intelliDOT

intelliDOT
iConnect System
User Guide

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Preface

Thank you for choosing the iConnect Handheld Device system.

iConnect Handheld Device is a handheld scanner used to assist the nurse in the medication administration process. iConnect Handheld Device promotes nurse and patient safety by verifying that the right patient is getting the right medication, at the right dosage, at the right time, via the right route.

The iConnect Handheld Device focuses on the daily use, minor maintenance, and troubleshooting of the iConnect Handheld Device and the iConnect DOT Manager. The guide does not cover service or repair procedures.

For information about iConnect Handheld Device that is not covered in this document, please call Intellidot at : 877-368-3687.

Overview

This User Guide includes the following information about the IntelliDOT iConnect System:

- *System Overview*
- *Using the iConnect Handheld*
- *Using the iConnect System Manager*
- *Generating Reports*
- *Creating Command iDOTs*
- *Diagnostics, Troubleshooting, and Safety*

Conventions

This User Guide uses the following conventions:

Text

- The name of a document title, field, screen, or tab is formatted in *italics*.
- The name of a button, command, option, or icon is formatted in **bold**.

Icons

This document uses the following symbols:

Note text contains supplementary information or emphasizes a point or procedure.

Caution indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. Caution is also used to alert against unsafe practices that could result in unpredictable results or data loss.

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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Chapter 1
System Overview

Introduction

iConnect System Definition

The iConnect System, created by intelliDOT Corporation, is a wireless handheld workflow tool that allows patient safety checks, documentation, and communication functions to be completed quickly and easily by a nurse at the bedside. The iConnect System was custom-designed with nursing professionals to provide state-of-the-art patient safety while improving overall nurse productivity and efficiency. The system helps nurses manage a myriad of tasks with a single handheld wireless device that is linked in real time to the hospital's clinical information system.

The heart of the IntelliDOT System is the iConnect Handheld. Using three simple keys, nurses can complete a variety of tasks and commands. With just a quick scan of a bar code or iDOT, critical information can be accessed. Information is delivered right into the caregiver's hands, right when it is needed.

iConnect System Benefits

Studies performed in acute care hospitals show that bar code-based medication error prevention systems greatly reduce medication errors that occur during the medication administration process. These errors have caused regulatory agencies and some state legislators to mandate their use by 2005.

Despite the existence of several bar code checking products, as of mid-2004 less than five percent of the 5,800 acute care hospitals in the U.S. have purchased bedside error prevention systems. Why? Poor product usability, prohibitive cost, and difficult installation and integration with existing hospital systems.

The iConnect System is an easy-to-use, easy-to-integrate solution that is priced significantly less than other bar code medication safety systems. Built from the caregiver's point of view, the system combines a unique handheld device with innovative Documentation of Treatment (iDOT) symbology, to allow nurses to complete documentation at the bedside with just one hand.

Outline of System Overview Section

The iConnect System section of this document covers the following aspects of the iConnect System:

- System components
- System installation

iConnect System Components

The iConnect System consists of the following key elements:

- iConnect Handheld
- iConnect System Manager
- iConnect Server

iConnect Handheld

The iConnect Handheld is a small, battery-operated wireless device that incorporates two types of scanning technology—a regular bar code scanner and a special digital camera-based scanner that reads a small information-rich symbol that intelliDOT calls the iDOT. The bar code scanner reads all standard bar codes used throughout the medication administration process-from medication packaging (both in-house and manufacturers' bar codes), to patient wristbands and nurse badges. The iConnect Handheld scanning device reads the unique iDOT symbol to accomplish a wide variety of documentation and communication functions.

Physical Description

Weighing less than 8 ounces, the iConnect Handheld can be used comfortably in either the user's left or right hand. It has an extremely simple interface composed of:

- A message display window from which the user views confirmations, instructions, and other information

- Three buttons that allow the user to scan a bar code, scan an iDOT, or confirm an action or instruction

- A visual and audible alert system to announce important information, such as critical overdue medications or new abnormal lab results

The iConnect Handheld communicates continuously with the hospital computer systems using a wireless, radio frequency (RF) network operating on a standard 802.11(b) wireless protocol. Wireless access points owned by the hospital provide the iConnect System with an information channel to send and receive information from the iConnect Server, iConnect System Manager, and iConnect Handheld.

Charging the Device

A rechargeable battery powers the iConnect Handheld. When not in use, place the iConnect Handheld unit in the charger. It takes approximately 4 hours to completely recharge a drained unit. Each time the iConnect Handheld is placed in the charger, it will perform a wireless software maintenance routine. Maintenance may take anywhere from 30 seconds to several minutes. Do not remove the iConnect Handheld from the charger during software maintenance. Once maintenance functions are completed, system charging will begin.

Operating the iConnect Handheld

Caregivers use the iConnect Handheld to scan the bar code on the nurse's name badge, the patient's wristband, and the medication in order to provide verification of the correct patient, medication, dosage, time, and route—the Five Rights of medication administration.
The iConnect System provides nurses with a way to quickly and easily check medication accuracy and enter patient data at the bedside, while receiving real-time clinical alerts and reminders as well as other information anywhere in the their work area.

Durability

The iConnect Handheld is a sturdy piece of equipment designed to stand up well to the continuous demands of nurses working in busy patient care areas. While it is both water- and dust-resistant, the iConnect Handheld should not be submerged or exposed to significant moisture for any extended period. In addition, even though the device is rugged, care should also be taken to avoid dropping it or subjecting it to significant or repetitive impacts. The iConnect Handheld operates within the normal range of indoor temperatures, but it should be protected from any temperature extremes.

Using the iConnect Handheld

In addition to using the iConnect Handheld as a bar code scanner, the iConnect System provides users with a flexible tool to streamline the workflow process. intelliDOT's patented Documentation of Treatment (iDOT) system allows hospitals to create their own customized documentation and communication applications that can be accessed by scanning a conveniently placed small, unique dot-like symbol. Using the iConnect Handheld to scan iDOTs, medication administration and other forms documentation flows wirelessly into an electronic database while the nurse is at the patient's bedside.

The iDOT is the foundation of intelliDOT's Documentation of Treatment system. The iDOT symbology is built on a patented, proprietary fingerprint-like symbol that is only 5 millimeters in diameter and can hold a vast amount of information. Over 19 billion, billion combinations are possible providing a virtually unlimited supply of unique iDOTs for any hospital.

The iDOT symbol is easy to read with the iConnect Handheld—its unique design allows it to be scanned upside down, sideways, or in any orientation. And a portion of the iDOTs large storage capacity is dedicated to forward error correction, allowing it to be accurately read even when portions are damaged.
The iDOT provides nurses with a shorthand scanning system to record information quickly and accurately and to issue commands with a quick scan using the iConnect Handheld wireless reader. Tasks that can be accomplished with this system include:

- Documenting numerical data, such as doses, vital signs, and pain scales

- Calling for services or support using customized paging iDOTs

- Summoning housekeeping, other nurses, or supervisory personnel

- Printing medication data sheets for physicians or other caregivers

iConnect System Manager

Physical Description
The iConnect System Manager is a client-server application that operates on the hospital's local area network (LAN).

