Changing value of energy efficiency:**  
Diminished savings opportunities from lighting, grid challenges, and need for higher customer engagement and engagement with customers not currently reached.
- **Growing desire to reach low-income customers:** Address weatherization deferrals due to health and safety issues and cost-effectiveness.
- **Workforce training now integrates health:**  
Healthy homes assessments and formal credentialing, safe work practices around hazardous materials, and.



# Health Sector Trends

- **Healthy homes:** Integration of energy efficiency into healthy homes framework.
- **Health care industry:** Disruption in health care payment structures to reward outcomes rather than reimburse visits to medical services.
- **Public health policy:** Many public health departments adopting Health in All Policies and integrating Social Determinants of Health indicators.

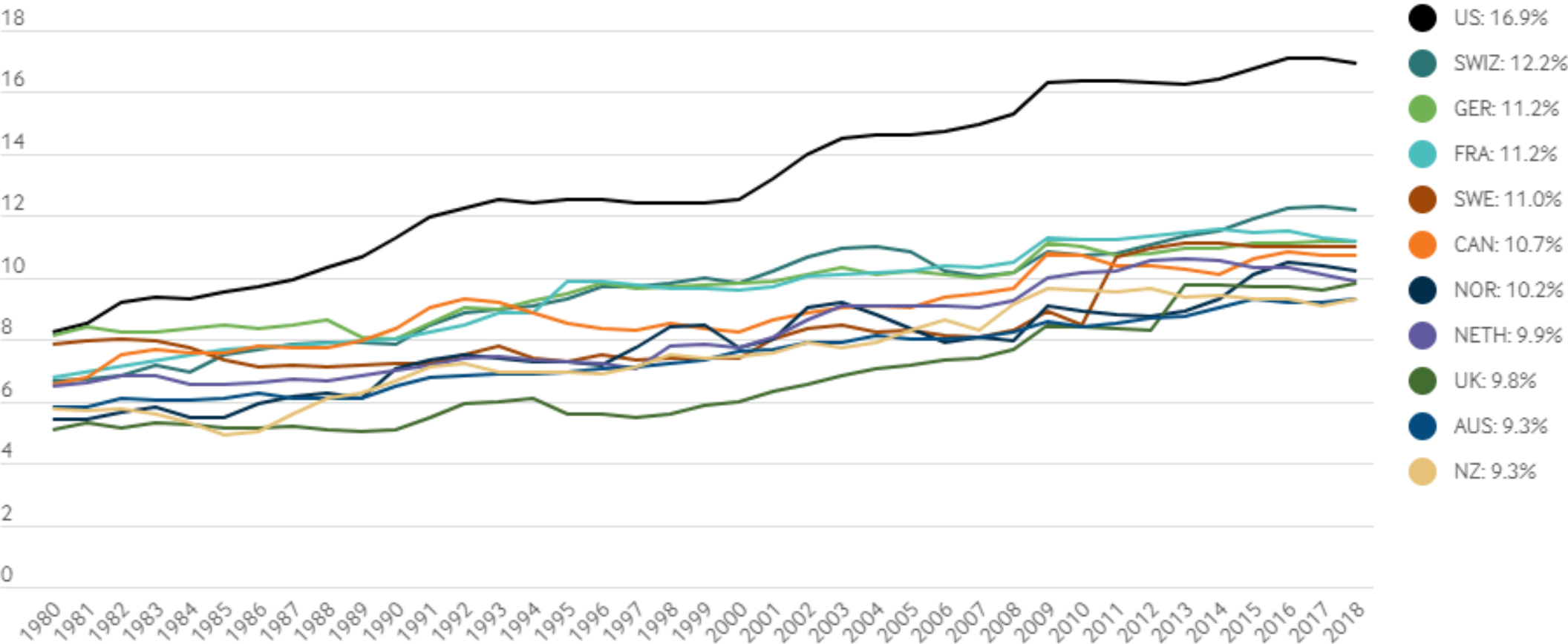




# Health Care Spending

Percent (%) of GDP, adjusted for differences in cost of living  
Legend shows 2018 data\*

OECD average: 8.8%



Notes: Current expenditures on health. Based on System of Health Accounts methodology, with some differences between country methodologies. GDP = gross domestic product. OECD average reflects the average of 36 OECD member countries, including ones not shown here. \* 2018 data are provisional or estimated.

Data: OECD Health Statistics 2019.

