Data Capture, Transfer and Storage: The Essential Elements of a Successful ESOH Surveillance System

American Industrial Hygiene Conference and Exposition
13 May 04
8:40- 9:00 am

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Handheld Devices and Programs

• There’s a plethora of data capture tools and programs
• Intent is to capture data at the first point of data entry
• But where does it go and how is it used?
Data based and Centralized Repositories

- There’s a plethora of database repositories
- Do these systems capture information at the first point of data contact?
- How are these databases used?
  - Do these systems share data?
  - Interconnectivity?
The Essential Elements: Data Capture, Transfer and Storage

Backend databases:

Interconnectivity

Aggregate Db

Disk

LAN

Wireless
Case Study

Special Operations Health Deployment System
Emergence of Military Deployment
Health Surveillance Policy

• Historical perspective
  – Agent Orange
  – Gulf War

• Public Outcry
  – 10 U.S.C. § 1074f, 18 Nov 97
    • Pre-deployment med exam
    • Post-deployment med exam
    • Medical recordkeeping during deployment
    • Centralized repository
  – Presidential Directive, 8 Nov 1997
  – DoD Instruction 6490.3, 7 Aug 97
  – Joint Staff Memorandum MCM-251-98, 4 Dec 98

Presidential Advisory Committee on Gulf War Veterans’ Illnesses

“… I am directing the Departments of Defense and Veterans Affairs to create a new Force Health Protection Program. Every soldier, sailor, airman and marine will have a comprehensive, life-long medical record of all illnesses and injuries they suffer, the care and inoculations they receive and their exposure to different hazards. These records will help us prevent illness and identify and cure those that occur…”

President Clinton
November 8, 1997
USSOCOM SOF HSS High Level Architecture Concept

- Stand alone workstation with HSHD cradle
- Write Protected Diskette
- Compact Flash Card (Write Protected)
- SOF Health Surveillance Handheld Device (HSHD)
- USSOCOM Command LAN (SIPRNET) Workstation
- HEALTH SURVEILLANCE REPOSITORY (HSR)
Battlefield Medical
Information System: Tactical (BMIS-T)

- Developed by Telemedicine & Advanced Technology Research Center, US Army Medical Research and Material Command
  - Integrated with a Medical Reference: Special Operations Forces Medical Handbook
- Operational focus
  - captures Level I data (Peace/War, Anywhere)
- Simple format -- minimal burden, clinically efficient
SOF Health Surveillance System Architecture

**Used By:**
- Theater SOCS
- AFMIC
- Theater Commanders
- USSOCOM Component Surgeons

**Used For:**
- Command and Control
- Staff advise to Commander
- Medical Surveillance
- In Transit Visibility
- Casualty Reports

**Special Operations Command Surgeon**
- Deployed Health Surv.Repository
- Manual Declassification And Forwarding of Subset of Data at SOCOM

**Virtual Data Collection**
- Data feed to Interim Theater Database then to Clinical Data Repository

**SOF FOB Task Unit**
- Transfer via SIPRNET
- Patient Data Completed from Minimum Data Set

**SOF Task Unit**
- 3.5 Unclassified Disk; "Sneakerneted" to the SIPRNET
- USB Cradle Via Active Sync

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**Unit Special Operations Technician**
- Device Unclassified but sensitive not Directly Connected to any Network

**Mobile and Far Forward Data Collection and Decision Support**
- Critical minimum data set

**Transfer via SIPRNET**
- Indirect via Removable Memory
BMIS-T and SOF HSS Combined

- Maintain operational security
  - Classified “SECRET” and below (data capture, transfer, and storage)
- Near real-time data transfer
  - from “point of care” to central repository
- Centralized health data bank for SOF
- Compliance with DoD requirements
- Protects SOF beneficiary short and long term health interest
- Removes beneficiary burden; promotes healthcare system accountability
BMIS-T Demonstration

Sustaining Readiness through Healthy Communities
Electronic Data Capture Versus Standard Paper Method for SOF

