

**2026
DEFENSE HEALTH INFORMATION
TECHNOLOGY SYMPOSIUM**

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HYATT REGENCY NEW ORLEANS
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MCART Modernization: Enhancing Medical Readiness Through Technology

Mr. Jeremey Covington, PMP, ITIL 4, CSM, Sec+

Lt Col Benjamin Pass, DDS, MPH, MA

Mr. David Adams, PMP, Sec+, CCNP, NCIE

Mr. Eric Wright, M.S.

Mr. Gustavo Silva, M.S.



Agenda

1 Background Story

2 MCART 2.0 Pilot Addressed Operational Gaps

3 Pilot Phase to Enterprise Delivery

4 Utilizing Artificial Intelligence-Prototyping to Facilitate Enterprise Solution

5 Conclusion

Speaker Introduction



Jeremey Covington, PMP
Section Chief, Operations &
Sustainment
DHA Program Executive
Office for Medical Systems
(PEO MS)



Lt. Col. Benjamin Pass, DDS, MPH, MA
International Health
Specialist
USU; Air Combat
Command
Office of the
Command Surgeon



David Adams, PMP
NIWC LANT Project
Lead

DHA PEO MS/NIWC



Eric Wright, M.S.
Lead Engineer

DHA PEO MS/NIWC



Gustavo Silva, M.S.
Mobile Innovation
Lead

DHA PEO MS

Learning Objectives

- 1** Discover Medical Currency & Readiness Tracking (MCART) system's evolution and initial readiness gaps
- 2** Identify lessons learned and feedback from MCART 2.0 pilot testing
- 3** Compare traditional requirements against artificial intelligence-enabled prototyping to maximize stakeholder engagement and speed to value.

Background

- Defense Health Agency as a Combat Support Agency
 - Improve and sustain operational medical force readiness
 - Sustain a medically ready force
- Complicating factors:
 - Healthy military population at risk (PAR)
 - Readiness attrition in military medical treatment facilities
 - Military-civilian partnerships retain critical wartime medical readiness skills
- DHA's assessment role
 - Medical readiness status by military service
 - Individual wartime medical readiness skills



DoD INSTRUCTION 6000.19

MILITARY MEDICAL TREATMENT FACILITY SUPPORT OF MEDICAL READINESS SKILLS OF HEALTH CARE PROVIDERS

Originating Component: Office of the Under Secretary of Defense for Personnel and Readiness

Effective: February 7, 2020

Releasability: Cleared for public release. Available on the Directives Division Website at <https://www.esd.whs.mil/DD/>.

Approved by: Matthew P. Donovan, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

Purpose: In accordance with the authority in DoD Directive (DoDD) 5124.02, this issuance establishes policy, assigns responsibilities, and prescribes procedures for military medical treatment facility (MTF) support of the Military Departments in maintaining the:

- Readiness and core competencies of health care providers within the Military Services.
- Medical readiness of Service members.

Grassroot Readiness Tracking Efforts

- Primitive pen & paper
- Microsoft Excel spreadsheets
- Data visualization
 - Tableau
 - Power BI
- Google Forms
- Survey Monkey
- Innovative pockets in lieu of enterprise solutions



Power BI



Google Forms



SurveyMonkey®



Organizational “Why”

- Know your unit’s role
 - ACC/SG: ground medical readiness
 - Support AFSOUTH/SG IHS Office
 - Direct Care – Embedded Health Engagement Teams
- Review policy and instruction
 - DoDI 2205.02 – Humanitarian and Civic Assistance
 - Title 10 US Code § 401/402
- Identify reporting requirements
 - Readiness value
 - Partner nation impact

MILITARY MEDICINE, 185, 51-549, 2020

Developing the Prototype Embedded Health Engagement Team

Col Edwin K. Burkett, USAF, MC, FS*,†; Lt Col Brian Neese, USAF, MC, FS†;
Cristina Y. Lawrence, MS*,‡

ABSTRACT Small, well prepared, culturally competent, and embedded health engagement teams (EHET) tailored to work within a partner health system, rather than outside of it, will achieve greater mutual benefit, desired military objectives, and better health outcomes for the United States Department of Defense and its partners. EHETs have significant advantages over traditional methods of choice for health security cooperation and humanitarian assistance missions. These advantages include enhanced capability and capacity building, greater trust through intentional cultural expertise, a ready platform for enduring relationships, enhanced host nation legitimacy, and flexibility to target specific issues with greater fidelity. We must first define a prototype EHET, compare the concept against prior units that have executed health engagement, and test it prospectively in employment. The U.S. military and the civilian business world each have extensive experience in employing small teams that the health community can emulate. The ideal EHET should have the following nine characteristics: 12 people or fewer, skillsets for the tasks, global health knowledge, be multidisciplinary, a balance of experience, local language capability, geopolitical and cultural competence, targeted preparation for specific security and health objectives, and joint representation. This paper will explore these components of the prototype EHET as it will be tested in our research project.