Source: Roosa Tikkanen and Melinda K. Abrams, *U.S. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?* (Commonwealth Fund, Jan. 2020). <https://doi.org/10.26099/7avy-1c29>

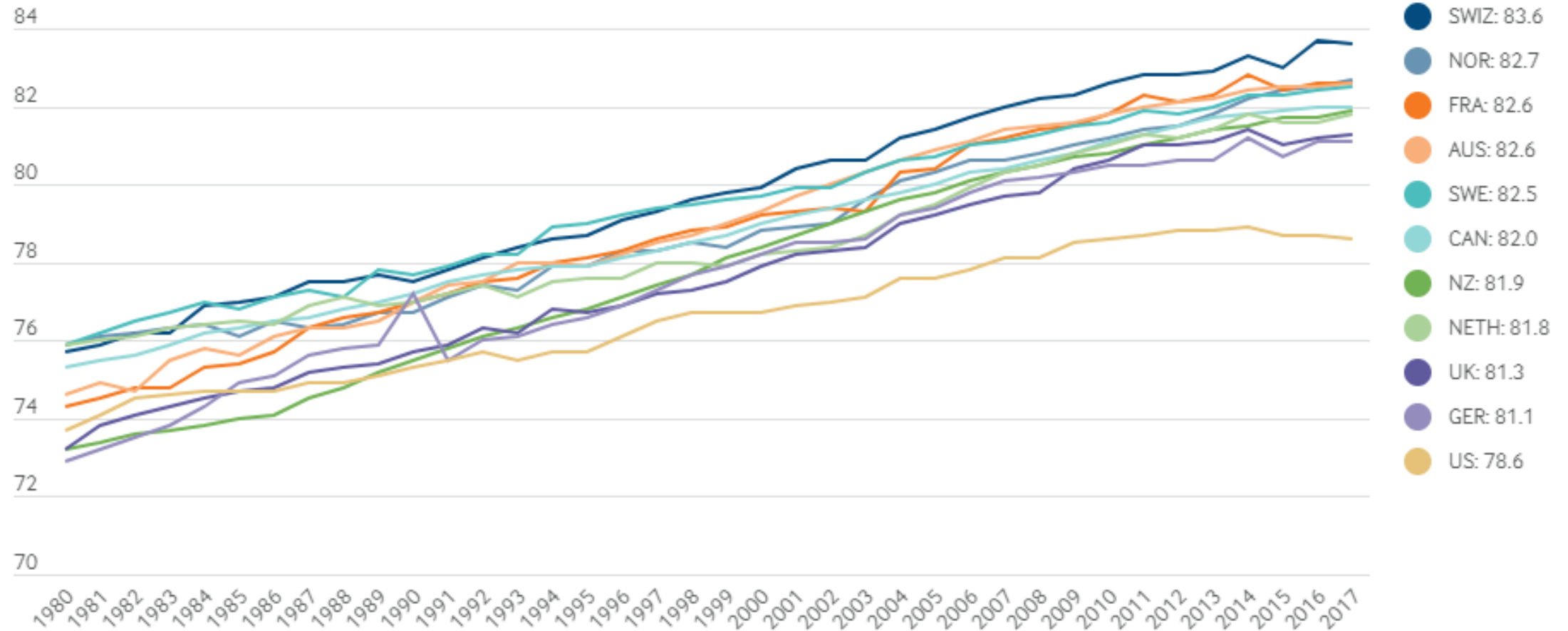


# Life Expectancy

Years

Legend shows 2017 data

OECD average: 80.7



Note: OECD average reflects the average of 36 OECD member countries, including ones not shown here.

Data: OECD Health Statistics 2019.

Source: Roosa Tikkanen and Melinda K. Abrams, *U.S. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?* (Commonwealth Fund, Jan. 2020). <https://doi.org/10.26099/7avy-fc29>

