

Department of Veterans Affairs

Pharmacy Reengineering (PRE)

Medication Order Check Healthcare Application (MOCHA) v2.1

Inpatient Medications

Requirements Specification Document



October 2014

Version 2.11

Revision History

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

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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.

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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 project. This document details the modifications necessary to the Veterans Health Information Systems and Technology Architecture (VistA) Inpatient Medications v5.0 application. Modifications necessary to the VistA Pharmacy Data Management and VistA Outpatient 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 Reengineering (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	HealthVet 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 Re-Engineering
ROC	Regional Operations Center

Term	Definition
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 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.

Term	Definition
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.</p> <p>For example:</p> <ul style="list-style-type: none"> • If one child order within a Complex Order is made active, all child orders in the Complex Order must be made active. • If one child order within a Complex Order is discontinued, all child orders in the Complex Order must be discontinued. • If one child order within a Complex Order is renewed, all child orders in the Complex Order must be renewed.
Complex Order (Outpatient)	An order consisting of more than one 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 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 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.
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 determined.
Duration	A specific length of time. For Dosing Order Checks, the duration is set to 1 day.

Term	Definition
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.
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.

Term	Definition
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 MedKnowledge Framework 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 the 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 and electronically signed 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.
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).

Term	Definition
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]
- PMAS Portal
[REDACTED]pmas/Pages/default.aspx
- ProPath Site
[REDACTED]process/Library/propath_process_home.pdf
- MOCHA Over-Arching BRD
[REDACTED]Pharmacy_Re-Engineering_MOCHA_FY14/MOCHA_Over-Arching_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 PDM RSD
[REDACTED]Pharmacy_Re-Engineering_MOCHA_FY14/M2-1_PDM_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 (formerly known as Drug Information Framework (DIF)) 3.3

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:

- 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 Inpatient Medications 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.

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 and Inpatient Medications (IV & Unit Dose) applications.

2.6.1.3 Functional Requirement 3

The Max Daily Dose Order Check shall be incorporated in the following Inpatient Medication order entry processes:

- Entering a new IV or Unit Dose medication order
- Finishing a pending IV or Unit Dose medication order
- Renewing an IV or Unit Dose order
- Copying an IV or Unit Dose medication order, thereby creating a new order
- Verifying an IV or Unit Dose order
- Creating a new Unit Dose order when editing the orderable item (to a new orderable item) through pharmacy options
- When editing the IV additive fields (changing existing additive or adding new additive) for an IV order through pharmacy options
- When editing the IV solution fields (changing existing solution or adding a new solution) for an IV order through pharmacy options. This applies only to IV solutions marked as a PreMix.
- Entering a new Unit Dose medication order through pharmacy options using order sets
- Editing the following for a Unit Dose order:
 - Dosage Ordered
 - Units per Dose (for Dispense Drug)
 - Med Route
 - Schedule
 - Start Date/Time*
 - Stop Date/Time*

- Editing the following for an IV order:
 - Infusion rate (only applies to IV types of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe' or 'Chemotherapy Continuous Syringe')
 - Schedule (only applies to IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe')
 - Med Route
 - Volume (does not apply to orders with IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe' with IV Solution not marked as PreMix)
 - Start date/time*
 - Stop date/time *

* When editing active Unit Dose and IV orders, Dosing Order Checks will be done after the changes are accepted; Enhanced Order Checks at verification. For non-verified Unit Dose and IV orders, Dosing Order Checks and Enhanced Order Checks will be done at verification.

2.6.1.4 Functional Requirement 4

The Max Daily Dose Order Check shall be performed with the Maximum Single Dose Order Check and results from both order checks displayed at the same time for a simple medication order.

2.6.1.5 Functional Requirement 5

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

2.6.1.5.1 Functional Requirement 1

The warning message shall be indented and a single space shall be utilized between messages.

2.6.1.5.2 Functional Requirement 2

The drug name shall precede the warning message.

2.6.1.5.2.1 Functional Requirement 1

The dispense drug name shall be used for a unit dose order.

2.6.1.5.2.2 Functional Requirement 2

For an IV Additive within an IV order, the IV Additive print name, strength, and unit shall display in the warning message.

2.6.1.5.2.3 Functional Requirement 3

For an IV Solution within an IV order, the IV Solution marked as a PreMix print name (1) and volume shall display in the warning message.

2.6.1.6 Functional Requirement 6

If a Max Daily Dose Order Check cannot be performed, the program shall display an order level error message to the user informing them of this along with general dosing information for the drug.

2.6.1.7 Functional Requirement 7

If both Dosing Order Checks (Maximum Single Dose and Max Daily Dose) cannot be evaluated, the software shall display an error message and provide general dosing information messages for the drug.

2.6.1.8 Functional Requirement 8

The user shall be required to log an intervention if a Max Daily Dose warning is displayed.

2.6.1.9 Functional Requirement 9

For an IV order with multiple IV Additives/IV Solutions marked as PreMix, the user shall be prompted to log an intervention for every IV Additive/IV Solution marked as a PreMix for which a Max Daily Dose warning was displayed.

2.6.1.10 Functional Requirement 10

Only one pharmacy intervention shall be logged if multiple warnings (Maximum Single Dose and Max Daily Dose) are displayed for a drug.

2.6.1.10.1 Functional Requirement 1

The intervention type shall be set to 'MAX SINGLE DOSE & MAX DAILY DOSE'.

2.6.1.11 Functional Requirement 11

If one or more Max Daily Dose warning message(s) is displayed, the intervention type for the pharmacy intervention logged shall be set to 'MAX DAILY DOSE'.

2.6.1.12 Functional Requirement 12

No intervention shall be required for the display of only general dosing information messages and/or error/warning messages.

2.6.1.13 Functional Requirement 13

A 'Press Return to Continue' shall be placed where appropriate in the software so that no information scrolls off the screen before a user can review.

See output examples that follow:

New Unit Dose Order via backdoor

```
PU Patient Record Update          NO New Order Entry
Select Action: Quit// NO   New Order Entry

Select DRUG: LOVASTATIN
  Lookup: GENERIC NAME
    1  LOVASTATIN 10MG TAB          CV350      N/F      THIS DRUG IS RESTRICTED TO
CARDIOLOGY
    2  LOVASTATIN 20MG TAB          CV350              THIS IS RESTRICTED TO CARDIOLOGY SERVICE
    3  LOVASTATIN 40MG TAB          CV350
CHOOSE 1-3: 3  LOVASTATIN 40MG TAB          CV350

Now Processing Enhanced Order Checks! Please wait...

Restriction/Guideline(s) exist. Display? : (N/D/O/B): No// NO

Enter RETURN to continue or '^' to exit:

Available Dosage(s)
  1.  40MG
  2.  80MG
```

```

Select from list of Available Dosages or Enter Free Text Dose: 120MG

You entered 120MG is this correct? Yes//   YES
UNITS PER DOSE: 1// 3  3
MED ROUTE: ORAL//   PO
SCHEDULE TYPE: CONTINUOUS//   CONTINUOUS
SCHEDULE: QAM// QPM      2100
ADMIN TIMES: 2100// 1700
SPECIAL INSTRUCTIONS:
START DATE/TIME: APR 21,2008@17:00//   APR 21,2008@17:00
STOP DATE/TIME: MAY 21,2008@24:00//   MAY 21,2008@24:00
Expected First Dose: APR 21,2008@17:00
PROVIDER: PSJPROVIDER, ONE //

LOVASTATIN 40MG TAB: Single dose amount of 120 MILLIGRAMS exceeds the maximum single
dose amount of 80 MILLIGRAMS.

LOVASTATIN 40MG TAB: Total dose amount of 120 MILLIGRAMS/DAY exceeds the maximum
daily dose amount of 80 MILLIGRAMS/DAY.

Do you want to Continue? N// n  NO

Select DRUG:
.
.
Or

Do you want to Continue? N// YES

Now creating Pharmacy Intervention
for LOVASTATIN 40MG TAB

PROVIDER: PSJPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

```

New Unit Dose Order via backdoor using Order Set

```

Select Action: View Profile// NO   New Order Entry

Select DRUG: S.DT DEMO   (ORDER SET)
NATURE OF ORDER: WRITTEN//   W

...entering INDOMETHACIN.....

Now Processing Enhanced Order Checks! Please wait...

NON-VERIFIED UNIT DOSE      Mar 21, 2008@09:35:40      Page:      1 of      2
PSJPATIENT,ONE              Ward: 3AS                      A
  PID: 666-00-0000          Room-Bed:                    Ht(cm): 187.96 (07/05/94)
  DOB: 01/01/45 (63)                Wt(kg): 77.27 (07/05/94)

(1)Orderable Item: INDOMETHACIN CAP,ORAL
  Instructions:
(2)Dosage Ordered: 25MG
  Duration:                                (3)Start: 03/21/08  08:00
(4)  Med Route: ORAL                                (5) Stop: 06/19/08  24:00

(6) Schedule Type: CONTINUOUS
(8)  Schedule: TID
(9)  Admin Times: 08-12-16
(10) Provider: PSJPROVIDER,ONE [w]
(11) Special Instructions:

(12) Dispense Drug                                U/D      Inactive Date
      INDOMETHACIN 25MG CAP                        1
+      Enter ?? for more actions

