



**CLINICAL ANCILLARY SERVICES (CAS) -
DEVELOPMENT – DELIVERY OF PHARMACY
ENHANCEMENTS (DDPE)
INPATIENT MEDICATION ADMINISTRATION –
TRANSDERMAL ENHANCEMENTS
for BCMA V. 3.0**

RELEASE NOTES

PSB*3*83, PSB*3*87, and OR*3*417

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Inpatient Medication Administration – Transdermal Enhancements

1. Introduction

This document provides a feature summary of the Clinical Ancillary Services (CAS) - Development – Delivery of Pharmacy Enhancements (DDPE) Inpatient Medication Administration – Transdermal Enhancements for Bar Code Medication Administration (BCMA) v3.0 project, patch PSB*3*83, PSB*3*87, and Associated patch OR*3.0*417.

Installation instructions for PSB*3*83, PSB*3*87, and OR*3.0*417 are included in the patch description and the Installation Guide.

The following patches are associated and must be installed before PSB*3*83:

- PSB*3.0*70
- PSB*3.0*76
- PSJ*5.0*315
- PSB*3.0*94
- PSB*3.0*81
- PSB*3.0*86
- PSB*3.0*72

*** WARNING FOR ALL SITES CURRENTLY USING WMA ***
(Wireless Medication Administration)
From CareFusion

The below 15 VAMC sites should not install patch PSB*3*83 until the site has confirmed they have received CareFusion's software update:

Pyxis Med Administration Verification VA v. 5.1

REDACTED

Installation of BCMA Patch PSB*3.0*83 may cause your WMA application to stop functioning as you would expect it to. In order for the WMA devices to work properly with PSB*3.0*83 installed, you must contact CareFusion, the WMA vendor, to obtain the most current version of the WMA software.

The following patches are associated and must be installed before OR*3*417:

- OR*3*350
- OR*3*361
- PSJ*5*315
- PSB*3*83

Please refer to section 16 for details on patches PSS*1*191 and PSJ*5*315, which prepared the way for patches PSB*3*83 and OR*3*417. User action is required to ensure a smooth transition to new functionality. Note that PSB*3*83 is required for OR*3*417.

1.1. BCMA Highlights

The enhancements within Inpatient Medication Administration – Transdermal intend to provide a solution to address the errors in transdermal medication administration processes that have led to adverse patient events. The following features related to transdermal medications are needed by the business for patient care to avert these errors in the future, by implementing the following capabilities within Inpatient Medication Administration:

- Create a mechanism to remind the user to “follow-up” on certain medications requiring additional steps in administration or assessment, e.g., alert the user to remove a transdermal medication at a specified time.
- Ensure previous statuses of multi-step medications appear in the Medication Administration History reports, e.g., the date and time a transdermal medication was applied will remain visible after it has been marked “removed.”
- Enhance the current mechanism used to document and display the anatomic location of injectable medications to support transdermal medications as well. Implementation includes changing the terminology of “Injection site” throughout the applications including Inpatient Medication Administration and Veterans Health Information and Systems Technology Architecture (VistA). Any field names used to store or refer to “location” data within VistA are evaluated as to whether or not the terminology needs to be changed. For example, if the field in VistA is named “IV Location”, the name of the field is changed to simply “Location” so that when data from the field are pulled into reports, the field name adequately reflects the updated contents.
- A change to any order involving a transdermal medication forces a misleading “remove patch” alert to appear. The software is changed to differentiate between a change and a discontinued order and display an appropriate and corresponding alert.

Note: Based on decision from the Bar Code Resource Office (BCRO), the new features introduced by this project are not applicable to medication orders placed via the CPRS Med Order Button feature in BCMA. Any order for a medication requiring removal (MRR) (i.e., transdermal patch) which is ordered using the CPRS Med Order Button (MOB) in BCMA is exempt from the features included in the new MRR functionality. Any MRRs that have dosage form “patch” which are entered using the CPRS MOB will continue to operate as they do now, e.g. continuing to appear on the BCMA VDL in a “given” status until marked as removed by the user. The medication will not display the new “requires removal icon” and the user will not receive any alert to remove the medication at a specific time.

1.2. BCMA GUI

This BCMA enhancement also includes a new Graphical User Interface (GUI) executable, BCMA GUI PSB3_0P83.EXE. **Installation of this GUI is required immediately after the PSB*3*83 patch install for the patch to function.**

Features of the BCMA GUI provided by this project are listed below.

1. Changed the current GUI Unit Dose tab column labeled "Admin Time" to "Next Dose Action".

2. The "Next Dose Action" column now contains both the next admin times for scheduled administrations and the next Removal time for medications requiring removal (MRRs). The initial login to BCMA sorts the Unit Dose tab in ascending order by this column, so older actions for medications are at the top of the VDL display.
 - a. The Next Action of an administration contains the word "DUE," followed by the scheduled admin time in the standard date@admin time format currently in use.
 - b. The Next Action of a removal contains the word "REMOVE," followed by the scheduled removal time in the standard date@time format.
 - c. The Next Action of an administration that is past due to be given contains the word "LATE," followed by the scheduled admin time in the standard date@admin time format currently in use.
 - d. The Next Action of a removal that is past due to be removed contains the words "LATE-RM," followed by the scheduled removal time in the standard date@time format.
3. Changed the current GUI column labeled "Wit" to "Alert".
4. The Alert column still has the ability to display the Witness Required icon and also displays a new Remove icon.
 - a. The icon is displayed only for MRR type meds that were Given and whose next Action is for Removal.
5. Early/Late warnings are also associated with medications being removed early or late using the same early/late time range that is used for early or late medication admins.
 - a. User comments are prompted for and stored upon continuing with the Early/Late removal action.
6. Variances are tracked for Early/Late Removals for MRRs in the same manner as they are currently for Early/Late medication administrations and now appear on the Medication Variance Log report.
7. BCMA Medication Administration History (MAH) report now includes the associated Give actions which were previously overwritten by Remove actions. MRR Removal Times are printed directly below the current Admin Times.
8. BCMA Administration Times report by Patient has added "(RM)" if MRR removal is the action that needs to be performed within the report parameters. The Print by Ward report now includes Removals in the count of actions scheduled for the report time period.
9. BCMA Medication Log now prints the historical Give date/time of the MRRs which previously only showed the Remove date/time if that was the last action. Both actions are now available for reporting. The column heading has been changed from "Inj Site" to "Body Site" and the medication detail body text displays the proper label of "Inj Site:" or "Derm Site:" prior to the name of the body site for that medication.
10. BCMA Missed Medications report has added Removals that are past due as noted by "(Remove)" to missed Gives that are currently reported. The column heading has been changed from "Admin Date/Time" to "Missed Date/Time".
11. BCMA Display Order report includes the Removal Times for MRRs directly below the current Admin Times.
12. BCMA Medication History report now prints a prior Give line item directly below the current status line item of Remove for MRRs. The Given administration action was previously overwritten by the Removed last action in the record so the history of the Give information and was not available. This information is now being retrieved from the

Audit log and printed on this report. The report header line has replaced "Injection Site" with "Body Site".

13. BCMA Due List report adds Remove Times for MRRs below the Admin Times on this report.
14. BCMA Coversheet Medication Overview and the Coversheet Expired/DC'd/ Expiring Orders reports now include Missed Removals and Removals that are due.
15. A body site diagram is added to the BCMA Parameter GUI client application for the purpose of showing a dot on the body diagram that is associated with the text representation of that site location on the body.
16. The BCMA Parameter GUI client application has access to a new kernel parameter titled in GUI application as "Dermal Site History Max Days." This allows the BCMA coordinator the ability to control how many days of prior dermal body site location history appears, when a clinician is giving a new dermal medication that is prompting for a body site location.
17. The *Orders for MRRs With Removal Properties* [PSS MRR ORDERS DIAGNOSTIC RPT] option, found on the *Pharmacy Data Management* [PSS MGR] menu, is also placed on the *Bar Code Medication Administration Manager* [PSB MGR] menu.
18. Order Details report accessed via CPRS includes the Removal Times for MRRs directly below the current Admin Times. This was added via OR*3.0*417.

1.3. BCBU - PSB*3*87

PSB*3*87 will enhance the BAR CODE MEDICATION ADMINISTRATION (BCMA) Backup System (BCBU) to support Medications Requiring Removal (MRR). The Backup System will be able to store the Removal times and duration of administration associated with each medication order.

This patch will add two new fields to the ORDER NUMBER (#53.702) sub-file under the BCMA BACKUP DATA (#53.7) file. The two new fields are the REMOVE TIMING (#7.4) field and DURATION OF ADMINISTRATION (#7.5) field. These fields implement changes that will support enhancements to Medical Administration Record(s) MAR reports in the BCBU application.