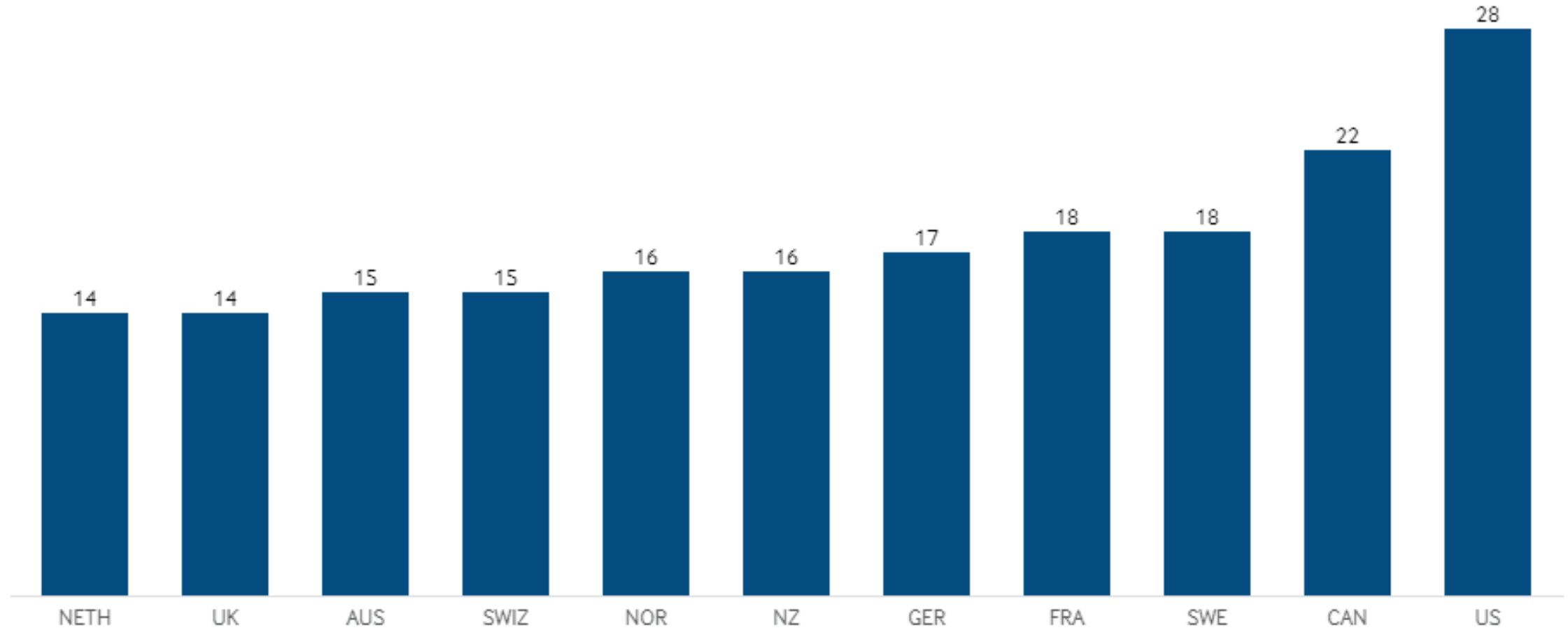




Percent (%)

# Adult Chronic Disease Burden

11-country average: 17.5%



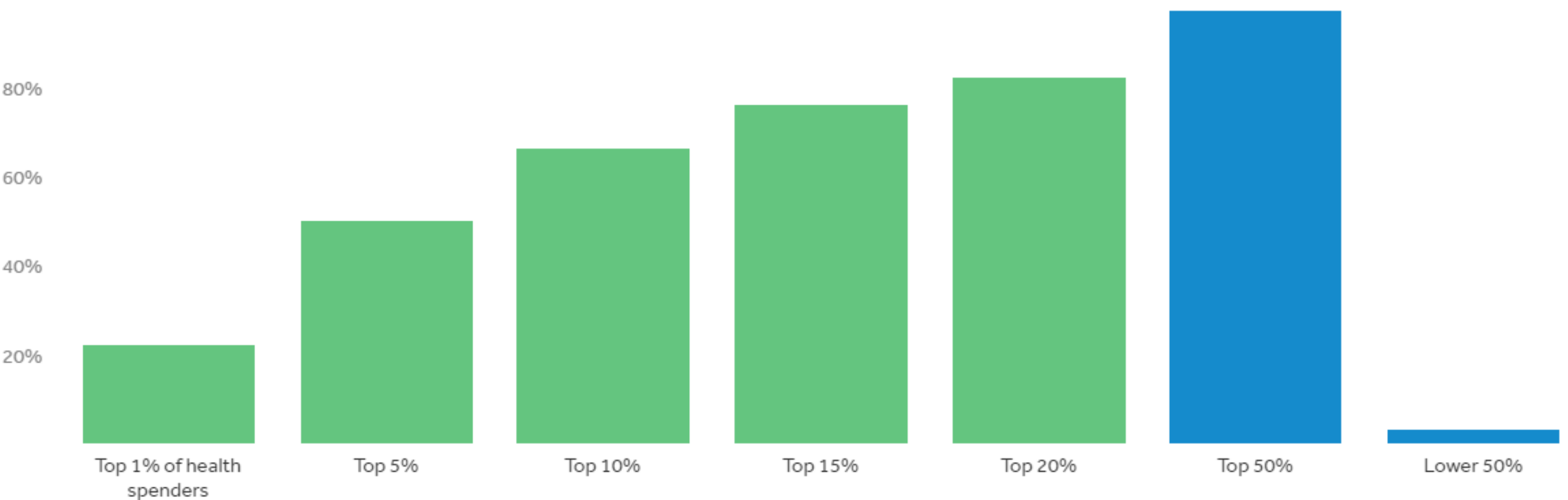
Notes: Chronic disease burden defined as adults age 18 years or older who have ever been told by a doctor that they have two or more of the following chronic conditions: joint pain or arthritis; asthma or chronic lung disease; diabetes; heart disease including heart attack; or hypertension/high blood pressure. Average reflects 11 countries shown in the exhibit that take part in the Commonwealth Fund's International Health Policy Survey.

