Module NC-3010: Disaster Medical Information Suite (DMIS)

Introduction

This module provides an overview of the Disaster Medical Information Suite (DMIS), the documentation of patient medical care, the facilitation of the patient movement process and the impact of timely medical information in an ever changing response environment.

Module Objectives

After completing this module, learners should be able to:
- Describe the goals of the Disaster Medical Information Suite (DMIS).
- Demonstrate an awareness of DMIS suite components and the integration of the applications.
- Understand the operational environment.
- Discuss the benefits of Health Information Repository (HIR).
- Understand Joint Patient Assessment and Tracking System (JPATS).
- Define the role of electronic medical records (EMR) used for medical care delivery by National Disaster Medical Systems (NDMS) personnel.

Why This Matters to You

One mission of NDMS is to temporarily supplement Federal, Tribal, State and Local capabilities by deploying and sustaining a specialized and focused range of public health and medical capabilities. The Electronic Medical Record (EMR) is the standard for documentation and is used by NDMS to capture all medical records of patient encounters. Patient safety and critical, life-saving operational decisions are dependent on your effective utilization of the EMR.

Knowing where a patient is throughout the continuum of the patient movement system is critical in maintaining in-transit visibility and begins as soon as the patient is identified for movement. When patients are identified to be moved using the Federal system (i.e., by ESF-8), the patient data is moved to the national patient tracking system- JPATS.

The Health Information Repository (HIR) provides near time situational awareness and provides patient summary information to the SOC and the IRCT.

As an NDMS employee, it is imperative that you understand the function and role of the Disaster Medical Information Suite (DMIS) components and incorporate the use of these in the day to day operations of deployments.

Background
- During public health threats, medical emergencies, disasters or planned events, the successful delivery of emergency medical care is a necessary foundation for our nation's emergency preparedness efforts.

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- Complete and accurate documentation of medical records can save lives and help ensure safe and effective patient movement.
- NDMS first implemented an electronic medical encounter documentation system for the 2006 hurricane season.
- Data is collected from patients receiving on-site treatment.
- Medical professionals record information describing patient encounters.
- Computer system needs to be portable and utilize durable devices.
- Increase timeliness and efficiency of patient medical records documentation.
- No place for paper documentation in ESF-8 Responses.
- EMR is the documentation standard for patient care.
- Implement consistent, automated encounter tracking during disaster deployments in austere environments.
- Provide basic data elements for health surveillance during disasters.
- Support real-time operational and tactical decisions.

Background – Goals

- Drive standardization across Assistant Secretary for Preparedness & Response (ASPR) medical response teams.
- Implement consistent, automated encounter tracking during disaster deployments in austere environments.
- Provide legible medical records.
- Provide a tracking system that follows the patient throughout the continuum of care.
- Provide basic data elements for health surveillance during disasters.

Background – Availability

- Minimized Training Requirements:
  - Responders can start using the components of the Disaster Medical Information System effectively after a few hours of training.
  - Rapid Deployment and Setup of the system components.

Background – Specific Mission Needs

Track patient information:
- Demographic data.
- Medical history.
- Diagnosis of illness or injury.
- Disposition of patient.

Support wide range of medical responses:
- Public health and medical care needs.
- Veterinary health issues (with USDA).

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- Developing potential health and medical situation.
- Patient movement, prior to and/or after an event.

Track medical services:
- Medical procedures provided.
- Medications prescribed.
- Discharge instructions given.

Record health surveillance information:
- Patient log.
- CDC Requirements.

What is DMIS?

- DMIS is a suite of applications that are used to record patient encounters and track patient movement during an ESF8 response.
  - Electronic Medical Record System (EMR):
    - Application used to capture patient encounters during a disaster.
  - Health Information Repository (HIR):
    - Central collection point of all the medical encounters captured in the field.
  - Joint Patient Assessment and Tracking System (JPATS):
    - Web application that captures patient movement in the field.

Medical Care and Tracking of Disaster Patients

Supports medical care and patient tracking of disaster victims seeking care throughout the continuum of disaster medical care:
- Pre-hospital.
- Evacuation of people & patients.
- Field medical & alternate care facilities.
- Fixed definitive care facilities.
- Return of patient to a post disaster home.

Operational Environment
- DMIS is used when:
  - Medical systems within a domestic disaster area are overwhelmed.
  - Demand exceeds available resources:
    - Patients arrive for admission to a special medical needs shelter.
    - Mass casualty triage, rapid treatment.
    - Transport and tracking of critical care patients at the Aerial Port Of Embarkation (APOE).
  - Care delivery is time-sensitive, episodic & compressed:
    - Federal Medical Shelter (FMS) movement of patients to new 'medical home'.
    - Rapid transport under evacuation operations.

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- Lots of 'first aid' or low acuity patients competing with smaller number of high acuity or resource-intense patients.
- Limited visibility of patients' medical history and medications.
- Power may be limited or unavailable.

Who Documents Patient Encounters?
- National Disaster Medical System (NDMS) responders.
- US Public Health System (USPHS) officers.
- Veterans Affairs (VA) personnel.
- DoD, National Guard, State & Local Governments.
- Other Federal agencies.

Patient Population
- Wide spectrum of patient or evacuee acuity level and medical resource requirements:
  - First aid.
  - Stable but total care or dependent on durable medical equipment.
  - Critical or decompensating.
- Provider's first contact with patient – often limited or no medical history available.

EMR

The NDMS Electronic Medical Records (EMR) system is:
- Intuitive and Easy to Learn.
- User friendly.
- Designed to document patient care in the disaster and mass care setting.
- Has evolved to meet responders' needs.
- Replacement of paper medical records.
- Personal data is secured using redundant encryption.
- Computers are designed to be portable and can be carried by clinicians from patient to patient.
- Wristbands and scanners are available to ease input of data.