```

```

DC Discontinue      ED Edit      AL Activity Logs
HD (Hold)          RN (Renew)
FL Flag            VF Verify
Select Item(s): Next Screen// VF Verify
...a few moments, please.....

...entering FAMOTIDINE.....

Now Processing Enhanced Order Checks! Please wait...

NON-VERIFIED UNIT DOSE      Mar 21, 2008@09:30:36      Page: 1 of 2
PSJPATIENT,ONE              Ward: 3AS              A
PID: 666-00-0000            Room-Bed:              Ht(cm): 187.96 (07/05/94)
DOB: 01/01/45 (63)          Wt(kg): 77.27 (07/05/94)

(1)Orderable Item: FAMOTIDINE TAB      <DIN>
    Instructions:
(2)Dosage Ordered: 20MG
    Duration:              (3)Start: 03/21/08 09:00
(4) Med Route: ORAL              (5) Stop: 06/19/08 24:00

(6) Schedule Type: CONTINUOUS
(8) Schedule: BID
(9) Admin Times: 09-17
(10) Provider: PSJPROVIDER,ONE [w]
(11) Special Instructions:
(12) Dispense Drug              U/D      Inactive Date
    FAMOTIDINE 20MG TAB          1
+      Enter ?? for more actions
DC Discontinue      ED Edit      AL Activity Logs
HD (Hold)          RN (Renew) FL
Flag              VF Verify
Select Item(s): Next Screen// VF Verify
...a few moments, please.....

Pre-Exchange DOSES:

ORDER VERIFIED.

Enter RETURN to continue or '^' to exit:

...entering CLOPIDOGREL.....

Now Processing Enhanced Order Checks! Please wait...

CLOPIDOGREL 75MG TAB: Single dose amount of 150 MILLIGRAMS exceeds the maximum
single dose amount of 75 MILLIGRAMS.

CLOPIDOGREL 75MG TAB: Total dose amount of 150 MILLIGRAMS/DAY exceeds the maximum
daily dose amount of 75 MILLIGRAMS/DAY.

Do you want to Continue? N// n NO

Select DRUG: <Would see this prompt if CLOPIDOGREL was the last drug in order set, if not
the program would continue with processing the next drug>
.
.
Or

Do you want to Continue? N// YES

Now creating Pharmacy Intervention
for CLOPIDOGREL 75MG TAB

PROVIDER: PSJPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

```

```

(1)Orderable Item: CLOPIDOGREL TAB
    Instructions:
(2)Dosage Ordered: 150MG
    Duration:
(4)    Med Route: ORAL
(3)Start: 03/21/08 09:00
(5) Stop: 06/19/08 24:00
(6) Schedule Type: CONTINUOUS
(8)    Schedule: BID
(9)    Admin Times: 09-17
(10)   Provider: PSJPROVIDER,ONE [w]
(11) Special Instructions:

(12) Dispense Drug
    CLOPIDOGREL 75MG TAB
+      Enter ?? for more actions
DC Discontinue      ED Edit
HD (Hold)           RN (Renew)
FL Flag            VF Verify
Select Item(s): Next Screen//

```

New IV Order via backdoor

```

PU Patient Record Update      NO New Order Entry
Select Action: Quit// no New Order Entry

Select DRUG:

Select IV TYPE: p PIGGYBACK.
Select ADDITIVE: CIMETIDINE

    Restriction/Guideline(s) exist. Display? : (N/D): No// NO

Enter RETURN to continue or '^' to exit:

(The units of strength for this additive are in MG)
Strength: 600 600 MG
Select ADDITIVE:
Select SOLUTION: d5100
    1 D5100 5% DEXTROSE 100 ML
    2 D51000 5% DEXTROSE 1000 ML
CHOOSE 1-2: 1 5% DEXTROSE 100 ML

    Restriction/Guideline(s) exist. Display? : (N/O): No// NO

Enter RETURN to continue or '^' to exit:

Now Processing Enhanced Order Checks! Please wait...

INFUSION RATE: OVER 30 MINUTES
MED ROUTE: IV//IVPB IV PIGGYBACK IVPB
SCHEDULE: Q4H
ADMINISTRATION TIMES: 01-05-09-13-17-21//
REMARKS:
OTHER PRINT INFO:
START DATE/TIME: APR 21,2008@11:00//
STOP DATE/TIME: APR 31,2008@24:00//
PROVIDER: IVPROVIDER,TWO//

    CIMETIDINE 600MG: Total dose amount of 3,600 MILLIGRAMS/DAY exceeds the maximum daily
    dose amount of 2,400 MILLIGRAMS/DAY.

Do you want to Continue? N// NO...Order deleted.

Select IV TYPE:
.
.

```

Or

Do you want to Continue? N// Yes

Now creating Pharmacy Intervention
for CIMETIDINE 150MG/ML 8ML INJ

PROVIDER: IVPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

Finishing Unit Dose Order

PENDING UNIT DOSE (ROUTINE) Apr 21, 2008@13:30:17 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

* (1) Orderable Item: LOVASTATIN TAB <DIN>
Instructions: 120MG
* (2) Dosage Ordered: 120MG
Duration: (3) Start: 04/21/08 21:00
* (4) Med Route: ORAL REQUESTED START: 04/21/08 21:00
(5) Stop: 05/21/08 24:00
(6) Schedule Type: CONTINUOUS
* (8) Schedule: QPM
(9) Admin Times: 2100
* (10) Provider: PSJPROVIDER,TWO [es]
(11) Special Instructions:

(12) Dispense Drug U/D Inactive Date

(7) Self Med: NO
+ INVALID DISPENSE DRUG
BY Bypass FL Flag
DC Discontinue FN Finish
Select Item(s): Next Screen// FN Finish

Now Processing Enhanced Order Checks! Please wait...

PLEASE NOTE: This order must have at least one DISPENSE DRUG before it can be finished.

CHOOSE FROM:
1. LOVASTATIN 20MG TAB
2. LOVASTATIN 40MG TAB
3. LOVASTATIN 10MG TAB

Select DISPENSE DRUG(S) for this order: 2

LOVASTATIN 40MG TAB
UNITS PER DOSE: 1// 3

LOVASTATIN 40MG TAB: Single dose amount of 120 MILLIGRAMS exceeds the maximum single dose amount of 80 MILLIGRAMS.

LOVASTATIN 40MG TAB: Total dose amount of 120 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 80 MILLIGRAMS/DAY.

Do you want to Continue? N// n NO

PENDING UNIT DOSE (ROUTINE) Apr 21, 2008@13:30:17 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

```

*(1)Orderable Item: LOVASTATIN TAB                                <DIN>
    Instructions: 120MG
*(2)Dosage Ordered: 120MG
    Duration:
*(4)    Med Route: ORAL                                (3)Start: 04/21/08 21:00
                                                REQUESTED START: 04/21/08 21:00
                                                (5) Stop: 05/21/08 24:00

    (6) Schedule Type: CONTINUOUS
*(8)    Schedule: QPM
    (9) Admin Times: 2100
*(10)   Provider: PSJPROVIDER,TWO [es]
*(11) Special Instructions:

    (12) Dispense Drug                                U/D            Inactive Date
    .
    .
Or

Do you want to Continue? N// YES

Now creating Pharmacy Intervention
for LOVASTATIN 40MG TAB

PROVIDER: OERRPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

NON-VERIFIED UNIT DOSE      Apr 21, 2008@13:32:50      Page:      1 of      2
PSJPATIENT,TWO              Ward: 3AS                  CWAD
    PID: 666-16-4010        Room-Bed: 300-1            Ht(cm): 187.96 (08/14/07)
    DOB: 10/10/50 (57)      Wt(kg): 83.41 (08/14/07)

*(1)Orderable Item: LOVASTATIN TAB                                <DIN>
    Instructions: 120MG
*(2)Dosage Ordered: 120MG
    Duration:
*(4)    Med Route: ORAL                                (3)Start: 04/21/08 21:00
                                                REQUESTED START: 04/21/08 21:00
                                                (5) Stop: 05/21/08 24:00

    (6) Schedule Type: CONTINUOUS
*(8)    Schedule: QPM
    (9) Admin Times: 2100
*(10)   Provider: PSJPROVIDER,TWO [es]
*(11) Special Instructions:

    (12) Dispense Drug                                U/D            Inactive Date
            LOVASTATIN 40MG TAB                        3

+      Enter ?? for more actions
ED  Edit
Select Item(s): Next Screen//

```

Finishing IV Order

```

PENDING IV (ROUTINE)      Apr 21, 2008@13:42:36      Page:      1 of      1
PSJPATIENT,TWO            Ward: 3AS                  CWAD
    PID: 666-16-4010        Room-Bed: 300-1            Ht(cm): 187.96 (08/14/07)
    DOB: 10/10/50 (57)      Wt(kg): 83.41 (08/14/07)

*(1) Additives:
    AMINOPHYLLINE 2500 MG      Type: ADMIXTURE      <DIN>
*(2) Solutions:
    0.9% SODIUM CHLORIDE 1000 ML *N/F*
        IV Limit: 1 day
*(3) Infusion Rate: 100 ml/hr      (4)      Start: 04/21/08 15:30
*(5) Med Route: IV                (6)      Stop: 04/21/08 24:00
*(7) Schedule:
    Last Fill: *****
*(8) Admin Times:
    Quantity: 0

```

```

*(9)      Provider: PSJPROVIDER,TWO [es]      Cum. Doses:
(10)     Other Print:

(11)    Remarks :
        IV Room: GLRISC
        Entry By: PSJPHARMACIST,ONE           Entry Date: 04/21/08  13:29
        Enter ?? for more actions
DC    Discontinue      FL    Flag
ED    Edit             FN    Finish
Select Item(s): Quit// fn    Finish

Now Processing Enhanced Order Checks!  Please wait...

IV TYPE: ADMIXTURE//

```

AMINOPHYLLINE 2500 MG: The dose rate of 250 MILLIGRAMS/HOUR exceeds the maximum dose rate of 81 MILLIGRAMS/HOUR.

