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TITLE: Implementation of the AWARE System to Support Virtual Critical Care in a MEDCEN and CSH

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14. ABSTRACT
In combat casualty care environments, decisions about triage, treatment, and evacuation are commonly made quickly, using limited and fragmented data. These decisions are difficult for novice clinicians to make due to lack of situational experience. Enabling critical care experts to be easily and immediately available to inexperienced clinicians using virtual critical care technologies could significantly improve their medical decision making and patient care by increasing process adherence, reducing errors, and improving outcomes. This study aims to determine if implementing a virtual critical care service that utilizes novel clinical decision support software (CDSS) to facilitate daily key quality indicators, process, and outcome metrics will improve patient safety, process adherence, and patient outcomes in a military intensive care unit and thus validate similar findings in civilian medical centers for the military. The study also aims to demonstrate that we can deploy similar technologies and virtual critical care support services to a combat support hospital during a simulated patient care exercise.

15. SUBJECT TERMS
Tele-critical care, combat casualty care, tele-medicine, intensive care unit

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1. INTRODUCTION:

In this project we intend to determine if using teleconsultation technologies and specialized software will improve patient safety, adherence to best medical practices, and improve patient outcomes in a military intensive care unit. These findings will validate civilian research findings in a military setting. We also intend to demonstrate that we can use similar technologies to facilitate critical care support during simulated patient care in a combat support hospital during a field training exercise.

2. KEYWORDS:

Tele-Critical Care, Combat Casualty Care, Tele-Medicine, Intensive Care Unit

3. ACCOMPLISHMENTS:

What were the major goals of the project?

Below, we indicate timelines which we believe to be more accurate, which differ slightly from the approved SOW. No tasks on the SOW have been modified. The tasks and the percentage of completion as of 25 September 2018:

1. Task 1.1: Obtain Risk Management Framework (RMF) approval for the AWARE software package. (**50% Complete**: paperwork returned and undergoing prep for re-submission, software completed security scanning)
2. Task 1.2: MAMC establishes a remote workstation for monitoring ICU beds. (**Complete**)
3. Task 1.3: Install VTC hardware in MAMC ICU rooms and establishes servers to host all necessary software. (**Complete**)
4. Task 1.4: Purchase low cost, mobile devices and Omnicure Software for monitoring non-ICU patients from the TeleICU workstation. Test their function. (**70% Complete**: OmniCure contracted and developing software, mobile devices purchased)
5. Task 2.1: Develop Clinical Practice Guidelines that include clinically meaningful process and outcomes metrics. (**90% Complete**: 2 protocols completed, 2 still in development)
6. Task 2.2: MAMC and Mayo write and submit research protocol to submit to the IRB. (**Complete**)
7. Task 2.3: Mayo incorporates process and outcomes metrics into context-based checklists, alerts, and reports available in AWARE. (**10% Complete – on hold**)
8. Task 2.4: MAMC Clinicians monitor patients at the remote workstation and audit metrics, complete reports, and provide real-time feedback to bedside clinicians on performance. (**Not Started**).
9. Task 2.5: Analyze impact of these structural and process changes on clinician performance and patient outcome. (**Not Started**)
10. Task 3.1: Establish connection with JOMIS (or a remote client of CERNER if JOMIS is not yet available). (**Not Started**)
11. Task 3.2: Scale project to support minimum bandwidth data transfer. This may involve reduced real-time physiologic monitoring, reduced frequency of data refresh rates, or other methods to diminish network demand and optimize remote clinician recommendations/monitoring. (**Not Started**)
12. Task 3.3: Provide remote clinician support during a CSH or FST FTX. (**Not Started**)

What was accomplished under these goals?

