

Department of Veterans Affairs

Pharmacy Reengineering (PRE)

Medication Order Check Healthcare Application (MOCHA) v2.1

Pharmacy Data Management (PDM)

Requirements Specification Document



October 2014

Version 2.12

Revision History

Note: The revision history cycle begins once changes or enhancements are requested after the Requirements Specification Document has been baselined.

Date	Version	Description	Author
10/27/2014	2.12	Added note to FR 2.6.5.19 Added FR 2.6.6.2.2.4 and 2.6.7.2.2.4	L. [REDACTED]
10/14/2014	2.11	Updated table under FR 2.6.11.10 Updated date/version on cover page/footers	L. [REDACTED] S. [REDACTED]
09/12/2014	2.10	Change MOCHA 2 Enh 1 to MOCHA v2.1, tech edit, and remove signatures	S. [REDACTED]
08/29/2014	2.9	Added FR 2.6.2.9 – 2.6.2.12; 2.6.2.2.5, 2.6.5.39 -2.6.5.41; 2.6.20.2.2.1, 2.6.20.2.3, and 2.6.20.2.4. Delete FR 2.6.12.4.3.1 Modified FR 2.6.12.4.2; 2.6.12.4.3; 2.6.8.1; 2.6.8.2; 2.6.8.3; and 2.6.2.4.	L. [REDACTED]
05/21/2014	2.8	Corrected FR 2.6.2.2.2 output display Modified FR 2.6.12.5.1.1 Corrected A3 Warning Message text	L. [REDACTED]
05/12/2014	2.7	Modified FR 2.6.2.4 Updated month/version on cover page/footers	L. [REDACTED]
04/15/2014	2.6	Modified FR 2.6.9.3 and 2.6.12.5.1.1. Corrected numbering for FR 2.6.16.1.5.1. Updated month/version on cover page/footers; Table of Contents	L. [REDACTED]
03/11/2014	2.5	Added FR 2.6.10.10 Modified section 2.6.4 and 2.6.5 intro text Modified FR 2.6.11.5.6 Updated version/date on cover page/footer; Table of Contents Modified FR 2.6.10.1 and 2.6.10.9	L. [REDACTED]
02/26/2014	2.4	Delete section 2.6.25.	L. [REDACTED]
02/04/2014	2.3	Updated DRUG field name to DRUG(S) FOR DOSING CHK FREQ in sections 2.6.6 and 2.6.7 Modified FR 2.6.6.2 and 2.6.7.2	L. [REDACTED]
01/30/2014	2.2	Modified FR 2.6.7.2 and deleted duplicate entry from Dose Unit Conversion table in Appendix 1	L. [REDACTED]
01/27/2014	2.1	Typo correction on FR 2.6.24.1	L. [REDACTED]

Date	Version	Description	Author
11/25/2013	2.0	Add Approvals	S. [REDACTED]
11/22/2013	2.0	Format/edit	S. [REDACTED]
11/07/2013	1.9	CR6787 – Added section 2.6.26; FR 2.6.26.1 and FR 2.6.26.2.	L. [REDACTED]
09/25/2013	1.8	Updates based on business owner review	L. [REDACTED]
09/19/2013	1.7	Format/edit	K. [REDACTED]
09/18/2013	1.6	Added FR 2.6.12.5.1.1	L. [REDACTED]
09/11/2013	1.5	Added FP Estimation to section 8	L. [REDACTED]
07/11/2013 – 08/02/2013	1.4	Updates to use MOCHA Server v3.0 and to general dosing information message; Updates from developer review; and due to BRD changes	L. [REDACTED]
06/25/13	1.3	Added Appendix A2 – Error messages and A3 – Warning messages	L. [REDACTED]
06/05/2013 – 6/24/2013	1.2	Updates	L. [REDACTED]
05/02/2013	1.1	Edits from Informal review by project team updates	L. [REDACTED] [REDACTED]
04/26/2013	1.0	Format/edit	S. [REDACTED]
04/24/2013	0.3	Update	L. [REDACTED]
04/22/2013	0.2	Update	L. [REDACTED]
03/20/2013	0.1	Initial Version	L. [REDACTED]

ProPath Template Version 1.1

Artifact Rationale

The Requirements Specification Document (RSD) records the results of the specification gathering processes carried out during the Requirements phase. The RSD is generally written by the functional analyst(s) and should provide the bulk of the information used to create the test plan and test scripts. It should be updated for each increment.

The level of detail contained in this RSD should be consistent with the size and scope of the project. It is not necessary to fill out any sections of this document that do not apply to the project. The resources necessary to create and maintain this document during the life cycle of a large project should be acknowledged and clearly reflected in project schedules. Do not duplicate data that is already defined in another document or a section in this document; note in the section where the information can be found.

Table of Contents

1	Introduction	1
1.1	Purpose.....	1
1.2	Scope	1
1.3	Acronyms and Definitions.....	1
1.3.1	Acronyms	2
1.3.2	Definitions	3
1.4	References.....	8
2	Overall Description	9
2.1	Accessibility Specifications	9
2.2	Business Rules Specification	9
2.3	Design Constraints Specification	9
2.4	Disaster Recovery Specification.....	9
2.5	Documentation Specifications.....	9
2.6	Functional Specifications.....	10
2.6.1	Max Daily Dose Order Check	10
2.6.2	General Dosing Information Messages	10
2.6.3	System Level Error Message Changes	13
2.6.4	Drug Level Error Message Changes	14
2.6.5	Order Level Error Message Changes	16
2.6.6	Schedule File - Dosing Check Frequency	27
2.6.7	Medication Instruction file – Dosing Check Frequency	30
2.6.8	Schedule Exclusions	33
2.6.9	Per Orifice Note.....	34
2.6.10	Duration/Duration Rate.....	37
2.6.11	Frequency – Outpatient Medication Orders	38
2.6.12	Frequency – Inpatient Medication Orders	43
2.6.13	Old Schedule Name(s).....	45
2.6.14	Old Med Instruction Name(s)	48
2.6.15	APSP Intervention Type File	50
2.6.16	Max Daily Dose Order Check Not Done – Frequency Check Fails	50
2.6.17	Enhanced Free Text Logic for Dosage Ranges	52
2.6.18	Informational Data in Parenthesis as part of Dosage Ordered	54
2.6.19	Add Free Text Logic for Multi Ingredient.....	55
2.6.20	Customized Frequency Message.....	55
2.6.21	Dose Unit Conversion File	56
2.6.22	Display of Calculated Max Daily Dose Warning Message.....	57
2.6.23	Dose Units File (#51.24).....	58
2.6.24	Vista Interface – Addition of Data Elements	59
2.6.25	Warning Message Modifications.....	59

2.7	Graphical User Interface (GUI) Specifications	60
2.8	Multi-divisional Specifications	60
2.9	Performance Specifications	60
2.10	Quality Attributes Specification	60
2.11	Reliability Specifications	60
2.12	Scope Integration	60
2.13	Security Specifications	60
2.14	System Features	61
2.15	Usability Specifications	61
3	Applicable Standards	62
4	Interfaces	62
4.1	Communications Interfaces	62
4.2	Hardware Interfaces	62
4.3	Software Interfaces	62
4.4	User Interfaces	62
5	Legal, Copyright, and Other Notices	62
6	Purchased Components	63
7	User Class Characteristics	63
8	Estimation	63
9	Approval Signatures	66
A.	Appendix A	67
A.1.	Dose Unit Conversion File	67
A.2.	Error Messages	70
A.3.	Warning Messages	74
A.4.	Dose Units File (#51.24) with FDB mapping	75

1 Introduction

This section outlines the purpose and scope for the Medication Order Check Healthcare Application (MOCHA) v2.1 project and lists all references and documents relevant to the product being enhanced.

1.1 Purpose

The purpose of this Requirements Specification Document (RSD) is to outline the functional requirements for the MOCHA v2.1 increment. This document details the modifications necessary to the Veterans Health Information Systems and Technology Architecture (VistA) Pharmacy Data Management (PDM) v1.0 application. Modifications necessary to the VistA Outpatient Pharmacy and VistA Inpatient Medications applications will be addressed in separate documents.

The target audience of this RSD includes Pharmacy Benefits Management (PBM), Integrated Project Team (IPT) members, the MOCHA Dosing project team, and test site users.

1.2 Scope

The last increment (Increment 4) of functionality for the Pharmacy Re-engineering (PRE) v0.5 (Enhanced Order Checking functionality) project remaining to be delivered is the new Dosing Order Checks. In 2011, a proposal was presented to and accepted by the business owners to deliver the Dosing functionality in four separate increments. This allowed for all issues to be corrected so the product was more acceptable to the users. The functionality delivered would be as follows:

- MOCHA v2.0 – Maximum Single Dose Order Check for simple and complex medication orders
- MOCHA 2 Enhancement 1 (MOCHA v2.1) – Dose Range Checking with Max Daily Dose limit for simple medication orders
- MOCHA 2 Enhancement 2 (MOCHA v2.2) – Dose Range Checking with Max Daily Dose limit for complex medication orders
- MOCHA 2 Enhancement 3 (MOCHA v2.3) – Remaining Dosing Functionality

MOCHA v2.0 is tentatively scheduled for national release in early 2014 with a phased deployment completing in the first half of 2014.

The MOCHA v2.1 increment will implement the second of two new Dosing Order Checks; Dose Range Checking using the Max Daily Dose limit for simple medication orders entered through Outpatient Pharmacy, Inpatient Medications applications and Computerized Record Patient System (CPRS). This functionality will provide significant, enhanced patient safety features to reduce the risk of medication errors and adverse events.

1.3 Acronyms and Definitions

This subsection should provide the definitions of all terms, acronyms, and abbreviations required to properly interpret the RSD.

1.3.1 Acronyms

Term	Definition
ADPAC	Automated Data Processing Application Coordinator
API	Application Program Interface
BN	Business Need
BRD	Business Requirements Document
BSA	Body Surface Area
CPRS	Computerized Patient Record System
CR	Change Request
FDB	First Databank
FIPS	Federal Information Processing Standard
GUI	Graphical User Interface
HDR	Health Data Repository
HWSC	Health <u>e</u> Vet Web Services Client
IM	Inpatient Medications
IPT	Integrated Program/Project Team
IT	Information Technology
IV	Intravenous
LPD	Local Possible Dosage
M	Formerly known as MUMPS
M1E1	MOCHA 1 Enhancement 1
M2E1	MOCHA v2.1
MOCHA	Medication Order Check Healthcare Application
MUMPS	Massachusetts General Hospital Utility Multi-Programming System
NIST	National Institute of Standards and Technology
OP	Outpatient Pharmacy
PBM	Pharmacy Benefits Management
PD	Product Development
PDM	Pharmacy Data Management
PECS	Pharmacy Enterprise Customization System
PMAS	Program Management Accountability System
PRE	Pharmacy Reengineering

Term	Definition
ROC	Regional Operations Center
RSD	Requirements Specification Document
SDS	Standard Data Services
SRS	Software Requirements Specification
VA	Department of Veterans Affairs
VAP	VA Product
VETS	VA Enterprise Terminology Services
VHA	Veterans Health Administration
VistA	Veterans Health Information Systems and Technology Architecture

1.3.2 Definitions

Term	Definition
Additive	A drug that is added to an IV Solution for the purpose of parental administration. An additive can be an electrolyte, a vitamin or other nutrient, or an antibiotic.
Administration Schedule File	The ADMINISTRATION SCHEDULE file (#51.1) contains administration schedule names and standard dosage administration times. The name is a common abbreviation for an administration schedule (e.g., QID, Q4H, and PRN). The administration time is entered in military time.
Admixture	An admixture is a type of intravenously administered medication comprised of any number of additives (including zero) in one solution. It is given at a specified flow rate; when one bottle or bag is empty, another is hung.
Body Surface Area	A measured or calculated surface of a human body.
Chemotherapy	Chemotherapy is the treatment or prevention of cancer with chemical agents. The chemotherapy IV type administration can be a syringe, admixture or a piggyback. Once the subtype (syringe piggyback etc.) is selected, the order entry follows the same procedure as the type that corresponds to the selected subtype (e.g., piggyback type of chemotherapy follows the same entry procedure as regular piggyback
Chemotherapy Admixture	The Chemotherapy “Admixture” IV type follows the same order entry procedure as the regular admixture IV type. This type is in use when the level of toxicity of the chemotherapy drug is high and is to be administered continuously over an extended period of time (e.g., seven days).
Chemotherapy Piggyback	The Chemotherapy “Piggyback” IV type follows the same order entry procedure as the regular piggyback IV type. This type of chemotherapy is in use when the chemotherapy drug

Term	Definition
	does not have time constraints on how fast it must be infused into the patient. These types are normally administered over a 30 - 60 minute interval.
Chemotherapy Syringe	The Chemotherapy “Syringe” IV type follows the same order entry procedure as the regular syringe IV type. Its administration may be continuous or intermittent. The pharmacist selects this type when the level of toxicity of the chemotherapy drug is low and needs to be infused directly into the patient within a short time interval (usually 1-2 minutes).
Complex Order (Inpatient)	<p>An order that is created from CPRS using the Complex Order dialog and consists of one or more associated Inpatient Medication orders, known as “child” orders.</p> <p>Inpatient Medications receives the parent order number from CPRS and links the child orders together. If an action of FN (Finish), VF (Verify), DC (Discontinue), or RN (Renew) is taken on one child order, the action must be taken on all of the associated child orders. For example:</p> <p>If one child order within a Complex Order is made active, all child orders in the Complex Order must be made active.</p> <p>If one child order within a Complex Order is discontinued, all child orders in the Complex Order must be discontinued.</p> <p>If one child order within a Complex Order is renewed, all child orders in the Complex Order must be renewed.</p>
Complex Order (Outpatient)	An order consisting of one or more dosing sequences.
Continuous IV Order	Inpatient Medications IV order not having an administration schedule. This includes the following IV types: Hyperal, Admixture, Non-Intermittent Syringe, and Non-Intermittent Syringe or Admixture Chemotherapy.
Continuous Syringe	A syringe type of IV that is administered continuously to the patient, similar to a hyperal IV type. This type of syringe is commonly used on outpatients and administered automatically by an infusion pump.
CPRS	A VistA computer software package called Computerized Patient Record System. CPRS is an application in VistA that allows the user to enter all necessary orders for a patient in different packages from a single application. All pending orders that appear in the Unit Dose and IV modules are initially entered through the CPRS package.
DEA Special Handling	The Drug Enforcement Agency Special Handling code used for drugs to designate if they are over-the counter, narcotics, bulk compounds, supply items, etc.

Term	Definition
Dispense Drug	The Dispense Drug name has the strength attached to it (e.g., Acetaminophen 325 mg). It is the GENERIC NAME field (#.01) entry in the DRUG file (#50).
Dosage Form	Refers to the physical presentation of a drug. Dosage Form includes aerosol, capsule, cream, and so on.
Dosage Form File	The DOSAGE FORM file (#50.606) contains all dosage forms and associated data that are used by Pharmacy packages and CPRS. The dosage form is used in SIG construction, default values and in the determination of the type of each dosage created for each application.
Dosage Ordered	Provides the single dose amount and Dose Unit for a drug within a medication order.
Dose Rate Unit	The unit of measure for rate of the dose (HOUR, HR, H, MINUTE, MIN, DAY).
Dose Route	A term which represents the method of administering the drug.
Dose Type	A term which identifies the purpose for which the dose is given (for example, loading dose, maintenance dose).
Dose Unit	A unit of measure commonly reported in the medical literature and reference sources, such as 'MG', 'TABLET'.
Dose Units File	The DOSE UNITS file (#51.24) was created to accomplish the mapping to First Databank (FDB). All entries in this file have been mapped to an FDB Dose Unit. Although this file has not yet been standardized by Standards and Terminology Services (SRS), no local editing will be allowed. When Populating the Dose Unit field for a Local Possible Dosage, selection will be from this new file.
Dosing Order Checks	General term that refers to the Maximum Single Dose Order Check and the Max Daily Dose Order Check.
Drug File	The DRUG file (#50) holds the information related to each drug that can be used to fill a prescription or medication order. It is pointed to from several other files and should be handled carefully, usually only by special individuals in the Pharmacy Service. Entries are not typically deleted, but rather made inactive by entering an inactive date.
Drug Level Error	An error that prevents the mapping of a drug from the VistA database to the FDB MedKnowledge Framework (formerly known as Drug Information Framework or DIF) database. The GCNSEQNO is used to map between the VA PRODUCT file (#50.68) to a drug in the FDB MedKnowledge Framework database. Example: A dispense drug in the local DRUG file (#50) that is being ordered is not matched to a VA Product in the VA PRODUCT file (#50.68). Therefore a GCNSEQNO cannot be obtained.

Term	Definition
Dummy data	Data that has been pre-determined based on business rules and which is sent into the interface to obtain general dosing information on a dispense drug when the Max Daily Dose Order Check or both Dosing Order Checks could not be performed.
Duration	A specific length of time. For Dosing Order Checks, the duration is set to 1 day.
Duration Rate Unit	The unit of measure for rate of the length of therapy (HOUR, HR, H, MINUTE, MIN, DAY)
Enhanced Order Checks	Drug – Drug Interaction, Duplicate Therapy, and Dosing order checks that are executed utilizing FDB's MedKnowledge Framework (formerly known as Drug Information Framework) APIs and database.
Free Text Dosage	Any combination of text, numbers, or special characters entered in no particular format in the DOSAGE ORDERED field for a medication order.
Free Text Infusion Rate	Any combination of text, numbers, or special characters entered in no particular format in the INFUSION RATE field for a continuous IV fluid order.
Frequency	The number of administrations per day of a drug.
Finish	Term used for completing orders from Order Entry/Results Reporting V. 3.0.
GCNSEQNO	A numeric value that represents a generic formulation. It is specific to the generic ingredient(s), route of administration, dosage form, and strength. The Formulation ID (GCN), in some cases, may have the same value for different dosage forms, strengths, or non-active ingredient list differences and therefore may be linked to more than one GCNSEQNO. But a GCNSEQNO is unique in its association with each combination of factors.
Infusion Rate	The designated rate of flow of IV fluids into the patient.
Intermittent Syringe	A syringe type of IV that is administered periodically to the patient according to an administration schedule.
Local Possible Dosages	Local Possible Dosages are free text dosages that are associated with drugs that do not meet all of the criteria for Possible Dosages.
Maximum Single Dose	Maximum amount to be administered in a single dose
Maximum Single Dose Order Check	A safeguard incorporated in software when a new medication order is entered or acted upon to ensure that the single dose ordered for a patient does not exceed a recommended upper limit for a drug.

Term	Definition
National Drug File	The National Drug File provides standardization of the local drug files in all VA medical facilities. Standardization includes the adoption of new drug nomenclature and drug classification and links the local drug file entries to data in the National Drug File. For drugs approved by the Food and Drug Administration (FDA), VA medical facilities have access to information concerning dosage form, strength and unit; package size and type; manufacturer's trade name; and National Drug Code (NDC). The NDF software lays the foundation for sharing prescription information among medical facilities.
Numeric Dose	A single dose amount entered as a numeric value. The Numeric Dose with the Dose Unit make up the dosage ordered for a medication order.
Order Level Error	An error that is returned from the FDB DIF API or order information cannot be sent to the interface because of missing data. Example: Information is passed from VistA to FDB database, but the Dosing Order Check cannot be performed, because no FDB dosing information is available for the drug.
Orderable Item	An Orderable Item name that usually has no strength attached to it (e.g., Acetaminophen). The name with a strength attached to it is the Dispense drug name (e.g., Acetaminophen 325mg).
Order Check	Order checks (Drug-Allergy/ADR interactions, Drug-Drug, Duplicate Drug, Duplicate Therapy, and Dosing) are performed when a new medication order is placed through either CPRS, Outpatient Pharmacy, or Inpatient Medications applications. They are also performed when medication orders are renewed, when Orderable Items are edited, or during the finishing process in Inpatient Medications or Outpatient Pharmacy. This functionality will ensure the user is alerted to possible adverse drug reactions and will reduce the possibility of a medication error.
Otic	Of, relating to, or located near the ear; auricular.
Pending Order	A pending order is one that has been entered by a provider through CPRS without Pharmacy finishing the order. Once Pharmacy has finished the order, it will become active.
Piggyback	Small volume parenteral solution for intermittent infusion. A piggyback is comprised of any number of additives, including zero, and one solution. The mixture is made in a small bag. The piggyback is given on a schedule (e.g., Q6H). Once the medication flows in, the piggyback is removed; another is not hung until the administration schedule calls for it.
PreMix	An IV Solution that is manufactured or compounded that contains additives.

