

HEALTH PROMOTION

UNDERSTANDING THE NATURE OF PREVENTION

It is not enough to just be aware of major health risks, as we also have a responsibility to try to intervene to enhance the health of the public, our families, and even just ourselves. But the nature of these issues and their prevalence make it a daunting task to know where to start. Promoting health and preventing disease are not necessarily the same thing, and efforts in this area have to be well thought out to target relevant health conditions.

Topics: Primary Prevention — Secondary Prevention — Tertiary Prevention — Primordial Prevention — Quaternary Prevention — Quinary Prevention

Primary Prevention — Efforts specifically targeted towards preventing the development of the disease/disorder. The individual does not have the disease/disorder.

Although **disease prevention** is classically considered as encompassing only medical services (e.g., vaccinations, medication, surgical intervention); while **health promotion** is considered as encompassing social determinants of health (e.g., health literacy, behavioral interventions, dietary and nutritional policies); there is considerable overlap in these approaches. Health promotion and disease prevention efforts are differentiated into three different levels of prevention: Primary, Secondary, and Tertiary. **Primary Prevention** efforts are focused on reducing the incidence of disease/disorders. At the individual level, this is done by attempting to remove or lower risk factors in at-risk patients. So attempts to prevent exposures to hazards that cause disease or injury, alter unhealthy or unsafe behaviors, and increase resistance to disease or injury should exposure occur are all primary prevention efforts.

At the population level, this is done through legislation and enforcement policies to reduce exposure to risk factors by banning or controlling the use of hazardous products (e.g. asbestos) or by adding risk-lowering factors to mandate safe and healthy practices (e.g., seatbelts, helmets, water fluoridation). Consistent findings from population-focused primary prevention efforts indicate that societal attitudes are the biggest predictor of if the population-focused primary prevention efforts will be successful (e.g., drinking and driving, smoking

within buildings).

Secondary Prevention — Efforts specifically targeted towards preventing the progression or recurrence of the disease/disorder. The individual has the disease/disorder, typically in early stages.

Unlike primary prevention, where the disease/disorder is absent; **Secondary Prevention** efforts are focused on preventing the progression or recurrence of the disease/disorder. These efforts specifically focus on the early detection and prompt treatment of health issues to improve the chances for positive health outcomes. At the individual level, this is done through regular health examinations which screen for potential issues (e.g. assessment of blood cholesterol, blood pressure monitoring) and preventative therapies to reduce additional progression of the disease/disorder and hopefully restore the individual to their original health status. At the population level, this comprises national policy/recommendations for screening and detection of disease/disorder (e.g., recommendations for mammograms to detect breast cancer for women over 40, mandatory vision and hearing screening assessments prior to kindergarten).

Tertiary Prevention — Efforts specifically targeted towards reducing the negative impacts of the disease/disorder and/or reducing complications associated with the disease/disorder. The individual has the disease/disorder, typically in late stages.

Tertiary Prevention efforts focus on reducing the negative impacts of the disease/disorder as well as reducing complications associated with the disease/disorder. The intent is to help the individual manage the long-term, complex health problems associated with the disease/disorder to improve their health and wellness. Forms of tertiary prevention are commonly rehabilitation efforts (e.g., cardiac rehabilitation, physical therapy) and support programs to help the individual cope with the disease/disorder.

One of the largest difficulties with prevention efforts revolves around the financial aspects. A frequently cited claim is that preventative measures to combat cardiovascular disease would drastically reduce health-care expenditures and would be economically beneficial. Yet, unlike the costs of diagnosis and treatment for cardiovascular disease, the magnitude of the reduction in such expenses if prevention efforts were successful is hard to quantify — the prevention efforts cost money and there would still be some portion of the population who develops

cardiovascular disease and will need diagnostic and treatment services. Legislative bodies at the local, state, and federal level can be difficult to motivate to support preventative care efforts based upon speculated savings. Further, existing evidence on the cost-benefit of preventative interventions tells us that most effective interventions are not cost-saving. Compared to curative health approaches, preventative approaches can also be difficult to sustain if societal attitudes do not change.

