IV. PROPOSED FUTURE ENVIRONMENT

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IV.1 INTRODUCTION

This section describes the vision for the Health Care Scheduling System (HCSS) and addresses how California Prison Health Care Services (CPHCS), acting on behalf of the California Department of Corrections and Rehabilitation (CDCR), envisions meeting the business and technical needs of California Prison Health Care Scheduling, both now and in the future. This section also describes the vision for deployment, ongoing operations, and support. CDCR envisions a scheduling system that coincides with the Federal Receiver J. Clark Kelso's Turnaround Plan of Action to provide offenders with consistent access to care. For more information on the history of the Federal Receiver and the Turnaround Plan see www.cphcs.ca.gov and Section III, Current System, of this RFP. The information presented in this section is for the Bidder's understanding of the vision for the future system and does not convey requirements for the HCSS. All system requirements may be found in Section VI, System Requirements, of this RFP

IV.2 HCSS SCOPE

CDCR envisions an enterprise-wide Health Care Scheduling System (HCSS) for its adult institutions. This system will not maintain any clinical information, but will rely on CDCR's Clinical Data Repository (CDR) to maintain HIPAA protected information. HCSS will have the same core configuration for all adult institutions, and will interface with other key systems to provide CDCR with unified scheduling, tracking, and reporting capabilities for all schedule related aspects of patient-inmate health care delivery.

IV.3 HCSS VISION

California Prison Health Care Services has a vision to reduce chronic illness and mortality in California's prisons through better access to care and improvement of care quality (for details refer to the Receiver's Turnaround Plan, listed in Appendix G, Bidder's Library Contents List).

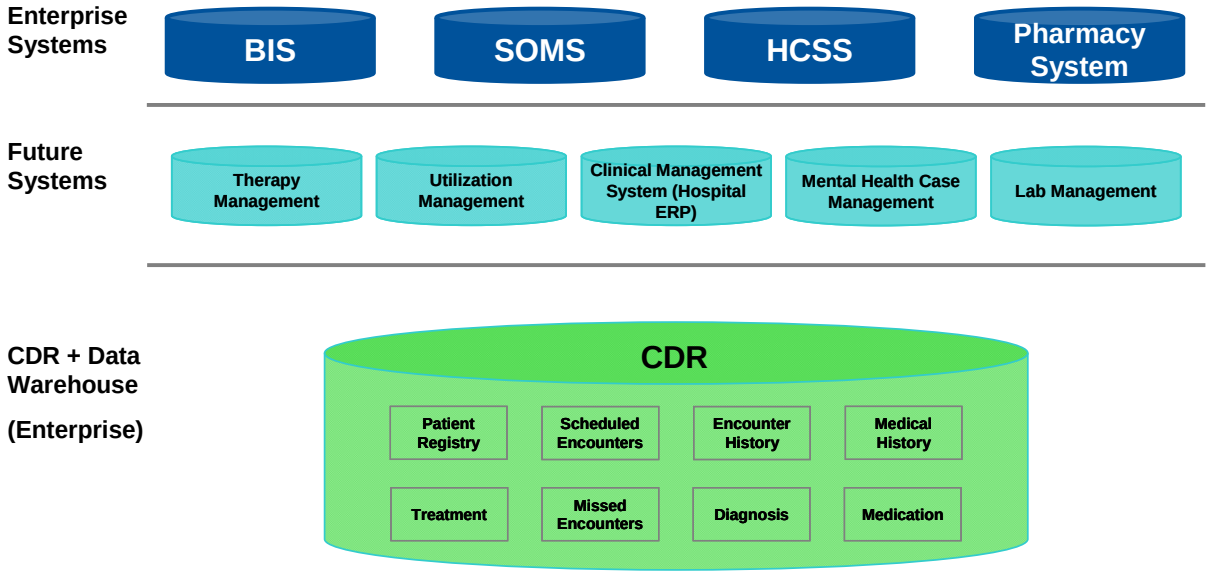
The Receiver's Turnaround Plan includes six goals to focus improvement efforts. These goals, and their associated objectives and action items, summarize the steps necessary for the CDCR health care program to rise to constitutionally acceptable and sustainable levels. The goals are as follows:

- Ensure Timely Access to Health Care Services
- Establish a Prison Medical Program Addressing the Full Continuum of Health Care Services
- Recruit, Train, and Retain a Professional Quality Medical Workforce
- Implement a Quality Assurance and Continuous Improvement Program
- Establish Medical Support Infrastructure
- Provide for Necessary Clinical, Administrative, and Housing Facilities

CDCR has initiated over two dozen projects to implement these goals. These projects include new information technology systems, business process refinements, and clinical management initiatives. Figure IV-1 shows an overview of the major enterprise critical systems in support of the Receiver's Turnaround Plan.

At past levels of automation and technology, a Health Care Scheduling System would not have provided the tangible benefits of what can be expected by its implementation today. By having enterprise-wide systems such as SOMS, BIS, and CDR to interact with, the benefits of HCSS working with the full suite of systems should allow CDCR to provide the correctional environment with a higher level of service than would previously have been possible.

Figure IV-1. Conceptual view of Prison Information Technology Systems including the HCSS system



IV.3.1 SOMS

One of the initiatives is the implementation of Strategic Offender Management System (SOMS). SOMS is a correctional system designed to track and maintain information about offenders, including movements and scheduled events that occur every day. SOMS will contain the master schedule of the offender. This is very critical to the success of HCSS because, historically, the lack of visibility of offender commitments and exact locations has created materially significant challenges to ensuring offenders' received required health care. The lack of visibility in the offender's schedule has also caused substantial inefficiencies, since offenders have not shown up for scheduled appointments as a result of other activities. With the implementation of SOMS, CDCR will have access to near real-time information of all offender's demographics, location, and scheduled non-health care events (for more information on SOMS refer to items listed in Appendix G, Bidder's Library Contents List). SOMS will provide CDCR with the information necessary to establish appointment schedules in health care that are up to date and free of scheduling conflicts.

IV.3.2 HCSS

HCSS is the proposed enterprise scheduling system for health care. HCSS is envisioned to be used to manage offender access to care to be used by schedulers in local clinics and at an enterprise level. The key functionality of HCSS includes:

- The capability to generate and track requests for offender health care services
- The capability to track all mandated deadlines for routine check-up appointments as well as access to emergency care

- The capability to schedule health care appointments within internal and external facilities, with specialty care providers (including telemedicine), in individual and group settings
- The capability to determine future workload and resource requirements to comply with mandated rules and metrics
- The capability to provide court mandated reports regarding all encounters

HCSS will import the offender schedule from SOMS and schedule around the existing events. From a health care scheduling perspective, these imported events will be considered as initial constraints for HCSS. However, if a mandated deadline for health care cannot be met, health care schedulers, working under medical direction, will be able to reschedule the offender commitment and notify custody. This process will remain manual and is not expected to be automated in the future.

HCSS schedulers will schedule offender appointments to the blocks of available Provider time allocated by health care administrators. This can either be done by assigning a group of offenders to a block of time, or by scheduling an offender to a particular time slot.

As an enterprise-wide scheduling system, HCSS will allow for centralized scheduling. Requests for appointments can be assigned to a scheduler based on offender location, type of appointment needed, or clinic. In addition, the system will allow a case manager or psychiatrist to be assigned to an offender. This will facilitate and ensure the continuity of offender care, since scheduling will no longer be limited to the location of the offender.

For the HCSS, CDCR envisions a scheduling approach that:

- Improves offender access to care by avoiding scheduling conflicts
- Improves compliance with legally mandated timeframes and metrics through increasing schedule visibility across institutions and correctional system
- Balances and optimizes resources for consistent and sustainable levels of quality care

IV.3.2.1 Avoid Scheduling Conflicts

HCSS shall provide global visibility into scheduled encounters by:

- Inmate
- Care Provider
- Clinic
- Type of appointment

Insight into each offender's schedule will prevent scheduling conflicts from occurring in the first place.

- The system will integrate with the offender master schedule in SOMS.
  - It is assumed that SOMS maintains the master schedule for the offender as related to non-healthcare commitments and constraints such as parole board hearings, court appointments, special assignments, etc.

