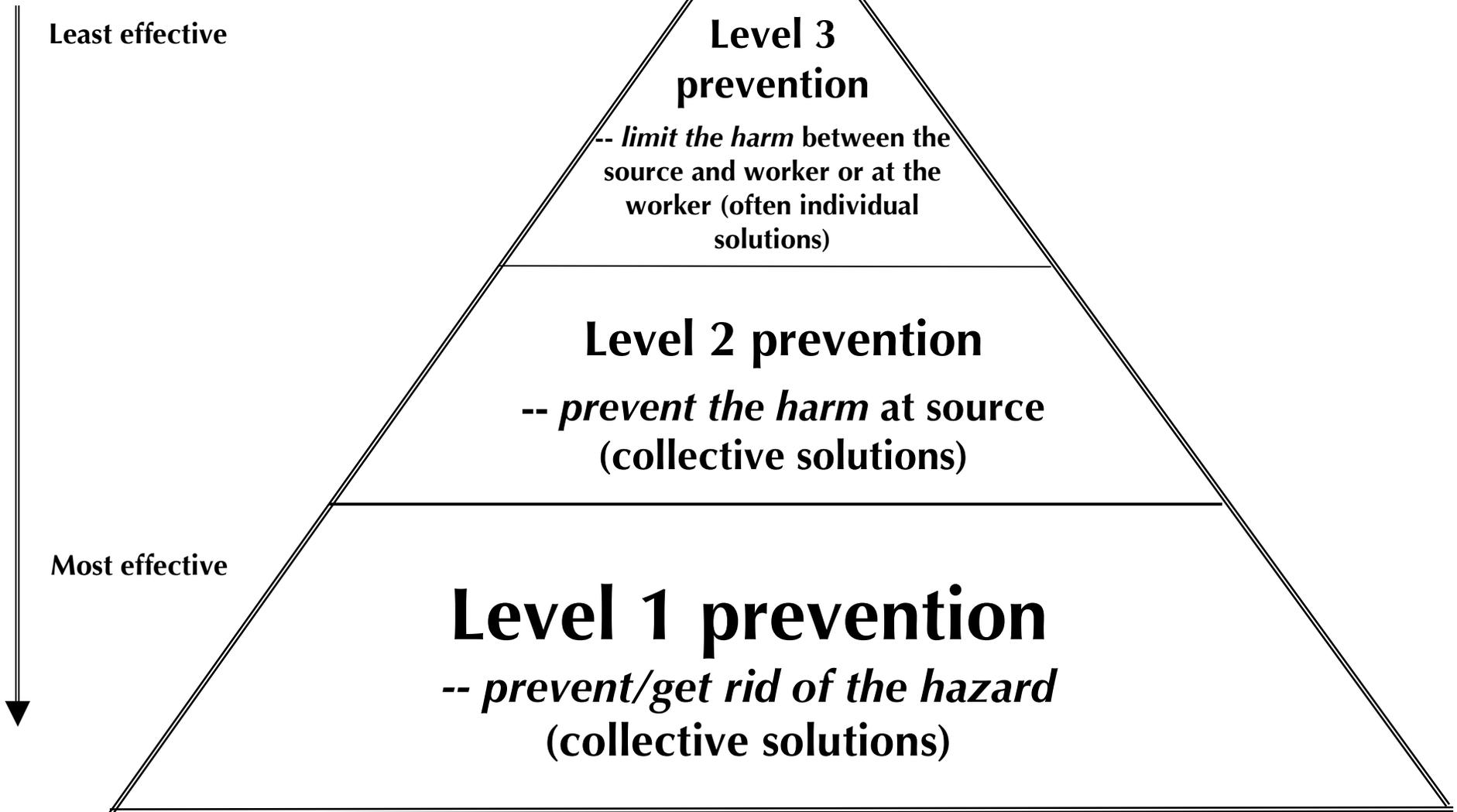


# The prevention triangle -- *principles for solving health and safety problems*



\* *What happens if it's upside down? It falls over!*

# What's behind the prevention triangle?

The triangle borrows two concepts from the environmental movement.

**Informed substitution** is the principle about getting rid of toxic substances whenever a healthier and/or safer substance is available. Replacements are non-toxic or much less hazardous materials. It also describes changes about how things are done, using a different technology or re-organising the task to reduce or get rid of hazards. For more, see [www.cleanproduction.org](http://www.cleanproduction.org) and [www.turi.org](http://www.turi.org).

The **precautionary principle** -- "better safe than sorry" -- is part of several environment and health and safety laws. The idea is that there must be proof that something is not harmful before it is used, rather than using workers or the community as guinea pigs and only taking action when problems appear. For more information, see the European Environment Agency's <http://latelessons.ew.eea.europa.eu/>.

Health and safety specialists have used the word "controls" to describe changes or solutions that reduce exposure but don't get rid of the hazard. But their language is changing to emphasise prevention as opposed to putting up with a hazard. The Belgians offer a very useful way to do this, with levels of prevention (see <http://www.meta.fgov.be>).

**Level 1 prevention** is best. It gets rid of a hazard or avoids introducing a new one (when you use the precautionary principle). This is where substitution using non-toxic alternatives is most effective. Public health practitioners would call this primary prevention.

**Level 2 prevention** (a.k.a. engineering solutions or controls at the source) limits the hazard at its source (reducing its spread). The hazard is still there but ways to prevent harm include:

- ventilation enclosing the hazard, taking it all out of the workplace (without damaging the environment);
- enclosures to reduce noise levels;
- isolating the hazard or the people who may be exposed to it; and
- wet methods (with dusts).

**Level 3 prevention** only limits or reduces harm by putting something between the worker and the hazard source.

Changes or "controls" along the path between the hazard and workers, include:

- local ventilation that does not enclose the hazard;
- general ventilation;
- mechanical guards/devices; and
- some administrative controls (e.g. breaks).

At the worker (controls at the worker), Level 3 prevention includes personal protective equipment/clothing (PPE) and:

- some administrative activities (e.g. rotating workers, because it just spreads the hazard around and may even make it worse for some, especially if hazards to back are involved);
- work procedures, training and supervision, emergency plans;
- housekeeping, repair and maintenance programmes, and hygiene practices/facilities; and
- things to take care of yourself (especially when you're stressed).

These solutions are the least acceptable way to try to fix a problem, although there are times when they're needed.