- USSOCOM Deployment Health Surveillance Study Found
  - 6% Documentation/Retention Rate (paper and pen method)
  - 82% Documentation/Retention Rate (electronic capture method)
- Data Capture at the point-of-care is essential; it is foundation of medical surveillance, documentation, and recordkeeping
- Electronic point-of-care removes the medical recordkeeping burden from the beneficiary and puts it on the health care system
Post Deployment Injury Rates in SOF Personnel

- Location: South America, Australia
- SOF Personnel represented: Army (SOF), AF (SOF), Navy (SEALS), Marines (Recon)

Injury Severity Score < 9
- Acute Tissue Injury
  - Skin lacerations
  - Retinal/corneal
  - Sprains & strains
  - Fragmentation
  - Burns
  - Frostbite
- Acute Hemorrhage
  - Blunt trauma
  - Blast
  - Penetrating
- Acute Pain

Injury Prevalence in the Field

Type of Injury
- Tissue Injury
- Acute Bleeding
- Pain
- DNBI

Percent of All Injuries

Source: MAJ Richard Hartman, SOCOM
Deployment Injuries in SOF Personnel

SOF Personnel represented: Army (SOF), AF (SOF), Navy (SEALS)

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What are the Benefits of an Integrated System?
Weekly DNBI Report

売れ店 PAR 29,3

Most recent reports as of:
Start Date: 2001 03 04 00:00:00
End Date: 2001 03 30 23:59:59

PAR (Average Force) 293

Disease and Non-Battle Injury Category
Weekly Incidence Weekly rate per thousand Days of Light Duty Lost Work Days In-Patients Out-Patients

Dermatological: 0 0 0 0 0 0
Unexplained Fever: 0 0 0 0 0 0
Gastrointestinal: 0 0 0 0 0 0
Gynecologic: 0 0 0 0 0 0
Heat/Cold: 0 0 0 0 0 0
Sports Injury: 0 0 0 0 0 0
Motor Vehicle Accident Injury: 0 0 0 0 0 0
Work Injury: 0 0 0 0 0 0
Other Injury: 14 19.364 0 0 7 7

Ophthalmological: 0 0 0 0 0 0
Psychiatric Mental: 0 0 0 0 0 0
Psychiatric Stress: 0 0 0 0 0 0
Respiratory: 0 0 0 0 0 0
STD: 0 0 0 0 0 0
Other Medical/Surgical: 0 0 0 0 0 0
Total: 14 0 0 0 0 7 7

Category Weekly Incidence Weekly rate per thousand Days of Light Duty Lost Work Days In-Patients Out-Patients

Dental: 0 0 0 0 0 0
Misc/Admin: 0 0 0 0 0 0

Figure 6.9: Weekly DNBI Report
Command and Control

• Reference Publications
  – Field Manuals
  – TB MEDs
  – Technical Guides
• Organization and Supply
  – TOE
  – Medical Equipment Sets (SKO UA)
• Reporting & Record Keeping
• Standard Operating Procedures
• Health Surveillance Integration
• Training and support tools
Entomology

• Pesticide Reporting, Record Keeping and Archiving
• Surveillance Tools & Forms
• Protocols
• AFPMB link – reach capability
• Approved pesticide lists
• Personal protective equipment
Public Health

- Water quality monitoring
- Food service sanitation
- Unit Field Sanitation Team
- Base Camp Assessments
- Field hygiene and sanitation
- Waste disposal
OEH Surveillance

• Deployment Environmental Surveillance
  – Air
  – Soil
  – Water
• Hazard assessment tools
• Industrial Hygiene Assessments
• Occupational and Environmental Health Surveillance
Medical Surveillance

- Pre- and post-deployment surveillance forms
- DNBI reporting & analysis tools
- Epidemiological investigative tools
  - Outbreak investigation protocol
Reach Capability & Databases

• USACHPPM Database / Repository
  – Reach capability
  – Archiving
  – In-depth assessments and technical assistance

• AFMIC Link
  – Intelligence & information link
  – Data feedback / update
Programmatics

- Training
- Quality Assurance
- Acquisition
- Personnel Package
- Policy/Doctrine
The Hidden Elements

- Top Level Support
- Funding
- Training
- IT certification, configuration, security, requirements
- If you don’t incorporate this concept data capture, transfer, storage and just focus on the front or back end…result in failure
Questions?

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