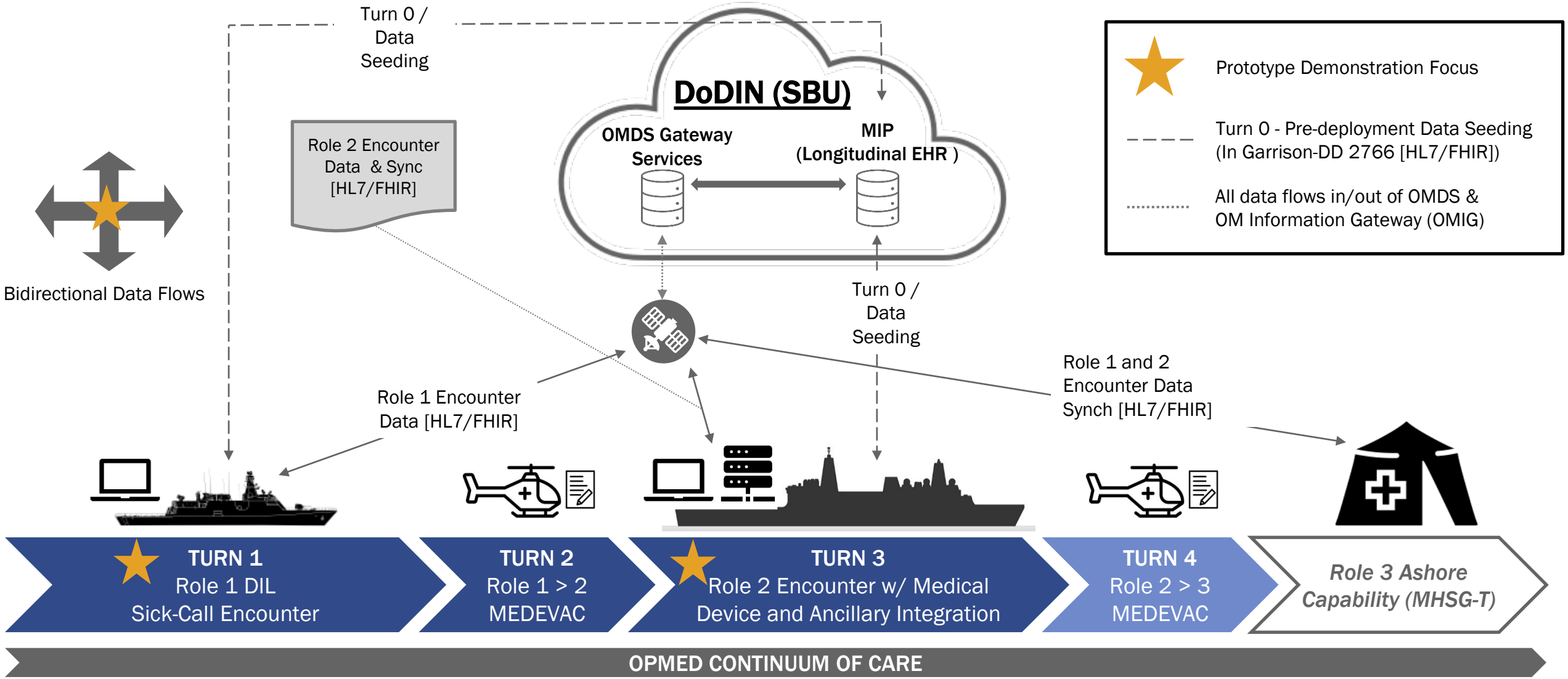
Roles 1 & 2 Prototype Conceptual View



Prototype Demonstration Scenario Overview

Maritime DNBI Scenario (Initial focus highlighted in Blue)

Turn 0 – Pre-deployment Data Seeding

- Synchronize "always available" (regardless of network connectivity) patient medical records for a known managed patient list with the enterprise longitudinal record
- In-process new patients via CAC scan and retrieve patient medical history from the enterprise for "always available" offline access

