

American Telemedicine Association Annual Meeting



Wounded Warrior Medical Information Management from the Battlefield to Home

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Report Documentation Page

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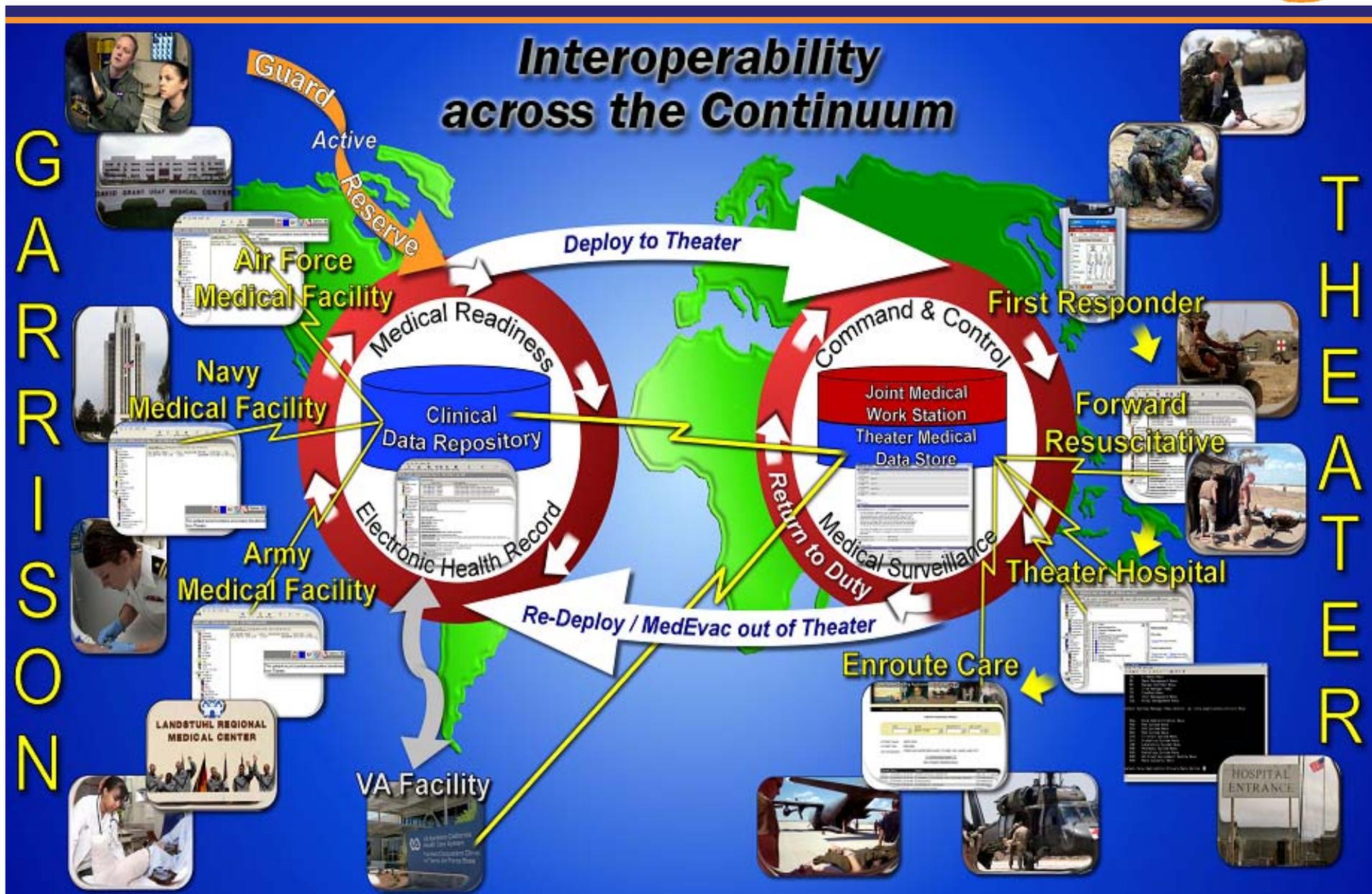
Theater Medical Information Program-Joint (TMIP-J) Mission