1. **Task 1.1: Obtain Risk Management Framework (RMF) approval for the AWARE software package. (50% Complete)**
    - *Subtask 1.1.1: Complete*
        - *Software and documentation was provided to MAMC by Mayo on 15 December 2017.*
    - *Subtask 1.1.2: MAMC Submits RMF Application*
        - *MAMC completed the paperwork portion of the RMF process in the fall of 2017, but was required to re-submit/start over due to changes in the RMF process. The software validation testing and cybersecurity scanning were completed as part of the original submission and should be usable in the re-submission. The new packet was delayed for submission pending challenges with connecting AWARE to MHS GENESIS through an approved governance process and API. Recently, progress has been made with this (see below) such that we are able to re-start the RMF submission. RMF submission was re-started in August 2018.*
2. **Task 1.2: MAMC establishes a remote workstation for monitoring ICU beds. (Original SOW Complete; pending implementation of DocBox ICE platform)**
    - *Subtask 1.3.1: Complete*
        - Equipment and hardware for the MAMC remote workstation has been obtained. This includes two single tier adjustable ergonomic desks, workstation monitors, Jabber cameras, and computers. Funding for this effort was a mixture of MTF and Grant.
    - *Subtask 1.3.2: Complete*
        - Remote workstation space at MAMC was renovated in anticipation of installation.
        - All equipment has been installed in this location.
        - Software components for the workstations to function completely include:
            - Remote Electronic Medical Record Access: tested and functional with MHS GENESIS.
            - Remote VTC: tested and functional with Cisco Jabber and VNC VTC.
            - Remote Imaging: tested and functional with PACS system.
            - Remote Vital Signs Monitoring: tested and functional using the SpaceLabs virtual application hosted on AVHE called CareAware. This interface will be updated after DocBox ICE platform completes RMF and can be used to virtualize remote visualization of bedside physiologic monitors).
3. **Task 1.3: Install VTC hardware in MAMC ICU rooms and establishes servers to host all necessary software. (Original SOW Complete; pending installation of additional 5 rooms)**
    - *Subtask 1.3.1: GENEVA Purchases Equipment for MAMC*
        - Equipment installation has been completed 7 rooms according to the original SOW. There were significant cost savings while purchasing equipment for these rooms due to a change in capability and cost of HD video cameras and the need to modify the microphone configuration due to patient lifts that were not compatible with the original microphone planned. Consequently, we requested and have had approved the purchase and installation of equipment for 5 additional ICU rooms.
        - The mobile workstations have been received and are functional.

4. **Task 1.4: Purchase low cost, mobile devices and Omnicure Software for monitoring non-ICU patients from the TeleICU workstation. Test their function. (70% Complete)**
        - OmniCure has completed integration SensoScan vital signs monitoring into their data display.
        - OmniCure has provided requirements for mobile device platform and Geneva has purchased tablets as the mobile device solution to host the OmniCure application.

- OmniCure software application is complete and publically available on the Android, and iPhone, if needed, platforms.
- The workflow between SensoScan continuous vitals data, bedside applications, and physician/provider monitoring via Omnicure has been successfully demonstrated during a simulated MASCAL event during the Navy's Fleet Week exercise in San Francisco (https://www.navy.mil/submit/display.asp?story_id=107325). This demonstration utilized the integrated OmniCure/Sensoscan platform to monitor and interact with 4 simulated and 20 synthesized patients through a web portal visible at Madigan Army Medical Center and Naval Medical Center San Diego.

5. **Task 2.1: Develop Clinical Practice Guidelines that include clinically meaningful process and outcomes metrics. (90% Complete)**
   - *Subtask 2.1.1: MAMC develops SOPs to integrate virtual critical care into daily patient care.*
     - Draft version of this SOP has been completed. Final SOP is still undergoing revision pending additional nursing engagement.
   - *Subtask 2.1.2: MAMC develops CPGs with local SME's, clinical champions, and critical care leadership*
     - The Blood Transfusion and Sepsis CPGs are complete. The ARDS CPG is 50% complete. Given the challenges with adopting and modifying the AWARE software, the AKI CPG may not be possible to implement.
6. **Task 2.2: MAMC and Mayo write and submit research protocol to submit to the IRB. (Complete)**
   - The protocol was locally approved 02 August 2018; it is pending HRPO review.
   - The Mobile Device Monitoring PI Protocol is in process of being written (25% complete).
7. **Task 2.3: Mayo incorporates process and outcomes metrics into context-based checklists, alerts, and reports available in AWARE. (10% Complete – on hold)**
   - Mayo WILL NOT modify the AWARE software from its base build because funds were pulled back from the Mayo sub-contract in order to facilitate hiring an additional Research Assistant who can begin data collection without use of the AWARE software (i.e. while AWARE software undergoes RMF and has MHS GENESIS API created). The DHA Functional Advisory Committee (FAC) has indicated that the Cerner-MHS contract requires special application-program interfaces (API) that *must* be created by a sole source partner (Leidos). These specialized APIs must be approved through the FAC (and subcommittees) as part of an *enterprise approved* solution. Unfortunately, AWARE is not, at present, an enterprise application – it is part of a research project. Consequently, and despite the fact that AWARE has an API previously created by Leidos for connection with Cerner Millennium Objects (the identical back-end database of MHS GENESIS), there is no approval for AWARE to connect to MHS GENESIS. The MHS, MRMC/JPC-1, and Cerner are in active negotiations about a Cooperative Research and Development Agreement (CRADA) that might enable these types of API to be developed and implemented.
     An alternative solution has been identified while awaiting the CRDA approval. The use of mPages – a tool to create specialized reports or notes from MHS GENESIS – has been approved at MAMC. The MAMC Health IT department has agreed to work with Ambient/Mayo to create 28 mPages per patient to run at specified intervals. We anticipate starting this data pull at every 12-24 hours and to reassess. We anticipate it taking 3-4 months to create these data extraction tools. If all goes well, these should be finished approximately the same time as the RMF completes and an ATO is awarded (February-March 2019).
8. **Task 2.4: MAMC Clinicians monitor patients at the remote workstation and audit metrics, complete reports, and provide real-time feedback to bedside clinicians on performance. (Not Started).**