Turn 1 – Role 1 Sick-Call Encounter

- Following a port call, twelve (12) sailors experiencing severe diarrhea and vomiting report to sick -call onboard an underway Frigate, where they are seen by an Independent Duty Corpsman (IDC) who reviews each patients seeded medical record and documents the encounter
- Role 1 encounter data is synchronized with the enterprise OMDS where evacuated patient status can be accessed by MEDEVAC Team and receiving Role 2 Providers and synchronized with longitudinal record

Turn 2 – Role 1 to 2 MEDEVAC

- Two patients experiencing severe/worsening symptoms are medically evacuated to Role 2

Turn 3 – Role 2 Encounter with Medical Device and Ancillary Integration

- Role 2 Provider reviews patient medical history and Role 1 encounter data and documents Role 2 encounter including Encounter including Medical Device and Ancillary Integration
- Role 2 encounter data is synchronized with the enterprise OMDS where evacuated patient status can be accessed by MEDEVAC Team and receiving Role 3 Providers and synchronized with longitudinal record

Turn 4 – Role 2 to 3 MEDEVAC

- One patient experiencing severe/worsening symptoms is medically evacuated to Role 3

Scenario Role 1 User Personas

Army Role 1 Persona

Physician Assistant (PA)

JOB DUTIES:

- Delivers primary and specialty medical care
- Performs comprehensive exams and prescribes medications
- Counsels patients and obtains medical histories
- Interprets lab tests and x-ray results
- Supervises combat medics and performs as a medical section/platoon leader
- Advises on medically-related matters pertinent to unit readiness for missions
- Functions as medical staff officer at various levels
- Serves as commander of companies, battalions, brigades and medical treatment facilities

"Some mandatory hands on EHR training would be really helpful."

"I heard about the Deployed Medicine app on a podcast I regularly listen to."

"When I was in the field, there was no documentation at all. If someone was medevaced, nothing got documented until they got to the hospital. No training on how to use MC4 before deploying."

Behaviors + Beliefs

- I provide critical care to Soldiers close to the point of injury
- I do not normally interact with EHR systems, especially when attached to non-medical units
- I take it upon myself to stay educated and to pass pertinent information onto my Medics

Goals + Priorities

- Priority is rapid response to provide care, stabilizing patients.
- I need to make sure the medics under me are adequately supported and prepared to provide Role 1 care.

Concerns

- Hardware is not always available or reliable
- Lack of prioritization, training and knowledge of EHR, especially within non-medical units, is a major roadblock

Navy/Marine Corps Role 1 Persona

Independent Duty Corpsman

JOB DUTIES:

- Provide healthcare services aboard surface ships, with Fleet Marine Force Units, and isolated duty stations, independent of a medical officer
- Perform diagnostic procedures, advanced first aid, basic life support, nursing procedures, minor surgery, basic clinical laboratory procedures, and other routine health care
- Manage preventive medicine and industrial health surveillance programs, and associated shipboard administrative and logistical duties
- Provide health education to junior medical and all nonmedical personnel
- Perform patient care and medical management functions

"Aboard the ship, medical capabilities are limited, and space is a factor, need to be able to move quickly and efficiently."

"I fill multiple roles, so I prefer electronic documentation: it's quicker, better continuity of care, and don't have to manually pull a record to find a note…"

"I have to use multiple windows, multiple systems to document all my required information."

"I am ultimately responsible for the entire medical department including ensuring all systems and equipment are functioning."