Do you want to Continue? N// n NO

```

PENDING IV (ROUTINE)      Apr 21, 2008@13:42:36      Page:      1 of      1
PSJPATIENT,TWO           Ward: 3AS                  CWAD
PID: 666-16-4010         Room-Bed: 300-1             Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)       Wt(kg): 83.41 (08/14/07)

```

```

*(1) Additives:                      Type: ADMIXTURE      <DIN>
      AMINOPHYLLINE 2500 MG
*(2) Solutions:
      0.9% SODIUM CHLORIDE 1000 ML  *N/F*
          IV Limit: 1 day              (4)      Start: 04/21/08  15:30
*(3) Infusion Rate: 100 ml/hr
*(5) Med Route: IV                  (6)      Stop: 04/21/08  24:00
*(7) Schedule:                     Last Fill: *****
(8) Admin Times:                   Quantity: 0
*(9) Provider: PSJPROVIDER,TWO [es] Cum. Doses:
(10) Other Print:

```

```

(11)    Remarks :
        IV Room: GLRISC
        Entry By: PSJPHARMACIST,ONE           Entry Date: 04/21/08  13:29
        Enter ?? for more actions
DC    Discontinue      FL    Flag
ED    Edit             FN    Finish
.
.
Or

```

Do you want to Continue? N// YES

Now creating Pharmacy Intervention
for AMINOPHYLLINE 500MG/20ML INJ

PROVIDER: OERRPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

Renewing Unit Dose Order

```

ACTIVE UNIT DOSE      Apr 21, 2008@13:57:38      Page:      1 of      2
PSJPATIENT,TWO           Ward: 3AS                  CWAD
PID: 666-16-4010         Room-Bed: 300-1             Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)       Wt(kg): 83.41 (08/14/07)

*(1)Orderable Item: LOVASTATIN TAB      <DIN>
      Instructions: 120MG

```

```

*(2)Dosage Ordered: 120MG
      Duration:
*(4)   Med Route: ORAL
*(3)Start: 04/21/08 21:00
*(5) Stop: 05/21/08 24:00

(6) Schedule Type: CONTINUOUS
*(8)   Schedule: QPM
(9)   Admin Times: 2100
*(10)  Provider: PSJPROVIDER,TWO [es]
(11) Special Instructions:

(12) Dispense Drug          U/D          Inactive Date
      LOVASTATIN 40MG TAB      3
+      Enter ?? for more actions
DC Discontinue              ED Edit
HD Hold                     RN Renew
FL Flag                     VF (Verify)
Select Item(s): Next Screen// RN Renew

RENEW THIS ORDER? YES//

Now Processing Enhanced Order Checks! Please wait...

LOVASTATIN 40MG TAB: Single dose amount of 120 MILLIGRAMS exceeds the maximum single
dose amount of 80 MILLIGRAMS.

LOVASTATIN 40MG TAB: Total dose amount of 120 MILLIGRAMS/DAY exceeds the maximum
daily dose amount of 80 MILLIGRAMS/DAY.

Do you want to Continue? N// n NO

PSJPATIENT,TWO              Ward: 3AS              CWAD
PID: 666-16-4010            Room-Bed: 300-1            Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)          Wt(kg): 83.41 (08/14/07)
Sex: MALE                   Admitted: 08/07/97
Dx: lumpy                   Last transferred: 08/07/97

- - - - - A C T I V E - - - - -
1  AMINOPHYLLINE 2500 MG      C 04/21 04/21 A
   in 0.9% SODIUM CHLORIDE 1000 ML 100 ml/hr
2  INDINAVIR CAP,ORAL        C 04/21 04/28 A
   Give: 400MG PO Q8H
3  LOVASTATIN TAB            C 04/21 05/21 A 04/21
   Give: 120MG PO QPM

      Enter ?? for more actions
PI Patient Information        SO Select Order
PU Patient Record Update     NO New Order Entry
Select Action: Quit//
.
.
Or

Do you want to Continue? N// YES

Now creating Pharmacy Intervention
for LOVASTATIN 40MG TAB

PROVIDER: OERRPROVIDER, ONE
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// O

STOP DATE/TIME: MAY 21,2008@24:00// MAY 21,2008@24:00
Expected First Dose: APR 21,2008@21:00

```


Renewing IV Order

```
ACTIVE IV                      Apr 21, 2008@14:15:25          Page: 1 of 2
PSJPATIENT,TWO                Ward: 3AS                    CWAD
PID: 666-16-4010              Room-Bed: 300-1              Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)            Wt(kg): 83.41 (08/14/07)

*(1) Additives:                Order number: 5              Type: ADMIXTURE    <DIN>
      AMINOPHYLLINE 2500 MG
*(2) Solutions:
      0.9% SODIUM CHLORIDE 1000 ML *N/F*
      IV Limit: 1 day
*(3) Infusion Rate: 100 ml/hr
*(5) Med Route: IV
*(7) Schedule:
      Admin Times:
*(9) Provider: PSJPROVIDER,TWO [es]
(10) Other Print:

      (4) Start: 04/21/08 15:30
      (6) Stop: 04/21/08 24:00
      Last Fill: 04/21/08 13:55
      Quantity: 1
      Cum. Doses: 1

(11) Remarks :
      IV Room: GLRISC
+      Enter ?? for more actions
DC Discontinue      RN Renew      VF (Verify)
HD Hold            OC On Call     FL Flag
ED Edit            AL Activity Logs
Select Item(s): Next Screen// RN Renew

Now Processing Enhanced Order Checks! Please wait...

AMINOPHYLLINE 2500 MG: The dose rate of 250 MILLIGRAMS/HOUR exceeds the maximum dose
rate of 81 MILLIGRAMS/HOUR.

Do you want to Continue? N// n NO

ACTIVE IV                      Apr 21, 2008@14:19:17          Page: 1 of 2
PSJPATIENT,TWO                Ward: 3AS                    CWAD
PID: 666-16-4010              Room-Bed: 300-1              Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)            Wt(kg): 83.41 (08/14/07)

*(1) Additives:                Order number: 5              Type: ADMIXTURE    <DIN>
      AMINOPHYLLINE 2500 MG
*(2) Solutions:
      0.9% SODIUM CHLORIDE 1000 ML *N/F*
      IV Limit: 1 day
*(3) Infusion Rate: 100 ml/hr
*(5) Med Route: IV
*(7) Schedule:
      Admin Times:
*(9) Provider: PSJPROVIDER,TWO [es]
(10) Other Print:

      (4) Start: 04/21/08 15:30
      (6) Stop: 04/21/08 24:00
      Last Fill: 04/21/08 13:55
      Quantity: 1
      Cum. Doses: 1

(11) Remarks :
      IV Room: GLRISC
+      Enter ?? for more actions
DC Discontinue      RN Renew      VF (Verify)
HD Hold            OC On Call     FL Flag
ED Edit            AL Activity Logs
Select Item(s): Next Screen//
.
.
Or

Do you want to Continue? N// ES

Now creating Pharmacy Intervention
for AMINOPHYLLINE 500MG/20ML INJ

PROVIDER: OPPROVIDER, ONE
RECOMMENDATION: NO CHANGE
```

See 'Pharmacy Intervention Menu' if you want to delete this intervention or for more options.

Would you like to edit this intervention? N// NO

STOP DATE/TIME: APR 21,2008@24:00//

PROVIDER: PSJPROVIDER,ONE//

Editing Orderable Item –Creating New Unit Dose order

ACTIVE UNIT DOSE Apr 30, 2013@09:21:29 Page: 1 of 2
PSJPATIENT,FIFTYONE Ward: 3AS
PID: 666-55-4343 Room-Bed: Ht(cm): _____ (_____)
DOB: 07/29/44 (68) Wt(kg): 100.00 (03/25/13)

*(1)Orderable Item: INDOMETHACIN CAP,ORAL

Instructions:

*(2)Dosage Ordered: 25MG

Duration:

*(3)Start: 03/26/13 08:00

*(4) Med Route: ORAL

*(5) Stop: 06/24/13 24:00

(6) Schedule Type: CONTINUOUS

*(8) Schedule: TID

(9) Admin Times: 08-12-16

*(10) Provider: PSJPROVIDER,TWO [w]

(11) Special Instructions:

(12) Dispense Drug

INDOMETHACIN 25MG CAP

U/D

Inactive Date

1

+ Enter ?? for more actions

DC Discontinue

ED Edit

AL Activity Logs

HD Hold

RN Renew

FL Flag

VF (Verify)

Select Item(s): Next Screen// ED Edit

Select FIELDS TO EDIT: 1

WARNING! If you change the drug of an order, the Dosage Ordered and Dispense Drug(s) are deleted.

Do you wish to continue? No// Y (Yes)

ORDERABLE ITEM: INDOMETHACIN CAP,ORAL// INDINAVIR INDINAVIR CAP,ORAL

When the drug of an order is changed, the Dosage Ordered and Dispense Drug(s) for the order are no longer valid, and therefore deleted from the order. If possible, a new corresponding dispense drug will be added to the order.

Answer 'YES' to continue with this change. Answer 'NO' to select another drug or to accept the drug as it was. Enter an '^' the exit this edit.? No// Y

NON-VERIFIED UNIT DOSE Apr 21, 2008@14:39:38 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

*(1)Orderable Item: INDINAVIR CAP,ORAL

Instructions:

*(2)Dosage Ordered: 1200MG

Duration:

*(3)Start: 04/21/08 14:00

*(4) Med Route: ORAL

*(5) Stop: 04/28/08 24:00

(6) Schedule Type: CONTINUOUS

*(8) Schedule: Q8H

(9) Admin Times: 0600-1400-2200

*(10) Provider: PSJPROVIDER,TWO

(11) Special Instructions:

(12) Dispense Drug

INDINAVIR 400MG CAP

U/D

Inactive Date

1

```

+          This change will cause a new order to be created.
Select Item(s): Next Screen// ED    Edit

Select FIELDS TO EDIT: 12

Select DISPENSE DRUG: INDINAVIR 400MG CAP//
  UNITS PER DOSE: 1// 3
  INACTIVE DATE:
Select DISPENSE DRUG:

NON-VERIFIED UNIT DOSE          Apr 21, 2008@14:40:29          Page:    1 of    2
PSJPATIENT,TWO                  Ward: 3AS                  CWAD
  PID: 666-16-4010              Room-Bed: 300-1              Ht(cm): 187.96 (08/14/07)
  DOB: 10/10/50 (57)            Wt(kg): 83.41 (08/14/07)

*(1)Orderable Item: INDINAVIR CAP,ORAL
  Instructions:
*(2)Dosage Ordered: 1200MG
  Duration:                      *(3)Start: 04/21/08  14:00
*(4)  Med Route: ORAL
                                     *(5) Stop: 04/28/08  24:00

  (6) Schedule Type: CONTINUOUS
*(8)  Schedule: Q8H
  (9)  Admin Times: 0600-1400-2200
*(10)  Provider: PSJPROVIDER,TWO
  (11) Special Instructions:

  (12) Dispense Drug              U/D          Inactive Date
      INDINAVIR 400MG CAP          3

+          This change will cause a new order to be created.
ED    Edit                      AC    ACCEPT

Select Item(s): Next Screen// AC    ACCEPT

  INDINAVIR 400MG CAP: Single dose amount of 1200 MILLIGRAMS exceeds the maximum
  single dose amount of 1000 MILLIGRAMS.

  INDINAVIR 400MG CAP: Total dose amount of 3600 MILLIGRAMS/DAY exceeds the maximum
  daily dose amount of 3000 MILLIGRAMS/DAY.

Do you want to Continue? N// n  NO

ACTIVE UNIT DOSE          Apr 21, 2008@14:37:23          Page:    1 of    2
PSJPATIENT,TWO                  Ward: 3AS                  CWAD
  PID: 666-16-4010              Room-Bed: 300-1              Ht(cm): 187.96 (08/14/07)
  DOB: 10/10/50 (57)            Wt(kg): 83.41 (08/14/07)

*(2)Dosage Ordered: 400MG
  Duration:                      *(3)Start: 04/21/08  14:00
*(4)  Med Route: ORAL
                                     *(5) Stop: 04/28/08  24:00

  (6) Schedule Type: CONTINUOUS
*(8)  Schedule: Q8H
  (9)  Admin Times: 0600-1400-2200
*(10)  Provider: PSJPROVIDER,TWO [w]
  (11) Special Instructions:

  (12) Dispense Drug              U/D          Inactive Date
      INDINAVIR 400MG CAP          1

+          Enter ?? for more actions
DC  Discontinue                  ED  Edit
HD  Hold                        RN  Renew
FL  Flag                        VF  (Verify)
.
.
Or

Do you want to Continue? N// ES

```

Now creating Pharmacy Intervention
for INDINAVIR 400MG CAP

PROVIDER: PSJPROVIDER,TWO
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this
intervention or for more options.

Would you like to edit this intervention? N// NO

NATURE OF ORDER: SERVICE CORRECTION// S
...discontinuing original order...

...creating new order...(you will now work on this new order)..

FL Flag VF Verify

NON-VERIFIED UNIT DOSE Apr 21, 2008@14:40:54 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

*(1)Orderable Item: INDINAVIR CAP,ORAL
Instructions:

*(2)Dosage Ordered: 1200MG
Duration:

*(3)Start: 04/21/08 14:00

*(4) Med Route: ORAL

*(5) Stop: 04/28/08 24:00

(6) Schedule Type: CONTINUOUS
*(8) Schedule: Q8H
(9) Admin Times: 0600-1400-2200
*(10) Provider: PSJPROVIDER,TWO
(11) Special Instructions:

(12) Dispense Drug U/D Inactive Date
INDINAVIR 400MG CAP 3

+ Enter ?? for more actions

DC Discontinue ED Edit AL Activity Logs

HD (Hold) RN (Renew)

FL Flag VF Verify

Select Item(s): Next Screen//

Editing IV Additive Strength

ACTIVE IV Apr 21, 2008@14:53:17 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

*(1) Additives: Order number: 5 Type: ADMIXTURE <DIN>
AMINOPHYLLINE 2500 MG

*(2) Solutions:

0.9% SODIUM CHLORIDE 1000 ML *N/F*

IV Limit: 1 day

*(4) Start: 04/21/08 15:30

*(3) Infusion Rate: 100 ml/hr

*(5) Med Route: IV

*(6) Stop: 04/21/08 24:00

*(7) Schedule:

Last Fill: 04/21/08 13:55

(8) Admin Times:

Quantity: 1

*(9) Provider: PSJPROVIDER,TWO [es]

Cum. Doses: 1

(10) Other Print:

(11) Remarks :

IV Room: GLRISC

+ Enter ?? for more actions

DC Discontinue RN Renew VF (Verify)

HD Hold OC On Call FL Flag

ED Edit AL Activity Logs

```

Select Item(s): Next Screen// ed Edit

Select FIELDS TO EDIT: 1
Select ADDITIVE: AMINOPHYLLINE//
ADDITIVE: AMINOPHYLLINE//

(The units of strength for this additive are in MG)
Strength: 2500 MG//2000 2000 MG
BOTTLE:
Select ADDITIVE:

AC Accept ED Edit
*(1) Additives: Order number: 5 Type: ADMIXTURE <DIN>
ACTIVE IV Apr 21, 2008@14:54:31 Page: 1 of 1
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

AMINOPHYLLINE 2000 MG
*(2) Solutions:
0.9% SODIUM CHLORIDE 1000 ML *N/F*
IV Limit: 1 day *(4) Start: 04/21/08 15:30
*(3) Infusion Rate: 100 ml/hr
*(5) Med Route: IV *(6) Stop: 04/21/08 24:00
*(7) Schedule: Last Fill: 04/21/08 13:55
(8) Admin Times: Quantity: 1
*(9) Provider: PSJPROVIDER,TWO [es] Cum. Doses: 1
(10) Other Print:

(11) Remarks :
IV Room: GLRISC
Entry By: PSJPHARMACIST,ONE Entry Date: 04/21/08 13:29
Enter ?? for more actions
AC Accept ED Edit
Select Item(s): Edit// ac Accept

AMINOPHYLLINE 2000 MG: The dose rate of 250 MILLIGRAMS/HOUR exceeds the maximum dose
rate of 81 MILLIGRAMS/HOUR.

Do you want to Continue? N// n NO

ACTIVE IV Apr 21, 2008@14:53:17 Page: 1 of 2
PSJPATIENT,TWO Ward: 3AS CWAD
PID: 666-16-4010 Room-Bed: 300-1 Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57) Wt(kg): 83.41 (08/14/07)

*(1) Additives: Order number: 5 Type: ADMIXTURE <DIN>
AMINOPHYLLINE 2500 MG
*(2) Solutions:
0.9% SODIUM CHLORIDE 1000 ML *N/F*
IV Limit: 1 day *(4) Start: 04/21/08 15:30
*(3) Infusion Rate: 100 ml/hr
*(5) Med Route: IV *(6) Stop: 04/21/08 24:00
*(7) Schedule: Last Fill: 04/21/08 13:55
(8) Admin Times: Quantity: 1
*(9) Provider: PSJPROVIDER,TWO [es] Cum. Doses: 1
(10) Other Print:

(11) Remarks :
IV Room: GLRISC
+ Enter ?? for more actions
DC Discontinue RN Renew VF (Verify)
HD Hold OC On Call FL Flag
ED Edit AL Activity Logs
.
.
Or

Do you want to Continue? N// ES

```

Now creating Pharmacy Intervention
for AMINOPHYLLINE 50MG/ML 20ML INJ

PROVIDER: PSJPROVIDER,TWO
RECOMMENDATION: NO CHANGE

See 'Pharmacy Intervention Menu' if you want to delete this
intervention or for more options.

Would you like to edit this intervention? N// NO

Med Route: IV
48
[5]4010 3AS 04/21/08
PSJPATIENT,TWO 300-1

AMINOPHYLLINE 2000 MG
0.9% SODIUM CHLORIDE 1000 ML

Dose due at: _____
100 ml/hr
fld by: _____ Chkd by: _____
1[1]

Start date: APR 21,2008 15:30 Stop date: APR 21,2008 24:00

Expected First Dose: APR 21,2008@15:30

*** This change will cause a new order to be created. ***

Is this O.K.: Y//

Editing Infusion Rate

ACTIVE IV	Apr 21, 2008@15:14	Page: 1 of 1
PSJPATIENT,TWO	Ward: 3AS	CWAD
PID: 666-16-4010	Room-Bed: 300-1	Ht(cm): 187.96 (08/14/07)
DOB: 10/10/50 (57)		Wt(kg): 83.41 (08/14/07)

* (1) Additives:	Order number: 9	Type: ADMIXTURE	<DIN>
* (2) Solutions:			
HEPARIN 25000U/D5W 250 ML *N/F*			
Duration:	* (4)	Start: 04/21/08 15:30	
* (3) Infusion Rate: 15 ml/hr			
* (5) Med Route: IV	* (6)	Stop: 04/22/08 24:00	
* (7) Schedule:		Last Fill: 04/21/08 15:13	
(8) Admin Times:		Quantity: 1	
* (9) Provider: PSJPROVIDER,TWO [w]		Cum. Doses: 1	
(10) Other Print:			
(11) Remarks :			
IV Room: GLRISC			
Entry By: PSJPHARMACIST,ONE		Entry Date: 04/21/08 15:10	
Enter ?? for more actions			

DC Discontinue	RN Renew	VF (Verify)
HD Hold	OC On Call	FL Flag
ED Edit	AL Activity Logs	

Select Item(s): Quit// ED Edit

Select FIELDS TO EDIT: 3
INFUSION RATE: 15 ml/hr//40 ml/hr

AC Accept	ED Edit
-----------	---------

Would you like to edit this intervention? N// NO

```

Med Route: IV
48
[9]4010 3AS 04/21/08
PSJPATIENT,TWO 300-1

HEPARIN 25000U/D5W 250 ML

Dose due at: _____
20 ml/hr
fld by: _____ Chkd by: _____
1[1]

Start date: APR 21,2008 15:30 Stop date: APR 22,2008 24:00

Expected First Dose: APR 21,2008@15:30

*** This change will cause a new order to be created. ***

Is this O.K.: Y//

```

2.6.2. General Dosing Information Message

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 for the DoseLow, DoseFormLow, DoseHigh, DoseFormHigh, MaxDailyDose, and MaxDailyDoseForm values:

- If after a decimal only zeroes exist, do not display (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 displayed when the Max Daily Dose Order Check cannot be performed.

2.6.2.6 Functional Requirement 6

General dosing information messages shall be displayed when the both 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 displayed for orders with a dose type of SINGLE DOSE.