Data: Commonwealth Fund International Health Policy Survey, 2016.

Source: Roosa Tikkanen and Melinda K. Abrams. *U.S. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?* (Commonwealth Fund, Jan. 2020). <https://doi.org/10.26099/7avv-fc29>



# Contribution to total health expenditures by individuals, 2016

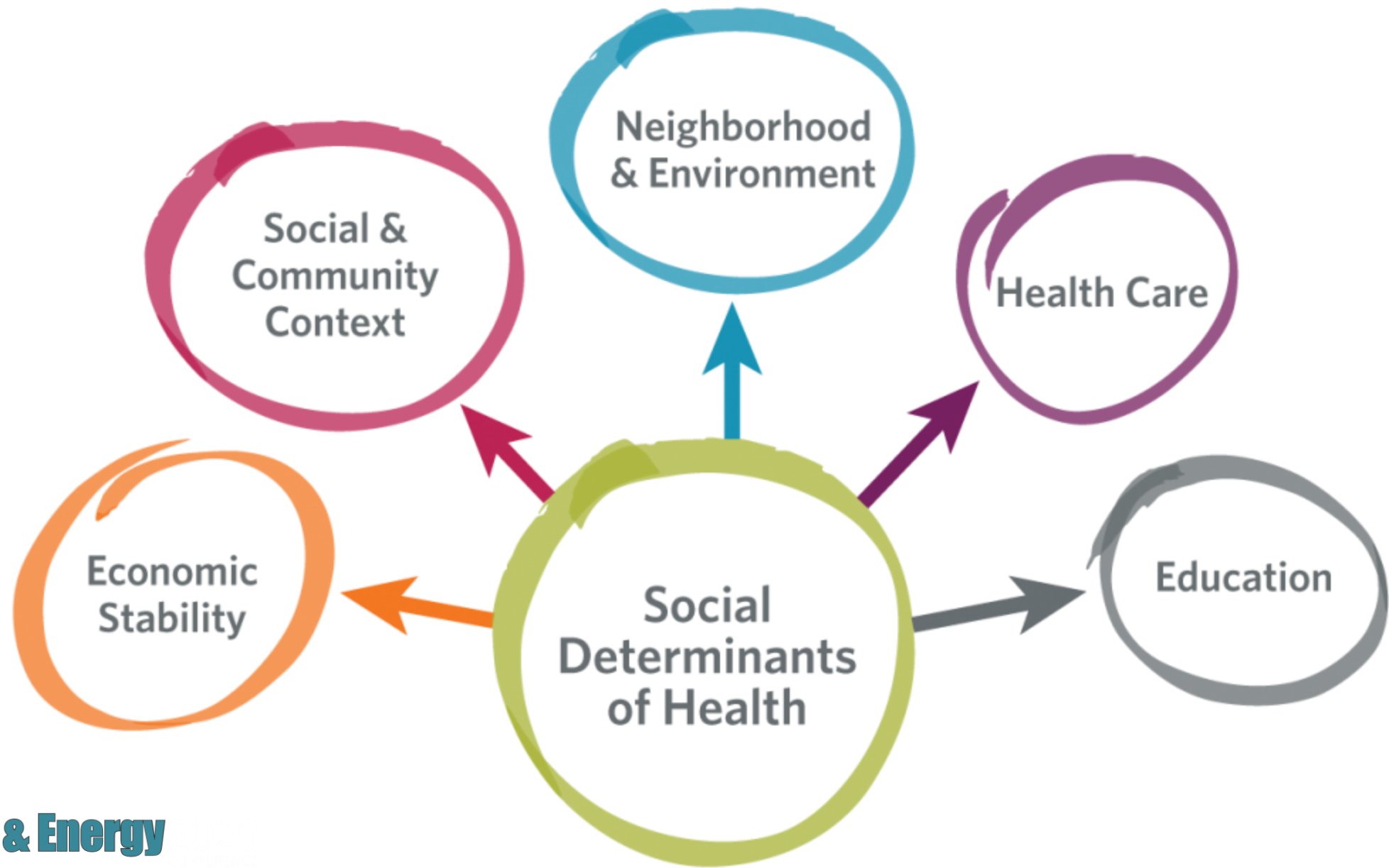


Source: Kaiser Family Foundation analysis of Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services  
• [Get the data](#) • [PNG](#)