INTRODUCTION

“Whenever possible, we will develop innovative, low-cost, and small-footprint approaches to achieve our security objectives.”¹

Global Health Engagement (GHE) may take many different forms across the range of military operations.² Ideally, multiple types of health engagement activities should be employed and individually selected and designed based upon the intent of the specific mission in support of long-term strategy; the realities and needs of the host nation military and/or civilian health systems; and the available U.S. military health capabilities. Historically, U.S. military health activities have predominantly focused on providing en masse, direct patient care in non-clinical settings, such as school buildings. There have been several articles and historical emphasis on trying to change paradigms³ and plan different types of health engagement⁴ with a focus on host nation capability enhancement and capacity building. Using small, well prepared,

culturally competent, embedded health engagement teams (EHET) tailored to work within a part of partner system, rather than outside of it, may achieve greater mutual benefit including the application of better and more equitable health and health system principles. In this manner, health professionals may more readily contribute to hosting nation health sector plans and goals while still achieving military objectives, political goals, and strategic interests for each nation and region through both military–military and military–civilian applications. The EHET concept draws upon positive aspects of the Medical Civic Action Program I (MEDCAP I) and Military Provincial Hospital Assistance Program efforts in Vietnam in 1965^{5,6} and the more recent medical Embedded Training Team (ETT)⁷ and Provincial Reconstruction Team (PRT)⁸ organizations in Afghanistan and Iraq.

The EHET concept changes the standard approach of concentrated, mass medical site model predominantly employed by the U.S. military. Instead, small teams embed at select locations where the host nation typically delivers their medical care or other health services resulting in multiple smaller footprint engagements but with exponentially greater impact. A pilot test of the EHET showed anecdotal promise⁹ and this paper intends to clarify and define nine proposed characteristics of the prototype EHET model.¹⁰ One definition of the team makes the small size integral “A team is a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable.”¹¹

When employed and focused on primary and preventive health, force health protection, or any aspect of casualty care in the chain of survival, the potential exists to deliver better health services for people with the greatest need while simultaneously enhancing host nation capabilities.

*Department of Preventive Medicine and Biometrics, Uniformed Services University, 4301 Jones Bridge Road, Bethesda MD 20814

†Office of the Command Surgeon, National Defense University, 300 5th Ave, Washington DC 20319

‡Defense Institute for Medical Operations, 1320 Transper St, Bldg 9122, Joint Base San Antonio-Lackland, TX 78236

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Environmental Scan

- Organizational familiarization
 - Participated in site survey
 - Reviewed situational reports & after-action reports
 - Storyboards & media products
 - Interviewed participants
 - Academic Journals – MilMed
 - Consulted Assessment Monitoring & Evaluation (AM&E) expertise
- Key concern: were reporting requirements met?
- Findings: Readiness return on investment implied, not measured



Change Recommendation

- Modernize Embedded Health Engagement Team (EHET) Composition
- Dedicated “AM&E Champion”
- Role Responsibilities:
 - Cultural change agent
 - Organize and promote tactical readiness data collection
 - Subject Matter Expert on process
 - Elevate troubleshooting needs
 - Package and transfer credible readiness
- Anticlimactic response



COMBINED READINESS DATA

Mission PAX:	117
CMRP Hours:	11721.75
CMRP Cases/Procedures/Encounters:	798.5
CMRP completion rate:	47%
MEDIC-X skills completed:	482

Cross Organizational Collaboration (1 of 2)

- Scale up demand required expertise
 - Dashboard technical support
 - MCART Technical support
 - Pre-mission training development
 - Real-time mission support
 - Metrics development & packaging
- Stages of Team Development
- Stakeholders focused on readiness
- Collective task:
 - Demonstrate MCART use in the OE
 - Provide a real-time data visualization
 - Generate individual performance reports to credit readiness tracked

