

## **Preventative Care**

### *Preventative Care: A Real Opportunity to Improve Healthcare Value or Less than It Seems?*

#### **Key Takeaways**

Effective preventative services can increase quality and longevity of life.

Few preventative services save money, but many are cost-effective.

Prevention care often seems to be held to a higher reimbursement standard than medical treatment.

Optimal use of prevention services may or may not save money for the system

Many commonly used prevention services are poor investments, particularly those that are medically intensive and well reimbursed.

#### **Introduction**

“An ounce of prevention is worth a pound of cure.” It seems common sense that investment in preventative measures should lead to better health and lower costs – a winner for everyone. But how does this play out? Which services, if any, generate better health outcomes, and for which individuals? To what degree could preventative health reduce costs? How can effective preventative services be implemented within the reality of the US healthcare system? This background document will explore the world of preventative medicine and its current and potential role in the healthcare system.

#### **What is Prevention?**

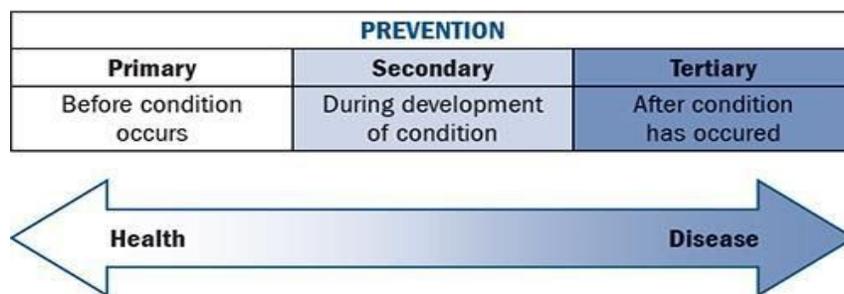
The Centers for Disease Control and Prevention defines preventative care as “health services like screenings, check-ups, and patient counseling that are used to prevent illnesses, disease, and other health problems, or to detect illness at an early stage when treatment is likely to work best.”

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There are three types of prevention: primary, secondary, and tertiary. Primary prevention is an intervention that occurs prior to the onset of illness or injury with the aim of preventing the negative health outcome from occurring in the first place. On a clinical level, this includes services such as vitamin D administration to newborns, immunizations, and providers' advice to teens regarding safer sex practices. Primary prevention is also played out on a broad social level through interventions such as mandatory seatbelt laws, Pigovian (sin) taxes on products that are harmful to health, fluoridation of drinking water, and other such interventions.

Secondary prevention occurs during the development of a condition. This may include prescribing statins to control LDL cholesterol in patients at risk for cardiovascular disease, diet and exercise counseling for pre-diabetics, and regular prostate cancer screenings.

Tertiary prevention is focused on the management of a condition by attempts to improve quality of life and reduce symptoms. Examples include HIV medications for those already infected, occupational therapy for homebound elders, and blood thinners for those who have suffered a stroke.



## Does Prevention Work?

If the goal of preventative care is to improve quality and longevity of life (the quality-adjusted life year – QALY – is the empirical measure used by epidemiologists), then, yes, prevention often works. Yet not all prevention is equally effective. In 2017, the National Commission on Prevention Priorities (NCP), a panel of clinicians, health insurance plan leaders, employers, government representatives and academics, ranked 28 clinical

preventive services the U.S. Preventive Services Task Force and the Advisory Committee on Immunization Practices said were based on strong evidence of effectiveness [1].

### Top 10 Preventive Services Recommendations Ranked by Clinically Preventable Burden

| Intervention                                       | Rank (1-5) |
|--|------------|
| Childhood immunization series                      | 5          |
| Tobacco use, brief prevention counseling, youth    | 5          |
| Tobacco use screening and brief counseling, adults | 5          |
| Obesity screening, adults                          | 5          |
| Cervical cancer screening                          | 4          |
| Colorectal cancer screening                        | 4          |
| Cholesterol screening                              | 4          |
| Hypertension screening                             | 4          |
| Influenza immunization, adults                     | 4          |
| Obesity screening, children and adolescents        | 4          |

Of course, for prevention to work, it also must be practical – and practical means feasible and affordable. While it might be effective to assign every patient who is pre-diabetic with a full-time chef and personal trainer, no one would argue that this is feasible or affordable

for 86 million pre-diabetic Americans. Realistically, when money and feasibility are considered, the logic of prevention gets far more complex.