Behaviors + Beliefs

- I have to wear a lot of different hats
- I am solely responsible for medical care and documentation aboard the ship

Goals + Priorities

- Speed is important, I need to be able to treat patients and efficiently document that care
- Cross-training and support are important
- Ready communication with physician supervisor and specialists

Concerns

- Time consuming to log into multiple systems to deliver complete patient care
- Simplicity in learning and using the tool

Air Force Role 1 Persona

Independent Duty Medical Technician (4N0X1C)

JOB DUTIES:

- Non-licensed physician extenders
- Perform patient examinations and render medical treatment and emergency care IAW AFI 44-103 and USAF Independent Duty Medical Technician Protocols
- Apply wide range of knowledge and skills to treat service members in forward and austere locations where a physician may not be present

"I serve in multiple functions in the inpatient and outpatient settings; even including forward with a SOF team with all my medical equipment and heavy AHLTA-T laptop on my back."

"The whole idea is to send us where there are no other medical providers, and under those circumstances, we do it all"

"IDMTs diagnose and treat patients under the license of a supervising provider, but when I'm by myself at a remote location and I can't get sign-off on an order from the doc who's 500 miles away, that's challenging"

Behaviors + Beliefs

- I must be a jack of all trades
- I'm on my own, I need to be self-sufficient
- Whatever it takes to get the job done

Goals + Priorities

- Maintaining proficiency in multiple areas is critical to my job
- Cross-training is important
- Maintaining mobility and ability to be efficient with limited time and resources

Concerns

- Using AHLTA-T is cumbersome in forward locations
- Losing the patient's records
- How is the EHR going to improve patient care?

Scenario Role 2 User Personas

Scenario Role 2 Personas

- Clinical Provider
- Nurse
- Ancillary Medical Technician

Army Role 2 Persona

Clinical Provider

JOB DUTIES:

- Tactical Field Care
- Emergency Medicine/Trauma Care
- Patient Stabilization
- Patient holding
- Routine sick call

"When in doubt, we will use paper every time."

"I understand the need for medical information to be accurately documented, but my hands are tied when there is no connectivity."

"On my last deployment, MC4 computers did not work."

Behaviors + Beliefs

- I cannot be slowed down by cumbersome data entry
- I currently don't trust accuracy of EHR data transfer
- I do believe in helping Soldiers receive accurate documentation, when the system allows

Goals + Priorities

- Priority is rapid response to provide care, stabilizing patients.
- EHR is nice to have, but time consuming

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Concerns

- Systems don't all talk to each other
- Hardware is not always reliable
- Afraid of relying solely on electronic records (rather than paper)

Army Role 2 Persona

Nurse

JOB DUTIES:

- Assist physicians
- Perform clinical tests
- Administer medications
- Tactical Field Care
- Emergency Medicine/Trauma Care
- Patient Stabilization
- Patient holding
- Routine sick call
- Patient Tracking

"When we have mass casualties, there are 6-12 staff to 1 computer. There is no way to document electronically."

"Paper documentation first, then translated to the system afterward. This was to ensure [the patients] would be seen."

"Intercommunication between Army and Air Force was not good."

Behaviors + Beliefs

- Electronic documentation feels like a burden
- As tempo and number of patients increases, I will fall into the more familiar (and in my experience more optimal) process of paper documentation
- I don't trust EHR solutions in the field

Goals + Priorities

- As a nurse, my priority will ALWAYS be with providing immediate patient care
- My goals are to provide quality care, and pass along as much helpful data as possible to the next level of care .

Concerns

- Hardware and software is too clunky to keep up with speed of critical care response
- My concern is that patient data will be missed and lost if we move away from tried and true paper methods developed from lots of experience in the field

Army Role 2 Persona

Ancillary Medical Technician

JOB DUTIES:

- Execute Radiology Studies Orders
- Execute Laboratory Orders
- Ensure results are provided to requesting physician

"We've never had AHLTA-T or TC2 training prior to deploying."

"All EHR training was peer to peer, after we were absorbed into an actual clinic."

"In the lab, all of our work is in the computer, we don't use paper hardly at all."

Behaviors + Beliefs

- I am specialized to provide ancillary support in a robust care setting
- I have to be technically proficient in the tools I'm using in order to do my job

Goals + Priorities

- In order to provide ancillary support, I need to be proficient with the systems I rely upon.
- I need stable infrastructure in order to do my job.