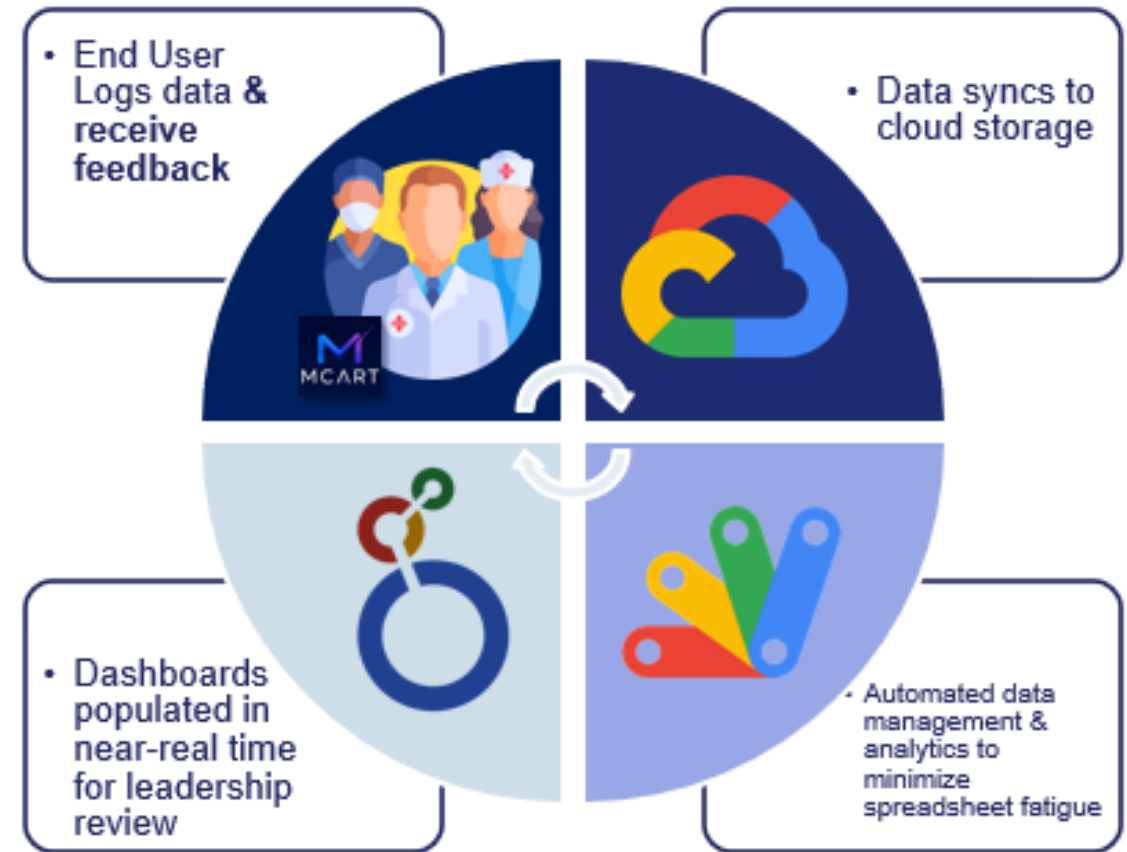


Cross Organizational Collaboration (2 of 2)

Org	AM&E Contribution	Org	AM&E Contribution
	- Pilot dedicated position CONOP - Develop training curriculum - Instruct virtual training - Advised data collection process		- MCART mobile app technical support - Real-time trouble shooting expertise - Custom LAMAT end-user interface
	- Supported organization - Cross functional planning / C2 - Operational Planning Teams		- Provided end-user feedback - Readiness training audience - Tactical implementation (EHETs)
	- AM&E Technical Assistance - Trng curriculum refinement - Research manuscript collaboration - Dashboard tool developer		- Theater-level strategic goals - Resource allocation - Country prioritization

Technical Expertise & Strategic Drive

- Environmental constraints met with technical solutions
- Introduced near-real time Dashboard capability using exported MCART spreadsheets
- Envisioned & engineered an all-inclusive data collection-to-visualization system
- Integrated Tri-Service readiness reporting
- Retired multi-year beta phase



Ground Implementation & Recruitment

- Decrease the learning curve to maximize reliable data capture
 - Pre-mission familiarization training
 - Train AM&E Champs as focal leads
 - Provide tactical playbooks (roles defined)
 - Assist with ground support as necessary
- Connect end-users with technical expertise
 - Set communication rules of engagement (ROEs)
 - Establish buffers
 - Discern user error vs technical issue
- Expand end-user pool
 - Conferences
 - Media Products emphasizing MCART innovation
 - “Pitches” and “Demonstrations”
 - Increased pool size shaped technical upgrades



Training and Simulation



A range of products were generated to support the downrange medic during EHET readiness exercises. A three-part training series exposed selected AM&E Champions to their roles and responsibilities.

Rules of Engagement (1 of 2)

DATA COLLECTION SCHEME



Hotwash ROEs

Secure a location for daily hotwashes immediately following clinical teams' site returns. During these sessions, ensure all Admin Entry sections are completed and that clinical & BMET personnel understand this is a daily requirement. Take accountability.