- We anticipate starting this process during the first quarter of the next year in the POP (FY2019) according the approved protocol once it is reviewed by HRPO.

9. **Task 2.5: Analyze impact of these structural and process changes on clinician performance and patient outcome. (Not Started)**
10. **Task 3.1: Establish connection with JOMIS (or a remote client of CERNER if JOMIS is not yet available). (Not Started)**
11. **Task 3.2: Scale project to support minimum bandwidth data transfer. This may involve reduced real-time physiologic monitoring, reduced frequency of data refresh rates, or other methods to diminish network demand and optimize remote clinician recommendations/monitoring. (Not Started)**
12. **Task 3.3: Provide remote clinician support during a CSH or FST FTX. (Not Started)**

What opportunities for training and professional development has the project provided?

Telecritical care offers a new scope of practice for military critical care nurses and physicians. While none of the clinical decision making is new, the manner in which clinicians review data and communicate with local caregiver is a *skillset* that may be developed and trained. MAMC and clinical partners at NMCSD and BAMC are working to develop these training programs.

How were the results disseminated to communities of interest?

Thus far, we have three CPGs that will help standardize clinical practices across the Joint Tele-Critical Care Network after this project completes, a Telecritical Care SOP at MAMC that has been drafted and continues to undergo interactive development with other clinical partners, and training media/SOPs that are also undergoing development jointly with other clinical partners. These will all be made available to the Sponsor once the products are more fully developed and validated.

What do you plan to do during the next reporting period to accomplish the goals?

Associated Task	
Major Task 1.3	• Initiate installation of additional 5 ICU rooms worth of equipment.
Major Task 1.4	• Complete a Process Improvement protocol to monitor ward patients with OmniCure and Sensogram devices and submit this to the IRB for approval.
Major Task 2.1	• Complete Acute Respiratory Distress Syndrome (ARDS) CPG and possibly the Acute Kidney Injury (AKI) CPG pending feasibility.
Major Task 2.4	• Begin monitoring of MAMC ICU.
Task 3.3	• Begin coordination with FORSCOM elements to complete requirements for FTX monitoring by the TCC workstations.
	• Finalize transition of local PI role from Dr. Pamplin (TATRC) to Dr. Colombo (MAMC).

4. IMPACT:

What was the impact on the development of the principal discipline(s) of the project?

Clinical Impact:

- The installation of remote monitoring workstation equipment at MAMC has allowed the site to be a leader in the creation of the Joint Tele-Critical Care Network (JTCCN). The active JTCCN network includes MAMC, BAMC, and Naval Medical Center San Diego. The remote monitoring capabilities amongst these sites allow personnel burdens and responsibilities to be divided amongst all sites. This in turn has resulted in more active patient care with increased access to experienced providers. The JTCCN network has also been able to provide support for the established ADVISOR system.
- The increased momentum and visibility brought to virtual care has in part lead to tele-critical care being investigated by the MHS Tele-Health workgroup for program objective memorandum (POM) funding.
- The Virtual Critical Care Center (VC3) at MAMC has also provided proof of concept operations during a MASCAL event supporting NMCSD at the San Francisco Fleet Week.

