(September 2021)

PERFORMANCE CRITERIA
FOR

SECTION 27 42 20

PATIENT QUEUING AND CLINICAL WORKFLOW
09/21

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GENERAL
This Performance Criteria (PC) specifies the installation and quality of patient queuing and clinical workflow systems.
Note: A typical Patient Queuing and Clinical Workflow system consists of a ticket dispenser, calling unit, printer, and displays. This system may also interface with electronic messaging signage systems and tracking systems. Real property, including raceway, cable tray, junction boxes, etc. are not included in this criteria.

1.1 REFERENCE

1.1.1 Unified Facilities Criteria (UFC)
Contractor must comply with the following:
A. UFC 1-200-01 General Building Requirements
B. UFC 3-501-01 Electrical Engineering
C. UFC 3-580-01 Telecom Building Cabling Systems Planning and Design
D. UFC 4-010-06 Cybersecurity
E. UFC 4-510-01 Military Medical Facilities

1.1.2 Military Standard
A. MIL-STD 1691 Construction and Material Schedule for Medical, Dental, Veterinary and Medical Research Laboratories

1.1.3 National Fire Protection Association (NFPA)
A. NFPA 99 Healthcare Facilities Code
B. NFPA 101 Life Safety Code

1.1.4 Military Health System Standards
A. Defense Health Agency Standards
1. Building Control Systems Categorization Memorandum
2. Cyber Security Controls for Physically Isolated Systems
3. Cyber Security Controls for Medical Community of Interest (MEDCOI)

B. Department of Defense Standards
1. Department of Defense Instruction (DoDI) Number 8500.01
2. Department of Defense Instruction (DoDI) Number 8510.01
3. Department of Defense Instruction (DoDI) Number 8530.01

1.1.5 Other Standards

A. Reserved for future

2.1 DESCRIPTION & MATERIALS

All requirements within the MIL-STD-1691 JSN descriptions must be met as well as the performance guidelines listed in the following descriptions.

2.1.1 All JSN's

A. Patient queuing and clinical workflow systems must utilize the most current approved version of Windows operating systems for workstations and servers. Provide network designed to be supervised, monitored, patched, maintained, and life-cycled. Vendor must coordinate with Government to establish a plan of action for approval and dissemination of required Information Assurance Vulnerability Alert (IAVA) patches as well as software and security updates. Patient queuing and clinical workflow server must be located in computer room (room code CMP01).

B. Provide cabling and other balance of system components in accordance with the manufacturer's recommendations and UFGS 27 10 00 – Building Telecommunications Cabling System.

C. System, and appurtenances, must not have an anticipated end of system support in the next [18] [___] months. Systems being phased out are not acceptable.

D. Disable any unused communications ports and protocols such that they can be reactivated by the government later. Where Bluetooth functions are available, disable the Bluetooth functionality on delivery. The Bluetooth functionality must be able to be turned on after installation and review with the Cybersecurity Representative.

E. Coordinate with Medical Treatment Facility (MTF) IT department for currently installed servers, switches, PC's and other similar hardware components. Where no manufacturer's requirements conflict, provide hardware components to be fully compatible with those currently installed in the MTF.

F. [System must interface with Electronic Message Signage system [as specified in section 10 14 63].]

G. Electrified equipment must be UL listed and capable of 110/240 volts, 50/60 Hz, Autosensing, unless noted otherwise.

H. All products that have interoperability capable hardware (i.e. internal storage, data transmission via wireless, ethernet, or USB to PC or server connectivity) must meet Cybersecurity requirements in accordance with DoDI 8510.01 Risk Management Framework.

2.1.2 Patient Queuing and Clinical Workflow System Hardware

M1880 – Patient Flow, Queuing System, Basic

M1890 – Kiosk, Educational, Stand-up

A. Operational Requirements:

1. General Requirements for Queuing System
   a) The system must provide a printed queue ticket(s) to patient on demand, including the ability to print barcodes-2D, 3D, QR-code.
   b) The system must be able to have multiple service categories.
   c) The system must have the capability to track and report the status of a ticket through the entire process and episode of care.
   d) The system must be able to send visual and audio alerts to staff or patients, based on set thresholds.
   e) The system should be able to scan all DoD issued identity card to include Common Access Card (CAC), Retiree Identification, Dependent Identification, National Guards Identification, Reserves identifications, to capture user information.
   f) The system must be able to alert users for potential action.
   g) The system must be able to capture the patient's arrival and departure time at each service area.
   h) The system must be able to transfer patients in between queues (e.g., within clinic, between clinic and ancillary services).
   i) The system must have the capability to display to the patient the current and estimated wait time.
   j) The system must provide alerts via email, SMS messaging, pager, etc.
2. Reporting and Analysis for Queuing System
   a) The system must be able to generate analytics and predictive modeling reports.
   b) The system must be able to analyze wait times and notify supervisor(s) via email, SMS messaging, pager, etc. when wait times exceed predetermined limits for all customers, any single category, or any single window.
   c) The system must be able to store a minimum of 2 years' worth of data elements to perform long-term trend analysis.