The MAR reports will print each Scheduled Removal times for MRR medications in the Grid in the same manner as Admin times. The Remove times will appear below the current scheduled Administration time in the Grid and will be separated by the Label "Remove" in the times column. Asterisks will print in the body of the Grid in each Removal action box for removal times that are not valid per the Date in that column heading.

The MAR reports will also no longer display the Order number of the medications being administered.

Please refer to the BCMA Backup System (BCBU) Installation Guide for PSB*3*87 for installation details.

2. BCMA Screen Examples

On the Cover Sheet, Unit Dose, IVP/IVPB and IV tabs, the column formerly named “Wit” is now named “Alert”. For medications requiring removal, the “Alert” column on the Cover Sheet and Unit Dose tabs will contain a new “Requires Removal” icon. At the bottom of the BCMA main screen, a new Alert Legend displays, listing the icons that can display in the new Alert column, as shown in Figure 1.

The screenshot shows the BCMA Main Screen for a patient named BCMAPATIENT THIRTEEN (FEMALE). The medication list includes various drugs such as ACE TAMINOPHEN TAB, ALBUTEROL AEROSOL, AMINOPHYLLINE SUPP,RTL, AMPICILLIN INJ, BACLOFEN TAB, CEFAMANDOLE INJ, CHOLESTYRAMINE POWDER, CLOTRIMAZOLE CREAM TOP, DACTARBAZINE INJ, FENTANYL PATCH, FLUOROURACIL INJ.SOLN, FURDSEMIDE INJ.SOLN, HEPARIN INJ.SOLN, LISINAPRIL 10MG TAB TAB, LORAZEPAM TAB, MECHLORETHAMINE OINT.TOP, MORPHINE INJ, MORPHINE SOLN.ORAL, MORPHINE SOLN.ORAL, and NIACIN TAB. The 'Alert' column for FENTANYL PATCH and MORPHINE SOLN.ORAL shows the 'Requires Removal' icon.

Alert Legend:

- High Risk/High Alert (Yellow Triangle)
- Requires Removal (Orange Square with Red X)

BCMA Clinical Reminders:

Count	Activity
0	PRN Effectiveness

Figure 1. BCMA Main Screen with New Column Name and Legend

The new “Requires Removal” icon displays in the Icon Legend, which is available via the View menu, as shown in Figure 2.

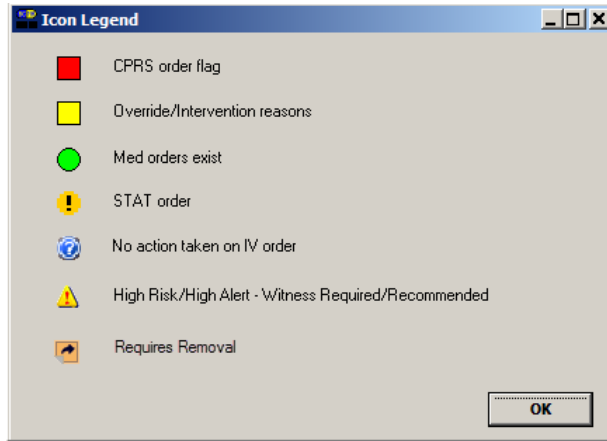


Figure 2. Icon Legend with New “Requires Removal” Icon

2.1. BCMA Unit Dose Virtual Due List (VDL) Example

The “Admin Time” column is replaced by the “Next Dose Action” column, which contains information on medication that is late and/or due for removal along with the admin date and time. If a medication is late, the text is in red. If a cell in the Alert column contains the Requires Removal icon and the medication is due to be removed, the hover hint text consists of “REMOVE” along with the removal date and time, as shown in Figure 3.

The screenshot shows the 'Bar Code Medication Administration' interface for patient IMAT-PATIENT THREE (FEMALE). The table below represents the data shown in the 'Next Dose Action' column:

Status	Ver	Hsm	Type	Alert	Active Medication	Dosage	Route	Next Dose Action	Last Action	Last Site
***			C		LIDOCAINE PATCH	1, QDAY	TRANSDER..	LATE 09/13@0900	REMOVED: 9/14/2015@1226	
***			C	⚠	LIDOCAINE 5% PATCH UD, HR=1, CV=3	1, QDAY	TRANSDER..	LATE 09/13@0900	REMOVED: 9/14/2015@1227	
***			C	⚠	METHYLPHENIDATE PATCH METHYLPHENIDATE 10MG/9HR PATCH UD, HR=3, CV=3	1, QDAY	TRANSDER..	LATE 09/13@0900	REMOVED: 9/14/2015@1220	
***			C	⚠	CAPSAICIN PATCH CAPSAICIN 0.025% PATCH UD, HR=2, CV=3	1, QDAY	TOPICAL TRANSDER..	LATE 09/14@0900	REMOVED: 9/14/2015@1227	
***			C	⚠	METHYLPHENIDATE PATCH METHYLPHENIDATE 10MG/9HR PATCH UD, HR=3, CV=3	1, QDAY	TRANSDER..	LATE 09/14@0900	REMOVED: 9/14/2015@1226	
6			C	🚫	TESTOSTERONE PATCH TESTOSTERONE 2.5MG/24HR PATCH IID, HR=0, CV=3	1, QDAY	TRANSDER..	LATE-RM 09/14@2100	GIVEN: 9/14/2015@1229	Arm, left upper
***			C	🚫	LATE-RM 09/14@2100 TESTOSTERONE 2.5MG/24HR PATCH UD, HR=0, CV=3	1, QDAY	TRANSDER..	DUE 09/15@0900	GIVEN: 9/14/2015@1229	Arm, left upper
***			C	⚠	CAPSAICIN PATCH CAPSAICIN 0.025% PATCH UD, HR=2, CV=3	1, QDAY	TOPICAL TRANSDER..	DUE 09/15@0900	REMOVED: 9/14/2015@1220	
***			C		LIDOCAINE PATCH LIDOCAINE 5% PATCH UD, HR=1, CV=3	1, QDAY	TRANSDER..	DUE 09/15@0900	REMOVED: 9/14/2015@1226	
***			C	⚠	METHYLPHENIDATE PATCH METHYLPHENIDATE 10MG/9HR PATCH UD, HR=3, CV=3	1, QDAY	TRANSDER..	DUE 09/15@0900	REMOVED: 9/14/2015@1227	

Figure 3. Unit Dose VDL with Hover Text and Next Dose Action Column

2.2. Next Dose Action Column Information

Rules for information included in the Next Dose Action column are listed below.

NOTE: For non-standard schedules such as DAY@HHMM, HHMM or other odd schedules, Removal Times cannot be calculated due to the lack of a Frequency. Regardless of the Prompt for Removal in BCMA code value for the orderable item, no Removal Times will display in BCMA for these non-standard schedules. These types of schedules must be avoided for Medications Requiring Removal (MRR) orders.

- If the next action for a Continuous medication order is for it to be administered (i.e., Given), the Next Dose Action column contains the word “DUE” and the next Admin Time as a date/time on a separate line. This applies to all Unit Dose medication orders, not just those for medications requiring removal.
- If the next action for a Continuous medication order for a medication requiring removal is for it to be Removed, the Next Dose Action column contains the word “REMOVE” and the next Removal Time as a date/time on a separate line.
- If the next action for a Continuous Inpatient medication order is for it to be administered (i.e., Given), but is late, the Next Dose Action column contains the word “LATE” and the next Admin Time as a date/time on a separate line, with all text in red font. The BCMA site parameter “Allowable Time Limits (In Minutes) After Scheduled Admin / Removal Time” is used as the basis for determining if the medication order is late to be Given.

Note: This is not applicable to Clinic Orders, which are never designated as LATE.

- Continuous Inpatient medication orders for which the Next Dose Action column contains the word “LATE”, along with the Admin Time, remain on the VDL for up to 12 hours, regardless of whether or not the Admin Time falls within the Start Time and Stop Time for the VDL Parameters in the BCMA main screen. For Continuous Inpatient medication orders with multiple administrations per day, once a LATE dose has been given, any previous LATE doses that continue to display on the VDL cannot be given, i.e., scan option is no longer available. The medication can still be marked as Held or Refused, Comments added, etc.
- If the next action for a Continuous Inpatient medication order for a medication requiring removal is for it to be Removed, but is late, the Next Dose Action column contains “LATE-RM” and the next Removal Time as a date/time on a separate line, with all text in red font. The BCMA site parameter “Allowable Time Limits (In Minutes) After Scheduled Admin / Removal Time” is used as the basis for determining if the medication order is late for Removal.

Note: This is not applicable to Clinic Orders, which are never designated as LATE-RM.

