It is commonly recognized that earthquakes have the potential to inflict mass casualties and destroy infrastructure that supports public health in many seismically active regions of the world. Recent earthquakes such as the 2010 Haiti earthquake and the 2004 Sumatra earthquake and Indian Ocean tsunami highlighted the potentially devastating impact of seismic events in vulnerable areas. Seismological and geological research methods have been successfully employed to identify vulnerable areas and assess the probability of occurrence, yet death tolls and damages continue to increase. To achieve greater seismic risk reduction, the earthquake problem could be conceptualized with a public health model, and addressed with proven methods of public health risk reduction. The field of public health focuses on prevention of harm and promotion of safe living conditions, based on scientific understanding of processes. Public health emphasizes systematic ways of thinking about problems and development of interventions to prevent undesirable health outcomes. Interventions could be adapted from public health problems and applied to earthquakes. In one example of a public health model, injury is viewed as resulting from a chain of causation involving agent, host and environment. This model has been successfully applied to reducing death from threats as diverse as AIDS, drunk driving and contaminated food. It could be extended to include the negative impacts of earthquakes.