For the purpose of medical scheduling and HCSS, it is assumed that these major events are initial constraints (or blocked out times) and the HCSS will schedule around these events unless of course there are emergencies or mandates.

- It is assumed that the major events received from SOMS will not include non-essential blocks of time or if SOMS includes such blocks, there will be business rules to initiate a manual conflict resolution process

- The system shall flag potential scheduling conflicts and notify the scheduler.

Scheduling conflicts may be resolved automatically based on priorities defined by the business rules, or manually by a conflict resolution team or individual:

- The system must report on conflicts
- The system shall report on over/under-scheduled time blocks.

IV.3.2.2 Comply with legally mandated time frames and metrics

The system shall track all mandated timeframes and deadlines:

- The system shall provide alerts and notifications if there is a risk that mandated timelines will not be met.
- The HCSS shall have the capability to produce reports on results related to court mandated metrics.
- Scheduled appointments and tracked encounters including date, time, resource and reason codes will provide the source data for reports that are not related to clinical outcomes.
- The HCSS will track and provide reports on scheduled events and encounters with medical staff for the purpose of reporting on compliance and meeting mandated time lines.

IV.3.2.3 Balance and Optimize Resources

The system shall allow for continual management and planning of future appointments, resource needs and workload:

- Improved insight into offender schedules will allow for timely cancellation and rescheduling of appointments, reducing the number of no-shows.
- Better visibility into future workload will allow proactive resource planning, leading to better utilization and improved compliance.
- The system shall allow scheduling of appointments to individual time slots and blocks of time.
- The system shall allow the scheduling of recurring appointments.
- The system shall allow the scheduling of a series of appointments and tracking attendance.
- The system shall have the capability to track prerequisites and dependencies between appointments.

IV.3.3 BIS

BIS is an Enterprise Resource Planning (ERP) solution used by all units within CDCR for financial, business, and human resource operations. It is an implementation of the SAP ERP software. From the standpoint of HCSS, BIS is responsible for organizing and maintaining staffing and shift plans. HCSS will import shift schedules from BIS, as well as information about rooms and facilities. HCSS local administrators will be able to use BIS shift plans and facility information to assign blocks of time for scheduling appointments to individual clinics, clinicians, or other care providers. It is assumed that a block of time that is available for scheduling in HCSS will include all staff, facilities, and equipment necessary to conduct the appointment. Asset management and the scheduling of equipment within facilities (e.g. hospital bed management) are not in the scope of the HCSS.

IV.3.4 CDR

The Clinical Data Repository (CDR) will maintain electronic records (including medical) for every offender and offender encounter. The CDR is envisioned to be a data warehouse containing all the data needed for compliant reporting. Information about scheduled and completed appointments will originate in the HCSS and be eventually warehoused in the CDR. The CDR will be the repository for the information from BIS, SOMS, and the Pharmacy System (which is not envisioned to interact directly with HCSS) and other future applications such as Electronic Medical Record system, Hospital Information systems, Mental Health Case Management system, etc.

IV.4 PRISON HEALTH CARE LIFE CYCLE

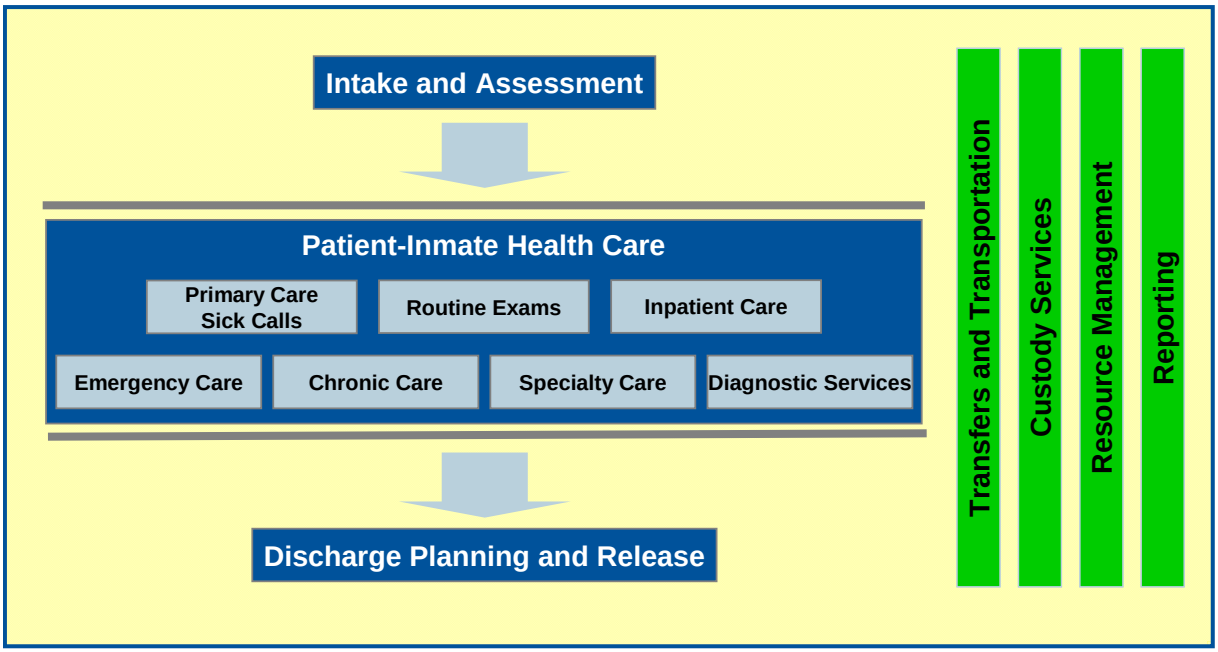
The purpose of this section is to provide the vendor with an overview of the key processes and interactions of the offender with health care systems during the entire lifecycle of a sentence.

The lifecycle of an offender moving through the prison health care system typically has three stages for the new system to support:

- Intake Screening and Assessment
- Inmate Health Care
- Discharge Planning and Release

Each of the three stages has unique scheduling and tracking requirements. In addition, there are activities such as transfers, transportation, resource management, custodial services and reporting that occur during the entire lifecycle. Figure IV-2 illustrates the lifecycle for mental health care.

Figure IV-2. High Level Overview of the Health Care Lifecycle



IV.4.1 Intake and Assessment

The first encounter between an offender and CDCR health care providers occurs when offenders step off the transport bus at one of the State Reception Centers (RCs). It is imperative that the intake process is properly conducted for each offender, for during this phase an offender's health care needs are determined. The results of initial screenings and evaluations are recorded in the Unit Health Record (UHR) and summary information relevant for custodial purposes is recorded on health Chronos (CDCR Form #128).

Failure to conduct all necessary examinations and tests may result in inappropriate placement, lack of treatment, and ultimately further health problems during imprisonment. In today's environment, it is difficult to track whether an offender has received all necessary and legally mandated tests prior to being transferred to a permanent housing unit. The HCSS is envisioned to schedule and track all encounters during the intake process. The systems shall have the capability at any point in time to indicate which tests an offender has received, and the system will provide alerts and notification to health care staff to ensure all mandated timeframes are observed.

It is envisioned that the Strategic Offender Management System (SOMS) will be updated with new offender arrivals and that a unique identifier will be assigned to each offender prior to arrival. Through Integration with SOMS, the HCSS will be updated with basic offender information and schedule a "Bus Screen" appointment for each offender arrival.

The Bus Screen is the first of a series of health care examinations and is used to determine whether or not an offender needs immediate care upon arrival at an RC. The Bus Screen is required to be completed before offenders are moved out of temporary reception housing—making it very important to track that every offender has received proper health care attention within the timeframe set in CDCR policies and procedures. It is envisioned that the nurse conducting this screen will record the encounter in HCSS for each offender to ensure all offenders receive the Bus Screen. This will allow tracking and investigations of potential "no-shows."

Within days of arrival, all offenders are required to go through the following tests and procedures prior to being cleared for transfer to their permanent institution:

- Medical Physical Examination (in the future this may not be required or may not be a full exam for a repeat offender whose medical records indicate that this has already been done recently)
- Dental Assessment
- Initial Mental Health Screen
- Developmental Disability Screening (Clark Program)

In addition, further evaluation may be required if symptoms are present for certain conditions, e.g. a Mental Health Psychological Evaluation may be ordered if an offender is known to have a mental health condition or has a history of mental health issues.

