

**DEPARTMENT OF VETERAN AFFAIRS  
STATEMENT OF WORK  
Cardiac Monitors**

**A. GENERAL INFORMATION**

- (1) Scope of Work: The contractor shall provide all resources necessary to accomplish the deliverables described in this Statement of Work (SOW), except as may otherwise be specified. Procurement is for the replacement of the existing cardiac and hemodynamic monitoring system (hereafter referred to as cardiac monitoring system or cardiac monitors) in the Emergency Department (ED), the Critical Care Units (including the 3 Intensive Care Units and Stepdown unit), and the 9 West Observation Unit at the VA Pittsburgh, University Drive Division Pittsburgh PA 15240. Expansion includes a Central Nurses Station (CNS) and RNS (remote Nurses stations) for each department. VA Pittsburgh Healthcare System (VAPHS) is standardizing all such monitoring equipment throughout the facility over the coming years and the system must offer versatility to be used in a variety of clinical environments including Intensive Care, Operating Room, Emergency Department, and Acute Care Telemetry.
- (2) Background: Vendor is to replace all existing cardiac monitors in each of the identified areas: Emergency Department (ED), the Critical Care Units (including the 3 Intensive Care Units and Stepdown unit), and the 9 West Observation Unit. Each clinical unit will have a dedicated central monitor, bedside monitors, telemetry capability (if requested), and remote wall-mounted monitors which will display what appears on the central station in areas where neither the bedside or central monitor can be seen. Vendor should quote each CLIN traceable to the total number of beds per unit. The total number of beds for each unit and CLIN is as follows:
- CLIN 0001: Emergency Department System: 16 bed unit
  - CLIN 0002: 3A-Surgical ICU (SICU) System: 9 bed unit
  - CLIN 0003: 4E-Medical ICU (MICU) System: 16 bed unit
  - CLIN 0004: 3E-Critical Care Unit (CCU) System: 16 bed unit
  - CLIN 0005: 5A-Step Down Unit (SDU) System: 8 bed unit
  - CLIN 0006: 9W-Observation System: 18 bed unit

**B. CONTRACT AWARD MEETING**

The contractor shall not commence performance on the tasks in this SOW until the Contracting Officer has conducted a kick off meeting, or has advised the contractor that a kick off meeting is waived.

**C. GENERAL REQUIREMENTS**

- (1) The contractor shall provide all labor, equipment, tools, materials, and other items necessary to deliver and install the equipment.
- (2) The accessories shall have the following features described in detail below.

(3) System Features should include:

- a. Arrhythmia analysis is performed at the bedside monitor
- b. Analyzed leads at bedside are automatically displayed at CNS and RNSs
- c. Plug and play (ability to immediately monitor once cable/sensor is connected)
- d. Interchangeable leads for use with telemetry and bedside monitors
- e. Arrhythmia and tabular review must be continuous including all telemetry and bedside data (see attached drawings of each unit to determine telemetry square footage)

(4) Other:

- a. Arrhythmia detection will not learn a lethal arrhythmia as baseline
- b. Telemetry module has loss of signal, out of range and low battery alerts(see attached drawings of each unit to determine telemetry square footage)
- c. Ability to generate and print reports to track and trend alarms in order to assess/manage/combat alarm fatigue
- d. Education provided to all staff prior to launch and any substantial upgrade changes
- e. Technical support available by phone 24/7 for the duration of the use of the product
- f. 24/7 on site company resources (such as Nurse Educator or Clinical Applications Specialist for the product) for at least the first 3 days following go live
- g. Ability to replicate configuration changes from one device to another or through the network
- h. Changeable security password
- i. 5-Lead cable for EKG monitoring
- j. System should not have any current warnings or recalls
- k. All display/screen measurements in this SOW must be in terms of inches of viewable screen area measured diagonally per industry standard

### **Central Monitoring System (Central Nurses Station--CNS)**

This equipment shall permit a user to view all networked monitors associated with the particular care area. This shall include, but not be limited to: a large high quality color display, software, mounts, UPS, telemetry and all connections and accessories to accommodate the remote monitoring functionality (see attached drawings of each unit to determine telemetry square footage). The equipment shall provide the following features and functionality:

- CNS display must be 24 inches or larger
- Full Disclosure
  - Recall of no less than 72 hours of all patient care data