- » 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





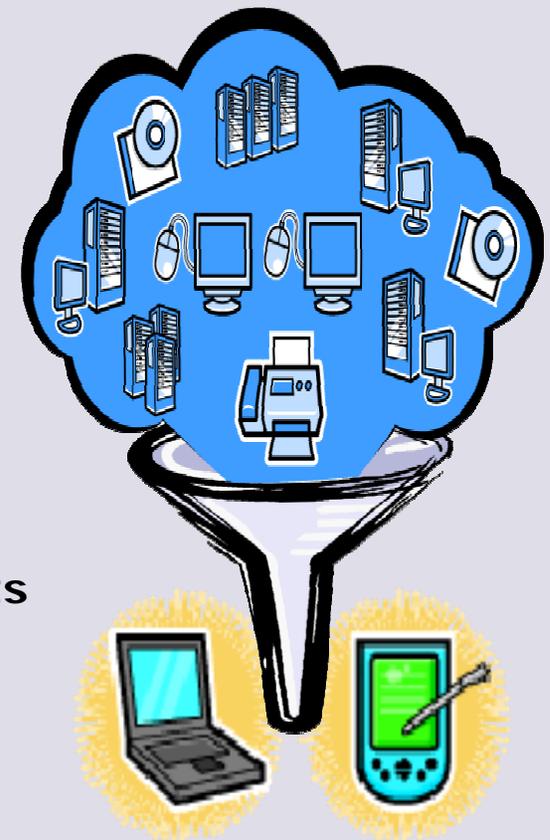
Theater Complement to MHS

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

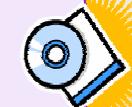
JMeWS
JMAT
TMDS
- JTTR
- JPTA
- BHIE-T

TMIP CHCS Caché
DOEHRS-IH/EH

DMLSS OTR
TEWLS
DCAM
PMITS
BLOOD
JMAR

TRAC2ES Mobile

SAMS
GEMS
MEDIC
GCSS



Electronic Health Record



Command & Control