Concerns

- Depending on the Role of care, I may not touch an EHR system
- I typically don't have any EHR training prior to deployment

Scenario Role 2 Personas

- Provider
- Nurse
- Ancillary Service Technician

Navy/Marine Corps Role 2 Persona

Provider

JOB DUTIES:

- Perform hands-on medical care
- Provide preventive care
- Write orders for medications
- Provide advice and counsel to senior leaders
- Perform clinical tests
- Review/maintain patient treatment records
- Patient transportation
- Deliver emergency medical treatment

"Lots of people use the data documented in the EHR. Click boxes are currently too standard so things get missed- truth is therefore (unfortunately) hidden in free text notes."

"Consistent push aboard ships for blue/green integration within the medical department, but the systems didn't necessarily support that [readiness tracking and reporting]; paper documentation was used to record both blue/green side encounters."

"The continuity of a complete patient record would save lots of time, headaches and deliver better patient care."

"Once you roll something out, be available for feedback because it won't be perfect. Need to pay attention to the provider experience, as they react to the change."

Behaviors + Beliefs

- I have to treat as many patients as possible throughout my day
- I provide better care with access to the longitudinal record
- Prefer EHR documentation to paper

Goals + Priorities

- Patient safety and access to their complete record is critical
- Integration within the department and many systems is key

Concerns

- Time consuming to log into multiple systems to deliver complete patient care
- Access issues across platforms

Navy/Marine Corps Role 2 Persona

Nurse

JOB DUTIES:

- Assist physicians
- Perform clinical tests
- Administer medications
- Maintain patient treatment records
- Patient transportation
- Deliver emergency medical treatment

"Aboard the ship, blue and green side fall in on each other, medically it works well, but have different terminology and documentation practices."

"Each platform has different capabilities, not unified for outpatient and in-patient documenting practices, which disrupts the continuity of care even within the same platform."

"Everyone operationally is approaching a new EHR rollout very cautiously, based on all the programs that have preceded and promised improvements, benefits etc. and have under delivered on those promises."

Behaviors + Beliefs

- I have to wear a lot of different hats
- I have limited time to troubleshoot system problems

Goals + Priorities

- Patient safety and access to their complete record is critical
- Cross-training and support are important

Concerns

- Availability and reliability of system use
- Simplicity in learning and using the tool

Navy/Marine Corps Role 2 Persona

Ancillary Service Technician

JOB DUTIES:

- Execute Radiology Study Orders (Radiology Technician)
- Execute Laboratory Orders (Laboratory Technician)
- Ensure results are provided to requesting physician

"Need one ultimate program that all military branches will use. That one program can also coordinate among all specialties."

"Difficult to use the EHR when computer systems consistently go down. Difficult and time consuming when multiple programs do not communicate with each other."

"Currently, technicians are expected to learn the systems as you go. It would be nice to know how to use the system you will be required to use on the ship."

"My role as an ancillary technician, is not my primary role on the ship. I work sick call aboard ship but have had no exposure to AHLTA prior to the ship – only CHCS."

Behaviors + Beliefs

- I have to wear a lot of different hats compared to my MTF role
- I have limited time to troubleshoot system problems

Goals + Priorities

- Cross-training and support are important

Concerns

- Time consuming to log into multiple systems to deliver complete patient care

Scenario Role 2 Personas

- Emergency Medicine Physician
- Clinical Nurse
- Ancillary – Radiology Technician

Air Force Role 2 Persona

Emergency Medicine Physician

JOB DUTIES:

- Examine, diagnose and treat patients in an acute setting
- Trauma care, including providing immediate diagnosis and resuscitation care for life-threatening conditions.

"Our mission is to provide early, potentially life-saving care to wounded American military personnel or to the local population."

