

BAR CODE MEDICATION ADMINISTRATION (BCMA)

TECHNICAL MANUAL/SECURITY GUIDE

Version 3.0

February 2004

(Revised March 2008)

Department of Veterans Affairs

VistA Health Systems Design & Development

Revision History

Each time this manual is updated, the Title Page lists the new revised date and this page describes the changes. If the Revised Pages column lists “All,” replace the existing manual with the reissued manual. If the Revised Pages column lists individual entries (e.g., 25, 32), either update the existing manual with the Change Pages Document or print the entire new manual.

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Revised Pages | Patch Number | Description |
| 03/2008 | 6,-7, 9-10, C-1,C-2, C-4, C-5,  C-7, C-9 | PSB\*3\*2 | – Description of [PSBO BZ] functionality added, code strings updated (p. C-1).  – Updated Intermec Printer Team Type Codes Information , Intermec Barcode Label Field Position Map, Intermec Printer Sample Terminal Type File code descriptions updated (pp. C-4, C-5, C-7).  –Barcode samples updated - references to “Dosage” changed to “Dose” and space between colon and dose measurement deleted (p. C-9).  REDACTED |
| 09/2007 | 6-7 | PSB\*3\*32 | – Increased the total for the BCMA V. 3.0 routines to 68. (p.6)  – Updated the “BCMA V. 3.0 Routines Installed onto VistA Server” example to include the following routine: PSBO XA. (p. 7)  REDACTED |
| 08/2006 | 6-7,  9, 13 | PSB\*3\*13 | – Increased the total for the BCMA V. 3.0. routines to 68. (p.6)  – Updated the “BCMA V. 3.0 Routines Installed onto VistA Server” example to include the following routine: PSBO XA. (p. 7)  – Updated Manager Menu [PSB MGR] options list to include Missing Dose Follow-up (correction) and Unknown Action Status Report (new with this patch). (p. 9)  – Added description of the “Unknown Actions” mail group parameter. (p. 13)  REDACTED |
| 08/2006 | iv,  6,  C1-C10 | PSB\*3\*2 | **Note**: The functionality listed below will be activated with the release of PSB\*3\*2.  – Updated Table of Contents to include new Appendix C. (p. iv)  – Added reference to new Unit Dose label printing functionality and Appendix C. (p. 6)  – Added Appendix C: Interfacing with the Bar Code Label Printer. (p. C1-C10)  REDACTED |
| 12/2005 | 6-7 | PSB\*3\*16 | – Increased the total for the BCMA V. 3.0. routines to 67. (p.6)  – Updated the “BCMA V. 3.0 Routines Installed onto VistA Server” example to include the following routines: PSBCSUTL, PSBCSUTX, PSBCSUTY. (p. 7)  REDACTED |
| 01/2005 | 6-7,  14,  20-21 | PSB\*3\*4 | – Increased the total for the BCMA V. 3.0. routines to 64. (p.6)  – Updated the “BCMA V. 3.0 Routines Installed on to VistA Server” example to include the PSBOPF routine. (p. 7).  – Added description for new PSB READ ONLY security key. (p.14)  – Added new Glossary entries for PSB READ ONLY and Read-Only BCMA. (p. 20-21)  REDACTED |
| 10/2004 | 6-7 | PSB\*3\*3 | – Increased the total for the BCMA V. 3.0 routines to 63. (p. 6)  – Updated the “BCMA V. 3.0 Routines Installed on to VistA Server” example to reflect the inclusion of routines PSBML2, PSBML3, and PSBMLLKU to the VistA Server. (p. 7)  REDACTED |
| 02/2004 |  |  | Original Released BCMA V. 3.0 Technical Manual/Security Guide  REDACTED |

# Implementation and Maintenance

|  |  |
| --- | --- |
| Minimum Required Packages | Before installing BCMA V. 3.0, make sure that your system includes the following Department of Veterans Affairs (VA) software packages and versions (those listed or higher). |