- Continuous Inpatient medication orders for medications requiring removal, when the Next Dose Action column contains “LATE-RM” and Removal Time, remain on the VDL for a period of time based on the Meds Requiring Removal (MRR) Display Duration site parameter, which is the number of days after the Stop Date for the order. If the value of the site parameter is Always Display (which how sites typically set it), the medication order continues to display on the VDL until it is marked as removed, regardless of the order Stop Date, even if the order is discontinued or expires, or the patient is discharged or re-admitted.

Note: This is applicable to all medications that require removal, not just those with dosage form containing the word “PATCH”.

- If the next action for a PRN or On Call medication order is for it to be administered (i.e., Given), the Next Dose Action column is empty (i.e., blank). This applies to all Unit Dose medication orders, not just those for medications requiring removal.
- If the next action for a One Time medication order is for it to be administered (i.e., Given), the Next Dose Action column contains the word “DUE”, with no date/time. This applies to all Unit Dose medication orders, not just those for medications requiring removal.
- On the Unit Dose VDL in Inpatient Order Mode, the default sort order upon logging in to BCMA is in ascending order based on the date/time in the Next Dose Action column, so “older” items are at the top.
- Clinic Orders display on the VDL on the date of the patient’s appointment, regardless of Start Time for the medication order, so the medication can be administered if the patient arrives at the clinic earlier than their scheduled appointment time. This is for all Clinic Orders on all VDL tabs, not just those for medications requiring removal. The initial default sort order on the VDL (all 3 tabs) is based on the Clinic Location name.

2.3. Unit Dose VDL Information

Rules for information included on the Unit Dose VDL tab are listed below.

- After a medication order for a medication requiring removal has been administered (i.e., Given), the medication order administration (i.e., row) stays on the VDL until it is marked as Removed (as it does currently when the Orderable Item has dosage form containing the word “PATCH”), whether or not the Removal Time falls within the Start Time and Stop Time for the VDL Parameters in the BCMA main screen.
- For a medication order for a medication requiring removal that has been administered (status = Given), if a user attempts to Mark the medication order as Removed when it is too early (i.e., before the scheduled Removal Time), a message dialog displays to alert the user as shown in Figure 4.

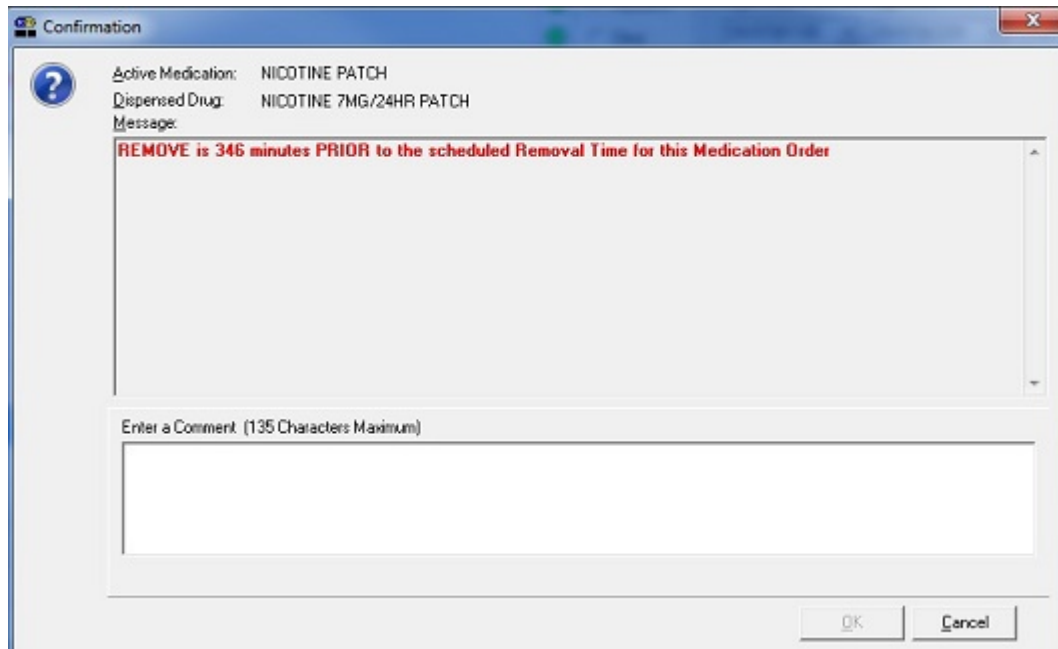


Figure 4. Alert Message When User Attempts to Mark as Removed

If the user enters a comment, the “OK” button is enabled, as shown in Figure 5. When the user clicks OK, the medication is marked as removed.

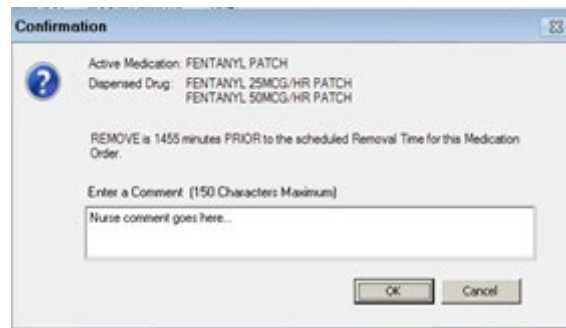


Figure 5. Alert Message When Comment Has Been Entered

3. Viewing and Printing Reports

3.1. Existing Report Modifications

Existing report enhancements include:

- Removal times have been added where there are admin times for medications requiring removal (MRR)
- Both “Removal” and “Given” administration information is available for reporting.
- The new anatomic locations for MRRs are included in BCMA reports.
- The word “Injection Site” has been replaced with “Body Site” in report column headers that could include both Dermal Sites for MRRs and Injection Sites for non-MRRs.

- The word “Injection Site” has been replaced with “Dermal Site” when the orderable item for the medication order is an MRR for reports with one specific medication.

The following BCMA reports have been enhanced with this information.

- Medication Admin History (MAH)
- Missed Medications
- Admin Time
- Medication Log
- Medication History
- Due List
- Display Order
- Medication Variance Log
- Cover Sheet Report: Medication Overview
- Cover Sheet Report: Expired/DC'd/Expiring Orders
- Order Detail Report

3.2. BCMA Report Examples

```

=====
MEDICATION ADMINISTRATION HISTORY for Jan 17, 2016@00:01 to Jan 19, 2016@11:30
...
** INPATIENT ORDERS **
=====
Location
Start Date          Stop Date          Admin
and Time            and Time           Times
-----
INPATIENT
01/15/2016          03/14/2016        0900
@09:00              @08:00
G0904 NSS          G0855 TR          RM2400 ELD
RM2103 GS          G0901 GRK
NICOTINE PATCH
NICOTINE 7MG/24HR PATCH
Give: ONE PATCH TRANSDERMAL
Q24H
Removal Times: 2100
RPH: NSS RN:
-----
INPATIENT
01/17/2016          03/01/2016        0900
@09:00              @08:00            2100
G0904 NSS          RM0305 TR          RM0300 ELD
RM1503 NSS          G0904 NSS          G0906 ELD
G2134 RG          RM1459 GRK
G2057 GRK
NITROGLYCERIN PATCH
NITROGLYCERIN 0.2MG/HR PATCH
Give: 1 PATCH TRANSDERMAL Q12H
Removal Times: 1500
RPH: NSS RN:          0300
***
=====

```

Figure 6. Medication Administration History (MAH) Report

MISSED MEDICATIONS REPORT for Mar 21, 2016@00:01 to Mar 25, 2016@24:00 Run Date: MAR 28, 2016@14:08

Include Inpatient Orders Only
Order Status(es): Active / DC'd / Expired Page: 1
Admin Status(es): Missing Dose / Held / Refused
Include Comments/Reasons

Patient: IMAT-PATIENT,CNE : 666-11-2345 DOB: JUL 12,1934
(81)
Sex: MALE Ht/Wt: **/
Dx: SEVERE HEADACHES Last Mvmt: JUN 17,2015@13:02:54 Ward: 3E NORTH Rm:
Type: ADMISSION

ADRs: No ADRs on file.