Access / Operation of the iConnect System Manager
The application may be accessed via any assigned PC-based network client. Typically, a PC on each nursing unit will host the iConnect System Manager software program.

Functions
The iConnect System Manager contains all configuration settings for the iConnect System. Nurses can use the iConnect System Manager to look up or edit medication data, make patient assignments, and print reports. Pharmacy computers are also clients to the iConnect System Manager application. Pharmacy will routinely access the iConnect System Manager for formulary, database, and system maintenance and reports.

iConnect Server

Physical Description
The iConnect Server is an enterprise-class server that operates on the hospital network. The iConnect Server incorporates an HL7 interface engine in order to link hospital information systems to the iConnect Handhelds over the hospital's network, through wireless access points located in patient care areas.

Purpose
The iConnect Server interfaces with a variety of hospital information systems to communicate both clinical and administrative information to and from users in patient care areas. Connecting to the pharmacy information system provides real-time physician order updates. Interfacing to the hospital's Admissions, Discharge and Transfer (ADT) system, the iConnect Server provides patient location and demographic information. Other optional interfaces provide links to the laboratory information system and hospital electronic medical record systems to integrate documentation into the master patient file.

iConnect System Installation

The iConnect System installation consists of the following key activities:

- Wireless access point installation

- Interface installation

- Bar coding (nurse badges/patient wristbands)

- Pharmacy system setup

- Nursing workflow setup

Wireless Access Point Installation

Function, Location, and Definition

The iConnect System uses 802.11b as a wireless communication protocol because of its stability, availability, and range. Wireless access points must be installed in all areas where iConnect Handhelds are used within the hospital. Typically, three to four access points need to be installed for each nursing unit.

Installation Responsibility

Since wireless access points are often used to support multiple applications, it is the customer's responsibility to assure installation in the hospital facility. When needed, IntelliDOT may suggest third party vendors or other assistance in completing the installation.

Purpose

Each handheld device must be able to communicate continuously with the iConnect System Manager in order to maintain the real-time flow of information to and from each nurse.

Interface Installation

Definition

The iConnect System utilizes an HL7, TCP/IP, port-based, healthcare data exchange interface.

Information Components

The iConnect Server requires an interface which transmits verified pharmacy orders; ADT administrative information; and formulary updates, when appropriate. In addition, the iConnect can send outbound medication administration documentation information (i.e., charting messages) to the clinical system.

Installation Responsibility

The intelliDOT team of engineers works with the hospital to configure and install the necessary system interfaces.

Development and Testing

As part of the installation process, the intelliDOT team will provide documented verification that all identified interfaces to the iConnect Server perform according to their specifications. The intelliDOT installation includes a test system environment for quality testing of system functionality based on received HL7-formatted messaging.

Bar Coding

The iConnect Handheld incorporates a scanner to check bar codes for the medication administration process. In order to implement the iConnect System, the hospital must have bar codes on nurse badges, patient wristbands, and medication packages. intelliDOT works with hospital management to identify and install a suitable badge, wristband, and medication bar code solutions.

Nurse Badges

The iConnect System requires that each user scan a unique user identification bar code (typically found on the nurse's name badge) to log in to the system and to close out each medication administration process. This provides security and accountability for all functions performed by the nurse with the iConnect Handheld.

Patient Wristbands

Patient wristbands with bar codes are required in order to match the correct medications and information to the right patient. Each patient must wear a bar-coded wristband that can be read using the iConnect Handheld.

Medication Packages

The iConnect System is designed to work with the unit-dose medication distribution system. Medications not supplied in commercially produced unit-dose packages are repackaged in the pharmacy, either through the use of a medication packaging system or by a pharmacy technician providing manual bar code labeling. A pharmacy technician can be assigned to perform both of these functions under the supervision of a pharmacist utilizing a "pharmacist check tech" quality assurance process.

Automated packaging systems provide a customizable packaging solution to help hospitals maintain compliance with proposed FDA bar code requirements, as well as contributing to patient safety by providing the basis for medication verification at the patient bedside.

Pharmacy System Setup

The pharmacy information system provides the information needed for the iConnect System. Physician orders are reviewed by the pharmacist, entered into the computer, and medications are prepared and dispensed to the nursing unit. Once completed, the physician order is sent through an electronic link between the hospital pharmacy computer and the iConnect Server. For orders to be correctly interpreted by the iConnect System, hospital-specific clinical settings, warning parameters, and sig codes are set up for each formulary drug item.

Formulary

Because the iConnect Handheld is designed to scan bar codes on medications at the patient bedside, the hospital pharmacy department is responsible for bar-coding all medications, both during system setup and on an ongoing basis. The intelliDOT installation team works closely with the pharmacy to set up this process.

Often, several medication brands may satisfy an order for a particular medication item. The iConnect System database is organized to allow multiple medications (similar generic) to satisfy an order, if scanned at the bedside. This database arrangement allows the iConnect System to properly identify medications when scanned and to conduct proper checks for the Five Rights of medication administration.

System Configuration Process

The steps for creating the hospital-specific iConnect System Manager medication database on site include:

1. The hospital downloads the hospital medication list including medication description, MedID, and NDC (if available) from the pharmacy information system into the iConnect Server.
2. The iConnect Server organizes the data into a defined format and imports it into the iConnect System Manager formulary table.
3. Using the iConnect Handheld, intelliDOT technicians working with hospital staff scaning package bar codes for each formulary database line item.
4. If the medication cannot be scanned, information must be manually entered from the product package.

Clinical Settings

The pharmacy is responsible for ensuring that clinical settings, warning parameters, and sig codes are set up for each formulary drug item, as necessary. All clinical warnings and alerts displayed on the iConnect Handheld during the medication administration process must be first entered by the pharmacy into the iConnect System Manager.

Nursing Workflow Setup

Workflow Assessment by IntelliDOT

Nursing setup of the iConnect System begins with an assessment of the facility's specific and unique medication administration procedures. An intelliDOT nurse consultant working with the hospital's nursing management and staff nurses guides this process.

The intelliDOT consultant will also develop a variety of clinical settings to support the nurses in the performance of three main functions with the iConnect Handheld:

- Patient assignment
- Medication administration record (MAR)
- Reporting

Hospital-Specific Policies and Procedures

The intelliDOT nurse consultant assists in the creation of a new set of nursing procedures in order to optimize the efficiency of the iConnect System. Nursing setup includes developing and codifying procedures for bar codes on patient wristbands, nurse badges, and medication packaging, along with other functions associated with the medication administration process.

