Improved Sanitation

- Safe disposal of waste
- Provision of clean drinking and washing water
Isolation and Quarantine

- Isolation of cases (e.g., SARS)
- Quarantine of exposed individuals (e.g., yellow fever, SARS)
Improved Standard of Living (1)

- Less crowding decreases respiratory spread (e.g., TB)
- Better quality of food (fresh and uncontaminated decreases gastrointestinal diseases)
- Year-round access to vegetables and fruit (eliminates vitamin deficiency diseases such as beri beri)
Improved Standard of Living (2)

• Refrigeration allows fewer preserved foods (salted or chemically modified), which may reduce some cancers
• Improved nutrition
• Better education
• Reduced poverty
Objectives of Vaccination

- Prevent infection
- Prevent disease
- Prevent transmission
Requirements for a Vaccine

- Must be safe
- Should be easy to administer
- Must elicit a protective immune response
- Must stimulate both humoral and cellular immunity
- Must protect against all variants of the agent
- Must provide long-lasting immunity
- Must be practical to produce, target, transport and administer
Sociopolitical Considerations

• Cost of development – federal government and/or private industry?
• Responsibility for liability – federal government, industry, or insurance companies?
• Priorities for funding and distribution of vaccine
• Appropriateness of vaccine for target population(s)
Primary Issues for Vaccine Evaluation

- Availability to appropriate target population(s) (covert vs. overt)
- Cost
- Liability
- Evaluation/testing procedures (animal models?)
- Level of efficacy against infection
- Level of efficacy against transmissibility
- Level of efficacy against clinical disease
Societal (Behavior Change)

- Theory of behavior change
- Popular opinion leader model
- Community intervention
- Legislative change
Stages of Behavior Change

- Knowledge
- Persuasion
- Decision
- Implementation
- Confirmation
Popular Opinion Leader Model
(targeting of natural leaders in a social group)

- Gay bars
- Markets in Fuzhou, China
- Dormitories in St. Petersburg, Russia
Community Intervention

- Getting the community to accept responsibility and implement change
- Changing community norms (e.g., smoking, Yunnan drug intervention)
Legislative Change

• Requires political will
• To be effective, also requires enforcement (e.g., smoking prohibition, seat belt laws, maximum highway speeds, safety regulations, pollution laws)
• Requires constant vigilance (e.g., repeal of motorcycle helmet laws, weakening pollution laws, and environmental protection)
Evaluation of Intervention Strategies

• Some logical interventions are unsuccessful
• Continuation of ineffective interventions prevents implementation of other interventions, and wastes money and personnel
• Elements of evaluation
Elements of Intervention

• Are the appropriate risk groups and areas targeted?
• Is the intervention strategy culturally/economically appropriate for the specific risk group/area?
• Was the intervention acceptable?
• Was the necessary level of effectiveness achieved?
• How is the effectiveness of the intervention strategies measured?
• Is the existing public health system and community structure a part of the intervention scheme?
• Is the strategy cost-effective?
Key Elements for Successful Intervention

- Mobilization of political will and commitment
- Good surveillance
- Learn and adapt from past experiences
- Unified national planning
- Multisectoral response
- Rapid implementation
- Focused intervention; e.g., involved, marginalized and high-risk groups
- Access to intervention tools; e.g. condoms, testing, drugs
- Early education
- Community involvement
- Reduce barriers to intervention
  - Restrictive cultural norms
  - Stigmatization