Allergies: No Known Allergies

Order Status	Ver	Missed Date/Time	Medication	Order Stop Date
Expired	***	03/24/2016@0900	FENTANYL PATCH (Remove)	03/23/2016@1400
Active	***	03/24/2016@0900	MEPERIDINE TAB	06/21/2016@2400
Active	***	03/24/2016@0900	NITROGLYCERIN PATCH	06/21/2016@2400
Active	***	03/24/2016@0900	RIVASTIGMINE PATCH (Remove)	06/06/2016@2400
Active	***	03/24/2016@0900	SELEGILINE PATCH	06/06/2016@2400

Figure 7. Missed Medications Report

Include Inpatient Orders Only
ADMINISTRATION DATE: JAN 18, 2016 to JAN 19, 2016

Date/Time	Self Med	Medication	Dose/Route
JAN 19, 2016			
5:00a	(RM)	RIVASTIGMINE PATCH	Dosage: ONE PATCH Route: 170
9:00a		NICOTINE PATCH	Dosage: ONE PATCH Route: TRANSDERMAL
9:00a		NITROGLYCERIN PATCH	Dosage: 1 PATCH Route: TRANSDERMAL
9:00a		ACETAMINOPHEN/CODEINE ELIXIR	Dosage: 325MG Route: ORAL
3:00p		ACETAMINOPHEN/CODEINE ELIXIR	Dosage: 325MG Route: ORAL
5:00p		RIVASTIGMINE PATCH	Dosage: ONE PATCH Route: TRANSDERMAL
9:00p	(RM)	NICOTINE PATCH	Dosage: ONE PATCH Route: 170
9:00p		ACETAMINOPHEN/CODEINE ELIXIR	Dosage: 325MG Route: ORAL
9:00p	(RM)	NITROGLYCERIN PATCH	Dosage: 1 PATCH Route: TRANSDERMAL

Figure 8. Administration Times Report by Patient


```

=====
Medication Log Report for Mar 17, 2016@00:01 to Mar 24, 2016@24:00 Run Date: MAR 28, 2016@12:21
Log Type: INDIVIDUAL PATIENT Page: 1

Patient: IMAT-PATIENT,CNE : 666-11-2345 DOB: JUL 12,1934 (81)
Sex: MALE Ht/Wt: */* Ward: 3E NORTH Rm:
Dx: SEVERE HEADACHES Last Mvmt: JUN 17,2015@13:02:54 Type: ADMISSION

ADRs: No ADRs on file.

Allergies: No Known Allergies
=====
Location
Activity Date Orderable Item Action Action Drug/Additive/Solution
Start Date> [Dose/Sched/Route/Body Site] By Date/Time
Stop Date<
-----
3E NORTH
03/16/16 15:36 LIDOCAINE [1 Q8H Derm Site:
FLANK, LEFT] RG 03/17/16 09:42
Removed
RG 03/16/16 15:36
Given
1/12/16 09:00> LIDOCAINE 5% PATCH
-----
3E NORTH
03/16/16 15:35 NICOTINE [1 Q6H Derm Site:
FLANK, LEFT] RG 03/17/16 09:43
Removed
RG 03/16/16 15:35
Given
1/12/16 09:00> NICOTINE 11MG/24HR PATCH
=====

```

Figure 9. Medication Log Report

```

=====
MEDICATION HISTORY for MAR 21, 2016 to MAR 28, 2016 Run Date: MAR 28, 2016@11:56
Include Inpatient and Clinic Orders Page: 1
MEDICATIONS SEARCH LIST: RIVASTIGMINE

Patient: IMAT-PATIENT,CNE : 666-11-2345 DOB: JUL 12,1934 (81)
Sex: MALE Ht/Wt: */* Ward: 3E NORTH Rm:
Dx: SEVERE HEADACHES Last Mvmt: JUN 17,2015@13:02:54 Type: ADMISSION

ADRs: No ADRs on file.

Allergies: No Known Allergies
=====
Location St Sch Administration Date By Body Site Units Units of
Medication & Dosage GIVEN Administrat
-----
3E NORTH G C MAR 23, 2016@13:57 RG BACK, UPPER RIGHT
RIVASTIGMINE 13.3MG/24HRS 1 PATCH
3E NORTH RM C MAR 23, 2016@13:55 RG ARM, RIGHT UPPER
G C MAR 22, 2016@10:06 RG RIVASTIGMINE 13.3MG/24HRS 1 PATCH
3E NORTH RM C MAR 22, 2016@10:00 RG FLANK, RIGHT
G C MAR 21, 2016@11:24 RG RIVASTIGMINE 13.3MG/24HRS 1 PATCH
3E NORTH RM C MAR 21, 2016@10:47 RG BICEP, LEFT
G C MAR 17, 2016@09:44 RG RIVASTIGMINE 13.3MG/24HR 1 PATCH
=====

```

Figure 10. Medication History Report

MEDICATION DUE LIST for JAN 26, 2016@0001 to JAN 26, 2016@2400							Run Date: JAN	
Self	Med	Sched	Medication	Dose	Route	Last Given	Start Date @Time	Stop Date @Time
Administration Date: JAN 26, 2016								
	UD-C		ACETAMINOPHEN/CODEINE ELIXIR	Give: 325MG Q6H	ORAL	01/26/16@1053	1/19/16 @15:00	3/2/16 @07:00
			*ACETAMINOPHEN, CODEINE ELIXIR (OZ)	Admin Times: 0900-1500-2100				
	UD-C		NICOTINE PATCH	Give: ONE PATCH Q12H	TRANSDERMAL	01/26/16@1053	1/21/16 @21:00	3/14/16 @08:00
			*NICOTINE 7MG/24HR PATCH	Admin Times: 2100 Remove Time: 1500				
Changes/Addendums to orders								
CON	PRN		Drug:	Give:			Start:	S
				Remove:				
OT	OC		Spec Inst:				Initials:	D

Figure 11. Due List Report

BCMA - Display Order		Run Date: JAN 26, 2016@12:11
		Page: 1
Orderable Item: NICOTINE PATCH		
Dosage Ordered: ONE PATCH	Start: 01/21/2016 21:00	Stop: 03/14/2016 08:00 ACTIVE
Med Route: TRANSDERMAL	Self Med: NO	
Schedule Type: CONTINUOUS		
Schedule: Q12H		
Admin Times: 0900-2100		
Removal Times: 1500-0300		
Provider: PROVIDER, THREE		
Special Instructions/Other Print Info:		
Dispense Drugs		
Drug Name	Units	Inactive Date
NICOTINE 7MG/24HR PATCH	1	
Pharmacy Activity Log:		
Date: Jan 21, 2016@12:00:30	User: PHARMACIST, THREE	
Activity: VERIFIED BY PHARMACIST		

Figure 12. Display Order Report

MEDICATION VARIANCE LOG for Jan 19, 2016@00:01 to Jan 26, 2016@24:00
 Include Inpatient Orders Only

Event Date/Time	Event	Var	Medication
JAN 19, 2016@11:35:13	EARLY/LATE DOSE	155	NICOTINE
	Ward: ICU/CCU 2-2		
	Comments: 01/19/16 11:35	By: NSS	test
		01/20/16 12:12	By: NSS Removed: test
JAN 19, 2016@11:35:44	EARLY/LATE REMOVE	-205	NITROGLYCERIN
	Ward: ICU/CCU 2-2		
	Comments: 01/19/16 11:34	By: NSS	test
		01/19/16 11:35	By: NSS Removed: test
JAN 19, 2016@15:51:30	EARLY/LATE REMOVE	651	RIVASTIGMINE
	Ward: ICU/CCU 2-2		
	Comments: 01/19/16 11:34	By: NSS	test
		01/19/16 15:51	By: NSS Removed: test
JAN 26, 2016@10:53:26	EARLY/LATE DOSE	473	ACETAMINOPHEN/CODEINE
	Ward: ICU/CCU 2-2		
	Comments: 01/26/16 10:53	By: NSS	test

Total Number of Events for the reporting period is: 19.

Total number of EARLY/LATE DOSE events is 11.
 Percentage of Total Events: 58%

Total number of EARLY/LATE REMOVE events is 8.
 Percentage of Total Events: 42%

Figure 13. Medication Variance Log Report

BCMA COVERSHEET MEDICATION OVERVIEW REPORT
 Include Inpatient Orders Only
 Order Status(es): Future / Active / Expired / DC'd
 Include Action(s)

Run Date: MAR 28, 2016@17:22
 Page: 1

Patient: TESTPAT,NSTHREE : 666-12-2223 DCB: JAN 22,1972 (44)
 Sex: FEMALE Rt/Wt: */* Ward: GEN MED Rm: B-4
 Dx: Undetermined back pain Last Mvmt: SEP 28,2015@11:48:24 Type: ADMISSION

ADRs: No ADRs on file.
 Allergies: STRAWBERRIES

Total Orders reported: 5

VDL Tab	Order Status	Type	Medication; Dosage, Route	Schedule	Next Action	Order Start Date	Order Stop Date
ACTIVE [4 Orders]							
1	UD Active	C	(ASPIRIN CAP,ORAL) ASPIRIN BUFFERED 325MG TAB ; 325MG , ORAL	Q4H	DUE 03/28/2016@1800	03/28/2016@1000	07/1/2016@0800
ACTION BY: NSS 03/28/2016@1408 ACTION: GIVEN							
2	UD Active	C	(SELEGILINE PATCH) SELEGILINE 12MG/24HR PATCH ; 10MG , TRANSDERMAL	Q24H	MISSED 03/28/2016@1500 (Removal)	03/28/2016@1100	05/1/2016@0700
ACTION BY: NSS 03/28/2016@0309 ACTION: GIVEN							
3	UD Active	C	(NIACIN INJ,SOLN) NIACIN 100MG/ML INJ ; 7.5mg , TRANSDERMAL	Q4H	MISSED 03/28/2016@1500	03/28/2016@1100	06/1/2016@0800
4	UD Active	C	(NICOTINE PATCH) NICOTINE 11MG/24HR PATCH ; 1 , TRANSDERMAL	Q24H	DUE 03/28/2016@2100	03/28/2016@1337	06/5/2016@0800