- Notes -

Chapter 2
Using the iConnect Handheld

This section provides information on using the intelliDOTs iConnect Handheld including:

- *Features of the iConnect Handheld*

- *Charging the iConnect Handheld*

- *Scanning*

- *Login/Logout*

- *Assigning Patients to Yourself Using the iConnect Handheld*

- *Medication Administration Using the iConnect Handheld*

- *Dose-Due Reminders and Overdue Alerts*

- *Medication Administration Warnings*

- *Advance Prepared Items*

- *Multi-Component Items Dispensed by Pharmacy*

- *Correcting or Canceling During Medication Transactions*

- *Communicating Directly with Pharmacy using the iConnect Handheld*

- *Pharmacy Inventory Verification Using the iConnect Handheld*

Features of the iConnect Handheld

The following illustration displays the features of the iConnect Handheld and their functionality.

- Documentation of Treatment (DOT) Scanner - Used to scan iDOTs for documentation and command functions

- Bar Code Scanner - Used to scan standard bar codes on medications, wristbands, and badges

- DOT buttons (2) - Used to the DOT canner tscan iDOTs for documentation and command execution, either button may be used

- Bar Code Buttons (2) - Used to the ar ode canner scan bar codes, either bar code button may be used

- OK Button - Used to acknowledge the iConnect Handheld
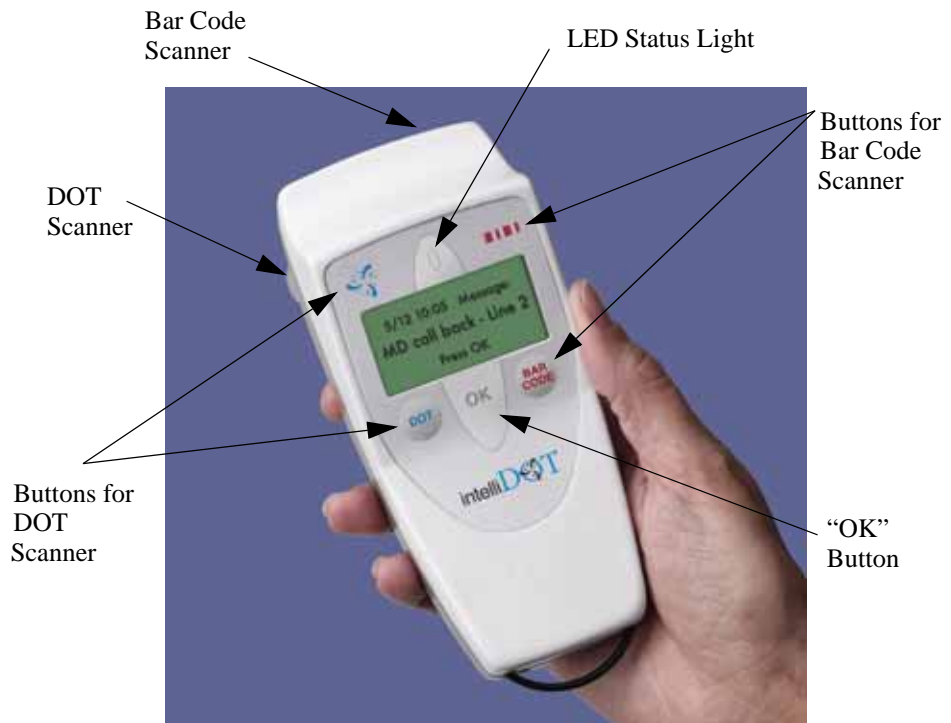
Charging the iConnect Handheld

The iConnect Handheld is powered by rechargeable batteries and should be stored in the charger when not in use. Recharging time is approximately 4 hours when battery power is near zero. While in the charger, the iConnect Handheld will also perform wireless software maintenance. Software maintenance requires 30 seconds to several minutes to complete.

Once fully charged, battery power will last for approximately 12 hours. When the charge falls below 18%, the low battery warning will appear. If this occurs, return the iConnect Handheld to the charging cradle, and obtain a fully charged replacement.

1. Always verify that the iConnect Handheld is inserted correctly into the power cradle to ensure that the battery will recharge properly.

2. The iConnect Handheld will display "Updating Software" when software maintenance is in progress.

> **Caution: Do not remove the iConnect Handheld from the charging cradle during software maintenance.**

3. Before removing an iConnect Handheld from the charger for use, verify that the device is adequately charged by observing the percentage (%) of charge displayed on the screen. Any charge above 87% is considered adequate to use.

iConnect Handheld Display Convention Used in this User Guide

To best describe what the user will see in the three lines of information displayed on the iConnect Handheld, the following convention is used:

iConnect Handheld	Display Action	Display Contents
Display Line 1	Displays by toggling alternate lines of information.	Current Status
Display Line 2	Scrolls when necessary based on message length.	Information
Display Line 3	Alternates display of the messages shown in the brackets.	Prompts for action

Scanning

The iConnect Handheld scans two different types of symbols, traditional bar codes and iDOTs.

Bar codes are commonly found on medications, wristbands, and name badges. Bar codes are best scanned by holding the bar code scanner 6-8 inches away and pressing one of the bar code buttons to allow the laser to read across the bar code.

iDOTs are scanned by placing the clear cone or the DOT scanner directly on the page, over the iDOT, and pressing the DOT scan button.

Scanning Bar Codes

1. Hold the iConnect Handheld perpendicular to bar code lines and press the **Bar Code Scan** button on the right side of the iConnect Handheld. A red laser will be beamed from the bottom right front of the iConnect Handheld.
2. Point the beam at the bar code.
3. If a "up-tone" chirp is heard, the scan is successful.
4. If a "down-tone" chirp is heard, repeat steps 1 and 2.

Note: For best results when scanning bar codes, hold the scanner at a $30^{o}$to 40° angle, approximately 6 to 8 inches away from the bar code. A simple firm button press is all that's needed.It is not necessary to hold down the scan button during the scan.

Scanning iDOTs

1. Hold the iConnect Handheld DOT scanner clear cone directly in contact with the page over the desired.

2. Press the **DOT Scan** button on the left side of the iConnect Handheld.

3. Hold the button for 1-3 seconds until a chirp sound is heard. A red LED will be beamed from the bottom left front of iConnect Handheld.

4. If a "up tone" chirp is heard, the scan is successful.

5. If a "down-tone" chirp is heard, repeat steps 1 and 2.

Note: The iDOT symbol should be completely inside the clear plastic cone. For best results, hold the scanner very still when scanning an iDOT.

Login/Logout

When planning to administer medications, the nurse should obtain a fully charged iConnect Handheld from the charger. Login as soon as the device is removed from the charger.