- Data may be stored at central station or on a separate server provided that it may be accessed from the central station
  - Ability to transfer patient data and demographics from one unit to another at the time of patient transfer within the monitoring system
- The number of patients displayed on the central station corresponds to the clinical unit
  - Each display must have capability to show at least a maximum of 16 patients with the display showing at least one EKG tracing and numerical values for heart rate, and blood pressure (either arterial or non-invasive) for each monitored room.
- Enables users of central station to rapidly view, adjust, and respond to alarms
  - Alarm review
  - At least 3 levels of alarms (critical, urgent, standard) with visual and audible alerts and escalation when there is no response to an alarm state
- Ability to print alarm state data and measurement parameters
- Arrhythmia Histories (no less than 72 hours)
- Graphic trends (no less than 72 hours)
- Tabular trends (no less than 72 hours)
- Easy access to trend data for periodic users such as consultant clinicians
- Touch screen or Keyboard and Mouse to enter patient information
- 2 channel thermal recorder
- Industry standard Printer
- UPS or battery backup to power the central station processor and monitor for at least 1 hour
- System shall be configured to allow all telemetry packs and/or patient monitors networked in associated care area to be viewed on the central station and any central station client system associated with said central station
- Easy and safe switchover from hardwire to telemetry with no lapses in patient monitoring on the network
- Networked to allow view of patients in other units from any central station within the monitoring system
- Include features that enable remote diagnostics, troubleshooting, and maintenance of equipment by internal biomedical engineering personnel and by vendor representatives
- System shall permit the exchange of HL7 data with VAPHS Clinical Information Systems
- Allows admission and discharge of patients and reverts to configured default settings at admission

## **Remote Hallway Monitors**

- At least a 19" screen with keyboard and mouse or touch screen
- Remote viewing of at least a maximum of 16 patients on one monitor screen
- RNSs must be interactive (ability to address alarms and admit/discharge)
- System must be able to support up to 7 RNSs
- Allows for viewing of arrhythmia recall files
- ST segment recall/trends
- Hemodynamic calculation trends
- 72 hour graphical and tabular trends

### **Bedside Specifications**

- At least a 15" screen
- System must be able to support the following:
  - Continuous multi-lead EKG arrhythmia analysis
  - Pacemaker detection
  - Minimum of 3 simultaneous configurable invasive pressure monitors (3 modules per bed)
  - Programmable Non-invasive blood pressure monitoring including ability to select cycling interval and ability to use of disposable cuffs (1 module per bed)
  - Continuous SpO2 monitoring with plethysmography including use of disposable sensors (1 module per bed)
  - Respiratory rate and apnea monitoring
  - Core temperature monitoring
  - Intermittent Cardiac Output determination using room temperature solution with ability to print hemodynamic profile (3 modules per unit)
  - BIS monitoring (3 modules each for CLINs 0002, 0003 and 0004 for a total of 9)
  - Calculated CPP displayed when invasive blood pressure and ICP are present
  - EtCO2 monitoring (numerical value and wave display); (1 module per bed)
  - Ability to use oximetric Swan Ganz catheter for SvO2 monitoring (1 module each for CLINs 0002, 0003 and 0004 for a total of 3)
  - Connection to external device capability such as connection to Puritan Bennet 840 ventilator
- Battery backup to support arrhythmia detection and parameter alarming for at least 1 hour
- Standby option for when patient is off the unit
- Auto lead change when lead comes off
- Options to blank bedside when patient is receiving palliative comfort measure care

- System must be able to interface with VISTA/CPRS. Must be able to send 12 Lead ECG acquired at the bedside to MUSE
- Software on each monitor will be the same regardless of monitor size. In short, this means that the user interface is functionally the same regardless of the display size
- Must be able to view rhythms from any bedside monitor on any other bedside monitor on the clinical unit
- Must have the ability to alarm for all parameters at central station and at bedside simultaneously, regardless if hardwired to bedside monitor or on a telemetry device
- Must be able to send vital signs information to the electronic medical record system (currently PICIS) through an HL7 interface
- All bedside monitors, telemetry transmitters, and telemetry receivers must have at least a one year warranty on parts and labor
- Admission and discharge of patients can be accomplished at any device (bedside, CNS or RNS) and is reflected throughout the network where monitoring system is installed
- Quoter will provide an equivalent loaner bedside, RNS, or central station monitor for times when repairs are required within 24 hours
- Any changes done at Central Station must automatically occur at bedside monitor and repeating stations on the unit and vice versa
- Ability to adequately clean all devices, cables and accessories with current approved cleaners inclusive of agents used to eradicate clostridium difficile (C-Diff)
- Ability to switch between telemetry and hardwire with no lapses in monitoring on network and all applicable alarm parameters remain intact