Figure 14. Cover Sheet Report: Medication Overview – Active Orders Report

VDL Tab	Status	Type	Medication; Dosage, Route	Schedule	Next Action	Order Start Date	Order Stop Date
Expired/DC'd [3 Orders]							
1	UD Expired	C	(FUROSEMIDE TAB) FUROSEMIDE 40MG TAB ; 40MG , ORAL	Q4H		02/29/2016@1631	03/28/2016@1308
2	UD Discontinued	C	(NICOTINE PATCH NICOTINE 21MG/24HR PATCH ; 1, TRANSDERMAL	Q24H	MISSED 03/28/2016@0900 (Removal)	03/9/2016@1400	03/28/2016@1400
ACTION BY: RG 03/28/2016@2124 ACTION: GIVEN							
3	UD Discontinued	C	(SCOPOLAMINE PATCH) SCOPOLAMINE 0.3MG/24HR (1.5MG) PATCH ; 1 PATCH, TRANSDERMAL	Q24H	MISSED 03/28/2016@1500 (Removal)	02/29/2016@0830	03/27/2016@0800
ACTION BY: NSS 03/27/2016@0903 ACTION: GIVEN							

Figure 15. Cover Sheet Report: Expired/DC'd/Expiring Orders Report

Order Details - 17012

BCMAPATIENT,TRANSDERMAL PATCH 666-08-15507A GENERAL MEDICATION WARD Aug 15, 1950 (65)

*** WORK COPY ONLY ***

Printed: Jul 11, 2016 11:37

NITROGLYCERIN PATCH 0.2MG/HR
1 PATCH TRANSDERMAL Q24H

Activity:

07/11/2016 11:34 New Order entered by PENDERGRASS,DANIEL R
Order Text: NITROGLYCERIN PATCH 0.2MG/HR
1 PATCH TRANSDERMAL Q24H
Nature of Order: ELECTRONICALLY ENTERED
Elec Signature: on 07/11/2016 11:35

Current Data:

Current Primary Provider:
Current Attending Physician:
Treating Specialty: NEUROLOGY OBSERVATION
Ordering Location: 7A GENERAL MEDICATION WARD
Start Date/Time: 07/11/2016 11:35
Stop Date/Time: 07/18/2016 24:00
Current Status: ACTIVE
Order #17012

Order:

Medication: NITROGLYCERIN PATCH 0.2MG/HR
Instructions: 1 PATCH 0.2MG/HR TRANSDERMAL Q24H
Text:
1 PATCH TRANSDERMAL Q24H
Priority: ROUTINE
Comments:

Dispense Drugs (units/dose): NITROGLYCERIN 0.2MG/HR PATCH (1)
Total Dose: 1 PATCH
Schedule Type: CONTINUOUS
Administration Times: 1200
Removal Times: 2400
Pharmacist:

First Party Pay Exemptions

Figure 16. Order Detail Report (With Removal Times)

4. Anatomic Location for Medication Administrations

Updates to the BCMA Site Parameter application and BCMA software reflect the addition of “Body Site” to include both Injection site and medications requiring removal.

4.1. BCMA Site Parameter Application for Anatomic Location

In the BCMA Site Parameters application, on the Parameters tab, in the Misc. Options section, a new site parameter is created, called “Dermal Site History Max Days”. It displays directly below the existing “Injection Site History Max Hours” site parameter.

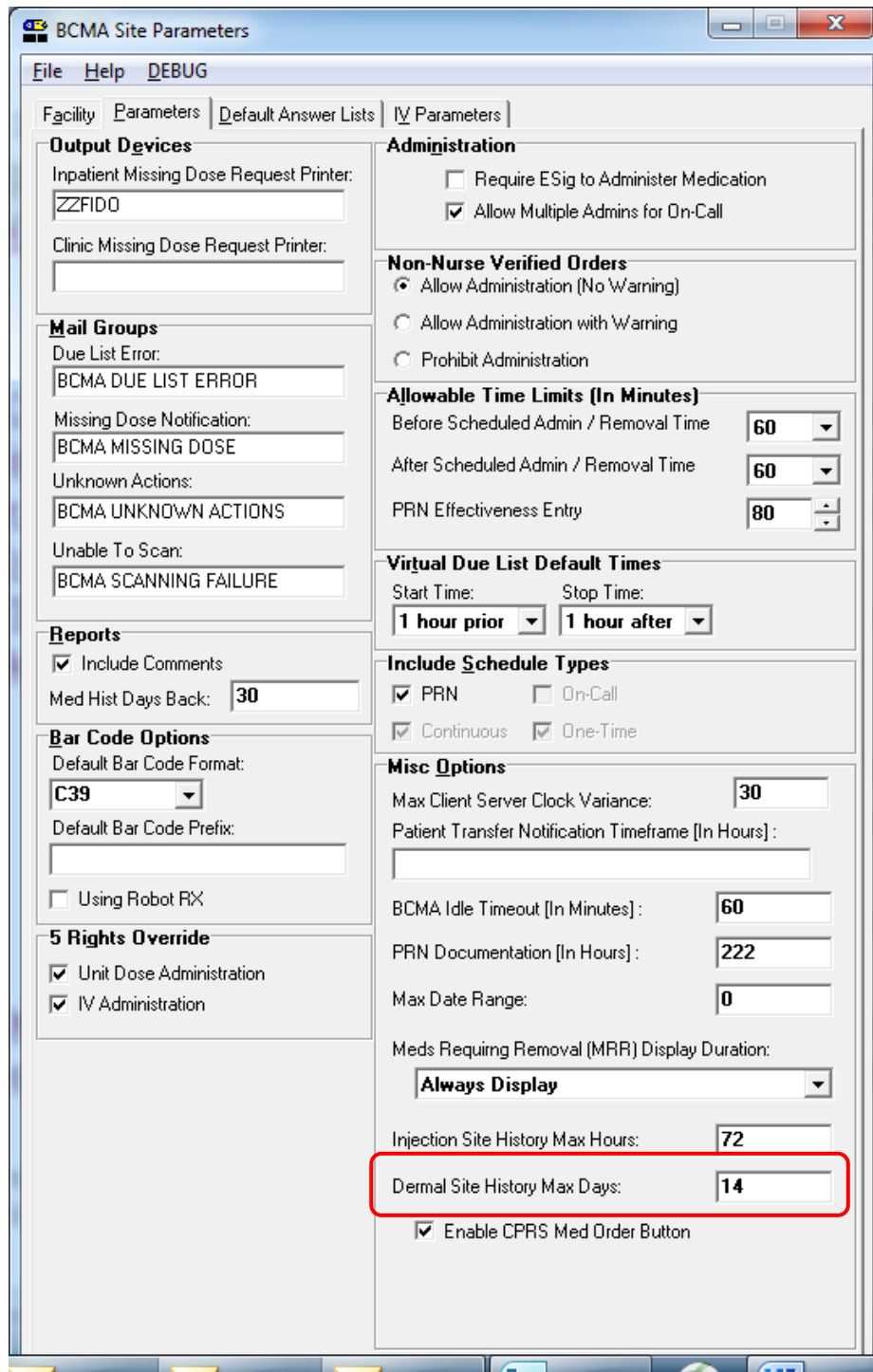


Figure 16. Example of new Dermal Site History Max Days Site Parameter

In the BCMA Site Parameters application, on the Default Answer Lists tab, a new default answer list with list name “Body Sites” is available, which will allow both Injection Sites (for injection type medications) and Dermal Sites (for medications requiring removal) to be defined in a single list.