All participants must submit reporting requirements in MCART 2.0 as follows:

- **Providers:** Clinical and Readiness Entry
 - **Techs:** Readiness Entry
 - **Team Chiefs:** Admin Entry
- Team Chiefs must notify the AM&E Champion upon completion of these tasks and transfer dashboard information to the SITREP. The Mission Director will submit the final SITREP.

Rules of Engagement (2 of 2)



MCART 2.0 Dashboard

Admin Entry

Clinical Data Entry

Readiness Measures

Reporting

Admin Raw



US Army Southern European Task Force, Africa
Readiness Measures

Last Submission
May 7, 2026

Date ▾

Specialty ▾

Service ▾

Locatio... (3) ▾

Provider ▾

Readiness Reporting

	Provider	Service	Specialty	Timestamp
23.		Air Force	45B Orthopedic Surgery	null
24.		Air Force	44KX Pediatrician	null
25.		Air Force	47X Dentist	null
26.		Army	68C Practical Nursing Specialist	null
27.		Army	61J General Surgery	null
28.		Air Force	46YXH Family NP	null
29.		Army	61J General Surgery	null

1 - 35 / 35 < >

Providers
35

Individual Readiness Events
237

Service Specific Readiness Events
2,763

Service Specific Readiness Requirements

	Provider	Specialty	Skill	Skill Count ▾
1.		68Q Pharmacy Specialist	Process Outpatient Prescriptions	189
2.		68E Dental Specialist	Operate the Dental Field X-Ray Unit	127
3.		68C Practical Nursing Specialist	Provide Practical Nursing Care	98
4.		68E Dental Specialist	Perform Dental Sterilization Procedures	94

Return on Investment

 UNCLASSIFIED LAMAT 2025 Counter Threats, Build Readiness, Strengthen Partnerships 	
Investments - Total Cost: \$3M - AFSOUTH DFT: \$500K - AFRC AT Days: \$1.6M - HCA (SOUTHCOM): \$900K - Personnel: 215 (199 AFRC, 12 AD USAF, 3 AD USA, 1 USAF GS) - Duration: 47 Days	Return on Investment ✓ (SCPO 3.C.1.B.1.G) Counter adversary narratives across the AOR through enduring commitment engagements • Social and traditional media reached an <u>audience of 219M across 10 countries</u> ✓ Increase US forces' readiness • <u>15,361 AFSC-specific critical pre-deployment tasks completed across 40 AFSCs</u> ✓ (SCPO 3.C.1.B.1.R.1) Reduce stress on PN healthcare systems • <u>6,539 patients treated; care valued at \$385,275</u> • <u>91 pieces of critical medical equipment repaired; labor valued at \$32,887</u> ✓ (SCPO 3.C.1.B.1.R.2) Enhance DoD & PN medical capability through info exchange • <u>479 hours of knowledge exchange focused on emergency & surgical care</u> • <u>400 PN first responders trained to provide immediate response trauma care</u> ✓ (SCPO 3.C.1.B.1.R.3) Strengthen partnerships with PNs, embassies and SCO, ensuring increased access for future engagement opportunities • <u>Embedded health engagement teams and community outreach teams delivered care at 21 sites across four countries while fully integrated with countries' Ministries of Health and US Embassy</u> • <u>Audiology NGO partnership leveraged to provide hearing services in Saint Kitts and Nevis</u> • <u>Key message amplification with the President of Guyana and the Prime Minister of St Kitts and Nevis hosting closing ceremonies and delivering the keynote addresses alongside DoD and DoS leadership.</u>
	
Mission Summary by Site	
St. Lucia - Dates: 24 Feb- 7 March - PAX: 49 (47 AFRC, 2 AD) - Clinical Sites: 4 - Patients treated: 1,332 - AFSC-specific readiness hours: 4,400 - Value of care: \$154,003 - Knowledge Exchange Hours: 118 - Critical med equipment repaired: 12	St. Vincent and the Grenadines - Dates: 10-21 March - PAX: 46 (43 AFRC, 2 AD, 1 AGR) - Clinical Sites: 4 - Patients treated: 1,141 - AFSC-specific readiness hours: 3,301 - Value of care: \$43,286 - Knowledge Exchange Hours: 98 - Critical med equipment repaired: 46
St. Kitts and Nevis - Dates: 24 March – 4 April - PAX: 61 (58 AFRC, 2 AD, 1 GS) - Clinical Sites: 8 - Patients treated: 2,345 - AFSC-specific readiness hours: 2,988 - Value of care: \$84,967 - Knowledge Exchange Hours: 58 - Critical med equipment repaired: 19	Guyana - Dates: 31 March –11 April - PAX: 56 (49 AFRC, 7 AD) - Clinical Sites: 5 - Patients treated: 1,721 - AFSC-specific readiness hours: 3,101 - Value of care: \$103,019 - Knowledge Exchange Hours: 205 - Critical med equipment repaired: 14