ADDITIONAL CONCEPTS IN PREVENTION

Although primary, secondary, and tertiary prevention efforts are the most widely recognized; three other related concepts have been put forward within this area: primordial, quaternary, and quinary. The idea of **Primordial Prevention** draws from the triad of epidemiology to specifically focus efforts on reducing host and environment level risk factors in a way that might drastically alter the need for secondary and tertiary prevention. Because primordial prevention is the earliest prevention modality, it is often aimed at children to decrease as much risk exposure as possible. Examples of primordial prevention include the recommendation/policies for early childhood vaccinations that have virtually eliminated diseases such as polio and diphtheria.

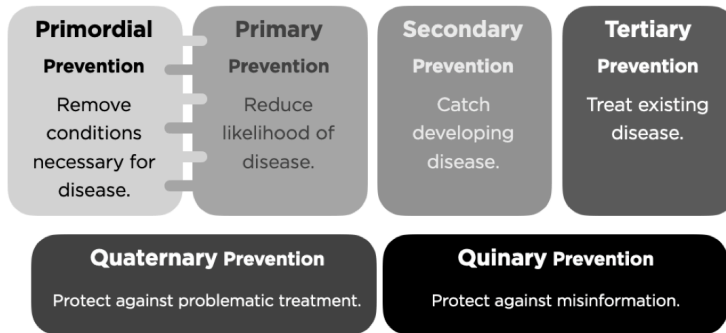
Quaternary and quinary prevention diverge from the natural history perspective of disease that primordial, primary, secondary, and tertiary prevention efforts focus on — primordial focuses on eliminating the potential for the disease/disorder population-wide, primary focuses on susceptible individuals without the disease/disorder, secondary focuses on screening to catch incubation periods, tertiary focuses on navigating the patient from symptom presentation to a positive resolution. **Quaternary Prevention** efforts are specifically focused on protecting individuals from interventions that could do more harm than good. In this way, quaternary prevention is an acknowledgment of the realities of the present healthcare system where profit-centric motives are potent drivers that result in systematic overdiagnosis, overtreatment, and overmedication.

Quaternary prevention efforts at the individual level focus on medical practitioners to make them aware of treatment approaches that have limited benefit despite wide-spread use. At the population level, quaternary prevention efforts focus on legislation and enforcement policies within medical regulatory agencies to discourage overdiagnosis, overtreatment, and overmedication. In particular, efforts have begun targeting occurrences of **polypharmacy** where the patient regularly takes more than five prescription medications which is associated with a greater likelihood of potentially harmful drug interactions and drug-disease interactions — in which a medication

prescribed to treat one condition worsens another or causes a new one.

Quinary Prevention efforts are in response to growing concerns over health-related hearsay and misinformation. Quinary prevention efforts at the individual level largely focus upon directly rebutting misleading medical information within the popular press and social media. However, problematically, poor health literacy has minimized the impact of these efforts. Health hearsay and misinformation often integrate simple 'rules' (e.g., chew each bite of food 27 times for optimal health) that individuals latch onto, but rebutting these requires substantially greater effort to overcome the developed bias. At the population level, quinary prevention efforts have sought legal repercussions for inappropriately dispensing health-related medical advice and automated censorship of misleading statements; however, such efforts have not been resolved within local, state, and federal legislative bodies.

Figure: Levels of Prevention.



Additional Resources:

Office of Disease Prevention and Health Promotion (2020). Healthy People 2030. <https://health.gov/healthypeople>

Types of Prevention

Disease Prevention

Medical services (e.g., vaccinations, medications, surgeries)

Health Promotion

Social determinants of health (e.g., health literacy, behavioral interventions, diet and nutrition policies).

- Much of the research on prevention evolved out of an infectious disease model.
- But ultimately, both apply similar perspectives as to how to prevent issues in the population, catch them early, and treat them when they do occur.

