

American Telemedicine Association Annual Meeting



Wounded Warrior Medical Information Management from the Battlefield to Home

COL Claude Hines, Jr., MS, USA, Program Manager

April 5, 2008

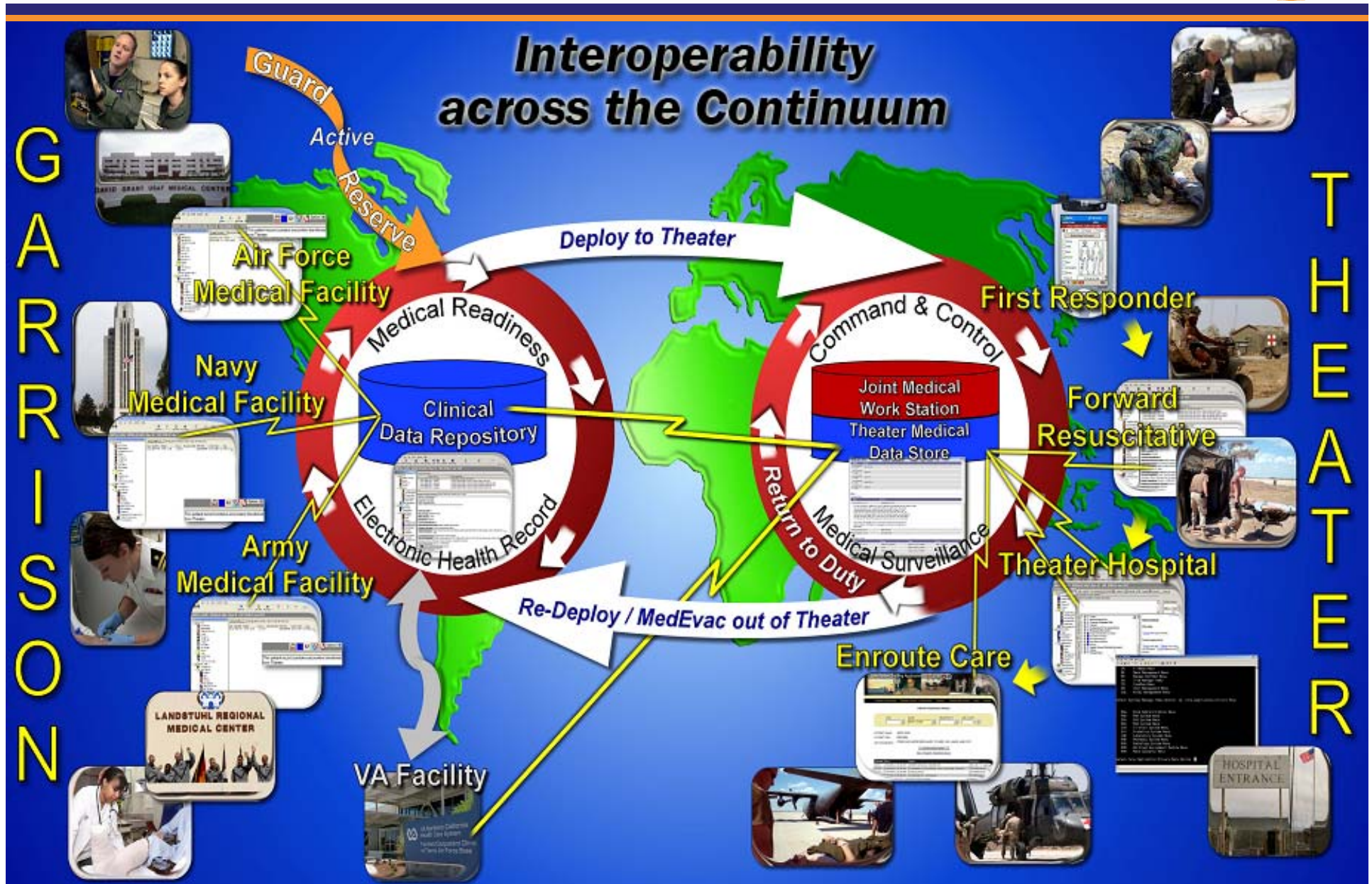
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Theater Medical Information Program-Joint (TMIP-J) Mission



- » Theater input to the Military member's longitudinal electronic health record
- » Medical component of Global Combat Support System (GCSS) and Global Command and Control System (GCCS)
- » Enable theater patient visibility
- » Provide automated tools for the aggregation of medical data to support medical situational awareness and surveillance
- » Provide automated theater logistical and blood management tools
- » Facilitate movement of pertinent theater medical data to DoD and Service-specific systems or databases

Theater Operational View OV-1





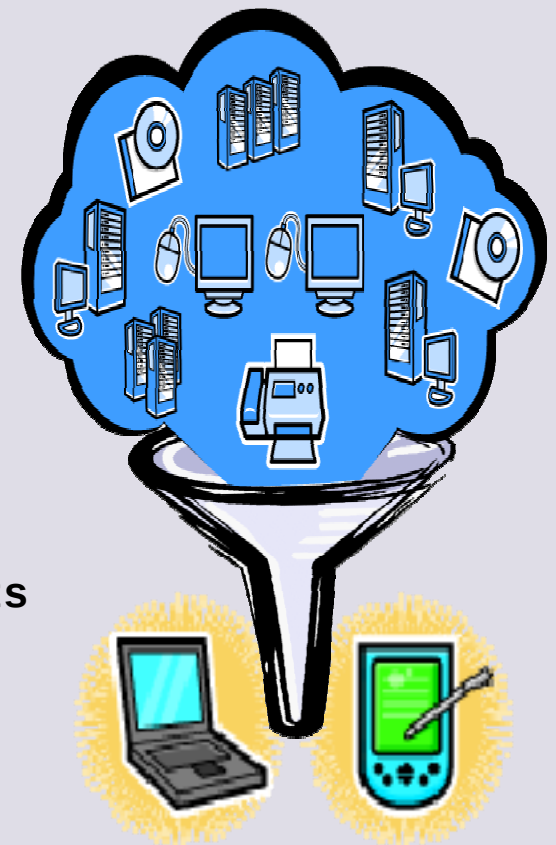
Theater Complement to MHS

Sustaining Base

- » Longitudinal Electronic Health Record (EHR)
- » Robust communications infrastructure
- » Medical Logistics
- » Environmental Health
- » Other sustaining base systems
- » Large footprint

Theater

- » Operates in austere communications environments
- » Portable and modular
- » One system of record
 - Provides theater clinical data to the Military member's longitudinal EHR
 - Medical Surveillance
 - Medical Logistics
 - Patient Movement and Visibility





Integration

Developmental Partners

Clinical Information Technology Program Office (CITPO)	Telemedicine & Advanced Technology Research Center (TATRC)	Theater Medical Information Program - Joint (TMIP-J)	Resource Information Technology Program Office (RITPO)	Defense Medical Logistics Standard Support (DMLSS)	United States Transportation Command (USTRANSCOM)	Other Partners
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Applications