### The Economics of Prevention

Does prevention save the healthcare system money? The data are mixed, but it is valuable to establish some basic facts first. The only way any health intervention can be said to save money is if it prevents some later and larger expenditure. And while prevention of a single risk factor (e.g., smoking tobacco) may prevent later expenditures related to that risk (e.g., thoracic surgery to remove non-small cell lung cancer tumors), it will not reduce *all* medical expenditures in a patient’s life. Indeed, it is a harsh economic reality that the prevention of an injury or illness that would quickly kill a young person actually *adds* costs to the system, as that person will inevitably go on to incur further medical costs over a longer life and eventual death.

However, while prevention interventions may not realize a *return on investment* over the life course, they may be *cost effective*, i.e., returning good value for the investment. Value in this case should be understood to be a longer and higher quality of life for patients, realized with the minimum cost. The following table, also from the NCPP, evaluates the same 28 clinical preventive services as the table above, but this time from a cost-effectiveness perspective.

### Top 12 Preventive Services Recommendations Ranked by Cost-Effectiveness

| Intervention  | Rank (1-5) |
|---|------------|
| Alcohol misuse screening and brief intervention         | 5          |
| Aspirin chemoprevention for those at higher risk of CVD | 5          |
| Childhood immunization series                           | 5          |

|  |   |
|--|---|
| Tobacco use, brief prevention counseling, youth    | 5 |
| Tobacco use screening and brief counseling, adults | 5 |
| Syphilis screening                                 | 5 |
| AAA screening                                      | 4 |
| Cervical cancer screening                          | 4 |
| Colorectal cancer screening                        | 4 |
| Chlamydia and gonorrhea screening                  | 4 |
| HIV screening                                      | 4 |
| Vision screening, children                         | 4 |

When clinically preventable burden is combined and equally weighted with cost effectiveness, NCPP evaluates the same 28 clinical preventive services this way:

### **Top 10 Priorities for Improving Utilization of Clinical Preventative Services**

| <b>Intervention</b>                                     | <b>Total</b> |
|---|--------------|
| Childhood immunization series                           | 10           |
| Tobacco use, brief prevention counseling, youth         | 10           |
| Tobacco use screening and brief counseling, adults      | 10           |
| Alcohol misuse screening and brief intervention         | 8            |
| Aspirin chemoprevention for those at higher risk of CVD | 8            |

|                                   |   |
|-----------------------------------|---|
| Cervical cancer screening         | 8 |
| Colorectal cancer screening       | 8 |
| Chlamydia and gonorrhea screening | 7 |
| Cholesterol screening             | 7 |
| Hypertension screening            | 7 |

It seems intuitive that appropriate preventative care – which tends to be far less expensive than treatment – should save money for the entire system. There are at least two reasons why this might not be true. First, offering primary prevention services to a large population can be costly and may prevent only a small number of treatments, leading to a poor return on investment. Sometimes this problem can be avoided by targeting prevention to those most at risk, but this may be practically or politically infeasible.

Another reason to question whether appropriate preventative care would save money across the healthcare system stems from the well-documented level of treatment variation by locale that is completely unrelated to population health status. There is very low correlation between the health and specific medical problems experienced by individuals in a given region and the nature and amount of care delivered there. Many experts believe that provider supply and practice preferences are far more important than population health in determining what care is provided. Whether or not this is true, there's reason to question the (logical) assumption that improving population health through preventative care would necessarily result in less treatment.