2.6.2.8 Functional Requirement 8

General dosing information messages shall not be displayed 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 displayed 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 displayed 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 displayed 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 displayed 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 the 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 displayed to the pharmacy user through backdoor pharmacy options 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 displayed to the pharmacy user through backdoor pharmacy options 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 displayed to the pharmacy user through backdoor pharmacy options 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 displayed to the pharmacy user through backdoor pharmacy options 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 displayed to the pharmacy user through backdoor pharmacy options 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 editing an inpatient unit dose or IV order 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 displayed.

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

2.6.4.2 Functional Requirement 2

If editing an inpatient unit dose or IV order 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 displayed to the user.

2.6.4.3 Functional Requirement 3

If editing an inpatient unit dose or IV order 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 shall be displayed to the user without a specific reason.

```
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 editing an inpatient unit dose or IV order 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 displayed to the user.

2.6.4.5 Functional Requirement 5

If editing an inpatient unit dose or IV order 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 of 'No', the following drug level error message shall be displayed to the user without a specific reason.

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 Dosing Order Checks cannot be performed when 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 shall be displayed to the user without a specific reason.

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

2.6.5. Order Level Error Messages Changes

This section will document all the order level error message changes for MOCHA v2.1. A listing of all order level error 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 user through pharmacy backdoor options shall see the following order level error message:

Age required (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 user through CPRS shall see the following order level error message without a specific reason:

Age required (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 Dose Order Check to be performed, an order level error message along with general dosing information messages shall be displayed to the user through pharmacy backdoor options.

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 the 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 displayed to the user.

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 displayed to the user through CPRS.

2.6.5.5.1 Functional Requirement 1

The order level error message reason that shall be displayed when a weight is required but unavailable to the CPRS user 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 displayed to the user through CPRS.

2.6.5.6.1 Functional Requirement 1

The order level error message reason that shall be displayed when a weight is required but unavailable to the CPRS user 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 displayed to the user through CPRS.

2.6.5.7.1 Functional Requirement 1

The order level error message reason that shall be displayed when a weight is required but unavailable to the CPRS user 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 displayed to the user through pharmacy backdoor options.

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 displayed to the user.

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 displayed to the user through CPRS.

2.6.5.10.1 Functional Requirement 1

The order level error message reason that shall be displayed to the CPRS user 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 displayed to the user through CPRS.

2.6.5.11.1 Functional Requirement 1

The order level error message reason that shall be displayed to the CPRS user 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 displayed to the CPRS user.

2.6.5.12.1 Functional Requirement 1

The order level error message reason that shall be displayed to the CPRS user 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 displayed to the user through pharmacy backdoor options.

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 displayed to the user through 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 displayed to the user through pharmacy backdoor options.

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 displayed to the user through 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 obtain 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 displayed to the user.

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'.

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 displayed to the user.

2.6.5.21 Functional Requirement 21

If the frequency calculated from an 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 displayed to the user through pharmacy backdoor options.

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 displayed to the user through 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, and order level error message along with general dosing information messages shall be displayed to the user through pharmacy backdoor options.

Single Dose Amount cannot be determined for Unit Dose 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 displayed to the user through 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 displayed to the user through pharmacy backdoor options.

Dose Units cannot be determined – Unit Dose 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 displayed to the user through 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 displayed to the user through pharmacy backdoor options.

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 local possible dosage 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 without a specific reason along with general dosing information messages shall be displayed to the user through 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.

- a. 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.
- b. 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.
- c. 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.
- d. 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 error message along with general dosing information messages shall be displayed to the user through backdoor pharmacy options.

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 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 error message without a specific reason along with general dosing information messages shall be displayed to the user through 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 displayed to the user through the pharmacy backdoor.

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 displayed without a specific reason to the user through 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 displayed to the user through the pharmacy backdoor.

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 displayed without a specific reason to the user through 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

A 'Press Return to Continue' shall be inserted so that the Dosing Order Check warnings, order level error messages, and general dosing information messages do not scroll off the screen during user review.

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 displayed to the user through the pharmacy backdoor.

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.

2.6.5.41 Functional Requirement 41

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 displayed through 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.

2.6.5.42 Functional Requirement 42

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 displayed to the user. 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. 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. We are not evaluating dosing periods greater than 1 day.

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

2.6.6.1 Functional Requirement 1

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

2.6.6.2 Functional Requirement 2

If the dose type for the order is determined to be 'Single Dose', a duration of '1' shall be sent to the interface.

2.6.6.3 Functional Requirement 3

For Dosing Order Checks performed for an IV fluid order (including IV quick order) entered through CPRS, if a duration (i.e. 3D, 10DOSES, 72H) or volume (i.e. 1500ML, 1000cc, 1L) limit exists, it shall be used to determine the order duration/frequency and not the dosing order check duration.

2.6.6.4 Functional Requirement 4

The duration rate shall be set to the dose rate value for all inpatient medication orders.

2.6.6.5 Functional Requirement 5

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.

2.6.7. Frequency

This section will describe the logic that is used to determine the frequency for an inpatient (IV or Unit Dose) 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.


2.6.7.1 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).

2.6.7.2 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 the M2-1_PDM_RSD_v2 for more information on this new field.
	

2.6.7.3 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'.

2.6.7.4 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).

2.6.7.4.1 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).

2.6.7.4.2 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'.


2.6.7.4.3 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'.

2.6.7.4.3.1 <DELETED> Functional Requirement 1

2.6.7.5 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 in the M2-1_PDM_RSD_v2 for more information on this new field.
	

2.6.7.5.1 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.

2.6.7.5.1.1 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.

2.6.7.6 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.

2.6.7.6.1 Functional Requirement 1

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

2.6.7.7 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.

2.6.7.8 Functional Requirement 8

If the frequency calculated is not 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)	$\# \div 30$

2.6.7.9 Functional Requirement 9

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

2.6.7.10 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.

2.6.7.10.1 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.

2.6.7.11 Functional Requirement 11

For an IV Additive within a 'Continuous' IV order entered through CPRS with an additive frequency set to '1 bag/day', the frequency of the IV Additive shall be set to '1'.

2.6.7.12 <DELETED> Functional Requirement 12

2.6.7.13 Functional Requirement 13

If executing Dosing Order Checks for an IV order via backdoor pharmacy options that meet the following criteria, the software shall round the frequency and send the frequency value to interface in a 'Q#H' format:

- Has IV type of 'Admixture', 'Hyperal', or 'Chemotherapy Admixture'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- IV Solution volume/Infusion Rate does not result in a whole number
- IV Additive is NOT placed in all IV bags
- Number of IV bags specified for IV Additive is greater than the number of IV bags to be administered in a 24 hour period for the IV order

2.6.7.14 Functional Requirement 14

For a unit dose order, if the duration of the order is less than 24 hours (1 day), the frequency shall be determined by how many doses are 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.

2.6.8. Single Dose Adjustments

In certain circumstances, IV orders meeting specific criteria (i.e. having a frequency that requires rounding or if an IV bag infuses longer than the order duration) may require single dose adjustments. If the single dose adjustment is made, a corresponding adjustment will also result with the daily dose. This section describes these situations.

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.

2.6.8.1 Functional Requirement 1

For continuous type IV orders that do not have a drug that is administered via a 'CONTINUOUS' FDB route and the frequency is less than one (i.e. IV bag is 12 hours based on

volume, but duration limit is 10 hours), the single dose shall be adjusted and the frequency sent into the interface shall be '1'.

2.6.8.1.1 Functional Requirement 1

If a Max Daily Dose Order Check warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order. See example below.

IV Order: Thiamine 1000mg in 0.9% Sodium Chloride 1000ml IV to infuse 100ml/hr. One bag will infuse over 10 hours. The duration of the order is 5 hours. The message displayed to the user preceding the warning(s) is shown below.

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (500 ML over 5 hours).

THIAMINE 1000 MG: Single dose amount of 500 MILLIGRAMS exceeds the maximum single dose amount of 100 MILLIGRAMS.

THIAMINE 1000 MG: Total dose amount of 500 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 300 MILLIGRAMS/DAY.