Logging In

1. Scan the bar code on your name badge to identify yourself to the system. The following will appear:

Enter Password
<?>
Scan Numbers
▬▬▶   ☰

iConnect Handheld screen

2. Scan the iDOTs corresponding to your password using the iDOT DOT sheets. The screen will show asterisks for each password digit scanned:

Enter Password
****
Accept OK or Scan Numbers
▬▬▶   ☰

iConnect Handheld screen

3. Press **OK**. If login is successful, the following screens will display briefly while your user information is accessed:

Logon Successful
Retrieving user workflow data
Please Wait
▬▬▬ ≡ JS
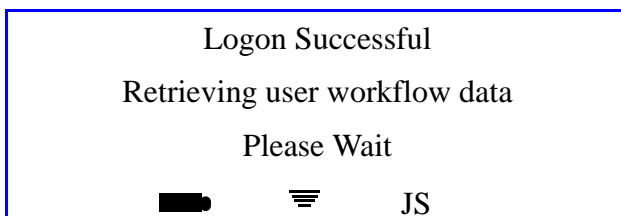
iConnect Handheld screen

The following is the home screen showing the name of the user who is logged in. The screen will display whenever there is no transaction in progress. Once you are logged into an iConnect Handheld, you will remain logged in until you log out, the charge on the battery runs out, or the device times-out due to disconnection with the system server.

5/03/04 16:39
User: Elaine Dawson
Scan Patient or Command DOT
▬▬▬ ≡ ED
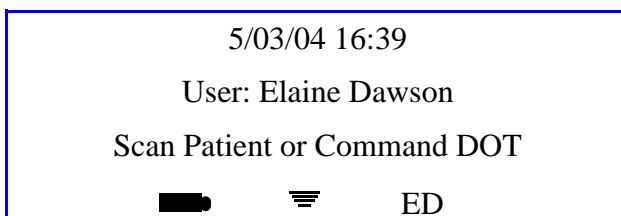
iConnect Handheld screen

4. If login is unsuccessful, repeat the process beginning at step 1.

Logging Out

There are two ways to log out of the iConnect Handheld: (1) Place your iConnect Handheld into the charging stand to automatically log out. (2) To log yourself out (i.e., to give the iConnect Handheld to another nurse to log in and use) do the following:

Note: The Logout iDOT can be found on the Medication Administration iDOT sheet and the MAR reports.

1. Scan the **Logout** iDOT on your Medication Administration iDOT sheet when finished using the iConnect Handheld. The following screen will appear*:*

Log Out
Push OK or
Scan Cancel
▬▬▬ ≡ ED
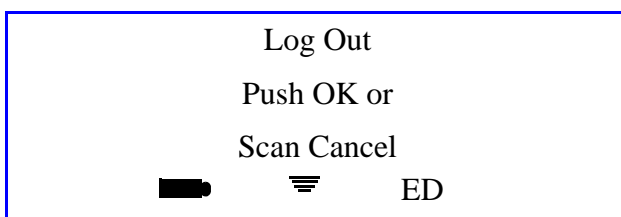
iConnect Handheld screen

2. Press **OK** to logout. The following screen will briefly appear:

Logging Out

ED
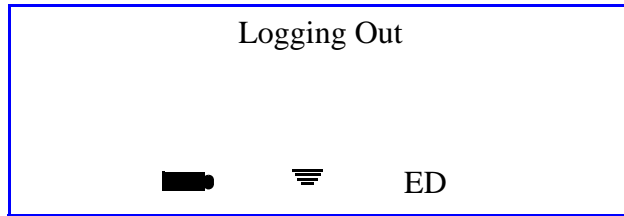
iConnect Handheld screen

The login screen will appear confirming that you are logged off:

User Log-in

<no badge scanned>

Scan Badge

ED
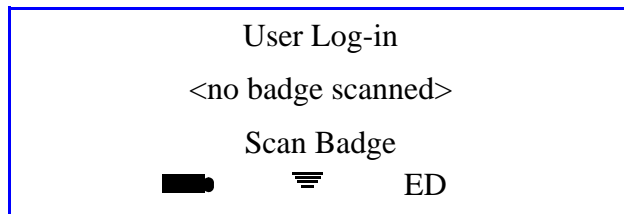
iConnect Handheld screen

Assigning Patients to Yourself Using the iConnect Handheld

In the iConnect system, each patient is assigned to a nurse at all times. This allows the system to send real-time dose reminders and other patient alerts to the caregiver. The primary process for assigning patients to nurses requires the use of a current Patient Assignment Worksheet Report and is described below.

Patient Assignments may also be done at the iConnect System Manager PC. Refer to *Assigning Patients* on page 3-38.

Assigning Patients Using the Patient Assignment Worksheet and iConnect Handheld

1. Print a current Patient Assignment Worksheet Report. Refer to *The Report will be printed on the applicable printer you selected. The Report prints from the Internet file or EXCEL. See the following illustration for an example.* on page 4-58 for instructions on how to print.

2. Log into the iConnect Handheld, scan the **Begin Patient Assignment Session** iDOT at the top of the worksheet. The following screen will appear:

Assign Pts/Locs

Scan PT Location
            ED
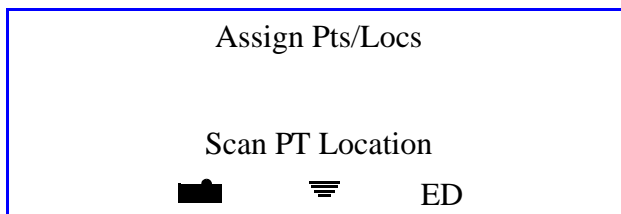
iConnect Handheld screen

3. Scan the iDOTs that correspond to the specific room numbers for patients that you wish to assign to yourself. You can scan as many room number iDOTs as needed. After each scan, you will see the following screen:

Sending Data

Please Wait
            ED
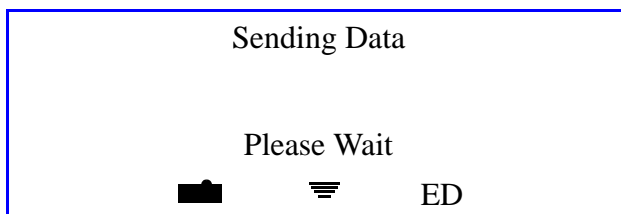
iConnect Handheld screen

4. A green LED light should appear on the iConnect Handheld to indicate a successful scan and assignment

5. When finished scanning room number iDOTs, scan the End Patient Assignment Session iDOT on the Patient Assignment Worksheet to complete the patient assignment process. You will see the following screen:

Assign Pts/Locs
Process Done
OK
▰   ☰   ED
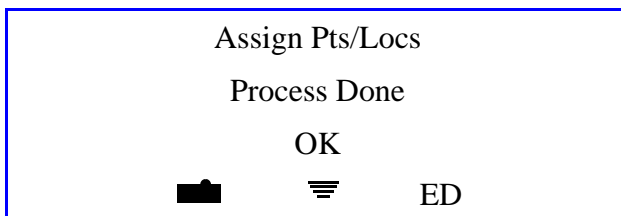
iConnect Handheld screen

6. Press **OK** to exit the assignment process and return to the idle screen.

Medication Administration Using the iConnect Handheld

This section provides detailed instructions on how to manage medication administrations using the iConnect System. The section contains the following:

- *Basic Medication Administration Process for Scheduled Medications*

- *Basic Medication Administration Process for Multi-dose PRN Medications*

- *Responding to Prompts for Data During Administration*

- *Dose-Due Reminders*

- *Using Delay Dose*

- *Using Cover Patients to Transfer Patient Responsibility*

- *Medication Administration Warnings*

- *Case 1 - Prepared Item that is printed on the Prospective MAR*

- *Case 2 - Prepared Item that is printed on the Prospective MAR and requiring a witness*

- *Case 3 - Prepared Item with multiple medications that is printed on the Prospective MAR*

- *Case 4 - Administering Medications for Cases 1-3*

- *Case 5 - Prepared Item that is NOT yet printed on the Prospective MAR*

- *Case 6 - Prepared Item with multiple medications that is NOT yet printed on the Prospective MAR*

- *Case 7 - Administering Medications for Cases 4-5*

Basic Medication Administration Process for Scheduled Medications

Note: It is assumed that you are logged in, and the Medication Administration DOT sheet and MARs are available. Either the Medication Administration DOT sheet or the MAR both have iDOTs that can be used to complete iDOT functions described.

The following is an example medication administration of two scheduled medications, Furosemide 40 mg oral and phenytoin 100 mg oral, both due at 9 am.

1. By referring to the MAR, determine which medications are due for the 9 am pass and obtain those medications. Refer to *Generating Reports* on page 4-1 for printing the MARs and other reports mentioned below.

2. Bring the Medication Administration DOT sheet with you to the bedside. This provides the iDOTs for the override reasons, administration sites, commands, number pad, and other entries that may be required when passing medications.

Note: From this point and through the rest of the medication administration process, remember that you can scan the Cancel iDOT to exit from any transaction. If you cancel, you may still continue with transactions for the same patient.

3. Once at the bedside, scan the patient's wristband.

```
                 2 Med Due

             John Smith, Rm: 333 1

         Review Meds OK Or Scan Med/badge
                              ☰        ED
```

iConnect Handheld screen

4. Visually confirm that you have the correct patient. (If you do not have the correct patient, scan your badge to exit this patient and start over.)

5. If desired, you may scroll through each of the medications due by pressing the **OK** button.

Note: As an alternative, you may bypass the review of medications due and scan the first medication that you know is due based on the information on the MAR. In this case, go directly to step 6.

6. When **OK** is pressed once, the following screen will appear, displaying the first (1 of 2) medications due.

> 1 of 2
>
> Furosemide (Lasix) 40 MG oral
>
> Review Meds OK Or Scan Med/Badge
>
> ▬▬◗   ☰   ED

iConnect Handheld screen

7. Press **OK** again to display the second due medication.

> 2 of 2
>
> Phenytoin (Dilantin) 100 MG oral
>
> Review Meds OK Or Scan Med/Badge
>
> ▬▬◗   ☰   ED

iConnect Handheld screen

8. Scan the first medication (Furosemide in this example) to be administered. The following screen will appear:

> Due: 15th 09:00
>
> Furosemide (Lasix) 40 MG oral
>
> OK
>
> ▬▬◗   ☰   ED

iConnect Handheld screen

9. View the displayed medication information and, if it is the medication intended, press **OK** to confirm that you plan to give the medication to the patient now. The following screen will appear:

> Admin Complete/Dose 40 MG
>
> Furosemide (Lasix) 40 MG oral
>
> Confirm OK
>
> ▬▬◗   ☰   ED

iConnect Handheld screen

10. You may now scan the next scheduled medication (Phenytoin in this example) to be administered. The process described above for the Furosemide dose you gave is repeated for Phenytoin.

> Due: 15th 09:00
>
> Phenytoin (Dilantin) 100 MG oral
>
> OK
>
> ▬■▬   ≡   ED
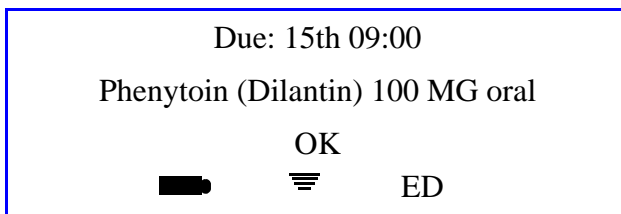
iConnect Handheld screen

11. View the displayed medication information and, if it is the medication intended, press **OK** to confirm that you plan to give the medication to the patient now. The following screen will appear:

> Admin Complete/Dose 100 MG
>
> Phenytoin (Dilantin) 100 MG oral
>
> Confirm OK
>
> ▬■▬   ≡   ED
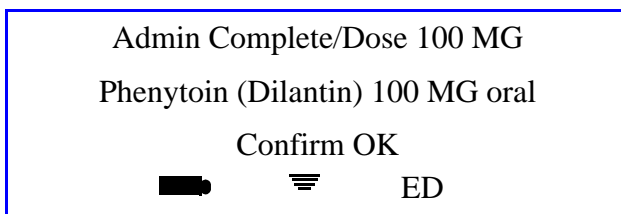
iConnect Handheld screen

12. When you are finished scanning medications you plan to give to this patient, scan your badge to record these transactions. Scan **badge** to complete Med Pass. The following screen will appear:

> Work recorded
>
> 2 Meds Given
>
> Push OK
>
> ▬■▬   ≡   ED
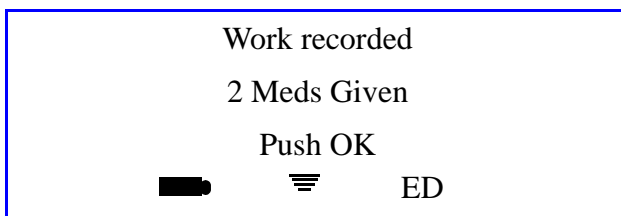
iConnect Handheld screen

13. The transactions are now sent wirelessly to the electronic Medication Administration Record and are recorded as medications given.

14. Proceed with administering the medications you just scanned to the patient.

Basic Medication Administration Process for Multi-dose PRN Medications

The following is an example medication administration for Promethazine 25 mg/ 1ml injection, ordered as a PRN medication with a dose of 12.5 mg:

1. By referring to the MAR, determine which ordered PRN medications you wish to give and obtain that medication. Refer to *Generating Reports* on page 4-1 for printing the MARs and other reports mentioned below.