## Overused and Less Effective Preventative Services

On the opposite side, there are a number of preventative services that are widely used that are not effective, either in terms of health outcomes or cost effectiveness [2]. High on this list are:

- Prostate-specific antigen–based screening for prostate cancer
- Whole-body scans for early tumor detection in asymptomatic patients.
- Screening for cervical cancer in low-risk women aged 65 years or older and in women who have had a total hysterectomy for benign disease
- Transesophageal echocardiography
  - More sensitive and expensive than transthoracic echocardiography for stroke etiology without benefiting patients
- Computed tomography pulmonary-angiography
  - More expensive than D-dimer in suspected pulmonary embolism without benefiting patients
- Carotid ultrasonography and carotid revascularization in asymptomatic patients are frequently used for uncertain or inappropriate indications

In the Medicare population specifically, the following preventative services were found to be of little to no benefit to patients:

- Cancer Screenings
  - Cancer screening for patients with CKD receiving dialysis
  - Cervical cancer screening for women aged  $\geq 65$  y
  - Colorectal cancer screening for older elderly patients

- o PSA testing for men aged  $\geq 75$  y
- Diagnostic and Preventive Testing
  - o Bone mineral density testing at frequent intervals
  - o Homocysteine testing for cardiovascular disease
  - o Hypercoagulability testing for patients with deep vein thrombosis
  - o PTH measurement for patients with stage 1-3 CKD

These services waste money and, in some cases, lead to unnecessary treatments. The following table lists services in order of prevalence and demonstrates the costs to the Medicare program:

| <b>Low Value Preventative Care in Medicare</b>             | <b>Spending,<br/>\$<br/>(Millions)</b> |
|--|--|
| Imaging for nonspecific low back pain                      | 226                                    |
| PSA screening at age >75 y                                 | 98                                     |
| PTH testing in early CKD                                   | 137                                    |
| Stress testing for stable coronary disease                 | 2,065                                  |
| Colon cancer screening for older elderly patients          | 573                                    |
| Cervical cancer screening at age >65 y                     | 120                                    |
| Carotid artery disease screening for asymptomatic patients | 323                                    |
| Preoperative radiography                                   | 75                                     |

|   |      |
|---|------|
| Head imaging for headache                                 | 211  |
| Homocysteine testing for cardiovascular disease           | 15   |
| Head imaging for syncope                                  | 85   |
| Bone mineral density testing at frequent intervals        | 20   |
| Carotid artery disease screening for syncope              | 49   |
| PCI/stenting for stable coronary disease                  | 2810 |
| Preoperative echocardiography                             | 58   |
| Preoperative stress testing                               | 180  |
| CT for rhinosinusitis                                     | 42   |
| Renal artery stenting                                     | 705  |
| Vertebroplasty  | 199  |
| Arthroscopic surgery for knee osteoarthritis              | 143  |
| Cancer screening for patients with CKD receiving dialysis | 4    |
| IVC filter placement                                      | 43   |
| Preoperative PFT  | 2    |
| Carotid endarterectomy for asymptomatic patients          | 263  |
| Hypercoagulability testing after DVT                      | 3    |

|                  |              |
|------------------|--------------|
| EEG for headache | 3            |
| <b>Total</b>     | <b>8,451</b> |

## Conclusion

Effective prevention can improve length and quality of life. A limited number of preventative services can be cost-saving; more often they are cost-effective, and frequently they are neither. Many preventative services are underused and others are applied too broadly. As with treatments, medically intensive prevention care is more likely to be overused while less medically focused services (such as counseling) tend to be underemployed. It's not clear whether optimal use of preventative care would save the system money overall due to weak correlation between population health status and services delivered. Preventative care may represent an opportunity for improving healthcare value. However, payers, providers, and policy makers have yet to determine which incentives, penalties, and regulations can best realize this potential.

### Discussion Questions

What is the potential for preventative services to save money for the healthcare system?

What is the likelihood that a population made healthier by prevention services incur lower costs?

To what extent is reimbursement a barrier to providing worthwhile prevention services?

Are preventative services held to a higher standard for reimbursement than are treatments? If so, is this a function of a bias toward reimbursing medically intensive interventions?

The Affordable Care Act mandates some prevention services within its list of Essential Health Benefits. Does this represent good value for the healthcare system?

More broadly, should payers be required to cover preventative services, and if so,

which ones?

For prevention services shown to be effective, what regulations, incentives, and/or penalties should be in place for payers and providers to maximize their use?

Should there be financial incentives for individuals to use prevention services?  
Should an individual who fails to use recommended services and later incurs potentially avoidable treatment expenses be penalized financially?

Should responsibility for optimizing use of prevention services fall on the government, private companies, or individuals?

Should legal ramifications for failing to offer or deliver preventative services be similar to those for medical treatments?

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