Term	Definition
Prescription	This term is now referred to throughout the software as medication orders.
Print Name	Drug generic name as it is to appear on pertinent IV output, such as labels and reports. Volume or Strength is not part of the print name.
Route	Refers to the route of administration, which is the site or method by which a drug is administered.
Schedule	The frequency of administration of a medication (e.g., QID, QDAILY, QAM, STAT, Q4H).
Schedule Type	Codes include: O - one time (i.e., STAT - only once), P - PRN (as needed; no set administration times), C - continuous (given continuously for the life of the order; usually with set administration times), R - fill on request (used for items that are not automatically put in the cart - but are filled on the nurse's request). These can be multidose items (e.g., eye wash, kept for use by one patient and is filled on request when the supply is exhausted), and OC - on call (one time with no specific time to be given, e.g., 1/2 hour before surgery).
Simple Order (Inpatient)	All inpatient medication orders processed through the pharmacy backdoor will be considered simple orders for MOCHA v2.1.
Simple Order (Outpatient)	An order consisting of one dosing sequence.
Single Dose Amount	The numeric value of the dosage ordered for a medication order. For an IV order, this value can be represented by the IV Additive strength, numeric value of an IV Solution (PreMix) volume or IV order infusion rate or derived using a formula.
Strength	The potency of a drug usually expressed in a metric quantity consisting of a value and unit, such as 500MG. Strength is usually a whole number.
Syringe	Type of IV that uses a syringe rather than a bottle or bag. The method of infusion for a syringe type IV may be continuous or intermittent.
System Level Error	If this error occurs, no order checks can be performed. Example: Communication link to FDB database is down.

1.4 References

- VA Handbook 6500 – Information Security Program
[\[REDACTED\]vapubs/viewPublication.asp?Pub_ID=638&FType=2](#)
- PMAS Portal
[\[REDACTED\]pmas/Pages/default.aspx](#)
- ProPath Site
[\[REDACTED\]process/Library/propath_process_home.pdf](#)

- MOCHA Over-Archiving BRD
[REDACTED]Pharmacy_Re-Engineering_MOCHA_FY14/MOCHA_Over-Archiving_BRD.zip
- MOCHA v2.0 SRS
[REDACTED]Pharmacy_Re-Engineering_PRE_(PECS-MOCHA)/PRE%20V0%205%20OC%20SRS%20V11.doc
- MOCHA Dosing CRs
[REDACTED]projects/pre/PRE_MOCHA_2-1/Shared%20Documents/Inception/MOCHA%20Dosing%20CRs%20092313.xls
- MOCHA v2.1 OP RSD
[REDACTED]Pharmacy_Re-Engineering_MOCHA_FY14/M2-1_OP_RSD_v2.pdf
- MOCHA v2.1 IP RSD
[REDACTED]Pharmacy_Re-Engineering_MOCHA_FY14/M2-1_IPM_RSD_v2.pdf

2 Overall Description

This section describes the general factors that affect the product and its specifications.

2.1 Accessibility Specifications

Not applicable.

2.2 Business Rules Specification

The business rules are specified in the technical requirements.

2.3 Design Constraints Specification

- Software written in the Massachusetts General Hospital Utility Multi-Programming System (MUMPS) programming language.
- Utilizes MOCHA Server v3.0
- Utilizes First Databank (FDB) MedKnowledge Framework v3.3

2.4 Disaster Recovery Specification

Data protection measures, such as back-up intervals and redundancy shall be consistent with systems categorized as Vista.

2.5 Documentation Specifications

Changes to the following User Manuals will be required:

- User Manual – Pharmacy Data Management v1.0
- Technical Manual/Security Guide
- Dosing Order Check manual

The following documentation will be created:

- Release Notes
- Installation Guide

2.6 Functional Specifications

This section describes the software modifications for MOCHA v2.1 to be made to the PDM application to incorporate Dose Range Checking with a Max Daily Dose limit for simple orders. General dosing information for a drug will be displayed to the user when the Max Daily Dose Order Check cannot be performed or when both the Maximum Single Dose and Max Daily Dose Order Checks cannot be performed. Any exceptions to this will be noted in the requirements that follow. These modifications will add to functionality implemented in MOCHA v2.0.

FDB's MedKnowledge Framework Application Program Interfaces (API), business logic and database will continue to be utilized. FDB custom tables will be used to store custom dosing changes made through the Pharmacy Enterprise Customization System (PECS) application.

Business Need (BN) 1 applies to all MOCHA v2.1 requirements as applicable.

2.6.1 Max Daily Dose Order Check

This section shall detail the functionality of the Max Daily Dose Order Check.

BN 2 in the Business Requirements Document (BRD) and associated Change Requests (CR) 5703, CR 6389, CR 5794, and CR 3472 are addressed by requirements in this section.

2.6.1.1 Functional Requirement 1

The Max Daily Dose Order Check shall replace the Daily Dose Range Order Check.

2.6.1.2 Functional Requirement 2

The Max Daily Dose Order Check shall be implemented for all simple medication orders entered through CPRS, Inpatient Medications, and Outpatient Pharmacy applications.

2.6.1.3 Functional Requirement 3

If the daily dose exceeds the FDB recommended Max Daily Dose, a warning message shall be returned.

2.6.1.4 Functional Requirement 4

If the Max Daily Dose Order Check cannot be performed, the program shall return an order level error message along with general dosing information for the drug.

2.6.1.5 Functional Requirement 5

If both Dosing Order Checks (Maximum Single Dose and Max Daily Dose) cannot be evaluated, the program shall return an order level error message along with general dosing information for the drug.

2.6.2 General Dosing Information Messages

This section will describe the composition of the general dosing information messages and under what circumstances they will be displayed.

BN 15 in the BRD and associated CR 6535 and CR 6464 are addressed by requirements in this section.

2.6.2.1 Functional Requirement 1

The general dosing information messages shall be comprised of the following:

- Drug Name
- FDB DoseRouteDescription
- FDB DoseLow or FDB DoseFormLow
- FDB DoseLowUnit or FDB DoseFormLowUnit
- FDB DoseHigh or FDB DoseFormHigh
- FDB DoseHighUnit or FDB DoseFormHighUnit
- FDB MaxDailyDose or FDB MaxDailyDoseForm
- FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit

2.6.2.2 Functional Requirement 2

The message format shall be defined as follows:

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to'  
DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.
```

Or

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription):  
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is  
'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.
```

See examples that follow:

```
General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800  
milligrams per day. Maximum daily dose is 1800 milligrams per day.
```

Or

```
General dosing range for GABAPENTIN 600MG TAB (ORAL): 0.5 each per day to 3 each per day.  
Maximum daily dose is 3 each per day.
```


2.6.2.2.1 Functional Requirement 1

If a DoseRouteDescription is not returned from FDB, no Dose Route shall be included in the general dosing information messages. See below:

```
'General dosing range for' DRUG NAME: DoseLow<sp>DoseLowUnit 'to'  
DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.
```

Or

```
'General dosing range for' DRUG NAME: DoseFormLow<sp>DoseFormLowUnit 'to'  
DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is  
'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.
```

Note:	If Dosing Order Checks are returned without a DoseRouteDescription that means that a FDB MIN/Max dosing record was used to perform the Dosing Order Check. Min/Max dosing records are not specific for a dose route or dose type.
	

2.6.2.2.2 Functional Requirement 2

If the Dose Route sent into the interface is a 'FDB Continuous Route' the text for the second general dosing information message shall differ. See below:

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to'  
DoseHigh<sp>DoseHighUnit. 'Maximum dose rate is 'MaxDailyDose<sp>MaxDailyDoseUnit.
```


Or

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription):  
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum dose rate is  
'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.
```

See Examples below:

```
General dosing range for HEPARIN 25000 UNITS (CONTINUOUS INFUSION): 833 units per hour  
to 1667 units per hour. Maximum dose rate is 1667 units per hour.
```

```
General dosing range for HEPARIN 100U/ML IN 5% DEXTROSE 250 ML (CONTINUOUS INFUSION):  
8.33 milliliters per hour to 16.67 milliliters per hour. Maximum dose rate is 16.67  
milliliters per hour.
```

2.6.2.2.3 Functional Requirement 3

If the FDB DoseLow and FDB DoseHigh values are the same, display the FDB DoseHigh value only.

```
General dosing range for CLOPIDOGREL 75MG TAB (ORAL): 75 milligrams per day. Maximum daily  
dose is 75 milligrams per day.
```

2.6.2.2.4 Functional Requirement 4

If the FDB DoseFormLow and FDB DoseFormHigh values are the same, display the FDB DoseFormHigh value only.

```
General dosing range for CLOPIDOGREL 75MG TAB (ORAL): 1 each per day. Maximum daily dose is 1  
each per day.
```

2.6.2.2.5 Functional Requirement 5

If the FDB MaxDailyDose or FDB MaxDailyDoseForm values are '0' and/or the FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit values are null, the General Dosing Information message shall display the following:

```
General dosing range for KETOROLAC 10MG TAB: 10 milligram per day to 40 milligram per day.  
Maximum daily dose is unavailable.
```

2.6.2.3 Functional Requirement 3

The DOSE FORM INDICATOR field (#3) in the DOSE UNITS file (#51.24) shall indicate whether or not the Dose Form type values shall be used.

2.6.2.4 Functional Requirement 4

The following display rules shall be applied to the DoseLow, DoseFormLow, DoseHigh, DoseFormHigh, MaxDailyDose, and MaxDailyDoseForm values:

- If after a decimal only zeroes exist, do not return (i.e. 600.0 or 600.00 display 600)
- Maintain leading zeroes (i.e. 0.25)

2.6.2.5 Functional Requirement 5

General dosing information messages shall be returned when the Max Daily Dose Order Check cannot be performed.

2.6.2.6 Functional Requirement 6

General dosing information messages shall be returned when both the Maximum Single Dose Order Check and Max Daily Dose Order Check cannot be performed.

2.6.2.7 Functional Requirement 7

General dosing information messages shall not be returned for orders with a dose type of 'Single Dose'.

2.6.2.8 Functional Requirement 8

General dosing information messages shall not be returned with FDB messages that have a severity of 'Not Screened' or 'Warning'.

2.6.2.9 Functional Requirement 9

If a Maximum Single Dose Order Check warning is generated for a simple order entered through CPRS that has a schedule that has been excluded from Daily Dose Order Checks, general dosing information messages shall be returned with the Maximum Single Dose Order Check warning.

2.6.2.10 Functional Requirement 10

If a Maximum Single Dose Order Check warning is generated for a simple order entered through pharmacy backdoor options that has a schedule that has been excluded from Daily Dose Order Checks, general dosing information messages shall be returned with the Maximum Single Dose Order Check warning.

2.6.2.11 Functional Requirement 11

If a Maximum Single Dose Order Check cannot be performed and an error message is generated for a simple order entered through CPRS that has a schedule that has been excluded from Daily Dose Order Checks, general dosing information messages shall be returned with the order level error message.

2.6.2.12 Functional Requirement 12

If a Maximum Single Dose Order Check cannot be performed and an error message is generated for a simple order entered through pharmacy backdoor options that has a schedule that has been excluded from Daily Dose Order Checks, general dosing information messages shall be returned with the order level error message.

2.6.3 System Level Error Message Changes


This section will document all the system level error message changes for MOCHA v2.1. A listing of all system level error messages displayed in MOCHA v2.1 is available in Appendix A2 of this document.

BN 4 in the BRD and associated CR 5704 is addressed by requirements in this section for system level error messages.

2.6.3.1 Functional Requirement 1

If Dosing Order Checks have been disabled, the system level error message returned to the Outpatient Pharmacy and Inpatient Medications applications shall be the following:

Dosing Checks are not available; please complete a manual check for appropriate Dosing.

Note:	Dosing Order Checks are disabled using the <i>Enable/Disable Dosing Order Checks</i> [PSS Dosing Order Checks] option.
	

2.6.3.2 Functional Requirement 2


If Dosing Order Checks cannot be performed because the vendor database cannot be reached, the system level error message returned to the Outpatient Pharmacy and Inpatient Medications application shall be the following:

```
Dosing Checks could not be performed.
Reason(s): Vendor Database cannot be reached
```

2.6.3.3 Functional Requirement 3

If Dosing Order Checks cannot be performed because the vendor database has been disabled, the system level error message returned to the Outpatient Pharmacy and Inpatient Medications applications shall be the following:

```
Dosing Checks could not be performed.
Reason(s): The connection to the vendor database has been disabled.
```

Note:	Vendor database is disabled using the <i>Enable/Disable Vendor Database Link</i> [PSS ENABLE/DISABLE DB LINK] option.
	

2.6.3.4 Functional Requirement 4

If Dosing Order Checks cannot be performed because vendor database updates are being processed, the system level error message returned to the Outpatient Pharmacy and Inpatient Medications shall be the following:

```
Dosing Checks could not be performed.
Reason(s): Vendor database updates are being processed.
```

2.6.3.5 Functional Requirement 5

If Dosing Order Checks cannot be performed because an unexpected error has occurred, the system level error message returned to the Outpatient Pharmacy and Inpatient Medications application shall be the following:

```
Dosing Checks could not be performed.
Reason(s): An unexpected error has occurred
```

2.6.4 Drug Level Error Message Changes

This section will document all the drug level error message changes for MOCHA v2.1. A listing of all drug level error messages displayed in MOCHA v2.1 is available in Appendix A2 of this document.

BN 4 in the BRD and associated CR 5704 is addressed by requirements in this section for drug level error messages.

2.6.4.1 Functional Requirement 1

If an inpatient unit dose or IV order is edited through pharmacy backdoor options where only Dosing Order Checks are performed and the drug within the order is not matched to NDF, the following drug level error message shall be returned to the Inpatient Medications application.

```
Dosing Checks cannot be performed for Drug: <DRUG NAME>  
Reason(s): Drug not matched to NDF
```

2.6.4.2 Functional Requirement 2

If an inpatient unit dose or IV order is edited through pharmacy backdoor options where only Dosing Order Checks are performed and the drug within the order is matched to a VA Product (VAP) that has no GCNSEQNO, and the EXCLUDE DRG-DRG INTERACTION CK field (#23) in the VA PRODUCT file (#50.68) is set to 'Yes', no drug level error message shall be returned to the Inpatient Medications application.

2.6.4.3 Functional Requirement 3

If an inpatient unit dose or IV order is edited through pharmacy backdoor options where only Dosing Order Checks are performed and the drug within the order is matched to a VA Product (VAP) that has no GCNSEQNO, and the EXCLUDE DRG-DRG INTERACTION CK field (#23) in the VA PRODUCT file (#50.68) is set to null or 'No', the following drug level error message without a specific reason shall be returned to the Inpatient Medications application.

```
Dosing Checks cannot be performed for Drug: <DRUG NAME>, please complete a manual check for  
appropriate Dosing.
```

2.6.4.4 Functional Requirement 4

If an inpatient unit dose or IV order is edited through pharmacy backdoor options where only Dosing Order Checks are performed and the drug within the order is matched to a VA Product (VAP) that has a bad GCNSEQNO, and the EXCLUDE DRG-DRG INTERACTION CK field (#23) in the VA PRODUCT file (#50.68) is set to 'Yes', no drug level error message shall be returned.

2.6.4.5 Functional Requirement 5

If an inpatient unit dose or IV order is edited through pharmacy backdoor options where only Dosing Order Checks are performed and the drug within the order is matched to a VA Product (VAP) that has a bad GCNSEQNO, and the EXCLUDE DRG-DRG INTERACTION CK field (#23) in the VA PRODUCT file (#50.68) is set to null or 'No', the following drug level error message without a specific reason shall be returned.

```
Dosing Checks cannot be performed for Drug: <DRUG NAME>, please complete a manual check for  
appropriate Dosing.
```

2.6.4.6 Functional Requirement 6

If an order is entered through CPRS through the IV fluid dialog and the IV Additive or IV Solution (marked as a PreMix) within the order is inactivated before the order is accepted or signed off, the following drug level error message without a specific reason shall be returned to CPRS.

```
Dosing Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for  
appropriate Dosing.
```

2.6.5 Order Level Error Message Changes

This section will document all the order level error message changes for MOCHA v2.1 returned to the Inpatient Medications, Outpatient Pharmacy applications, and CPRS by Pharmacy Data Management. A listing of all order level error messages and warning messages displayed in MOCHA v2.1 is available in Appendix A2 and A3 of this document.


BNs 3, 4, and 13 in the BRD and associated CR 4058, CR 3613, CR 3099, CR 5704, CR 3567, CR 3137, CR 5948, CR 5250, and CR 5777 are addressed by requirements in this section for order level error messages.

2.6.5.1 Functional Requirement 1

If the patient's age is not available, Dosing Order Checks will not be performed and the following order level error message shall be returned to Inpatient Medications and Outpatient Pharmacy applications:

Age undefined (Pharmacy)

Dosing Checks could not be performed for Drug: <DRUG NAME>
Reason(s): One or more required patient parameters unavailable: AGE


Note:	General dosing information cannot be provided because age is a required parameter.
	

2.6.5.2 Functional Requirement 2

If the patient's age is not available, Dosing Order Checks will not be performed and the following order level error message without a specific reason shall be returned to CPRS:

Age undefined (CPRS)

Dosing Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for appropriate Dosing.

Note:	General dosing information cannot be provided because age is a required parameter.
	

2.6.5.3 Functional Requirement 3

If the patient's weight is not available and a weight is required for a Max Daily Order Check to be performed, an order level error message along with general dosing information messages shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

Weight required (Pharmacy)

Max Daily Dose Check could not be performed for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): Weight required

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

2.6.5.4 Functional Requirement 4

If both the Maximum Single Dose Order Check and Max Daily Dose Order Check cannot be performed because a weight is required and the patient's weight is not available, only one error message along with general dosing information messages shall be returned to the Inpatient Medications and Outpatient Pharmacy applications.

Weight Required (Pharmacy)

Dosing Checks could not be performed for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): Weight required

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

2.6.5.5 Functional Requirement 5

If the patient's weight is not available and a weight is required for a Maximum Single Dose Order Check to be performed, an order level error message with a reason shall be returned to CPRS.

2.6.5.5.1 Functional Requirement 1

The order level error message reason that shall be returned when a weight is required but unavailable is 'No weight documented for patient'.

Weight required (CPRS)

Maximum Single Dose Check could not be done for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): No weight documented for patient

2.6.5.6 Functional Requirement 6

If the patient's weight is not available and a weight is required for a Max Daily Dose Order Check to be performed, an order level error message with a reason along with general dosing information messages shall be returned to CPRS.

2.6.5.6.1 Functional Requirement 1

The order level error message reason that shall be returned when a weight is required but unavailable is 'No weight documented for patient'.

Weight required (CPRS)

Max Daily Dose Check could not be done for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): No weight documented for patient

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

2.6.5.7 Functional Requirement 7

If both the Maximum Single Dose Order Check and Max Daily Dose Order Check cannot be performed because a weight is required and the patient's weight is not available, only one error message with a reason along with general dosing information messages shall be returned to CPRS.