Lessons Learned During Pilot Phase

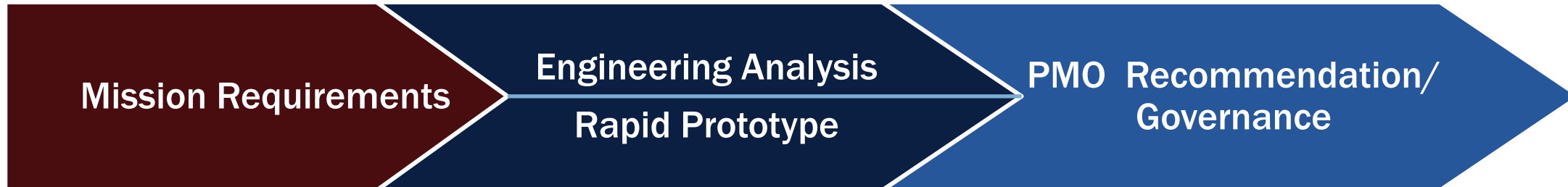
- Consider data collection a core planning function for Operational Planning Team (OPT) agendas
- Task dedicated data collection personnel, equipment & processes
- Work collaboratively across organizations of invested enablers
 - Clearly define roles based on expertise
 - Share information early & often
- Capture legal reporting requirements at a minimum...additional metrics to support operational LOEs
- Interactive real-time dashboards create value
 - Displayed SITREP and AAR content
 - Supported public affairs products
 - Expedited post-mission MRDSS reporting
 - Provided tiered oversight as a “common operational picture”
- Reduce reporting burden through rapid feedback incorporation

From Pilot Phase to Enterprise Delivery

- DHA Chief Information Officer/J-6, Mr. Flanders, appointed WMT PMO to conduct an analysis and determine Level of Effort (LOE) to operationalize MCART as an enterprise technical solution



MCART Through the Engineering Response Team Process



- Understand the operational need and context
- Define success criteria
- Align with strategic goals
- Assess technical feasibility
- Evaluate security and compliance
- Analyze infrastructure and cost analysis
- Explore solution approaches
- Build prototypes and validate assumptions
- Gather feedback early
- Provide actionable recommendations
- Prioritize and align with portfolio
- Establish oversight and governance

Traditional Requirements Gathering

How it typically works

- Business analysts gather requirements through meetings and interviews
- Requirements are documented in Word, Excel, Jira, or Confluence
- Stakeholders review written descriptions and diagrams
- Developers interpret the requirements later
- Misunderstands are often discovered during development or testing

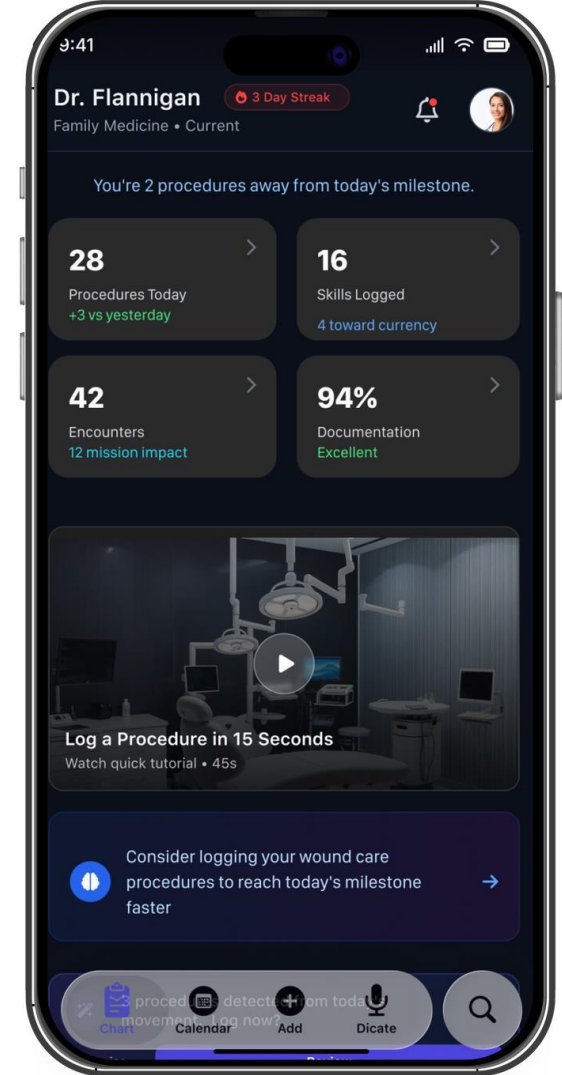
Challenges

- Slow feedback loop
- Heavy documentation burden
- Users struggle to visualize the final product
- Requirements often change after development starts
- Higher risk of rework

The Paradigm Shift

Traditional Requirements Gathering → AI Prototyping

- Traditional requirements gathering relies on interviews, documents, meetings, and long review cycles before users can see anything tangible.
- AI prototyping changes the flow: stakeholders describe intent, AI rapidly generates working screens, workflows, APIs, and testable concepts, allowing teams to validate ideas earlier.
- We are moving from “document first, build later” to “prototype early, learn faster.”