AHLTA-Theater
AHLTA Warrior

AHLTA-Mobile
TeleHealth
TRAVAX
EIC

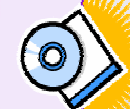
JMeWS
JMAT
TMDS
- JTTR
- JPTA
- BHIE-T

TMIP CHCS Caché
DOEHRS-IH/EH

DMLSS OTR
TEWLS
DCAM
PMITS
BLOOD
JMAR

TRAC2ES Mobile

SAMS
GEMS
MEDIC
GCSS



Electronic
Health Record

Command
& Control

Patient
Movement

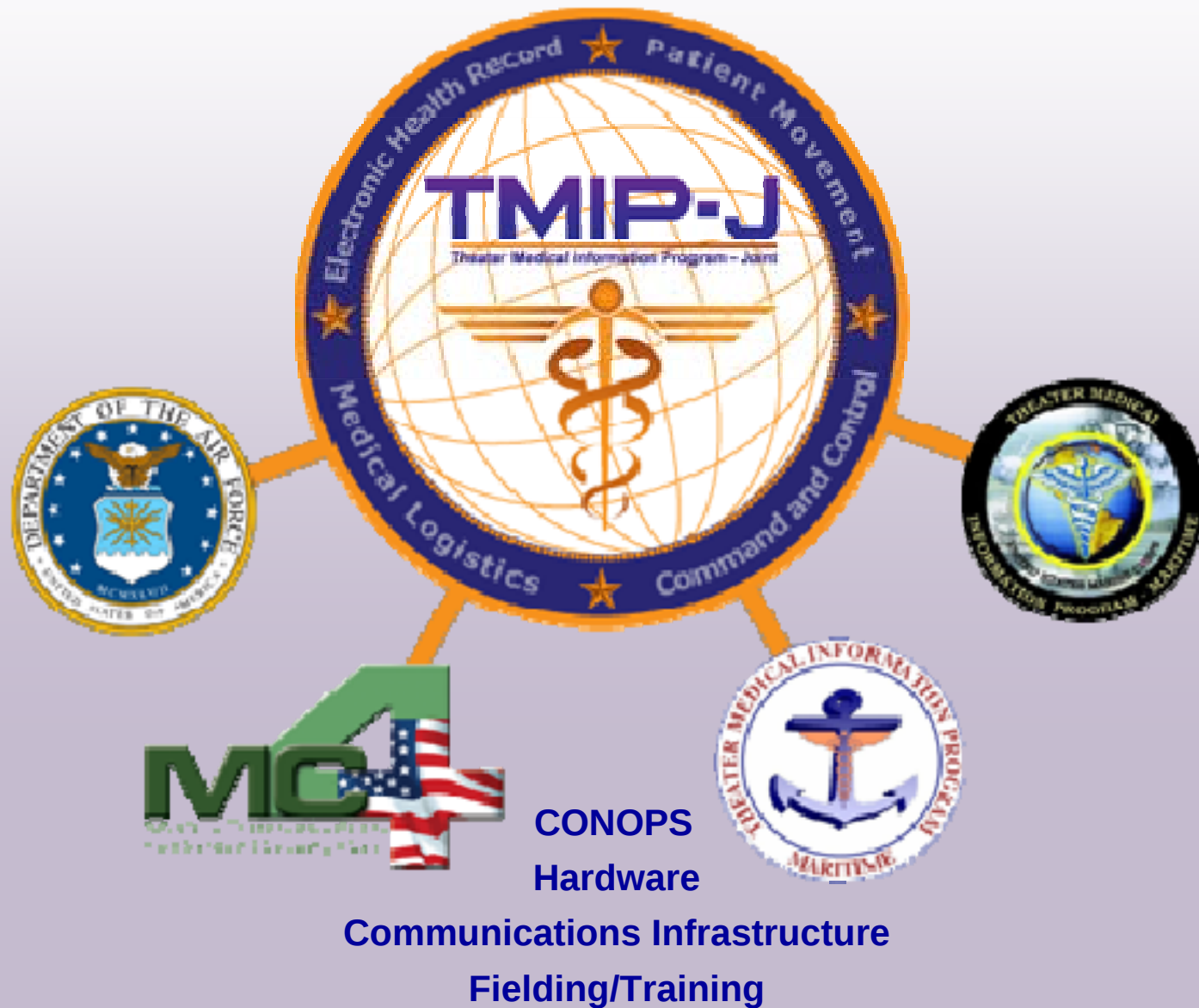
Medical
Logistics



Theater Medical Information Program - Joint



Service Infrastructure Program Offices





Current Clinical Capabilities (Block 1)

AHLTA Mobile Version 1.9.8

- First Responder Application
- Electronic Field Medical Card



TMIP CHCS Caché (TC2) Version 1.0.0.0

- Inpatient Treatment Documentation
- Pharmacy, Laboratory, and Radiology Support



AHLTA Theater Version 301.3

- Outpatient Treatment Documentation



Joint Medical Work Station (JMeWS) Version 2.2.3.4

- Command and Control
- Medical Surveillance
- Classified

Theater Medical Data Store (TMDS) Version 2.2.3.4

- Individual Theater Medical Encounters
- Bidirectional Health Information Exchange (BHIE)- Interface
- Unclassified





Current Logistics Capabilities in Theater

DMLSS Customer Assistance Module (DCAM) Version 1.1.39.0

- Stand alone MEDLOG application that enables users to electronically download catalog data, place orders, and obtain status information from their supply activity
 - Can be used by all medical personnel
- Operates in austere communication environments
- Capability to feed data to Joint Medical Asset Repository (JMAR)