> **Note:** In a pilot program currently under way at San Quentin, all initial medical, dental and mental health exams are conducted right after the bus screen and usually on the same day of offender arrival. The pilot assumes that RC's are organized into provider stations, with offenders pulled from one station to the next. The HCSS must be able to track when offenders move from one station to another. We do not assume that the scheduling system is scheduling each step to occur, but that the RC is organized to pull the offender through the various test stations. At a minimum, the HCSS must be able to report on all offenders during a particular interval (day), what tests/assessments were conducted, and what remains to be completed. The need for actual scheduling in this environment does not appear critical. This process renders the detailed scheduling of these screens around providers' availability unnecessary, however, an appointment must be in the system for each mandated encounter that occurs within the RC (regardless of appointment time or if a pull-line is used).

It is envisioned that HCSS will automatically generate requests for all mandated exams. A scheduler will receive a queue of all requests and schedule each offender to an available care provider. This can either happen by scheduling offenders to individual time slots or by scheduling groups of offenders to blocks of time.

It is envisioned that available blocks of time for each care provider will be set up in the system by an administrator. Through integration with BIS, the administrator will download shift plans and assign blocks of time available for scheduling intake exams to each resource (e.g. RN, dentist, psychologist etc.). It is expected that nurses and clinicians also have access to the schedule and can view upcoming events and workload. Once the scheduler has set an appointment for an offender, HCSS will notify SOMS to avoid conflicts with custody scheduling. If there is a scheduling conflict, the system is expected to notify the scheduler who will then reschedule the appointment or resolve the conflict manually by working under medical direction and notifying custody.

On a daily basis, the HCSS will generate a list of scheduled appointments (ducat list) and notify custody of upcoming events through an interface with SOMS. Custody will then arrange appropriate transportation and escort for the offender to assure that the offender arrives at the clinic at the time of the appointment. Custody is expected to notify the scheduler if an offender cannot make an appointment so that the available appointment time can be filled with another

offender. The process of short term scheduling (within 24 to 48 hours prior to appointment) will mostly remain a manual process as it requires close interaction between scheduler and custody.

Once an offender has been transported by custody officers to an intake exam, the exam has been conducted, and the offender is returned to their temporary housing, care providers are expected to track all encounters in the HCSS, including no-shows. The HCSS shall have the capability to generate reports on the status of the intake process for offenders, including a report on date and time of the exams as well as remaining time to complete the exams. A frequent problem today is that offenders do not receive all the exams because they enter and exit the intake process due to emergencies, additional mental health assessments, etc. and therefore skip steps in the process. Since the current systems cannot provide an integrated view of an offender's status, offenders may not receive all the required tests and certain health conditions may not be discovered until much later.

Once all required examinations have occurred and health Chronos are complete, the offender is cleared by custody for transfer to permanent housing (potentially at a different institution).

IV.4.2 Inmate Health Care

Based on the health information determined during the intake process, offenders are transferred from the RC to their permanent housing at one of the 33 institutions across the State. SOMS will notify HCSS of an upcoming transfer and the offender will be scheduled for a health screen in the Receiving and Release (R&R) area. An R&R nurse conducts the health screen and records the encounter in the HCSS. It is envisioned that the HCSS will provide a checklist for both the R&R nurse and custody officers to ensure that necessary documentation (UHR) and medication are with the offender at the time of transfer. The HCSS shall also notify the scheduler from the sending institution to cancel all pending appointments at the time of offender departure. When the scheduler cancels the appointments in the system, we expect the system to transfer the queue of pending appointments to a scheduler at the receiving institution who will reschedule those appointments. This will ensure continuity of care for offenders who transfer from one institution to another.

IV.4.2.1 Emergency Care

In the case of an emergency, offenders are brought to the program treatment location where they are seen on an un-scheduled basis. After-duty hours and weekends, offenders are taken to the Triage and Treatment Area (TTA) where they receive care. By definition, these are not scheduled events and will not be treated as such. However, it is envisioned that these encounters be tracked in the system for reporting purposes. TTA staff will also enter referrals and requests for subsequent visits in HCSS.

IV.4.2.2 Chronic Care

For offenders with chronic care needs (including mental health CCCMS and EOP patients), the HCSS will track mandated timeframes for recurring visits and prompt the scheduler to schedule the necessary appointments in a timely manner to ensure compliance. Health care providers will record each encounter in the system and they will have the capability to submit referrals and requests for follow-on or specialty care visits, diagnostic services, etc.

HCSS will provide functionality to schedule and track Interdisciplinary Treatment Team (IDTT) meetings. The system is not expected to fully automate the process of scheduling, as IDTTs involve both health care and custody participants, frequently happen on very short notice, and require juggling of multiple schedules. HCSS is expected to send invites to participants and will allow the case manager to track participation in the actual meetings.

IV.4.2.3 Primary Care/Sick Call

At any time during their stay at an institution, offenders can request health care services by completing a "Request for Health Care Services" (Form CDCR 7362). Since these requests and responses from health care services are subject to specific timeframes, it is envisioned that the 7362s will be recorded and tracked in the HCSS. 7362's are picked up daily by a nurse and are sorted and distributed to the appropriate disciplines, where they are prioritized and processed according to the applicable policies and procedures. It is envisioned that HCSS will support this process by tracking time lines and providing health care staff with information that may help the triage process (e.g. information on multiple requests filed within a short period of time, status of pending requests, time of appointment scheduled for previous requests, etc.).

For certain institutions, it is envisioned that offenders will file 7362's electronically by using a kiosk located in their housing unit. Offenders shall also have the capability to view the status on a request, appointment date and time, and they shall have the option to cancel appointments or request appointments to be rescheduled.

IV.4.2.4 Specialty Care

Health conditions may require that an offender be referred for specialty care services either to an outside care provider or within an institution. It is envisioned that HCSS will have workflow capability that supports the review and approval of specialty care requests. For outside providers, the HCSS will integrate with BIS to provide the scheduler with a list of providers, including terms and conditions of the contract. The HCSS shall have the capability to display multiple options to the scheduler and indicate whether the provider is on-site or off-site, cost of the service, availability, and distance. It is envisioned that the system will be able to indicate if there are existing offender appointments scheduled from the same institution for a specific date, and to then allow appointments to be combined for transportation reasons. The Scheduler shall have the possibility to compare various options. Depending on the agreement with the provider, the scheduler is envisioned to either schedule an appointment through HCSS, or manually coordinate the appointment and record it in the system.

If the offender needs to go off-site for treatment, the HCSS will notify custody to reserve transportation. The system is further expected to generate a checklist on the day of the visit for custody and health care staff to ensure that any documentation, images, and health record summary are with the offender at the time of the visit. It is envisioned that HCSS will further notify and remind custody and health care staff of any preparation required in advance of a visit. This should reduce – if not eliminate –specialty care appointments needing to be cancelled at the last moment due to insufficient preparation or missing records.

IV.4.2.5 Diagnostic Services

Requests for diagnostic services such as laboratory tests and radiology will be scheduled through HCSS similar to any other appointments. It is envisioned that the system shall allow the scheduler to provide custody with any information necessary to ensure proper preparation for lab and radiology appointments (e.g. no food 12 hours prior to lab tests etc.), as this may require placing the offender in a different environment prior to the appointment. In addition, the HCSS shall track dependencies between appointments (e.g. a lab may be required prior to a follow-up visit) and notify the scheduler if there are issues or conflicts in a given sequence of events.

IV.4.2.6 Inpatient Care

The HCSS will support scheduling of appointments in CDCR long term care settings for both medical and mental health. This includes the scheduling of bed-side appointments, therapy sessions, and other appointments that are not considered routine hospital activities. HCSS will not provide functionality to schedule and track clinician rounds, routine activities such as tracking and recording vital signs, periodic lab tests, distribution of medication, etc.

IV.4.3 Discharge Planning and Release

For parolees with the Mental Health Care Level designations of CCCMS and EOP, CDCR provides care through community centers in the Parole Regions. It is envisioned that Parole will have access to CDR and that pending appointments necessary for the continuity of care will follow the offender as he/she transitions to parolee status.

