Toxicology and Environmental Health Program

- provide core toxicology and environmental health information resources and services

- facilitate access to toxicology and environmental health information
HSDB – Hazardous Substances Data Bank

**comprehensive peer-reviewed information on hazardous chemical substances**

Includes:

- Human exposure symptoms
- Physical properties
- Emergency handling procedures
- Environmental fate

**Sources of information in HSDB**

- DOT 2000 Emergency Response Guidebook
- U.S. Coast Guard, CHRS – Hazardous Chemical Data
- NIOSH Pocket Guide to Chemical Hazards
- EPA Integrated Risk Information System (IRIS)
- POISINDEX(R) Information System, Micromedex, Inc., CCIS
- TOMEES(R) Information System, Micromedex, Inc., CCIS
- ACGIH Guidelines Select of Chem Protect Clothing
- American Conference of Governmental Industrial Hygienists. TLVs & EISs
- and many others...
Local HAZMAT Team
Getting Right Information at Right Time

**Emergency Responders**
- First Responders (first on scene)
- HAZMAT Specialist Teams
- EMS Personnel
- Incident Commanders
- Law Enforcement
- Military Personnel

Handheld devices

- Growing in power and capability
- Getting cheaper
- Critical information available anywhere
- Stand-alone or Wireless mode
- Highly portable

**WISER**
Wireless Information System for Emergency Responders

**Strategic Objectives**
- Easy navigation, intuitive
- Information tailored to the specific role of the emergency responder
- Focus on unknown substance identification capabilities
- Provide a platform that can be expanded to support other emergency response needs
- Rich, stand-alone capability with enhanced connected (wireless) capabilities
- Cross-platform, multi-device architecture
WISER
Development Approach

User Needs • Mock-up • Prototype • Development

Feedback

New Release

Field Testing
Baltimore Fire Department
Fairfax Fire Department

Went out and talked with ERs

Fire-Rescue International Conference
- NLM exhibit: demoed WISER and asked questions
- over 16,000 attendees

International Hazardous Materials Response Team Conference
- Workshop
- Exhibit

UNLV Institute for Security Studies - hosted a focus group
Attendees from: Bechtel Nevada, LV police department, DOE, UNLV Medical School

DC-area User Community Meetings
Fairfax City Fire Dept., Arlington County Fire/Police, Navy Medicine Office of Homeland Security, USUHS, CapWIN Project

Other Venues
- Capitol Hill "Steering Committee on Telehealth and Healthcare Informatics"
- Ad hoc Demos/Presentations
- NLM exhibits / RMLs

How did we decide what chemicals to include?

Review/analysis of 9 list sources of chemical "nasties"

- Extremely Hazardous Substances List (EPA) – 358
- Medical Management Guidelines (ATSDR) – 56
- Tox Profiles, ToxFAQs and Public Health Statements (ATSDR) - 269
- National Priorities List (ATSDR, EPA) – 275
- NIOSH Pocket Guide to Chemical Hazards – 677
- DOT Incident Data – for 2002, 15,111 incidents with top 100 identified
- New Jersey Hazardous Substances Fact Sheets
- Local agencies and fire department incident information (e.g., Fairfax
County has list of 45 most commonly responded to hazardous substances)
Scenario - Highway cargo tank overturned

HAZMAT Specialist is 1st on scene...

Substance: Colorless liquid, smells like alcohol
Symptoms: Headache, dizziness, eyes irritated, nausea feeling
Scenario - Highway cargo tank overturned

A 5,500 gal. of isopropyl alcohol

Isopropyl alcohol = Isopropanol

WISER Availability

• PDA Versions: Palm and Pocket PC

• Windows™ Version – laptops and desktops

• Coming...Web-based version

• From http://wiser.nlm.nih.gov
  • Downloadable application and databases
  • User’s guide
  • Feedback form
  • Listserv sign-up

• Downloads to date (Apr 15): 12,000

What are users saying?

"... thank you for making this excellent software available... just what I have been looking for. Concise, fast, I cannot praise your efforts enough." 
Nadal Advisor, London Police Dept., UK

"... a great resource! I shared it with my local Community Emergency Response Team (CERT). Suggest you make this known far and wide to all CERT personnel. 
M.J.S. CERT member, Boston Hospital

"... put WISER on the computer at our Nurse’s Station to be used by the ED staff in the event of a disaster..." 
R.N, BSN, EMT-P Chicago Hospital

"Our interest in WISER is to be able to offer even more information to paramedics at HAZMAT incidents at no cost..." 
South African company

"... a wonderful application. Congratulations..." 
National Research Council member, Canada
WI SER- Future Directions

- Enhancements
  - Other devices in addition to Palm
  - Substance category (vs. named) data
  - Biological & radiological agent data
  - Wireless interaction and dynamic data transfer
  - User customization of data sets

- R&D
  - AI application for ‘unknown’s
    - confidence designation and relevancy ranking
  - Action oriented - workflow (SOPs)
  - Integrate with other incident factors (e.g., weather conditions, type of incident, terrain)
  - Companion web-based training ‘game’
  - Integrated patient care and reporting

NLM Hazmat-related Information Resources

- TOXNET – cluster of environmental health databases
- HSDB - Hazardous Substance Data Bank
- WISER - Wireless Information System for Emergency Responders
  - Tox Town - Interactive guide to potentially toxic substances and environmental health issues in everyday places
  - Medline Plus - Emergency-oriented health topics (e.g., disasters & emergency, radiation exposure, first aid, chemical weapons, emergency medical services, drug information)
  - Household Products Database - Potential health effects of chemicals for over 5,000 common household products
  - Haz-Map - Database on hazardous chemicals and occupational diseases
  - Special Topics - Evaluated links to internet resources on current environmental health topics
  - TOXMAP - Integration of mapping of EPA’s Toxic Release Inventory sites integrated with chemical and bibliographic databases

Tox Town

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This patient education program will help you understand the signs and causes of heart attacks, in case you or your loved one is at risk. It will also help you prepare for such an emergency. Tips for preventing heart attacks will also be presented.
In conclusion

- There are over 1M firefighters in the U.S.
- Emergency responders are health providers
- Access to the internet and use of PDAs is growing
- ERs are not frequent medical library visitors
- Good health information is an integral part of their emergency "equipment"
- Outreach to their community is part of their mission (e.g., open houses, school talks, neighborhood meetings)
- Requires reaching out and going to your local firehouse