## **Cabling/Network**

- Turn-Key Installation providing all hardware and accessories for a complete system, services shall include removal of current patient monitoring hardware while keeping the current cabling if possible
  - This is a standalone network just for cardiac monitors
- All cabling and accessories to provide a complete and functional system
  - If current cabling and antennas are to be re-used it must be recertified with proper documentation presented to the COR
  - Current cabling must be CAT 5 certified or higher, if it is not it must be removed and re-wired. Vendor will be required to install
  - All current network hardware: switches, routers, hubs, etc. must be replaced
- The quote for the network installation shall include total number of cable pulls
- Unit to unit connection charge shall include all cable runs, hubs, switches, routers and any other hardware or software required

- All above ceiling cabling runs shall be tie-wrapped and placed in telephone/data trough, in a conduit, or properly routed through interstitial area per hospital facilities requirements and local electric codes. This includes facility approval and post installation inspection when running cable through a fire barrier or fire wall
- Cables shall be bundled neatly, labeled, and in an orderly manner especially when cables converge with facility network hardware
- Cables shall be marked at each end indicating the termination point of the other end
- All new network cabling, terminations, and any patch panels used shall be CAT5E/CAT6 certified
- All cables shall be terminated TIA568B
- Any cable run through plenum space shall be plenum rated according to NEC and applicable fire codes
- All cable runs shall be tested and certified in accordance with TSB-67 and TIA/EIA 568-B or latest TIA/EIA Revisions
- The Quoter shall provide a copy of all test results to the COR in electronic format that can be displayed and/or viewed
  - Cable length shall be included in this report
  - Documentation of the network shall also be provided and include a marked up drawing (as built) showing jacks and room locations
- The system will be configured to view patients throughout the hospital or care areas
- Drawings that indicate the location of the monitoring devices will be provided for the Medical Center
- Interface will be compliant with VA National interface standard
- Any offsite server or network maintenance or support provided by the Quoter can only be done through VPN access after the Quoter has obtained such access from the VA
- All networking hardware shall be rack mounted in room designated by Facility Project Manager or COR
- All installed monitors and hallway monitors will have supportive backing to improve weight distribution of the monitor and mounting arm
- All installed monitors will have power run through conduit
  - Telemetry receivers will adhere to NFPA99 and NFPA101, especially relating to distance from sprinkler heads. Vendor may be required to install
- Quoter will adhere to ICRA Class II guidelines during installation
- Quoter agrees to mutually agreed upon timeframes for project completion and go-live
- Quoter will provide, or subcontract, mounting brackets to attach to existing GCX mounting arms
- Any necessary cabling and telemetry must be included quote

- Vendor to provide ICRA Class II which is to be coordinated with COR

## **HL7 Solution**

Quoter shall provide an HL7 interface solution allowing the exchange of data from point-of-care equipment through HL7 messaging to VISN 4's Clinical Information System (CIS)/Anesthesia Record Keeper (ARK).

Included in the quote the Quoter shall have 1 (one) year HL7 software support.

## **Installation and Implementation Services**

The Quoter shall provide coordinated professional installation and implementation project management services to implement the system specified in this Statement of Work at the Pittsburgh VA Healthcare System. This service shall include removal of existing system and turnkey installation.

The price quote shall include cost of installation which consists of assembling, positioning, and mounting of all equipment listed on the delivery order and connections of all cables. The hospital is responsible for furnishing all conduit and raceways unless specified otherwise on the delivery order. The equipment contractor is responsible for furnishing and pulling interconnecting wiring and cabling through conduit and raceways, and for making any connections. Interconnecting wiring and cabling which do not run through conduit and raceways shall be furnished and installed by the equipment contractor. It is the responsibility of the equipment contractor to install junction boxes, wall/ceiling mounts, and support structures supplied by the equipment contractor. The equipment contractor must provide well qualified field engineers or technicians to install and conduct all necessary tests.

Quoter will coordinate the delivery with the COR, as specified in the below Delivery Schedule table. All changes must come from the Contracting Officer. The contractor must provide the physical movement of the equipment from the storage point at final destination, to the area of installation, and the uncrating of the equipment. Vendor to provide ICRA Class II which is to be coordinated with COR.