Medical Logistics



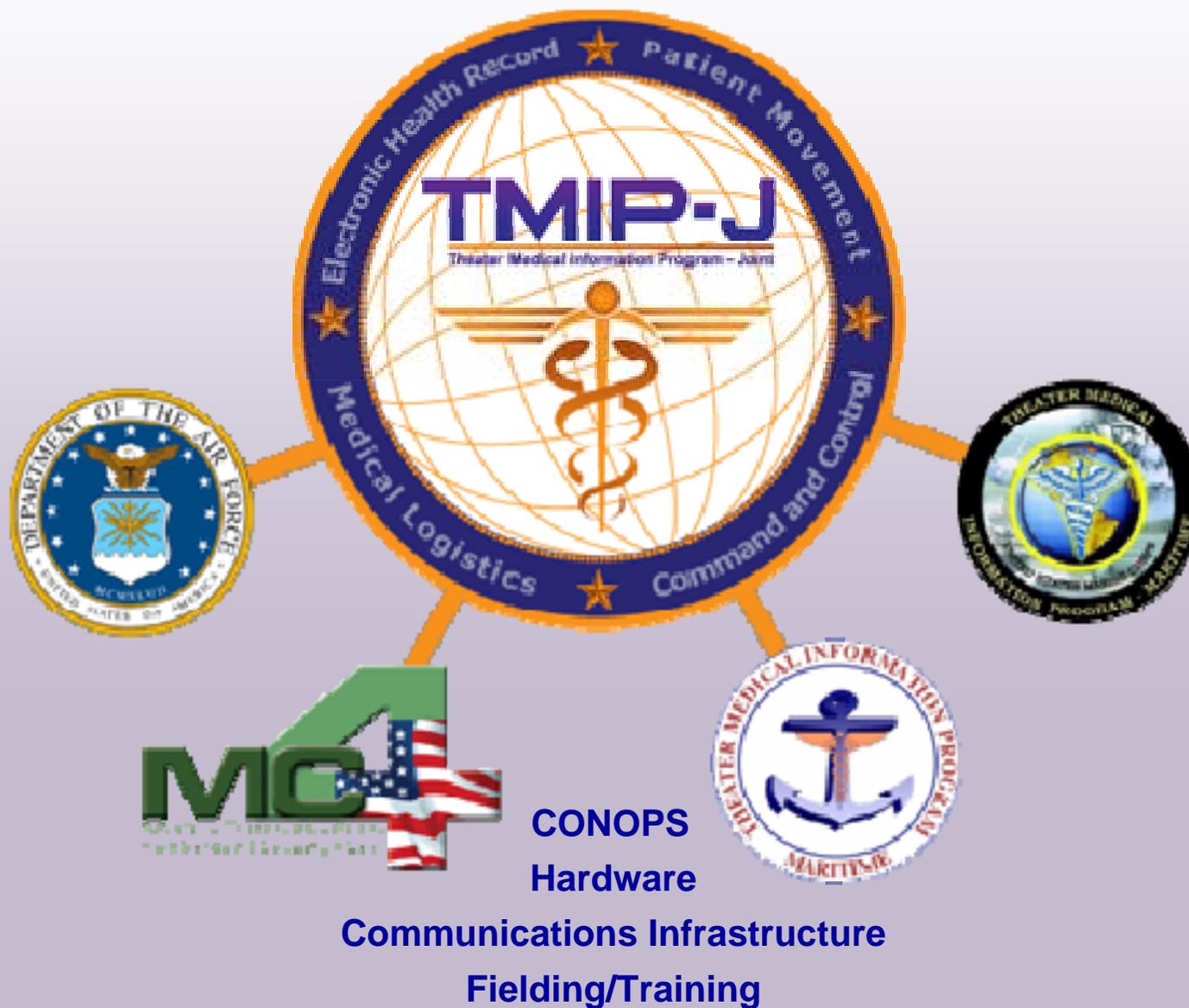
Patient Movement



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

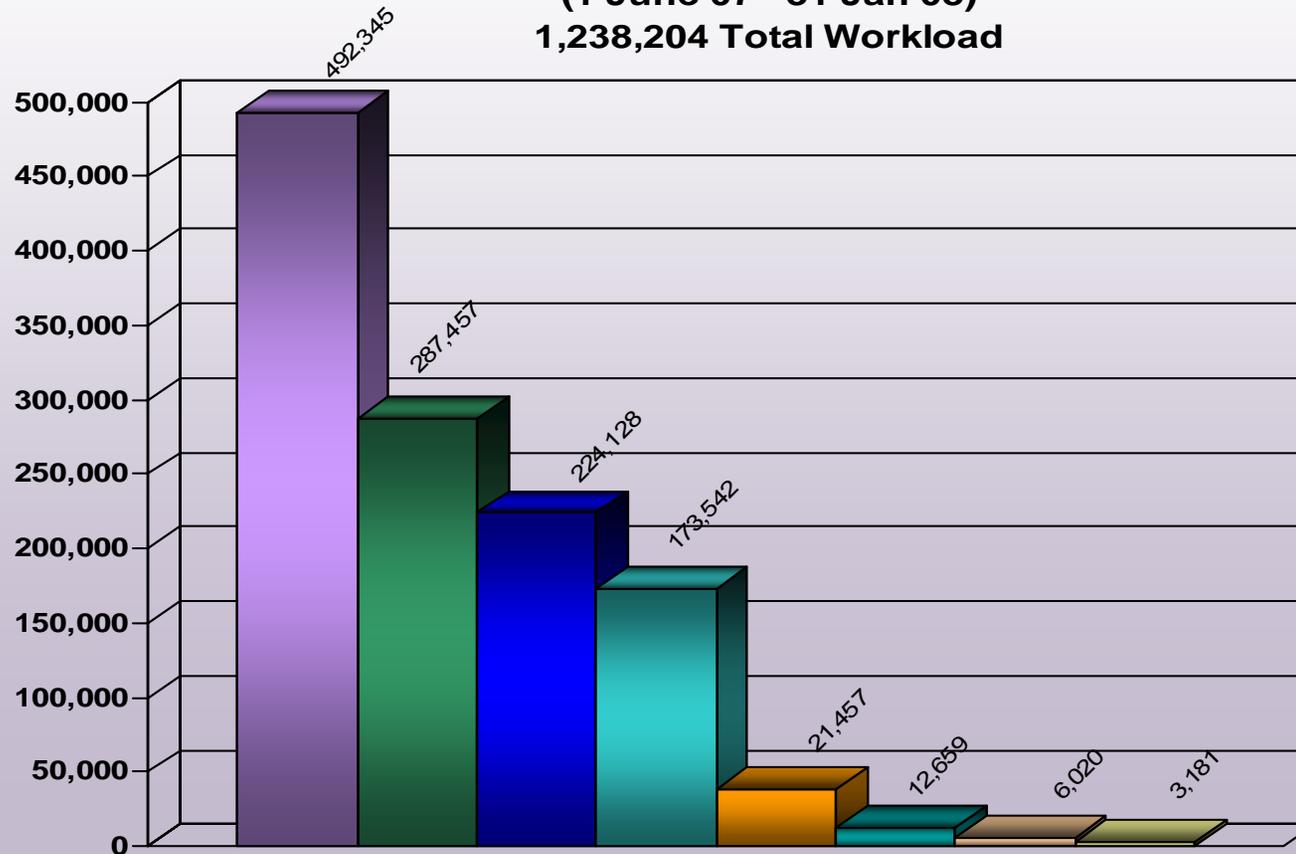
- Tracks air certifiable medical equipment evacuated with the patient
- Facilitates the management and distribution of PMI assets
- Stand-alone application which requires a modem to communicate
- Utilizes bar-coding and scanning technologies