Example: Minimum Required Packages and Versions

|  |  |
| --- | --- |
| Package | Minimum Version Needed |
| Inpatient Medications | 5.0 |
| Kernel | 8.0 |
| MailMan | 8.0 |
| Nursing | 4.0 |
| Order Entry/Results Reporting | 3.0 |
| Pharmacy Data Management | 1.0 |
| RPC Broker (32-bit) | 1.1 |
| Toolkit | 7.3 |
| VA FileMan | 22.0 |
| Vitals/Measurements | 5.0 |

|  |  |
| --- | --- |
| Installation Time Estimates important:  You should install and test BCMA in your test accounts ***before***installing in your production accounts. | On average, it takes approximately twominutes to install BCMA V. 3.0. This estimate was provided by a few of our BCMA V. 3.0 Beta Test sites. Actual times may vary, depending on how your site is using its’ system resources.  Suggested time to install: non-peak requirement hours. During the install process, PC Client users should not be accessing the Client Software. |

Implementation and Maintenance

|  |  |
| --- | --- |
| Resource Requirements tip:  The approximate size for ^PSB was calculated using a “normal” medication pass for a Unit Dose and an IV medication order. This is only an estimated number; it serves as the “mean.”  tip:  The approximate size for ^PSB was calculated using a "normal” Med Pass for a Unit Dose and an IV medication order. This is only an estimated number; it serves as the “mean.” | This section summarizes the (approximate) number of resources required to install BCMA V. 3.0.   * Routines 81 * Globals 1 (^PSB) * Files 5 (53.66-53.79) * ^PSB Size Unit Dose = 300 x # of Medications (in bytes) Administered  IV = 2100 x # of IV Bags  Administered * FTEE Support .2 * FTEE Maintenance .2  Response Time Monitor BCMA V. 3.0 does not include Response Time Monitor hooks. Laptops and Bar Code Scanners The approximate requirements for laptops and bar code scanners depend on the number of Inpatient areas, at your site, that use BCMA V. 3.0 for administering activemedication orders. The BCMA Development Team recommends that your site have a minimum of three laptops and three scanners for each ward. Printers Your site should provide printers for creating patient wristbands and medication bar code labels, and for handling Missing Dose Requests sent from BCMA V. 3.0 to the Pharmacy. Unit Dose Label Printer Devices BCMA V. 3.0 includes the Label Print [PSBO BL] option for printing individual or batch Unit Dose bar code labels. It is specifically coded to the Zebra-brand printers using the Zebra Programming Language (ZPL). Model 105SE was used in the development of the labels. Routine PSBO BL uses site-specific printers or terminals to produce labels.  BCMA V. 3.0 also includes the Barcode *Label Print* [PSBO BZ] option for printing individual or batch Unit Dose bar code labels. This option allows sites the flexibility to use any printer that has bar code printing capabilities to produce BCMA bar code labels. Routine PSBOBZ uses site-specific printers or terminals to produce labels. See Appendix C: “Interfacing with the Bar Code Label Printer” for detailed setup information. IV Label Printer Devices Inpatient Medications V. 5.0 provides a menu option for printing individual or batch IV bar code labels. See the section “Interfacing with the Bar Code Label Printer” in the *Inpatient Medications V. 5.0 Technical Manual/Security Guide* for detailed setup information. |

Implementation and Maintenance

|  |  |
| --- | --- |
| Files Required to Run BCMA V. 3.0 tip:  The namespace for the BCMA package is PSB and the primary global is ^PSB. | BCMA V. 3.0 uses the following files installed on the VistA Server. “Journaling” is recommended.   * ^PSB (53.66, BCMA IV Parameters * ^PSB (53.68, BCMA Missing Dose Request * ^PSB (53.69, BCMA Report Request * ^PSB (53.78, BCMA Medication Variance Log * ^PSB (53.79, BCMA Medication Log   Note: You can learn more about these files by generating a list with file attributes using VA FileMan. |
|  |  |
| Routines Installed | Review the listing below to learn the routines installed on to your site’s VistA Server during the installation of BCMA V. 3.0. The first line of each routine briefly describes its general function.  **Note:** You can use the *Kernel First Line Routine Print* [XU FIRST LINE PRINT] option to print a list containing the first line of each PSB routine. Routine Mapping At this time, we do *not* offer any recommendations for routine mapping. However, if you choose to map the BCMA V. 3.0 package routines, you will need to bring your system down, and then restart it to load the new routines into memory. |