Peterson-KFF  
**Health System Tracker**









Home  
visiting for  
families

Partner for  
affordable housing

Be socially  
inclusive

Advocate for  
income supports

Collaborate for  
healthy schools

Support  
smoking bans

TB  
treatment





## Traditional Fee-for-Service

Payment for each service regardless of quantity or quality



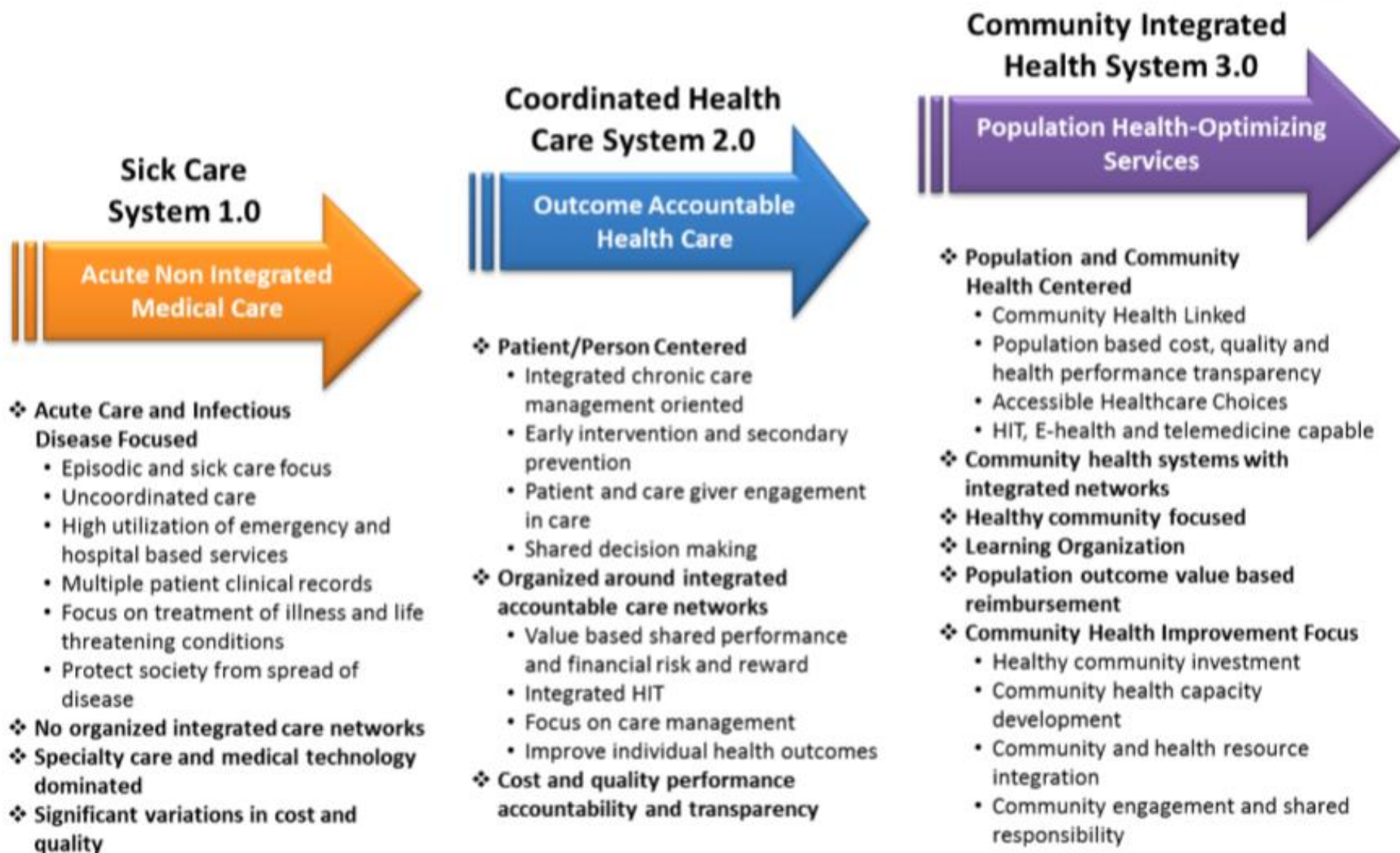
vs.