Patient Movement Item Tracking System (PMITS) PlexusD Version 1.0.2.0

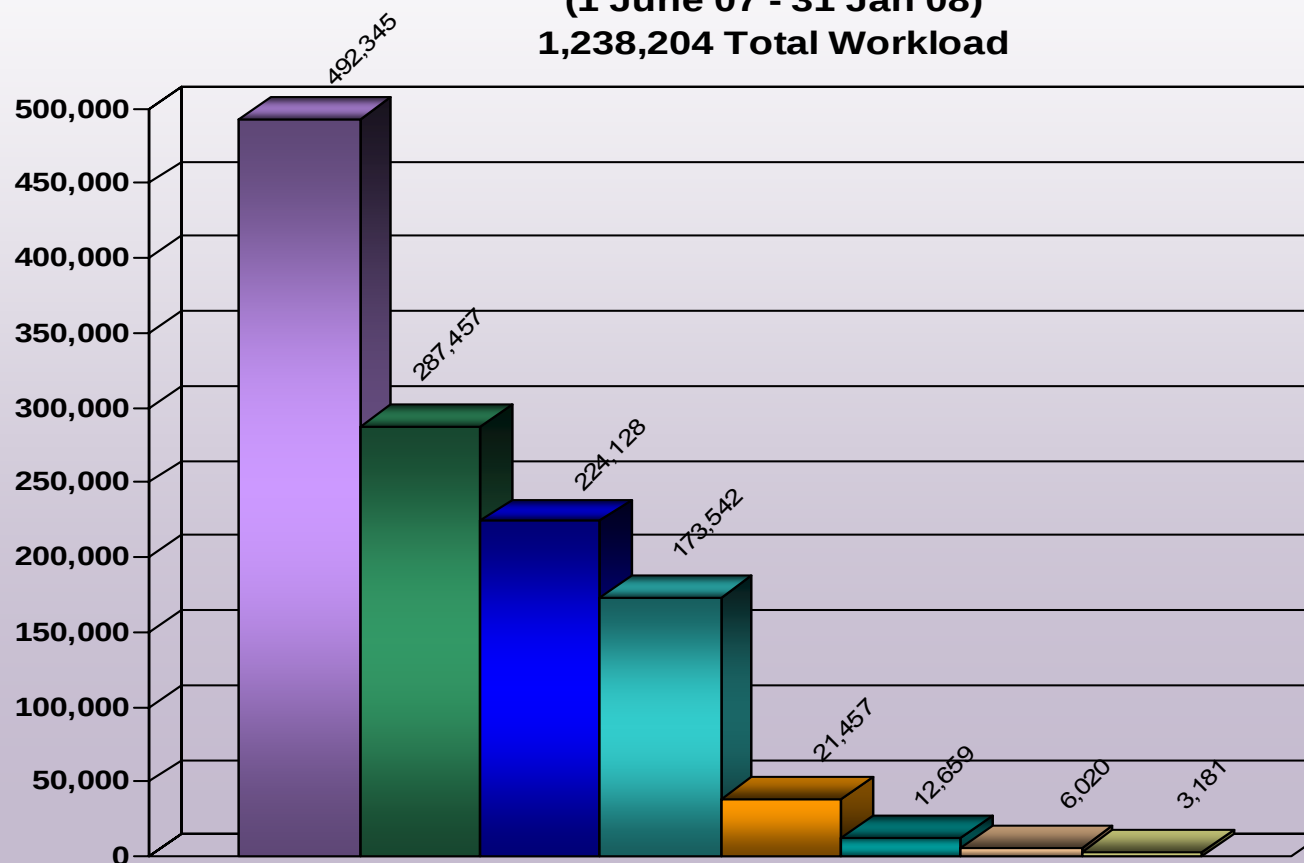
- Tracks air certifiable medical equipment evacuated with the patient
- Facilitates the management and distribution of PMI assets
- Stand-alone application which requires a modem to communicate
- Utilizes bar-coding and scanning technologies



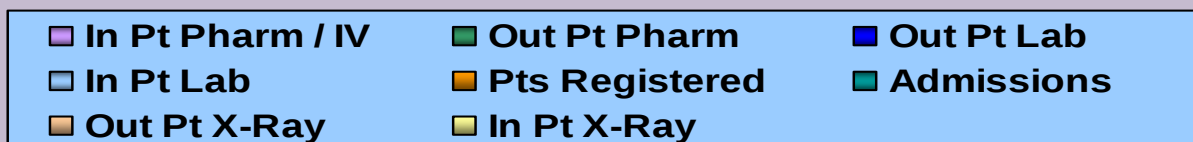


TMIP Inpatient Data

TC2 Statistics
(1 June 07 - 31 Jan 08)
1,238,204 Total Workload



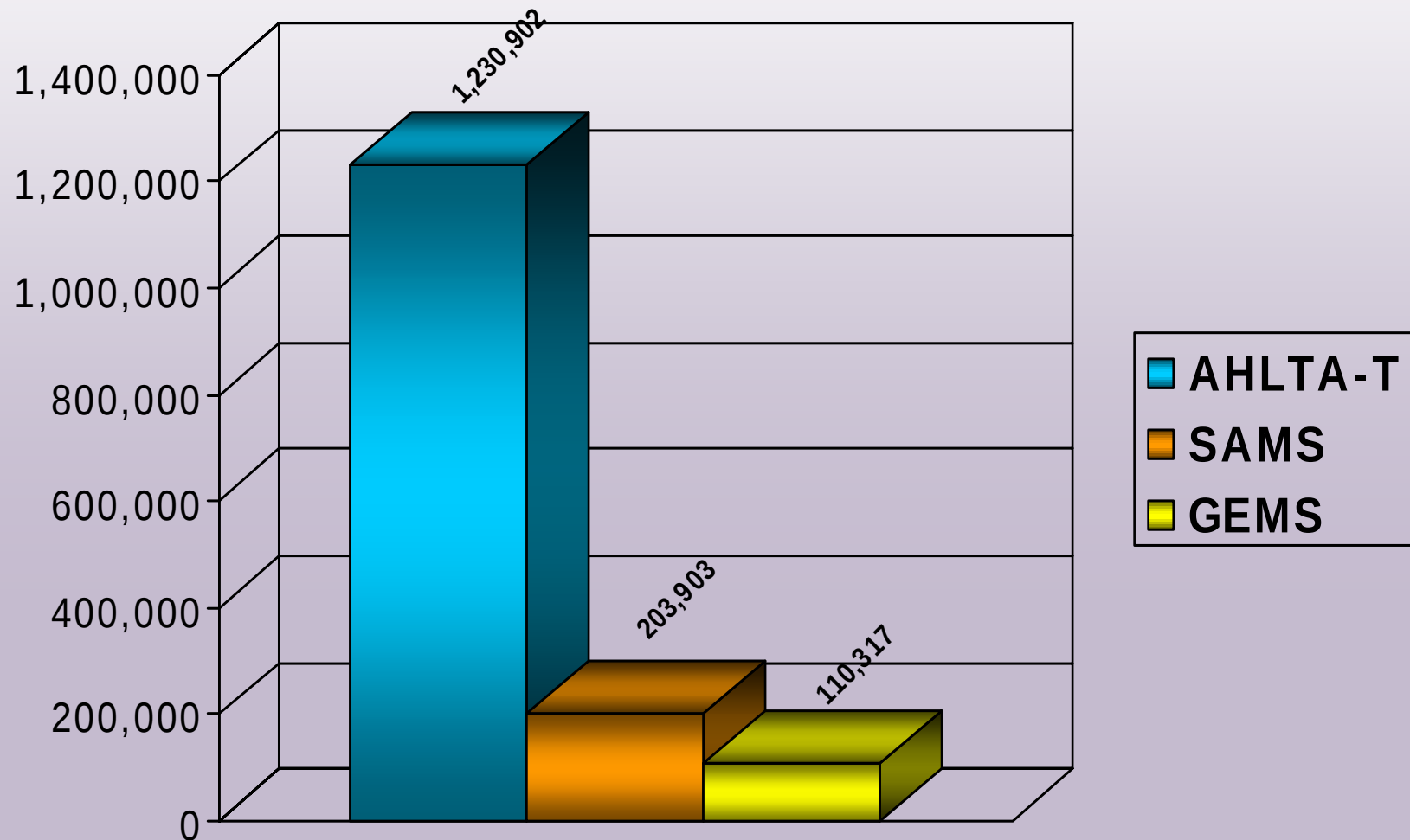
Note:
CHCS NT Statistics
(1 Apr 05 - 15 Jul 07)
1,836,580 Total Workload