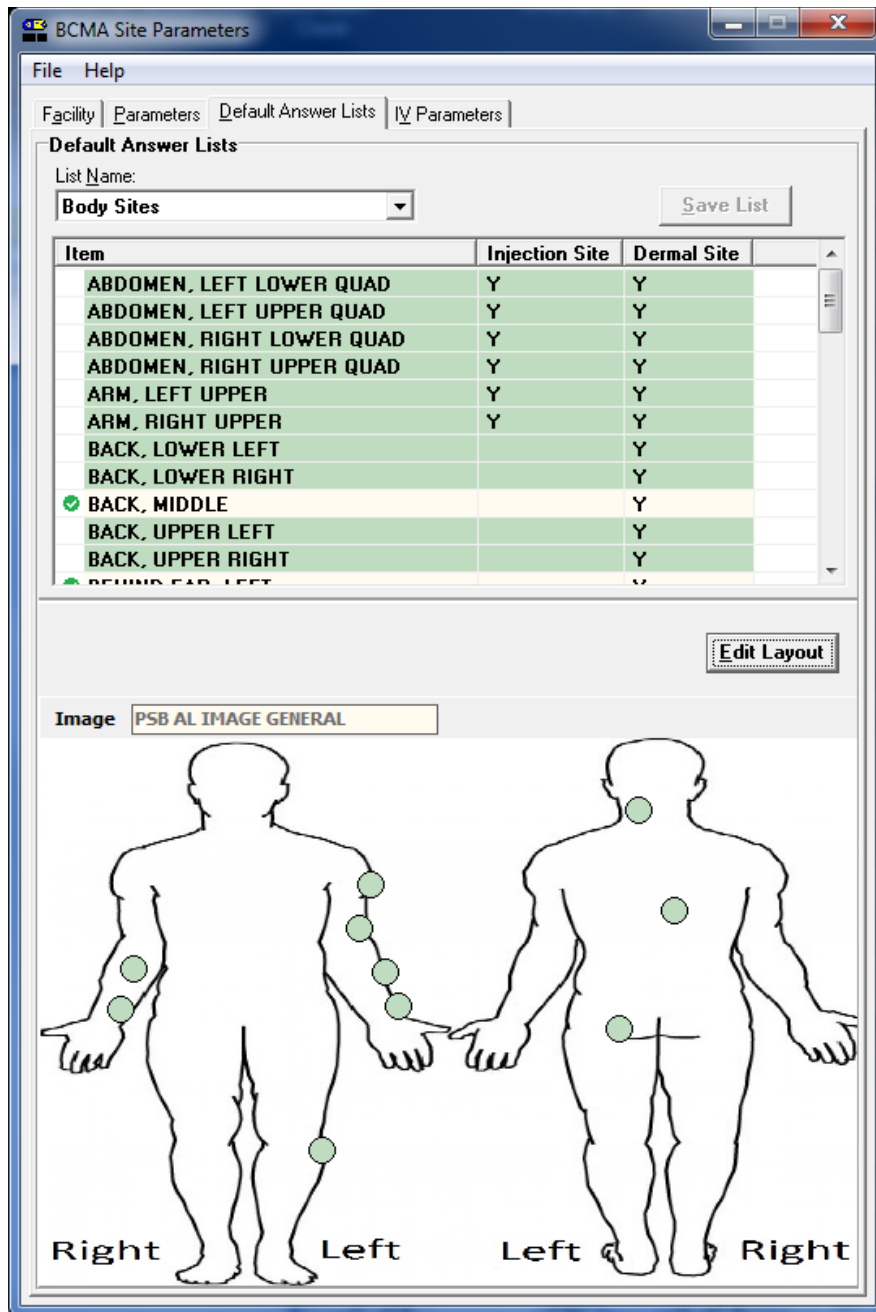


Figure 17. Body Sites List on BCMA Site Parameters Application

Note: click on an item in the list to highlight a location on the body (green dot.) Alternatively, when you click on a green dot, this will highlight an item in the list with a green checkmark.

Upon installation of the software for this project, no values are automatically populated in the new Body Sites default answer list. However, all items that are currently in the facility's existing Injection Sites default answer list are copied over to the new Body Sites default answer list, with the Item name for each one the same, and with the Injection Site attribute automatically selected for each.

As part of the installation of the software, after the Injection Sites copy has completed, the facility's existing Injection Sites default answer list is deleted, since it is no longer needed.

At the top of the Body Sites default answer list display (on the Default Answer Lists tab, with Body Sites list selected), the right-click menu contains the options to Add New, Delete, or Edit existing items.

When the "Edit Layout" button above the body diagram image is clicked, the Body Site Editor window displays. On the right side of the Body Site Editor window, the Name, Injection Site, and Dermal Site columns display, with the Name listed, and "Y" in the Injection Site and/or Dermal Site columns, based on the definition of the item in the list.

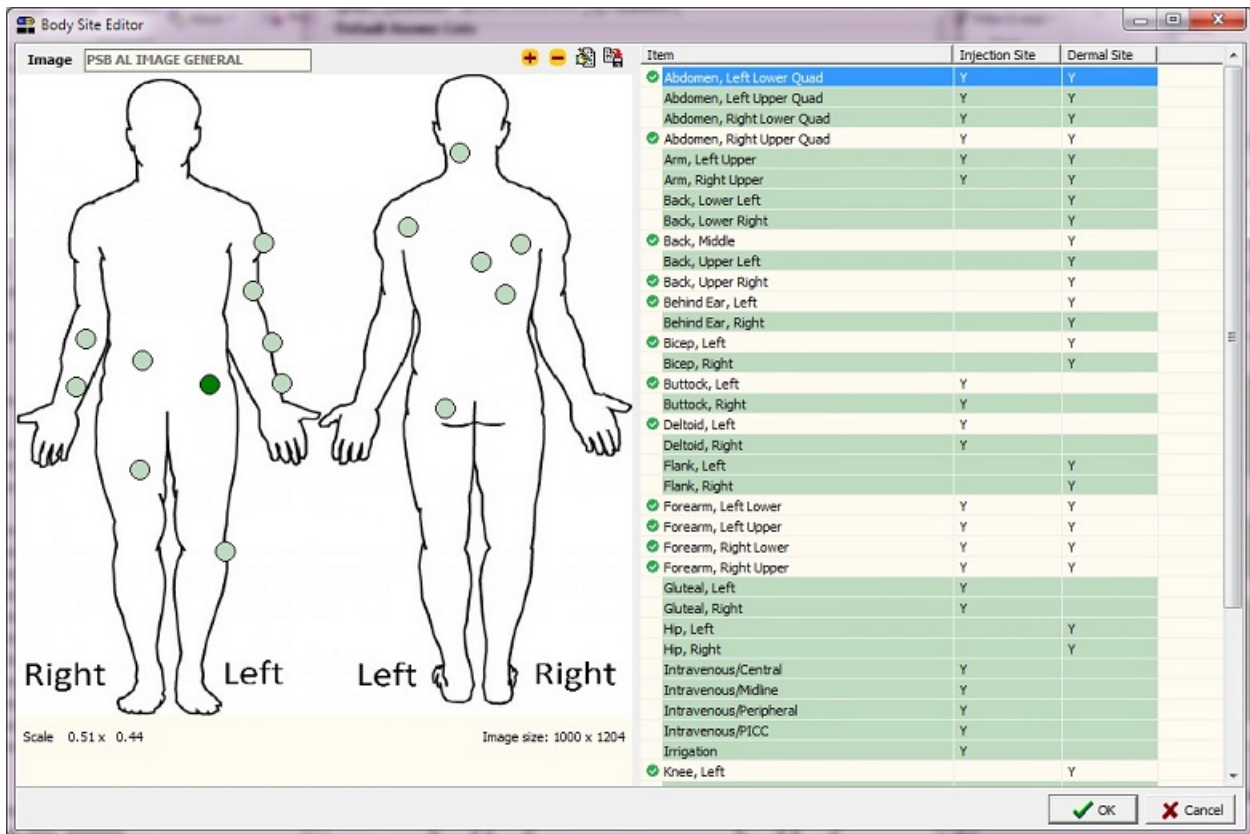


Figure 18. Body Site Editor Window for Body Sites Default Answer List

Note: Once you are inside the **Body Site Editor**, you can click and drag items from the body diagram on the left over to the Body Sites List on the right. Once you associate an item on the diagram with an item on the list, the item will have a green check mark next to it. You can hover over items on the diagram to view the associated item. Darker circles on the body diagram indicate associated items on the list.

4.2. User Screens for Anatomic Location

When a medication requiring removal (i.e., orderable item has “Prompt for Removal in BCMA” set to 1, 2, or 3) is being administered (Given), the user is prompted to select the Dermal Site, i.e., the location or position on the patient’s body where the medication is placed. A “Dermal Site Needed!” window displays, which is similar to the existing “Injection Site Needed!” expanded window that displays for injection type medications.