## Bundled Payments

Payment for comprehensive, coordinated intervention



# Health System Transformation Critical Path

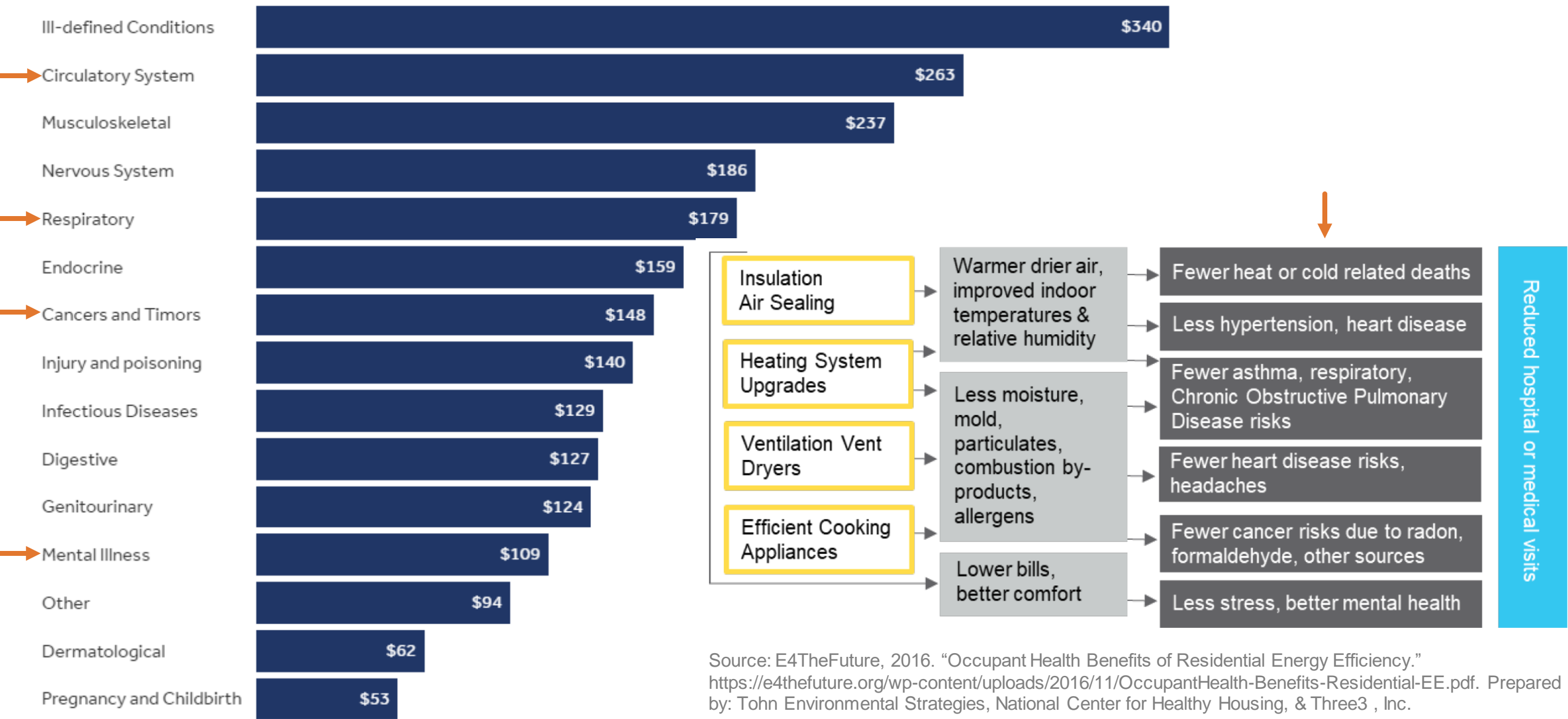


Source: Adapted from CMMI





Total medical services expenditures in US \$ billions, by medical condition, 2017