d) The authorized user must have the ability for Command and Control standardization of data collection and reporting.
e) The system must be able to program down/minimal manning scenarios into queuing system calendar.
f) The system must be able to collect and store historic throughput data.
g) The system must be able to report on time of day ranges for the days defined by the user.
h) The user must be able to define parameters across the 24 hours continuum.
i) The user must also be able to block out days when the pharmacy is closed.
j) The system must be able to provide customized/configurable dashboards to various audiences/users
k) The system must display all available service windows on the dashboard, with a graphic difference noting open windows vs. closed windows on the dashboard.
l) The system must base the recommended optimal window configuration on historical data captured by the system and trends.
m) The system must provide/display a graphical indication of the optimal window configuration if an action is needed by the frontline manager (e.g. Green if good, yellow if need to open 1 more window, red if need to open 2 more windows.
n) The system must provide the capability for a customer to access forecasted wait data based on historical and contextual (same day of week, holidays, etc.) data for a time entered into the website or mobile application by the customer.
o) The system must provide percentile reporting for all categories and in total. The user must be asked to enter the percentile to be used for this reporting. (e.g. 90% of all customers were served within 20 minutes. Input is percentile.).
p) The system must provide the capability to report the percentage of patients served at specific time intervals, reporting for all categories and in total.

3. Laboratory Queuing System
   a) The system must provide alerts (via email, SMS messaging, pager, etc.) for patient to proceed into the next service/queue.
   b) The system must be able to link a patient to one or more specimens or test results.
4. Clinic Queuing System
   a) The system must interface with the appointing system to enable patients to self-check-in and view patient wait times.
   b) The system must have the ability to track patient flow from check-in through departure.
   c) The system must be able to track user and clinic/service interactions and statistics.
   d) The system must provide alerts (via email, SMS messaging, pager, etc.) for patient to proceed into the next service/queue.
5. Pharmacy New Prescription Queuing System
   a) The system must interface with Pharmacy robotic systems (e.g. Innovations PharmASSIST, ScriptPro and Parata).
   b) The system must provide the capability to track the moment from when order is ready for Pick-Up until the patient picks up the order and the ticket is closed.
   c) The system must have capability to securely send messages (via email, SMS messaging, pager, etc.) to patients when prescriptions are complete.
   d) The system must provide the ability for patient to exit the queue and then return at a different time or day with initial queue number (i.e., from clinic to ancillary service).
6. Pharmacy Prescription Waiting Status Queuing System
   a) The system must have the ability to track patient flow from check-in through departure.
   b) The system must be able to provide the ability to track patient and specimen locations throughout facility.
   c) The system should be configurable to allow different questions during check in.
7. Pharmacy Prescription Refill Queuing System
   a) The system should be configurable to allow different questions during check in.
   b) The system must provide the ability for patient to exit the queue and then return at a different time or day with initial queue number (i.e., from clinic to ancillary service).
   c) The system must have capability to securely send messages (via email, SMS messaging, pager, etc.) to patients when prescriptions are complete.
   d) The system must interface with Pharmacy robotic systems (e.g., Innovations Pharm ASSIST, ScriptPro and Parata).

e) The system must provide the capability to track the moment from when order is ready for Pick-Up until the patient picks up the order and the ticket is closed.

B. Input Voltage: [120V] [___].

C. Central Queuing Management System Server

1. Central server matching facility standard for reporting, network monitoring tools, etc. Coordinate exact requirements with the Government.
2. Minimum specs: [16GB] [___] RAM, [1TB] [___] HDD Space.

D. Ticket dispenser Unit:

1. Industrial grade
2. Touch screen
3. Mounted on [pedestal] [desktop]
4. Embedded Operating System
5. Auto cutter capable
6. Minimum ticket capacity: [200] [300] [400] [500] [___]

E. Ticket display Screen

1. Monitor: [24"] [32"] [36"] [___] LED with integral speakers
2. Resolution: HD, with minimum [1080p] [___] resolution
3. Input port: [HDMI 2.0] [VGA] [USB 2.0] [AV in] [__]]

F. Ticket calling Unit:

1. [Camera: Front type, minimum [5] [6] [12] [___] MP resolution]
2. Mounting type: [Wall surface] [wall recessed] [table/desk mount].