Dental care is provided for offenders up to a certain time period prior to release. It is envisioned that the system will track parole and release dates and that HCSS will not allow scheduling of dental care appointments beyond the time limits established in the policies and procedures.

Medical and Dental do not provide care beyond the release of an offender, and there are no specific requirements related to scheduling.

IV.5 USER VIEW – ACTOR AND USE CASE OVERVIEW

The user view provides an overview of the boundary and functionality of the system from a user point of view. The user view defines all actors (users of the system), roles and a brief description of the use cases. Note that the use cases describe what the system must do but without prescribing a specific design or requirements on the how. For the detailed use cases please refer to Appendix E, Use Cases.

IV.5.1 Actors and Roles

An actor is a person who interacts with the system, e.g. a Nurse, Clinician or Office Technician. An actor can access the system in multiple roles, e.g. an Office Technician could both administer the schedule of a clinic and schedule appointments. The role denotes specific functions. Roles are useful when implementing workflow processes as tasks can be routed between workers performing different roles.

- Administrator
  - Owns the calendar of an institution, clinic or specific service provider
  - Is familiar with local settings and constraints
  - Knows what time blocks are available for scheduling
  - Knows when an appointment can be scheduled
- Requestor
  - Submits a requests for appointment to be scheduled
- Scheduler
  - Schedules an appointment

  - Does not need to be familiar with internal operations of clinic or institution
  - May schedule in two ways:
    - to an open slot in the system
    - manually by calling a service provider
- Intake Staff
  - Record show/no-show of patient at time of appointment
- Clinician (or other Health Care Provider, e.g. Nurse, Radiologist, etc.)
  - Records encounter including reason code for disposition (e.g. follow-on required, specialty care appointment requested, therapy ordered, etc.)

Figure IV-3. Conceptual view of the future scheduling process and interaction with the HCSS

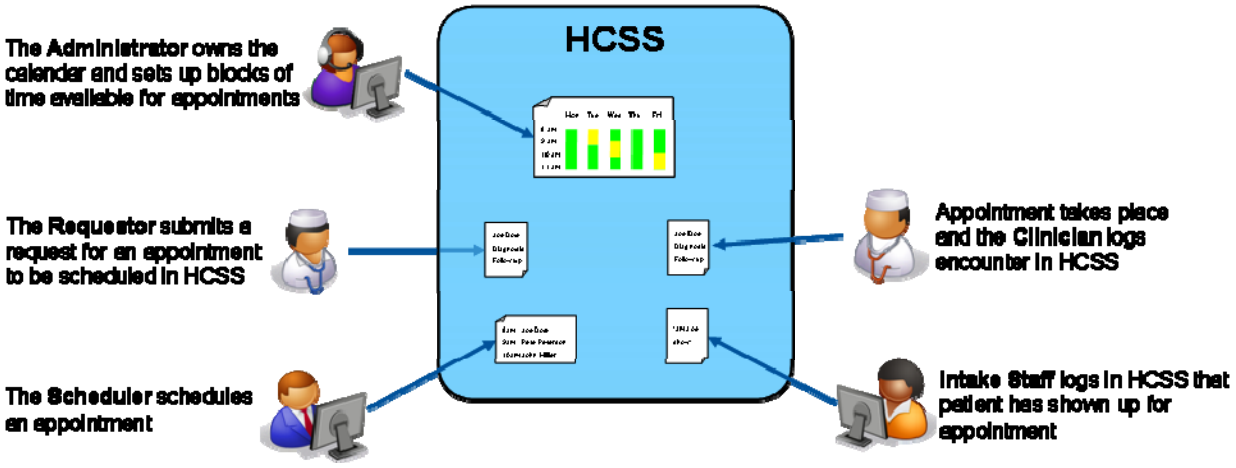


Table IV-1. Overview of Medical Actors and Use Cases

Actor	Use Case
Medical Care	
Bus Screen Nurse	Record RN Bus Screen
Scheduler	Schedule Medical Physical
Care Provider or designee	Record Medical Physical
Care Coordinator or designee	Transfer offender (sending institution)
R&R Nurse	Record Transfer (receiving R&R)
Care Coordinator or designee	Transfer offender (receiving institution)
Triage Nurse	Record CDCR Health Care Services Request Form #7362
Triage Nurse	Request for Service Triage

Actor	Use Case
Requestor	Request to Schedule an Appointment
Scheduler	Schedule Appointment
Scheduler	Reschedule Appointment
Scheduler	Resolve Scheduling Conflict
Care Provider or designee	Record TTA Encounter
Care Provider or designee	Record Clinical Rounds Encounter
Administrator or designee	Assign Scheduler
Administrator or designee	Assign Time Blocks for Scheduling
Dental Care	
Bus Screen Nurse	Record Bus Screen
Scheduler	Schedule Dental Screening
Dentist (or designee)	Record Dental Encounter
Dentist (or designee)	Record Dental Screening
Dentist (or designee)	Record Dental Priority Code (DPC)
Dentist (or designee)	Transfer offender (sending institution)
R&R Nurse	Record Transfer (receiving R&R)
Dentist (or designee)	Transfer offender (receiving institution)
Triage Nurse	Record CDCR Health Care Services Request Form #7362
Dentist	Request for Service Triage
Requestor	Request to Schedule an Appointment
Scheduler	Schedule Appointment
Scheduler	Reschedule Appointment
Scheduler	Resolve Scheduling Conflict
Care Provider	Record TTA Encounter
Care Provider	Record Clinical Rounds Encounter
Administrator	Assign Scheduler
Administrator	Assign Time Blocks for Scheduling
Mental Health Care	

Actor	Use Case
Bus Screen Nurse	Record Bus Screen Encounter
Scheduler	Schedule Initial Mental Health Screen
Registered Nurse	Record Initial Mental Health Screen Encounter
Requestor	Request to Schedule an Appointment
Scheduler	Schedule Mental Health Appointment
Mental Health Clinician	Record Mental Health Psychological Evaluation
Mental Health Case Manager	Transfer offender (sending institution)
R&R Nurse	Record Transfer (receiving R&R)
Mental Health Case Manager	Transfer offender (receiving institution)
Assigner	Assign Mental Health Case Manager
Mental Health Care Provider (Social Worker, Psychologist, Psychiatrist)	Record Mental Health Intake Evaluation
Mental Health Case Manager	Request to Schedule Mental Health IDTT Meeting
Scheduler	Schedule Mental Health IDTT Meeting
Mental Health Case Manager	Record Mental Health IDTT Meeting
Screening Nurse	Record CDCR Health Care Services Request Form #7362
Mental Health Nurse	Record Sick Call Referral Request & Triage
Mental Health Case Manager	Record Mental Health Case Manager Encounter
Scheduler	Resolve Scheduling Conflicts
Scheduler	Reschedule Mental Health Appointment
Mental Health Clinician-on-call	Record Mental Health TTA Encounter
Scheduler	Schedule DMH Transfer
Clinician	Record Clinical Rounds Encounter
Administrator	Assign Time Blocks for Scheduling
Supervisor	Assign Scheduler

IV.6 SYSTEM AND FUNCTIONAL VIEW

IV.6.1 General HCSS functionality

The HCSS will schedule medical, dental and mental health care appointments for offenders based on:

- Policy mandated routine examinations
- Inmate Health Care Service Requests (CDCR Form 7362)
- Custody referrals
- Clinician orders for Specialty Care services (including Telemedicine)
- Clinician ordered or policy mandated follow-on visits
- Emergencies
- Treatment plans

The HCSS will be integrated with SOMS to:

- Coordinate scheduled appointments with other offender commitments and scheduled events such as court appointments. Note that health care appointments will have priority over events such as work schedules, yard and canteen days, visitations etc. as defined by CDCR policies.
- Communicate with custody and offenders in a timely manner to optimize delivery of health care.