2. Bring the Medication Administration DOT sheet with you to the bedside. This provides the iDOTs for the override reasons, administration sites, commands, number pad, and other entries that may be required when passing medications.

Note: From this point and through the rest of the medication administration process, remember that you can scan the Cancel iDOT to exit from any transaction. If you cancel, you may still continue with transactions for the same patient.

3. Once at the bedside, scan the patient's wristband. Assuming there are no scheduled medications due, the following screen will appear showing the patient's name and location:

> No Meds Due
>
> John Smith, Rm: 333 1
>
> Review Meds OK or Scan Med/Badge
>   ED

iConnect Handheld screen

The iConnect Handheld displays the meds due for the patient.

3. Scan the PRN medication to be administered. If this medication has been given previously, the last administration time will display on the top line. If no administrations of this medication have occurred, the line will be blank.

> Last: 25th 14:30
>
> Promethazine 25 mg/1ml vial
>
> OK
>   ED

iConnect Handheld screen

Note: If no doses of this medication were given, the line for the last time given will be blank.

4. View the displayed medication information and, if it is the medication intended, press **OK** to confirm that you plan to give the medication to the patient now. Since the medication amount and the dose ordered may not be the same, the iConnect will prompt you to enter the amount you plan to administer. Therefore, the following screen will appear.

> Multi-Dose Vial
>
> <?> MG
>
> Enter Dose
>
> ━━ ≡   ED

iConnect Handheld screen

Note: The typical unit of measure (mg, mcg, ml, etc.) for this medication will display automatically. The amount to be given must be entered in this unit of measure.

The Enter Dose prompt will appear if the iConnect formulary item setting for the medication requires that the amount given be entered. This is typically required for injectable and oral liquid medications.

5. Enter the amount you plan to give using the number iDOTs on the Medication Administration DOT sheet. Use the decimal iDOT to enter a decimal point if required. The screen will change as you enter the amount:

> Multi-Dose Vial
>
> 12.5 MG
>
> Accept OK or Enter Dose
>
> ━━ ≡   ED

iConnect Handheld screen

Note: Use the iDOT labeled Back to backspace and remove a digit.

6. When the correct amount is entered, press **OK** to accept the entry. The following screen will appear to confirm your acceptance:

```
Admin Complete/Dose: 25 MG
   Phenergan 25 MG/1 ML
   (Promethazine HCL) 25
        Confirm OK
   ▬▬▶      ≡       ED
```
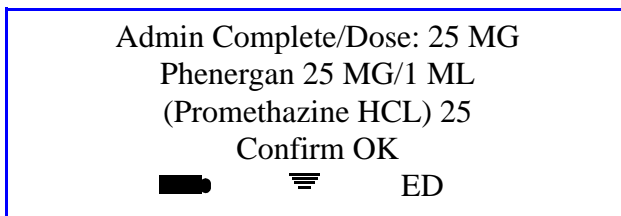
iConnect Handheld screen

7. You may now scan another medication for this patient if desired.

8. When you are finished scanning medications, you can plan to give to this patient. Scan your badge to record these transactions. The following screen will appear:

```
        Work Recorded

        1 Med Given

         Push OK
   ▬▬▶      ≡       ED
```
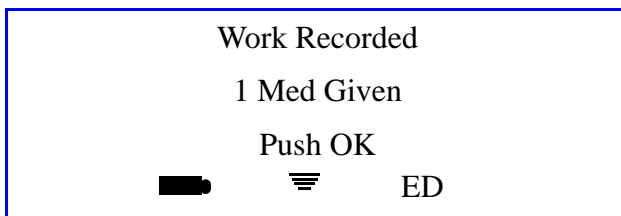
iConnect Handheld screen

9. The transactions are now sent wirelessly to the electronic Medication Administration Record and are recorded as medications given.

10. Proceed with administering the medications you just scanned to the patient.

Responding to Prompts for Data During Administration

To comply with hospital policies and procedures for a medication administration and documentation, the iConnect may be configured to prompt you to enter information during the administration process. Scan iDOTs from the Medication Administration DOT sheet to input the needed information. This information will become part of the patient's permanent Medication Administration Record.

Example: Medication administration of Digoxin 0.25 mg oral tablet where checking and recording the patient's apical pulse prior to administration is required.

1. Once at the bedside, scan the patient wristband. The following screen will appear showing that a medication is due*:*

   +---+
   | 1 Med Due |
   | |
   | John Smith, Rm: 333 1 |
   | |
   | Review Meds OK or Scan Med/Badge |
   | ▬▬▶   ≡   ED |
   +---+

   iConnect Handheld screen

2. Scan the Digoxin tablet bar code. The following screen will appear:

   +---+
   | Due: 15th 09:00 |
   | |
   | Digoxin (Linoxin) 0.25 MG oral |
   | |
   | OK |
   | ▬▬▶   ≡   ED |
   +---+

   iConnect Handheld screen

3. View the displayed medication information and, if it is the medication intended, press **OK** to confirm that you plan to give the medication to the patient now. The following screen will appear prompting you to enter the apical pulse:

   +---+
   | Enter Apical Pulse Rate |
   | |
   | <?> BPM |
   | |
   | Scan # DOTs |
   | ▬▬▶   ≡   ED |
   +---+

   iConnect Handheld screen

4. If you haven't already, take the patient's pulse. Scan number iDOTs to enter the pulse rate.

   +---+
   | Enter Apical Pulse Rate |
   | |
   | 55 BPM |
   | |
   | Accept OK or Scan # DOTs |
   | ▬▬▶   ≡   ED |
   +---+

   iConnect Handheld screen

Note: Use the iDOT labeled Back to backspace and remove a digit.

5. Press **OK** to accept. The following screen will appear:

> Admin Complete/Dose: 0.25 mg
>
> Lanozin 0.25 MG (Digoxin) 0.25 mg
>
> Confirm OK
>
> ED
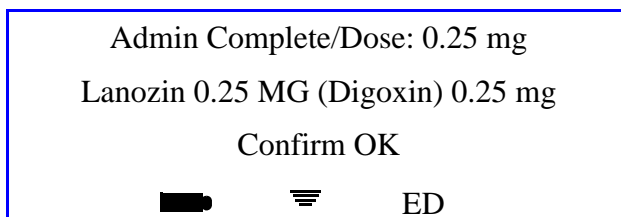
iConnect Handheld screen

6. When you are finished scanning medications you plan to give to this patient, scan your badge to record the transactions.

Dose-Due Reminders and Overdue Alerts

iConnect can be configured to alert the nurse to medications due or past due.