G. Printing hardware:

1. Integral with queuing equipment
2. Thermal printer [80mm] [90mm] [3"] [4"] [___]
3. [Print speed [100 mm/s] [150 mm/s] [200 mm/s] [___]]
4. [Color] [Black and white] printing

H. Device Display: [LCD] [plasma], [touch] screen, minimum screen size [15] [18] [24] [___] inches.

I. Counter Displays: [Dot-matrix LED] [7-segement LED] [chimes] [LCD] [plasma]

J. Keyboard: [keypad] [touch screen interface].

K. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

3.1 SUBMITTALS

3.1.1 Submittals required for government review

A. Submittal requirements are outlined in [Division 01] [PWS SOW] [___]

B. [Product Information must include manufacturer's installation instructions, sizing (including required clearance for access and maintenance), utility requirements, isometric drawings, tagged floorplans showing placement for count accountability and accessories/options/consumables lists.]

C. All submittals require Government approval prior to procurement. Submit all listed items herein, with information sufficient to show full compliance with the criteria. Submit all product selections for review and approval, including but not limited to materials, finishes, colors, options, accessories, and complimentary products. Provide for review all warranties and service contracts and any available extended warranty or service options.

D. Samples: Furnish material samples and full range of color selection options for all items that offer material and color selections.

E. Submit and highlight all applicable options for Government review for all items which optional accessories are provided.

F. [Joint Interoperability Test Command (JTIC) Approval Documentation.]

3.2 QUALITY ASSURANCE

3.2.1 Materials and Equipment

A. Materials and equipment must be standard products of a manufacturer regularly engaged in the manufacture of

products which are of a similar material, design, and workmanship and are offered for sale on the commercial market through advertisements, manufacturer's catalogs, or sales brochures. The products must have been in commercial or industrial use under similar circumstances and of similar size for 2 years prior to selection for approval/procurement. Products must be supportable for at least three years after government acceptance.

3.2.2 Alternative Service Record

A. Products having less than a 2-year field service record will be acceptable if a certified record of the manufacturer's factory or laboratory tests demonstrating performance compliance is provided to the Contracting Officer.

3.2.3 Service Support

A. Equipment items must be supported by service organizations located near the equipment installation, able to service the equipment on a regular basis and respond to emergency calls throughout the warranty period.

3.2.4 Manufacturer's Nameplate

A. Each item of equipment must have an attached nameplate that is securely affixed in a conspicuous space. A nameplate listing only the name of the distributing agent is not acceptable. The nameplate must contain the following fields in English:

1. Manufacturer’s name and address
2. Model and Serial Number
3. Item’s utility ranges and/or capacities
4. Voltage, amperage, and applicable Underwriters Laboratory (UL) or Conformitè Europëenne (CE) rating if electrically powered
5. Date of manufacture

3.2.5 Factory Inspection

A. Arrange and perform all quality control and quality assurance inspections required by the technical sections of the criteria, unless otherwise specified. Report these inspections in the daily report to the Government inspector.

3.2.6 Product Qualifications

A. The products specified in the technical sections of this criteria establish standards for each item.

3.2.7 Design Parameters

A. It is not the intention of this Criteria to limit consideration to products of specific manufacturers. The product standards establish the characteristics for which submitted items of equipment will be reviewed and approved by the Government. Equipment furnished must meet each of the following parameters specified in the technical sections:

1. Size of equipment
2. Function of equipment
3. Standard and listed accessories and options
4. Equipment controls and performance of equipment
5. Construction of equipment
6. Finish

3.3 STANDARDS DEVIATIONS

3.3.1 Reporting and Submission for Approval

A. Submit for approval a record of deviations from the standards listed in section (3.2.7.A.) established for each specified product, before ordering equipment.

3.4 DELIVERY, STORAGE AND PROTECTION

3.4.1 Packaging and Transporting

A. Each unit of equipment must be placed in a substantial shipping container or crate for safe transportation to final destination. The shipping container or crate for heavy equipment must be on skid construction to facilitate handling by lift equipment.

3.4.2 Packing List

A. Clearly and legibly indicate on exterior of each container or crate the shipping address and a brief description of contents. Fasten to outside of container a packing list and complete instructions for uncrating equipment and setting it in place. Protect such information in a weatherproof envelope.