OUR SHIFT IN DIRECTION

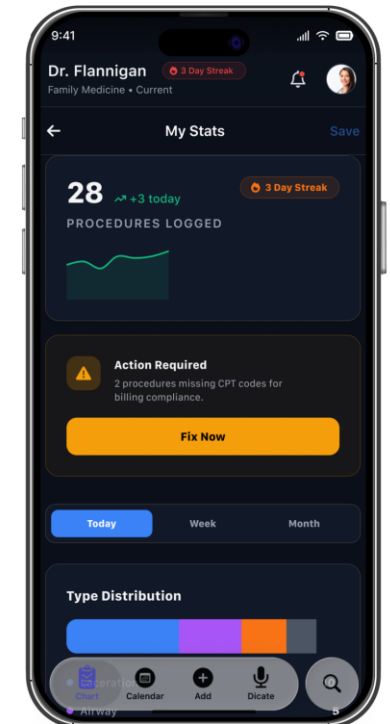
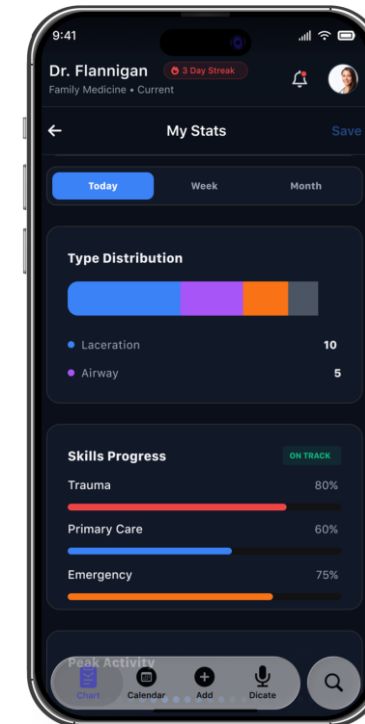
MCART 2.0

The image shows the "Home" screen of the MCART 2.0 application. It has a dark blue header with a menu icon, the MCART logo, and the word "Home". The main content area is white and contains the text "MCART 2.0 Medical Currency & Readiness Training Application, 2.0." and a welcome message. At the bottom, there is a navigation bar with icons for Home, Clinical Entry, and CMRP 46N.The image shows the "CMRP 46N" form in the MCART 2.0 application. It has a dark blue header with a menu icon, the MCART logo, and the text "CMRP 46N". The form contains several sections with input fields and buttons: "Trauma Nursing Core Course (TNCC) Completion" with "N" and "Y" buttons; "Continuing Education (CE) Hours" with a numeric input field and "+" and "-" buttons; "Inpatient Clinical Hours" with a numeric input field and "+" and "-" buttons; "Triage, evaluation, or management of trauma patient (Hours)" with a numeric input field and "+" and "-" buttons; and "Trauma Knowledge via JTS CPG or DHA Deployed Medicine Review (Hours)" with a text input field. At the bottom, there are "Cancel" and "Save" buttons.

MCART 3.0

MCART 3.0 Adapts to the Doctor

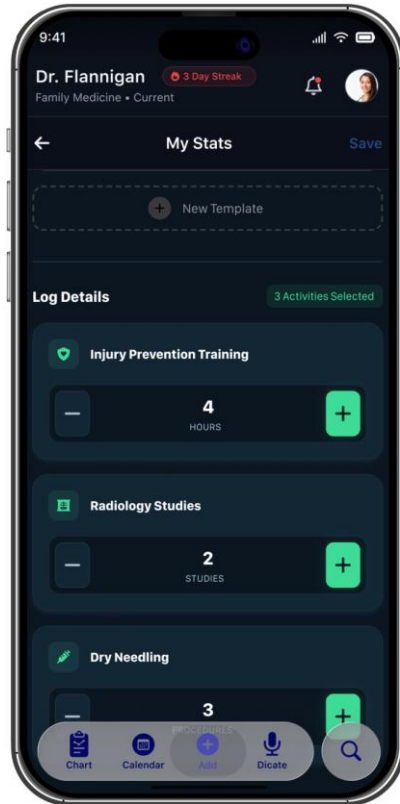
- Multiple capture paths
- AI-assisted structuring
- Passive detection
- We visualize your growth.