Example: BCMA V. 3.0 Routines Installed onto VistA Server

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | PSBALL | PSBAPIPM | PSBCHIVH | PSBCHKIV | PSBCSUTL | PSBCSUTX | | PSBCSUTY | PSBMD | PSBML | PSBML1 | PSBML2 | PSBML3 | | PSBMLEN | PSBMLEN1 | PSBMLHS | PSBMLLKU | PSBMLTS | PSBMLU | | PSBMLVAL | PSBO | PSBO1 | PSBOAL | PSBOBL | PSBOBZ | | PSBOCP | PSBOCP1 | PSBODL | PSBODL1 | PSBODO | PSBOHDR | | PSBOIV | PSBOIV1 | PSBOMD | PSBOMH | PSBOMH1 | PSBOMH2 | | PSBOML | PSBOMM | PSBOMM2 | PSBOMT | PSBOMT1 | PSBOMV | | PSBOPE | PSBOPF | PSBOPI | PSBOPM | PSBOVT | PSBOWA | | PSBOXA | PSBPAR | PSBPARIV | PSBPOIV | PSBPRN | PSBRPC | | PSBRPC1 | PSBRPC2 | PSBRPC3 | PSBRPCMO | PSBRPCXM | PSBSAGG | | PSBSVHL7 | PSBUTL | PSBVAR | PSBVDLIV | PSBVDLPA | PSBVDLPB | | PSBVDLTB |  |  |  |  |  |   82 routines |

# Exported Options

|  |  |
| --- | --- |
| BCMA CHUI Menus | BCMA V. 3.0 exports three main menus. They include those listed below, in the CHUI version of BCMA V. 3.0. The options for each menu are listed in this section.   * **Manager Menu:** [PSB MGR] is assigned to managers * **Pharmacist Menu:** [PSB PHARMACY] is assigned to all inpatient Pharmacists * **Nurse Menu:** [PSB NURSE] is assigned to all clinicans and other personnel who administer active medication orders  Manager Menu [PSB MGR] This menu includes the following options:   * Drug File Inquiry * Medication Administration Menu Nursing * Medication Administration Log Report * Missed Medications Report * Ward Administration Times Report * Due List Report * PRN Effectiveness List Report * Enter PRN Effectiveness * Manual Medication Entry * Medication Administration History (MAH) Report * Missing Dose Request * Medication Variance Log * Drug File Inquiry * Medication Administration Menu Pharmacy * Medication Administration Log Report * Missed Medications Report * Due List Report * Medication Administration History (MAH) Report * Missing Dose Request * Missing Dose Followup * Missing Dose Report * Label Print * Drug File Inquiry * Barcode Label Print * Missing Dose Followup * Reset User Parameters * Trouble Shoot Med Log * Unknown Action Status Report |

Exported Options

|  |  |
| --- | --- |
| BCMA CHUI Menus (cont.) | Pharmacy Medication Administration Menu [PSB PHARMACY] This menu includes the following options:   * Medication Administration Log Report * Missed Medications Report * Due List Report * Medication Administration History (MAH) Report * Missing Dose Request * Missing Dose Followup * Missing Dose Report * Label Print * Drug File Inquiry * Barcode Label Print * Barcode Label Print  Nursing Medication Administration Menu [PSB NURSE] This menu includes the following options:   * Medication Administration Log Report * Missed Medications Report * Ward Administration Times Report * Due List Report * PRN Effectiveness List Report * Enter PRN Effectiveness * Manual Medication Entry * Medication Administration History (MAH) Report * Missing Dose Request * Medication Variance Log * Drug File Inquiry |

# Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Introduction | BCMA V. 3.0 includes the *Barcode Label Print* [PSBO BZ] option for printing individual or batch Unit Dose bar code labels. This option allows sites the flexibility to use any printer that has bar code printing capabilities to produce BCMA bar code labels. Routine PSBOBZ uses site-specific printers or terminals to produce labels.  Since users can now customize their own label formats using control codes, it is important to note that all Unit Dose and Ward Stock medication labels must conform to the JCAHO Standard for Medication Labeling (Standard MM.4.30). Please refer to the excerpt of the standard and references at the end of this Appendix.  Any printer that supports bar code printing can be used for the Unit Dose labels. However, the scan success rate will probably be lower if anything other than direct thermal transfer on synthetic labels is used. Labels from dot matrix printers, laser printers, or even bar code printers using other types of transfer, wipe off more easily. The label could become unreadable, especially in areas where the bag might become wet. With a direct thermal transfer onto a synthetic label, the print actually bonds to the label material. Essentially, the label would have to be ripped to damage the print. |
|  |  |
| Hardware Setup | The printer must be physically connected to the network and then defined in the DEVICE (#3.5) and TERMINAL TYPE (#3.2) files. |
|  |  |
| Software Setup | The type of printer will determine the next step. The Zebra and Intermec printers require control codes, where the dot matrix or laser printers do not require these codes. The Unit Does print routine checks the existence of the control codes before attempting to execute. It is not required for all control codes to be defined; just build the necessary control codes for the selected printer.  When setting up the Terminal Type file for the Zebra bar code printer device, the Terminal Type file entry must contain the word “ZEBRA” as part of the file name.  For example: P-ZEBRA  When setting up the Terminal Type file for the Intermec bar code printer device, the Terminal Type file entry must contain the word “INTERMEC” as part of the file name.  For example: P-INTERMEC |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | The printer must be physically connected to the network and then defined in the DEVICE (#3.5) and TERMINAL TYPE (#3.2) files.  **Step 1:** At the programmer or system prompt, enter D ^PSBOBLU  \*\*\*Important Note\*\*\*  Before you execute the automatic control code update function, create a new terminal type entry in your TERMINAL TYPE file (#3.2) to store the new barcode printer control codes. The new terminal type entry needs to be connected to the barcode printer device by inserting the new terminal type entry name into the SUBTYPE field (#3) for the barcode printer entry in your DEVICE file (#3.5).  This option allows you to automatically copy the BCMA pre-formatted control codes for the Zebra barcode printer or Intermec barcode printer to a device. Please select the appropriate BCMA pre-formatted control codes, and then select the appropriate device.  Select one of the following:   1. Zebra Control Codes 2. Intermec Control Codes   **Step 2:** Select the appropriate barcode printer  Select 1 or 2: 1 Zebra Control Codes  DEVICE: ZEB4$PRT  Checking system status…  Are you sure that you want to copy the BCMA CONTROL CODES to device: ZEB4$PRT  **Step 3:** Confirm copying process.  Enter Yes or No: NO// YES Copying Control Codes…  Done… Printer Control Codes For this type of printer to print a unique bar code on the Unit Dose labels, IRMs must build control codes. The CONTROL CODES fields [#55] are added to the TERMINAL TYPE file (#3.2) in the Kernel patch XU\*8\*205. **This patch must be installed before proceeding**. Control Code Set Up The Unit Dose label print routine currently uses printer control codes and code names that are built within FileMan. The following table illustrates the control codes and corresponding names for the Zebra 105 SL printer. |

Example: Zebra Printer Terminal Type Control Codes

|  |  |  |
| --- | --- | --- |
| Abbreviation | Full Name | Control Code |
| ET | End Text | N/A |
| ETF | End Text Field | N/A |
| EB | End Barcode | N/A |
| EBF | End Barcode Field | N/A |
| EL | End Label | W !,"^XZ" |
| FE | Format End | N/A |
| FI | Format Initialization | N/A |
| FI1 | Format Initialization 1 | N/A |
| FI2 | Format Initialization 2 | N/A |
| SB | Start Barcode | S PSBTYPE=$S(PSBSYM="I25":"B2N",PSBSYM="128":"BCN",1:"B3N") S:PSBSYM="" PSBBAR="NO-CODE"  W !,"^BY2,3.0,80^FO20,100^"\_PSBTYPE\_",N,80,Y,N^FR^FD"\_PSBBAR\_"^FS" |
| SBF | Start Barcode Field | N/A |
| SL | Start Label | W !,"^XA",!,"^LH0,0^FS" |
| ST | Start Text | W !,"^FO"\_PSBTYPE\_"^A0N,30,20^CI13^FR^FD"\_TEXT\_"^FS" |
| STF | Start Text Field | S PSBTYPE=$S(PSBTLE="PSBDRUG":"20,25",PSBTLE="PSBDOSE":"20,60", PSBTLE="PSBNAME":"350,60",PSBTLE="PSBWARD":"350,90", PSBTLE="PSBLOT":"350,120", PSBTLE="PSBEXP":"350,150", PSBTLE="PSBMFG":"500,150", PSBTLE="PSBFCB":"350,180",1:"0,0") |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | The field position map below identifies the specific control codes for the Zebra printer that direct the exact position in which the fields are printed on the bar code label. |