TMIP Outpatient DATA

Outpatient Statistics
(1 Jan 05 – 31 Jan 08)
1,545,122 Total Encounters





Recent Upgrades and Enhancements

- » TMIP CHCS CACHE (TC2) Interface with TMDS
- » BHIE-T Interface with TMDS
- » TRAC2ES Interface with TMDS
- » JPTA/TMDS Merge



TMIP CHCS Caché (TC2) Interface with TMDS

- » Technical refresh of CHCS-NT to TC2
- » Uses Health Level 7 (HL7) messages to move clinical inpatient data from TC2 to TMDS including:
 - Discharge summaries, doctor/nursing/operative/progress notes
 - Admissions, discharges, transfers
 - Dietetics, allergies, inpatient medications
 - Laboratory orders and results
 - Radiological orders and radiologist's report
 - Additionally - Outpatient ancillary services (Pharm, Lab, Rad)
- » Activated 1 August 2007

Bi-directional Health Information Exchange - Theater (BHIE-T) Interface with TMDS



- » VA providers can access theater clinical data for DoD patients who transfer to the VA for care or evaluation
- » BHIE-T activated on 6 October 2007 with over 255,000 Active Duty, National Guard, and Reservists (FMP 20) patients' demographic information
 - Of the 255,000 patients 49,700 were registered with the VA
 - TMDS updates BHIE-T with new FMP 20 patient registrations every 2 hours
- » BHIE-T facilitates the sharing of patient information available in TMDS to VA providers and DoD Secure Health Alliance Record Exchange (SHARE) sites



TRAC2ES Interface with TMDS

- » Facilitates the exchange of patient clinical information from TMDS to TRAC2ES and patient movement data from TRAC2ES to TMDS
- » Enables TRAC2ES to retrieve data from TMDS to populate fields in a Patient Movement Request (PMR)
 - Demographic data, vital signs, allergies, laboratory results, diagnosis, and objective patient history
- » Enables TMDS to receive In-transit Visibility (ITV) data provided by TRAC2ES
 - Patient movement (origin, designation and time of movement), flight readiness (mission ID and aircraft type), itinerary and special equipment needs
- » Activated 21 December 2007

Joint Patient Tracking Application (JPTA) Merge into TMDS



» Initiative to merge JPTA into TMDS

- Similar “look and feel” and base functionality
- Allows authorized users to view patient data from theater clinical systems (AHLTA Theater, AHLTA Mobile, GEMS, SAMS and TC2)
- Provides theater patient visibility and tracking
 - TRAC2ES Patient Movement Request (PMR)
- One theater database

» Data interfaces

- CHCS Patient Data Import (visibility of SI and VSI patients)
- DEERS
- Veterans Tracking Application (VTA)
- DFAS (combat injury pay)
- Medical Operational Data System (MODS)

» Go live date – 1 March 2008

FOR OFFICIAL USE ONLY

Joint Patient Tracking Application



Welcome back, **SGT Smith** — viewing Landstuhl RMC (W1HHAA)

[Patient Registration](#) | [Reports](#) | [Patients By Service](#) | [Kleber](#) | [Patient Search](#)

Your Location: Patient Search

Conduct a Patient Search for Kenny McCormick by entering last name in the Search Name field

Patient Treatment History

Search For Patient

Search SSN:

Search Name:

Search Register #:

Search Arrival Date:

McCormick

Search SSN

Search Name

Search Register #

Search Date

Patient Information

PATIENT
NAME:

MCCORMICK, KENNY

PATIENT
SSN:

*****3456

INIT
DIAGNOSIS:

Other suppurative peritonitis. Abscess (of): abdominopelvic, mesenteric,

[Reverse Record Order](#)

[View SF 502 Narrative Summary \(PDF\)](#)

Other Treatment Data

[Show Additional Treatment Data](#)

Tracking Status

Author	DATE	NOTES
fms	11/08/2007 09:58	[Unavailable, please download to view]

Location History

Status	Data Source	Location	Date	Facility
UNDEFINED	TRAC2ES	UNKNOWN	11/09/2007 17:30	WALTER REED AMC-WASHINGTON DC(W2DHAA)
INPATIENT	JPTA	PENDING	11/08/2007 16:03	Landstuhl RMC(W1HHAA)
	CHCSTC2	UNKNOWN	11/06/2007 10:00	0086 MD HSP CBT SPT HOSP(WD5TAA)
ADMISSION	CHCSIIT	UNKNOWN	11/05/2007 12:28	0086 MD HSP CBT SPT HOSP(WD5TAA)

Patient Search
Displays Patient Data
from:
AHLTA-T
TC2
JPTA
TRAC2ES

Location History

Status	Data Source	Location	Date	Facility
UNDEFINED	TRAC2ES	UNKNOWN	11/09/2007 17:30	WALTER
INPATIENT	JPTA	PENDING	11/08/2007 16:03	Landstuhl
	CHCSTC2	UNKNOWN	11/06/2007 10:00	0086 MD HSP CBT SPT HOSP(WD5TAA)
ADMISSION	CHCSIIT	UNKNOWN	11/05/2007 12:28	0086 MD HSP CBT SPT HOSP(WD5TAA)

Select date links to view detailed patient information from each data source.

FOR OFFICIAL USE ONLY

TMIP | Joint Patient Tracking Application

Print Window | Close Window

Movement Record

[EXPAND ALL](#) [COLLAPSE ALL](#)

Demographics Information

Last Name: **MCCORMICK** First Name: **KENNY** Middle Name:
 Rank: **UNK** Service: **USA** Duty Status: **A11**
 Race: DOB: Gender: **M**
 Home Unit: Deploy Unit: **UNKNOWN (55555)** Temp Unit:
 Patient Identification:
 Patient SSN: *****3456
 Sponsor SSN: *****3456/20

TRAC2ES Patient
Movement Record

Movement Information

Status	Precedence	Ready Date
COMPLETED	ROUTINE	11/08/2007 00:00
Originating Facility		Originating Theater:
86th MED GRP RAMSTEIN AB GE (F5200)		EUCOM
Destination Facility:		Destination Theater:
WALTER REED AMC-WASHINGTON DC (W2DHAA)		NORTHCOM
Last Known Location:		Last Known Location Date:
WALTER REED AMC, WASH DC		11/08/2007 08:00

FOR OFFICIAL USE ONLY

TMIP | Joint Patient Tracking Application

Print Window | Close Window

Inpatient Record

[EXPAND ALL](#) [COLLAPSE ALL](#)