2.6.8.2 Functional Requirement 2

If executing Dosing Order Checks for an IV order via backdoor pharmacy options that meets the following criteria, the software shall adjust the single dose amount of the IV Additive for 24 hours and set the frequency to '1':

- Has IV type of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe', or 'Chemotherapy Continuous Syringe'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- Frequency of order has been determined to be greater than 24 hours

2.6.8.2.1 Functional Requirement 1

If a Max Daily Dose Order Check warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over 24 hours. See example below.

IV Order: Thiamine 1000mg in 0.9% Sodium Chloride 1000ml IV to infuse 25ml/hr. One bag will infuse over 40 hours. The message displayed to the user preceding the warning(s) is shown below.

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (600 ML over 24 hours).

THIAMINE 1000 MG: Single dose amount of 600 MILLIGRAMS exceeds the maximum single dose amount of 100 MILLIGRAMS.

THIAMINE 1000 MG: Total dose amount of 600 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 300 MILLIGRAMS/DAY.

2.6.8.3 Functional Requirement 3

If executing Dosing Order Checks for an IV order through CPRS that meets the following criteria, the software shall adjust the single dose amount of the IV Additive for 24 hours and set the frequency to '1':

- Has IV type of 'Continuous'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- Frequency of order has been determined to be greater than 24 hours

2.6.8.3.1 Functional Requirement 1

If a Max Daily Dose Order Check warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over 24 hours. See example below.

IV Order: Thiamine 1000mg in 0.9% Sodium Chloride 1000ml IV to infuse 25ml/hr. One bag will infuse over 40 hours. The message shown to the user preceding the warning(s) is shown below.

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (600 ML over 24 hours).

THIAMINE 1000 MG: Single dose amount of 600 MILLIGRAMS exceeds the maximum single dose amount of 100 MILLIGRAMS.

THIAMINE 1000 MG: Total dose amount of 600 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 300 MILLIGRAMS/DAY.

2.6.8.4 Functional Requirement 4


If executing Dosing Order Checks for an IV order via backdoor pharmacy options that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula 'Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Frequency value[#]':

- Has IV type of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe', or 'Chemotherapy Continuous Syringe'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- IV Solution Volume/Infusion Rate does not result in a whole number
- Additive is to be administered in all bags
- Order duration is greater or equal to 24 hours

[#] Please see additional requirements below to determine what frequency value should be used.

2.6.8.4.1 Functional Requirement 1

If the rounded frequency value of the order is less than 24, the rounded frequency value shall be used in the calculation.

Note:	The frequency is calculated by dividing the IV Solution volume by the infusion rate.
	

2.6.8.4.2 Functional Requirement 2

If the rounded frequency value of the order is equal to or greater than 24, the frequency value of '24' shall be used in the calculation.

2.6.8.4.3 Functional Requirement 3

If a Max Daily Dose Order Check warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order. See examples below.

Rounded Frequency less than 24

IV Order: Thiamine 1000mg in 0.9% Sodium Chloride 1000ml IV to infuse 62ml/hr. One bag will infuse over 16.12 hours. The 16.12 is rounded to 16. The frequency sent into the interface is 'Q16H'. The message shown to the user preceding the warning(s) is shown below.

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the nearest whole number of hours (992 ML over 16 hours).

THIAMINE 1000 MG: Single dose amount of 992 MILLIGRAMS exceeds the maximum single dose amount of 100 MILLIGRAMS.

THIAMINE 1000 MG: Total dose amount of 1488 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 300 MILLIGRAMS/DAY.

Rounded Frequency greater than 24

IV Order: Thiamine 1000mg in 0.9% Sodium Chloride 1000ml IV to infuse 30ml/hr. One bag will infuse over 33.33 hours. The 33.33 is rounded to 33. The frequency sent into the interface is '1'. The message shown to the user preceding warning(s) is shown below.

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the nearest whole number of hours (720 ML over 24 hours).

THIAMINE 1000 MG: Single dose amount of 720 MILLIGRAMS exceeds the maximum single dose amount of 100 MILLIGRAMS.

THIAMINE 1000 MG: Total dose amount of 720 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 300 MILLIGRAMS/DAY.

2.6.8.5 Functional Requirement 5


If executing Dosing Order Checks for an IV order through CPRS that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula, 'Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Frequency value[#]':

- Has IV type of 'Continuous'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- IV Solution volume/Infusion Rate does not result in a whole number
- Additive is to be administered in all bags
- Order duration is greater or equal to 24 hours

[#] Please see additional requirements below to determine what frequency value should be used.

2.6.8.5.1 Functional Requirement 1

If the rounded frequency value of the order is less than 24, the rounded frequency value shall be used in the calculation.

Note:	The frequency is calculated by dividing the IV Solution volume by the infusion rate.
	

2.6.8.5.2 Functional Requirement 2

If the rounded frequency value of the order is equal to or greater than 24, the frequency value of '24' shall be used in the calculation.

2.6.8.5.3 Functional Requirement 3

If a Max Daily Dose warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order.

2.6.8.6 Functional Requirement 6

If executing Dosing Order Checks for an IV order via backdoor pharmacy options that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula, 'Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Duration of order (in hours)':

- Has IV type of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe', or 'Chemotherapy Continuous Syringe'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- Additive is to be administered in all bags
- Order duration is less than 24 hours
- Volume of solution (equivalent to '1' bag dispensed) will not finish infusing over order duration

2.6.8.6.1 Functional Requirement 1

If a Max Daily Dose warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order. See examples below.

IV Order: Folic Acid 500mg in 0.9% Sodium Chloride 500ml IV to infuse 50ml/hr. One bag will infuse over 10 hours. The duration of the order is 3 hours.

$500\text{mg}/500\text{ml} * 50\text{ml/hr} * 3 \text{ hours} = 150\text{mg}$ (Adjusted SDA)

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (150 ML over 3 hours).

FOLIC ACID 500 MG: Single dose amount of 150 MILLIGRAMS exceeds the maximum single dose amount of 1 MILLIGRAMS.

FOLIC ACID 500 MG: Total dose amount of 150 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 1 MILLIGRAMS/DAY.

2.6.8.7 Functional Requirement 7

If executing Dosing Order Checks for an IV order through CPRS that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula ‘Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Duration of order (in hours)’:

- Has IV type of ‘Continuous’
- The IV Additive is NOT administered via a ‘CONTINUOUS’ FDB Dose Route
- IV Solution volume/Infusion Rate does not result in a whole number
- Additive is to be administered in all bags
- Order duration is less than 24 hours
- Volume of solution (equivalent to ‘1’ bag dispensed) will not finish infusing over order duration

2.6.8.7.1 Functional Requirement 1

If a Max Daily Dose warning is generated, the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order. See example below.

IV Order: Folic Acid 500mg in 0.9% Sodium Chloride 500ml IV to infuse 62ml/hr. One bag will infuse over 8 hours (rounded). The duration of the order is 3 hours.

500mg/500ml * 62ml/hr * 3 hours = 186mg (Adjusted SDA)

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (186 ML over 3 hours).

FOLIC ACID 500 MG: Single dose amount of 186 MILLIGRAMS exceeds the maximum single dose amount of 1 MILLIGRAMS.

FOLIC ACID 500 MG: Total dose amount of 186 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 1 MILLIGRAMS/DAY.

2.6.8.8 Functional Requirement 8

If executing Dosing Order Checks for an IV order through CPRS that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula ‘Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Duration of order (in hours)’:

- Has IV type of ‘Continuous’
- The IV Additive is NOT administered via a ‘CONTINUOUS’ FDB Dose Route
- Additive is to be administered in all bags
- Order duration is less than 24 hours
- Volume of solution (equivalent to ‘1’ bag dispensed) will not finish infusing over order duration

2.6.8.8.1 Functional Requirement 1

If a Max Daily Dose warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid was infused over the duration of the order. See example below.

IV Order: Folic Acid 500mg in 0.9% Sodium Chloride 500ml IV to infuse 50ml/hr. One bag will infuse over 10 hours. The duration of the order is 3 hours.

$500\text{mg}/500\text{ml} * 50\text{ml/hr} * 3 \text{ hours} = 150\text{mg}$ (Adjusted SDA)

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (150 ML over 3 hours).

FOLIC ACID 500 MG: Single dose amount of 150 MILLIGRAMS exceeds the maximum single dose amount of 1 MILLIGRAMS.

FOLIC ACID 500 MG: Total dose amount of 150 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 1 MILLIGRAMS/DAY.

2.6.8.9 Functional Requirement 9

If executing dosage checks for an IV order via pharmacy backdoor options that meets the following criteria, the software shall adjust the single dose amount of the IV Additive using the formula 'Adjusted Single Dose Amount (SDA) = (SDA/Volume of IV Solution) * Infusion Rate (ml/hr) * Duration of order (in hours)':

- Has IV type of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe', or 'Chemotherapy Continuous Syringe'
- The IV Additive is NOT administered via a 'CONTINUOUS' FDB Dose Route
- IV Solution volume/Infusion Rate does not result in a whole number
- Additive is to be administered in all bags
- Order duration is less than 24 hours
- Volume of solution (equivalent to '1' bag dispensed) will not finish infusing over order duration

2.6.8.9.1 Functional Requirement 1

If a Max Daily Dose warning is generated, a note preceding the Maximum Single Dose Order Check warning shall be displayed stating how much IV fluid volume was infused over the duration of the order.

IV Order: Folic Acid 500mg in 0.9% Sodium Chloride 500ml IV to infuse 62ml/hr. One bag will infuse over 8 hours (rounded). The duration of the order is 3 hours.

$500\text{mg}/500\text{ml} * 62\text{ml/hr} * 3 \text{ hours} = 186\text{mg}$ (Adjusted SDA)

Both Maximum Single Dose and Max Daily Dose warnings generated

PLEASE NOTE: The single dose of the IV Additive has been adjusted to reflect the amount of drug infused over the duration of the order or 24 hours; whichever is less (186 ML over 3 hours).

FOLIC ACID 500 MG: Single dose amount of 186 MILLIGRAMS exceeds the maximum single dose amount of 1 MILLIGRAMS.

FOLIC ACID 500 MG: Total dose amount of 186 MILLIGRAMS/DAY exceeds the maximum daily dose amount of 1 MILLIGRAMS/DAY.


2.6.9. Schedule Exclusions

This section describes 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 Checks 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.

2.6.9.1 Functional Requirement 1

No Max Daily Dose Order Check shall be performed for a simple medication order processed through CPRS using the inpatient medication dialog, IV 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.
	

2.6.9.1.1 Functional Requirement 1

No message shall be displayed to the user informing them that the Max Daily Dose Order Check will not be performed.

2.6.9.2 Functional Requirement 2

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

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.
	

2.6.9.2.1 Functional Requirement 1

No message shall be displayed to the user informing them that the Max Daily Dose Order Check will not be performed.

2.6.9.3 Functional Requirement 3

No Max Daily Dose Order Check shall be performed for a simple medication order (IV and Unit Dose) processed through pharmacy backdoor options with a schedule that has been excluded from all Dosing Order Checks.

2.6.9.3.1 Functional Requirement 1

No message shall be displayed to the user informing them that the Max Daily Dose Order Check will not be performed.

2.6.9.4 Functional Requirement 4

No Max Daily Dose Order Check shall be performed for a simple medication order (IV and Unit Dose) processed through the pharmacy backdoor with a schedule that has been excluded from the Daily Dose Order Check.

2.6.9.4.1 Functional Requirement 1

No message shall be displayed to the user informing them that the Max Daily Dose Order Check will not be performed.

2.6.9.5 Functional Requirement 5

Only a Maximum Single Dose Order Check shall be performed for a simple medication order processed through CPRS using the inpatient medication or IV dialog or as a quick order with a schedule that has been excluded from a Daily Dose Order Check.

