Military Occupational/Environmental Health & Medical Surveillance Subcommittee Update:
Review of
US Army Center for Health Promotion and Preventive Medicine Assessment of
Sodium Dichromate Exposure at Qarmat Ali Water Treatment

William Halperin, John Herbold, Wayne Lednar, James Lockey, Tom Mason, Alan Russell
Defense Health Board
November 20, 2008
Arlington, Va
Charge:


- Was the standard of practice adequate?
- Are the report’s conclusions valid?
- Initial conference call 10/17
- Briefing 11/12-13 (security clearance required)
- Report nearing completion.
History of Field Epi dates to Snow: Broad St Pump
Site:

- Basra, Iraq
- Industrial water for oil production
- Ransacked
- Visible yellow contamination (sodium dichromate) used as a corrosion inhibitor
- Continuous contractor presence
- Successive military cohorts: British, Oregon, S Carolina, Indiana Nat Guards
SE Iraq
Qarmat Ali
Chronology

- Spring 2003: Provide security for QA
- Summer 2003: Contractor identifies hazard, remediates site: asphalt and gravel
- Sept, 2003: Soldiers observe contractors in PPE
- Sept 19: Access to site restricted by DOD
- Sept 21: DOD “town meeting;”
- Sept 29: Start CHPPM Field Investigation
- Oct 17: PPE required
- Oct 30: CHPPM Field Investigation completed
Cascade of Prevention

Primary

Secondary

Tertiary
Cascade of Prevention: Hierarchy of Controls

- Design
- Pre-Market Testing
- Substitution Elimination
- Engineering Controls
- Environmental Monitoring
- Personal Protective Devices
- Biological Monitoring
- Medical Monitoring
- Clinical Care
- Rehabilitation
- Accommodation
CASCADE OF PREVENTION
OCCUPATIONAL

- Design
  - Pre-Market Testing
  - Substitution Elimination
  - Engineering Controls
    - Environmental Monitoring
    - Personal Protective Devices
    - Biological Monitoring
    - Medical Monitoring
      - Clinical Care
      - Rehabilitation
      - Accommodation
Exposure Assessment

- KBR identifies hazard and elevated concentrations.
- KBR encapsulates with asphalt and gravel.
- KBR samples: minimal exposure to Chrome VI.
- Britfor: minimal exposure to Chrome VI.
- CHPPM finds elevated Chrome VI in soil, particularly offsite. Area samples and breathing zone find no CrVI.
Biological Monitoring

- Test for the presence of toxin in biologic medium: urine, blood, breath, etc
- Choice of test: appropriate.
ChromeVI Kinetics
POST EXPOSURE

high

Serum
URINE

RBC

DAYS
MMTU
Medical Assessment

• Screening for early signs and symptoms of disease
• History and physical for disease
• Examples:
  • No chrome ulcers or perforations
  • Respiratory irritation high and consistent with non exposed in theatre
Epidemiologic assessment

• Mean of blood CrVI consistent with background, not with occupationally exposed.
• No association with length of exposure, etc
Prevention Interventions

• Control of Exposure
• Site remediation
• Site access
• Medical care
Health Risk Communication

• 7 in toto
• Current and former units
• Results of laboratory and medical evaluations incorporated in medical charts.
Issues being considered by Committee:
Limitation of assessment to one state’s guard contingent

• Reasonable assumption that other contingents similarly exposed would similarly have unremarkable results
Activism

• Investigation started locally and timely
• CHPPM responds with expert team and completes work expeditiously
Other issues-in progress

- Access to industry specific experts
- Silos vs bridges
- Classification

- Dissemination of results to similar sites
- Hazard recognition by field units
- Numbers of available experts from CHPPM (tox, epi, ih, etc)(career ladders)
Response to charge: in progress

- SOP
- Meet or exceed?

- Conclusions
- Appropriate?
THE END