The HCSS will be an enterprise-wide system, used for all scheduling of offender activities related to health care appointments:

- Provide a single point view of all scheduled offender appointments (e.g., court appointments, visits, therapy, telemedicine, transport, etc. will be visible).
- Individual offender calendars (similar to outlook) allow viewing of all scheduled appointments.
- Mandatory/regulated deadlines are maintained in HCSS for each prisoner.
- Any authorized HCSS scheduler can schedule fixed or recurring appointments for known future events:
  - All authorized schedulers (and contact information) will be in the system and linked to scheduled events.
  - HCSS should have the capability for authorized schedulers to make appointments across disciplines.
- The system must be able to schedule both individual & time block appointments.
- The system must be able to track appointment prerequisites entered by a requestor and notify a scheduler if requirements have not been met for a pending appointment.

IV.6.2 Encounter history

- HCSS is primarily a planning and scheduling system.

- Scheduled appointments will be closed out by entering “show” and “no show”, including reason code.
- Maintaining an encounter history is typically the responsibility of care providers and is likely to be recorded in the clinical systems and/or EMR.
- CDR encounter tracking will not be available in the same timeframe as the HCSS.
- HCSS will have the capability to record encounters including dispositions based on reason codes.

IV.6.3 Tracking of clinical information

- HCSS is not intended to maintain clinical information.
- HCSS will not have case management functionality to support creating, tracking or reviewing referrals, managing of case load, or tracking clinical progress.
- Workflow to track Utilization Management is out of scope for HCSS.
- The HCSS will be fed with scheduled events from the case management system (manual or automated process).
- Events not involving the patient or events that are unscheduled will not be tracked in HCSS (e.g. periodic case review, tracking and reviewing of approvals, etc.).

IV.6.4 Inpatient care and hospital management

HCSS will be used to schedule appointments for offenders (e.g., lab tests, therapy, radiology, etc.).

- Internal hospital activities e.g., nursing rounds, distribution of medication, etc. will be managed locally—out of HCSS scope.
- HCSS will request hospital beds based on patient needs:
- HCSS will have the capability to create a request for a hospital bed (CDCR, DMH) based on patient medical / mental health needs, demographics, security status, and locality.
- Managing of Hospital beds is outside of the HCSS scope.

IV.6.5 Custody

HCSS will give Custody advanced notification of all scheduled health care appointments (ducat list):

- Custody will use SOMS to create blocks of times when offenders may not be available for health care appointments.
- Custody will notify the appropriate scheduler if an offender is unable to make an appointment to allow for rescheduling.
- Custody is responsible for:
  - Ducating offenders
  - Providing escorts
  - Assuring the offender arrives at the appointment location on time
  - Informing health care if special accommodations are needed

HCSS will notify custody, offenders, and outside specialty providers electronically (e.g. e-mail or portal):

- Specialty care providers will have access to HCSS and/or HCSS shall have the capability to send a notification/schedule.
- The system shall have the capability to automatically send notifications or prompt custody/inmate for preparatory requirements.
- The system shall have the capability to require acknowledgement/sign-off.
- Custody will manually notify the scheduler if an offender will not be able to show up for an appointment.

IV.6.6 Transportation

HCSS will provide timely notification to transportation of upcoming transport needs:

- Transportation will manage its own resources and is responsible for the transfer of an offender, including necessary medical supporting documentation; the entire medical record does not go with the offender. Classification services is responsible for determining which medical documents are needed for a transfer.
- HCSS will provide transportation with a checklist to ensure necessary medication, records, and documentation is transported with the offender.
- Transportation will notify HCSS on an exception basis if needs cannot be met.
- The scope of HCSS does not include transportation logistics or transportation optimization.
- It is the responsibility of custody/transportation to ensure offenders arrive to their appoint in a timely manner to allow the physician to see the next individual in line; if an individual is not present, custody should make sure that the next person in line is available to fill that slot.

IV.6.7 Specialty Care

External Specialty Care (including Telemedicine) providers will be able to access the system via portal and will provide HCSS with blocks of time for offender appointments:

- HCSS will maintain a list of all service providers (based on contracts in BIS/Prodagio).
- HCSS will schedule appointments to time blocks or individual slots.
- Exceptions will be handled manually (scheduler contacts provider).
- External providers shall be able to view upcoming appointments via a portal.

IV.6.8 Queues and Wait-lists

HCSS will assist in managing queues and wait-lists (orders).

- HCSS will offer minimum, high-level information around patient demographics, type, and urgency of need to allow health care professionals to prioritize wait-lists.
- HCSS will offer capability to classify visits by type (complexity, time, etc.)

IV.7 INTERFACE VIEW

The interface view provides an overview of the external systems to be interfaced with the HCSS. For the detailed interface information please refer to Appendix F, System Interfaces.

To minimize redevelopment, redundant work, and duplicate data search and entry CDCR envisions the system to interface with the systems/State agencies identified in the table below:

Table IV-2. HCSS Interfaces

System	Purpose of Interface
Strategic Offender Management System (SOMS)	■ Keep all offender information current, including ❑ Universal Identifiers ❑ Institution/Location ❑ Housing Unit ❑ Security Level ❑ Disability Status ■ Calendar Availability ■ Periodically query offender information: ❑ Release / Parole Date ❑ Gang / Color affiliation ❑ Correctional Counselor Information
Business Information System (BIS)	■ Maintain information regarding ❑ Facilities ❑ Staffing ❑ Shift Plans ❑ Credentials ❑ Other resources ❑ Maintain contract information for external Specialty Care Providers
Clinical Data Repository (CDR)	■ Send and retrieve appointment information for reporting purposes

IV.8 REPORTING

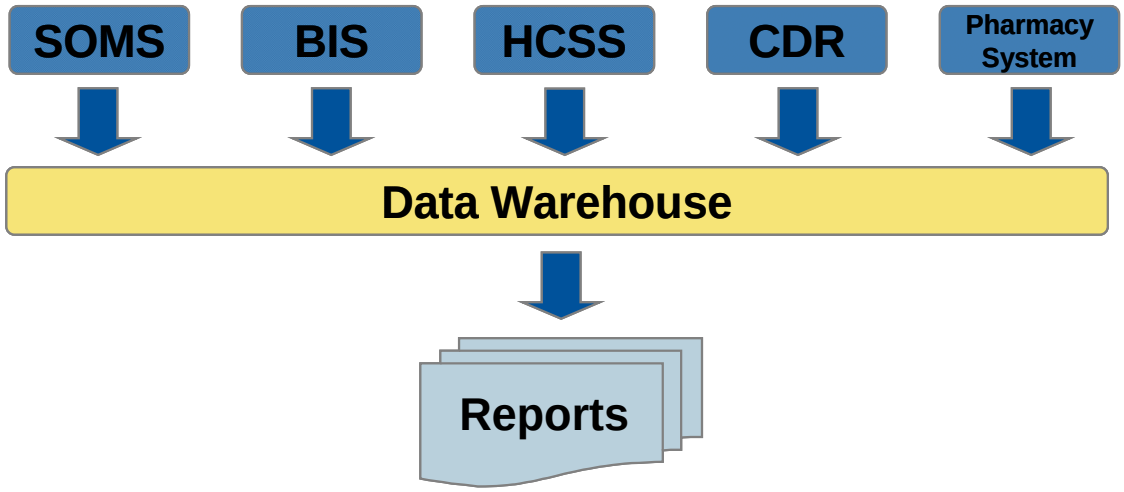
IV.8.1 Reporting Vision

Reporting is a requirement for the new system, as it must provide CDCR with all the information necessary to establish the reports and measure the metrics mandated by the various law suits. HCSS will have the capability to generate reports related to scheduled and tracked encounters including timeframes and compliance. In addition, HCSS will be able to report on appointment characteristics (e.g. disposition, no-shows) to the extent that this is tracked in the system.

HCSS will provide the data warehouse with all scheduled appointments and encounter information. This information will be used to establish outcome and key compliance metrics that include clinical information, offender demographics that is not tracked in HCSS. Since all systems will be using a unique offender identifier, the data warehouse will allow for comprehensive reporting on the provision of offender health care.

Figure IV-4 below provides a conceptual view of reporting through the data warehouse.