Dose-Due Reminders

Dose Due Reminders are an optional feature of iConnect. If your system is configured to display reminders, when you log on to your iConnect Handheld, it will alert you when scheduled medications are due for your assigned patients. The window of time for reminders in advance after the scheduled dose time is configured by your system manager. The following is an example of a reminder screen:

> Due 09:00 / Patient Name
>
> Digoxin (Lanoxin) 0.25 mg oral
>
> OK
>
> ED
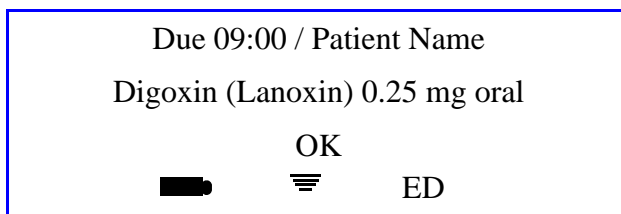
iConnect Handheld screen

Reminders are accompanied by an audible tone and a visual alert (yellow light) and will appear for your assigned patients only. There are three ways to clear dose-due reminders:

1. Snooze the alert for 10 minutes by pressing **OK**.
2. Omit the due dose.
3. Delay the reminder for a specified period of time.

Omit and Delay will be explained later in this chapter.

Overdue Dose Alerts

Overdue Dose Alerts are an optional feature of iConnect. If your system is configured to display overdue alerts, when you log on to your iConnect Handheld, it will alert you when scheduled medication doses are past due for your assigned patients and now considered by iConnect to be late.

The window of time for initiating overdue medication alerts beyond the scheduled dose time is configured by your system manager. The following is an example of an overdue or late dose alert screen:

```
28th 13:00 Late John Smith

Digoxin (Lanoxin) 0.25 mg oral

              OK
   ▬▬▬        ≡        ED
```

iConnect Handheld screen

Overdue alerts are accompanied by an audible tone and a visual alert (red light) and will appear for your assigned patients only. There are four ways to clear overdue medication alerts:

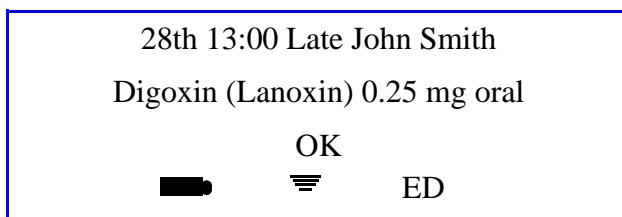1. Snooze the alert for 10 minutes by pressing **OK**.
2. Omit the due dose.
3. Delay the alert for a specified period of time.

Omit and Delay will be explained later in this section.

Omitting a Due Dose
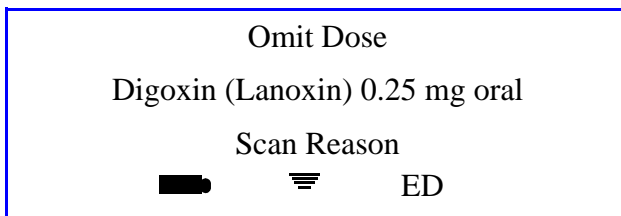
With iConnect, every dose of medication must be accounted for by the system and the nurse user. Based on clinical judgement, you may decide to permanently skip a medication dose that is due. iConnect refers to this as "omitting" the scheduled dose.   An omitted dose will be charted on the electronic medication administration record as omitted, or not given, with full documentation of the date, time, caregiver who omitted the dose, and the reason for omitting.

Note: Remember, omitting a dose that is not administered is important to iConnect because the system will indefinitely continue to assume that the next dose of the due medication that is given is the first due or overdue dose. Without properly omitting a due or overdue dose that is purposely not administered, the accountability and documentation for future doses given may be inaccurate.

To omit a due or overdue dose, perform the following steps when the Dose Reminder or Overdue Dose Alert:

1. Scan the Omit iDOT found on the Medication Administration DOT Sheet. The following screen will appear:
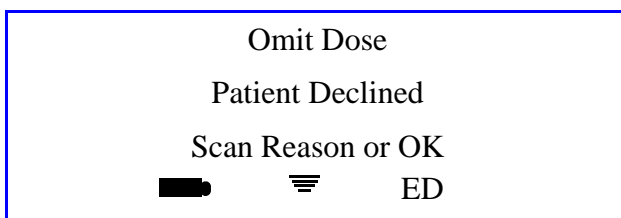
> Omit Dose
>
> Digoxin (Lanoxin) 0.25 mg oral
>
> Scan Reason
>
> ▬▬▶   ≡   ED

iConnect Handheld screen

2. Scan a reason for omitting the dose using the reason iDOTs on the Medication Administration DOT Sheet. For example, if the "Patient Declined" reason iDOT is scanned, the following screen will appear:

> Omit Dose
>
> Patient Declined
>
> Scan Reason or OK
>
> ▬▬▶   ≡   ED

iConnect Handheld screen

3. Once the correct reason is displayed, press **OK** to confirm. The following screen will appear to indicate that you have completed the steps required to permanently omit the due dose:

> Omit Complete
>
> 1 Dose Omitted
>
> Scan Badge
>
> ▬▬▶   ≡   ED

iConnect Handheld screen

4. Scan your badge to record the transaction.

Using Snooze
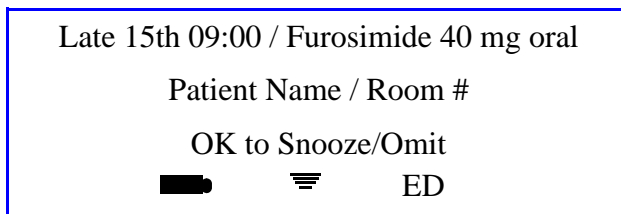
When you log in to the iConnect Handheld and a Dose Due Reminder or Overdue Dose Alert displays, you can choose to "snooze" the message to have it reappear approximately 10 minutes later. To do this, simply press **OK** when the message is displayed. The message will appear again in ten minutes or the next time you log in, whichever comes first. This process can be repeated if necessary.

The iConnect electronic medication administration record does not capture the snoozing of a Dose Due Reminder or Overdue Dose Alert. Repeated snoozing may result in giving and documenting a scheduled dose late.

If you decide not to give a scheduled dose, be sure to Omit the dose rather than snooze it. (See Omitting a Due Dose).