2.6.5.7.1 Functional Requirement 1

The order level error message reason that shall be returned when a weight is required but unavailable is 'No weight documented for patient'.

Weight required (CPRS)

Dosing Checks could not be done for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): No weight documented for patient

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligram per kilogram per day to 7 milligram per kilogram per day. Maximum daily dose is 630 milligram per day.

2.6.5.8 Functional Requirement 8

If the patient's Body Surface Area (BSA) is not available because a height and/or weight was not available to perform the calculation and a BSA is required for a Max Daily Dose Order Check to be performed, an order level error message along with general dosing information messages shall be returned to the Inpatient Medications and Outpatient Pharmacy applications.

BSA required (Pharmacy)

Max Daily Dose Check could not be performed for Drug: LOMUSTINE 100MG CAP
Reason(s): Body surface area required

General dosing range for LOMUSTINE 100MG CAP (ORAL): 100 milligrams per meter squared per day to 130 milligrams per meter squared per day. Maximum daily dose is 261.780 milligrams per day.

2.6.5.9 Functional Requirement 9

If both the Maximum Single Dose Order Check and the Max Daily Dose Order Check cannot be performed because a BSA is required and the patient's weight and/or height is not available, only one error message along with general dosing information messages shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

BSA required (Pharmacy)

Dosing Checks could not be performed for Drug: <Drug Name>
Reason(s): Body surface area required

General dosing range for LOMUSTINE 100MG CAP (ORAL): 100 milligrams per meter squared per day to 130 milligrams per meter squared per day. Maximum daily dose is 261.780 milligrams per day.

2.6.5.10 Functional Requirement 10

If the patient's BSA is not available because a height and/or weight was not available to perform the calculation and a BSA is required for a Maximum Single Dose Order Check to be performed, an order level error message with a reason shall be returned to CPRS.

2.6.5.10.1 Functional Requirement 1

The order level error message reason that shall be returned to CPRS when a BSA is required but the height and/or weight was unavailable is 'No weight and/or height documented for patient'.

BSA required (CPRS)

Maximum Single Dose Check could not be done for Drug: LOMUSTINE 100MG CAP
Reason(s): No weight and/or height documented for patient

2.6.5.11 Functional Requirement 11

If the patient's BSA is not available because a height and/or weight was not available to perform the calculation and a BSA is required for a Max Daily Dose Order Check to be performed, an order level error message with a reason along with general dosing information messages shall be returned to CPRS.

2.6.5.11.1 Functional Requirement 1

The order level error message reason that shall be returned to CPRS when a BSA is required but the height and/or weight was unavailable is 'No weight and/or height documented for patient'.

BSA required (CPRS)

Max Daily Dose Check could not be done for Drug: LOMUSTINE 100MG CAP
Reason(s): No weight and/or height documented for patient

General dosing range for LOMUSTINE 100MG CAP (ORAL): 100 milligrams per meter squared per day to 130 milligrams per meter squared per day. Maximum daily dose is 261.780 milligrams per day.

2.6.5.12 Functional Requirement 12

If both the Maximum Single Dose Order Check and Max Daily Dose Order Check cannot be performed because a BSA is required and the patient's weight and/or height is not available, only one error message with a reason along with general dosing information messages shall be returned to CPRS.

2.6.5.12.1 Functional Requirement 1

The order level error message reason that shall be returned to CPRS when a BSA is required but the height and/or weight was unavailable is 'No weight and/or height documented for patient'.

BSA required (CPRS)

Dosing Checks could not be done for Drug: LOMUSTINE 100MG CAP
Reason(s): No weight and/or height documented for patient


General dosing range for LOMUSTINE 100MG CAP (ORAL): 100 milligrams per meter squared per day to 130 milligrams per meter squared per day. Maximum daily dose is 261.780 milligrams per day.

2.6.5.13 Functional Requirement 13

If Dosing Order Checks cannot be performed because a FDB Dose Route cannot be determined, an order level error message shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

FDB Dose Route Undefined (Pharmacy)

Dosing Checks could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Invalid or Undefined Dose Route


Note:	General dosing information cannot be provided if the medication route is not defined.
	

2.6.5.14 Functional Requirement 14

If Dosing Order Checks cannot be performed because a FDB Dose Route cannot be determined, an order level error message without a specific reason shall be returned to CPRS.

FDB Dose Route Undefined (CPRS)

Dosing Checks could not be done for Drug: GABAPENTIN 600MG TAB, please complete a manual check for appropriate Dosing.

Note:	General dosing information cannot be provided if the medication route is not defined.
	

2.6.5.15 Functional Requirement 15

If a Max Daily Dose Order Check cannot be performed because the frequency for the order is invalid or undefined, an order level error message along with general dosing information messages shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

Frequency Invalid or undefined (Pharmacy)

Max Daily Dose Check could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Invalid or Undefined Frequency

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

2.6.5.16 Functional Requirement 16

If a Max Daily Dose Order Check cannot be performed because the frequency for the order is invalid or undefined, an order level error message without a specific reason along with general dosing information messages shall be returned to CPRS.

Frequency Invalid or undefined (CPRS)

Max Daily Dose Check could not be done for Drug: GABAPENTIN 600MG TAB, please complete a manual check for appropriate Dosing.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

2.6.5.17 Functional Requirement 17

In order to retrieve general dosing information for a drug when a frequency could not be determined, the following 'dummy data' shall be sent into the interface for the Dosing Order Checks.

2.6.5.17.1 Functional Requirement 1

The duration rate shall be set to the dose rate value (as determined from the order) and sent into the interface.

2.6.5.17.2 Functional Requirement 2

The value of '1' shall be sent into the interface for the frequency and duration.


2.6.5.18 Functional Requirement 18

No messages referencing the Max Daily Dose Order Check returned from the Dosing Order Check using 'dummy data' to obtain general dosing information for a drug when a frequency could not be determined shall be returned to Inpatient Medications, Outpatient Pharmacy applications or CPRS.

2.6.5.19 Functional Requirement 19

In order to obtain general dosing information for a dispense drug associated with an IV Additive or IV Solution (marked as PreMix) when a frequency could not be evaluated, the following 'dummy data' shall be sent into the interface for an IV order with an IV Type of 'Piggyback'

‘Intermittent Syringe’, ‘Chemotherapy Piggyback’, or ‘Chemotherapy Intermittent Syringe’ or CPRS Intermittent IV order and dose type of ‘Maintenance’.

Note:	IV orders with IV types of ‘Piggyback’ ‘Intermittent Syringe’, ‘Chemotherapy Piggyback’, or ‘Chemotherapy Intermittent Syringe’ are all considered ‘Intermittent’ IV Orders.
	

2.6.5.19.1 Functional Requirement 1

The duration rate shall be set to the dose rate value (as determined from the order) and sent into the interface.

2.6.5.19.2 Functional Requirement 2

The value of ‘1’ shall be sent into the interface for frequency and duration.

2.6.5.20 Functional Requirement 20

No messages referencing the Max Daily Dose Order Check returned from the Dosing Order Check using ‘dummy data’ for an IV Additive or IV Solution marked as a PreMix to obtain general dosing information for a drug when a frequency could not be determined shall be returned to Inpatient Medications or CPRS.

2.6.5.21 Functional Requirement 21

If the frequency calculated from the order’s schedule is greater than the order duration (i.e. Q4H for 2 hours), a Max Daily Dose Order Check shall not be performed, and an order level error message along with general dosing information messages shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

Frequency greater than order duration (Pharmacy)

Max Daily Dose Check could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Frequency greater than order duration

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

2.6.5.22 Functional Requirement 22

If the frequency is greater than the order duration (i.e. Q4H for 2 hours), a Max Daily Dose Order Check shall not be performed and an order level error message without a specific reason along with general dosing information messages shall be returned to CPRS.

Frequency greater than order duration (CPRS)

Max Daily Dose Check could not be done for Drug: GABAPENTIN 600MG TAB, please complete a manual check for appropriate Dosing.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

2.6.5.23 Functional Requirement 23

If Dosing Order Checks cannot be performed because the single dose amount cannot be determined, an order level error message along with general dosing information messages shall be returned to Inpatient Medications and Outpatient Pharmacy applications.

Single Dose Amount cannot be determined for Unit Dose or Outpatient order (Pharmacy)

Dosing Checks could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

Single Dose Amount cannot be determined for IV Solution marked as PreMix (Pharmacy)

Dosing Checks could not be performed for Drug: HEPARIN 25000 UNITS/0.45% NACL 250 ML
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for HEPARIN 25000 UNITS (CONTINUOUS INFUSION): 833 units per hour to 1650 units per hour. Maximum dose rate is 1650 units per hour.

Single Dose Amount cannot be determined for IV Additive (Pharmacy)

Dosing Checks could not be performed for Drug: POTASSIUM CHLORIDE 30MEQ
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for POTASSIUM CHLORIDE 30 MEQ (INTRAVENOUS): 1 milliequivalent per day to 100 milliequivalents per day. Maximum daily dose is 100 milliequivalents per day.

2.6.5.24 Functional Requirement 24

If Dosing Order Checks cannot be performed because the single dose amount cannot be determined, an order level error message without a specific reason along with general dosing information messages shall be returned to CPRS.

Single Dose Amount cannot be determined (CPRS)

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to' DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.

Or

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription):
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is 'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.

2.6.5.25 Functional Requirement 25

If Dosing Order Checks cannot be performed because the Dose Unit cannot be determined, an order level error message along with general dosing information messages shall be returned to the Inpatient Medications and Outpatient Pharmacy applications.

Dose Units cannot be determined – Unit Dose Order or Outpatient Order (Pharmacy)

Dosing Checks could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

Dose Units cannot be determined – IV Solution marked as a PreMix (Pharmacy)

Dosing Checks could not be performed for Drug: HEPARIN 25000 UNITS/0.45% NACL 250 ML
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for HEPARIN 25000 UNITS/0.45% NACL 250 ML (CONTINUOUS INFUSION): 833 units per hour to 1650 units per hour. Maximum dose rate is 1650 units per hour.

Dose Units cannot be determined – IV Additive (Pharmacy)

Dosing Checks could not be performed for Drug: POTASSIUM CHLORIDE 30MEQ
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for POTASSIUM CHLORIDE 30 MEQ (INTRAVENOUS): 1 milliequivalent per day to 100 milliequivalents per day. Maximum daily dose is 100 milliequivalents per day.

2.6.5.26 Functional Requirement 26

If Dosing Order Checks cannot be performed because the Dose Unit cannot be determined, an order level error message without a specific reason along with general dosing information messages shall be returned to CPRS.

Dose Unit cannot be determined (CPRS)

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to' DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.

Or

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is 'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.

2.6.5.27 Functional Requirement 27

If Dosing Order Checks cannot be performed because a local possible dosage (LPD) defined for a dispense drug is selected for an order which does not have a numeric dose and dose unit defined, and for which a numeric dose and dose unit cannot be derived using the free text logic, an order level error message along with general dosing information messages shall be returned to the Inpatient Medications and Outpatient Pharmacy applications.

Single Dose Amount & Dose Unit cannot be derived from LPD (Pharmacy)

Dosing Checks could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

2.6.5.28 Functional Requirement 28

If Dosing Order Checks cannot be performed because a LPD defined for a dispense drug is selected for an order for which a numeric dose and dose unit cannot be derived using the free text logic, an order level error message without a specific reason along with general dosing information messages shall be returned to CPRS.

Single Dose Amount & Dose Unit cannot be derived from LPD (CPRS)

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to' DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.

Or

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is 'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.

2.6.5.29 Functional Requirement 29

In order to obtain general dosing information for a dispense drug for which a dosage ordered could not be evaluated the following 'dummy data' shall be sent into the interface.

2.6.5.29.1 Functional Requirement 1

The value of '1' shall be sent into the interface for the single dose amount.

2.6.5.29.2 Functional Requirement 2

The following logic shall be used to determine the dose unit.

- Retrieve the drug unit from the Dispense Drug's VA Product match and do a look up on the NAME, SYNONYM, and FIRST DATABANK DOSE UNIT fields in the DOSE UNITS file (#51.24). If an exact match is found get the FDB dose unit equivalent and send to interface.
- If nothing is found in (a), loop through all local possible dosages for the dispense drug to find a dose unit. If found, send FDB dose unit equivalent to interface.
- If nothing is found in (b), look at the nouns associated with the orderable item's dosage form. Do a lookup on the NAME, SYNONYM, and FIRST DATABANK DOSE UNIT fields in the DOSE UNITS file using the nouns to see if a match can be made. If found, send the FDB dose unit equivalent to the interface.
- If nothing is found in (c) send 'EACH' to the interface for dose unit.

2.6.5.29.3 Functional Requirement 3

The value of 'DAY' shall be sent into the interface for dose rate and duration rate.

2.6.5.29.4 Functional Requirement 4

The value of '1' shall be sent into the interface for frequency and duration.

2.6.5.30 Functional Requirement 30

If Dosing Order Checks cannot be performed when a free text infusion rate is entered that cannot be interpreted by the software and the infusion rate is needed to calculate the single dose amount and dose unit, an order level error message along with general dosing information messages shall be returned to the Inpatient Medications application.

Single Dose Amount and Dose Unit cannot be determined from free text infusion rate (Pharmacy)

Dosing Checks could not be performed for Drug: HEPARIN 25000 UNITS/0.45% NACL 250 ML
Reason(s): Free Text Infusion Rate could not be evaluated

General dosing range for HEPARIN 25000 UNITS/0.45% NACL 250 ML (CONTINUOUS INFUSION):
833 units per hour to 1650 units per hour. Maximum dose rate is 1650 units per hour.

2.6.5.31 Functional Requirement 31

If Dosing Order Checks cannot be performed because a free text infusion rate is entered that cannot be interpreted by the software and the infusion rate is needed to calculate the single dose amount and dose unit, an order level error message along with general dosing information messages shall be returned to CPRS.

Single Dose Amount and Dose Unit cannot be determined from free text infusion rate (CPRS)

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to'
DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.

Or

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

'General dosing range for' DRUG NAME (FDB DoseRouteDescription):
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is
'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.

2.6.5.32 Functional Requirement 32

In order to obtain general dosing information for a dispense drug associated with an IV Additive or IV Solution that is marked as a PreMix for which a free text infusion rate could not be evaluated, the following ‘dummy data’ shall be sent into the interface for an IV order with a continuous route and dose type of either ‘Maintenance’ or ‘Single Dose’.

2.6.5.32.1 Functional Requirement 1

If an IV order contains only one IV solution and it is marked as a PreMix,

- the single dose amount shall be set to the volume
- the dose unit shall be set to the FDB equivalent of ‘ML’

2.6.5.32.2 Functional Requirement 2

If an IV order contains one IV Additive and one IV solution not marked as a PreMix,

- the single dose amount shall be set to the IV Additive strength
- the dose unit shall be set to the FDB equivalent of the IV Additive unit

2.6.5.32.3 Functional Requirement 3

The duration rate shall be set to the dose rate value (as determined by the order).

2.6.5.32.4 Functional Requirement 4

The value of ‘1’ shall be sent into the interface for frequency and duration.

2.6.5.32.5 Functional Requirement 5

If the dose type for the IV order is ‘Single Dose’, general dosing information messages shall not be returned.

2.6.5.33 Functional Requirement 33

If a free text dosage is entered through CPRS for a multi-ingredient product for which a dispense drug cannot be determined; more than one dispense drug is associated with the orderable item; and none of the dosing order check exclusion criteria apply, no general dosing information shall be returned to CPRS.

2.6.5.34 Functional Requirement 34

If a free text dosage is entered through CPRS for a single ingredient or multi-ingredient product where the derived dose unit is a dose form type for which a dispense drug cannot be determined; more than one dispense drug is associated with the orderable item; and none of the dosing order check exclusion criteria apply, no general dosing information shall be returned to CPRS.

2.6.5.35 Functional Requirement 35

FDB messages with a severity of ‘Not Screened’ shall be treated as order level error messages and returned as follows to the Inpatient Medications and Outpatient Pharmacy applications.

FDB messages with severity of ‘Not Screened’ (Pharmacy)

```
Dosing Order Check could not be performed for Drug: <DRUG NAME>  
Reason(s): FDB dosing information is not available for this drug.
```

2.6.5.36 Functional Requirement 36

FDB messages with a severity of 'Not Screened' shall be treated as order level error messages and returned as follows without a specific reason to CPRS.

FDB messages with severity of 'Not Screened' (CPRS)

```
Dosing Order Check could not be done for Drug: <DRUG NAME>, please complete a manual check for appropriate Dosing.
```

2.6.5.37 Functional Requirement 37

FDB messages with a severity of 'Warning' shall be treated as order level error messages and returned as follows to the Inpatient Medications and Outpatient Pharmacy applications.

FDB messages with severity of 'Warning' (Pharmacy)

```
Dosing Order Check Warning for <DRUG NAME>:  
Dosing is not established for a patient of this age.
```

2.6.5.38 Functional Requirement 38

FDB messages with a severity of 'Warning' shall be treated as order level error messages and returned as follows to CPRS.

FDB messages with severity of 'Warning' (CPRS)

```
Dosing Order Check Warning for <DRUG NAME>:  
Dosing is not established for a patient of this age.
```

2.6.5.39 Functional Requirement 39

If FDB returns a MaxDailyDoseStatusCode of '5' – 'Unable to Check' without a MaxDailyDoseMessage, the following error message along with the general dosing information message shall be returned to the Inpatient Medications and Outpatient Pharmacy applications.

(Pharmacy)

```
Max Daily Dose Check could not be performed for Drug: KETOROLAC 10MG TAB  
Reason: Unavailable  
  
General dosing range for KETOROLAC 10MG TAB: 10 milligram per day to 40 milligram per day.  
Maximum daily dose is unavailable.
```

2.6.5.40 Functional Requirement 40

If FDB returns a MaxDailyDoseStatusCode of '5' – 'Unable to Check' without a MaxDailyDoseMessage, the following error message along with the general dosing information message shall be returned to CPRS.

(CPRS)

```
Max Daily Dose Check could not be done for Drug: KETOROLAC 10MG TAB, please complete a manual check for appropriate Dosing.  
  
General dosing range for KETOROLAC 10MG TAB: 10 milligram per day to 40 milligram per day.  
Maximum daily dose is unavailable.
```

2.6.5.41 Functional Requirement 41

As a general rule, if both the Maximum Single Dose and Max Daily Dose Order Checks cannot be performed and the reason for both order checks is identical, a single error message shall be returned to CPRS, Inpatient Medications and Outpatient Pharmacy. See below:

(Pharmacy)

```
Dosing Checks could not be performed for Drug: <DRUG NAME>  
Reason(s): XXXXX XXXXX XXXXX
```

(CPRS)

Dosing Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for appropriate Dosing.

2.6.6 Schedule File - Dosing Check Frequency

This section will describe the new DOSING CHECK FREQUENCY and associated DRUG(S) FOR DOSING CHK FREQ fields in the ADMINISTRATION SCHEDULE file (#51.1) and how the fields will be used to determine a frequency for a schedule.

BN 6 in the BRD and associated CR 3208 is addressed by requirements in this section.

2.6.6.1 Functional Requirement 1

A new field called DOSING CHECK FREQUENCY shall be created in the ADMINISTRATION SCHEDULE file (#51.1).

2.6.6.2 Functional Requirement 2

A user shall be required to enter the DOSING CHECK FREQUENCY in the following specified formats:

- Q#H [represents every # hour, such as every 5 hours]
- Q#D [represents every # day, such as every 3 days]
- Q#W [represents every # week, such as every 5 weeks]
- Q#L [represents every # month, such as every 12 months]
- X#D [represents # times per day, such as 17 per day]
- X#W [represents # times per week, such as 3 per week]
- X#L [represents # times per month, such as 4 per month]

2.6.6.2.1 Functional Requirement 1

The '#' within the format shall represent a whole number.