Demographics Information

Last Name: **MCCORMICK** First Name: **KENNY** Middle Name:
 Rank: **SSG** Service: **USA** Duty Status: **A11**
 Race: **OTHER** DOB: **10/21/1981** Gender: **M**
 Organ Donor: **U** VIP Type: **N**
 Home Unit: **UNKNOWN (55555)** Deploy Unit: Temp Unit:
 Kin Information:
 Kin Name: **null - null**
 Patient Identification:
 Patient SSN: *****3456
 Sponsor SSN: *****3456/20

TC2 Patient
Encounter Record

Encounter Information

Encounter Date: **11/06/2007 10:00** Facility: **0086 MD HSP CBT SPT HOSP (WD5TAA)**
 Report Date: **11/06/2007 10:00** Data Source: **CHCSTC2**
 Provider:

FOR OFFICIAL USE ONLY

TMIP | Joint Patient Tracking Application

Print Window | Close Window

Movement Record

[EXPAND ALL](#) [COLLAPSE ALL](#)

Demographics Information

Last Name: **MCCORMICK** First Name: **KENNY** Middle Name:
 Rank: **SSG** Service: **USA** Duty Status:
 Race: DOB: **10/21/1981** Gender: **M**
 MOS: **DOD** VIP Type: **N**
 Home Unit: Deploy Unit: **W12K38 (W12K38)** Temp Unit:
 Patient Identification:
 Patient SSN: *****3456
 Sponsor SSN: *****3456/20

JPTA Patient
Encounter Record

Movement Information

Status	Precedence	Ready Date
	PRIORITY	11/08/2007 00:00
Originating Facility		Originating Theater:
WD5TAA (WD5TAA)		2
Destination Facility:		Destination Theater:
Landstuhl RMC (W1HHAA)		No Data Provided
Last Known Location:		Last Known Location Date:
No Data Provided		No Data Provided

FOR OFFICIAL USE ONLY

TMIP | Joint Patient Tracking Application

Print Window | Close Window

Outpatient Record

[EXPAND ALL](#) [COLLAPSE ALL](#)

Demographics Information

Last Name: **MCCORMICK** First Name: **KENNY** Middle Name:
 Rank: **SSG** Service: **USA** Duty Status: **A11**
 Race: **UNKNOWN** DOB: **10/21/1981** Gender: **M**
 Religion: **American Baptist Association** Flight Status: **N** Diving Status: **N**
 Jumping Status: **N** MP Status: **N** Submarine Status: **N**
 VIP Type: **N**
 Home Unit: Deploy Unit: Temp Unit:
 Patient Identification:
 Patient SSN: *****3456
 Sponsor SSN: *****3456/20

AHLTA-T Patient
Encounter Record

Allergies Information

Start Date	Allergy
11/05/2007 12:28	No Allergies Found

Notes

Progress Notes

	Date	Name
☐	11/08/2007 10:27	DOCTORS NOTE
HEAD: PT CAME IN WITH A C-COLLAR; SUPERFICIAL LACERATION TO THE FOREHEAD ABOVE EYEBROW AND TEMPLE. CHEST: GSW LEFT SIDE BETWEEN NIPPLE AND ARMPIT THROUGH AND THROUGH; PT BROUGHT IN WITH FRONTERIOR OCCLUSIVE DRESSING THAT WAS REPLACED WITH ASCHERMAN CHEST SEAL IMMEDIATELY TREATED FOR TENSION PNEUMOTHORAX LEFT SIDE WITH 18 GAUGE NEEDLE; EXIT WOUND LEFT SCAPULA REGION TREATED WITH BANDAGE. SUPERFICIAL LACERATION TO RIGHT TRAP: BANDAGED W/4X4 AND TAPE. LACERATION SUPERFICIAL, RIGHT SHOULDER TISSUE INJURY IV LEFT ARM BASILLIC VEIN; ADMINISTERED 1G ANCEF IN IV; NEEDS TD SHOT		
☐	11/08/2007 10:25	ADMISSION NOTE
GUNSHOT WOUND TO THE THORAX. SHRAPNEL WOUNDS; INJURY FROM FRAGMENTS FROM TERRORIST EXPLOSION.		

TC2
Notes/Results

Laboratory Results

☐	Date	Name	Type	Status	
☐	11/08/2007 10:02	GLUCOSE	Observations to follow	Order complete	
Procedure Description					
GLUCOSE; QUANTITATIVE, BLOOD					
Results					
Name	Results	Ref. Range	Status	Certified By	Certified Date
GLUCOSE	156 H	73-118 mg/dl	Final Results	ADMIN, MCFOUR	11/08/2007 10:13

Radiology Result

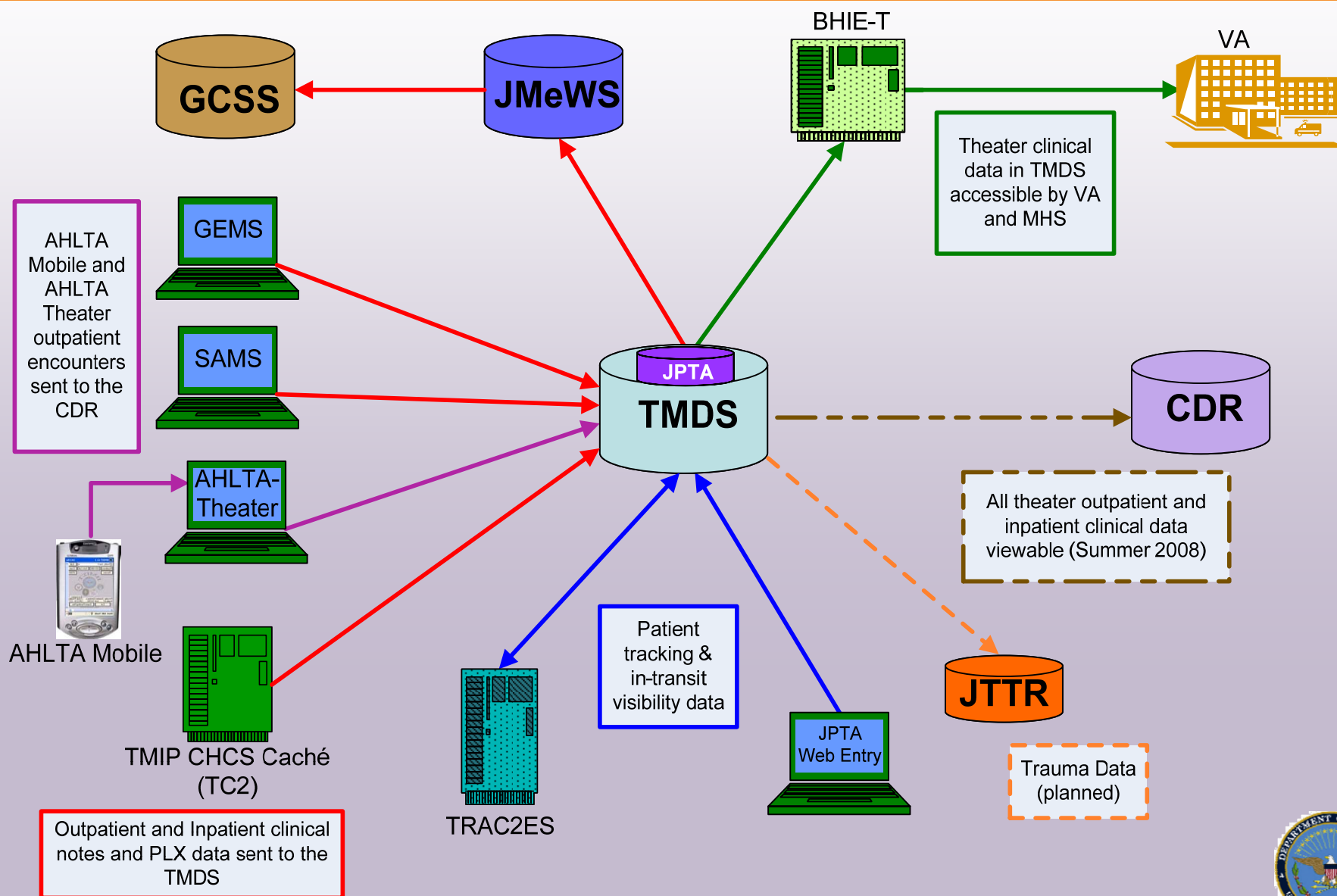
	Date	Name	Type	Status
☐	11/08/2007 10:40	CHEST, PA/LAT	Observations to follow	Order complete
RAD Information Imaging Type: RADIOLOGY Exam Status: PRELIMINARY Exam Performing: RADIOLOGY ROOM Transcription Date: 11/08/2007 10:41 Transcription Report Status: PD Transcription Approved by: MCFOUR, ADMIN Comments: 5\MAJOR ABNORMALITY, PHYSICIAN AWARE\99RRC SHRAPNEL IN CHEST BETWEEN LEFT NIPPLE AND LEFT ARMPIT				