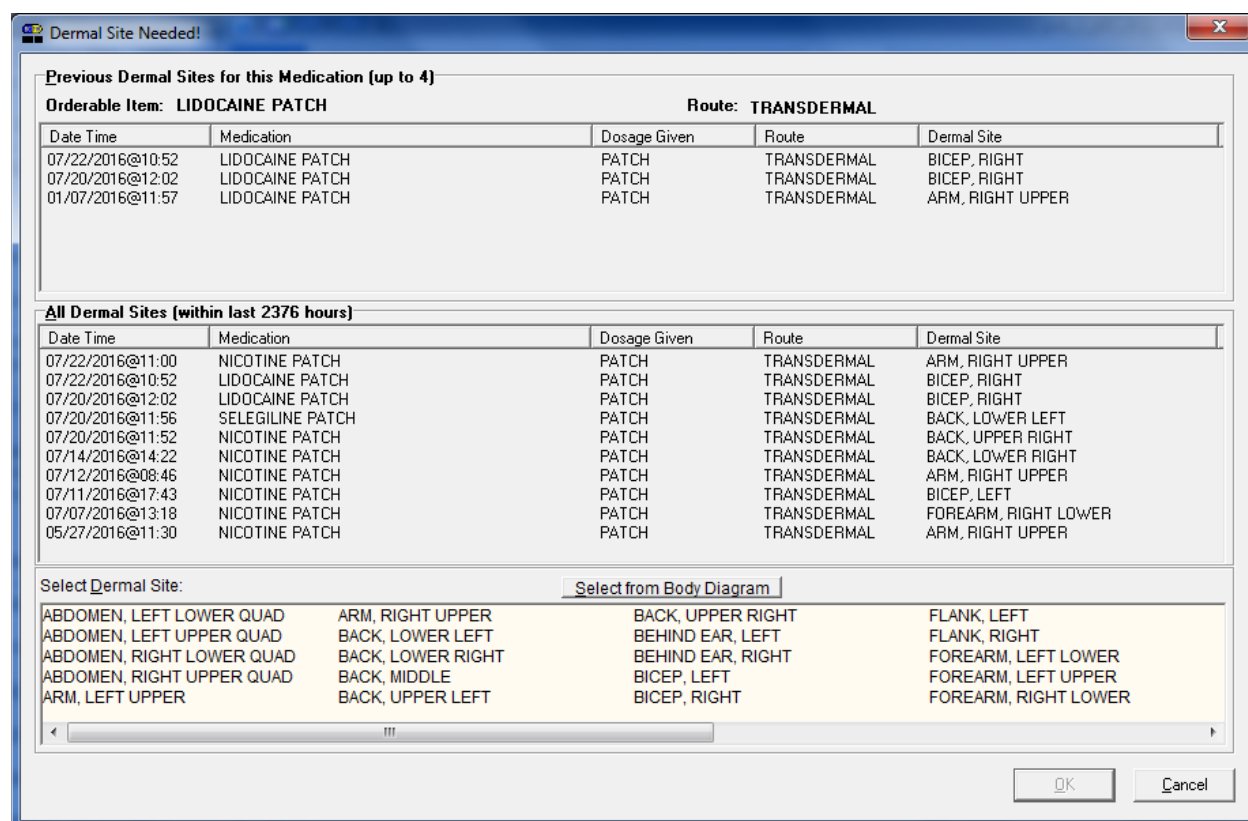


Figure 19. Dermal Site Needed! Window

In the Dermal Site Needed! window, the “Previous Dermal Sites” section contains the Dermal Site that was selected for the last 4 instances for the same orderable item for the medication requiring removal that is in the process of being administered (Given).

Note: The Injection Site History option, which is available in the right-click menu for qualifying items on the Unit Dose and IVP/IVPB VDL, is renamed “Body Site History” to designate that this applies to both patches and injections.

The Due List menu option renamed as “Body Site History” is enabled if the item selected from the Unit Dose or IVP/IVPB VDL is a medication requiring removal. When the Body Site History option is selected for a medication requiring removal, the new Dermal Site History window displays.

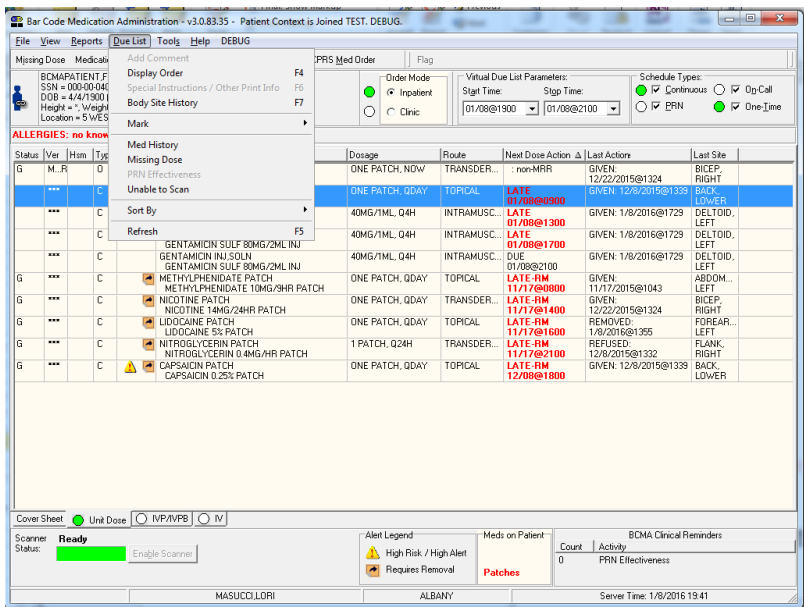


Figure 20. Due List Menu Option for Body Site History When MRR Selected from VDL

When the Body Site History option is selected for a medication defined as an injection, the existing Injection Site History window displays.

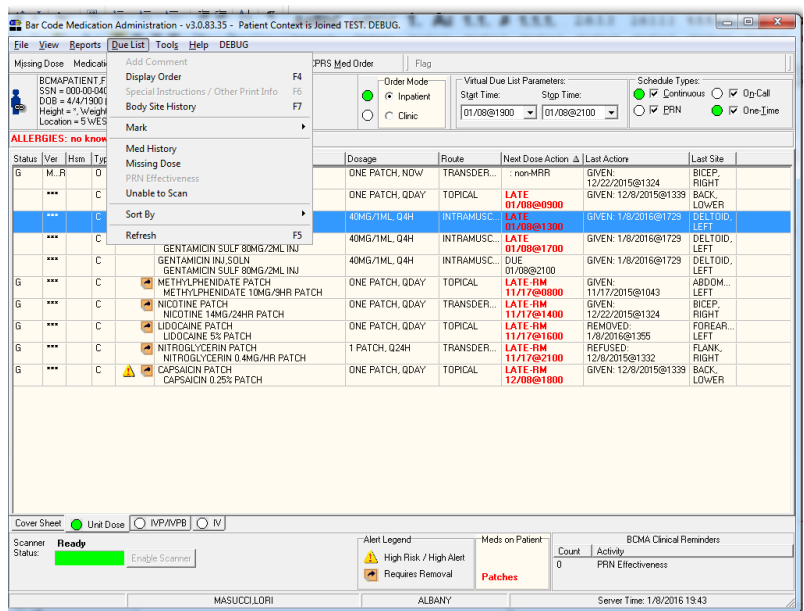


Figure 21. Due List Menu Option for Body Site History When Injection Selected from VDL

In the Dermal Site History window that displays for medications requiring removal when either the Body Site History right-click or Due List menu option is selected, the “Previous Dermal Sites” section contains the Dermal Site that was selected for the last 4 instances for the same orderable item for the medication requiring removal that is in the process of being administered (Given).

Dermal Site History				
Previous Dermal Sites for this Medication (up to 4)				
Orderable Item: CAPSAICIN PATCH			Route: TOPICAL	
Date Time	Medication	Dosage Given	Route	Dermal Site
12/08/2015@13:39	CAPSAICIN PATCH	PATCH	TOPICAL	BACK, LOWER LEFT
All Dermal Sites (within last 336 hours)				
Date Time	Medication	Dosage Given	Route	Dermal Site
01/08/2016@13:55	LIDOCAINE PATCH	PATCH	TOPICAL	FOREARM, LEFT LOWER
12/27/2015@21:01	RIVASTIGMINE PATCH	PATCH	TRANSDERMAL	ABDOMEN, LEFT LOWER QUAD

Figure 22. Dermal Site History Window

The Scan IV window that displays when IV medications are being administered contains a Select an Injection Site field, which now displays items from the Body Sites default answer list that are defined as Injection Site, instead of from the now-defunct Injection Sites default answer list.

Scan IV

Bag Information
Current Bag Status: INFUSING
 IV Bag Number: 750WS51
 Medication Route: INTRAVENOUS

Medication / Solutions:
 DIGOXIN IMMUNE FAB 500 MG
 D5%/NACL 0.45%/KCL 20MEQ 1000 ML

Other Print Info:
 "[2MG/ML] - BASAL=1MG/HR(0.5ML/HR).
 PCA DOSE = 1MG (0.5ML) EVERY 10
 MINUTES PRN.
 PCA LOCKOUT=5MG/HR (2.5ML/HR)"]

Order Changes
 IV Bag 750WS51 is currently INFUSING, and the associated order has been changed. The order changes are listed below.
 3/16/2012@1414 - OTHER PRINT INFO changed to !Instructions too long. See Order View or BCMA for full text.