2.6.6.2.2 Functional Requirement 2

A field called DRUG(S) FOR DOSING CHK FREQ shall be created and associated with the DOSING CHECK FREQUENCY field.

2.6.6.2.2.1 Functional Requirement 1

The DRUG(S) FOR DOSING CHK FREQ field shall be a multiple.

2.6.6.2.2.2 Functional Requirement 2

The DRUG(S) FOR DOSING CHK FREQ field shall be a pointer to the DRUG file (#50).

2.6.6.2.2.3 Functional Requirement 3

Entry in the DRUG(S) FOR DOSING CHK FREQ field shall be optional.

2.6.6.2.2.4 Functional Requirement 4

The '#' within the format shall be limited to two (2) numeric characters.

2.6.6.3 Functional Requirement 3

The *Standard Schedule Edit* [PSS SCHEDULE EDIT] option shall be modified to allow editing of the DOSING CHECK FREQUENCY and associated DRUG(S) FOR DOSING CHK FREQ field.

2.6.6.3.1 Functional Requirement 1

If the schedule being edited has a schedule type of ON CALL or ONE-TIME, the DOSING CHECK FREQUENCY prompt shall not be displayed.

2.6.6.3.2 Functional Requirement 2

If the schedule being edited has a value of 'Yes' entered in the EXCLUDE FROM ALL DOSING CHECKS field (#9) or EXCLUDE FROM DAILY DOSE CHECK field (#10), the DOSING CHECK FREQUENCY prompt shall not be displayed.

2.6.6.3.3 Functional Requirement 3

Entry in the DOSING CHECK FREQUENCY field shall be optional. See output displays that follow:

Dosing Check Frequency entered for DAY of the Week schedule

```
<CPM> Select Standard Schedule Management Option: STANDARD Schedule Edit

Select ADMINISTRATION SCHEDULE: MO-WE-FR@08
NAME: MO-WE-FR@08//
OUTPATIENT EXPANSION: EVERY MONDAY, WEDNESDAY AND FRIDAY AT 8AM//
OTHER LANGUAGE EXPANSION:
TYPE OF SCHEDULE: DAY OF THE WEEK//
EXCLUDE FROM ALL DOSING CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X3W
Select DRUG(S) FOR DOSING CHK FREQ: EPOETIN ALPHA 10,000 U/ML INJ
STANDARD ADMINISTRATION TIMES: 08//
Select WARD:

Select ADMINISTRATION SCHEDULE:
```

Dosing Check Frequency entered for Continuous Schedule

```
<CPM> Select Standard Schedule Management Option: STANDARD Schedule Edit

Select ADMINISTRATION SCHEDULE: Q1HWA
NAME: Q1HWA//
OUTPATIENT EXPANSION: EVERY HOUR WHILE AWAKE Replace
OTHER LANGUAGE EXPANSION:
TYPE OF SCHEDULE: CONTINUOUS//
EXCLUDE FROM ALL DOSING CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X17D
Select DRUG(S) FOR DOSING CHK FREQ:
FREQUENCY (IN MINUTES): 60//
    The schedule entered equals 1 hour.

STANDARD ADMINISTRATION TIMES: 01-02-03-04-05-06-07-08-09-10-11-12-13-14-15-16-17-18-19-20-
21-22-23-24
Select WARD:

Select ADMINISTRATION SCHEDULE:
```

One-time Schedule edited

```
<CPM> Select Standard Schedule Management Option: Standard Schedule Edit

Select ADMINISTRATION SCHEDULE: one-TIME      ONE-TIME
NAME: ONE-TIME//
OUTPATIENT EXPANSION: ONE TIME//
OTHER LANGUAGE EXPANSION:
TYPE OF SCHEDULE: ONE-TIME//
EXCLUDE FROM ALL DOSING CHECKS:

Select ADMINISTRATION SCHEDULE:
```

Exclude from ALL DOSING CHECKS field set to Yes.

```
Select ADMINISTRATION SCHEDULE: UD      09
NAME: UD//
OUTPATIENT EXPANSION: AS DIRECTED//
OTHER LANGUAGE EXPANSION:
TYPE OF SCHEDULE: CONTINUOUS//
EXCLUDE FROM ALL DOSING CHECKS: YES//
FREQUENCY (IN MINUTES): 1440//
    The schedule entered equals 1 day.

STANDARD ADMINISTRATION TIMES: 09//
Select WARD:

Select ADMINISTRATION SCHEDULE:
```

PRN Schedule Edited

```
<CPM> Select Standard Schedule Management Option: Standard Schedule Edit

Select ADMINISTRATION SCHEDULE: Q1HX3DOSES PRN
NAME: Q1HX3DOSES PRN//
OUTPATIENT EXPANSION: EVERY HOUR FOR 3 DOSES Replace
OTHER LANGUAGE EXPANSION:
TYPE OF SCHEDULE: PRN//
EXCLUDE FROM ALL DOSING CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X3D
Select DRUG(S) FOR DOSING CHK FREQ:
The Type of Schedule has changed, the frequency will be removed
Select ADMINISTRATION SCHEDULE:
```

2.6.6.4 Functional Requirement 4

The *Administration Schedule File Report* [PSS SCHEDULE REPORT] option shall be modified to display the DOSING CHECK FREQUENCY field. See output below.

2.6.6.5 Functional Requirement 5

The *Administration Schedule File Report* [PSS SCHEDULE REPORT] option shall be modified to display the DRUG(S) FOR DOSING CHK FREQ field associated with the DOSING CHECK FREQUENCY. See output below.

Administration Schedule File Report

```
<CPM> Select Pharmacy Data Management Option: standard Schedule Management

Standard Schedule Edit
Administration Schedule File Report

<CPM> Select Standard Schedule Management Option: administration Schedule File
Report

This report displays entries from the ADMINISTRATION SCHEDULE (#51.1) File.
It can be run for all Schedules, or only Schedules without a FREQUENCY
(IN MINUTES). Only schedules with a PSJ Package Prefix will be displayed, since
they are the only schedules the software will look at when deriving a FREQUENCY
```

(IN MINUTES) for the daily dosage checks. If a FREQUENCY (IN MINUTES) cannot be determined for an order, the daily dosage check cannot occur for that order.

Select one of the following:

A	All Schedules
O	Only Schedules with a missing frequency

Print All Schedules, or Only Schedules without a frequency: A// 11 Schedules

Select one of the following:

80	80 Column
132	132 Column

Print report in 80 or 132 column format: 80// Column

DEVICE: HOME// COMPUTER ROOM

ADMINISTRATION SCHEDULE FILE REPORT (All)

PAGE: 1

BID

STANDARD ADMINISTRATION TIMES: 09-17
OUTPATIENT EXPANSION: TWICE A DAY
OTHER LANGUAGE EXPANSION:
SCHEDULE TYPE: CONTINUOUS
FREQUENCY (IN MINUTES): 720
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X2D
DRUG(S) FOR DOSING CHK FREQ:

MONDAY@09

STANDARD ADMINISTRATION TIMES: 09
OUTPATIENT EXPANSION: MONDAY
OTHER LANGUAGE EXPANSION:
SCHEDULE TYPE: DAY OF THE WEEK
FREQUENCY (IN MINUTES):
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X1W
DRUG(S) FOR DOSING CHK FREQ:

ONE-TIME

STANDARD ADMINISTRATION TIMES:
OUTPATIENT EXPANSION: ONE TIME
OTHER LANGUAGE EXPANSION:
SCHEDULE TYPE: ONE-TIME
FREQUENCY (IN MINUTES):
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY:
DRUG(S) FOR DOSING CHK FREQ:

End of Report.

2.6.7 Medication Instruction file – Dosing Check Frequency

This section will describe the new DOSING CHECK FREQUENCY and associated DRUG(S) FOR DOSING CHK FREQ fields in the MEDICATION INSTRUCTION file (#51) and how the fields will be used to determine a frequency for a schedule.

BN 6 in the BRD and associated CR 3208 is addressed by requirements in this section.

2.6.7.1 Functional Requirement 1

A new field called DOSING CHECK FREQUENCY shall be created in the MEDICATION INSTRUCTION file (#51).

2.6.7.2 Functional Requirement 2

A user shall be required to enter the DOSING CHECK FREQUENCY in the following specified formats:

- Q#H [represents every # hour, such as every 5 hours]
- Q#D [represents every # day, such as every 3 days]
- Q#W [represents every # week, such as every 5 weeks]
- Q#L [represents every # month, such as every 12 months]
- X#D [represents # times per day, such as 17 per day]
- X#W [represents # times per week, such as 3 per week]
- X#L [represents # times per month, such as 4 per month]

2.6.7.2.1 Functional Requirement 1

The '#' within the format shall represent a whole number.

2.6.7.2.2 Functional Requirement 2

A field called DRUG(S) FOR DOSING CHK FREQ shall be created and associated with the DOSING CHECK FREQUENCY field.

2.6.7.2.2.1 Functional Requirement 1

The DRUG(S) FOR DOSING CHK FREQ field shall be a multiple.

2.6.7.2.2.2 Functional Requirement 2

The DRUG(S) FOR DOSING CHK FREQ field shall be a pointer to the DRUG file (#50).

2.6.7.2.2.3 Functional Requirement 3

Entry in the DRUG(S) FOR DOSING CHK FREQ field shall be optional.

2.6.7.2.2.4 Functional Requirement 4

The '#' within the format shall be limited to two (2) numeric characters.

2.6.7.3 Functional Requirement 3

The *Medication Instruction File Add/Edit* [PSSJU MI] option shall be modified to allow editing of the DOSING CHECK FREQUENCY field and associated DRUG(S) FOR DOSING CHK FREQ field.

2.6.7.3.1 Functional Requirement 1

Entry in the DOSING CHECK FREQUENCY field shall be optional.

See output displays that follow.

Medication Instruction File Add/Edit

```
Select MEDICATION INSTRUCTION NAME: BID    TWICE DAILY
NAME: BID//
```

```

SYNONYM:
EXPANSION: TWICE DAILY//
PLURAL:
INTENDED USE: IN & OUTPATIENT//
DOSING CHECK FREQUENCY:
DRUG(S) FOR DOSING CHK FREQ:
FREQUENCY (IN MINUTES): 720//

Select MEDICATION INSTRUCTION NAME:

```

2.6.7.4 Functional Requirement 4

The *Medication Instruction File Report* [PSS MED INSTRUCTION REPORT] option shall be modified to display the DOSING CHECK FREQUENCY field.

2.6.7.5 Functional Requirement 5

The *Medication Instruction File Report* [PSS MED INSTRUCTION REPORT] option shall be modified to display the DRUG(S) FOR DOSING CHK FREQ field associated with the DOSING CHECK FREQUENCY.

See output below.

Medication Instruction File Report

```

Select Medication Instruction Management <TEST ACCOUNT> Option: Medication Instruction File Report

```

```

This report displays entries from the MEDICATION INSTRUCTION (#51) File. It can be run for all Medication Instructions or only Medication Instructions without a FREQUENCY (IN MINUTES). If a FREQUENCY (IN MINUTES) cannot be determined for an order, the daily dosage check cannot occur for that order.

```

```

Select one of the following:

```

```

      A      All Medication Instructions
      O      Only Medication Instructions with a missing frequency

```

```

Print All Medication Instructions, or Only Medication Instructions without a frequency: A// ll Medication Instructions

```

```

Select one of the following:

```

```

      80      80 Column
      132     132 Column

```

```

Print report in 80 or 132 column format: 80// Column

```

```

DEVICE: HOME// Local SSH Device Right Margin: 80//

```

```

MEDICATION INSTRUCTION FILE REPORT (All)

```

```

PAGE: 1

```

```

-----
BID

```

```

      SYNONYM:
      EXPANSION: TWICE DAILY
OTHER LANGUAGE EXPANSION:
      PLURAL:
      INTENDED USE: IN & OUTPATIENT
DOSING FREQUENCY CHECK:
DRUG(S) FOR DOSING CHK FREQ:
      FREQUENCY (IN MINUTES): 720

```

2.6.8 Schedule Exclusions

This section shall describe the implementation of the daily dose exclusion for a schedule and how it affects the Maximum Single Dose and Max Daily Dose Order Checks. The all Dosing Order Check schedule exclusion will also be applied to the Max Daily Dose Order Check in MOCHA v2.1.

BN 7 in the BRD and associated CR 3921, CR 3923, and CR 3925 is addressed by requirements in this section.


2.6.8.1 Functional Requirement 1

If a Maximum Single Dose Order Check results in a high dose warning for a simple medication order and the schedule within the order is excluded from the Max Daily Dose Order Check, general dosing information messages shall be returned along with the high dose warning message to CPRS, Inpatient Medications, and Outpatient Pharmacy applications.

Max Single Dose Order Check Fails (exceeds recommended dose); Schedule excluded from Daily Dose Check (Pharmacy)

HALOPERIDOL 10MG TAB: Single dose amount of 60 MILLIGRAMS exceeds the maximum single dose amount of 33.34 MILLIGRAMS.

General dosing range for HALOPERIDOL 10MG TAB (ORAL): 1 milligram per day to 100 milligrams per day. Maximum daily dose is 100 milligrams per day.

Note:	A schedule which has been excluded from the Max Daily Dose Order Check has the EXCLUDE FROM DAILY DOSE CHECK field (#10) in the ADMINISTRATION SCHEDULE file (#51.1) set to YES.
	

2.6.8.2 Functional Requirement 2

If a Maximum Single Dose Order Check results in an error message for a simple medication order and the schedule within the order is excluded from the Max Daily Dose Order Check, a general dosing information message shall be returned along with the error message with a specific reason to Inpatient Medications and Outpatient Pharmacy applications.

Max Single Dose Order Check Error Message; Schedule excluded from Daily Dose Check (Pharmacy)

Maximum Single Dose Check could not be performed for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): Weight required

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

2.6.8.3 Functional Requirement 3

If a Maximum Single Dose Order Check results in an error message for a simple medication order and the schedule within the order is excluded from the Max Daily Dose Order Check, general dosing information messages shall be returned along with the error message that may or may not have a specific reason to CPRS.

Max Single Dose Order Check Error Message with reason; Schedule excluded from Daily Dose Check (CPRS)

Maximum Single Dose Check could not be done for Drug: GENTAMICIN 40MG/ML 2ML INJ
Reason(s): No weight documented for patient


General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

Or

Max Single Dose Order Check Error Message without reason; Schedule excluded from Daily Dose Check (CPRS)


Maximum Single Dose Check could not be done for Drug: GENTAMICIN 40MG/ML 2ML INJ, please complete a manual check for appropriate Dosing.

General dosing range for GENTAMICIN 40MG/ML 2ML INJ (INTRAMUSCULAR): 1.5 milligrams per kilogram per day to 7 milligrams per kilogram per day. Maximum daily dose is 630 milligrams per day.

Note:	Please see section 2.6.5 Order Level Error Message Changes for those messages that return a reason to the CPRS application.
	

2.6.8.4 Functional Requirement 4

No results (messages) from the Max Daily Dose Order Check shall be returned to CPRS for a simple medication order processed through CPRS using the inpatient medication dialog, IV dialog, outpatient medication dialog, or as a quick order with a schedule that has been excluded from all Dosing Order Checks.

Note:	A schedule which has been excluded from all Dosing Order Checks has the EXCLUDE FROM ALL DOSING CHECKS field (#9) in the ADMINISTRATION SCHEDULE file (#51.1) set to YES.
	

2.6.8.5 Functional Requirement 5

No results (messages) from the Max Daily Dose Order Check shall be returned to CPRS for a simple medication order processed through CPRS using the inpatient medication dialog, IV dialog, outpatient medication dialog, or as a quick order with a schedule that has been excluded from the Max Daily Dose Order Check.

2.6.8.6 Functional Requirement 6

No results (messages) from the Max Daily Dose Order Check shall be returned to Inpatient Medications or Outpatient Pharmacy applications for a simple medication order processed through pharmacy backdoor options with a schedule that has been excluded from all Dosing Order Checks.

2.6.8.7 Functional Requirement 7

No results (messages) from the Max Daily Dose Order Check shall be returned to Inpatient Medications or Outpatient Pharmacy applications for a simple medication order processed through pharmacy backdoor options with a schedule that has been excluded from the Max Daily Dose Order Check.

2.6.9 Per Orifice Note

When a high dose warning or general dosing information messages is displayed to the user, it will be prefaced with a note informing the user that the dosing information is per orifice. This will only be done for drugs administered via the eye, ear or nose.

BN 8 in the BRD and associated CR 3266 is addressed by requirements in this section.

2.6.9.1 Functional Requirement 1

If a high dose warning message results after Dosing Order Checks are performed when a simple order is processed through CPRS, Inpatient Medications, or Outpatient Pharmacy applications it shall be returned prefaced with additional text if the medication route within the order is mapped to a standard medication route of 'NASAL' or 'OPHTHALMIC' or 'OTIC'.

2.6.9.1.1 Functional Requirement 1


If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: 'Dosing Information provided is PER NOSTRIL: '

2.6.9.1.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: 'Dosing Information provided is PER EYE: '

2.6.9.1.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of 'OTIC', the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: 'Dosing Information provided is PER EAR: '

Note:	A high dose warning for the Maximum Single Dose Check will have a single dose status code of '2' – 'Exceeds Max'. A high dose warning for the Max Daily Dose Check will have a max daily dose status code of '2' – 'Exceeds Max'.
	

2.6.9.2 Functional Requirement 2

If the general dosing information is returned because both Dosing Order Checks or just the Max Daily Dose Order Check could not be performed or for some other specified reason when a simple order is processed through CPRS, Inpatient Medications, or Outpatient Pharmacy applications it shall be prefaced with additional text if the medication route within the order is mapped to a standard medication route of 'NASAL' or 'OPHTHALMIC' or 'OTIC'.

2.6.9.2.1 Functional Requirement 1

If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing general dosing information messages: 'Dosing Information provided is PER NOSTRIL: '

2.6.9.2.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall be returned to CPRS, Inpatient Medications, and

Outpatient Pharmacy applications prefacing general dosing information messages: ‘Dosing Information provided is PER EYE:’

2.6.9.2.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of ‘OTIC’, the following text shall display be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing general dosing information messages: ‘Dosing Information provided is PER EAR:’

2.6.9.3 Functional Requirement 3

If a high dose warning message results for a dosing sequence after a Maximum Single Dose Order Check is performed when a complex order is processed through CPRS (Inpatient and Outpatient) or Outpatient Pharmacy (backdoor) it shall be prefaced with additional text if the medication route within the dosing sequence is mapped to a standard medication route of ‘NASAL’ or ‘OPHTHALMIC’ or ‘OTIC’.

2.6.9.3.1 Functional Requirement 1

If the medication route within the dosing sequence is mapped to a standard medication route of ‘NASAL’, the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: ‘Dosing Information provided is PER NOSTRIL:’

2.6.9.3.2 Functional Requirement 2

If the medication route within the dosing sequence is mapped to a standard medication route of ‘OPHTHALMIC’, the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: ‘Dosing Information provided is PER EYE:’

2.6.9.3.3 Functional Requirement 3

If the medication route within the dosing sequence is mapped to a standard medication route of ‘OTIC’, the following text shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications prefacing the high dose warning message: ‘Dosing Information provided is PER EAR:’

Display examples follow below:

Maximum Single Dose Order Check generates high dose warning for standard med route of ‘NASAL’ (CPRS and Pharmacy)

Dosing Information provided is PER NOSTRIL:
Cromolyn 5.2 mg/Actuation (4 %) Nasal Spray: Single dose form amount of 5 SPRAY(S) exceeds the maximum single dose form amount of 1 SPRAY(S).