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

NOTHING TO REPORT

What was the impact on technology transfer?

- Tele-Critical Care (TCC) is a core component of the ADvanced VIrtual Support for OpeRational (ADVISOR) system that has now provided support for over 30 real world and 100 training scenarios. TCC resources (i.e. the workstation and clinical support) offers a novel method to provide high fidelity, continuous consultation to operational forces during prolonged field care.

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world.

The proof of concept MASCAL demonstration at Fleet Week is a potential model for supporting a large scale (i.e. nation or multi-national) response to natural or man-made disasters that create 100s-1000s of casualties over short time periods. This model workflow could be combined with other technologies (like drone delivery of supplies and mobile ad hoc networking) to offer a highly flexible and scalable technology solution for humanitarian aid.

5. CHANGES/PROBLEMS:

Changes in approach and reasons for change

On April 6th, the PI and representatives from the Geneva Foundation, met with the COR, Science Advisor, and JPC-1 Health IT Program Manager to alert the Sponsor to two key challenges facing this project. The first was the impending PCS of the PI and the second was the challenge facing this project in integrating AWARE with MHS GENESIS. The following, represents the PI's recommendation to achieve success with this project overall and the steps that have been taken thus far.

First, PI PCS has not impacted the overall project. The PI remains overall PI for the project with local protocol PI shifting to Dr. Christopher Colombo who has replaced the PI as MAMC's Director of Virtual Critical Care. LTC(P) Colombo is also a board-certified medical intensivist with 15 years of academic and clinical medicine experience. He has also been actively involved with the clinical aspects of telecritical care and operational virtual health while at Dwight David Eisenhower Army Medical Center. He is a personal friend of the PI and is dedicated to the project and ensuring its success. Further mitigating any impact to the overall project include the assembled Telemedical Research for Operational Support team that the PI and The Geneva Foundation have assembled at MAMC to study telecritical care and its impact on both MTF and Operational medicine. There should be no concerns about the PI's transition to TATRC and its impact on project success.

Second, the uncertain possibility of connecting AWARE to MHS GENESIS. Several options were discussed during the April 6th meeting, including modifying the project to remove AWARE or allowing for additional time for a solution to present itself. Following the previously recommended course of action for risk mitigation, efforts with the Mayo Clinic have been put on hold as the project has been refocused to study only the impact of virtual services (i.e. the human component of telecritical care) on process adherence and patient outcomes. By changing the technical approach, we can study if clinicians using technology to remotely monitor patients in an ICU can successfully identify quality metrics, report them to the bedside clinicians, and impact process adherence for the entire clinical team. Using this approach, we've been able to proceed with the project with minimal delay to the overall project timeline. This course of action does not permit Task 2.3: Mayo incorporates process and outcomes metrics into context-based checklists, alerts, and reports available in AWARE completion.

Since the April 6th meeting, the DHA has permitted MAMC to utilize mPages, an electronic tool that enables data extraction from MHS GENESIS in real-time to create reports and specialized notes. This tool can also be used to create an additional database that could be used to populate AWARE. MAMC HIT will work with Mayo Clinic/Ambient to create 28 mPages for this purpose. We anticipate this taking 3-4 months complete. Since this solution became available, a new RMF for AWARE has been started according to the new RMF process.

Subtask 3.1.1 is also not likely to be completed because JOMIS is not anticipated to be available within the POP of this project. We will utilize an alternative platform to support the CSH-Hospital FTX.

Please see updated GANTT chart (Appendix I).

Actual or anticipated problems or delays and actions or plans to resolve them

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Major delays have been experienced with respect to the RMF process and for the integration of the AWARE system with MHS GENESIS. The inability to connect the AWARE system to MHS GENESIS halted the RMF process for over 6 months resulting in the need to start the RMF process over again, which will start the 6 month clock over again before it will be completed.

Although a potential pathway now exists to extract data from MHS GENESIS to population a local database that AWARE may access, the timeline for this solution still places use of AWARE as a primary method for data extraction for this project beyond the POP. As previously stated, we can alter the methodology for data extraction to keep schedule on track. Using research assistants/nurses to extract data and create daily reports is more time consuming. In order to mitigate this, some funding to the Mayo sub-contract was withheld at the Geneva Foundation and an additional research assistant was hired.