AI-Prototype for MCART 3.0 Data Collection

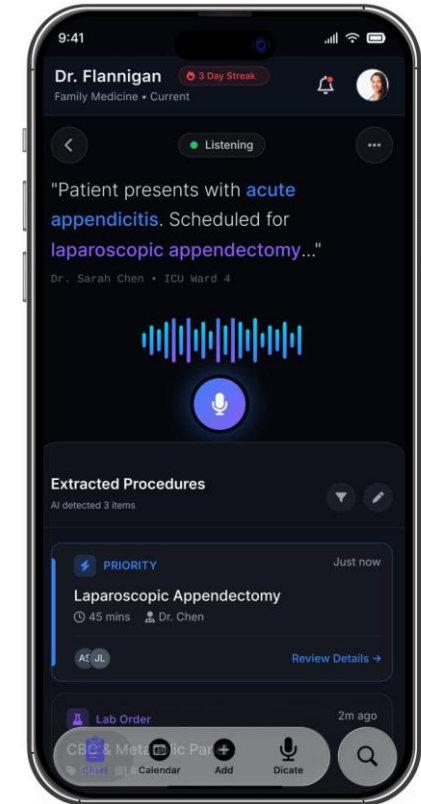
Quick Log Template

- 15-Second Logging
- Auto-suggested procedure types
- Fast CPT search
- Smart defaults
- Save & Add Another
- Completion score visible instantly



Dictation + AI

- Speak Naturally. Log Structurally
- AI converts speech → structured entry
- CPT suggestions
- ICD suggestions
- Auto-draft creation
- Reduced typing

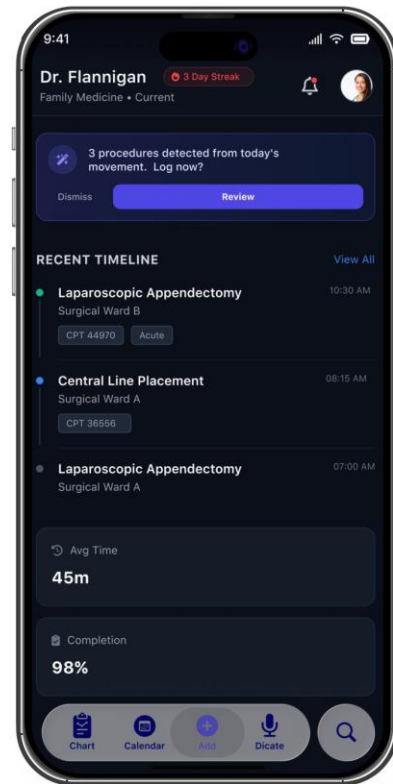


AI-Prototype for MCART 3.0 Use Cases (1 of 2)

Passive AI Detection

Capture without friction

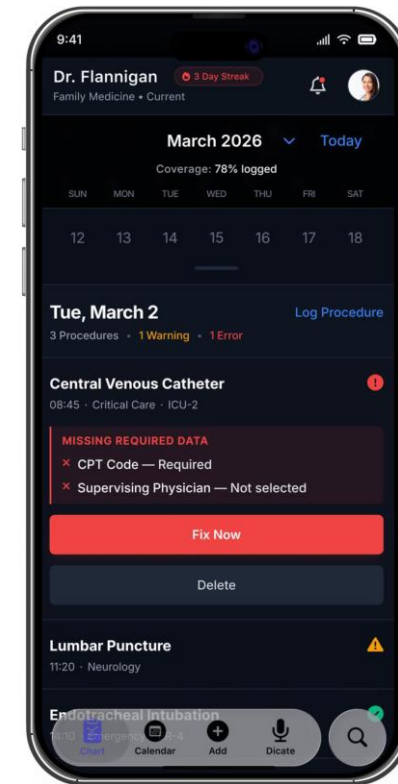
- Detects procedure clusters
- Movement-based inference
- Schedule-based suggestions
- Confirm & auto-fill



Calendar Intelligence

Visual coverage at-a-glance

- Monthly completion percentage
- Color-coded errors & warnings
- One-tap “Fix Now”
- Draft visibility

