Bar Code Medication Administration Record

PROJECT CONCEPT

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California Prison Health Care Services

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1. BACKGROUND

1.1 Business Problem

The paper medication administration record (MAR) process has resulted in large amounts of paper being consumed for the purpose of printing MARs and Supplemental MARs. This paper has resulted in a significant increase of loose filing for Medical Records to place in the Unit Health Record.

The paper MAR process also presents opportunity for error during the recording of medications. It does not currently record the actual time of administration, only that a medication intended during a particular medication pass has been administered.

The paper MAR process does not support medication administration analysis or auditing without significant manual effort being expended to review each MAR.

Patient specific medication has resulted in a significant increase of medication inventory to be stored in the medication service areas, most of which are limited in space.

Patient specific medication has resulted in much larger on hand inventory in the system than would be required if medications were not patient specific.

Patient specific medication has resulted in a significant amount of effort to reclaim unused medication returned to pharmacy or waste when the medication cannot be reclaimed. Very often the returned medication cannot be reclaimed and must be wasted resulting in significant cost to the state.

The Central Fill Pharmacy project has been halted due to concerns that the facility will not be able to handle the level of patient specific medication filling that would be required when rolled out to all 33 institutions.

1.2 Background

Current institutional processes for recording, tracking and storing the administration of medication are manual and paper based. The pharmacy prints a MAR that is delivered to medication nurses with the medications. Nurses record administration directly on the paper MAR which is then sent to Medical Records on at least a monthly basis as loose filing to be placed in the Unit Health Record (UHR).

In addition, as part of the GuardianRx Pharmacy Conversion Project medication was converted from clinic stock to patient specific filling to address concerns with patient safety.

2. SYSTEM CONCEPT

2.1 Project Goal Statement

The primary goal of the Bar Code MAR project is to define, develop and deliver a technology replacement to the paper MAR processes currently employed in 32 institutions.

2.2 Project Objectives Statements

To meet the project goal to develop a Bar Code MAR solution the project objectives are:

- Document cross-program agreement on the business requirements that define the solution
- Develop system and technology requirements that fully satisfy the business requirements
- Develop a solution that satisfies all defined requirements
- Fully test, with proper documentation the solution and formally accept the solution
- Reengineer current medication administration processes
- Reengineer current medication inventory processes
- Develop a roll out plan to the institutions to include the reengineered process and training on the Bar Code MAR system
- Place the solution into production

2.3 Project Scope

The Bar Code MAR Project will be performed in two phases. Phase I will address the development of a Bar Code MAR system. Phase II will address the implementation of the system and associated processes in the institutions. Phase II will also address requirements identified as enhancements to the system

2.3.1 In Scope

- Define and approve business, system, and technical requirements
- Reengineer affected business processes, clinical and pharmacy
- Develop a Bar Code MAR system
- Define the roll out plan for implementing the solution in 33 institutions
- Keep on Person (KOP) and Nurse Administered (NA)/Directly Observed Therapy (DOT) MAR replacement for out-patient medications
- Review and modification of patient-specific filling model

- Identification and procurement of equipment that will support or present the solution (e.g., mobile devices, server infrastructure, mounting equipment)
- Procurement of resources
- Reengineering of medication administration processes
- Reengineering of medication dispensing models
- Review of and championing necessary policy requirements to align with new processes
- Development and deployment of inmate IDs containing bar coded information
- Deployment of the bMAR technology to 32 institutions
- Interface development to other CPHCS healthcare systems
    - GuardianRx Pharmacy System for medication data
    - Strategic Offender Management System (SOMS) for inmate housing information
    - Electronic Medical Record (eMR) to store and archive medication administration with the inmate medical record
    - MPIMS, to capture medication administration information from Pelican Bay State Prison in bMAR for analysis, reporting, and continuity of care

2.3.2 Out of Scope

- Other recording requirements by nursing not specifically defined as "In Scope", e.g., treatment MAR
- Recording of in-patient medication administration
- Computerized Physician Order Entry (CPOE)
- Pharmacy system shortcomings
- Will not provide automated medication use feedback to pharmacy for inventory control and auditing
- Base infrastructure upgrades (e.g., power, construction, network)

2.4   Solution Vision

The Bar Code MAR Project will allow CPHCS to significantly reduce the amount of paper that must be printed and subsequently filed by Medical Records. The project will allow for CPHCS to modify its medication filling practices, taking advantage of technology safeguards to improve medication availability and reduce medication inventory and storage.