"Less is more when it comes to the EHR, I don't need a hundred options… if it requires extensive training in the first place, it's probably too cumbersome"

"The less I have to rely on someone else to help me or fix something for me the better"

Behaviors + Beliefs

- I have to see as many patients as possible throughout my day
- I don't like things slowing me down or breaking my routine

Goals + Priorities

- Nice to have access to patient record; but priority is stabilizing patient's acute issues

Concerns

- Currently, I have to use 4-5 systems to chart on a patient, not efficient
- Difficult to use computers in trauma bay
- Time
- How is EHR going to make my job easier?
- Losing patient records

Air Force Role 2 Persona

Clinical Nurse

JOB DUTIES:

- RN or CN
- Provide healthcare services in collaboration with providers and medical technicians
- Administer treatments, medications, and make diagnoses contingent upon their scope of practice
- Clinician that interacts with the patient the most
- Responsible for a significant patient load.

"I'm here to take care of the patient, I need to be able to keep track of what's going on with them and provide the level of care they need."

"If the EHR is working, I want to use it – it ensures that our notes are legible and keeps things moving along smoothly"

"We are currently set up to operate for the best-case scenario, we're not prepared for the worst-case scenario"

Behaviors + Beliefs

- My role is the most critical to the patient outcome
- I need to have full awareness of what's going on with the patient
- Whatever it takes to get the job done
- Don't complicate my job

Goals + Priorities

- My priority is time spent taking care of the patient
- Taking care of the patient
- The patient
- to be efficient with limited time and resources

Concerns

- Documenting electronically can be time consuming
- Paper records can be messy and illegible
- Ensuring patient documentation is accurate

Air Force Role 2 Persona

Ancillary – Radiology Technician

JOB DUTIES:

- Execute Radiology Study Orders (Radiology Technician - 4R0XX - Diagnostic Imaging)
- Execute Laboratory Orders (Laboratory Technician - 4T0XX - Medical Laboratory Technician)
- Ensure results are provided to requesting physician

"Even though the doctors know all of the patient's symptoms, our lab results are the last puzzle piece telling them what they're missing to complete the diagnosis."

"The number one cause of any problem is not having attention to detail. Simply adjusting a decimal point in a result can be the difference between someone being diagnosed with something or not."

"Because we are here, we're able to provide that blood. We're saving lives and we're able to bring our people back home."

Behaviors + Beliefs

- Accuracy and attention to detail is critically important
- I need to be aware of what's going on around me
- I can always do more to deliver better patient care

Goals + Priorities

- Process lab and rad orders in an accurate manner to ensure high quality test results
- Provide the best possible information to physicians treating patient
- Want to do more electronically

Concerns

- Paper documentation or orders can result in errors
- Losing the patient's records
- Theater medical technology is far behind
- How is the EHR going to improve patient care

Role 1 and 2 HCD Epic User Stories

STORY ID	Epic	**As a** *<persona>*	**I want to** *<perform some task>*	**so that I can** *<achieve some goal>*
1	Document Preventative Health Care	IDC; PA; IDMT; SOCM; Medic; EM MD/DO; EM Nurse	document and review the results of examinations, immunizations, screening tests, health counseling, communication, and related education	monitor, maintain, and report the readiness and health of the Force IAW the Sustained Readiness Model (SRM) or Service equivalent
2	Document Patient Encounters	IDC; PA; IDMT; SOCM; Medic; EM MD/DO; EM Nurse	identify, capture, refine, organize, protect and analyze information resulting from all prior and the current patient encounter to inform the patient encounter	identify and document appropriate diagnosis, plan of care, treatment, longitudinal care, and other clinical notes as required
3	Manage Patient Data	IDC; PA; IDMT; SOCM; Medic; EM MD/DO; EM Nurse	collect, organize, store, protect, disseminate and analyze patient health and safety- related data and treatment history (clinical preventive and injury/illness-related encounters) across the continuum of care in an electronic format.	support subsequent informed clinical decision making throughout the continuum of care to improve patient outcomes and ensure injuries and illnesses incurred in theater are appropriately documented under OpMed DIL conditions
4	Manage Ancillary Data	EM MD/DO; EM Nurse; Lab Tech/Radiology Tech/Pharmacy Tech	document and submit prescriptions (pharmacy) and orders for laboratory tests and imaging studies	support subsequent informed clinical decision making and implement an appropriate and effective treatement plan
5	Manage Patient Visibility	IDC; PA; IDMT; SOCM; EM MD/DO; EM Nurse	capture, organize, and disseminate information related to patient location and status during delivery of health care throughout the continuum of care	support Force Readiness reporting and provide command and control situational awareness
6	Provide Decision Support	Provider	access integrated always available: medical reference information including Clinical Practice Guidelines (CPGs) and decision support algorithms; OEH and health surveillance information relevant to the patient; and clinical decision support services including allergy and drug-drug interaction verification	support subsequent informed clinical decision making throughout the continuum of care to improve patient outcomes

