



# **INPATIENT MEDICATIONS**

## **TECHNICAL MANUAL/ SECURITY GUIDE**

Version 5.0  
December 1997

(Revised February 2011)



# 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
02/11	<a href="#">i, 53-62, 64, 65</a>	PSJ*5*226	Added to RXC section Field 5, “Additive Frequency” in HL7 Ordering Fields; updated Front Door – IV Fluids table with Field 5; updated Back Door – IV Fluids table with Field 5; updated example. <b>REDACTED</b>
06/10	<a href="#">i, 22-23</a>	PSJ*5*113	Added routine PSGSICH1. <b>REDACTED</b>
02/10	<a href="#">i, 23</a>	PSJ*5*214	Added PSJQUTIL to the routine list in Section 5.1 for Patients on Specific Drug(s) Multidivisional Enhancements Project. <b>REDACTED</b>
12/09	<a href="#">22-23</a>	PSJ*5*222	Added routine PSGOEF2. <b>REDACTED</b>
08/08	<a href="#">vi, 23, 51-53, 57-58, 60-61, 63, 65, 65a-65b</a>	PSJ*5*134	Parameters for escaping special characters added. New HL7 messages added. New routines added. HL7 order fields table contains an asterisk for each field that has special escaping characters. <b>REDACTED</b>
02/07	<a href="#">74-76</a>	PSJ*5*178	MED ROUTE now appears in larger font on IV labels from the Zebra bar code printer. Med ROUTE now prints on the IV labels for bar-code enabled printers, and it prints in larger font than surrounding text. <b>REDACTED</b>
09/06	<a href="#">23, 94</a>	PSJ*5*172	Encapsulation Cycle II project: Added PSJ53P1 to the Routine List in Section 5.1. Added DBIA 4537 to DBIA list. Changed the date on the Title Page to December 1997. <b>REDACTED</b>
05/06	<a href="#">v-viii 8a-8b 66-68b</a>	PSJ*5*154	In Section 2.2.2 Added “PRIORITIES FOR NOTIFICATION” field.  In Section 9.5, made correction to include the priority of ASAP in notifications. Added information regarding the three notifications

Date	Revised Pages	Patch Number	Description
			parameters. <b>REDACTED</b>
12/2005	23	PSJ*5*146	Remote Data Interoperability (RDI) Project: Added PSJLMUT2 to the Routine List in Section 5.1. <b>REDACTED</b>
11/2005	All	PSJ*5*163	Encapsulation Cycle II project: Added PSJ59P5 to the Routine List in Section 5.1. Added DBIA 4819 to DBIA list. Deleted DBIAs 172, 634, and 1882 from the DBIA list. Reissued entire document due to a page numbering issue. <b>REDACTED</b>

# Preface

This technical manual is written for the Information Resources Management Service (IRMS) Chief/Site Manager and the Automated Data Processing Application Coordinator (ADPAC) for implementation and installation of the Inpatient Medications package. The main text of the manual outlines routine descriptions, file list, site configuration issues, variables, resource requirements, and package security.

*(This page included for two-sided copying.)*

# Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
<b>2. Implementation and Maintenance .....</b>	<b>3</b>
2.1. Installation .....	3
2.2. Inpatient Parameters .....	3
2.2.1. <i>Fields from the PHARMACY SYSTEM File (#59.7)</i> .....	4
2.2.2. <i>Fields from the INPATIENT WARD PARAMETERS File (#59.6)</i> .....	6
2.2.3. <i>Fields from the INPATIENT USER PARAMETERS File (#53.45)</i> .....	9
2.2.4. <i>Fields from the IV ROOM File (#59.5)</i> .....	10
2.2.5. <i>Fields from the CLINIC DEFINITION File (#53.46)</i> .....	14
<b>3. Package Security .....</b>	<b>15</b>
3.1. Option Security Keys.....	15
3.2. File Security .....	16
<b>4. File List .....</b>	<b>17</b>
4.1. Unit Dose File Diagram.....	18
4.2. IV File Diagram .....	19
<b>5. Routines .....</b>	<b>21</b>
5.1. Descriptions .....	21
5.2. Callable Routines.....	24
5.3. Routine Mapping .....	24
5.3.1. <i>Do Not Map</i> .....	24
5.3.2. <i>Mapping Highly Recommended</i> .....	25
5.3.3. <i>Mapping Recommended</i> .....	25
5.3.4. <i>Deleting Inpatient Routines</i> .....	26
<b>6. Templates.....</b>	<b>27</b>
6.1. Print Templates .....	27
6.2. Input Templates .....	27
6.3. List Templates.....	29
<b>7. Exported Options.....</b>	<b>31</b>
7.1. Stand-alone Options.....	31
7.2. Top-level Menus .....	31