EMR Equipment and Resources:
- In an austere environment, portable equipment utilizing durable devices is critical to facilitate accurate documentation of patient medical care. Types of equipment include laptops, printers, cables, switches, access points and batteries.
- In major emergencies or disasters, internet access is also an important tool in disseminating patient encounter information. Work around techniques are

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available for times when internet access is not available.
- Resources are sent to field as responders are traveling to location.
- Sturdy Pelican Cases used to transport equipment from warehouse to field deployment locations:
  - Case 1 approximately 120 lbs – contains laptops.
  - Case 2 approximately 114lbs – contains network kit (switch, access points, batteries).
- Inventory list of contents under foam of each case top.
- Batteries not in laptops during shipping – allow 2-3 hrs to charge batteries fully.
- Printers arrive in a separate Pelican case.
- Panasonic H1:
  - Sterile laptop to be used in FMS to provide more data entry devices.
- Panasonic U1:
  - Rugged device to be used for patient tracking.
- Barcode Readers.
- Panasonic Tough Books.
- Wristband and Triage Tag Printers.
- Wireless Print Server.

Situational Awareness – Health Information Repository (HIR)

Health Information Repository

Purpose and Benefits
- Repository provides patient summary information to the SOC and IRCT.
- Enables near real-time Situational Awareness.

Importance of Good Data

During the first days of the Haiti response, response leadership was able to identify that more pediatric and orthopedic doctors were required based on the patient records that were being passed to the repository.

Situational Awareness – Informing Decision Makers

ESF-8 responders are an invaluable link in the decision chain during disaster response. Complete EMR patient records provide essential information to ground staff so that they can best meet their mission objectives. This "ground truth" has an additional value.

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Situational Awareness- Feedback

Complete records also serve as feedback to ASPR leadership who, through decision points, adjusts the response and further predicts response needs depending on the information conveyed via EMR. This information cycle serves to provide timely response data about an ever changing response environment. Critical information provided by the EMR contributes to saving lives by prompting leadership in the IRCT and SOC to allocate critical resources quickly.

Situational Awareness – Health Information Repository (HIR)
- Repository provides patient summary information to:
  - HHS Secretary's Operation Center (SOC).
  - Incident Response Coordination Teams (IRCT).
- Information transmitted from field every 15 minutes.
- Headquarters receives accurate, timely information.
- Epidemiological studies can be generated based upon data received from the field.
- Situational awareness of current environment critical to decision-makers:
  - Resource management.
  - Team movement.
  - Trends in symptoms and illnesses.
  - Triage categories.
  - Re-supply strategies.

Patient Tracking – Joint Patient Assessment and Tracking System (JPATS)
- JPATS is a re-branded version of the DoD JPTA System.
- Web based system provides real time accountability of patients seen by ESF-8 personnel.
- System used by HHS patient tracking teams located at every major patient care and reception point:
  - Users are tied to a physical location.
- Is a simple application:
  - The patient movement process is complicated.
- Contains only basic patient information:
  - Does not contain the patient's medical record.

JPATS utilizes internet connectivity and has a built in back-up system for times when no internet is available.

- Patients who have a discharge disposition of "transferred" in EMR have a patient movement record updated in JPATS so that they can be tracked.
- Tracks patients through phases or continuum of patient movement- from point of disaster back to home or a suitable post-disaster environment.

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- NDMS JPATS Team is a 2-person deployable data entry team which can be deployed within 24 hours of notification.
- Initial operational capability is achieved with 10 minutes of arrival at location.
- Federal Coordinating Centers (FCC) have adopted JPATS as the system that they use when regulating and tracking patients.
- Have demonstrated interoperability between external systems.
- Many States are now adopting JPATS for patient tracking purposes.

JPATS Functions:
- Register a new patient.
- Transfer or Discharge a patient.
- Receive Incoming Patient.
- Update Patient Status.
- Reports.
- Dashboards.

Securing Patient Information
- Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction.
- Security Policy:
  - Privacy Impact Assessment (PIA):
    - Required by E-Government Act.
    - An analysis of how personally identifiable information is collected, stored, shared and managed.
- Types of Security:
  - Physical Security.
  - Wireless Security (802.11i with AES).
  - Disk encryption security.

DMIS Education and Training
- DMIS education prepares responders to a variety of patient scenarios.
- DMIS training mitigates data entry problems which might occur during an ESF-8 field deployment.
- Preparedness utilizes multiple methodologies:
  - Train-the-trainer.
  - Quick Guides.
  - Responder E-Learn.
  - User Manuals.
- Curriculum involves multiple delivery mechanisms:
  - Online Training System.
  - Annual Training Summit.
  - Regional Field Exercises.

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- Responders should participate in ongoing training:
  - http://www.respondere-learn.com/
  - http://teams.hhs.gov/

Conclusion

During public health threats, medical emergencies, disasters or planned events, the successful delivery of emergency medical care is a necessary foundation for our nation's emergency preparedness efforts. The Disaster Medical Information Suite (DMIS) supports medical care and patient tracking of disaster victims seeking care throughout the continuum of disaster medical care. Using this system gives NDMS and our ESF-8 partners a better understanding of what occurs during disasters, allowing near-real time operational decision-making that saves lives, and supports the safe provision of medical care to patients.

ESF-8 responders are an invaluable link in the decision chain during ESF-8 deployments. Complete patient records provide essential information to ground staff so that they can best meet their mission objectives. It also serves as feedback to ASPR leadership who adjust the response and further predicts response needs depending on the information conveyed from ESF-8 responders. This information cycle serves to provide timely response data about an ever changing response environment.

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