Primary, secondary and tertiary prevention

Scientists are always looking for new and better ways to prevent disease and injury — both to avert human suffering and to control the tremendous economic costs of ill health. But when researchers and health experts talk about “prevention,” what do they mean?

Going upstream: Imagine you’re standing beside a river and see someone drowning as he floats by. You jump in and pull him ashore. A moment later, another person floats past you going downstream, and then another and another. Soon you’re so exhausted, you know you won’t be able to save even one more victim. So you decide to travel upstream to see what the problem is. You find that people are falling into the river because they are stepping through a hole in a bridge. Once this is fixed, people stop falling into the water. When it comes to health, prevention means “going upstream” and fixing a problem at the source instead of saving victims one by one.

In general, prevention includes a wide range of activities — known as “interventions” — aimed at reducing risks or threats to health. These are usually grouped into three categories.

Primary prevention

Here the goal is to protect healthy people from developing a disease or experiencing an injury in the first place. For example:

* education about good nutrition, the importance of regular exercise, and the dangers of tobacco, alcohol and other drugs
* education and legislation about proper seatbelt and helmet use
* regular exams and screening tests to monitor risk factors for illness
* immunization against infectious disease
* controlling potential hazards at home and in the workplace

Secondary prevention

These interventions happen after an illness or serious risk factors have already been diagnosed. The goal is to halt or slow the progress of disease (if possible) in its earliest stages; in the case of injury, goals include limiting long-term disability and preventing re-injury. For example:

* telling people to take daily, low-dose aspirin to prevent a first or second heart attack or stroke
* recommending regular exams and screening tests in people with known risk factors for illness
* providing suitably modified work for injured workers

Tertiary prevention

This focuses on helping people manage complicated, long-term health problems such as diabetes, heart disease, cancer and chronic musculoskeletal pain. The goals include preventing further physical deterioration and maximizing quality of life. For example:

* cardiac or stroke rehabilitation programs
* chronic pain management programs
* patient support groups

What works best?

For many health problems, a combination of primary, secondary and tertiary interventions are needed to achieve a meaningful degree of prevention and protection. However, prevention experts say that the further upstream one is from a negative health outcome, the likelier it is that any intervention will be effective — think about fixing the hole in the bridge so people stop falling through and drowning downstream.

Unfortunately, this isn’t always possible, especially when there’s limited knowledge about what causes a particular illness or injury. For example, when it comes to low-back pain, there are few proven primary prevention measures. But researchers are learning more about secondary prevention — i.e. how to reduce disability and promote recovery in workers who have already experienced problems.
While primary and secondary prevention interventions are clear in areas like cancer or heart disease, such distinctions may be less useful in talking about musculoskeletal disorders. That's because episodes of back pain and other symptoms tend to come and go, blurring the lines between primary, secondary and tertiary prevention. So when it comes to musculoskeletal disorders, some researchers prefer to talk about “prevention, period.”

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