These delays have also held up medical brigade engagement which has in turn set back scenario development and put the study at risk for a no cost extension. A partnership with MRTC for support has been needed to mitigate this and increase the integration of telemedicine solutions with training opportunities.

Another possible problem lies with the extended funding for this project. The extended funds have been approved, but not executed. JPC-1 representatives have reached out to J6 at DHA and have scheduled a meeting for 01 November to discuss this issue.

Changes that had a significant impact on expenditures

Significant cost savings on installation of first 7 ICU rooms allowed for equipment purchase and installation of additional 5 rooms. This modification was approved 31 July 2018.

Additionally, funds retrieved from the contract with Mayo which was curtailed due to MHS Genesis integration delays have been repurposed to support the additional research assistant needed to support the increased personnel burden to complete data collection.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Significant changes in use or care of human subjects

NOTHING TO REPORT

Significant changes in use or care of vertebrate animals

N/A

Significant changes in use of biohazards and/or select agents

N/A

6. PRODUCTS:

- **Publications, conference papers, and presentations**

  Journal publications.

  NOTHING TO REPORT

  Books or other non-periodical, one-time publications.

  NOTHING TO REPORT

  Other publications, conference papers and presentations.

  NOTHING TO REPORT

- **Website(s) or other Internet site(s)**

  NOTHING TO REPORT

- **Technologies or techniques**

  NOTHING TO REPORT

- **Inventions, patent applications, and/or licenses**

  NOTHING TO REPORT

- **Other Products**

  NOTHING TO REPORT

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?

NAME	LTC(P) Jeremy Pamplin (no change)
NAME	LTC Christopher Colombo
PROJECT ROLE	Site Principal Investigator
NEAREST PERSON MONTH WORKED	0.6 months effort
CONTRIBUTION TO THE PROJECT	Provide scientific oversight of study activities at MAMC, supervise day to day activities of project on site, assist overall PI as needed.
NAME	Mary McCarthy (no change)
NAME	LTC Cristin Mount (no change)
NAME	Brian Pickering (no change)
NAME	Vitaly Herasevich (no change)
NAME	Kevin Ross (no change)
NAME	Katy Cohen (no change)
NAME	Stacie Barczak (no change)
NAME	Joanne Kunze
PROJECT ROLE	Research Assistant
NEAREST PERSON MONTH WORKED	4 months effort
CONTRIBUTION TO THE PROJECT	Testing and integration of technological component, consent participants, perform data collection and audits

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

Change in PI location, as described above.

What other organizations were involved as partners?

Organization Name: Mayo Clinic
Location of Organization: Rochester, MN
Partner's contribution to project: Collaboration (Mayo staff worked with the research team to initiate the RMF process for incorporating the AWARE system with MHS Genesis)

Organization Name: Omnicure
Location of Organization: Saint Louis, MO
Partner's contribution to the project: Financial support (Partner makes application for provider viewing of vital sign trends.)

Organization Name: Sensogram
Location of Organization: Plano TX
Partner's contribution to the project: Financial support (Partner makes vital sign collection equipment.)