7.2.1. <i>Menu Assignment</i> .....	31
7.2.2. <i>Menu Placement</i> .....	31
7.3. Options.....	32
<b>8. Data Archiving and Purging.....</b>	<b>41</b>
8.1. Archiving .....	41
8.2. Purging.....	41
8.2.1. <i>Unit Dose Auto Purging</i> .....	41
8.2.2. <i>IV Auto Purging</i> .....	41
8.2.3. <i>Unit Dose Manual Purging – Temporarily Unavailable</i> .....	42
8.2.4. <i>IV Manual Purging – Temporarily Unavailable</i> .....	43
<b>9. Inpatient Medications and CPRS.....</b>	<b>45</b>
9.1. Installation of the Protocols for CPRS.....	45
9.2. Converting .....	45
9.2.1. <i>Order Conversion</i> .....	45
9.2.2. <i>Pick List Conversion</i> .....	46
9.2.3. <i>Order Set Conversion</i> .....	46
9.2.4. <i>Verification Data Conversion</i> .....	46
9.3. Protocol Descriptions.....	47
9.4. Health Level Seven (HL7) Messaging.....	51
9.4.1. <i>HL7 Ordering Fields</i> .....	51
9.4.2. <i>Order Event Messages</i> .....	56
9.4.3. <i>Special Escaping Characters</i> .....	66
9.5. STAT, ASAP, and NOW Order Notification .....	66
9.5.1. <i>PSJ STAT NOW PENDING ORDER Mail Group</i> .....	67
9.5.2. <i>PSJ STAT NOW ACTIVE ORDER Mail Group</i> .....	68
9.5.3. <i>Adding a Remote Member as a Subscriber</i> .....	69
9.5.4. <i>Setting Up Ward-Specific Mail Groups</i> .....	69
<b>10. Inpatient Medications and BCMA.....</b>	<b>69</b>
10.1. API Exchange .....	69
10.2. Med Order Button.....	70
<b>11. Interfacing with the Bar Code Label Printer.....</b>	<b>73</b>
11.1. Hardware Set Up.....	73
11.2. Software Set Up .....	73



11.2.1. Zebra Printers .....	73
11.2.2. Dot Matrix and Laser Printers .....	75
11.3. Printed Bar Code IV Label Sample .....	76
<b>12. Interfacing with the ATC .....</b>	<b>77</b>
12.1. Pharmacy Set Up.....	77
12.1.1. Drug Set Up .....	77
12.1.2. Ward Group Set Up .....	77
12.2. Hardware Set Up.....	78
12.2.1. Device File Example .....	78
12.2.2. MUX Table Example.....	78
12.2.3. DECServer Examples.....	79
12.2.4. Wiring for CXA16 Card.....	79
12.2.5. ATC-HPS Configuration Set Up.....	80
12.2.6. Common Problems.....	81
<b>13. Resource Requirements.....</b>	<b>83</b>
13.1. Hardware.....	83
13.2. Disk Space .....	83
13.2.1. Routines.....	83
13.2.2. Data.....	83
13.3. Journaling Globals .....	83
13.4. Translating Globals.....	84
13.5. Nightly Background Jobs.....	84
13.6. Queuing and Printing across CPUs.....	84
<b>14. External Relationships .....</b>	<b>85</b>
14.1. Packages Needed to Run Inpatient Medications.....	85
14.2. Unit Dose Medications and Ward Stock.....	85
14.3. Unit Dose Medications and Drug Accountability.....	85
14.4. Calls Made by Inpatient Medications .....	86
14.5. Introduction to Integration Agreements and Entry Points .....	86
<b>15. Internal Relationships .....</b>	<b>100</b>
<b>16. Internal Calls and Variables.....</b>	<b>100</b>
16.1. Package-Wide Variables .....	103