Figure IV-4. Conceptual View of Reporting



IV.8.2 Data Model for HCSS reports

Figure IV-6 below provides an overview of the data model in HCSS for Mental Health encounter reporting. Most of the current reports mandated by the courts will be able to be generated based on the following data fields, all tracked in HCSS:

- Date of encounter
- Mandated deadline of encounter
- Type of encounter
- Encounter disposition
- Inmate
- Inmate level of care
- Clinician conducting the encounter

- Setting
- Location

Figure IV-6 below provides a star schema data model for reporting on compliance with mandated timelines in Mental Health. At the center is the "Scheduled and tracked event", for which we want to report compliance in terms of timeliness characterized by mandated deadlines and actual encounter dates. The tables around the event represent characteristics of the encounter that will allow narrowing down the reports by location, encountering type, clinician etc.

Figure IV-5. Data Model for HCSS Reporting in Medical Care

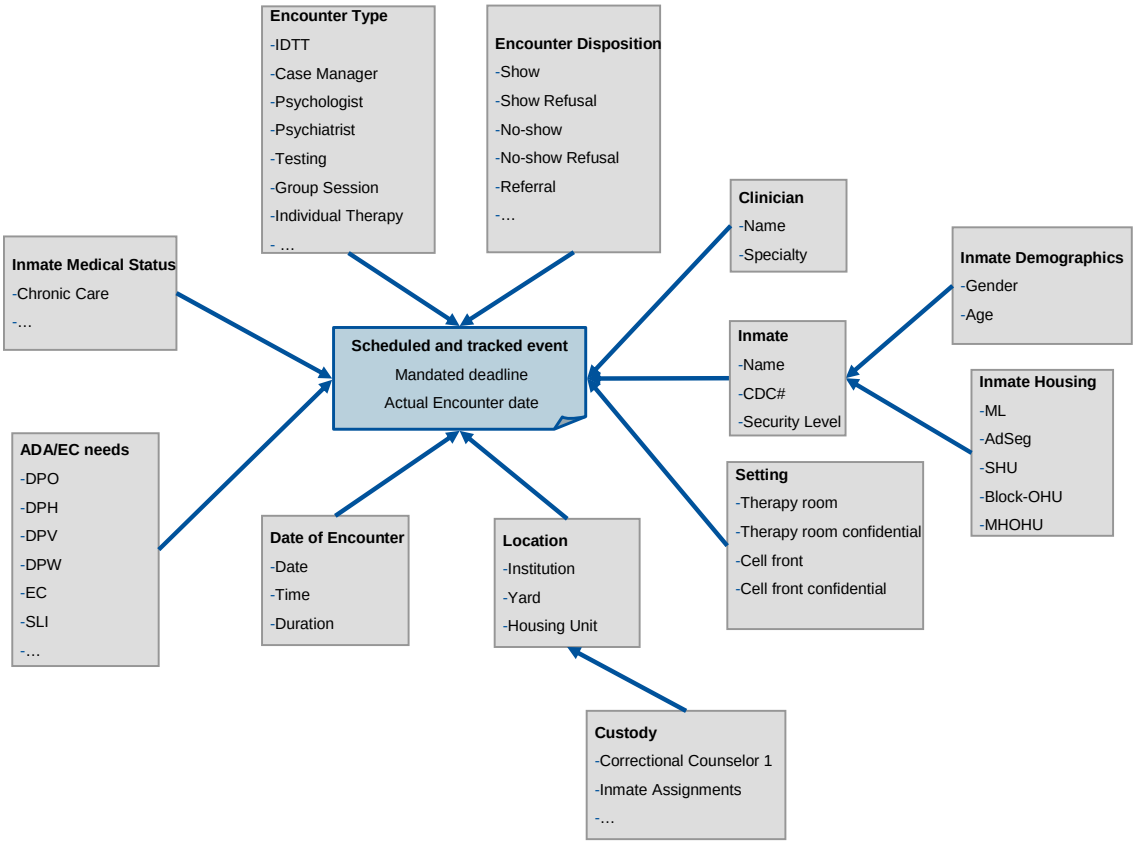


Figure IV-6. Data Model for HCSS Reporting in Mental Health

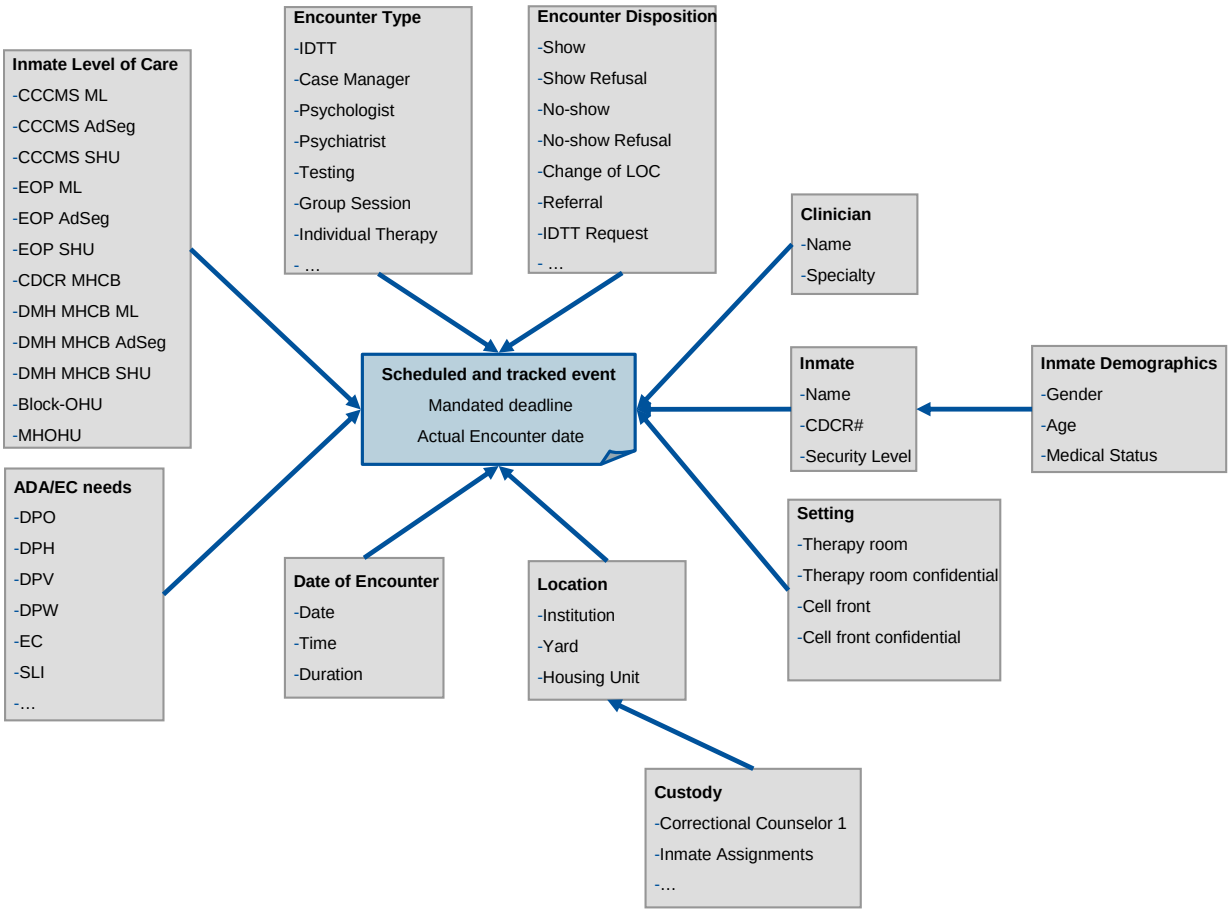
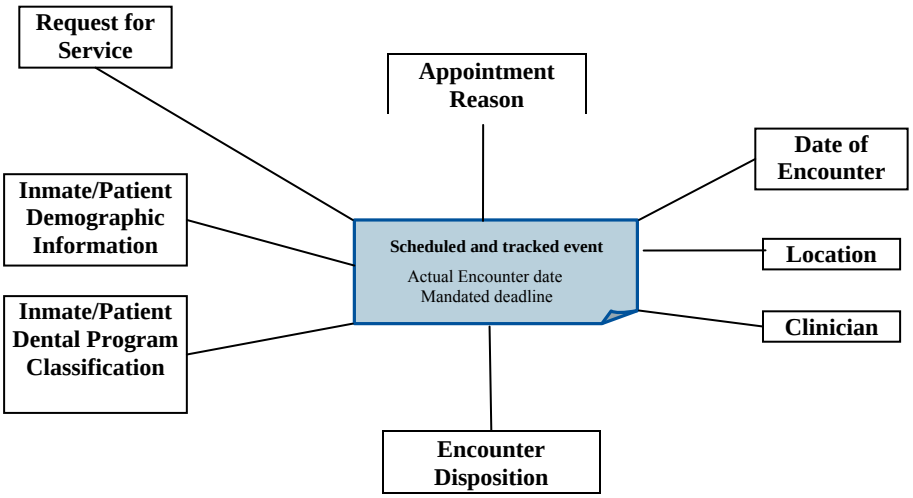


Figure IV-7. Data Model for HCSS Reporting for the Dental Program



IV.9 GENERAL ARCHITECTURE VISION

CDCR is in the process of arranging for a new data center. The new data center is expected to be in place prior to implementation of HCSS. The future overall architecture has not yet been determined. That information will be released in an Addendum should it become known prior to the RFP award. CDCR may also choose to award this RFP prior to development of the overall technical architecture.