Max Daily Dose Order Check generates high dose warning for standard med route of ‘OPHTHALMIC’ (CPRS and Pharmacy)

Dosing Information provided is PER EYE:
BETAXOLOL 0.5% EYE DROPS 10ML: Total dose form amount of 6 DROP(S)/DAY exceeds the maximum daily dose form amount of 4 DROP(S)/DAY.

Maximum Single Dose Order Check warning + Max Daily Dose Order Check warning for standard med route of ‘NASAL’ (CPRS and Pharmacy)

Dosing Information provided is PER NOSTRIL:
CROMOLYN 40MG/ML (4%) NASAL SPRAY 26ML: Single dose form amount of 5 SPRAY(S) exceeds

the maximum single dose form amount of 1 SPRAY(S).

CROMOLYN 40MG/ML (4%) NASAL SPRAY 26ML: Total dose form amount of 10 SPRAY(S)/DAY exceeds the maximum daily dose form amount of 6 SPRAY(S)/DAY.

Max Daily Dose Order Check cannot be done; General Dosing Information messages displayed; standard med route of 'OTIC' (CPRS)

Max Daily Dose Check could not be done for Drug: Ciprofloxacin 0.2 % Ear Dropperette, please complete a manual check for appropriate Dosing.

Dosing Information provided is PER EAR:

General dosing range for Ciprofloxacin 0.2 % Ear Dropperette (OTIC): 0.5 milliliters per day. Maximum daily dose is 0.5 milliliters per day.

Both Dosing Checks could not be done; General Dosing Information message displayed for standard med route of 'OTIC' (Pharmacy)

Dosing Checks could not be performed for Drug: Ciprofloxacin 0.2 % Ear Dropperette
Reason(s): Free Text Dosage could not be evaluated.

Dosing Information provided is PER EAR:

General dosing range for ciprofloxacin 0.2 % Ear Dropperette (OTIC): 0.5 milliliters per day. Maximum daily dose is 0.5 milliliter per day.

2.6.10 Duration/Duration Rate

The duration is a numeric representation in terms of a specific duration rate (i.e. HOUR, DAY, etc.) that a dosing regimen is administered. Dosing periods greater than 1 day are not being evaluated. Unless specified differently, requirements in this section apply to all medication orders.

BN 2 in the BRD and associated CR 5703 and CR 6389 are addressed by requirements in this section.

2.6.10.1 Functional Requirement 1

The value for duration sent to the interface shall always be in terms of a duration rate of DAY.

2.6.10.2 Functional Requirement 2

For an outpatient order with a duration greater than one day, the duration sent to the interface shall be '1'.

2.6.10.3 Functional Requirement 3

If dose type for the medication order is set to 'Single Dose', the duration sent to the interface shall be '1'.

2.6.10.4 Functional Requirement 4

If duration is not defined for an outpatient order, a duration of '1' and a duration rate of 'DAY' shall be assumed.

2.6.10.5 Functional Requirement 5

For a simple outpatient medication order, if the period of time (duration), regardless of duration rate (i.e. HOUR, DAY, etc.) is less than 24 hours (1 day), a duration of '1' shall be sent to the interface. An example of this would be Q4H for 8 Hours.

2.6.10.6 Functional Requirement 6

For inpatient medication (IV & Unit Dose) orders the duration shall always be set to '1' unless otherwise specified.

2.6.10.7 Functional Requirement 7

For a Dosing Order Check performed during CPRS order entry of an IV order (including IV quick order), if a duration (i.e. 3D, 10DOSES, 72H) or volume (i.e. 1500ML, 1000cc, 1L) limit exists, it shall be used to determine the duration.

2.6.10.8 Functional Requirement 8

The duration rate shall always have the same value as the dose rate.

2.6.10.9 Functional Requirement 9

For a simple outpatient medication order, if the order duration is less than 24 hours (i.e. Q4H for 8H), the software shall perform a Maximum Single Dose and Max Daily Dose Order Check. The Max Daily Dose Order Check shall reflect only those doses ordered.

For example: Ibuprofen 600mg Q4H for 12 hours. Only 3 doses of Ibuprofen 600mg will be administered in 24 hours. The frequency sent to the interface will be '3' and NOT 6. The duration sent to the interface will be '1'.

2.6.10.10 Functional Requirement 10

For Dosing Order Checks performed for IV and Unit Dose orders entered through the pharmacy backdoor, if a duration (i.e. 3 doses, stop date/time less than 24 hours) limit exists, it shall be used to determine the order duration/frequency and not the dosing order check duration.

2.6.11 Frequency – Outpatient Medication Orders

This section will describe the logic used to determine frequency for outpatient medication orders.

BN 2 and 6 in the BRD and associated CR 5703, CR 6389, CR 3208, CR 3513, CR 4477, and CR 2677 are addressed by requirements in this section.


2.6.11.1 Functional Requirement 1

The frequency shall be derived from the VistA schedule associated with the order. The user can select from the ADMINISTRATION SCHEDULE file (#51.1), the MEDICATION INSTRUCTION file (#51) or can enter a free text value.

2.6.11.2 Functional Requirement 2

ADMINISTRATION SCHEDULE file (#51.1) lookup shall utilize the following fields and in the order in which they are displayed below:


- NAME field (#.01) in the ADMINISTRATION SCHEDULE file (#51.1)
- OLD SCHEDULE NAME(S) field in the ADMINISTRATION SCHEDULE file (#51.1)

Note:	The OLD SCHEDULE NAME(S) field is a new field that has been created in the ADMINISTRATION SCHEDULE file (#51.1). Please see section 2.6.13 in this document for more information on this new field.
	

2.6.11.3 Functional Requirement 3

MEDICATION INSTRUCTION file (#51) lookup shall utilize the following fields and in the order in which they are displayed below:

- NAME field (#.01) in the MEDICATION INSTRUCTION file (#51)
- SYNONYM field (#.5) in the MEDICATION INSTRUCTION file (#51)
- OLD MED INSTRUCTION NAME(S) field in the MEDICATION INSTRUCTION file (#51)

Note:	The OLD MED INSTRUCTION NAME(S) field is a new field that has been created in the MEDICATION INSTRUCTION file (#51). Please see section 2.6.14 for more information on this new field.
	

2.6.11.4 Functional Requirement 4

If a '@' sign is found in the name of the schedule, the schedule shall be considered DAY OF THE WEEK.

2.6.11.4.1 Functional Requirement 1

The number of administration times, if defined after the '@' sign separated by '-', shall determine the frequency. An example of such a schedule is 'MO-WE-FR@09-17', where the frequency would be equal to '2'.

2.6.11.4.2 Functional Requirement 2

If there is no value after the '@' sign, the frequency shall be set to '1'.

2.6.11.4.3 Functional Requirement 3

If text is found after the '@' sign (i.e. BID), the text shall be used to determine the frequency.

2.6.11.4.3.1 Functional Requirement 1

The software shall attempt to match the text after the '@' sign to an entry in the ADMINISTRATION SCHEDULE file (#51.1), MEDICATION INSTRUCTION file (#51), or if not found in either file, treat it as free text.

2.6.11.5 Functional Requirement 5

The system shall first check if a value entered for the schedule is found in the ADMINISTRATION SCHEDULE file (#51.1).

2.6.11.5.1 Functional Requirement 1

Only schedules marked for Pharmacy (PSJ in Package Prefix field) shall be used to determine the frequency.

2.6.11.5.2 Functional Requirement 2

If the text found after the '@' sign matches more than one entry in the ADMINISTRATION SCHEDULE file (#51.1), the entry that is designated as DAY OF THE WEEK from the schedule type shall be used.

2.6.11.5.2.1 Functional Requirement 1

If more than one entry is designated as DAY OF THE WEEK, the first entry found shall be used.

2.6.11.5.3 Functional Requirement 3


If the text found after the '@' sign matches one or more entries in the ADMINISTRATION SCHEDULE file (#51.1), but none are designated as DAY OF THE WEEK from the schedule type, the first entry marked for Pharmacy (PSJ in Package Prefix field) shall be used.

2.6.11.5.3.1 Functional Requirement 1

If none of the schedules are marked for Pharmacy (PSJ in Package Prefix field) none of the schedules shall be used to determine the frequency.

2.6.11.5.4 Functional Requirement 4

If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1), the value found in the DOSING CHECK FREQUENCY field shall be used to determine the frequency.

Note:	The DOSING CHECK FREQUENCY field is a new field that has been created in the ADMINISTRATION SCHEDULE file (#51.1). Please see section 2.6.6 for more information on this new field.
	

2.6.11.5.4.1 Functional Requirement 1

If there are drug(s) associated with the DOSING CHECK FREQUENCY, the value in the DOSING CHECK FREQUENCY field shall only be used to calculate the schedule frequency if the drug within the order matches a drug associated with the DOSING CHECK FREQUENCY.

2.6.11.5.5 Functional Requirement 5

If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1) and the schedule type is ONE-TIME or ON CALL, the frequency shall be set to '1'.

2.6.11.5.6 Functional Requirement 6

If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1) and the schedule type is DAY OF THE WEEK, no value is found in the DOSING CHECK FREQUENCY field, and administration times have been defined for the schedule, the number of administration times shall determine the frequency.

2.6.11.5.6.1 Functional Requirement 1

If no administration times have been defined for the schedule, and a value is found in the FREQUENCY (IN MINUTES) field (#2) for that entry, that value shall be used to calculate the frequency.

2.6.11.5.7 Functional Requirement 7


If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1) and the schedule type is not DAY OF THE WEEK, ONE-TIME OR ON CALL, no value is found in the DOSING CHECK FREQUENCY field and a value is found in the FREQUENCY (IN MINUTES) field for that entry, that value shall be used to calculate the frequency.

2.6.11.6 Functional Requirement 6

If the schedule is not found in the ADMINISTRATION SCHEDULE file (#51.1), the program shall check if a value entered for the schedule is found in the MEDICATION INSTRUCTION file (#51).

2.6.11.6.1 Functional Requirement 1

If a value entered for the schedule is found in the MEDICATION INSTRUCTION file (#51), the value found in the DOSING CHECK FREQUENCY field shall be used to calculate the frequency.

Note:	The DOSING CHECK FREQUENCY field is a new field that has been created in the MEDICATION INSTRUCTION file (#51). Please see section 2.6.7 for more information on this new field.
	

2.6.11.6.1.1 Functional Requirement 1

If there are drug(s) associated with the DOSING CHECK FREQUENCY, the value in the DOSING CHECK FREQUENCY field shall only be used to calculate the schedule frequency if the drug within the order matches a drug associated with the DOSING CHECK FREQUENCY.

2.6.11.6.2 Functional Requirement 2

If no value is found in the DOSING CHECK FREQUENCY field, but a value is found in the FREQUENCY (IN MINUTES) field (#31) for that entry in the MEDICATION INSTRUCTION file (#51), that value shall be used to calculate the frequency.

2.6.11.7 Functional Requirement 7

If NOT found in the MEDICATION INSTRUCTION file (#51), the system shall check if the free text value matches the 'QXH' format, where 'X' is a whole number.

2.6.11.7.1 Functional Requirement 1

If a match is found, the free text value shall be passed into the interface for frequency.

2.6.11.7.2 Functional Requirement 2

If a match is not found, the frequency shall be left undefined.

2.6.11.8 Functional Requirement 8

The frequency shall be calculated by dividing 1440 by the value found in the FREQUENCY (IN MINUTES) field.

2.6.11.9 Functional Requirement 9

If a frequency is determined to be less than 1, a free text format as specified by FDB in the table below shall be passed into the interface to represent a decimal value.

2.6.11.10 Functional Requirement 10

If the frequency is calculated not to be a whole number, a free text format as specified by FDB in the table below shall be passed into the interface.

FDB TABLE

FREE TEXT VALUE	FREQUENCY
QOD	0.5
Q#H (such as every 4 hours)	$24 \div \#$
Q#D (number must be greater than 1 (such as every 3 days)	$1 \div \#$
Q#W (such as every 4 weeks)	$1 \div (\# \times 7)$
Q#L (such as every 3 months)	$1 \div (\# \times 30)$
X#D (such as 4 times per day)	$\#$
X#W (such as 2 times per week)	$\# \div 7$
X#L (such as 1 time per month)	$\# \div 30$

2.6.11.11 Functional Requirement 11

If the schedule entered cannot be found as a whole in either the ADMINISTRATION SCHEDULE (#51.1) file or the MEDICATION INSTRUCTION (#51) file, the schedule shall be broken down using space as a delimiter and each word looked up in the ADMINISTRATION SCHEDULE (#51.1) file and if not found then looked up in the MEDICATION INSTRUCTION (#51) file.

2.6.11.11.1 Functional Requirement 1

If only one frequency value is found for any of the words in either file, that frequency value shall be used.

2.6.11.11.2 Functional Requirement 2

If multiple frequency values are found, but the values are the same, that value shall be used for the frequency.

2.6.11.11.3 Functional Requirement 3

If multiple frequency values are found, but the values are not the same, none of the values shall be used and an error displayed to the user that the Max Daily Dose Order Check could not be performed.

2.6.11.11.4 Functional Requirement 4

Only schedules marked as Pharmacy use shall be used to determine the frequency value.

2.6.11.11.5 Functional Requirement 5

If more than one schedule is found and at least one of the schedules is marked as ONE-TIME or ON-CALL, the frequency shall be set to '1' and only a Maximum Single Dose Check shall be performed.

2.6.11.11.6 Functional Requirement 6

If more than one schedule is found and at least one of the schedules is marked as DAY OF THE WEEK, and no value is found in the DOSING CHECK FREQUENCY field, the day of the week logic shall be used to determine the frequency value.

2.6.11.12 Functional Requirement 12

When entering an outpatient order that has a schedule which contains a '<space>PRN', the software shall run the schedule as entered through the logic to determine a frequency.

2.6.11.12.1 Functional Requirement 1

If no frequency can be determined, the software shall remove the '<space>PRN' from the schedule and run through the logic a second time to determine a frequency.

2.6.12 Frequency – Inpatient Medication Orders

This section will describe the logic that is used to determine the frequency for an inpatient medication order.

BN 2 and 6 in the BRD and associated CR 5703, CR 6389, CR 3208, and CR 4477 are addressed by requirements in this section.


2.6.12.1 Functional Requirement 1

The frequency shall be derived from the VistA schedule associated with the order. The user can select from the ADMINISTRATION SCHEDULE file (#51.1).

2.6.12.2 Functional Requirement 2

ADMINISTRATION SCHEDULE file (#51.1) lookup shall utilize the following fields and in the order in which they are displayed:

- NAME field (#.01) in the ADMINISTRATION SCHEDULE file (#51.1)
- OLD SCHEDULE NAME(S) field in the ADMINISTRATION SCHEDULE file (#51.1)

Note:	The OLD SCHEDULE NAME(S) field is a new field that has been created in the ADMINISTRATION SCHEDULE file (#51.1). Please see section 2.6.13 in this document for more information on this new field.
	

2.6.12.3 Functional Requirement 3

If the schedule type for a schedule within an order is ONE-TIME or ON CALL, the frequency shall be set to '1'.

2.6.12.4 Functional Requirement 4

The frequency shall be determined by the number of administration times specified in the order if the schedule has been identified as 'DAY OF THE WEEK' and no value is found in the DOSING CHECK FREQUENCY field in the ADMINISTRATION SCHEDULE file (#51.1).

2.6.12.4.1 Functional Requirement 1

The schedule type shall be used to determine a 'DAY OF THE WEEK' schedule if the schedule is selected from the ADMINISTRATION SCHEDULE file (#51.1).

2.6.12.4.2 Functional Requirement 2

A schedule NOT selected from the ADMINISTRATION SCHEDULE file (#51.1) shall be considered 'DAY OF THE WEEK' for an order if the schedule name is in the format of 'MO-WE-FR@09-17' or 'MO@06'.


2.6.12.4.3 Functional Requirement 3

A schedule NOT selected from the ADMINISTRATION SCHEDULE file (#51.1) shall be considered 'DAY OF THE WEEK' for an order if the schedule name is in the format of 'MO-WE-FR' or 'MO'.

2.6.12.4.3.1 <Deleted> Functional Requirement 1

2.6.12.5 Functional Requirement 5

If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1), the value found in the DOSING CHECK FREQUENCY field shall be used to calculate the frequency.

Note:	The DOSING CHECK FREQUENCY field is a new field that has been created in the ADMINISTRATION SCHEDULE file (#51.1). Please see section 2.6.6 for more information on this new field.
	

2.6.12.5.1 Functional Requirement 1

If there are drug(s) associated with the DOSING CHECK FREQUENCY, the value in the DOSING CHECK FREQUENCY field shall only be used to calculate the schedule frequency if the drug within the order matches a drug associated with the DOSING CHECK FREQUENCY.

2.6.12.5.1.1 Functional Requirement 1

The DRUG(S) FOR DOSING CHK FREQ field associated with the DOSING CHECK FREQUENCY shall not be used for continuous IV orders processed through the Pharmacy backdoor or CPRS orders processed using the IV fluid dialog.

2.6.12.6 Functional Requirement 6

If the schedule entered for the order is found in the ADMINISTRATION SCHEDULE file (#51.1), and no value is found in the DOSING CHECK FREQUENCY field, the value found in the FREQUENCY (IN MINUTES) field (#2) shall be used to calculate the frequency.

2.6.12.6.1 Functional Requirement 1

The frequency shall be calculated by dividing the value found in the FREQUENCY (IN MINUTES) field by 1440.

2.6.12.7 Functional Requirement 7

If a frequency is determined to be less than 1, a free text format as specified by FDB in the table below shall be passed into the interface to represent a decimal value.

2.6.12.8 Functional Requirement 8

If the frequency is calculated not to be a whole number, a free text format as specified by FDB in the table below shall be passed into the interface.

FDB TABLE

FREE TEXT VALUE	FREQUENCY
QOD	0.5
Q#H (such as every 4 hours)	24 ÷ #

FREE TEXT VALUE	FREQUENCY
Q#D (number must be greater than 1 (such as every 3 days))	$1 \div \#$
Q#W (such as every 4 weeks)	$1 \div (\# \times 7)$
Q#L (such as every 3 months)	$1 \div (\# \times 30)$
X#D (such as 4 times per day)	$\#$
X#W (such as 2 times per week)	$\# \div 7$
X#L (such as 1 time per month)	$\# \div 30$

2.6.12.9 Functional Requirement 9

Frequency shall be equal to '1' for 'continuous' FDB routes.

2.6.12.10 Functional Requirement 10

When entering an inpatient medication order that has a schedule which contains a '<space>PRN', the software shall run the schedule as entered through the logic to determine a frequency.

2.6.12.10.1 Functional Requirement 1

If no frequency can be determined, the software shall remove the '<space>PRN' from the schedule and run through the logic a second time to determine a frequency.

2.6.13 Old Schedule Name(s)

This section will provide details on a new field call OLD SCHEDULE NAME(S) that has been created in the ADMINISTRATION SCHEDULE file (#51.1).

BN 6 in the BRD and associated CR 4477 is addressed by requirements in this section.

2.6.13.1 Functional Requirement 1

A new field called OLD SCHEDULE NAME(S) shall be created in the ADMINISTRATION SCHEDULE file (#51.1).

2.6.13.1.1 Functional Requirement 1

More than one OLD SCHEDULE NAME(S) shall be allowed for a schedule.

2.6.13.1.2 Functional Requirement 2

This field shall be populated automatically by the software when the user modifies the NAME of the schedule.

2.6.13.1.3 Functional Requirement 3

A user shall be able to add an OLD SCHEDULE NAME(S).

2.6.13.1.4 Functional Requirement 4


A user shall be able to edit an OLD SCHEDULE NAME(S).