2.6.9.5.1 Functional Requirement 1

If the Maximum Single Dose Order Check fails, general dosing information messages shall be displayed along with the warning message. See below:

Max Single Dose Order Check Fails (exceeds recommended dose): (CPRS)

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.

2.6.9.5.2 Functional Requirement 2

If the Maximum Single Dose Order Check results in an error, general dosing information messages shall be displayed along with the error message. See below:

Maximum Single Dose Order Check error occurs: (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.

2.6.9.6 Functional Requirement 6

Only a Maximum Single Dose Order Check shall be performed for a simple medication order processed through pharmacy backdoor options with a schedule that has been excluded from a Daily Dose Order Check.

2.6.9.6.1 Functional Requirement 1

If the Maximum Single Dose Order Check fails, general dosing information messages shall be displayed along with the warning message. See below:

Maximum Single Dose Order Check Fails (exceeds recommended dose):

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.

2.6.9.6.2 Functional Requirement 2

If the Maximum Single Dose Order Check results in an error, general dosing information messages shall be displayed along with the error message. See below:

Maximum Single Dose Order Check error occurs:

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.

2.6.9.7 Functional Requirement 7

Schedule exclusions shall be applied to the following Inpatient Medication (IV and Unit Dose) order entry processes:

- Entering a new IV or Unit Dose medication order
- Finishing a pending IV or Unit Dose medication order
- Renewing an IV or Unit Dose order
- Copying an IV or Unit Dose medication order, thereby creating a new order
- Verifying an IV or Unit Dose order
- Creating a new Unit Dose order when editing the orderable item (to a new orderable item) through pharmacy options
- When editing the IV additive fields (changing existing additive or adding new additive) for an IV order through pharmacy options
- When editing the IV solution fields (changing existing solution or adding a new solution) for an IV order through pharmacy options. This applies only to IV solutions marked as a PREMIX.
- Entering a new Unit Dose medication order through pharmacy options using order sets
- Editing the following for a Unit Dose order:
 - Dosage Ordered
 - Units per Dose (for Dispense Drug)
 - Med Route
 - Schedule
 - Start Date/Time
 - Stop Date/Time
- Editing the following for an IV order:
 - Schedule (only applies to IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe')
 - Med Route
 - Volume (does not apply to orders with IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe' with IV Solution not marked as PreMix)
 - Start date/time
 - Stop date/time

When editing active Unit Dose and IV orders, Dosing Order Checks will be done after the changes are accepted; Enhanced Order Checks at verification. For non-verified Unit Dose and IV orders, Dosing Order Checks and Enhanced Order Checks will be done at verification.

2.6.10. Per Orifice Note

When a high dose warning or general dosing information message 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.

2.6.10.1 Functional Requirement 1

If a high dose warning is displayed after Dosing Order Checks are performed when a simple inpatient medication order is processed through CPRS, 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'.

2.6.10.1.1 Functional Requirement 1


If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall display before the high dose warning: 'Dosing Information provided is PER NOSTRIL:'

2.6.10.1.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EYE:'

2.6.10.1.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of 'OTIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EAR:'

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

2.6.10.2 Functional Requirement 2

If general dosing information messages are displayed after Dosing Order Checks are performed when a simple order is processed through CPRS, 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'.

2.6.10.2.1 Functional Requirement 1

If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall display before the general dosing information messages: 'Dosing Information provided is PER NOSTRIL:'

2.6.10.2.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall display before general dosing information messages: 'Dosing Information provided is PER EYE:'

2.6.10.2.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of 'OTIC', the following text shall display before general dosing information messages: 'Dosing Information provided is PER EAR:'

2.6.10.3 Functional Requirement 3

If a high dose warning is displayed for a dosing sequence after a Maximum Single Dose Order Check is performed when a complex inpatient order is processed through CPRS, 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'.

2.6.10.3.1 Functional Requirement 1

If the medication route within the dosing sequence is mapped to a standard medication route of 'NASAL', the following text shall display before the high dose warning: 'Dosing Information provided is PER NOSTRIL:'

2.6.10.3.2 Functional Requirement 2

If the medication route within the dosing sequence is mapped to a standard medication route of 'OPHTHALMIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EYE:'

2.6.10.3.3 Functional Requirement 3

If the medication route within the dosing sequence is mapped to a standard medication route of 'OTIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EAR:'

2.6.10.4 Functional Requirement 4

If more than one high dose warning or a high dose warning and general dosing information messages are displayed after Dosing Order Checks are performed when a simple order is processed through CPRS whose medication route is mapped to a standard medication route of 'NASAL' or 'OPHTHALMIC' or 'OTIC', the additional text shall be displayed first and only once.

2.6.10.5 Functional Requirement 5

If a high dose warning is displayed after Dosing Order Checks are performed when an order is processed through pharmacy backdoor options, 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'.

2.6.10.5.1 Functional Requirement 1

If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall display before the high dose warning: 'Dosing Information provided is PER NOSTRIL:'

2.6.10.5.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EYE:'

2.6.10.5.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of 'OTIC', the following text shall display before the high dose warning: 'Dosing Information provided is PER EAR:'

2.6.10.6 Functional Requirement 6

If general dosing information is displayed after Dosing Order Checks are performed when an order is processed through pharmacy backdoor options, 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'.

2.6.10.6.1 Functional Requirement 1

If the medication route within the order is mapped to a standard medication route of 'NASAL', the following text shall display before general dosing information messages: 'Dosing Information provided is PER NOSTRIL:'

2.6.10.6.2 Functional Requirement 2

If the medication route within the order is mapped to a standard medication route of 'OPHTHALMIC', the following text shall display before the general dosing information message: 'Dosing Information provided is PER EYE:'

2.6.10.6.3 Functional Requirement 3

If the medication route within the order is mapped to a standard medication route of 'OTIC', the following text shall display before the general dosing information message: 'Dosing Information provided is PER EAR:'

2.6.10.7 Functional Requirement 7

If more than one high dose warning or a high dose warning and general dosing information messages are displayed after Dosing Order Checks are performed when a simple order is processed through pharmacy backdoor options whose medication route is mapped to a standard medication route of 'NASAL' or 'OPHTHALMIC' or 'OTIC', the additional text shall be displayed first and only once.

2.6.10.7.1 Functional Requirement 1

The additional text shall only be repeated if the high dose warnings and/or general dosing information messages are displayed on more than one page.

2.6.10.8 Functional Requirement 8

Processing through Inpatient Medications backdoor options shall apply to the following actions:

- Entering a new Unit Dose medication order
- Finishing a pending Unit Dose medication order
- Renewing an Unit Dose order
- Creating a new Unit Dose order when editing the orderable item (to a new orderable item) through pharmacy options
- Copying a Unit Dose order
- Verifying a Unit Dose Order
- Entering a new Unit Dose medication order through pharmacy options using order sets
- Editing the following for a Unit Dose order:
 - Dosage Ordered
 - Units per Dose (for Dispense Drug)

- Med Route
- Schedule
- Start Date/Time*
- Stop Date/Time*

* When editing active Unit Dose orders, Dosing Order Checks will be done after the changes are accepted; Enhanced Order Checks at verification. For non-verified Unit Dose orders, Dosing Order Checks and Enhanced Order Checks will be done at verification.

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 2 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 message 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 Order Checks could not be done; General Dosing Information message displayed for 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.

Maximum Single Dose Order Check and Max Daily Dose Order Check Warnings displayed on separate pages for standard med route of ‘NASAL’ (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 2 SPRAY(S).

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Press Return to continue...:

Dosing Information provided is PER NOSTRIL:

Cromolyn 5.2 mg/Actuation (4 %) Nasal Spray: Total dose form amount of 10 SPRAY(S)/DAY exceeds the dosing range of 2 SPRAY(S)/DAY to 4 SPRAY(S)/DAY.

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2.6.11. 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. For these two instances, the PDM application will perform the Max Daily Dose Order Check and return the results to Inpatient Medications application which will in turn display the results to the Pharmacy and CPRS user.

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.

2.6.11.1 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 and return the results to CPRS.

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. See section 2.6.16 in the PDM RSD for details on the daily dose calculation.
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2.6.11.1.1 Functional Requirement 1

A customized frequency message shall be displayed to the CPRS user if the daily dose calculated by the PDM application passes the Max Daily Dose Order Check.

Please see the M2-1_PDM_RSD_v2, section 2.6.20 (Customized Frequency Message) for details on the customized frequency message. See examples that follow:

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.

2.6.11.1.2 Functional Requirement 2

If the daily dose calculated by the PDM application fails the Max Daily Dose Order Check, a Max Daily Dose Order Check warning message with a customized frequency message shall be displayed to the CPRS user.

Please see the M2-1_PDM_RSD_v2, section 2.6.22 (Display of Max Daily Warning when Daily Dose Calculated) for details on the Max Daily Dose warning message when the Max Daily Dose Order Check is performed by the PDM application. See examples that follow:

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

Recommended frequency of ENOXAPARIN 40MG/0.4ML INJ is 1 to 2 times per day.

2.6.11.1.3 Functional Requirement 3

If the daily dose could not be calculated by the PDM application, an error message, general dosing information messages, and a customized frequency message shall be displayed to the CPRS user.

Max Daily Dose Check could not be done for Drug: ENOXAPARIN 40MG/0.4ML INJ, please complete a manual check for appropriate Dosing.

Recommended frequency of ENOXAPARIN 40MG/0.4ML INJ is 1 to 2 times per day.

General dosing range for ENOXAPARIN 40MG/0.4ML INJ (SUBCUTANEOUS): 40 milligram per day to 3 milligram per kilogram per day. Maximum daily dose is 300 milligrams/day.

2.6.11.2 Functional Requirement 2

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 and return the results to the Inpatient Medications application.

2.6.11.2.1 Functional Requirement 1

A customized frequency message shall be displayed to the pharmacy user if the daily dose calculated by the PDM application passes the Max Daily Dose Order Check.

Please see the M2-1_PDM_RSD_v2, section 2.6.20 (Customized Frequency Message) for details on the customized frequency message. See examples that follow:

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.

2.6.11.2.2 Functional Requirement 2

If the daily dose calculated by the PDM application fails the Max Daily Dose Order Check, a Max Daily Dose Order Check warning message with a customized frequency message shall be displayed to the pharmacy user.

Please see the M2-1_PDM_RSD_v2, section 2.6.22 (Display of Max Daily Warning when Daily Dose Calculated) for details on the Max Daily Dose warning message when the Max Daily Dose Order Check is performed by the PDM application. See examples that follow:

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