TMIP Inpatient Data

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



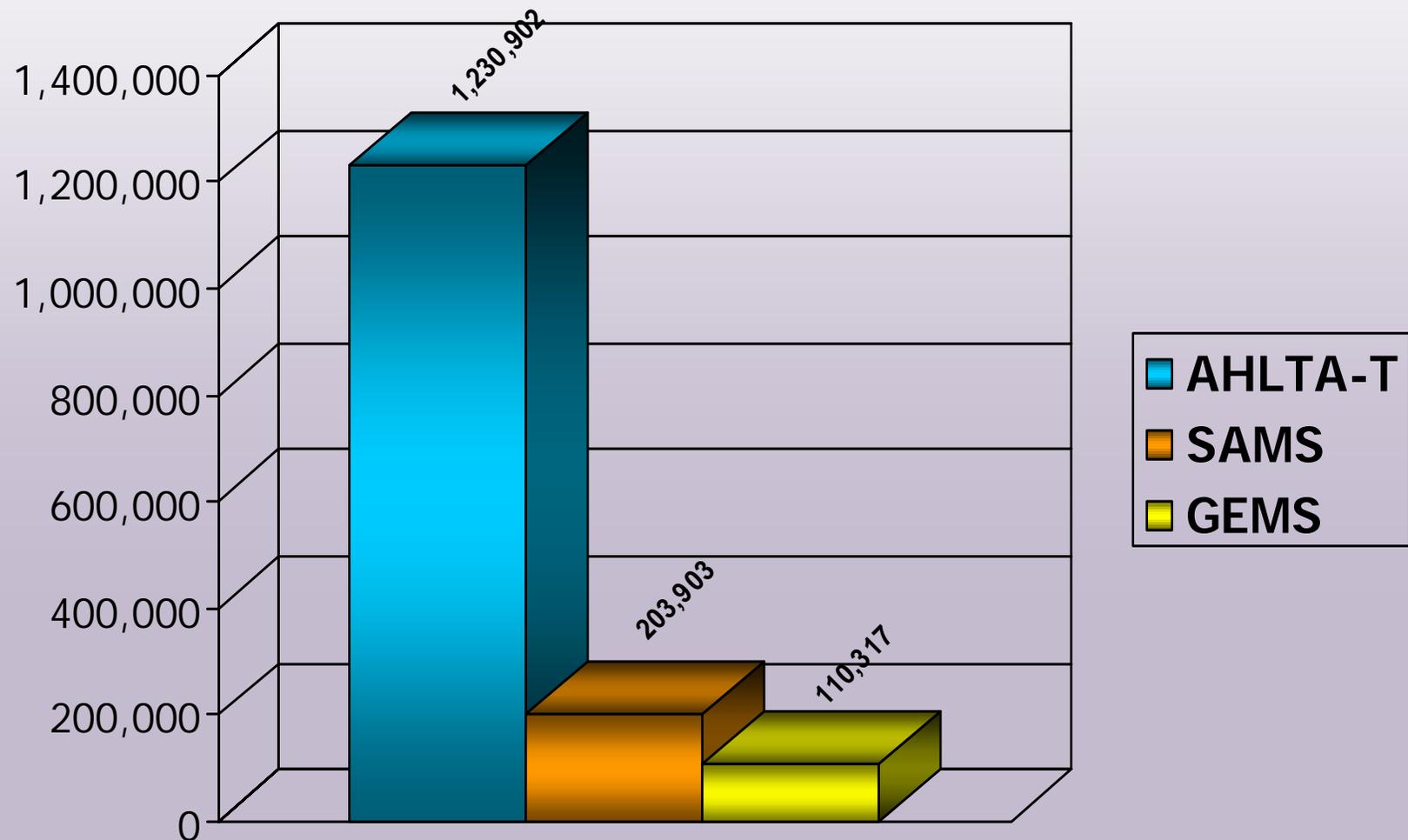
Note:
CHCS NT Statistics
(1 Apr 05 - 15 Jul 07)
1,836,580 Total Workload





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

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:
<input type="text"/>	<input type="text" value="McCormick"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Search SSN"/>	<input type="button" value="Search Name"/>	<input type="button" value="Search Register #"/>	<input type="button" value="Search Date"/>

Patient Information

PATIENT NAME:	<input type="text" value="MCCORMICK, KENNY"/>
PATIENT SSN:	<input type="text" value="*****3456"/>
INIT DIAGNOSIS:	<input type="text" value="Other suppurative peritonitis. Abscess (of): abdominopelvic, mesenteric,"/>
<input type="button" value="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

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

TRAC2ES Patient Movement Record

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

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

JPTA Patient Encounter Record

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

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:

TC2 Patient Encounter Record

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

Allergies Information

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

AHLTA-T Patient Encounter Record

Notes

Progress Notes

**TC2
Notes/Results**

Date	Name
11/08/2007 10:27	DOCTORS NOTE
<p>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 PHEUMOTHORAX 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</p>	
11/08/2007 10:25	ADMISSION NOTE
<p>GUNSHOT WOUND TO THE THORAX. SHRAPNEL WOUNDS; INJURY FROM FRAGMENTS FROM TERRORIST EXPLOSION.</p>	