Medications

	Date	Name	Type	Status
☐	11/08/2007 10:20	INPATIENT MEDICATION	New Order	
Medication Name: CEFAZOLIN--INJ 1GM SOLR Alt Medication Name: CEFAZOLIN SODIUM (ANCEF) 1G INJECTION VIAL Medication Route: INJ Requested AMT: 1 GM Instructions to Pharmacy: Q6H				
☐	11/08/2007 10:17	INPATIENT MEDICATION	New Order	
Medication Name: SODIUM CHLORIDE--IV 0.9% SOLN Medication Route: IV Requested AMT: 1 ML Instructions to Pharmacy: ONE TIME				



Theater Medical Data Integration (TMDI)





Block 2 Release FY07 (formerly B2R1)

Originally Planned:

- AHLTA Mobile 1.9.8*
- AHLTA Theater 301.9*
- Joint Medical Work Station (JMeWS) 2.2.3.4*
- Business Objects (Ad Hoc Reporting) 6.5.1

* Newer Version Than Planned

Development Added to Block 1:

- TMIP Composite Health Care System Caché (TC2) 1.0.0.0
- DMLSS Customer Assistance Module (DCAM) 1.1.106.0
- TRANSCOM Regulating and Command & Control Evacuation System (TRAC2ES) Interface

Other Products:

- Patient Movement Items Tracking System (PMITS) 1.0.2.0
- Shipboard Non-tactical Automated Data Processing Program (SNAP) Automated Medical System (SAMS) 9.02.00

Environment: Windows XP Professional/Server 2003 Oracle 10g

Sustain Block 1 until the Services migrate to Block 2

Released to Service Infrastructure Program Offices October 2006

OT completed 5 February 2008



Block 2 Release FY07 Highlights

» AHLTA Theater

- Alternate Input Methods (AIMS) Forms
 - Includes 111 standard templates
- MACE Forms
- SAMS demographic interface
- Limited inpatient capability for Forward Resuscitative (Level II)
- Off-line demographic verification

» AHLTA Warrior (Phase 2)

- Reach back to the CDR for Patient History
 - Clinical Encounter
 - Allergies
 - Laboratory
 - Radiology
 - Pharmacy
- Single Sign On (SSO) with TMDS
 - Eliminates multiple passwords
 - Reduces multiple login screens to one



Near Term Initiatives

» TC2

- Improve usability by replacing a DOS like interface with a user friendly Graphical User Interface (GUI)
- Remote access for outlying Theater medical facilities
 - Allows providers to leverage clinical capabilities from off-site locations
- Improved interoperability between Theater hospital systems
 - Laboratory
 - Radiology
 - Consultations

» Clinical Context Management

- Automatically references the same patient across multiple applications
- Extends Single Sign On across the TMIP Suite of software