2.6.13.1.5 Functional Requirement 5

A user shall be able to delete an OLD SCHEDULE NAME(S).

2.6.13.1.6 Functional Requirement 6

The OLD SCHEDULE NAME(s) field shall be used to identify (lookup) a schedule entered for an order to derive a frequency for the Max Daily Dose Order Check.

Note:	This new field will only be used to identify the previous schedule name so that a Max Daily Dose Order Check can be calculated and not for any other reason.
	

2.6.13.2 Functional Requirement 2

The Standard Schedule Edit [PSS SCHEDULE EDIT] option shall be modified to allow editing of the OLD SCHEDULE NAME(S) field.

Standard Schedule Edit

```
<CPM> Select Standard Schedule Management Option: STANDARD Schedule Edit

Select ADMINISTRATION SCHEDULE: MO-WE-FR@08
NAME: MO-WE-FR@08//
OUTPATIENT EXPANSION: EVERY MONDAY,WEDNESDAY AND FRIDAY AT 8AM//
OTHER LANGUAGE EXPANSION:
OLD SCHEDULE NAME(S):
TYPE OF SCHEDULE: DAY OF THE WEEK//
EXCLUDE FROM ALL DOSING CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X3W //
  Select DRUG:
STANDARD ADMINISTRATION TIMES: 08//
Select WARD:

Select ADMINISTRATION SCHEDULE:
```

2.6.13.3 Functional Requirement 3

The *Administration Schedule File Report* [PSS SCHEDULE REPORT] option shall be modified to display the OLD SCHEDULE NAME(S) field. See output below.

Administration Schedule File Report

```
<CPM> Select Pharmacy Data Management Option: standard Schedule Management

      Standard Schedule Edit
      Administration Schedule File Report

<CPM> Select Standard Schedule Management Option: administration Schedule File
Report

This report displays entries from the ADMINISTRATION SCHEDULE (#51.1) File.
It can be run for all Schedules, or only Schedules without a FREQUENCY
(IN MINUTES). Only schedules with a PSJ Package Prefix will be displayed, since
they are the only schedules the software will look at when deriving a FREQUENCY
(IN MINUTES) for the daily dosage checks. If a FREQUENCY (IN MINUTES) cannot
be determined for an order, the daily dosage check cannot occur for that order.

      Select one of the following:

      A          All Schedules
      O          Only Schedules with a missing frequency
```

Print All Schedules, or Only Schedules without a frequency: A// 11 Schedules

Select one of the following:

80	80 Column
132	132 Column

Print report in 80 or 132 column format: 80// Column

DEVICE: HOME// COMPUTER ROOM

ADMINISTRATION SCHEDULE FILE REPORT (All)

PAGE: 1

BID

STANDARD ADMINISTRATION TIMES: 09-17
OUTPATIENT EXPANSION: TWICE A DAY
OTHER LANGUAGE EXPANSION:
OLD SCHEDULE NAME(S):
SCHEDULE TYPE: CONTINUOUS
FREQUENCY (IN MINUTES): 720
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X2D
DRUG(S):

MONDAY@09

STANDARD ADMINISTRATION TIMES: 09
OUTPATIENT EXPANSION: MONDAY
OTHER LANGUAGE EXPANSION:
OLD SCHEDULE NAME(S):
SCHEDULE TYPE: DAY OF THE WEEK
FREQUENCY (IN MINUTES):
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY: X1W
DRUG(S):

ONE-TIME

STANDARD ADMINISTRATION TIMES:
OUTPATIENT EXPANSION: ONE TIME
OTHER LANGUAGE EXPANSION:
OLD SCHEDULE NAME(S):
SCHEDULE TYPE: ONE-TIME
FREQUENCY (IN MINUTES):
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK:
DOSING CHECK FREQUENCY:
DRUG(S):

Q10MIN X3DOSES

STANDARD ADMINISTRATION TIMES:
OUTPATIENT EXPANSION: EVERY 10 MINUTES FOR 3 DOSES
OTHER LANGUAGE EXPANSION:
OLD SCHEDULE NAME(S):
SCHEDULE TYPE: CONTINUOUS
FREQUENCY (IN MINUTES): 10
EXCLUDE FROM ALL DOSE CHECKS:
EXCLUDE FROM DAILY DOSE CHECK: YES
DOSING CHECK FREQUENCY:
DRUG(S):

```

UD
  STANDARD ADMINISTRATION TIMES: 09
    OUTPATIENT EXPANSION: AS DIRECTED
    OTHER LANGUAGE EXPANSION:
      OLD SCHEDULE NAME(S):
        SCHEDULE TYPE: CONTINUOUS
        FREQUENCY (IN MINUTES): 1440
        EXCLUDE FROM ALL DOSE CHECKS: YES
        EXCLUDE FROM DAILY DOSE CHECK:
          DOSING CHECK FREQUENCY:
            DRUG(S):

End of Report.
Press Return to continue:

Standard Schedule Edit
Administration Schedule File Report

```

2.6.14 Old Med Instruction Name(s)

This section will provide details on a new field call OLD MED INSTRUCTION NAME(S) that has been created in the MEDICATION INSTRUCTION file (#51).

BN 6 in the BRD and associated CR 4477 is addressed by requirements in this section.

2.6.14.1 Functional Requirement 1

A new field called OLD MED INSTRUCTION NAME(S) shall be created in the MEDICATION INSTRUCTION file (#51).

2.6.14.1.1 Functional Requirement 1

More than one OLD MED INSTRUCTION NAME(S) shall be allowed for one medication instruction.

2.6.14.1.2 Functional Requirement 2

This field shall be populated automatically by the software when the user modifies the NAME of the medication instruction.

2.6.14.1.3 Functional Requirement 3

A user shall be able to add an OLD MED INSTRUCTION NAME(S).

2.6.14.1.4 Functional Requirement 4


A user shall be able to edit an OLD MED INSTRUCTION NAME(S).

2.6.14.1.5 Functional Requirement 5

A user shall be able to delete an OLD MED INSTRUCTION NAME(S).

2.6.14.1.6 Functional Requirement 6

The OLD MED INSTRUCTION NAME(S) field shall be used to identify (lookup) a medication instruction entered for an order to derive a frequency for the Max Daily Dose Order Check.

Note:	This new field will only be used to identify the previous medication instruction name so that a Max Daily Dose Order Check can be calculated and not for any other reason.
	

2.6.14.2 Functional Requirement 2

The *Medication Instruction File Add/Edit* [PSSJU MI] option shall be modified to allow editing of the OLD MED INSTRUCTION NAME(S) field.

Medication Instruction File Add/Edit

```
Select MEDICATION INSTRUCTION NAME:      BID  TWICE DAILY
NAME: BID//
SYNONYM:
EXPANSION: TWICE DAILY//
PLURAL:
INTENDED USE: IN & OUTPATIENT//
DOSING FREQUENCY CHECK:
  Select Drug:
FREQUENCY (IN MINUTES): 720//
OLD MED INSTRUCTION NAME(S):
Select MEDICATION INSTRUCTION NAME:
```

2.6.14.3 Functional Requirement 3

The *Medication Instruction File Report* [PSS MED INSTRUCTION REPORT] option shall be modified to display the OLD MED INSTRUCTION NAME(S) field. See output below.

Medication Instruction File Report

```
Select Medication Instruction Management <TEST ACCOUNT> Option: Medication Instruction File
Report
```

```
This report displays entries from the MEDICATION INSTRUCTION (#51) File. It
can be run for all Medication Instructions or only Medication Instructions
without a FREQUENCY (IN MINUTES). If a FREQUENCY (IN MINUTES) cannot be
determined for an order, the daily dosage check cannot occur for that order.
```

```
Select one of the following:
```

```
      A      All Medication Instructions
      O      Only Medication Instructions with a missing frequency
```

```
Print All Medication Instructions, or Only Medication Instructions
without a frequency: A// ll Medication Instructions
```

```
Select one of the following:
```

```
      80      80 Column
      132     132 Column
```

```
Print report in 80 or 132 column format: 80//  Column
```

```
DEVICE: HOME//  Local SSH Device      Right Margin: 80//
```

```
MEDICATION INSTRUCTION FILE REPORT (All)
```

```
PAGE: 1
```

```
-----
BID
```

```
      SYNONYM:
      EXPANSION: TWICE DAILY
OTHER LANGUAGE EXPANSION:
      PLURAL:
      INTENDED USE: IN & OUTPATIENT
DOSING FREQUENCY CHECK:
      DRUG(S):
FREQUENCY (IN MINUTES): 720
OLD MED INSTRUCTION NAME(S):
```

2.6.15 APSP Intervention Type File

Two new APSP Intervention types will be created to log interventions when a high dose warning occurs for a daily dose or for both a maximum single dose and a daily dose.

BN 2 in the BRD and associated CR 5703, CR 6389, and CR 5794 are addressed by requirements in this section.

2.6.15.1 Functional Requirement 1

A new entry called 'Max Daily Dose' shall be created in the APSP INTERVENTION TYPE file (#9009032.3).

2.6.15.2 Functional Requirement 2

A new entry called 'Max Single Dose & Max Daily Dose' shall be created in the APSP INTERVENTION TYPE file (#9009032.3).

2.6.16 Max Daily Dose Order Check Not Done – Frequency Check Fails


There are two instances illustrated in the table below when the FDB MedKnowledge Framework logic does not perform a Max Daily Dose Order Check. The PDM application will perform the Max Daily Dose Order Check and return the results to CPRS, Inpatient Medications, and Outpatient Pharmacy applications.

FDB's Drug Frequency	Order Frequency	Daily Dose Performed? (Yes/No)	Example
Equal to or greater than once/day	Out of Range	No	Metformin 500mg Q48H FDB Frequency = (low=1 and high=3)
Less than once/day	Once/day or greater	No	Risperidone 25mg/vial Inj SA SUSP (Inject 25mg IM daily) FDB Frequency= (low= .07 and high= .07)

BN 5 in the BRD and associated CR 3159, CR 3171, CR 2863, CR 2684, CR 3214, CR 3096, CR 2653, and CR 3806 are addressed by requirements in this section.

2.6.16.1 Functional Requirement 1

If the Max Daily Dose Order Check cannot be performed and the reason that is returned by FDB is 'Maximum daily dose check could not be done since frequency check failed', the PDM application shall perform the Max Daily Dose Order Check.

Note:	Max Daily Dose Status code will be set to '5' – Unable to Check. Frequency Status Code will be set to either '3' – Exceeds Recommended or '4' – Below Recommended.
	

2.6.16.1.1 Functional Requirement 1

Neither the Max Daily Dose Order Check error message, nor general dosing information messages shall be returned to CPRS, Inpatient Medications, or Outpatient Pharmacy applications.

2.6.16.1.2 Functional Requirement 2

The Daily Dose shall be calculated using the following formula:


Single Dose Amount (SDA) * Frequency = Daily Dose

2.6.16.1.2.1 Functional Requirement 1

The calculated Daily Dose shall be rounded to three decimals. If the result is '0' after 3 decimal places, return all 5 decimal places.

2.6.16.1.3 Functional Requirement 3

The Dose Form Indicator for the Dose Unit assigned to the order shall be used to determine if the calculated Daily Dose is evaluated against the FDB MaxDailyDose or FDB MaxDailyDoseForm values.

Note:	The development team has been informed that the development environment for MOCHA v2.1 will have access to MOCHA Server v3.0. The Daily Dose will be evaluated against the Max Daily Dose or Max Daily Dose Form values. If the development environment only has access to MOCHA Server v2.0, the FDB DoseHigh or FDB DoseFormHigh values will be used.
	

2.6.16.1.4 Functional Requirement 4

The NAME field (#.01), SYNONYM field (#2) and FIRST DATABANK DOSE UNIT field (#3) in the DOSE UNITS file (#51.24) shall be used to determine if the dose unit from the calculated daily dose is equivalent to the FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit.

2.6.16.1.4.1 Functional Requirement 1

If the Dose Units are determined to be equivalent, the calculated Daily Dose value shall be compared against the FDB MaxDailyDose or FDB MaxDailyDoseForm value.

2.6.16.1.4.1.1 Functional Requirement 1


If the calculated Daily Dose value is less than or equal to the FDB MaxDailyDose or FDB MaxDailyDoseForm value, the Max Daily Dose Order Check shall pass.

2.6.16.1.4.1.2 Functional Requirement 2

If the calculated Daily Dose value is greater than the FDB MaxDailyDose or FDB MaxDailyDoseForm value, the Max Daily Dose Order Check shall fail and a high dose warning message shall be returned to CPRS, Inpatient Medications, and Outpatient Pharmacy applications.


2.6.16.1.4.1.3 Functional Requirement 3

Regardless of whether the Max Daily Dose Order Check passes or fails, a customized frequency message shall be returned to CPRS, Inpatient Medications and Outpatient Pharmacy applications.

Note:	Please see section 2.6.20 for more information on the new customized frequency message.
	

2.6.16.1.4.2 Functional Requirement 2

If the dose units are determined not to be equivalent, a conversion factor shall be applied to the FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit to express the FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit in the same Dose Unit as was used to calculate the Daily Dose.

Note:	Please see section 2.6.21 for more information on the new file which will store dose unit conversion factors.
	

2.6.16.1.5 Functional Requirement 1

Once the dose units are equivalent, a comparison shall be made between the calculated Daily Dose and the converted FDB MaxDailyDose or FDB MaxDailyDoseForm to determine whether the Max Daily Dose Order Check passes or fails.

2.6.16.1.5.1 Functional Requirement 1

If the dose units cannot be made equivalent to make a comparison so that the Max Daily Dose Order Check can be performed, the FDB error message, general dosing information messages and customized frequency message shall be displayed to the user. See output below:

Error Message

```
Max Daily Dose Check could not be performed for Drug: <DRUG NAME>
Reason(s): Maximum daily dose check could not be done since frequency check failed.
```

Customized Frequency Message

```
'Recommended frequency of' DRUG NAME 'is' FrequencyLow 'to' FrequencyHigh 'times per day.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is' FrequencyHigh 'time(s) per day.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is every' FrequencyLow 'day(s) to' FrequencyHigh
'days.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is every' FrequencyHigh 'days.'
```

General Dosing Information Messages

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to'
DoseHigh<sp>DoseHighUnit'
```

Or

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription):
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit'
```

2.6.17 Enhanced Free Text Logic for Dosage Ranges

This section will document the enhanced free text logic for dosage ranges.

BN 9 in the BRD and associated CR 6036 is addressed by requirements in this section.

Free text dosage range will be represented by three sections for documentation purposes:

DOSAGE 1 + DELIMITER + DOSAGE 2

2.6.17.1 Functional Requirement 1

DOSAGE 1 shall be represented by X or XY or X<space>Y; where X represents a number and Y represents the dose unit.

2.6.17.2 Functional Requirement 2

DOSAGE 2 shall be represented by XY or X<space>Y; where X represents a number and Y represents the dose unit.

2.6.17.3 Functional Requirement 3

Commas and decimals shall be allowed for X which represents a number.

2.6.17.4 Functional Requirement 4

The higher number, represented by X in DOSAGE 2, identified within the range shall be sent in for the Dosing Order Checks.

2.6.17.5 Functional Requirement 5

Numbers represented by X in DOSAGE 1 and DOSAGE 2 shall not have to be sequential, but DOSAGE 2 must be greater than DOSAGE 1. See examples of acceptable/unacceptable ranges below.

Acceptable Ranges: 25-50MG
2MG-4MG

Unacceptable Ranges: 2-2MG
3-1 TABLETS

2.6.17.6 Functional Requirement 6

Y which represents the dose unit shall be matched to an entry in the DOSE UNITS file (#51.24). The NAME, SYNONYM, and FIRST DATABANK DOSE UNIT fields shall be used for the lookup.

2.6.17.7 Functional Requirement 7

If only one dose unit is identified for a free text dosage range, that dose unit shall be used.

2.6.17.8 Functional Requirement 8

If two dose units have been identified for a free text dosage range, but the dose units are not resolved (same IEN in DOSE UNITS file) to be the same, Dosing Order Checks shall not be performed.

2.6.17.9 Functional Requirement 9

The following delimiters shall be allowed:

- Dash represented by ‘-’
- ‘TO’ represented by lowercase or uppercase characters
- ‘OR’ represented by lowercase or uppercase characters

2.6.17.10 Functional Requirement 10

One space is allowed before or after the delimiter.

2.6.17.11 Functional Requirement 11

MOCHA v2.0 free text logic rules shall apply unless otherwise specified. Some examples of free text dosage ranges that will now be evaluated using the enhanced free text logic are:

- 12.5mg to 25mg
- 12.5 mg to 25 mg
- 12.5mg - 25mg
- 12.5-25mg
- 12.5mg-25mg

2.6.18 Informational Data in Parenthesis as part of Dosage Ordered

Many times when a dosage is ordered for a medication, clarifying information is placed in parenthesis next to the actual dose. This section details how the PDM application will handle free text dosages that contain parenthesis with additional information.

BN 10 in the BRD and associated CR 6227 is addressed by requirements in this section.

2.6.18.1 Functional Requirement 1

Using the existing free text logic, the software shall first evaluate the free text entry as a whole with or without parenthesis.

2.6.18.2 Functional Requirement 2

If the software cannot determine a single dose amount and dose unit from the free text entry as a whole, the software shall evaluate the free text portion preceding the informational data within the parenthesis using the existing free text logic.

2.6.18.3 Functional Requirement 3

If the software cannot determine a single dose amount and dose unit from the free text portion preceding the information data within the parenthesis, the software shall evaluate the free text portion within the parenthesis using the existing free text logic.

2.6.18.4 Functional Requirement 4

If the software cannot determine a single dose amount and dose unit from the free text portion within the parenthesis, Dosing Order Checks shall not be performed, and the PDM software shall send a free text error message and general dosing information messages to CPRS, Outpatient Pharmacy or Inpatient Medications applications. See output below.

Single Dose Amount & Dose Unit cannot be derived from free text entry – Unit Dose Order or Outpatient Order (Pharmacy)

Dosing Checks could not be performed for Drug: GABAPENTIN 600MG TAB
Reason(s): Free Text Dosage could not be evaluated.

General dosing range for GABAPENTIN 600MG TAB (ORAL): 300 milligrams per day to 1800 milligrams per day. Maximum daily dose is 1800 milligrams per day.

Single Dose Amount & Dose Unit cannot be derived from free text entry (CPRS)

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription): DoseLow<sp>DoseLowUnit 'to'  
DoseHigh<sp>DoseHighUnit. 'Maximum daily dose is 'MaxDailyDose<sp>MaxDailyDoseUnit.
```

Or

Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing.