This project focuses on supporting the following business functions:

- Providing a digital replacement to paper for Medication Administration

- Providing a platform for health care services to modify medication dispensing practices to improve medication availability, reduce drug inventory on hand requirements, and reduce space requirements for the storage of medications
- Providing a platform to improve reporting and analytic research of medication administration practices

2.5   Critical Success Factors

The following are the critical success factors of the Bar Code MAR project:

- Cross functional program agreement and support of the project.
- Use of an experienced and respected project team using proven life cycle processes.
- Input to, and acceptance of, the system and the related process changes by nurses, pharmacy staff and other key personnel for medical, mental health and dental practices.
- Adequate technology resource support in terms of staff, infrastructure, and equipment
- Deployment of inmate IDs containing a bar coded unique identifier

3. PROJECT APPROACH

3.1 Approach

To meet the project goal to deliver a digital MAR solution to CPHCS the project will:

- Define the business, system and technical requirements of a digital MAR system
- Obtain client and user input on the requirements
- Obtain cross functional agreement of the requirements with positive validation of elements that are in scope and those that are out of scope
- Conduct a product analysis for COTS packages that will satisfy the requirements
- Design and develop the system using a waterfall approach consisting of timed releases thereby mitigating risks to running multiple parallel activities.
- Assign state resources or individual contractors as development leads
- Contract with a vendor for core design and development responsibilities
- Follow a rigorous, fully documented test process and plan to ensure system stability and accuracy
- Project will use Request for Offers (RFOs), leveraging CMAS and MSA, to procure the development resources
- Project will be developed using CPHCS Standards in application development which is .NET technologies and SQL Server 2008 database.

Once the solution has been placed into production and is ready for deployment the project will:

- Conduct a single pilot site deployment to test and validate the technology, processes, policies, and change management
- The project will pause in before moving to the next deployment, allowing for a "burn-in" period during which the institution staff and headquarters management will assess the system for suitability to proceed
- Any issues identified during the "burn in" period will be addressed and signed off by the project stakeholders prior to initiating further deployments
- Once deployments initiate to the remaining sites that project will schedule periodic pauses to reassess the success of the project and address any issues that are identified
- bMAR project deployment will incorporate the Central Fill Pharmacy deployment within the schedule to limit pharmacy project deployment impact to the institutions

- Professional trainers will be engaged to provide nurse training on the system
- Extended onsite support will be engaged

3.2   Assumptions and Constraints

- Sufficient resources can be obtained to maintain multiple parallel tracked activities
- Resources with the correct knowledge, experience, and skills can be obtained for the solution development
- The solution must be designed to work without a persistent network connection
- The solution will focus on functions that represent the majority of medication administration to maintain a rapid delivery schedule
- Functions that represent the minority of medication administration will be delayed for future releases
- The solution will not prevent documentation of medication administration in favor of system checks
- Systems from which bMAR must obtain information will be capable of collaborating with the development team to satisfy the project schedule
- The bMAR solution will define the system and technical requirements to satisfy the timelines and critical requirements; additional interfaces to other stakeholders will not delay the development schedule
- The solution must be proven to have 100% data accuracy on the interface from the GuardianRx pharmacy system prior to going live with the system at the first institution
- The Central Fill Pharmacy will be licensed as a repackaging facility thereby allowing the Central Fill Pharmacy to package and deliver medication into blister cards that is not patient specific
- External agencies such as the State Board of Pharmacy will not block the institution from providing non-patient specific medications to nurse administration points