Approaches to Prevention

Primary Prevention - Efforts specifically targeted towards preventing the development of the disease/disorder.

- Efforts focused on the general public who are presumed to be free of the disease/disorder.
- **Individual Level Prevention:**
 - Prevent exposures to hazards that cause disease or injury
 - Alter unhealthy or unsafe behaviors
 - Increase resistance to disease or injury should exposure occur

Approaches to Prevention

Primary Prevention - Efforts specifically targeted towards preventing the development of the disease/disorder.

- Efforts focused on the general public who are presumed to be free of the disease/disorder.
- Population Level Prevention (**Legislation and Enforcement** policies):
 - Reduce exposure to risk factors by banning or controlling the use of hazardous products (e.g. asbestos)
 - Adding risk-lowering factors to mandate safe and healthy practices (e.g., seatbelts, helmets, water fluoridation)

Approaches to Prevention

Primary Prevention - Efforts specifically targeted towards preventing the development of the disease/disorder.

- Efforts focused on the general public who are presumed to be free of the disease/disorder.
- Population Level Prevention (**Social Approaches**):
 - Attempts to alter societal attitudes and tolerance that would result in lower risks.
 - Drinking and driving, Driving without a seatbelt, Smoking
 - Most effective but slow.

Approaches to Prevention

Secondary Prevention - Efforts specifically targeted towards preventing the progression or recurrence of the disease/disorder.

- Efforts focused on identifying individuals in early stages of disease/disorder to begin early treatment.
- **Individual Level Prevention:**
 - Regular health examinations which screen for potential issues (e.g. assessment of blood cholesterol, blood pressure monitoring)
 - Preventative therapies to reduce additional progression of the disease/disorder and hopefully restore the individual to their original health status

Approaches to Prevention

Secondary Prevention - Efforts specifically targeted towards preventing the progression or recurrence of the disease/disorder.

- Efforts focused on identifying individuals in early stages of disease/disorder to begin early treatment.
- Population Level Prevention (**Legislation and Enforcement** policies):
 - National policy/recommendations for screening and detection of disease/disorder
 - (e.g., Recommendations for mammograms to detect breast cancer for women over 40, Mandatory vision and hearing screening assessments prior to kindergarten).

Waste Water Screening

A method of community health screening using waste water to detect the presence of viruses and other pathogens.

- A evidence based and highly effective passive approach for community screening.
- Identifies communities where a virus or pathogen is highly prominent.
- Does not rely upon individuals to actively seek out medical care in order to be assessed.

Approaches to Prevention

Tertiary Prevention - Efforts specifically targeted towards reducing the negative impacts of the disease/disorder and/or reducing complications associated with the disease/disorder.

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Tertiary Prevention - Efforts specifically targeted towards reducing the negative impacts of the disease/disorder and/or reducing complications associated with the disease/disorder.

- Efforts focused on treating individuals in later stages of disease/disorder.
- Reduce negative impacts of the disease/disorder.
- Manage long-term, complex health problems associated with the disorder.
- Improve health and aspects of wellbeing to the extent possible.

Approaches to Prevention

Tertiary Prevention - Efforts specifically targeted towards reducing the negative impacts of the disease/disorder and/or reducing complications associated with the disease/disorder.

- Commonly rehabilitation programs to try to restore function.
- Support programs to help the individual and their families cope with the disorder.
 - Can share strategies for things other people have tried and found successful.
 - Can help manage expectations.

Healthcare Priority

Curative Health

Healthcare approaches primarily focused on diagnosis and treatment of disorders/dysfunctions.

Represents the current standard medical approach.

Costs are relatively easily justified as they reflect costs associated with what has happened.

Preventative Health

Healthcare approaches primarily focused on preventing and early identification of risk factors to avoid the disorder/dysfunctions.

If implemented could reduce healthcare expenditures and promote better population health.

