



Risk Management of Consumer Products

SAFETY CONSULTANTS /
TEST LABS

ICPHSO Conference

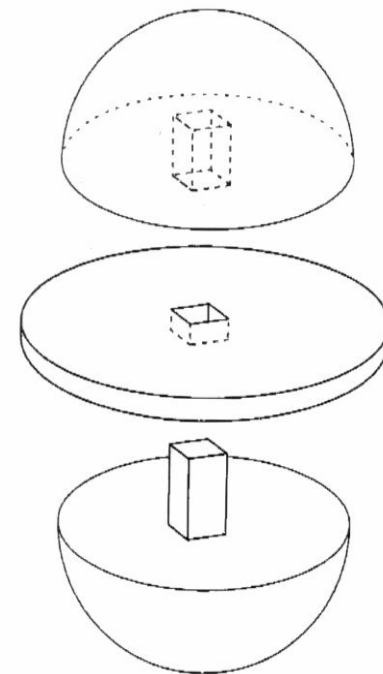
February 28, 2007





Involve “The Lab” Early

- Concept Review
 - Before your customer buys into the product
- Design Evaluation
 - Before production expenses occur





Risk Management Process

- Identify the Hazard
- Design Hazard Out
- Proper Manufacturing Processes
- Appropriate Testing/Inspections



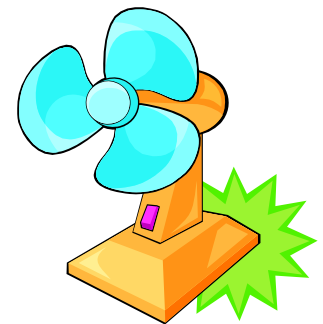
Goal is Prevention, not Detection





Identify the Hazard

- Safety Standards
- Existing Data
- Behavioral Task Analysis
- Research





Safety Standards

- Mandatory standards are minimum requirements
- Voluntary standards address additional hazards
- International standards vary
- Meet or Exceed existing standards

Many recalled products are in full compliance with mandatory standards



Existing Data

- Incident / Injury data
- International recalls
- Medical/social science publications
- Anthropometric data





Incident / Injury Data

- CPSC Freedom of Information Act Request
 - Reported incidents
 - Death certificate files
 - In-depth investigations (IDIs)
 - National Electronic Injury Surveillance System (NEISS)
 - Medical Examiners and Coroners Alert Program (MECAP)
 - Injury/Potential Injury Incidents (IPIIs)





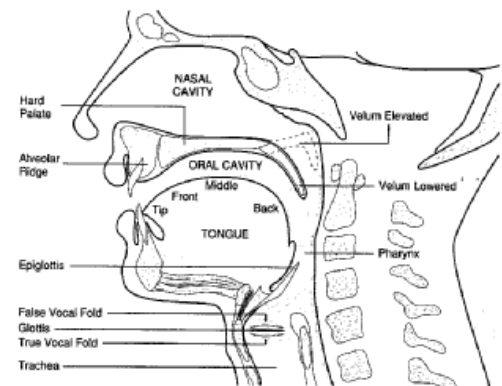
International Recalls

- United States: www.cpsc.gov (CPSC)
 - www.recalls.gov (CPSC, FDA, EPA, USDA, NHTSA, USCG)
- Europe: ec.europa.eu/consumers/dyna/rapex
 - www.tradingstandards.gov.uk (United Kingdom)
- Canada: www.hc-sc.gc.ca/index_e.html
- Australia: www.recalls.gov.au
- Mexico: www.profeco.gob.mx/html/alertas/alertas.htm
- China: www.aqsiq.gov.cn/cms/template/index.html