Enter a Comment (150 Characters Maximum):

Select an Action: Completed

Select an Injection Site: Intravenous/Central

OK Cancel

Figure 23. Scan IV Window with Select an Injection Site Field

If the medication order being edited in the Edit Med Log window is for a medication that is defined as a medication requiring removal (i.e., orderable item has “Prompt for Removal in BCMA” set to Yes), and the medication has been administered, e.g., status is Given or Removed, and a Dermal Site was selected, the field is labeled as “Dermal Site”, and the drop-down list displays items from the Body Sites default answer list that are defined as Dermal Site.

BCMA - Edit Med Log - Patient Context is Joined

Patient Name: TESTPATNM,TWO Admin Status: Given

PHID: 666232323 Action Date/Time: MAR 09, 2016@13:48

Medication: SCOPOLAMINE Dermal Site: BEHIND EAR, LEFT

PRNs

Reason:

Effectiveness: (150 Characters Maximum)

* The Edit Medication Log does not support PRN required pain scores.

Dispensed Drugs

Name	Units Ordered	Units Given	Units
SCOPOLAMINE 0.33MG/24HR (1.5MG) PATCH	1	1	PATCH

Enter a Comment (Required) (150 Characters Maximum):

OK Cancel

Figure 24. Edit Med Log Window with New Dermal Site Field Enabled

4.3. Clinic Orders

Clinic Orders display on the VDL on the date of the patient’s appointment, regardless of Start Time for the medication order, so the medication can be administered if the patient arrives at the clinic earlier than their scheduled appointment time. This is for all Clinic Orders, not just those for medications requiring removal. Clinic Orders with specific Admin Time(s), the order displays on the VDL and is available for administration based on the Expected First Dose for the Start Date. The initial default sort order on the VDL (all 3 tabs) is based on the Clinic Location name.

5. User Documentation

Documentation distributed with this project includes the following and may be retrieved from the Vista Documentation Library (VDL) on the Internet at the following link: [Pharm: Bar Code Medication Administration \(BCMA\)](#).

File Names	Description
PSB_3_UM_CHAPTERS_1_thru_6_R1216.PDF	BCMA V.3.0 GUI User Manual – Chapters 1 through 6
PSB_3_UM_CHAPTERS_7_thru_13_R1216.PDF	BCMA V.3.0 GUI User Manual – Chapters 7 through 13
PSB_3_MAN_UM_R1216.PDF	BCMA V.3.0 Manager's User Manual
PSB_3_UM_NURSE_CHUI_R1216.PDF	BCMA V.3.0 Nursing CHUI User Manual
PSB_3_TM_R1216.PDF	BCMA V.3.0 Technical Manual/Security Guide
PSB_3_P83_RN.PDF	Release Notes – BCMA V.3.0 (PSB*3*83)

6. Associated Files and Fields

File Name (Number)	Field Name (Number)	New/Mod/Del
BCMA MEDICATION LOG (53.79)	SCHEDULED REMOVAL TIME (.17)	New
	DERMAL SITE (.18)	New
	ACTION DATE/TIME (.06)	Mod
	SCHEDULED ADMINISTRATION TIME (.13)	Mod
DISPENSE DRUG (53.795)	PROMPT FOR REMOVAL IN BCMA (.06)	New
BCMA MEDICATION VARIANCE LOG (53.78)	EVENT (.05) - Add a new code to the set of codes for the EVENT field: 4:EARLY/LATE REMOVE	Mod

7. Associated Forms

Form Name	File Name (Number)	New/Mod/Del
PSB MED LOG EDIT	BCMA MEDICATION LOG (53.79)	Mod
PSB NEW UD ENTRY	BCMA MEDICATION LOG (53.79)	Mod

8. Associated Options

Option Name	Type	New/Modified/Deleted
PSB MGR	Menu	Modified
PSB GUI CONTEXT - USER	Broker	Modified

9. Parameter Definitions

Parameter Name	New/Modified/Deleted
PSB AL GROUPS	New
PSB AL IMAGE GENERAL	New
PSB AL IMAGES	New
PSB AL MASTER LIST	New
PSB LIST ANATOMIC LOCATIONS	New
PSB LIST BODY SITES	New

10. Associated Remote Procedure Calls

RPC Name	New/Modified/Deleted
PSB COVERSHEET1	Modified
PSB GETINJECTIONSITE	Modified
PSB GETORDERTAB	Modified
PSB GETSETWP	New
PSB MED LOG LOOKUP	Modified
PSB TRANSACTION	Modified
PSB VALIDATE ORDER	Modified

11. Associated Template

Template Name	Type	File Name (Number)	New/Mod/Del
PSB DIVISION	KERNEL	PARAMETER TEMPLATE (8989.52)	Mod

12. Patient Safety Issue Corrections

The following Patient Safety Issue corrections are made with this patch:

- **PSPO00000885:** BCMA reports are misleading when patches are Removed depending on dates chosen to run the report **REDACTED**
- **PSPO00001978:** BCMA does not prompt user to remove a transdermal patch when the removal time differs from the next administration time.
- **PSPO00002222:** IV bag that should have been invalid due to provider comment changes was inadvertently made available for infusion.
- **PSPO00002333:** BCMA Missed Medications report does not include orders with a status of "Renewed".
- **PSPO00002803:** Scanning of barcode on medication package focuses the default to the "OK" button and removes warning screen from view
- **PSPO00003011:** Inability to administer medications in clinic until exact appointment time may cause delay in medication administration or treatment. **REDACTED**

13. Remedy Tickets Resolved

The following Remedy Tickets were resolved with this patch:

Name	Description
INC000000216580	No "G" for a given patch dose
INC000000218095(d)	Patch removal deletes original administration
INC000000960057	Provider Comments IV Bag Parameter has no effect on IV Bag Administration
INC000000984066	Orders with a Status of Renewed don't display on the Coversheet
INC000001224198	The "Invalid Medication Lookup" and "Scanned Drug Not Found" pop-ups have the focus set to "OK"

14. New Service Requests (NSRs) Resolved

The project's scope of changes includes addressing the following New Service Requests (NSRs) and Patient Safety issues:

- **NSR 20141012:** Pharmacy Safety Enhancements: REDACTED
- **NSR 20120312:** Create Reminder Mechanism to Remove Transdermal Medications: REDACTED
- **NSR 20101105:** Add Transdermal Patch Removal to BCMA Missed Med Report: REDACTED
 - **PSPO00001978:** BCMA does not prompt user to remove a transdermal patch when the removal time differs from the next administration time: REDACTED
- **NSR 20110810:** Transdermal Patch Documentation Disappears in BCMA: REDACTED
- **NSR 20071011:** Change Terminology for Injection Site: REDACTED
- **NSR 20071004:** Patch PSB*3*32 Pop Up Alert: REDACTED

15. BCMA Online Help Update

The BCMA GUI Online Help system has been updated to include all released BCMA PSB*3*83 functionality.

16. Installation Details

Installation details are contained in the Patch Description.

16.1. Patch PSS*1*191 Related Information

Patch PSS*1*191 added the PROMPT FOR REMOVAL IN BCMA field (#12) to the ORDERABLE ITEM file (#50.7) with the ability to designate Orderable Items as Medications Requiring Removal using the following code values:

- **NULL/0** = No Removal Required
- **1** = Removal at Next Administration
- **2** = Removal Period Optional Prior to Next Administration
- **3** = Removal Period Required Prior to Next Administration.

All Orderable Items except for items that contain dosage form Patch will have a NULL value for the new Prompt for Removal in BCMA (#12) field.

A post-install routine forces all Orderable Items containing dosage form Patch to automatically be set to Code Value 1 – Removal at Next Administration (No Medication-Free period between administrations).

A post-install report included in the patch install will produce a report consisting of a list of items from the Pharmacy Orderable Item File where the dosage form contains the word 'Patch' and the Prompt for Removal in BCMA field was set to 1 by the post-install routine. This report needs to be reviewed so that Pharmacy can make the changes in Pharmacy Orderable Item file, Prompt for Removal in BCMA field to correctly assign each Orderable Item that is an MRR to the correct code value.

16.2. Patch PSJ*5*315 Related Information

Patch PSJ*5*315 added the prompt for users to enter DURATION OF ADMINISTRATION based on the value stored in the PROMPT FOR REMOVAL IN BCMA field (#12) and then calculate and store the appropriate removal times.

Orders for MRRs with Removal Properties Report (MRR Active Orders Report) shows patients with orders that have Medications Requiring Removal (MRRs) that were Finished and Active prior to the install of patch PSJ*5*315.

A post-install report of information from the Orders for MRRs with Removal Properties Report will be produced immediately after the installation of the PSJ*5*315 patch and will be sent to the VistA Email addresses of users with the PSJI MGR, PSJU MGR, PSJU RPH, and PSJ RPHARM keys.