Laboratory Results

Date	Name	Type	Status												
11/08/2007 10:02	GLUCOSE	Observations to follow	Order complete												
<p>Procedure Description GLUCOSE; QUANTITATIVE, BLOOD</p>															
<p>Results</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Results</th> <th>Ref. Range</th> <th>Status</th> <th>Certified By</th> <th>Certified Date</th> </tr> </thead> <tbody> <tr> <td>GLUCOSE</td> <td>156 H</td> <td>73-118 mg/dl</td> <td>Final Results</td> <td>ADMIN, MCFOUR</td> <td>11/08/2007 10:13</td> </tr> </tbody> </table>				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
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

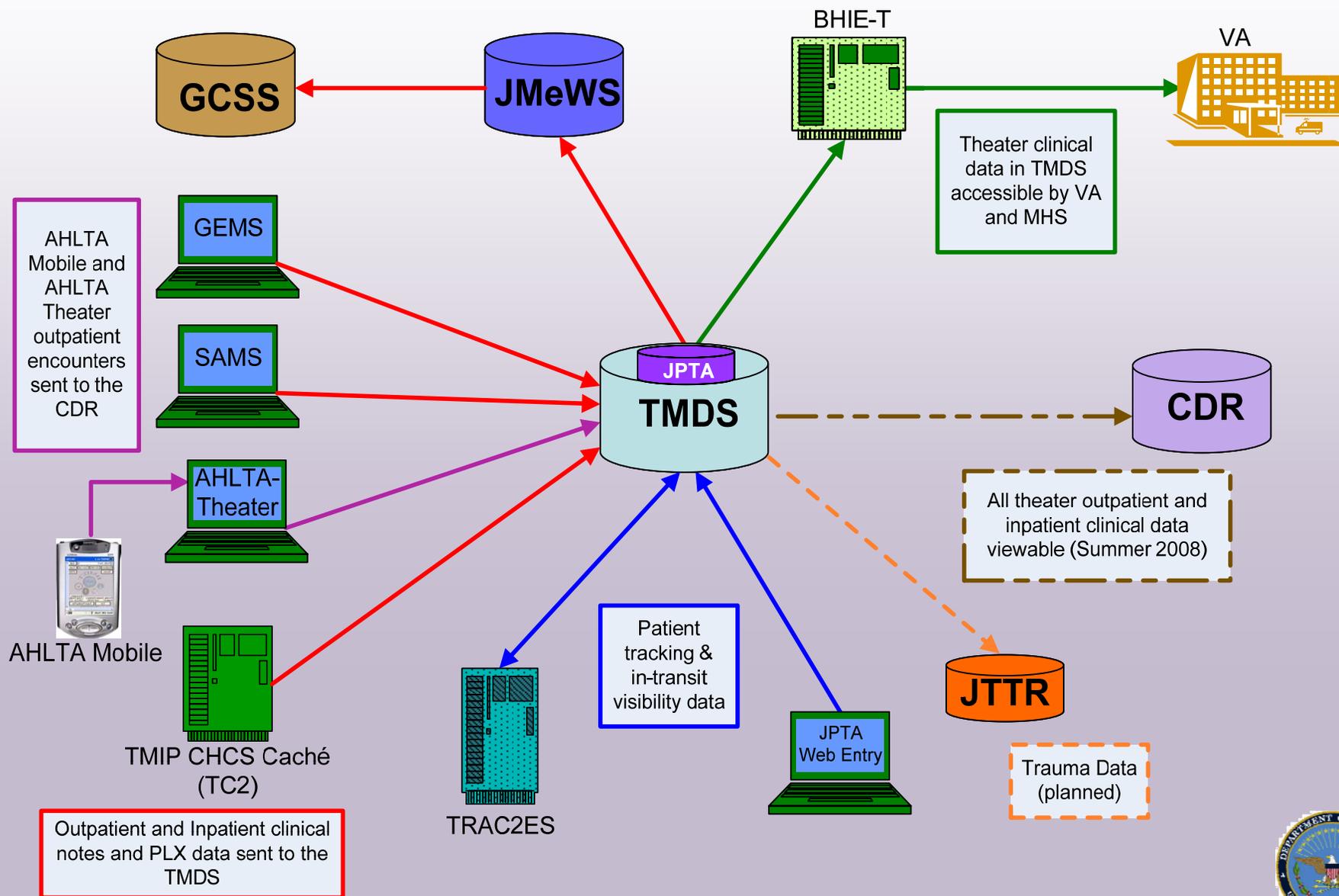
Date	Name	Type	Status
11/08/2007 10:40	CHEST, PA/LAT	Observations to follow	Order complete
<p>RAD Information</p> <p>Imaging Type: RADIOLOGY Exam Status: PRELIMINARY Exam Performing: RADIOLOGY ROOM Transcription Date: 11/08/2007 10:41 Transcription Report Status: PD Transcription Approved by: MCFOUR,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