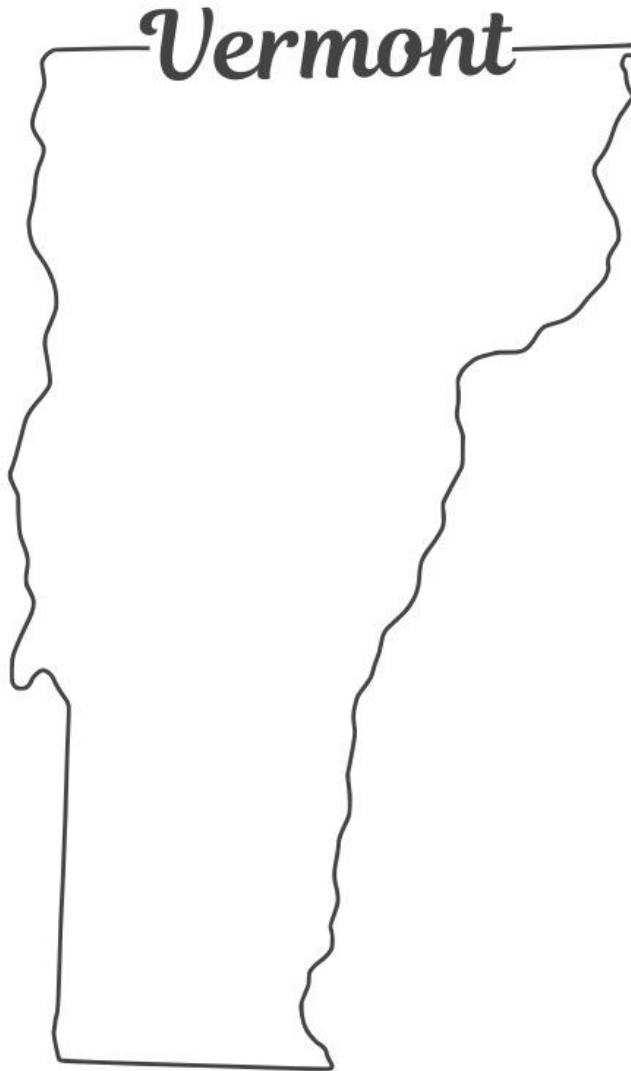


Source: E4TheFuture, 2016. "Occupant Health Benefits of Residential Energy Efficiency." <https://e4thefuture.org/wp-content/uploads/2016/11/OccupantHealth-Benefits-Residential-EE.pdf>. Prepared by: Tohn Environmental Strategies, National Center for Healthy Housing, & Three3 , Inc.

Spending on dental services, nursing homes, and prescriptions that cannot be allocated to a specific disease not included above.



- Value based payment pilot
- High asthma and COPD burden
- Asthma team at VT Dept. of Health w/ program
- Falls data and costs
- Existing energy program infrastructure and progressive Wx department



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# Building Cross-Sector Collaboration

- Join the conversation
- Understand stakeholder pains, gains and value
- Learn health care language
- Build an awareness of and a culture for healthy homes and buildings





# Energy-Plus-Health Program Models

## Three-tier framework

- Each tier engages health and safety and increasingly integrates health focus.
- Helps PA's decide which program model is feasible and aligns with local circumstances
- Identifies stakeholders and roles
- Offers options for increasing impact and outcomes



Case studies & sample materials  
included for each tier





## Tier 1: Basic health and safety

- Best option for PAs who lack the time and resources to build external partnerships or develop new programs
- Supports PA goals to “do no harm”
- Many existing residential retrofit and weatherization programs fit in Tier 1



## Tier 2: Cross-sector referrals

- Best option for PAs who have healthy home resources available and are willing to invest in a referral network, but are not ready to invest in learning about the needs of the health care sector and building a full partnership with them
- Supports PA goals for community and low-income impact
- Usually doesn't require major changes to existing efficiency programs

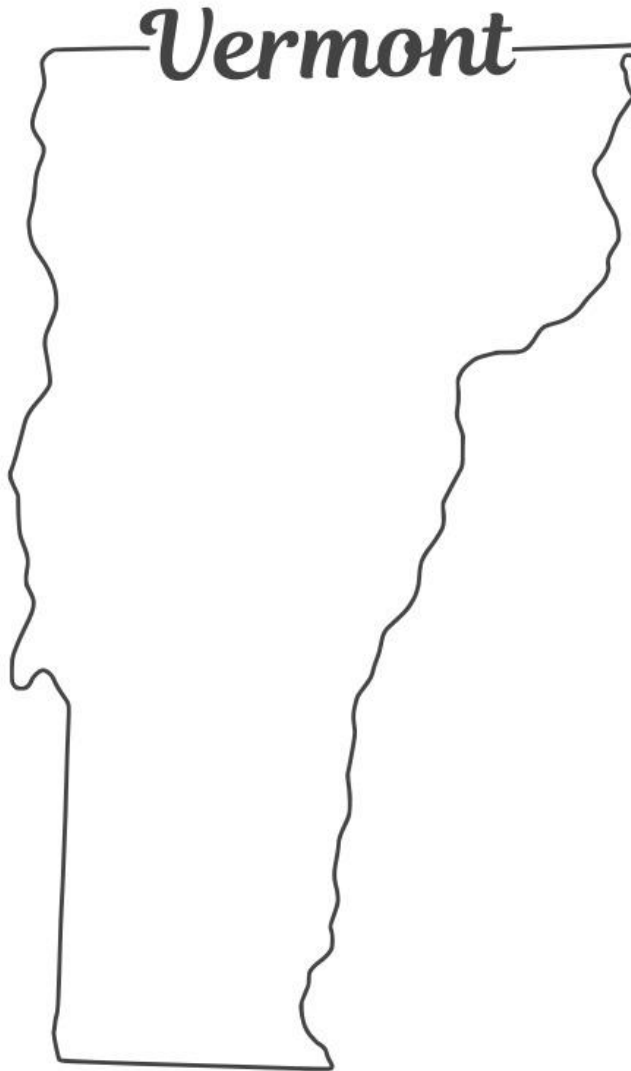


## Tier 3: Integration

- Best option for PAs who are willing to make a significant investment to understand the needs of the health care sector and develop a mutually beneficial cross-sector partnership
- Supports quantification of health-related non-energy impacts for inclusion in cost-effectiveness screening.
- Supports PA goals to develop new health-related funding streams
- May require approval by regulators or other oversight bodies