Example: Zebra Bar Code Label - Field Position Map

|  |  |  |
| --- | --- | --- |
| Abbreviation | Control Code ( Field Coordinates) | Description |
| EB | FO20,150 | “No – Code” statement |
| SB | FO20,100 " | Bar Code Graph |
| STF | PSBTLE="PSBDRUG":"20,25" | Drug Name |
| PSBTLE="PSBDOSE":"20,60", | Dosage |
| PSBTLE="PSBNAME":"350,60" | Patient Name and Quality |
| PSBTLE="PSBWARD":"350,90", | Ward Location |
| PSBTLE="PSBLOT":"350,120", | Lot Number |
| PSBTLE="PSBEXP":"350,150", | Expiration Date |
| PSBTLE="PSBMFG":"500,150", | Manufacturer |
| PSBTLE="PSBFCB":"350,180" | Filled By/Checked By |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | The following table illustrates the control codes and corresponding names for the Intermec 3400 E printer. |

Example: Intermec Printer Terminal Type Control Codes

|  |  |  |
| --- | --- | --- |
| Abbreviation | Full Name | Control Code |
| ET | End Text | N/A |
| ETF | End Text Field | N/A |
| EB | End Barcode | N/A |
| EBF | End Barcode Field | W "<STX>H8;o50,40;f3;c0;h1;w1;d0,80;<ETX>",! |
| EL | End Label | W "<STX><ETB><ETX>",! |
| FE | Format End | N/A |
| FI | Format Initialization | W "<STX><ESC>C<ETX>",!,"<STX><ESC>P<ETX>",!,"<STX>E2;F2<ESC><ETX  >",! |
| FI1 | Format Initialization 1 | W "<STX>H7;o30,260;f3;c0;h1;w1;d0,80;<ETX>",!,"<STX>H6;o50,440;f  3;c0;h1;w1;d0,20;<ETX>",!,"<STX>H5;o50,260;f3;c0;h1;w1;d0,20;<ETX>",!,"<STX>H4;o70,260;f3;c0;h1;w1;d0,35;<ETX>",! |
| FI2 | Format Initialization 2 | W "<STX>H3;o90,260;f3;c0;h1;w1;d0,35;<ETX>",!,"<STX>H2;o110,260;  f3;c0;h1;w1;d0,35;<ETX>",!,"<STX>H1;o110,40;f3;c0;h1;w1;d0,30;<ETX>",!,"<STX>H0; o130,40;f3;c0;h1;w1;d0,60;<ETX>",! |
| SB | Start Barcode | W "<STX>"\_TEXT\_"<ETX>",! |
| SBF | Start Barcode Field | S PSBTYPE=$S(PSBSYM="I25":"c2,0",PSBSYM="128":"c6,0",1:"c0,0") W   "<STX>B8;o85,40;f3;"\_PSBTYPE\_";h50;w1;i1;do,25;p@;<ETX>",!,"<STX>I8;h1;w1;<ETX>",! |
| SL | Start Label | W "<STX>R;<EXT>",!,"<STX><ESC>E2<EXT>",! |
| ST | Start Text | W "<STX>"\_TEXT\_"<CR><ETX>",! |
| STF | Start Text Field | N/A |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | The field position map below identifies the specific control codes for the Intermec 3400 E printer that direct the exact position in which the fields are printed on the bar code label. |

Example: Intermec Bar Code Label - Field Position Map

|  |  |  |
| --- | --- | --- |
| Abbreviation | Control Code ( Field Coordinates) | Description |
| EB | <STX>H8;o50,40;f3;c0;h1;w1;d0,80;<ETX> | “No – Code” statement |
| FI1 | <STX>H7;o30,260;f3;c0;h1;w1;d0,80;<ETX> | Filled By/Checked By |
| <STX>H6;o50,440;f3;c0;h1;w1;d0,20;<ETX>" | Manufacturer |
| <STX>H5;o50,260;f3;c0;h1;w1;d0,20;<ETX> | Expiration Date |
| <STX>H4;o70,260;f3;c0;h1;w1;d0,35;<ETX> | Lot Number |
| FI2 | <STX>H3;o90,260;f3;c0;h1;w1;d0,35;<ETX> | Ward Location |
| <STX>H2;o110,260;f3;c0;h1;w1;d0,35;<ETX> | Patient Name and Quality |
| <STX>H1;o110,40;f3;c0;h1;w1;d0,27;<ETX> | Dose |
| <STX>H0;o130,40;f3;c0;h1;w1;d0,60;<ETX> | Drug Name |
| SBF | <STX>B8;o85,40;f3;"\_PSBTYPE\_";h50;wl;il;do;25;p@;  <ETX><STX>I8;h1;w1;<ETX>" | Bar Code Graph |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | Example Terminal Type Files The following are examples of terminal type file setups that were used in the development process. These examples are provided to guide the user in the setup process. Please note that they are only examples, and may not be appropriate for your configuration. |