Medications

Date	Name	Type	Status
11/08/2007 10:20	INPATIENT MEDICATION	New Order	
<p>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</p>			
11/08/2007 10:17	INPATIENT MEDICATION	New Order	
<p>Medication Name: SODIUM CHLORIDE--IV 0.9% SOLN Medication Route: IV Requested AMT: 1 ML Instructions to Pharmacy: ONE TIME</p>			



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



TC2 Graphical User Interface Enhancement

← → ⊗ 🏠 🔍 🌐 📄 🖨 📧 📧
🖥

[Home](#) | [My Appts](#) | [My Patients](#) | [Support](#) | [Log Off](#)
User: Mary Jones **Date:** 19-Feb-03

Personal Data - Privacy Act of 1974 (PL 93-579)

Patient Name / Address	FMP/SSN	Primary Care Manager	Age/DOB/Gender	Phone #
CDR Robert Green 123 West Lake Rd. Washington, District of Columbia 2001	20/012-34-1234	PCM Name: PCM Dates: PCM Clinic:	Age: 46 DOB: 07-Dec55 Gender: M	(h): 201-343-1234 (w): Sponsor:

Allergies 1)Penicillin 2)Aspirin 3)Haldol

Patient Lookup

* OUTPAT *
Lab Order
Requesting Location

[Bacteriology Test Name]

Specimen Site/Sample * (* = Required Fields)

Schedule Type *	Start Date *	Start Time *	Frequency *	Duration (days) *
Now	19-Feb-2003	...	Daily	1

Collection Priority *	Collection Method *	Processing Priority *
Routine	Send Patient To Lab	Routine

Order Comment

Note: Called lab once to follow-up.

Patient Data

[Summary](#)

[Labs](#)

[Radiology](#)

[Diagnoses](#)

[Procedures](#)

[Medications](#)

[Admissions](#)

[Appointments](#)

[Immunizations](#)

Provider Tools

[Order Entry](#)

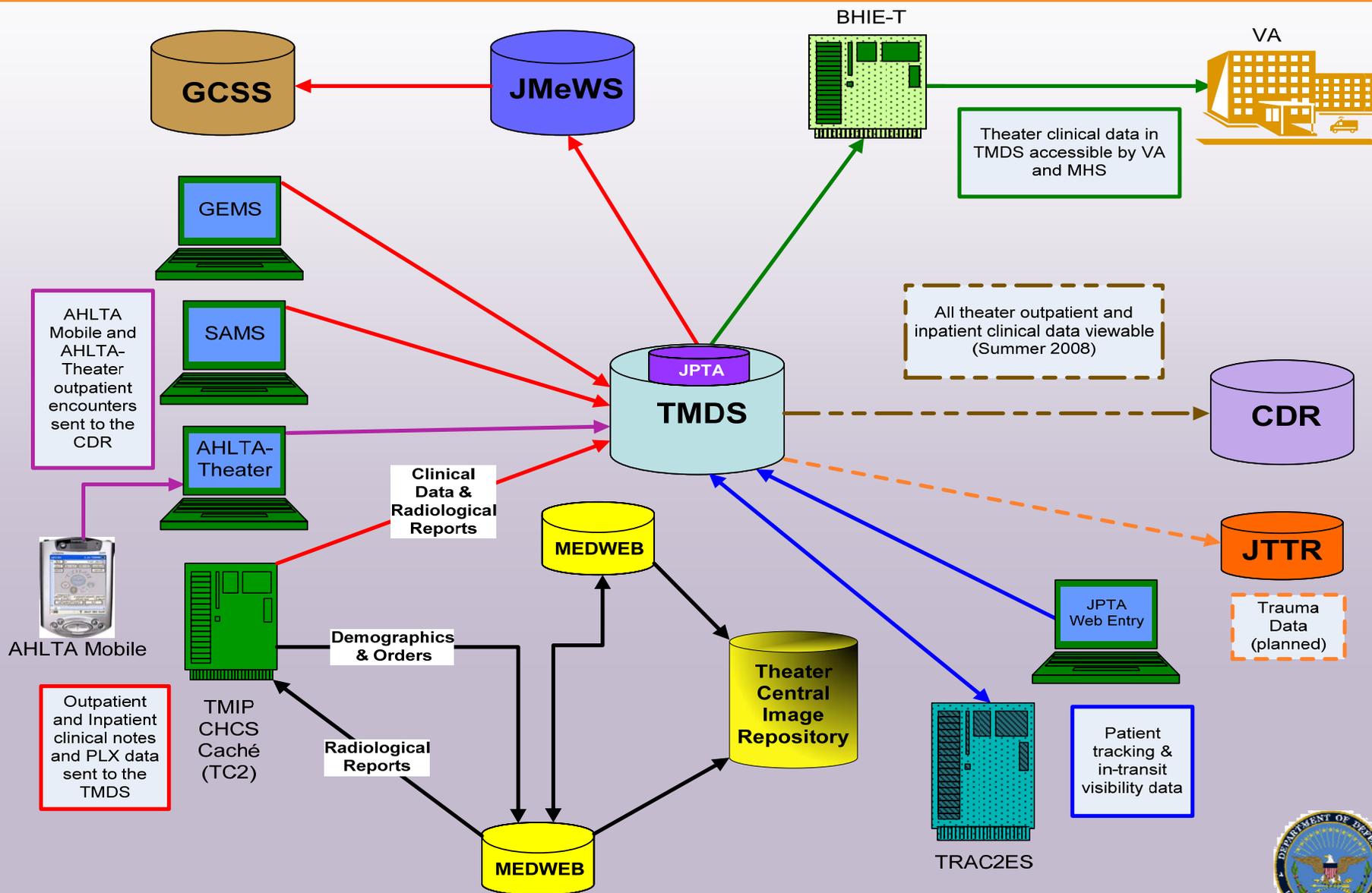
[CHCS](#)