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- ✓ Do no harm
- ✓ Electronic referral program
- ✓ NEB adder in screening tool
- ✓ CBOs delivering energy efficiency
- ✓ Energy plus health knowledge base
- ✓ Health care partners







### **Energy Efficiency Program Administrator**

- Delivers efficiency measures directly or through contracts
- Work meets “do no harm” and minimum code standards
- Best practice combines building shell, HVAC and electrical efficiency measures for whole-house approach
- Provides training and quality control for contractors that follow BPI, DOE-WAP, or EPA assessment and expanded action standards



### **Health Care Providers**

- Creates systematic customer identification, health-related eligibility screening and direct referral to program
- Implements in-home health-specific services using community health workers or equivalent
- Provides quality assurance for health-related implementation services
- Tracks, evaluates and documents health-related outcomes
- Contributes to funding and supports exploration of other funding opportunities



### **Contractors – Healthy Home Assessors**

- May deliver PA's efficiency services
- Conduct audits and assessments for energy efficiency and expanded action protocols
- Finds value in integrating efficiency program offerings into other service offerings
- May be well-positioned to leverage other funding for hazard remediation and/or home repairs
- May assess for hazards such as asbestos, mold, radon



### **Contractors – Healthy Home and Energy Upgrade Service Providers**

- Implements efficiency measures, may be delivered in combination with other home improvement offerings
- Have training and expertise in BPI, DOE-WAP, or EPA protocols for home energy upgrades plus expanded options established by Tier 3 program design
- BPI Certified Healthy Homes Evaluators conduct audits



## Program Challenges

## Mitigation Strategies








Delayed or insufficient customer enrollments	<ul style="list-style-type: none"><li>• <u>Customer-centric program design</u></li><li>• Develop targeting strategy to identify patients/clients through health care partners, community organizations, energy programs, housing partners, and public health offices; tailor engagement strategies based on customer-type (renter vs homeowner, low-income vs moderate-income, etc.).</li><li>• Engage health care partner through education and training in energy efficiency services and products (i.e., if they improve their own home they are more likely to experience the benefits of better indoor environments).</li><li>• Provide partners (especially health care providers) specific answers to Frequently Asked Questions from customers receiving information about the program and during program participation; provide partners with resources for referring customers to PA for answers.</li></ul>
Customers with housing-related health issues not meeting <i>all</i> eligibility requirements	<ul style="list-style-type: none"><li>• Create a stepped program design providing basic Energy-Plus-Health offerings to all customers, with deeper options to eligible customers</li><li>• Offer multiple program pathways to allow for variable income levels and health conditions (for example), without detracting from results of each program option.</li></ul>
Customer health risks and co-morbidities <sup>39</sup> potentially influencing program outcomes	<ul style="list-style-type: none"><li>• Design program with partners based on desired outcomes and establish requirements for existing health conditions that address co-morbidities.</li><li>• When funding is limited, target eligible patients with specific illnesses for deeper program offerings.</li><li>• Health partner screens for unacceptable health conditions that could (a) pose additional risks to patient health (such as overall health picture too poor to undergo home remediation) or (b) skew program results (such as smoking) when program evaluation methods do not adequately account for impacts of co-morbidities on program results.</li></ul>




























































# Weatherization improves home conditions that affect health

## Wx improves the home

-  Reduced energy bills
-  Improved temperature control
-  Improved indoor air quality
-  Enhanced safety
-  Reduced humidity
-  Reduced mold
-  Reduced pest intrusion

*\*Published evidence about the indoor environmental quality and health impacts of Wx was reviewed to identify the expected effects. The strength of evidence for each finding was based on the quality and amount of evidence available.*

## Wx benefits health in many ways

Health benefits...	...are associated with these improvements to home conditions.	Strength of evidence*
General Health	      	High
Productivity	     	High
Social Health	    	High
Upper Respiratory	    	High
Asthma	    	Medium
Cardiovascular	 	Medium
Financial Stress	      	Medium
Mental Health	      	Medium
Health Care Utilization & Costs	     	Medium
Accidental Injury		Low
Infectious Disease	 	Low
Neurological	 	Low





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Thank you!





# Disclaimer

- This presentation is not intended to be a comprehensive program covering all aspects of this topic.
- All are participants are encouraged to read and follow applicable standards, codes and regulations related to this topic.
- The views and opinions following are the presenter's opinions and not necessarily the official position of the Maine IAQ Council, IAQnet LLC, or Healthy Indoors.