```
'General dosing range for' DRUG NAME (FDB DoseRouteDescription):  
DoseFormLow<sp>DoseFormLowUnit 'to' DoseFormHigh<sp>DoseFormHighUnit. 'Maximum daily dose is  
'MaxDailyDoseForm<sp>MaxDailyDoseFormUnit.
```

2.6.19 Add Free Text Logic for Multi Ingredient

Combination Insulin Products have active ingredients that are assigned the same dose units as the combination product when the product is ordered. MOCHA v2.0 did not perform Dosing Order Checks on a combination product for which a free text dosage was ordered if no dispense drug was assigned to the order and multiple dispense drugs were associated with the Orderable Item. For MOCHA v2.1, a requirement will be added to allow Dosing Order Checks to occur if the dose unit assigned to the combination product matches the drug units assigned to the active ingredients.

BN 11 in the BRD and associated CR 5982 is addressed by requirements in this section.

2.6.19.1 Functional Requirement 1

If a free text dosage is entered for a multi ingredient for an order that does not have a dispense drug assigned; the dose unit is not a dose form type and it matches the units assigned to the active ingredients for that product, Dosing Order Checks shall be performed.

2.6.20 Customized Frequency Message

This section describes the composition of the new frequency message.

BN 5 in the BRD and associated CR 3159, CR 3171, CR 2863, CR 2684, CR 3214, CR 3096, CR 2653, and CR 3806 are addressed by requirements in this section.

2.6.20.1 Functional Requirement 1

The customized frequency message shall be comprised of the following:

- Drug Name
- FDB FrequencyLow
- FDB FrequencyHigh

2.6.20.2 Functional Requirement 2

The message format shall be defined as follows:

```
'Recommended frequency of' DRUG NAME 'is' FrequencyLow 'to' FrequencyHigh 'times per day.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is' FrequencyHigh 'time(s) per day.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is every' FrequencyLow 'day(s) to' FrequencyHigh  
'days.'
```

Or

```
'Recommended frequency of' DRUG NAME 'is every' FrequencyHigh 'days.'
```

See example that follows:

Recommended frequency of METFORMIN 500MG TAB is 1 to 3 times per day

Or

Recommended frequency of NITROGLYCERIN PATCHES 0.1MG/HR is 1 time(s) per day.

Or

Recommended frequency of EPOETIN ALFA,RECOMB 10,000UNIT/ML INJ is every 2 day(s) to 7 days.

Or

Recommended frequency of RISPERIDONE 25MG/VI SUSP SA INJ is every 14 days.

2.6.20.2.1 Functional Requirement 1

If the FDB FrequencyLow and FDB FrequencyHigh values are the same, display the FDB FrequencyHigh value only.

2.6.20.2.2 Functional Requirement 2

If the FDB FrequencyLow and/or FDB FrequencyHigh values are less than '1', convert to a whole number (no decimals) by using the following formula and rounding:

$$1 / (\text{FrequencyLow}) = X \text{ (in days)}$$

Example: $1 / .07 = 14.285714$ Round to 14 (days)

2.6.20.2.2.1 Functional Requirement 1

The calculated values shall be displayed from lowest to highest value.

'Recommended frequency of' DRUG NAME 'is every' calculated FrequencyHigh 'day(s) to' calculated FrequencyLow 'days.'

See example that follows:

Recommended frequency of EPOETIN ALFA,RECOMB 10,000UNIT/ML INJ is every 2 day(s) to 7 days.

2.6.20.2.3 Functional Requirement 3

If the no value or a '0' is returned for the FDB FrequencyLow and/or FDB FrequencyHigh, the following message shall be displayed to the user.

Recommended frequency of <DRUG NAME> is unavailable.

2.6.20.2.4 Functional Requirement 4

Trailing zeroes shall be removed from the FDB FrequencyLow and FDB FrequencyHigh values for display purposes. See below.

Recommended frequency of METFORMIN is 1 to 3 times per day.

2.6.21 Dose Unit Conversion File

A new file was created so that a comparison can be made between two dose units when they are not equivalent. In MOCHA v2.1 when a Max Daily Dose Order Check is not performed by FDB because the frequency check failed, the software will calculate the daily dose value on the Vista side as long as the frequency for the order is defined. By frequency check failure it is meant that the frequency defined for the order was 'way outside' the frequency range defined by FDB for the drug. The dose unit sent into the interface for the order will be compared against the FDB MaxDailyDoseUnit or FDB MaxDailyDoseFormUnit in order to determine whether or not the Max Daily Dose Order Check passed or failed. In order for this comparison to be made, the dose units must be equivalent. The entire file can be found in Appendix A1 of this document.

BN 5 in the BRD and associated CR 3159, CR 3171, CR 2863, CR 2684, CR 3214, CR 3096, CR 2653, and CR 3806 are addressed by requirements in this section.

2.6.21.1 Functional Requirement 1

A new DOSE UNIT CONVERSION file shall be created to allow for the conversion of one dose unit to another.

2.6.21.1.1 Functional Requirement 1

Users shall not be allowed to add, delete, or modify any entries in the new DOSE UNIT CONVERSION file.

2.6.21.2 Functional Requirement 2

Three new fields shall be created in the new DOSE UNIT CONVERSION file. They are:

- DOSE UNIT 1
- DOSE UNIT 2
- CONVERSION FACTOR

2.6.21.3 Functional Requirement 3

The DOSE UNIT 1 field shall contain the name of the dose unit that the software is converting from.

2.6.21.4 Functional Requirement 4

The DOSE UNIT 2 field shall contain the name of the dose unit that the software is converting to.

2.6.21.5 Functional Requirement 5

The combination of DOSE UNIT 1 and DOSE UNIT 2 fields shall create a unique entry in the new DOSE UNIT CONVERSION file.

2.6.21.6 Functional Requirement 6

The CONVERSION FACTOR field shall contain a numeric value that the software shall use to convert the value of DOSE UNIT 1 to the equivalent value of DOSE UNIT 2.

2.6.21.6.1 Functional Requirement 1

The software shall use the following formula to obtain an equivalent value of DOSE UNIT 2:

Numeric value of DOSE UNIT 1 * Conversion factor = equivalent numeric value of DOSE UNIT 2.

2.6.22 Display of Calculated Max Daily Dose Warning Message

This section describes the composition of the Max Daily Dose warning message displayed when the PDM application calculates the daily dose and the daily dose exceeds the FDB MaxDailyDose or FDB MaxDailyDoseForm value.

BN 5 in the BRD and associated CR 3159, CR 3171, CR 2863, CR 2684, CR 3214, CR 3096, CR 2653, and CR 3806 are addressed by requirements in this section.

2.6.22.1 Functional Requirement 1

The warning message shall be indented.

2.6.22.2 Functional Requirement 2

The drug name shall precede the warning message.

2.6.22.3 Functional Requirement 3

The Max Daily Dose warning message shall be comprised of the following:

- Drug Name
- Calculated Daily Dose + Dose Units
- FDB Max Daily Dose + MaxDailyDoseUnit or MaxDailyDose Form + MaxDailyDoseFormUnit (using same dose units as Daily Dose value)

2.6.22.4 Functional Requirement 4

The message format shall be defined as follows:

```
DRUG NAME: 'Total dose amount of' CALCULATED DAILY DOSE<SP>DOSE UNITS'/DAY' 'exceeds the maximum daily dose amount of' MAXDAILYDOSE<SP>MAXDAILYDOSEUNITS'/DAY.'
```

Or

```
DRUG NAME: 'Total dose amount of' CALCULATED DAILY DOSE<SP>DOSE UNITS'/DAY' 'exceeds the maximum daily dose amount of' MAXDAILYDOSEFORM<SP>MAXDAILYDOSEFORMUNITS'/DAY.'
```

See example that follows:

```
ENOXAPARIN 40MG/0.4ML INJ: Total dose amount of 500 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 204.55 MILLIGRAMS/DAY.
```

Or