Example: Zebra Printer Sample Terminal Type File

NUMBER: 1 ABBREVIATION: SL

FULL NAME: Star Label CONTROL CODE: W !,"^XA",!,"^LH0,0^FS"

NUMBER: 2 ABBREVIATION: EL

FULL NAME: End Label CONTROL CODE: W !,"^XZ"

NUMBER: 3 ABBREVIATION: SB

FULL NAME: Start Barcode

CONTROL CODE: S PSBTYPE=$S(PSBSYM="I25":"B2N",PSBSYM="128":"BCN",1:"B3N") S:PSBSYM="" PSBBAR="NO-CODE" W !,"^BY2,3.0^FO20,100^"\_PSBTYPE\_",N,80,Y,N^FR^FD"\_PSBBAR\_"^FS"

NUMBER: 4 ABBREVIATION: EB

FULL NAME: End Barcode

CONTROL CODE: W !,"^FO20,150^A0N,30,20^CI13^FR^FD"\_TEXT\_"^FS"

NUMBER: 5 ABBREVIATION: ST

FULL NAME: Start Text

CONTROL CODE: W !,"^FO"\_PSBTYPE\_"^A0N,30,20^CI13^FR^FD"\_TEXT\_"^FS"

NUMBER: 6 ABBREVIATION: STF

FULL NAME: Start Text Field

CONTROL CODE: S PSBTYPE=$S(PSBTLE="PSBDRUG":"20,25",PSBTLE="PSBDOSE":"20,60", PSBTLE="PSBNAME":"350,60",PSBTLE="PSBWARD":"350,90", PSBTLE="PSBLOT":"350,120", PSBTLE="PSBEXP":"350,150", PSBTLE="PSBMFG":"500,150", PSBTLE="PSBFCB":"350,180",1:"0,0")

Appendix C: Interfacing with the Bar Code Label PrinterSoftware Setup (cont’d)

|  |  |
| --- | --- |
| Software Setup (cont’d) | The following shows a sample Intermec printer terminal type file. |

Example: Intermec Printer Sample Terminal Type File

NUMBER: 1 CTRL CODE ABBREVIATION: SL

FULL NAME: Start Label

CONTROL CODE: W "<STX>R;<EXT>",!,"<STX><ESC>E2<EXT>",!

NUMBER: 2 CTRL CODE ABBREVIATION: EL

FULL NAME: End Label CONTROL CODE: W "<STX><ETB><ETX>",!

NUMBER: 3 CTRL CODE ABBREVIATION: SB

FULL NAME: Start Barcode CONTROL CODE: W "<STX>"\_TEXT\_"<ETX>",!

NUMBER: 4 CTRL CODE ABBREVIATION: ST

FULL NAME: Start Text

CONTROL CODE: W "<STX>"\_TEXT\_"<CR><ETX>",!

NUMBER: 5 CTRL CODE ABBREVIATION: EBF

FULL NAME: End Barcode

CONTROL CODE: W "<STX>H8;o50,40;f3;c0;h1;w1;d0,80;<ETX>",!

NUMBER: 6 CTRL CODE ABBREVIATION: FI

FULL NAME: Format Initialization

CONTROL CODE: W "<STX><ESC>C<ETX>",!,"<STX><ESC>P<ETX>",!,"<STX>E2;

F2<ESC><ETX>",!

NUMBER: 7 CTRL CODE ABBREVIATION: SBF

FULL NAME: Start Barcode Field

CONTROL CODE: S PSBTYPE=$S(PSBSYM="I25":"c2,0",PSBSYM="128":"c6,0",

1:"c0,0") W "<STX>B8;o85,40;f3;"\_PSBTYPE\_";h50;w1;i1;do,25;p@;<ETX>",!,

"<STX>I8;h1;w1;<ETX>",!

NUMBER: 8 CTRL CODE ABBREVIATION: FI1

FULL NAME: Format Initialization 1

CONTROL CODE: W "<STX>H7;o30,260;f3;c0;h1;w1;d0,80;<ETX>",!,"<STX>H6;

o50,440;f3;c0;h1;w1;d0,20;<ETX>",!,"<STX>H5;o50,260;f3;c0;h1;w1;d0,

20;<ETX>",!,"<STX>H4;o70,260;f3;c0;h1;w1;d0,35;<ETX>",!