Rigging and special handling costs, if required, to move the equipment from dock area to the installation site within the consignee's premises, shall be borne by the equipment contractor.

It shall be the contractor's responsibility to inform the Contracting Officer of any problems which may be anticipated in connection with installation or which will

affect optimum performance once installation is completed. Such matters as inadequacy of power supply, limitations of site or inadequate preparation of site shall be reported prior to start of installation. Installation shall not proceed under such circumstances until authorized by the Contracting Officer.

Quoter shall include new equipment and infrastructure for all care areas. Existing equipment will not be upgraded or utilized with the new system, with the exception of cabling/antennas.

## **IHE INTEGRATION STATEMENT**

Vendor shall provide IHE (Integrating the Healthcare Enterprise) integration statement(s) (IIS) for proposed solution. (See <http://www.ihe.net/> for more information)

## **MAINTENANCE REQUIREMENTS**

**TEST AND ACCEPTANCE:** Contractor shall test all equipment after installation. The government shall accept equipment once installation and successful testing has been completed and approved.

**WARRANTY/SERVICE CONTRACT:** All equipment and materials shall come with at least a standard one year warranty. Warranty shall begin after installation of equipment and completion of tests.

**D. CONTRACTOR RESPONSIBILITIES:** The contractor shall be responsible for the following:

- (1) Contractor shall provide qualified personnel to perform install of the cardiac monitoring system expansion.
- (2) Contractor shall be responsible for all system/software testing after installation and prior to government acceptance.
- (3) Contractor is responsible for ensuring the proper disposal of all debris generated from installation activities.
- (4) Contractor is responsible for securing all materials, equipment and tools while on government property or in government facility. Government is not liable for any lost or stolen items.
- (5) Vendor to provide ICRA Class II which is to be coordinated with COR.
  - a. Provides active means to prevent air-borne dust from dispensing into atmosphere
  - b. Water mist work surfaces to control dust while cutting
  - c. Seal unused doors with duct tape

- d. Block off and seal air vents
- e. Wipe surfaces with disinfectant
- f. Contain construction waste before transport in lightly covered containers
- g. Wet mop and /or vacuum with HEPA filtered vacuum before leaving the area
- h. Place duct mat at entrance and exit of work area
- i. Remove or isolate HVAC system in areas where work is being performed.

**E. GOVERNMENT RESPONSIBILITIES:** The Government shall provide the following:

- (1) Provide site access and escorts through work areas as needed
- (2) Provide primary electrical power
- (3) Provide adequate space for the system equipment

**F. OTHER CONSIDERATIONS:**

(1) **CONTRACTING OFFICER REPRESENTATIVE (COR):** The Contracting Officer Representative shall be the technical point of contact for all work related requirements. The COR does not have authorization to change, alter, or remove any requirements stated in this Statement of Work. The Contracting Officer is the only government authorized person to change this Statement of Work or any resultant contract.

(2) **PLACE OF PERFORMANCE:** Installation shall occur at VA Pittsburgh, University Drive, Pittsburgh, Pennsylvania 15240.

(3) **WORK HOURS:** Operational Hours are 0730-1600, Monday-Friday. Work outside of these hours can only occur with advance notice and authorization from the Contracting Officer.

(4) **DELIVERY:** All deliveries shall be coordinated with the COR before arrival. Failure to coordinate delivery may be grounds to refuse delivery. Delivery schedule is subject to change based on clinical needs. All changes must be coordinated between the COR and Vendor and approved by the Contracting Officer in advance.

**Delivery Schedule**

Unit	Staff Training Start	Staff Training End	Installation Start	Installation End
CLIN 0001: Emergency Department	1/22/2018	1/26/2018	2/5/2018	2/25/2018
CLIN 0002: 3A-SICU	2/26/2018	3/2/2018	3/5/2018	3/25/2018

CLIN 0003: 4E-ICU	3/26/2018	3/30/2018	4/2/2018	4/22/2018
CLIN 0004: 3E-ICU	4/23/2018	4/27/2018	4/30/2018	5/20/2018
CLIN 0005: 5A-SDU	5/21/2018	5/25/2018	5/29/2018	6/17/2018
CLIN 0006: 9W-OBS	6/18/2018	6/22/2018	6/25/2018	7/15/2018