16.1.1. Inpatient Sign-on Variables .....	103
16.1.2. Standard Variables Used Throughout the Package.....	105
16.1.3. IV Sign-on Variables .....	107
16.1.4. Variables .....	108
<b>17. On-line Documentation .....</b>	<b>110</b>
17.1. On-line Help.....	110
17.2. Printing Data Dictionaries.....	110
<b>18. Additional Information .....</b>	<b>112</b>
18.1. SAC Exemptions.....	112
18.2. IV Ward List .....	112
18.3. IV Manufacturing List .....	113
18.4. IV Suspense List .....	114
18.5. Unit Dose “Defaults” .....	117
18.5.1. Order Start Date/Time Calculation .....	117
18.5.2. Stop Date/Time: Calculation .....	118
18.5.3. Patient’s Default Stop Date/Time .....	119
18.5.4. Pick List Wall.....	120
<b>19. Glossary .....</b>	<b>122</b>
<b>20. Appendix A: Inpatient Medication Orders for Outpatients–Phase I &amp; II and Inpatient Medication Reqs for SFG IRA–Phase II.....</b>	<b>136</b>
20.1. Introduction.....	136
20.2. Inpatient Medication Orders for Outpatients – Phase I & II.....	137
20.2.1. Inpatient Medications V. 5.0.....	137
20.2.2. Order Entry Results Reporting V. 3.0 (CPRS).....	139
20.2.3. Scheduling V. 5.3 .....	141
20.3. Inpatient Medication Requirements for SFG IRA – Phase II.....	142
20.3.1. Inpatient Medications V. 5.0 and Pharmacy Data Management V. 1.0.....	142
20.3.2. Order Entry Results Reporting V. 3.0 (CPRS).....	143
20.4. Installation.....	144
20.4.1. Overview .....	144
20.4.2. Post-Installation Setup.....	144

<b>SEG</b>	<b>SEQ</b>	<b>FIELD NAME</b>	<b>EXAMPLE</b>	<b>HL7 TYPE</b>
<b>{ RXC }</b>	1	RX Component Type	B	table 166
	2	Component Code*	^^^4132^D5 W NS^99PSD	coded element
	3	Component Amount	1	numeric
	4	Component Units*	^^^PSIV-1^ML^99OTH	coded element
	5	Additive Frequency	1, 3	string
<b>{ OBX }</b>	1	Set ID	1	set ID
	2	Value Type	TX	table 125
	3	Observation ID	^^^38^Critical Drug-Drug interaction^99OCX	coded element
	5	Observation Value	Critical drug-drug interaction Aspirin- Warfarin	string
	14	Date/time of Observation	199606130813	timestamp
	16	Observer	10	composite ID
<b>NTE</b>	1	Set ID	1	set ID
	2	Source of Comment	P	table 105
	3	Comment	Worth the risk	formatted text
<b>ZRX</b>	1	Previous Order #	2355	numeric
	2	Nature of Order	W	set of codes
	3	Reason Order Created	N	set of codes
	4	Routing	W	set of codes
	5	Current User*	DUZ^NAME^99NP	composite ID
	6	IV Identifier	IV	string
<b>ZSC</b>	1	Service Connected	SC	coded element
<b>}</b>				

\*- Fields marked with an asterisk require special escaping characters in order to send and receive the correct data contained in an HL7 message. See **Special Escaping Characters** for details.

\*\* -RXC Segment Field 5 “Additive Frequency” only applies for additives to specify IV bag information.



**Note:** The following are definitions of some of the data fields under the FIELD NAME column.

SENDING APPLICATION is the name of the VistA package generating the message;  
RECEIVING APPLICATION is the name of the VistA package that is the intended recipient of the message. SENDING FACILITY and RECEIVING FACILITY are the station numbers.