3.4.3 Protection

A. Properly protect all materials and equipment from injury and damage during storage, installation, and acceptance.

3.5 INSTALLATION, VERIFICATION AND ACCEPTANCE TESTING

3.5.1 Qualifications of Installers and Inspectors

A. If required by product warranty, use installers that are approved and licensed by the manufacturer. When required to complete installation, all electricians and plumbers used must be bonded and licensed in the project's jurisdiction.

B. [Company specializing in installing the products specified in this section must have a minimum 5 years of documented experience.]

C. [Company specializing in installing the products specified in this section must be within 200 miles or 4 hours travel time.]

3.5.2 Installation, Operation, Testing and Certification

A. Products must be delivered in manufacturer's original packaging with manufacturer's installation instructions. Include clearly marked project reference.

B. Prior to installation, thoroughly examine the equipment, materials, and components for both visual defects and conformance with criteria.

C. Install all equipment in compliance with manufacturer's written instructions and installation procedures.

D. After installation, the equipment must be inspected and tested under operating conditions. If the equipment fails an inspection or test, such defects/failures must be corrected. Upon correction of defects/failures, inspect and retest all affected functions related directly and indirectly to the defect or failure. Corrections, replacement, and retesting must be made at no additional expense to the Government.

E. Provide all items necessary to make equipment fully functional.

F. Provide appropriately trained personnel to energize, commission, inspect, electrical safety check, calibrate, certify, and provide all required technical testing for equipment and systems. Contractor must provide documentation, test reports and certification documentation attesting that the equipment is properly installed, functional, safe, calibrated, and ready for its intended use.

G. An equipment item will be considered defective if it cannot be made to meet all established criteria consistent with the activities listed in section (F).

H. Provide two sets of special tools, software, and any other item/s for each equipment [item] [item type] if required for maintenance and/or future reconfiguration of the item.

I. Contractor to supply all start-up supplies for medical equipment for a fully operational installation. Contractor must supply to the Government a listing of all needed supplies for ongoing equipment operation for each item of equipment requiring additional supplies for operation.

J. Engage a factory-authorized service representative to train Government's staff and maintenance personnel to adjust, operate, and maintain medical equipment.

K. [Confirm functionality of required interfaces to other systems and networks.]

3.6 WARRANTY

3.6.1 Minimum Requirements

A. Warranty requirements are outlined in [Division 01] [PWS SOW] [___].

B. [Provide manufacturer's written warranty for all items listed. Provide warranty for a minimum of (1) year against defects in materials and workmanship. Warranty must provide for material, labor and all associated replacement and/or repair costs required to provide for a fully operational equipment replacement or repair. Submit manufacturers and installers standard service contract beyond the warranty period for Government review. Warranty must be transferrable to the final owner without risk of being voided. All warranty certification and documentation must be provided to the final owner after date of acceptance.]

C. Provide routine warranty service in accordance with manufacturer's warranty requirements, for a period of [12

months (minimum)] [___] after the open for business date. Perform work during regular working hours. Perform service only by factory trained personnel. Maintain a maintenance log of all service orders performed during the warranty period.

3.7 OPERATIONS AND MAINTENANCE (O & M)

3.7.1 Provide the following to the final owner

A. Provide O & M data for all FFE-LVS as outlined in [Division 01] [PWS SOW] [___].

B. Upon completion of equipment installation, furnish [two (2)] copies of operators/service/maintenance manuals for each type of equipment which will require service or maintenance

C. Each manual must contain operating instructions and information required for performing periodic maintenance on the equipment. Each service manual must include an illustrated parts breakdown which identifies each part of the unit with manufacturer's part number, wiring diagrams, and a list of necessary service parts, tools, and equipment needed to support maintenance requirements.

D. Accessory Catalogs: Upon completion of the Project, furnish two copies of the manufacturer's catalogs containing optional accessory items available for all equipment relative to the procured equipment/system delivered herein.

E. Provide instruction video for cleaning and maintenance, when available.

F. Provide cleaning requirements for all items to prevent void of warranty.

G. [Provide contact information for Repair Technician or Emergency Repair Company]

H. Provide contact information to [Logistics, Pharmacy, Laboratory, and Biomedical Equipment Services.]

I. Train designated staff in the operation and maintenance of the provided equipment/system. Provide two training sessions for equipment/system users and two training sessions for maintenance personnel scheduled to accommodate shift work. [Provide training certificates that can be executed up to eleven months after the system is installed, in order to provide a refresher course for each group of trainees.] Provide DVD copy of the training with the O & M data.

--End of Section--