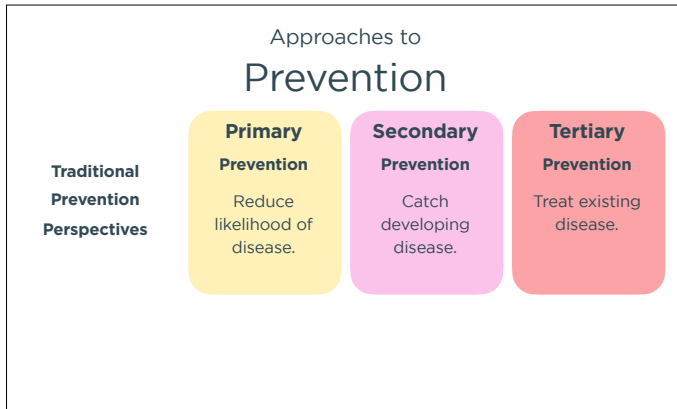
Very hard to justify based on potential savings as these efforts also have costs.

Some portion of the population will still need curative health.

There is very little evidence to suggest that preventative interventions are actually cost saving.

The strongest justification for preventative interventions is the moral argument:

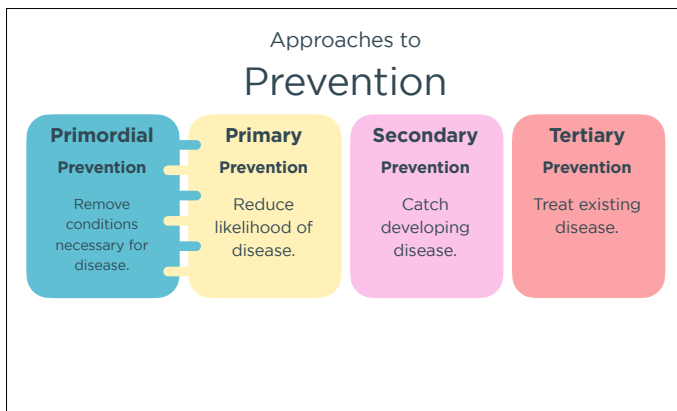
It is the right thing to do.



Approaches to Prevention

Primordial Prevention - Efforts specifically targeted towards reducing host and environmental conditions necessary for the disease/disorder.

- Removal of conditions necessary for the disease/disorder to exist would prevent it from occurring.
- Predominately focused on early developmental periods and during childhood to decrease the risk of exposure as much as possible.
- Childhood vaccinations have largely eliminated diseases such as **polio** and **diphtheria** through this approach.



Approaches to Prevention

Quaternary Prevention - Efforts specifically targeted towards protecting individuals from interventions that could do more harm than good.

- The US healthcare system has a large issue with over diagnosis, over treatment, and overmedication.
- **Individual Level Prevention:** Making medical practitioners aware of treatment approaches that have limited benefit despite wide-spread use.
- **Population Level Prevention:** Legislation and enforcement policies within medical regulatory agencies to discourage overdiagnosis, overtreatment, and overmedication.

Approaches to Prevention

Quaternary Prevention - Efforts specifically targeted towards protecting individuals from interventions that could do more harm than good.

Polypharmacy

- A patient regularly takes more than five prescription medications.
- Associated with a greater likelihood of potentially harmful drug interactions
- Associated with a greater likelihood of **drug-disease interactions** — in which a medication prescribed to treat one condition worsens another or causes a new one

Approaches to Prevention

Quinary Prevention - Efforts specifically targeted towards addressing health-related hearsay and misinformation.

- **Individual Level Prevention:**
- Attempts to directly rebutting misleading medical information within the popular press and social media.
- Health hearsay and misinformation often integrate simple 'rules' (e.g., chew each bite of food 27 times for optimal health) that individuals latch onto, but rebutting these requires substantially greater effort to overcome the developed bias.

Approaches to Prevention

Quinary Prevention - Efforts specifically targeted towards addressing health-related hearsay and misinformation.

- **Population Level Prevention:**
 - Legal repercussions for inappropriately dispensing health-related medical advice and automated censorship of misleading statements.

Approaches to Prevention