PATIENT ID is the patient IEN in the PATIENT file (#2).

**Front Door - IV Fluids**

IV fluid orders use a RXC segment to contain information about solutions and additives. Therefore, a special code is sent in a RXO segment;1 to identify the order as an IV order (PS-1^IV Order^99OTH). Since RXC segments are used, the give fields in a RXO segment are unnecessary.

<i>Action</i>	<i>Request from OE/RR</i>	<i>Pharmacy accepts</i>	<i>Pharmacy rejects</i>
<b>Protocol</b>	OR EVSEND PS	PS EVSEND OR	PS EVSEND OR
<b>Order Control</b>	NW (new order) XO (changed order)	OK (accepted) XR (new order)	UA (unable to accept) UX (unable to change)
<b>HL7 Fields</b>	MSH: 1,2,3,4,5,6,7,9 PID: 3,5 PV1: 2,3 ORC: 1,2,7,9,10,12,15,16 RXO: 1,2 NTE: 1,2,3 RXC: 1,2,3,4, 5 OBX: 1,2,3,5,14,16 ZRX: 1,2,3	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,5	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,12,15,16
<b>Protocol</b>	OR EVSEND PS		
<b>Order Control</b>	ZV (verified)		
<b>HL7 Fields</b>	MSH: 1,2,3,4,5,6,7,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,11,15	There is no return event.	
<b>Protocol</b>	OR EVSEND PS	PS EVSEND OR	PS EVSEND OR
<b>Order Control</b>	CA (cancel) DC (discontinue) HD (hold) RL (release) SS (send status)	CR (canceled) DR (discontinued) HR (held) OR (released) SC (status update)	UC (unable to cancel) UD (unable to dc) UH (unable to hold) UR (unable to release) DE (data errors)
<b>HL7 Fields</b>	MSH: 1,2,3,4,5,6,7,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,10,12,15,16	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,5	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,16

**Example: POTASSIUM CHLORIDE INJ,SOLN FOR IV ORDERS 125 MEQ in  
SODIUM INJ,SOLN FOR IV ORDERS 1000 ml 100 ml/hr**

**New Order CPRS Continuous**

MSH|^~\&|ORDER ENTRY|13000|PHARMACY|13000|20080304170  
224-0600||ORM  
PID|||750||PSJPATIENT,TESTPAT-FIVE  
PV1||I|5||||||||||||||||||||||||||||||||||||||  
ORC|NW|12615;1^OR|||||^R|200803041702-0600|11884  
||11884|||20080304170224-0600|I^POLICY^99ORN^^  
RXO|^PS-1^IV^99OTH|333 ml/hr  
RXR|^14^INTRAVENOUS^99PSR  
RXC|B|^196^DEXTROSE INJ,SOLN ^99PSP|50|^PSIV-1^ML  
^99OTH  
RXC|A|^435^MORPHINE INJ ^99PSP|33|^PSIV-1^ML^99OT  
H  
ZRX||I|N|||C

**New Order CPRS Intermittent**

MSH|^~\&|ORDER ENTRY|13000|PHARMACY|13000|20080304170  
224-0600||ORM  
PID|||750||PSJPATIENT,TESTPAT-FIVE  
PV1||I|5||||||||||||||||||||||||||||||||||||||  
ORC|NW|12616;1^OR|||||^BID&01-13^^R|200803041702-0  
600|11884||11884|||20080304170224-0600|I^POLICY^99ORN^^  
RXO|^PS-1^IV^99OTH|  
RXR|^15^INTRAMUSCULAR^99PSR  
RXC|B|^196^DEXTROSE INJ,SOLN ^99PSP|500|^PSIV-1^M  
L^99OTH  
RXC|A|^281^FUROSEMIDE INJ,SOLN ^99PSP|33|^PSIV-4^  
MG^99OTH  
ZRX||I|N|||I