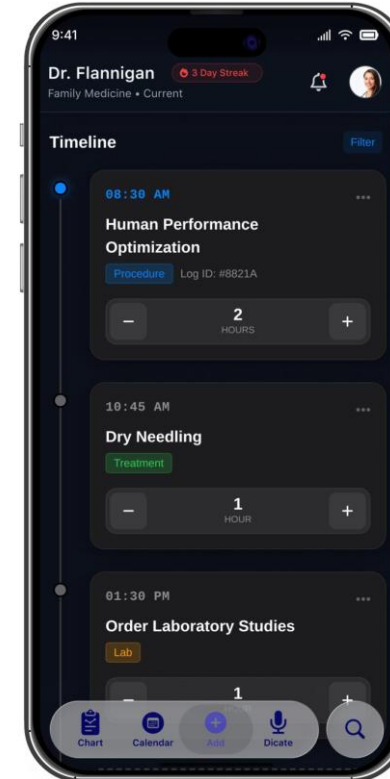


AI-Prototype for MCART 3.0 Use Cases (2 of 2)

Timeline Editing

Doctors can

- See procedures in chronological flow
- Edit inline
- Update CPT
- Adjust notes
- Add missing data



Next Steps

- LOE analysis has been completed and presented to leadership
- Finalizing validation deck for Governance process
- Preparing for presentation to Healthcare Integration Board (HCB)

Takeaways

- Rapid prototyping improves requirement quality and user satisfaction
- Early engineering engagement reduces downstream risk



Knowledge Check #1 (1 of 2)

What was the primary organizational problem that the initial, "grassroot" readiness tracking efforts created?

- a. Data was too secure and could not be shared between departments.
- b. The systems were too technically advanced for the average user.
- c. Reporting requirements were completely ignored by all units.
- d. The use of multiple, disconnected systems like Excel and pen-and-paper led to "pockets of innovation" but no unified enterprise-wide view of medical readiness.

Knowledge Check #1 (2 of 2)

What was the primary organizational problem that the initial, "grassroot" readiness tracking efforts created?

- a. Data was too secure and could not be shared between departments.
- b. The systems were too technically advanced for the average user.
- c. Reporting requirements were completely ignored by all units.
- d. The use of multiple, disconnected systems like Excel and pen-and-paper led to "pockets of innovation" but no unified enterprise-wide view of medical readiness.

Knowledge Check #2 (1 of 2)

During the pilot phase, what was a key lesson learned regarding the impact of using interactive, real-time dashboards?

- a. They were too complex and slowed down the reporting process.
- b. They were found to be useful for post-mission reporting but had no real-time value.
- c. They created significant value by providing a common operational picture, supporting public affairs, and reducing the overall reporting burden.
- d. They were determined to be an unnecessary expense and were eliminated from the project.

Knowledge Check #2 (2 of 2)

During the pilot phase, what was a key lesson learned regarding the impact of using interactive, real-time dashboards?

- a. They were too complex and slowed down the reporting process.
- b. They were found to be useful for post-mission reporting but had no real-time value.
- c. They created significant value by providing a common operational picture, supporting public affairs, and reducing the overall reporting burden.
- d. They were determined to be an unnecessary expense and were eliminated from the project.

Knowledge Check #3 (1 of 2)

What is a key technical improvement that enables the rapid adaptation of the MCART system to new mission requirements?

- a. Manual, quarterly software updates.
- b. Leveraging AI prototyping, automated CI/CD pipelines and cloud-native architectures.
- c. Restricting access to mobile devices.
- d. Outsourcing data entry to third-party contractors

Knowledge Check #3 (2 of 2)

What is a key technical improvement that enables the rapid adaptation of the MCART system to new mission requirements?

- a. Manual, quarterly software updates.
- b. Leveraging AI prototyping, automated CI/CD pipelines and cloud-native architectures.
- c. Restricting access to mobile devices.
- d. Outsourcing data entry to third-party contractors

Knowledge Check #4 (1 of 2)

What is the fundamental advantage of using AI Prototyping over traditional requirements gathering?

- a. It completely eliminates the need for stakeholder feedback.
- b. It allows teams to "prototype early, learn faster" by quickly generating testable concepts and getting earlier user validation.
- c. It focuses on creating heavy documentation before any development begins.
- d. It ensures that requirements will never change after development starts.

Knowledge Check #4 (2 of 2)

What is the fundamental advantage of using AI Prototyping over traditional requirements gathering?

- a. It completely eliminates the need for stakeholder feedback.
- b. It allows teams to "prototype early, learn faster" by quickly generating testable concepts and getting earlier user validation.
- c. It focuses on creating heavy documentation before any development begins.
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Contact

Jeremey Covington
Section Chief, O&S WMT

✉ jeremey.l.covington.civ@health.mil

Eric Wright
Lead Engineer

✉ eric.t.wright25.ctr@health.mil

Lt Col Benjamin Pass
International Health Specialist

✉ benjamin.pass.1@us.af.mil

Gus Silva
Mobile Innovation Lead

✉ gustavo.d.silva.ctr@health.mil

David Adams
NIWC LANT Project Lead

✉ david.t.adams3.civ@us.navy.mil

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