IV.9.1 Physical Server Architecture Vision

The HCSS should be designed as a platform for agile application/services development for CDCR. It should also provide for infrastructure level services, such as authentication, authorization, and directory services.

In addition, the HCSS should accommodate remote accessibility and mobility, reporting and data warehousing, content management and version control, role based authorization and separation of duties, and requirements that provide reliable, fault-tolerant secure access and privacy for individuals processed within the system.

IV.9.2 Single Sign on

The new system must support Single Sign on. Oracle Access manager is currently the desired SSO solution for a web-based system, but other SSO methods will be considered.

IV.9.3 Assumptions and Dependencies

The purpose of the Assumptions and Dependencies section is to document major assumptions about the CDCR HCSS Project and identify significant dependencies that may impact the Project. HCSS is dependent upon the following systems:

- The Strategic Offender Management System (SOMS)
- Business Information System (BIS)
- Central Data Repository (CDR)

Of these systems, SOMS is dependant upon HCSS for health care scheduling information. HCSS may also export data to the Central Data Repository for future integrated reporting.

IV.10 OPERATING ENVIRONMENT

The proposed system's operating environment should support the development activities and ongoing production operations of the HCSS Solution. The following describes the proposed future HCSS operating environment. Specific business, technical, implementation, and service support requirements are provided in Section VI, Proposed Solution Requirements.

IV.10.1 Production Environment and Hosting

The system is to be hosted at the new CDCR Data Center, however, CDCR expects the Contractor to coordinate the relationship and services provided by the CDCR Data Center.

In order to clearly delineate the primary roles and responsibilities of the CDCR Data Center, and Contractor resources, the following roles and responsibilities matrix is provided below. "P" indicates primary, "S" secondary responsibility.

Table IV-6. New System Roles and Responsibilities Matrix

Tasks	Contractor	CDCR
Equipment/Hardware (servers for different environments) –Initial implementation and Setup		
■ Procurement		P
■ Hardware Capacity Monitoring (Instrument servers)		P
■ Upgrades and Patches		P
■ Installation and testing of hardware	S	P
■ Installation and configuration of applications	P	S
■ Server and Database Environment Monitoring (installation of monitoring tools)	S	P
Performance Monitoring – Ongoing		
■ End to end performance monitoring (implementing 3rd party software for monitoring and software instrumentation)		P
■ Data base monitoring (query performance and response time)		P
■ Hardware, Network, and Server OS monitoring		P
Capacity Planning		
■ Projection of increase/decrease of staff and external users		P
■ Annual and quarterly capacity plans		P
■ Determine impact of capacity on HCSS application	S	P
Batch Management		
■ Batch management tools configuration and setup	S	P
■ Batch production		P
■ Monitoring and recovery		P
Interfaces		
■ Develop and design	P	
■ Circuits and connectivity		P
■ Integration Application (ESB/middleware) installation, Configuration and Operations		P
1. Configuration		P
2. Monitoring		P
3. Error recovery	S	P
4. Security/encryption		P
■ ESB Operations and Managements		P
Backup and Restore		
■ Hardware, software, network and application installation	S	P
■ Ongoing backup of systems and data including tape handling.		P
■ Restoring of systems		P
■ Document of procedures for restoring application and data	P	S
■ Restoring application and data		P

Tasks	Contractor	CDCR
Disaster Recovery		
■ Define strategy and parameters		P
■ Disaster Recovery at alternate site (procurement, installation of hardware and network)		P
■ Documentation of Application Recovery Procedures	P	S
■ Initial testing of DR Recovery	S	P
■ Future Recovery		P
Network Operations and Administration		
■ Provide LAN and WAN communication facilities		P
■ Maintain IP Addressing schemes, router and switch configurations, routing tables, VPN configurations, etc.		P
■ Ensure that network administration activities are coordinated through defined change control	S	P
■ Network Monitoring and Reporting		P
■ Network Performance Management		P
■ Network Capacity planning	S	P
■ Network Capacity Monitoring and Reporting		P
■ Perform day-to-day network operations and administration activities		P
■ Application monitoring (ongoing)		P
■ Install and test circuits		P
Security		
■ User administration (add/delete user accounts)		P
■ Document Security Procedures		
■ Database security administration	S	P
■ Application Security Monitoring and Analysis		P
■ Firewall Architecture, engineering, Management and Configurations		P
■ Application patch developments	P	
■ Application Patch management	S	P
■ Network Intrusion Monitoring and Detection Services		P
■ Administration of IT security policies, procedures, and processes; including audit against security policies, procedures, and processes		P
■ Periodic Infrastructure and Application Vulnerability Assessments		P
■ Security patch management (server related patches)	S	P
■ VPN Design	S	P
■ VPN Services		P
Application		
■ Application Bug fixes	P	
■ Application modifications	P	
■ Application Administration		P
■ User Administration		P

Tasks	Contractor	CDCR
■ Application Testing (unit test, system test, performance test)	P	S
■ User Acceptance Test	S	P
■ Maintenance		P
■ Enhancements and upgrades	P	S
■ Backing out / correcting data		P
Data Warehouse (if applicable)		
■ Batch extractions (day to day operations)		P
■ Transformation and loading (day-to-day operations)		P
■ Creation and maintenance of tables		P
■ Maintenance of metadata		P
■ Maintenance of reporting tools		P
■ Report development (anything in the CDCR DW)		P
■ Data Warehouse Security / Data Administration		P
■ Data Warehouse User Administration		P
Help Desk		
■ Incident Management (Tier 1-3 Help desk)	Tier 3	Tier 1 & 2
■ Problem Management	Tier 3	Tier 1 & 2
■ Help Desk Software Tools and Processes	Tier 3	Tier 1 & 2

IV.10.2 Development Environment and Hosting

The Bidder may utilize its own development and test environment, although final testing must be done in a CDCR pre-production environment.

IV.10.3 Deployment, Training and Knowledge Transfer

The Bidder should conduct a Pilot to certify the system meets contractual requirements and to validate the implementation process. For the Pilot, the new system should be installed at selected locations (e.g., Headquarters and institutions) on selected users' equipment. Pilots should be conducted in multiple environments with varying complexity (i.e., small, medium and large counties; geographic dispersion; dedicated/coexistent). The Pilots should occur over a period of up to three months and include full system functionality. The purpose of the Pilots will be defined as part of the process but will include:

- Determine effectiveness of training and roll out procedures
- Validate end-user and support models

The Bidder should implement and configure the HCSS throughout all CDCR institutions based on an Implementation Strategy and Plan. CDCR envisions the system to be deployed in 40 institutions and facilities and CDCR headquarters.

The Bidder should work with CDCR to develop a Training Strategy and Master Knowledge Transfer Plan. See table IV-7 below for user and workload assumptions.