Role 1 Hardware Constraints

Most restrictive Role 1 HW configuration (on Frigate) for sick-call environment is the current TMIP-J Client Only (laptop) configuration

- Processor: 2.8 GHz Core 2 Duo
- RAM: 8 GB
- Hard disk: 160 GB/7200 rpm
- DVD R/W Drive 8X
- Gigabit Ethernet Card
- 4 USB 2.0 ports
- Display SVGA (1024 x 768 or higher)
- Smart Card Reader
- Honeywell 1910 USB Barcode Scanner
- Windows 7/Windows 10 Secure Host Baseline (SHB)/Windows 10 LTSC compatible

Role 2 Hardware Constraints

Navy Role 2 HW configuration would correspond with the TMIP-J I2R3SP1 Standalone Server Recommended HW Requirements

- Processor: 1-4 Socket Intel CPU or equivalent (2.66 GHz Core 2 Duo, 2.40 GHz Core 2 Quad or higher)
- RAM: 16 GB
- Hard disk: 400 GB/7200 rpm
- DVD R/W Drive 8X
- Gigabit Ethernet Card with fail-over and load balancing
- 4 USB 2.0 ports
- Display SVGA (1024 x 768 or higher)
- Smart Card Reader
- Up to 15 local area network connected clients

Potential for Army Role 2 standalone Laptop configuration

Additional Hardware Considerations

Service provided laptop typically dedicated to medical use
- Including uses other than documenting care

Army and USMC moving to Unit purchased equipment model
- Army PEO C3T CHS Product Catalog - https://chs.army.mil/
- Primarily Dell or HP
- Increased spec variance

Laptop Operating System – Windows 10
- Navy Windows 10 Secure Host Baseline (SHB)
- Army Windows 10 Long-Term Servicing Channel (LTSC) [not for demo]
- USMC Windows 10 v1909

Role 2 Servers
- Navy CANES contract solution options
- Multiple standard technology stack options
- Major CANES updates (HW3/SW5) 2025

Solutions should be extensible to additional future hardware platforms (e.g. mobile platforms, containerization/edge computing architectures)

OpMed Network Environment Considerations

Generally Low-bandwidth high-latency connections to enterprise (when available)

- Navy network connectivity typically available via ADNS system
- Navy Shipboard traffic must be routed through Proxy Cisco Web Security Appliance

Cyber/firewall constraints generally prohibit unsolicited incoming connections and peer discovery

Must use Standard Whitelisted PPS and provide Reconfigurable Port assignments

Wireless network capabilities not widely permitted, available, or accessible in OpMed deployed environment

Management and Administration Considerations

Cyber security firewall restrictions limit remote management possibilities

- WSUS updates can go through Services

Navy

- Limited shipboard IT support
- IDC/Corpsman Maintenance Requirement Card (MRC) activities
- Defense Health Readiness Engineering (DHRE) fleet IT support
- Navy 311 Ticket Submission (Tier 1)
- SAILOR software update downloads
- LCS and SSN crew swap requirements

Comply to Connect (C2C) Security Model/ACAS HBSS