**Back Door - IV Fluids**

<i>Action</i>	<i>Event from Pharmacy</i>	<i>OE/RR accepts</i>	<i>OE/RR rejects</i>
<b>Protocol</b>	PS EVSEND OR	OR EVSEND PS	OR EVSEND PS
<b>Order Control</b>	SN (send number) ZC (conversion)	NA (number assigned)	DE (data errors)
<b>HL7 Fields</b>	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,3,5,9,10,12,15,16 RXE: 1,23,24 RXC: 1,2,3,4, 5 ZRX: 1,2,3,5,6	MSH: 1,2,3,4,5,6,7,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3	MSH: 1,2,3,4,5, 6,7,9 PID: 3,5 ORC: 1,2,3,16
<b>Protocol</b>	PS EVSEND OR		OR EVSEND PS
<b>Order Control</b>	SC (finished) XX (order changed)		DE (data errors)
<b>HL7 Fields</b>	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,5,9,10,12,15,16 RXE: 1,23,24 NTE: 1,2,3 RXC: 1,2,3,4, 5 ZRX: 1,2,3,5,6	There is no return event. OE/RR must accept the instruction from Pharmacy.	MSH: 1,2,3,4,5, 6,7,9 PID: 3,5 ORC: 1,2,3,16
<b>Protocol</b>	PS EVSEND OR		OR EVSEND PS
<b>Order Control</b>	OC (cancel) OD (discontinue) OH (hold) OR (release) SC (status change)		DE (data errors)
<b>HL7 Fields</b>	MSH: 1,2,3,4,9 PID: 3,5 PV1: 2,3 ORC: 1,2,3,5,9,10,12,15,16 RXE: 1 ZRX: 2,5	There is no return event. OE/RR must accept the instruction from Pharmacy.	MSH: 1,2,3,4,5, 6,7,9 PID: 3,5 ORC: 1,2,3,16

**Example: POTASSIUM CHLORIDE INJ,SOLN FOR IV ORDERS 125 MEQ in  
SODIUM INJ,SOLN FOR IV ORDERS 1000 ml 100 ml/hr**

**New Order Continuous**

```
MSH|^~\&|PHARMACY|500|||ORM|
PID||750||PSJPATIENT,TESTPAT-FIVE|
PV1||I|5^|3351|
|
ORC|SC|12619^OR|46V^PS||CM||^&^^^|200803041719-060
0|11884^PROVIDER,INPATIENT||11884^PROVIDER,INPATIENT||2008
03041900-0600|W^Written^99ORN^^^|
RXO|^435^MORPHINE INJ^99PSP|
RXE|^&^200803041900-0600^200803100000-0600^|
||11884^PROVIDER,INPATIENT^99NP|||^99PSA^^^|300|^
^ml/hr^PSU|
RXC|A|^435^MORPHINE^99PSP|20|^PSIV-1^ML^99OTH|1,3|
|
RXC|B|^196^DEXTROSE^99PSP|1000|^PSIV-1^ML^99OTH|
|
RXR|^14^INTRAVENOUS^99PSR||
ZRX||W|N||11884^PROVIDER,INPATIENT^99NP|C
```

**New Order Intermittent**

```
MSH|^~\&|PHARMACY|500|||ORM|
PID||750||PSJPATIENT,TESTPAT-FIVE|
PV1||I|5^|3351|
|
ORC|SC|12620^OR|47V^PS||CM||^Q4H&01-05-09-13-17-21^^
^^||200803041721-
0600|11884^PROVIDER,INPATIENT||11884^PROVIDER,INPATIENT||2
00803041700-0600|W
^Written^99ORN^^^|
RXO|^281^FUROSEMIDE INJ,SOLN^99PSP|
RXE|^Q4H&01-05-09-13-17-21^^200803041700-0600^2008030
6000-
0600^|11884^PROVIDER,INPATIENT^99NP|||^01-
05-09-13-17-21^99PSA^^^
||INFUSE OVER 300 MINUTES||
RXC|A|^281^FUROSEMIDE^99PSP|250|^PSIV-4^MG^99OTH|1,3
|
RXC|B|^196^DEXTROSE^99PSP|1000|^PSIV-1^ML^99OTH|
|
RXR|^160^IV PIGGYBACK^99PSR||
ZRX||W|N||11884^PROVIDER,INPATIENT^99NP|I
```