Table IV-7. User and workload assumptions for the HCSS

Description	
CDCR system wide	
Number of CDCR adult institutions	33
Number of proposed new facilities	7
Number of adult offenders	175,000
Number of health care clinics	330
Estimated number of new offenders per year	48,000
Estimated number of intra-system transfers per year	250,000
Number of CDCR employees (including health care staff)	67,000
Number of CDCR health care staff	11,000
Medical Care Services	
Total number of medical care encounters per year	1,000,000
Total number of sick call requests per year	792,000
Labs and X-rays per year	60,000
Total number of specialty care encounters per year	100,000
Total number of Medical "power" users	100
Total number of Medical "casual" users	500
Mental Health Services	
Total number of mental health patients	52,500
Total number of mental health care encounters per year	2,700,000
Total number of ad seg screenings	26,000
Est. number of missed appointments (1 %)	27,000
Total number of Mental Health "power" users	73
Total number of Mental Health "casual" users	225
Dental Care Services	
Total number of dental care encounters per year	627,943
Total number of Dental "power" users	225
Total number of Dental "moderate entry" users	250
Total number of Dental "casual" users	167

IV.10.4 Ongoing Service Support

IV.10.4.1 Maintenance and Operations (M&O)

The Bidder should include in the proposal the effort and cost for M&O services for the first year of full system maintenance and operations. For year two and beyond, CDCR will assume all production support and operations for the HCSS. For year two and beyond, the Bidder is expected to provide application upgrades and maintenance for the licensed term of the contract, including rates associated with enhancements to the application requested by the CDCR.

IV.10.4.2 Year 1 M&O Support

Application maintenance and software upgrades (core and third party software components) should be included as part of the fixed price contract between CDCR and Contractor. Application enhancements should be structured in terms of a fixed rate for optional consulting support that CDCR can use to support application change requests and unanticipated application enhancements that result from legislative and/or program changes.

For Operations Support for the HCSS in year 1, the Bidder shall provide rates for staff support to augment CDCR' capacity to provide ongoing operations for the HCSS. The number of staff and the duration of the required support are unknown at this time. CDCR has defined the roles that may be required in Section VII, Pricing Proposal. The role of the staff in the HCSS operations may include the following:

- Performance and availability monitoring of the servers and applications
- System and user administration
- Software release management (including testing)
- Database management
- Lead and manage disaster recovery testing at alternate site
- Interface management
- Incident and problem management
- Training

CDCR may, at its own discretion, extend the M&O contract beyond the initial one year period.

IV.10.4.3 Year 2 and beyond Maintenance Support

Application maintenance and software upgrades (core and third party software components) should be included as part of the fixed price contract between CDCR and Contractor. Application enhancements should be structured in terms of a fixed rate for optional consulting support that CDCR can use to support application change requests and unanticipated application modifications that result from legislative and/or program changes.

IV.10.4.4 Service and Help Desk Support

CDCR has an internal help desk, staff and tools for Tier 1 and 2 support. The Contractor may assume that CDCR will provide Tier 1 and 2 help desk support for HCSS users. CDCR expects the Contractor to provide help desk training and documented help scripts for the HCSS. The Contractor is responsible for providing Tier 3 integrated help desk services for HCSS and developing procedures for interoperation with the CDCR help desk and technical support staff.

IV.11 POLICIES AND STANDARDS

The following sections identify policies, standards and constraints that will impact the implementation of the proposed solution.

IV.11.1 Legal and Public Policy Constraints

The proposed solution must meet current safety, regulatory, security and audit requirements, and be flexible enough to accommodate future safety and regulatory changes into the system. The proposed solution will include public domain information and confidential data, which requires restricted access and a greater level of system security. Any information that relates to the identity of specific applicant health or mental health is strictly confidential and requires written consent to release.

Other legal and public policy mandates that may have implications for the proposed solution include:

- Health Insurance Portability and Accountability Act (HIPAA)
- Government Code 6250 – California Public Records Act
- Information Practices Act
- California Public Confidentiality
- Security and Privacy
- Freedom of Information Act
- Penal Code
- Welfare and Institutions Code
- California Code of Regulations (CCR) Title 15 – Crime Prevention and Corrections

IV.11.2 Department Policies & Procedures Related to Information Management

The proposed solution will be implemented in compliance with CDCR policies and procedures, including the Information Security Policy as documented in the CDCR's current California Technology Improving Public Safety (CalTIPS) Strategic Plan Report, and the Department Operations Manual (DOM).

In addition, this section identifies agency or statewide technical standards or constraints.

IV.11.3 Service Oriented Architecture

California is moving further toward Service Oriented Architecture (SOA) at the state-wide level. The state CIO has published a vision and architecture guidelines at www.cio.ca.gov. CDCR both participates in this effort and supports it. The interfaces that HCSS uses to connect to external systems, and to exchange data with them, will use industry-standards such as web service and XML and will comply with HL7 v2.4 or higher wherever possible. This approach will advance loose coupling of the systems involved, and improve future flexibility. The proposed HCSS solution must conform to the guidelines documented by the California Enterprise Architecture Program (CEAP).

IV.11.4 Anticipated Future Enterprise Information Technology Standards

Below is a partial list of anticipated Information Technology Standards that will be a part of the new CDCR Data Center environment.

Relational Database

- Oracle
- MS SQL Server

Browsers

- Microsoft Internet Explorer 6.0 or higher

Identity Management

- Oracle Identity Suite

High Availability

- The system proposed must be highly available (99.9% or better) and support typical high availability solutions, e.g. clustering, load balancing, etc

Middleware

- Oracle SOA Suite

Operating Systems

- AIX
- WINDOWS
- Red Hat Enterprise Linux

Web Server

- Apache HTTP Server
- Apache Tomcat
- MS Internet Information server (IIS)

Storage

The proposed solution must integrate with EMC storage. The CDCR storage solution provides access to Robust Enterprise Storage comprised of EMC DMX.

Single Sign On and Directory Naming Services

Compliance with the HL7 2.4 (or higher) Clinical Context Object Workgroup (CCOW) standard protocol pertaining to maintenance of patient clinical context across disparate clinical information systems is highly desirable

The CDCR Infrastructure supports Microsoft Windows 2003 Active Directory. Information regarding Active Directory Application Mode (ADAM) will be forthcoming at a later date.

IV.11.5 Project Management Methodology

CDCR has an established Project Management Office (PMO). The main function of this office is to increase the efficiency and effectiveness of IT projects by ensuring that consistent project management standards and methodologies are applied to these projects throughout the Department.

The vendor shall be required to follow the CDCR Project Management standards and methodologies that can be found on the web site http://www.bestpractices.cahwnet.gov.

IV.11.6 Application Security Standards

At a minimum:

- The proposed solution must support user authentication and authorization per NIST 800-63.
- Security must be role-based.
- The proposed solution must comply with CDCR security policies provided in the Bidder's Library.
- The proposed solution must include security administration roles, such as security architect, security administrator, security analyst, delegated administrator.
- The proposed solution must support Federal Information Processing Standard (FIPS) 199 and 200.
- The proposed solution must support National Institute of Standards and Technology (NIST) 800-18, 30, 53, 53a.
- For web-based systems, the following must be utilized:
  - Data encryption per Federal Information Processing (FIPS) 140-2 standards
  - Secure socket level

IV.11.7 Data Center Standards

CDCR will be operating a new managed Data Center located in Torrance, California. The following information is to inform the Bidder regarding what services and hardware will be provided by and within the Data Center and what standards will need to be followed by the Bidder.

Server Environment:

- To reduce both the physical and environmental footprint, Virtualization leveraging VMware technology is preferred.
- When Virtualization is not an option, the use of HP Proliant DL 360 and DL 380 is preferred
- If your solution requires IBM hardware, the IBM P Series Servers are supported if supplied with OEM rails and WrightLine IBM P Series Mounting Plates Using standardized hardware reduces operating costs.

The Bidder is expected to provide their server requirements as part of their bid, and CDCR will acquire the appropriate equipment.

Management and Monitoring:

The new managed Data Center will provide server, network, and application Monitoring and Management Services

Systems Security:

Database applications and web servers will be hosted in separate VLANs and run in their own subnets. All VLANs will be firewalled. Security software will be deployed on the systems to capture and alert on suspicious activity.

Server Level Backups will be performed regularly. The storage platform will support Time Finder (BVC) for point-in-time or “clone” snapshots. Other data protection technologies will be available.