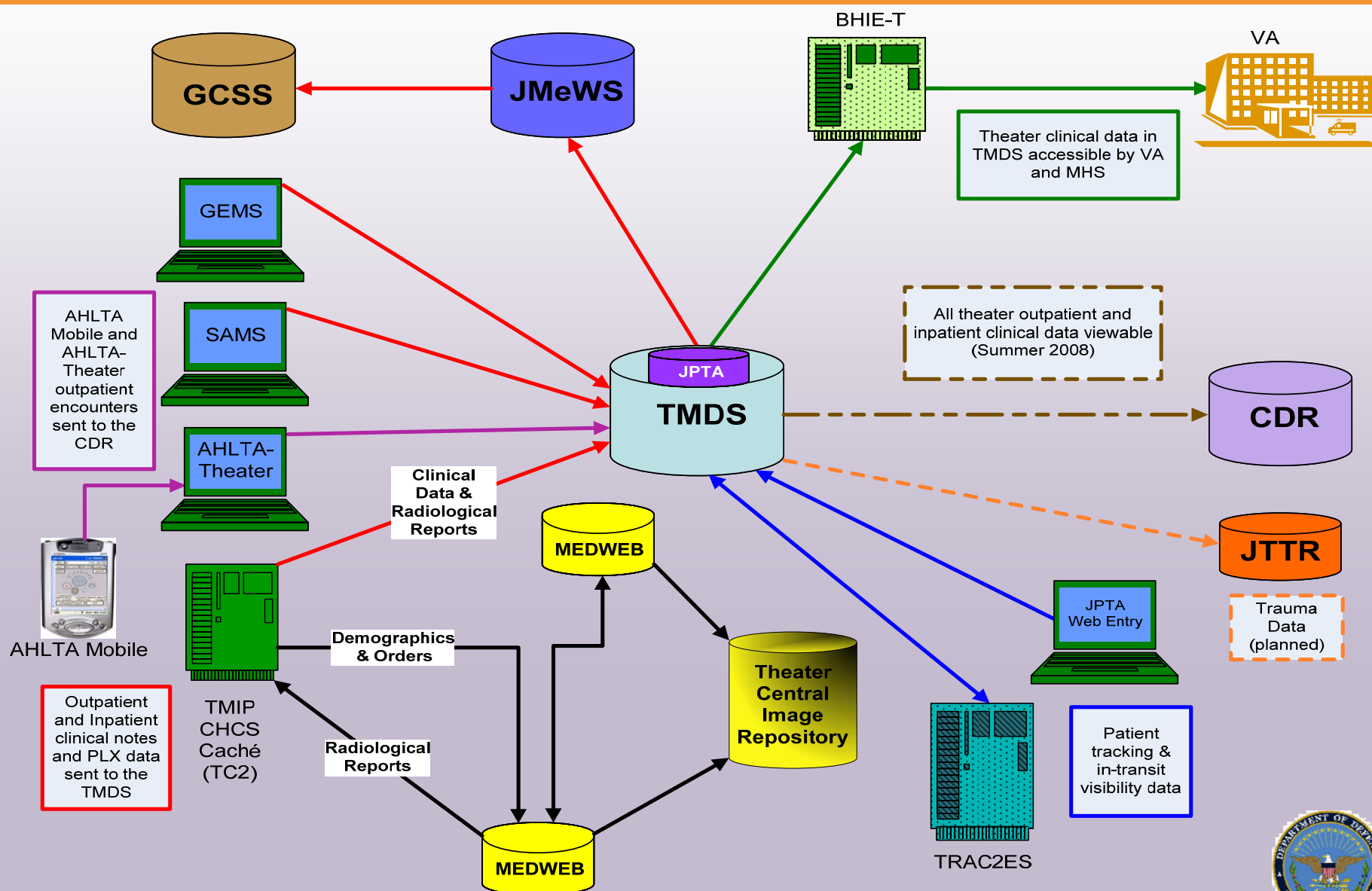
» Neuro-Cognitive Assessment Tool

- Conduct an Analysis of Alternatives (AoA) to identify the best technology to support Psychological Health and Traumatic Brain Injury





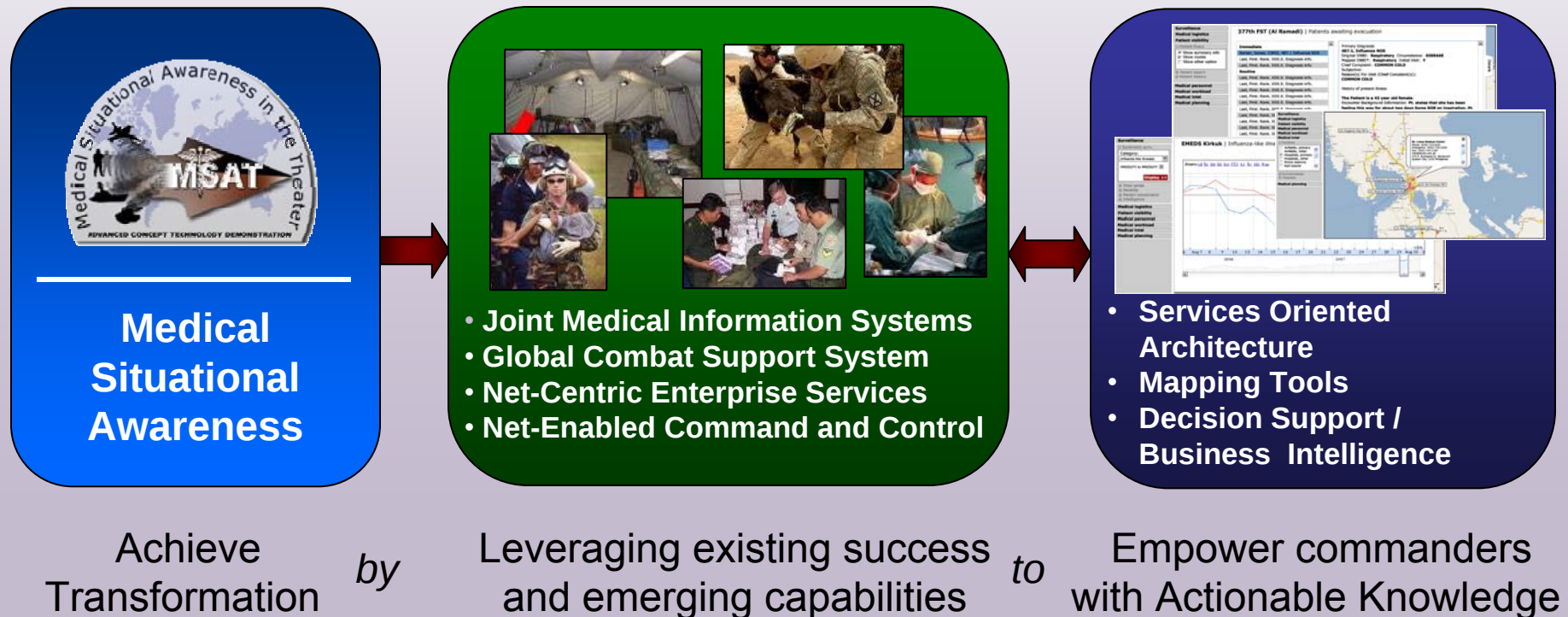
Proposed Digital Imaging Concept



Medical Situational Awareness in the Theater (MSAT)

