Risk Assessment

I. Assessing Risk
   a. We take risks all the time. How do we determine what risks are acceptable, and what are not.
      i. Assessing Risk
         1. Factors influence perceptions of risk
            a. People with social, political or economic interests tend to have a bias
               i. Downplay certain risks and emphasize others to help their agendas
            b. Difficulty in understanding probabilities
               i. What is the meaning of a 1 in 10,000 risk of being poisoned by a chemical
            c. Personal experiences are misleading
               i. Just because it hasn’t happened to us, doesn’t mean that it won’t
            d. We have an exaggerated view of our own abilities to control our fate
               i. We generally think of ourselves as above average, when in fact, we all make up the average.
            e. News media is biased
               i. They over-report or underreport on issues because it helps sell air time or newspapers or whatever
                  1. Heart diseases, cancer and stroke kill nearly 15 times as many people in the U.S. as accidents and 75 times as many as homicides, yet we mostly see stories in the media about accidents and homicides
            f. We tend to have an irrational fear or distrust of certain technologies or activities that lead us to overestimate their dangers.
               i. Nuclear power is viewed as risky, while coal is not, yet coal is responsible for 10,000 deaths/year while none have been attributed to nuclear power.
      ii. Accepting Risk
          1. The more severe the consequence, the less willing we are to accept lower likelihoods
             a. Chance of dying in a car accident is 1 in 5,000 yet we do it all the time.
          2. People tend to react based on emotions, not on statistics.
             a. Chance of dying of lung cancer from smoking cigarettes is 1 in 1,000, yet people do it all the time.
3. Unknown risks are often viewed as being far worse.  
   a. Risks that are unknown or unpredictable and results 
      that are particularly gruesome or disgusting seem 
      far worse than those that are familiar and socially 
      acceptable.

iii. Risk Management: Public Policy  
1. Combines Environmental Health and Toxicology with 
   regulatory decisions based on socioeconomic, technical and 
   political considerations.  
   a. Ex: Saccharin

iv. The Precautionary-Principle vs. Innocent-Until-Proven Guilty  
1. Two basic approaches to categorizing substances as safe or 
   dangerous  
2. **Innocent-Until-Proven Guilty**: allows substances of 
   unknown toxicity to be used until testing proves that they 
   are harmful  
   a. **Pro**: Helps innovations  
   b. **Con**: People could be exposed to dangerous 
      substances. Ex: Vioxx  
3. **Precautionary Principle**: only the safest products are 
   admitted into the marketplace  
   a. **Pro**: People are not exposed to as many chemicals  
   b. **Con**: Impedes technology