```
FAMOTIDINE 40MG/5ML SUSP: Total dose amount of 2.5 TABLESPOONFULS/DAY exceeds the maximum daily dose amount of 0.67 TABLESPOONFULS/DAY.
```

2.6.22.5 Functional Requirement 5

The following display rules shall be applied for the calculated Daily Dose and MaxDailyDose or MaxDailyDoseForm values:

- If after a decimal only zeros exist, do not display (i.e. 600.0 or 600.00 display 600)
- Maintain leading zeros (i.e. 0.25)
- Display 3 decimal places. If result is '0' after 3 decimal places, return all 5 decimal places.

2.6.23 Dose Units File (#51.24)

This section will document any changes that are required to the DOSE UNITS file (#51.24)

BN 5 in the BRD and associated CR 3159, CR 3171, CR 2863, CR 2684, CR 3214, CR 3096, CR 2653, and CR 3806 are addressed by requirements in this section.

2.6.23.1 Functional Requirement 1

The term 'APPLIC' shall be added as a synonym to the entry 'APPLICATION(S)' in the DOSE UNITS file (#51.24).

2.6.24 Vista Interface – Addition of Data Elements

This section will document changes to the VistA interface. MOCHA Server has added additional data elements to be returned in the XML for the Dosing call. These data elements will also be added to the VistA interface.

BN 14 in the BRD and associated CR 5716, CR 6462, and CR 5717 are addressed by requirements in this section.

2.6.24.1 Functional Requirement 1

The following data elements which have been added to the XML for Dosing returned by MOCHA Server shall be added to the VistA interface:

- Single – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- RangeLow – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- RangeHigh – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- Daily – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- MaxDaily – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- MaxLifetime – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- MaxLifetimeOrder – DatabaseValue, DoseValue, PercentError, and UnitOfMeasure
- MaxLifetimeOrderMessage
- MaxLifetimeOrderStatus
- MaxLifetimeOrderStatusCode
- FrequencyMessage
- MaxSingleNTEDose
- MaxSingleNTEDoseUnit
- MaxSingleNTEDoseForm
- MaxSingleNTEDoseFormUnit
- MaxDailyDose
- MaxDailyDoseUnit
- MaxDailyDoseForm
- MaxDailyDoseFormUnit

2.6.25 Warning Message Modifications

This section will describe any changes to the warning messages that are displayed to the user when either the Maximum Single Dose Order Check or Max Daily Dose Order Check fails (dosage exceeds recommendation).

BN 17 in the BRD and associated CR 6787 is addressed by requirements in this section.

2.6.25.1 Functional Requirement 1

The PDM application shall return to the Inpatient Medications application only one warning message when the text in the warning messages for the Maximum Single Dose Order Check and the Max Daily Dose Order Check is identical.

2.6.25.2 Functional Requirement 2

The text in the warning messages for the Maximum Single Dose Order Check and the Max Daily Dose Order Check shall be identical when the order meets the following criteria:

- The medication order is an IV Order for which a continuous FDB dose route was sent into the interface for the Dosing Order Check.

2.7 Graphical User Interface (GUI) Specifications

Not applicable.

2.8 Multi-divisional Specifications

Not applicable.

2.9 Performance Specifications

Not applicable.

2.10 Quality Attributes Specification

Not applicable.

2.11 Reliability Specifications

The Regional Operations Center (ROC) will be the primary monitoring entity of the system's health and uptime and will engage the Regional Service Lines as appropriate when issues are seen.

2.12 Scope Integration

Integration Agreements can be viewed on FORUM using the *Integration Agreement Menu* [DBA IA ISC] option under the *DBA* [DBA] option on FORUM.

All PDM options can function independently.

The PDM module relies on, at least, the following external packages to run effectively.

Package Minimum version needed:

- National Drug File V. 4.0
- Outpatient Pharmacy V. 7.0
- Inpatient Medications V. 5.0
- Kernel V. 8.0
- HealtheVet Web Services Client (HWSC) V. 1.0
- VistALink V. 1.6

2.13 Security Specifications

All VA security requirements will be adhered to. Based on Federal Information Processing Standard (FIPS) 199 and National Institute of Standards and Technology (NIST) SP 800-60, recommended Security Categorization is high.

The Security Categorization will drive the initial set of minimal security controls required for the information system. Minimum security control requirements are addressed in NIST SP 800-53 and VA Handbook 6500, Appendix D.

2.14 System Features

- Implement Dose Range Checking with a Max Daily Dose limit for simple medication orders entered through Outpatient Pharmacy, Inpatient Medications applications and CPRS.
- Display a generic error message when the Max Daily Dose Order Check cannot be performed in CPRS.
- Display an error message when the Max Daily Dose Order Check cannot be performed in CPRS with a detailed reason when height and/or weight is required, but does not exist in the Vitals application for the patient.
- Display an error message when the Max Daily Dose Order Check cannot be performed in Pharmacy with a detailed reason.
- Correct all daily dose errors due to frequency failure.
- Resolve miscellaneous frequency issues.
- Apply Daily Dose Check exclusion for schedule to medication orders entered through Outpatient Pharmacy, Inpatient Medications, and CPRS.
- Apply note to Max Daily Dose warning and General Dosing Guidelines for medication administered through eye, ear, or nose.
- Enhance free text dosage logic for dosing ranges.
- Enhance free text logic to screen out informational data placed in parenthesis which is found in the dosage ordered field for an order.
- Enhance free text logic for a multi-ingredient.
- Create a customized frequency message.
- Create a new file to handle dose unit conversions.
- Create a Max Daily Dose Warning message for the calculated Daily Dose.
- Add a synonym to an entry in the DOSE UNITS file (#51.24).
- Add FDB data elements from Dosing Order Check call to VistA side of interface
- Exclude expired Outpatient orders from Drug Interaction Order Checks for CPRS

2.15 Usability Specifications

User acceptance testing personnel shall include Pharmacy staff that is able to confirm acceptable changes to their workflow.

A training curriculum, user manuals and other training tools shall be updated by Product Development (PD), and then delivered to Pharmacy Automated Data Processing Application Coordinators (ADPAC) and Pharmacists. Updated User manuals will be provided at the time of software release. A Pharmacy ADPAC training power point will be presented a few weeks prior to a site's installation of software in production. The training will be done as part of a phased deployment. A training power point directed at staff Pharmacists working in an Inpatient or Outpatient settings will be provided to the Pharmacy ADPAC at each facility to assist in the training of their staff. The curriculum shall include all aspects of the enhanced VistA PDM, Outpatient Pharmacy, and Inpatient Medications application(s).

3 Applicable Standards

All VA Privacy requirements will be adhered to. Efforts that involve the collection and maintenance of individually identifiable information must be covered by a Privacy Act system of records notice.

All Enterprise Identity Management requirements will be adhered to. These requirements are applicable to any application that adds, updates, or performs lookups on persons.

Application/services shall reference the Standard Data Services (SDS) as the authoritative source to access non-clinical reference terminology.

Application/Services shall use the VA Enterprise Terminology Services (VETS) as the authoritative source to access clinical reference terminology.

4 Interfaces

4.1 Communications Interfaces

Not applicable.

4.2 Hardware Interfaces

This product shall run on standard hardware platforms that VHA facilities use. These systems consist of standard or upgraded Alpha AXP clusters and operate Open M products.

These enhancements are compatible with existing hardware. No hardware issues are involved with these enhancements

4.3 Software Interfaces

Within VistA, the MOCHA project will use an existing interface via API to and from CPRS. These API's will allow for:

- CPRS to request and receive order checks for provider entry of medication orders
- Inpatient Medication and Outpatient Pharmacy VistA packages to request and receive remote order data from the Health Data Repository (HDR) via CPRS.

Within VistA, the MOCHA project will interface via API to HWSC to request order check data from FDB's MedKnowledge Framework database.

4.4 User Interfaces

The software product will conform to the existing VistA conventions. Reports, menus, options, and screen formats will conform to the existing VistA conventions. Report formats and option process steps, such as "roll & scroll," will be fielded and tested for usability by test site personnel, as well as user representatives and subject matter experts.

5 Legal, Copyright, and Other Notices

Not applicable.

6 Purchased Components

Not applicable.

7 User Class Characteristics

The intended users of this enhancement are providers with prescriptive authority, pharmacists, pharmacy technicians, licensed practical nurses, and PBM. The goal of this enhancement provides significant, enhanced patient safety features which reduce the risk of medication errors and adverse events.

8 Estimation

The Function Point Estimate of the Pharmacy Re-Engineering - PRE (PECS/MOCHA) MOCHA 2 Enh1 UFT (aka Increment #58 on the PMAS Dashboard) (1474) project is complete. The functional size of the project is 139 FP (Function Points). The detailed FP Estimate was recorded in a FP Excel Workbook, M2E1_SRS_FPEst_20130814.xlsm. The FP Estimate Workbook was stored in the TSPR notebook for this project. (Please note that all the graphs below are created in the FP Excel Workbook.)

Link to FP Estimate Workbook:

[\[Redacted Link\]](#) Pharmacy_Re-Engineering_PRE_(PECS-MOCHA)/M2E1_SRS_FPEst_20130814.xlsm

Project Software Functional Size and Size-Based Effort and Duration Estimate

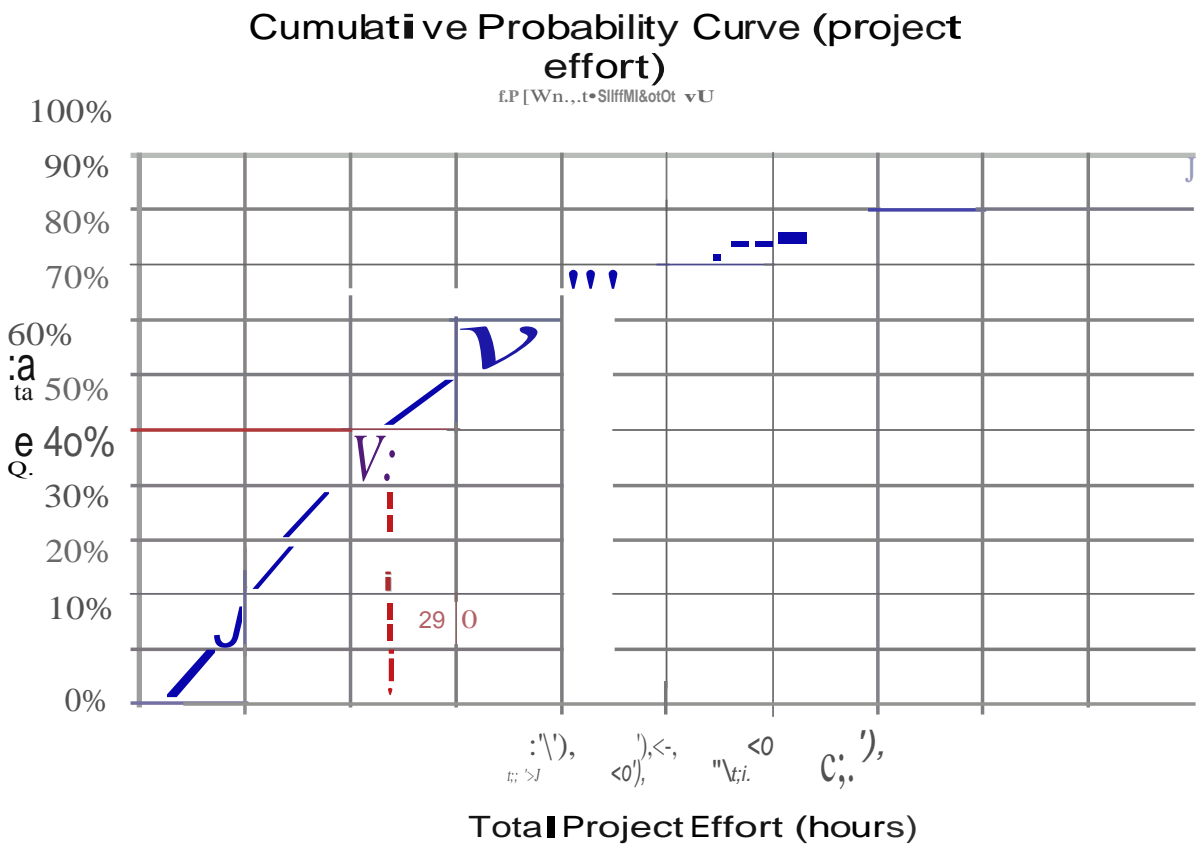
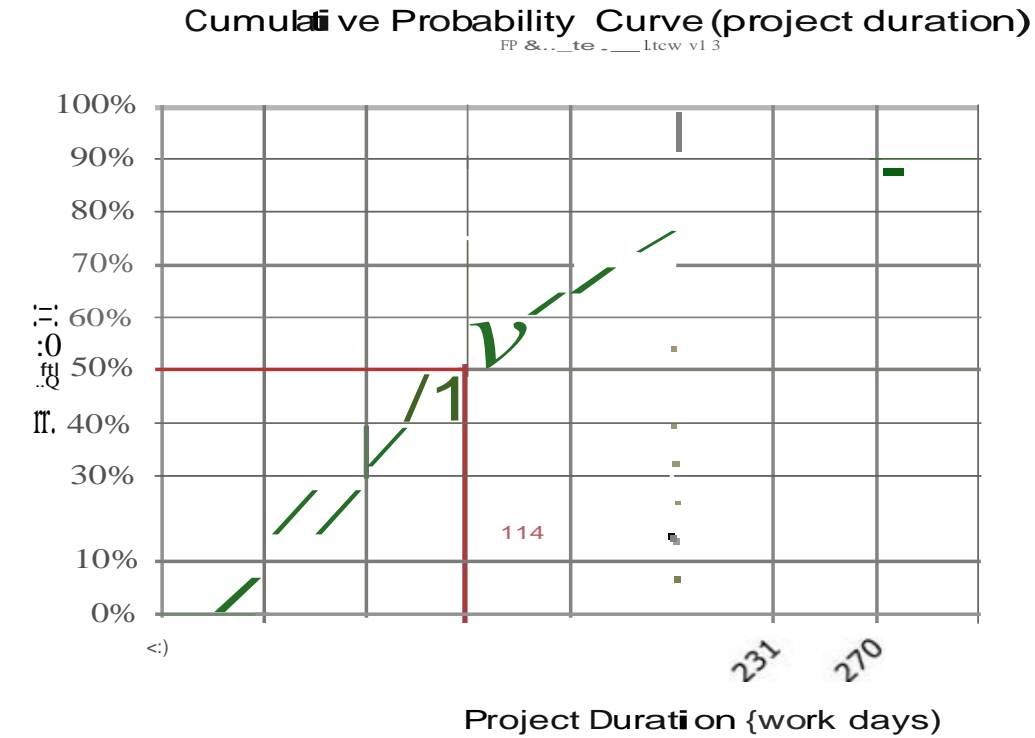
Application

Item	Pharmacy Data Management	Inpatient Medications	Outpatient Pharmacy	Total
Counted Function Points	67	48	24	139
Estimated Scope Growth				
Estimated Size at Release				

Size-Based Effort Estimates	Labor Hours	Probability
Low-Effort Estimate – With indicated probability, project will consume no more than:	2900	50%
High-Effort Estimate – With indicated probability, project will consume no more than:	5550	75%

Size-Based Duration Estimates	Work Days	Probability
Low-Duration Estimate – With indicated probability, project will consume no more than:	114	50%
High-Duration Estimate -- With indicated probability, project will consume no more than:	193	75%

Figure 1: Cumulative Probability ("S-curve") Chart



9 Approval Signatures

REVIEW DATE: *10/28/2014*

SCRIBE: [REDACTED] [REDACTED]

[Signatures in the PDF document]

Signed:

[REDACTED], *Project Manager, Pharmacy Reengineering*

Signed:

[REDACTED], *Program Manager, Pharmacy Reengineering*
Integrated Project Team (IPT) Chair & IT Program Manager

Signed:

[REDACTED], *PBM, Director, Clinical Informatics/Reengineering*
Business Sponsor

A. Appendix A

A.1. Dose Unit Conversion File

DOSE UNIT 1	DOSE UNIT 2	CONVERSION FACTOR
APPLIC	APPLICATION(S)	1
APPLICATION(S)	APPLIC	1
APPLICATORFUL/S	APPFUL	1
APPFUL	APPLICATORFUL/S	1
BARS	EACH	1
CAPLETS	EACH	1
CAPSULE(S)	EACH	1
CENTIMETERS	INCH(ES)	0.394
DROP(S)	MILLILITERS	0.05
EACH	BARS	1
EACH	TAB-CAPS	1
EACH	CAPLETS	1
EACH	CAPSULE(S)	1
EACH	ENEMAS	1
EACH	FILMS	1
EACH	IMPLANTS	1
EACH	INSERTS	1
EACH	LOZENGES	1
EACH	OVULE(S)	1
EACH	PACKAGES	1
EACH	PADS	1
EACH	PELLETS	1
EACH	PIECE(S)	1
EACH	SACHETS	1
EACH	SCOOPFULS	1
EACH	STRIP(S)	1
EACH	SUPPOSITORY/IES	1
EACH	TABLET(S)	1
EACH	TROCHES	1
EACH	VAGINAL RING	1
EACH	VIALS	1
EACH	WAFERS	1
EACH	PACKETS	1
EACH	PATCHES	1
EACH	VAGINAL INSERT	1
ENEMAS	EACH	1
FILMS	EACH	1
GRAMS	MILLIGRAMS	1000
GRAMS	MICROGRAM(S)	1,000,000
IMPLANTS	EACH	1
INCH(ES)	CENTIMETERS	2.54

DOSE UNIT 1	DOSE UNIT 2	CONVERSION FACTOR
INHALATIONS	SPRAY(S)	1
INHALATIONS	PUFF(S)	1
INHALATIONS	SQUIRTS	1
INSERTS	EACH	1
LITERS	MILLILITERS	1000
LOZENGES	EACH	1
MICRO UNITS	MILLIONUNIT(S)	0.001
MICRO UNITS	UNIT(S)	0.000001
MICROGRAM(S)	GRAMS	0.000001
MICROGRAM(S)	MILLIGRAMS	0.001
MICROGRAM(S)	NANOGRAMS	1000
MILLIGRAMS	GRAMS	0.001
MILLIGRAMS	MICROGRAM(S)	1000
MILLIGRAMS	NANOGRAMS	1,000,000
MILLILITERS	DROP(S)	20
MILLILITERS	LITERS	0.001
MILLILITERS	TABLESPOONFULS	0.066667
MILLILITERS	TEASPOONFULS	0.2
MILLIONUNIT(S)	MICRO UNITS	1000
MILLIONUNIT(S)	TU	0.001
MILLIONUNIT(S)	UNIT(S)	1,000,000
NANOGRAMS	MICROGRAM(S)	0.001
NANOGRAMS	MILLIGRAMS	0.000001
OVULE(S)	EACH	1
PACKAGES	EACH	1
PACKETS	EACH	1
PADS	EACH	1
PATCHES	EACH	1
PELLETS	EACH	1
PIECE(S)	EACH	1
PUFF(S)	SPRAY(S)	1
PUFF(S)	INHALATIONS	1
SACHETS	EACH	1
SCOOPFULS	EACH	1
SPRAY(S)	INHALATIONS	1
SPRAY(S)	PUFF(S)	1
SPRAY(S)	SQUIRTS	1
SQUIRTS	SPRAY(S)	1
SQUIRTS	INHALATIONS	1
STRIP(S)	EACH	1
SUPPOSITORY/IES	EACH	1
TAB-CAPS	EACH	1
TABLESPOONFULS	MILLILITERS	15
TABLET(S)	EACH	1

DOSE UNIT 1	DOSE UNIT 2	CONVERSION FACTOR
TEASPOONFULS	MILLILITERS	5
TROCHES	EACH	1
TU	MILLIONUNIT(S)	1000
TU	UNIT(S)	1000
UNIT(S)	MICRO UNITS	1,000,000
UNIT(S)	TU	0.001
UNIT(S)	MILLIONUNIT(S)	0.000001
VAGINAL INSERT	EACH	1
VAGINAL RING	EACH	1
VIALS	EACH	1
WAFERS	EACH	1

A.2. Error Messages

Error Level	Error Message	Reason
MOCHA v2.1 – CPRS System Level Errors		
System	These checks could not be completed for this patient: Drug Interactions Duplicate Therapy Dosing	N/A
System	These checks could not be completed for this patient: Dosing	An unexpected error has occurred* or Dosing Checks have been disabled.*
MOCHA v2.1 – Backdoor Pharmacy System Level Errors		
System	No Enhanced Order Checks can be performed	Vendor Database cannot be reached.
System	No Enhanced Order Checks can be performed	The connection to the vendor database has been disabled.
System	No Enhanced Order Checks can be performed	Vendor database updates are being processed
System	No Enhanced Order Checks can be performed	An unexpected error has occurred
System	Dosing Checks could not be performed	Vendor Database cannot be reached
System	Dosing Checks could not be performed	The connection to the vendor database has been disabled.
System	Dosing Checks could not be performed	Vendor database updates are being processed
System	Dosing Checks could not be performed	An unexpected error has occurred
System	Dosing Checks are not available; please complete a manual check for appropriate Dosing.	Dosing Order Checks have been disabled.*
MOCHA v2.1 – Backdoor Pharmacy Drug Level Errors		
Drug (prospective)	Order Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for Drug Interactions, Duplicate Therapy and appropriate Dosing	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product*

Error Level	Error Message	Reason
Drug (remote profile)	Order Checks could not be done for <Remote> Drug: <DRUG NAME>, please complete a manual check for Drug Interactions and Duplicate Therapy	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product*
Drug	Enhanced Order Checks cannot be performed for <Local> or <Local Outpatient> Drug: <DRUG NAME>	Drug not matched to NDF
Drug (profile – pending outpatient or pending unit dose order)	Enhanced Order Checks cannot be performed for Orderable Item: <OI NAME>	No Dispense Drug found
Drug	Dosing Checks cannot be performed for Drug: <DRUG NAME> (only if edit performed on IP order and only when dosage check performed)	Drug not matched to NDF
Drug	Dosing Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for appropriate Dosing (only if edit performed on IP order and only when dosage check performed)	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product*
MOCHA v2.1 – CPRS Drug Level Errors		
Drug (prospective)	Order Checks could not be done for Drug: <Drug Name>, please complete a manual check for Drug Interactions, Duplicate Therapy and appropriate Dosing.	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product* Drug not matched to NDF*
Drug (profile)	Order Checks could not be done for Drug: <Drug Name>, please complete a manual check for Drug Interactions and Duplicate Therapy.	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product* Drug not matched to NDF*
Drug (remote profile)	Order Checks could not be done for <Remote> Drug: <Drug Name>, please complete a manual check for Drug Interactions and Duplicate Therapy.	No GCNSEQNO exists for VA Product* Bad GCNSEQNO assigned to VA Product* Drug not matched to NDF*

Error Level	Error Message	Reason
Drug (prospective – outpatient and inpatient (UD))	Order Checks could not be done for Drug: <Drug Name>, please complete a manual check for Drug Interactions, Duplicate Therapy and appropriate Dosing.	No active dispense drug could be found*
Drug (prospective)	Dosing Checks could not be done for Drug: <DRUG NAME>, please complete a manual check for appropriate Dosing	No active IV Additive/Solution marked for IV fluid order entry could be found.*
MOCHA v2.1 – Backdoor Pharmacy Order Level Errors		
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	One or more required patient parameters unavailable: Age
Order Level	Maximum Single Dose Check could not be performed for Drug:<DRUG NAME>	Weight required
Order Level	Max Daily Dose Check could not be performed for Drug:<DRUG NAME>	Weight required
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Weight required
Order Level	Maximum Single Dose Check could not be performed for Drug:<DRUG NAME>	Body surface area required
Order Level	Max Daily Dose Check could not be performed for Drug:<DRUG NAME>	Body surface area required
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Body surface area required
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Invalid or Undefined Dose Route
Order Level	Max Daily Dose Check could not be performed for Drug: <DRUG NAME>	Invalid or Undefined Frequency
Order Level	Max Daily Dose Check could not be performed for Drug: <DRUG NAME>	Frequency greater than order duration
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Free Text Dosage could not be evaluated
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	FDB dosing information is not available for this drug.
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Free Text Infusion Rate could not be evaluated.

Error Level	Error Message	Reason
MOCHA v2.1 – CPRS Order Level Error		
Order Level	Dosing Checks could not be done for Drug: <Drug Name>, please complete a manual check for appropriate Dosing	N/A
Order Level	Max Daily Dose Check could not be done for Drug:<DRUG NAME>, please complete a manual check for appropriate Dosing	N/A
Order Level	Maximum Single Dose Check could not be done for Drug:<DRUG NAME>	No weight documented for patient
Order Level	Max Daily Dose Check could not be done for Drug:<DRUG NAME>	No weight documented for patient
Order Level	Dosing Checks could not be done for Drug:<DRUG NAME>	No weight documented for patient
Order Level	Maximum Single Dose Check could not be done for Drug:<DRUG NAME>	No weight and/or height documented for patient
Order Level	Max Daily Dose Check could not be done for Drug:<DRUG NAME>	No weight and/or height documented for patient
Order Level	Dosing Checks could not be done for Drug:<DRUG NAME>	No weight and/or height documented for patient

*Reason not displayed to user.

Note:



<DRUG NAME> for error messages:

- CPRS simple orders (OP & IP & IV) →OI Name + Dosage Form (DF)
- CPRS complex orders (OP & IP & IV) → OI Name + DF (Dose=XX)
- OP & UD backdoor simple orders →Dispense Drug
- OP backdoor complex orders →Dispense Drug
- IV order with IV Additives (backdoor) →IV Additive print name + Strength + Unit
- IV order with IV Solution (PreMix) backdoor → IV solution print name (1) + Volume

A.3. Warning Messages

Level	Warning Message	Warning
MOCHA v2.1 – Backdoor Pharmacy and CPRS		
Order Level	Dosing Order Check Warning for <DRUG NAME>:	This drug is not recommended for a patient of this age.
Order Level	Dosing Order Check Warning for <DRUG NAME>:	Dosing is not established for a patient of this age.

Note:



<DRUG NAME> for warning messages:

- CPRS simple orders (OP & IP & IV) → OI Name + Dosage Form (DF)
- CPRS complex orders (OP & IP & IV) → OI Name + DF (Dose=XX)
- OP & UD backdoor simple orders → Dispense Drug
- OP backdoor complex orders → Dispense Drug
- IV order with IV Additives (backdoor) → IV Additive print name + Strength + Unit
- IV order with IV Solution (PreMix) backdoor → IV solution print name (1) + Volume

A.4. Dose Units File (#51.24) with FDB mapping

Dose Unit Name	Synonym	Map To FDB Dose Unit	Dose Form Indicator
APPLICATION(S)	APPLICATIONS	APPLICATION(S)	Y
	APPLICATION		
	APPLIC		
APPLICATORFUL(S)	APPFUL	APPLICATORFUL/S	Y
	APPLICATORFUL/S		
	APPLICATOR		
	APPLICATORFUL		
	APPLICATORFULS		
	APPLICATORS		
anti-Xa unit	aXa IU	AXA IU	N
	aXa unit		
	AXA IU		
	antiXA unit		
	ANTI-XA UNIT		
	AXA UNIT		
	ANTIXA UNIT		
BAR(S)	BAR	BARS	Y
	BARS		
CAP/TAB	TAB-CAPS	TAB-CAPS	Y
	TAB-CAP		
	TAB/CAP		
CAPLET(S)	CAPLET	CAPLETS	Y
	CAPLETS		
CAPSULE(S)	CAP	CAPSULE(S)	Y
	CAPS		
	CAPSULE		
	CAPSULES		
CENTIMETER(S)	CENTIMETER	CENTIMETERS	Y
	CM		
	CMS		
	CENTIMETERS		
DROP(S)	DROP	DROP(S)	Y
	DROPS		
	DRP		

Dose Unit Name	Synonym	Map To FDB Dose Unit	Dose Form Indicator
	DRPS		
	GTT		
	GTTS		
EACH	EA	EACH	Y
	EACHES		
ENEMA(S)	ENEMA	ENEMAS	Y
	ENEMAS		
GRAM(S)	G	GRAMS	N
	GM		
	GMS		
	GRAM		
	GRAMS		
IMPLANT(S)	IMPLANT	IMPLANTS	Y
	IMPLANTS		
INCH(ES)	IN	INCH(ES)	Y
	INCH		
	INCHES		
INHALATION(S)	INH	INHALATIONS	Y
	INHALATION		
	INHL		
	INHALATIONS		
INSERT(S)	INSERT	INSERTS	Y
	INSERTS		
LITER(S)	L	LITERS	Y
	LITER		
	LITERS		
	LITRE(S)		
LOZENGE(S)	LOZENGE	LOZENGES	Y
	LOZENGES		
MICROGRAM(S)	MCG	MICROGRAM(S)	N
	MCGS		
	MICROGRAM		
	MICROGRAMS		
MILLIGRAM(S)	MGS	MILLIGRAMS	N
	MILLIGRAM		
	MILLIGRAMS		

Dose Unit Name	Synonym	Map To FDB Dose Unit	Dose Form Indicator
	MG		
MG-PE	MG PE	MG PE	N
MICRO UNIT(S)	MICRO UNIT	MICRO UNITS	N
	MICRO UNITS		
	MICROUNIT		
	MICROUNITS		
MILLIEQUIVALENT(S)	MILLIEQUIVALENT	MILLIEQUIVALENTS	N
	MILLIEQUIVALENTS		
	MEQ		
	MEQS		
MILLIONUNIT(S)	MILI U	MILLIONUNIT(S)	N
	MILI UNIT		
	MILI UNITS		
	MILU		
	MIU		
	MU		
	MILLION UNT		
MILLILITER(S)	MILLILITER	MILLILITERS	Y
	MILLILITERS		
	MILILITERS		
	MILILITER		
	ML		
	MLS		
	CC		
	CCS		
MILLIMOLE(S)	MILLIMOL	MILLIMOLES	N
	MILLIMOLE		
	MILLIMOLES		
	MILLIMOLS		
	MM		
	MMOL		
	MMOLE		
	MMOLES		
	MMOLS		
NANOGRAM(S)	NANOGRAM	NANOGRAMS	N
	NANOGRAMS		

Dose Unit Name	Synonym	Map To FDB Dose Unit	Dose Form Indicator
	NG		
	NGS		
OVULE(S)	OVULE	OVULE(S)	Y
	OVULES		
PACKAGE(S)	PACKAGE	PACKAGES	Y
	PACKAGES		
	PKGS		
	PKG		
PACKET(S)	PACKET	PACKETS	Y
	PACKETS		
PAD(S)	PAD	PADS	Y
	PADS		
PATCH(ES)	PATCH	PATCHES	Y
	PATCHES		
PELLET(S)	PELLET	PELLETS	Y
	PELLETS		
PIECE(S)	PIECE	PIECE(S)	Y
	PIECE OF GUM		
	PIECES		
	PIECES OF GUM		
PUFF(S)	PUFF	PUFF(S)	Y
	PUFFS		
SACHET(S)	SACHET	SACHETS	Y
	SACHETS		
SCOOPFUL(S)	SCOOP	SCOOPFULS	Y
	SCOOPFUL		
	SCOOPFULS		
	SCOOPS		
	SCOOPSFUL		
	SCP		
SPRAY(S)	SPR	SPRAY(S)	Y
	SPRAY		
	SPRAYS		
SQUIRT(S)	SQUIRT	SQUIRTS	Y
	SQUIRTS		

Dose Unit Name	Synonym	Map To FDB Dose Unit	Dose Form Indicator
STRIP(S)	STRIP	STRIP(S)	Y
	STRIPS		
SUPPOSITOR(IES)	SUPP	SUPPOSITORY/IES	Y
	SUPPOSITORIES		
	SUPPOSITORY		
TABLESPOONFUL(S)	TABLESPOONFUL	TABLESPOONFULS	Y
	TABLESPOONFULS		
TABLET(S)	TABLET	TABLET(S)	Y
	TABLETS		
	TABS		
	TAB		
TEASPOONFUL(S)	TEASPOONFUL	TEASPOONFULS	Y
	TEASPOONFULS		
TROCHE(S)	TROCHE	TROCHES	Y
	TROCHES		
THOUSAND UNITS	THOUU	TU	N
	TU		
UNIT(S)	U	UNIT(S)	N
	UNIT		
	UNITS		
	UNT		
	UNTS		
	IU		
VAGINAL INSERT	VAGINAL INSERTS	VAGINAL INSERT	Y
VAGINAL RING	VAG RING	VAGINAL RING	Y
	VAG RINGS		
	VAGINAL RINGS		
VIAL(S)	VIAL	VIALS	Y
	VIALS		
	VIL		
WAFER(S)	WAFER	WAFERS	Y
	WAFERS		