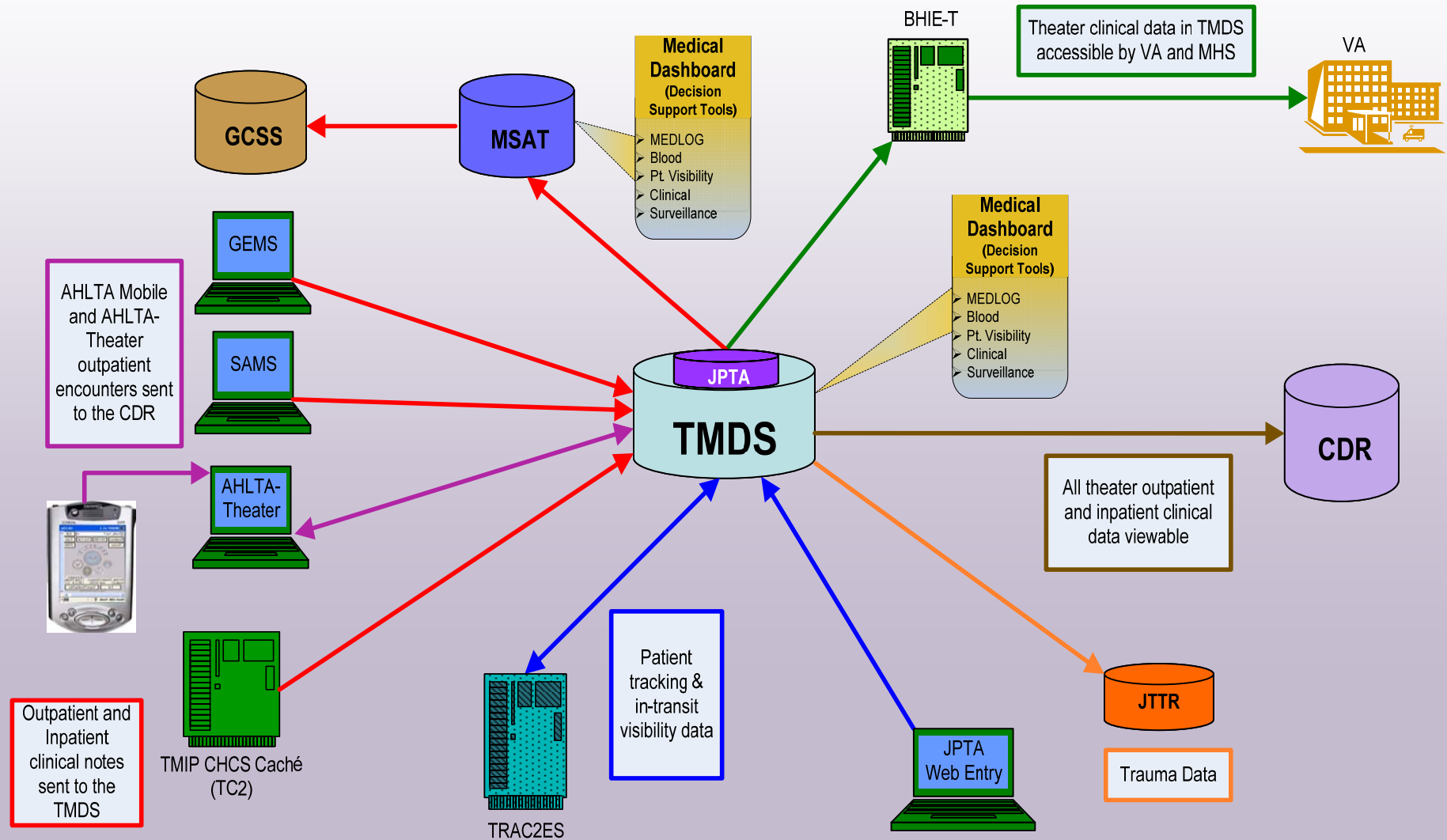


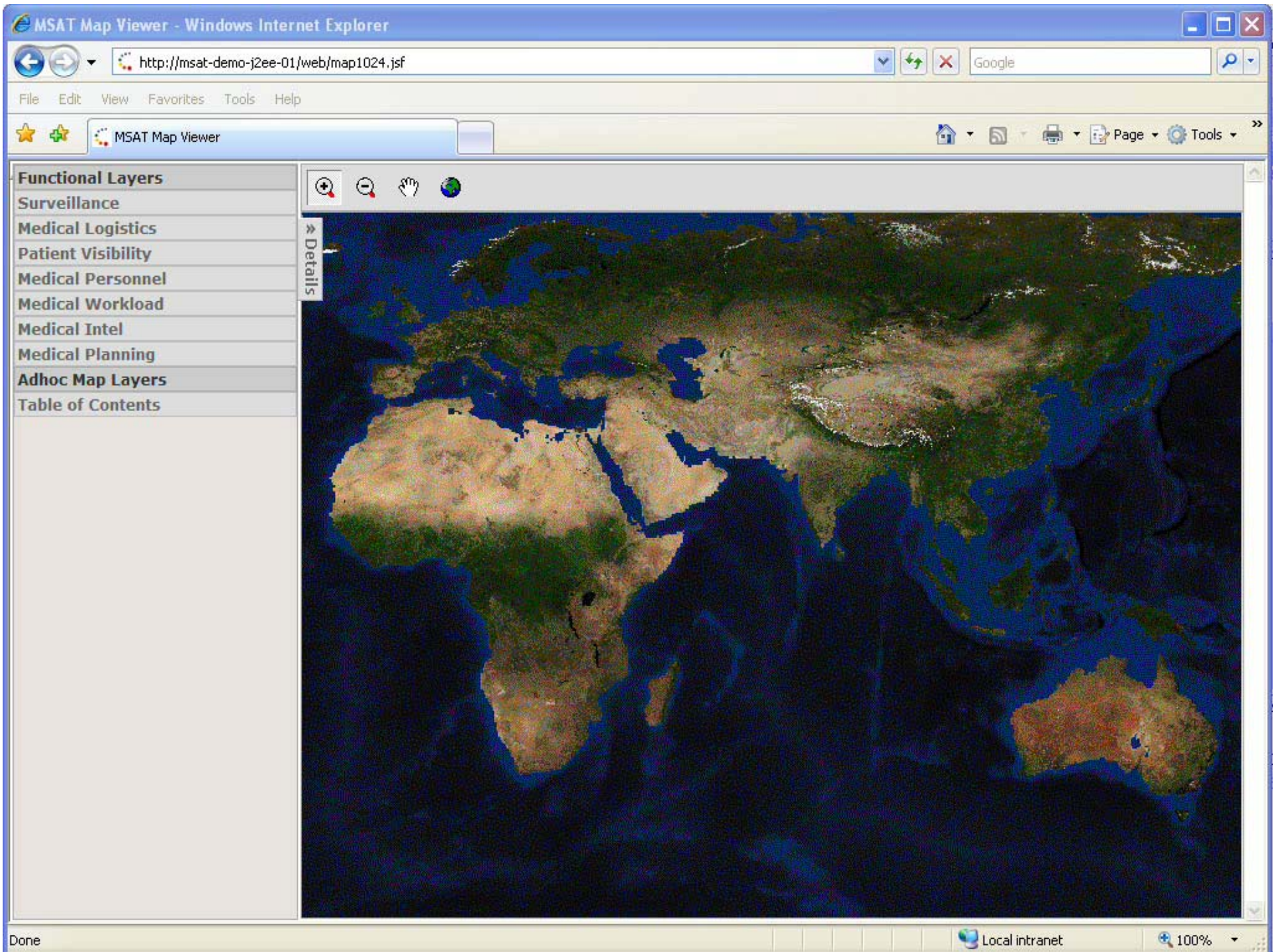
Provide commanders and their staffs actionable knowledge and enhanced medical situational awareness to enable critical decision making





TMDI: Mid Term (FY10)





Potential Civilian Uses

- » Natural Disaster Support
- » Humanitarian Assistance
- » Pandemic Outbreaks
- » Rural Health Care
- » Visiting Nurse Services
- » Public Schools





In Summary

- » Provides single authoritative source for theater generated medical data
 - The Medical component to GCSS and GCCS
- » The theater input for the longitudinal electronic health record starting at the first responder
 - Shares information with the CDR
- » Leverages the MHS sustaining base systems
 - Similar functionality between theater and sustaining base
- » Provides solutions to support:
 - Electronic healthcare documentation
 - Patient movement and visibility
 - MEDLOG and Blood management
 - Medical situational awareness and surveillance
- » Operates in austere communication environments
- » Scalable, flexible and portable



Questions?



TMIP-J Office: 703-998-6900

TMIP-J Web site:

<http://www.ha.osd.mil/peo/tmip/>