```
Recommended frequency of ENOXAPARIN 40MG/0.4ML INJ is 1 to 2 times per day.
```

2.6.11.2.3 Functional Requirement 3

If the daily dose could not be calculated by the PDM application, an error message, general dosing information messages, and a customized frequency message shall be displayed to the pharmacy user.

```
Max Daily Dose Check could not be performed for Drug: ENOXAPARIN 40MG/0.4ML INJ  
Reason(s): Maximum daily dose check could not be done since frequency check failed.
```

```
Recommended frequency of ENOXAPARIN 40MG/0.4ML INJ is 1 to 2 times per day.
```

```
General dosing range for ENOXAPARIN 40MG/0.4ML INJ (SUBCUTANEOUS): 40 milligram per day to 3 milligram per kilogram per day. Maximum daily dose is 300 milligrams/day.
```

2.6.11.3 Functional Requirement 3

Processing through Inpatient Medications backdoor options shall apply to the following actions:

- Entering a new IV or Unit Dose medication order
- Finishing a pending IV or Unit Dose medication order
- Renewing an IV or Unit Dose order
- Copying an IV or Unit Dose medication order, thereby creating a new order
- Verifying an IV or Unit Dose order
- Creating a new Unit Dose order when editing the orderable item (to a new orderable item) through pharmacy options
- When editing the IV additive fields (changing existing additive or adding new additive) for an IV order through pharmacy options
- When editing the IV solution fields (changing existing solution or adding a new solution) for an IV order through pharmacy options. This applies only to IV solutions marked as a PreMix.
- Entering a new Unit Dose medication order through pharmacy options using order sets
- Editing the following for a Unit Dose order:
 - Dosage Ordered
 - Units per Dose (for Dispense Drug)
 - Med Route
 - Schedule
 - Start Date/Time
 - Stop Date/Time

- Editing the following for an IV order:
 - Infusion rate (only applies to IV types of 'Admixture', 'Hyperal', 'Chemotherapy Admixture', 'Continuous Syringe' or 'Chemotherapy Continuous Syringe')
 - Schedule (only applies to IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe')
 - Med Route
 - Volume (does not apply to orders with IV types of 'Piggyback', 'Intermittent Syringe', 'Chemotherapy Piggyback', or 'Chemotherapy Intermittent Syringe' with IV Solution not marked as PreMix)
 - Start Date/time
 - Stop Date/Time

2.6.12. Warning Message Modifications

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

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

2.6.12.1 Functional Requirement 1

The Inpatient Medications application shall display to the user 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.

2.6.12.2 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.

The Inpatient Medications package requires the minimum version, stated on the following external packages, to run effectively:

PACKAGE	MINIMUM VERSION NEEDED
Kernel	8.0
VA FileMan	22.0
MailMan	8.0
PIMS	5.3
CPRS	1.0
Outpatient Pharmacy	7.0
PDM	1.0
Dietetics	5.0
Bar Code Medication Administration	3.0
HealtheVet Web Services Client (HWSC)	1.0
VistALink	1.5

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 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.
- Display a customized frequency message.
- Display a Max Daily Dose Warning message for the calculated Daily Dose.

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 (formerly Drug Information 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 v2.1 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:

 Pharmacy_Re-Engineering_PRE_(PECS-MOCHA)/M2E1_SRS_FPEst_20130814.xlsm

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

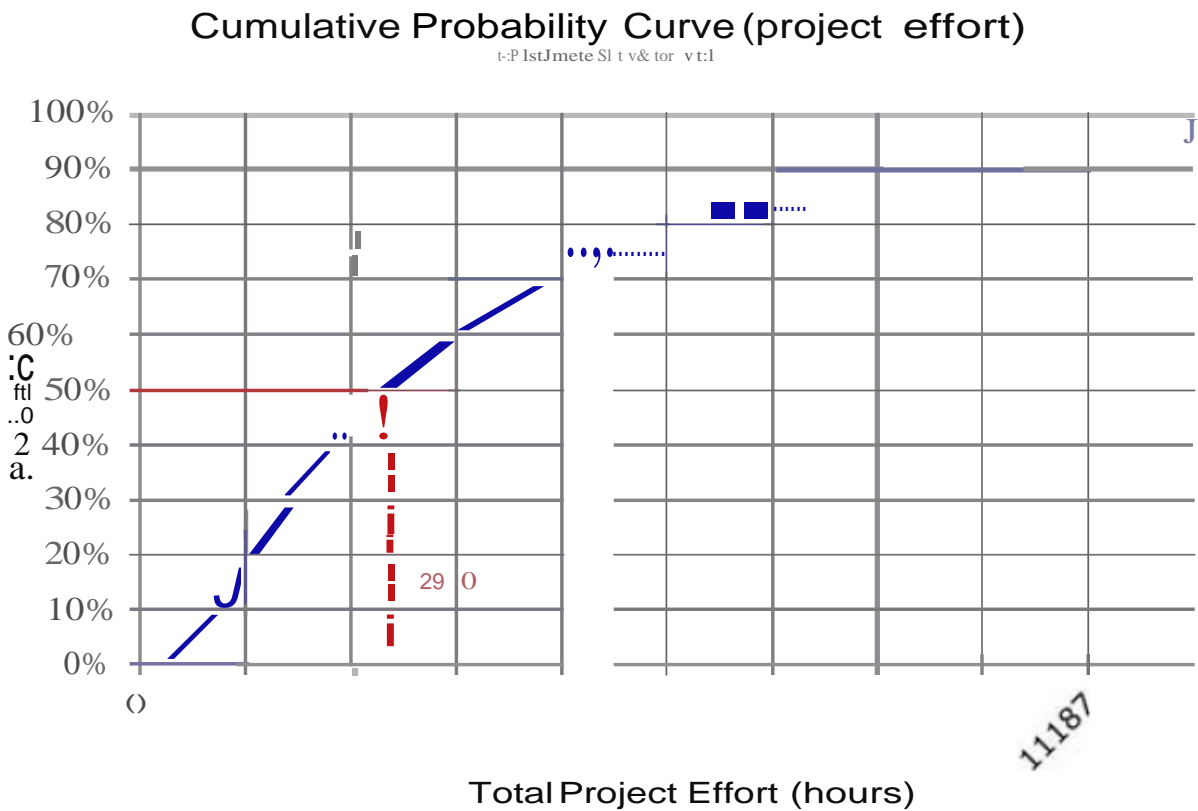
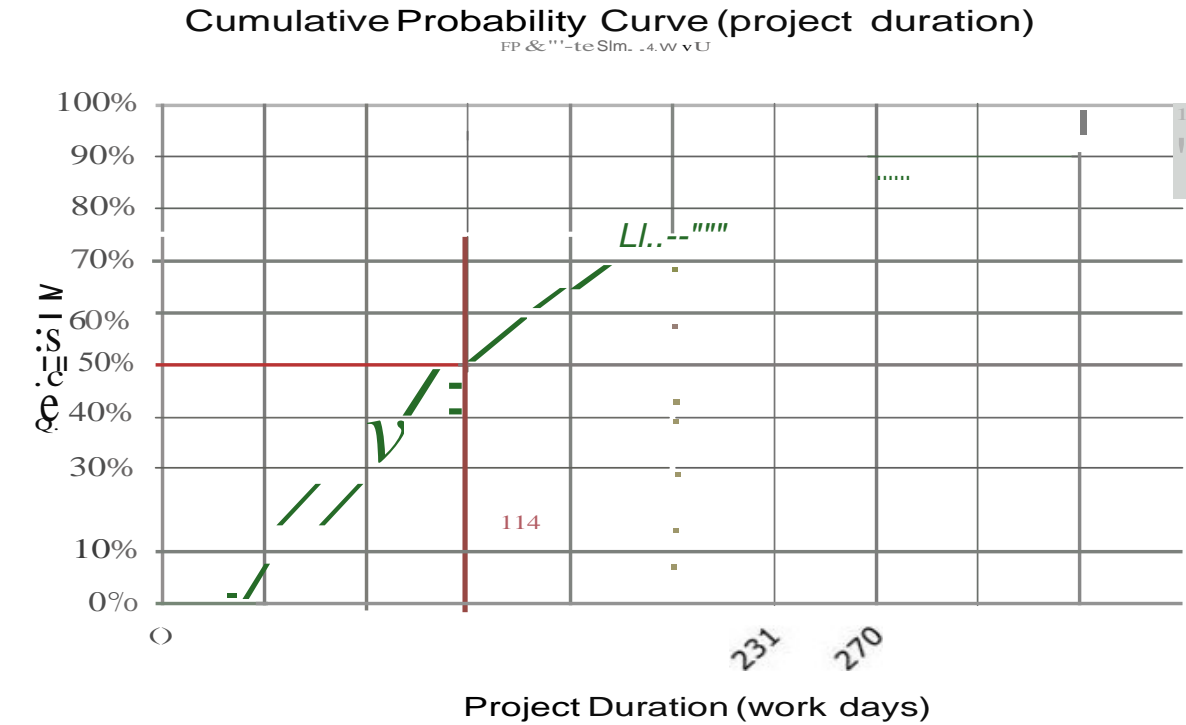
Application

Item	Inpatient Medications	Outpatient Pharmacy	Pharmacy Data Management	Total
Counted Function Points	48	24	67	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. 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.*

Error Level	Error Message	Reason
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*
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*

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 not matched to NDF*
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

Error Level	Error Message	Reason
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>	No dosing information found in database.
Order Level	Dosing Checks could not be performed for Drug: <DRUG NAME>	Free Text Infusion Rate could not be evaluated.
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.2. 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