Medical/Social Science Publications

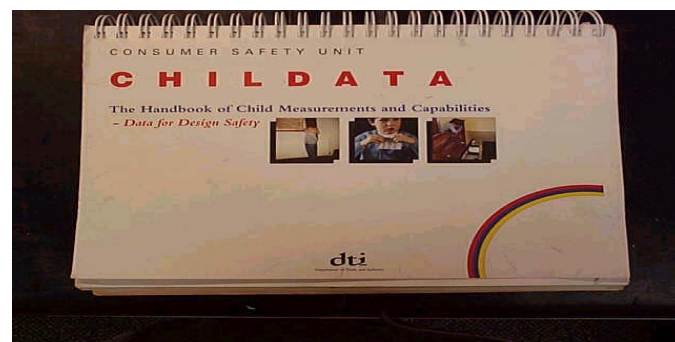
- National Institute of Health (NIH)
 - PubMed: www.pubmed.gov
- Human Factors and Ergonomics Society
- Journal of Applied Behavior Analysis
- University research libraries





Anthropometric Data

- Childata: The Handbook of Child Measurements and Capabilities - Data for Design Safety
- Adultdata
- Older Adultdata
- Strength Data for Design Safety





Behavioral Task Analysis

- Identify steps associated with product use:
 - Assembly
 - Intended use
 - Foreseeable unintended use (misuse)
 - Cleaning
 - Troubleshooting
 - Disassembly
 - Storage





Research

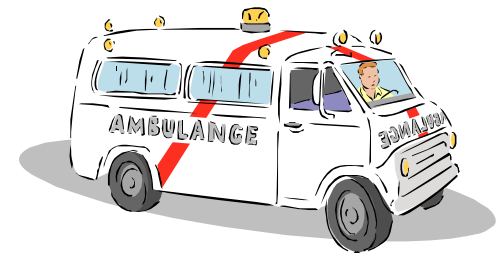
- Behavioral observations
- Sensory panels
- Focus groups
- Survey research





Design Hazard Out

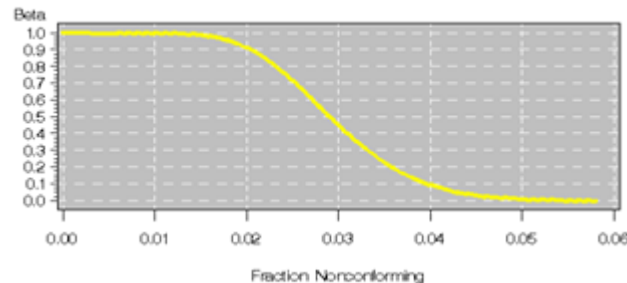
- Likelihood of hazard occurring
- Severity of potential injury
- Technologically feasible
- Financially feasible
- High risk or high profile category



Proper Manufacturing Controls

- Select suitable vendor/factory
- Review factory flowchart and quality control (QC) plan
 - Critical processes
 - In-factory testing
- Start-up and In-process Monitoring

OC Curve for p Chart With LCL=0.000, $p_0=0.014$, and UCL=0.030





Vendor/Factory Selection

- Third Party Audits
 - Capabilities and Capacity
 - Social Accountability
 - ICTI, SA8000, FLA, WRAP, BSR
 - Quality Assurance/Quality Controls
 - Good Manufacturing Practices (GMP)
 - Hazard Analysis and Critical Control Point (HACCP)
 - Customs-Trade Partnership Against Terrorism (C-TPAT)





Appropriate Testing

- Mandatory and voluntary standards
 - Enhanced test criteria
 - Preproduction / raw materials testing
 - Research testing – testing to failure
- Statistically significant test program
 - Sample Size
 - Testing Frequency





No Applicable Test Standard?

- Potential hazards
- Labeled claims
- Consumer expectations
- Customer quality/functional requirements
- Industry guidance documents





Appropriate Inspections

- Start-Up / Top of Production (TOP)
- In-line / During Production (DuPro)
- Final Random Inspections (FRI)
- Loading Inspections



Common Goal

- To bring products to market
 - That are safe
 - That are shipped on time
 - That are manufactured in a cost effective way
 - That your customers will enjoy

- Partnership For Success
Seeking Solutions Together!





Thank You
for your Attention!