[Telcons](#)

[Booking](#)



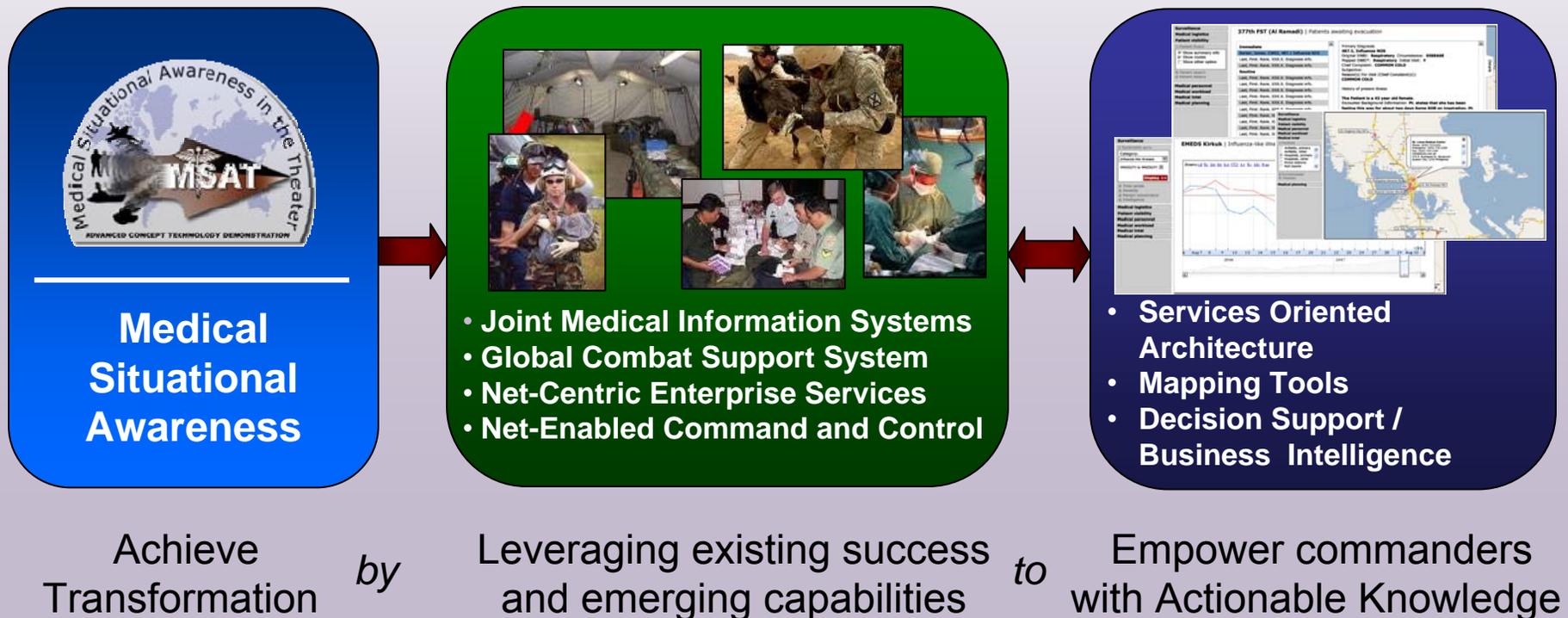
Proposed Digital Imaging Concept



Medical Situational Awareness in the Theater (MSAT)