NUMBER: 9 CTRL CODE ABBREVIATION: FI2

FULL NAME: Format Initialization 2

CONTROL CODE: W "<STX>H3;o90,260;f3;c0;h1;w1;d0,35;<ETX>",!,"<STX>H2;o110,

260;f3;c0;h1;w1;d0,35;<ETX>",!,"<STX>H1;o110,40;f3;c0;h1;w1;d0,30;<ETX>",

!,"<STX>H0;o130,40;f3;c0;h1;w1;d0,60;<ETX>",!

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Software Setup (cont’d) | Dot Matrix and Laser Printers The control codes in the TERMINAL TYPE file (#3.2) are not required for dot matrix and laser printers. However, the BAR CODE ON field [#60] and BAR CODE OFF field [#61] in the TERMINAL TYPE file (#3.2) are needed.  An example of each field is shown below for the Output Technology Corporation (OTC) printers. Please note that it is only an example and not may not be appropriate for your configuration. |

Example: OTC Printer Example

BAR CODE OFF: $C(27),"[0t",!

BAR CODE ON: $C(27),"[4;4;0;2;4;2;4;2}",$C(27),"[3t"

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| Printed Bar Code Unit Dose Label Sample | With this interface, a unique bar code will be printed on the first line of the Unit Dose label with the label number printed below it. Depending upon the type of printer used, the asterisks (\*) may or may not be printed on either side of the label number. |

Example: Sample Unit Dose Bar Code Label

|  |  |
| --- | --- |
| Drug: BACLOFEN 10MG TABS (Qty: 1) | |
| Dose:25MG | Patient: BCMAPATIENT,ONE  Ward: GEN MED  Lot: 123141  Exp: 4/5/2006 Mfg: UPJOHN  Filled/Checked By: XX/XX |
| \*500-2564\* |

Example: Sample Ward Stock Bar Code Label

|  |  |
| --- | --- |
| Drug: BACLOFEN 10MG TABS (Qty: 1) | |
| Dose:25MG | Patient:  Ward:  Lot: 123141  Exp: 4/5/2006 Mfg: UPJOHN  Filled/Checked By:\_\_\_\_\_\_\_/\_\_\_\_\_\_\_ |
| \*500-2564\* |

Appendix C: Interfacing with the Bar Code Label Printer

|  |  |
| --- | --- |
| JCAHO Standard for Medication Labeling\* | The following is an excerpt from the *Comprehensive Accreditation Manual for Hospitals: The Official Handbook (CAMH)* that lists the JCAHO standard for medication labeling. All printed medication labels must adhere to this standard. |

|  |
| --- |
| **Standard MM.4.30** |
| Medications are labeled. |
|  |
| **Rationale for MM.4.30** |
| A standardized method for labeling all medications will minimize errors. |
|  |
| **Elements of Performance for MM.4.30** |
| 1. Medications are labeled in a standardized manner according to law or regulation and standards of practice. |
| 1. Any time one or more medications or solutions are prepared but are not administered immediately, the medication container\* must be labeled. |
| 1. At a minimum, all medications prepared in the hospital are labeled with the following: |
| * Drug name, strength, amount (if not apparent from the container) |
| * Expiration date† when not used within 24 hours |
| * Expiration time when expiration occurs in less than 24 hours |
| * The date prepared and the diluent for all compounded IV admixtures and parenteral nutrition solutions |
| 1. When preparing individualized medications for multiple specific patients, or when the person preparing the individualized medications is not the person administering the medication, the label also includes the following: |
| * Patient name |
| * Patient location |
| * Directions for use and any applicable cautionary statements either on the label or attached as an accessory label (for example, “requires refrigeration,” “for IM use only”) |

\*Source: Joint Commission on Accreditation of Hospital Organizations (JCAHO). (January, 2006). *The Comprehensive Accreditation Manual for Hospitals: The Official Handbook (CAMH)*    
(pp. MM-11-MM‑12). Oakbrook Terrace, Il: Joint Commission Resources, Inc. Web link:  
<http://vaww.oqp.med.va.gov/oqp_services/accreditation/uploads/JCAHO2006/2006%20CAMH%20Core.pdf>