8. SPECIAL REPORTING REQUIREMENTS

QUAD CHARTS: *Attached*

9. APPENDICES

Appendix I

Updated GANTT Chart

		2017	2018				2019				2020		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Aims & Tasks	**Months after award**	3	6	9	12	15	18	21	24	27	30	33	36
1	Install hardware and software for vitual monitoring in the adult intensive care unit and non-ICU patients at Madigan Army Medical Center.												
1.1	Obtain a RMF for the AWARE software package.							1,2					
1.2	MAMC establishes a remote workstation for monitoring ICU beds.		3										
1.3	Install VTC hardware in MAMC ICU rooms and establish servers to host all necessary software.		4										
1.4	Purchase low cost mobile devices and Omnicure Software for monitoring non-ICU patients from the TeleICU workstation. Test their function.												
1.5	Develop remote physiologic monitoring solution that is usable on the DoD network.							5					
2	To test the hypothesis that implementing a virtual critical care service in a military adult intensive care unit that utilizes novel decision support software (CDSS) to audit quality indicators, process, and outcome metrics on a daily basis and to review that data with bedside clinicians, we can improve patient safety, process adherence, and patient outcomes.												
2.1	Develop Clinical Practice Guidelines that include clinically meaningful process and outcomes metrics.					6,7							
2.2	MAMC and Mayo write and submit research protocol to submit to the IRB.					8							
2.3	Mayo incorporates process and outcomes metrics into context based checklist, alerts, and reports available in AWARE.												
2.4	MAMC clinicians monitor ICU patients at the remote workstation and audit metrics, complete reports, and provide real-time feedback to bedside clinicians on performance.												
2.5	Analyze impact of these structural and process changes on clinician performance and patient outcome.											9	
3	Demonstrate proof of concept that this tool can be deployed to combat support hospital during a field training exercise.												
3.1	Establish connection with JOMIS (or a remote client of CERNER if JOMIS is not yet available).										10		
3.2	Scale project to support minimum bandwidth data transfer. This may involve reduced real-time physiologic monitoring, reduced frequency of data refresh rates, or other methods to diminish network demand and optimize remote clinician recommendations/monitoring.												
3.3	Provide remote clinician support during a CSH or FST FTX.												
4	Demonstrate proof of concept that this virtual service can support combat casualty care evacuation and monitoring from a role 2 to a role 3 facility.												
4.1	Determine software and network solution(s) to connect role 2 and MEDEVAC platform(s) to garrison clinical workstations.												
4.2	MAMC/WAMC support 44 MB during FTX demonstrating proof of concept for TeleCritical Service support during multi-casualty scenario form Role 2 to Role 3.											11,12,13	

	Milestones and Events		
1,2	**Approved RMF and GENESIS Connection for AWARE Software**	**8**	**IRB/HRPO Approved Research Protocol**
3	**Functioning workstation**		**Local CPGs Integrated into AWARE software**
4	**Functioning ICU Monitoring Equipment in 10 ICU Beds**	**9**	**Pre-Post Implementation Data**
5	**Advanced Monitoring Solutions for ICU Beds**	**10**	**AWARE Integrates with JOMIS if available**
6,7	**SOP & CPGs for clinical practice that Virtual Critical Care support**	**11,12,13**	**Multi-Casualty FTX Scenario & Proof of concept software and network solution outlined (in AAR of FTX)**
	Quarterly Status Report		**Final Report**

Implementation of the AWARE system to support virtual critical care in a MEDCEN and CSH.

W81XWH-17-C-0253

PI: LTC Jeremy Pamplin, MD **Org:** The Geneva Foundation **Award Amount:** $1,022,514

Study/Product Aim(s)

Using a combination of novel analytics and visualizations of electronic medical data, local workgroup initiated process improvement projects, virtual audits of quality metrics, and daily review of process and outcomes reports by bedside and virtual clinician's, rapidly improve process adherence and patient outcomes in an adult intensive care unit. Demonstrate that this technology and approach to ensuring high quality patient care can be used in a deployed setting.

Approach

We will use the paradigm of structure, process, and outcome standardization and metric monitoring to improve care in the intensive care unit using teleICU technologies that have recently advanced to the point they are ready for supporting clinical medicine in a fixed and deployed facility.

AWARE Unit Level Interface

AWARE Patient Level Interface

Timeline and Cost

Activities CY	17	18	19
Install virtual monitoring capability at Madigan Army Medical Center.			
Develop CPGs, implement virtual critical care service, and measure impact on associated processes and outcomes			
Test capability with 47th CSH during FTX			
Estimated Budget ($1022K)	**$179K**	**$644K**	**$199K**

Updated: 25 OCT 2018

Goals/Milestones

CY17-18 – Installation Phase

☑ Submit AWARE/DocBox software to Risk Management Framework (RMF)

☑ Establish Telecritical Care Workstations

☑ Install VTC hardware in ICU rooms; Purchase low cost, mobile telecritical care (TCC) solution; Connect DoxBox solution to TCC workstations

☑ Develop Clinical Practice Guidelines & Submit IRB Protocol

CY18 – Operation Phase

☐ Update AWARE to support CPG audits/reporting (on hold)

☐ Provide remote services and audit quality metrics

☐ Work with 47th CSH to test virtual support during FTX.

CY19 – Fielding Phase

☐ Measure impact of TCC on clinician performance & patient outcomes

☐Test virtual presence during FTX

Comments/Challenges/Issues/Concerns

- RMF ongoing; no AWARE integration with MHS GENESIS at present

Budget Expenditure to Date

Projected Expenditure: $662,000 Actual Expenditure: $506,548