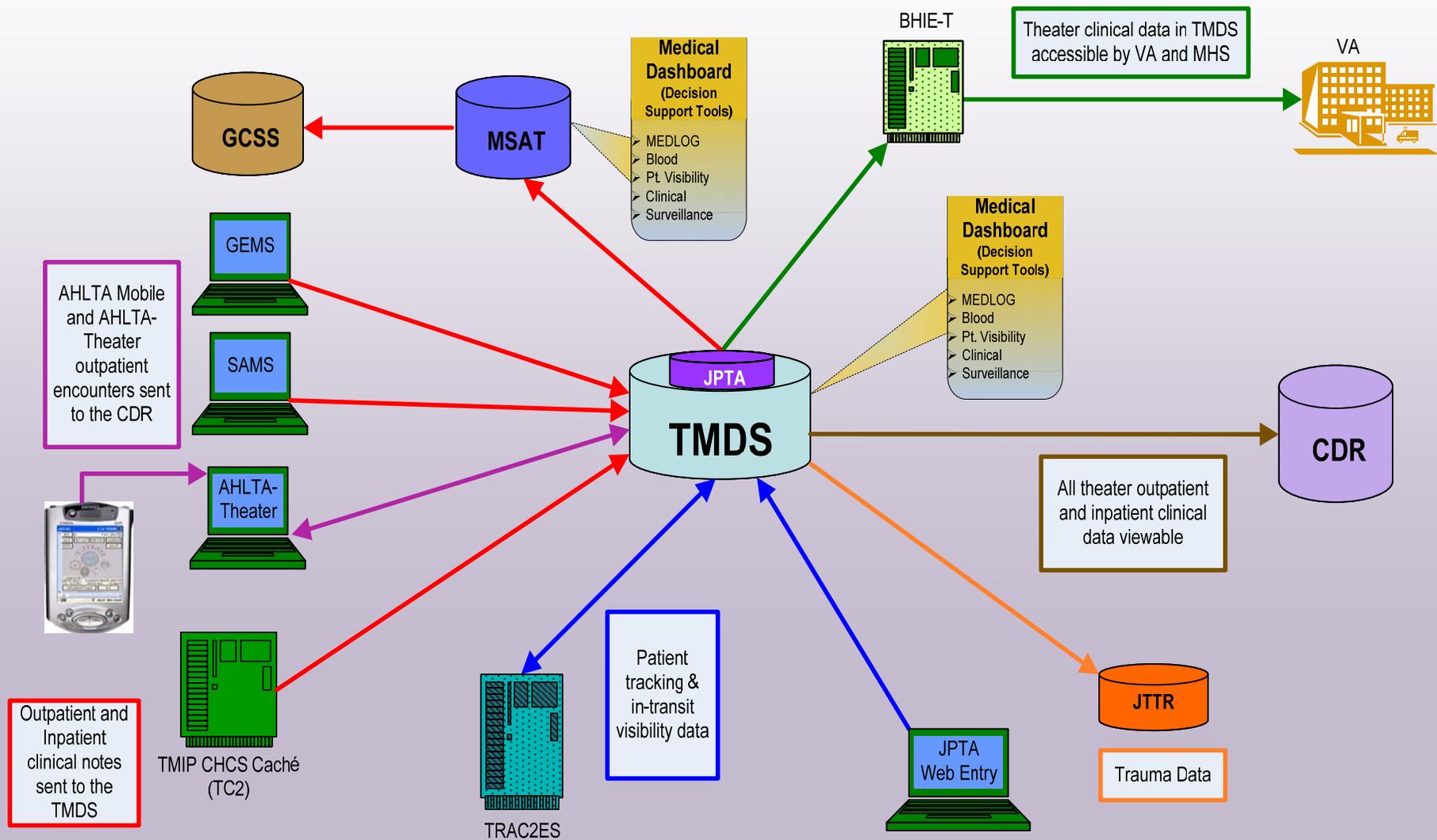


Provide commanders and their staffs actionable knowledge and enhanced medical situational awareness to enable critical decision making





TMDI: Mid Term (FY10)



MSAT Map Viewer - Windows Internet Explorer

http://msat-demo-j2ee-01/web/map1024.jsf

File Edit View Favorites Tools Help

MSAT Map Viewer

Home RSS Print Page Tools

Functional Layers

- Surveillance
- Medical Logistics
- Patient Visibility
- Medical Personnel
- Medical Workload
- Medical Intel
- Medical Planning
- Adhoc Map Layers
- Table of Contents

Map navigation controls: Zoom In, Zoom Out, Pan, Full Screen



Details

Done

Local intranet 100%



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/>