Risk Communication in Occupational Health and Safety

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Workplace Health & Safety Risks

- Disease/Illness, Injury, Mortality / Fatality Risks
- Hazardous substances, Toxic materials, Biological Agents
- Unsafe working conditions
- Poor ergonomic working conditions
  - make the job fit the worker, instead of forcing the worker to conform to the job
- Organization of work and psychosocial strains
- Any combination – often all
Risk = Health Hazard + Exposure Potential

• Need to combine hazard and risk communication

• Qualitative Risk Assessment seeks to define
  – "Acceptable Risk"

• We must ask:
  – Acceptable to Whom??????

• Why is risk being communicated?
  – For workers’ health and safety?
  – For employer compliance and liability prevention?
Factors Influencing Control Selection

- **Occupational Health Hazard**
  - mild/reversible
  - severe/irreversible

- **Task Duration**
  - 8 hours
  - 15 minutes

- **Exposure Risk**
  - engineered local exhaust ventilation
  - closed systems

- **Physical Form**
  - slurry/suspension
  - agglomerated
  - highly disperse

- **Quantity**
  - kilograms
  - miligrams
Political and Economic Contexts of Knowing Risks?

- Risk communication is a first step
- Need training “in a manner that can be applied in workers’ daily work”
  - Literacy, Health Literacy, Language, Culture, etc.
- Right to Know – but what about Right to Act
- Do we provide training about how to engage in action to prevent morbidities and mortality?
- Are workers protected against discharge or other discrimination and retaliation by employer as a result of their taking protective action?
Sustainable Production

• Risk communication is often used to prevent unnecessary fear
• But – we may want to help ourselves understand appropriate fears
• Inform workers to support their participation in developing new modes of healthy, safe, and environmentally sound production
H&S and Political Action Training

• RTK training for migrant farm workers in NJ
  – about agricultural chemicals

• Training and support of H&S activists helped the farm workers to testify at the State House
  – Strong H&S measures to prevent work-related illnesses from agricultural chemical exposures.

• Others filed a lawsuit against an employer who fired them for filing complaints

• One employer was fined due to farm workers’ H&S complaints
Workplace and Environment

• Environmentalists look at intrinsic properties and hazards of substances
  – May seek to ban or eliminate them
• Workers look to control and prevent exposures
• Need tools to support alternatives assessment across a product’s lifespan
  – Permits looking UP and DOWN Stream
• Supports Workers Health and Safety, Environmental Justice and Protection
Green Chemistry Training
Review of History

• A pictorial timeline
  – The shift from bio/physical to synthetic chemical inputs
  – The trajectory of pollution, the environmental and health and safety movements, and public health regulation of industrial production
  – Seeing risk within their social, political, and economic contexts

• Looking across social perspectives
### Historical Events
- **1900 - 1949**
  - Great Depression
  - Korean War
  - Vietnam War
- **1950**
  - IMF, World Bank Created
  - World War II
  - “Cold War” and Anti-Communism
- **1960**
- **1970**
- **1980**
  - Increasing Globalization
  - First Iraq War
- **1990**
- **2000**
- **2010**
  - 9/11 and “War on Terrorism”

### Consequences of a Chemical Economy
- **First Case of Lung Disease Due to Asbestos**
- Chemical Industry in Rapid Development with little Government Attention
- Pesticide Markets Boom
- Lead gasoline in use
- Computer Chip Invented
- Hole in the Ozone Layer
- Bhopal, India (Gas Leak)
- Estimates of Global Warming
- Kyoto Conference
- Bio-monitoring Finds Industrial Chemicals in Human Tissues
- Libby, Montana (Asbestos)
- Love Canal, NY (Toxic Waste)
- Times Beach, MO (Dioxin)
- Hurricane Katrina

### Legal & Political Events
- **1900 - 1949**
  - Safe Drinking Water Act
  - Clean Air Act
  - OSHA
  - NIOSH
  - SARA: Right to Know & TRI Established
- **1950**
  - Pollution Prevention Act
  - Toxic Substances Control Act
  - PIFRA (Pesticides)
  - CERCLA
- **1960**
  - EPA Green Chemistry Program
  - Clean Water Act
  - HSWA (Hazardous Waste)
  - Clean Air Act Amended
  - US Green Chemistry Bill
- **1970**
  - CAPTA
  - Consumer Product Safety Act Amended
  - NAFTA
  - EU Implements REACH
- **1980**
  - EPA Green Chemistry Program
  - CAPTA
  - Consumer Product Safety Act Amended
  - NAFTA
  - EU Implements REACH
- **1990**
  - EPA Green Chemistry Program
  - CAPTA
  - Consumer Product Safety Act Amended
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- **2000**
- **2010**
  - EPA Green Chemistry Program
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  - Consumer Product Safety Act Amended
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  - EU Implements REACH
Participants reflect on their own experiences within that timeline

• Two workers - printers for a major urban newspaper – talked about:
  – Using strong solvents to clean inks
  – Less toxic chemicals were used later
  – Bladder cancer cluster emerged later among those who worked with the original solvent

• They asked the question:
  – How do we know the consequences of working with a new substance?
  – How do we know that a new green chemical won’t cause health problems later?
Research Needed

• How are communicated risks understood and used by workers:
  – To protect individual health and safety
  – To engage in building a health and safety movement

• What outcome measures will best inform us of successful risk communication to workers?

• Interventions where workers have a major role in developing effective risk communication programs.