Using Delay Dose

When you log in to the iConnect Handheld and a Dose Due Reminder or Overdue Dose Alert displays, you can choose to "delay" the message to have it reappear when a period of time that you specify has elapsed.
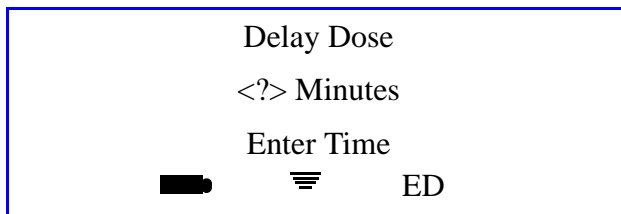
```
Late 15th 09:00 / Furosimide 40 mg oral

       Patient Name / Room #

         OK to Snooze/Omit
    ▬▬▬▬▶      ≡          ED
```

iConnect Handheld screen

For example, to delay the above Overdue Dose Alert for 45 minutes, use the following steps:

1. Scan the **Delay Dose** iDOT. The following screen will appear:

```
             Delay Dose

            <?> Minutes

             Enter Time
    ▬▬▬▬▶      ≡          ED
```
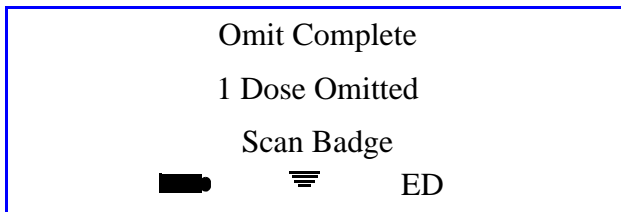
iConnect Handheld screen

2. Enter the number of minutes (45 in this example) by scanning number iDOTs on the Medication Administration DOT sheet. Use the **Back** iDOT to backspace and remove a wrong entry.

3. When the desired number of minutes has been entered, press **OK**.

The iConnect electronic medication administration record does not capture the use of Delay Dose to delay a Dose Due Reminder or Overdue Dose Alert. Use Delay Dose carefully, since delaying a dose may result in giving and documenting it late.

Using Cover Patients to Transfer Patient Responsibility

When you are beginning a shift, the responsibility for patient medication care must be transferred from the off-going nurse to you. During a shift, it may also be necessary for a nurse to accept responsibility for another nurse's patients while that nurse is temporarily away from the patient care area. The iConnect Handheld can easily transfer patient medication responsibility, including medication reminders and alerts, from one nurse to another using the Cover Patients feature.

The following steps should be followed by the nurse (e.g., on-coming) who is accepting the responsibility for patient medication coverage:

1. Scan the Cover Patients iDOT on the Medication Administration DOT sheet. The following screen will appear:

Cover Patients

Scan Pt/Loc
  ▬▬◗ ≡ ED
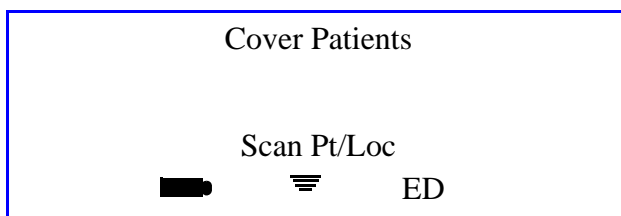
iConnect Handheld screen

2. Scan a patient iDOT on the Prospective MAR to accept coverage for that patient. The following screens will appear briefly as the iConnect transfers coverage responsibility:

Sending Data

Please Wait
  ▬▬◗ ≡ ED
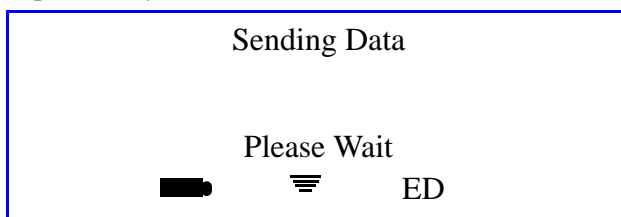
iConnect Handheld screen

3. When "Process Done" appears, another patient iDOT can be scanned. This process can be repeated until iDOTs for all patients to be covered have been scanned.

Cover Patients

Scan Pt/Loc
  ▬▬◗ ≡ ED
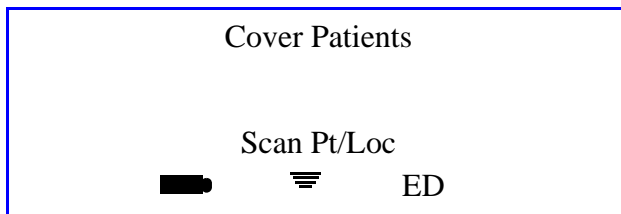
iConnect Handheld screen

4. Rescan the Cover Patient iDOT again to end the process of reassigning of patient medication coverage.

Medication Administration Warnings

The iConnect System will alert the nurse to certain situations that may exist at the time of medication administration. In cases where it is necessary to bypass the alert, the system may ask the nurse to provide a reason or to enter other patient information. This is easily accomplished by scanning iDOTs. The following types of warnings are provided:

Early or Late Warnings

Early or Late Warnings may display when a medication that the nurse is scanning prior to administration is early or late. This is determined by either the scheduled time or the PRN interval order for the medication order's and other timing parameters set in your iConnect system based on hospital policy.

If the nurse decides to give a medication despite an early or late medication warning, the iConnect Handheld may be configured to prompt for entry of an override reason to document why the warning is being bypassed.   This information will be recorded in association with the dose, which results in a more complete and accurate medication administration record for the patient.

Clinical Warnings

The iConnect System may be configured according to hospital policy to display helpful information for the nurse when a medication is scanned. These "Clinical Warnings" may include messages such as "Do Not Crush", "Give with Food", or "Dilute Before Use".   The nurse acknowledges the warning simply by pressing **OK** to continue the medication administration process. Clinical warnings are for the caregiver's benefit only and are not recorded in the medication administration record.

Timeout Warnings

If a user is logged on to the iConnect Handheld and it senses no activity (such as a scan or a keypress) for 5 minutes, an audible and visual alert will sound/appear. The visual light for yellow is a reminder, red is an action and green is charging state for the iConnect Handhelds. If keypress is not recorded after 10 minutes, the iConnect Handheld will automatically log off the user and return to the home screen.

The timeout warnings only appear in the middle of a medication pass.
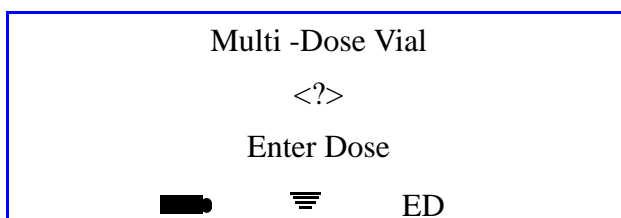
Note: It is important to log off when the iConnect Handheld is not in frequent use. If an automatic logoff occurs, transaction data may be lost. For example, if medications were administered without a final scan of the user's badge to save the data, if a subsequent automatic logoff access the transactions will not be recorded.

Unknown Medication

The pharmacy system manager maintains the iConnect medication database, including information for the identification of all formulary medication bar codes. However, if a dispensed medication bar code is scanned and not recognized by the iConnect system, the unit will display "Requesting Information" followed by the message "Unknown Medication". If this should occur, contact the pharmacy as soon as possible to let them know the medication in question. Typically, the medication and its associated bar code will need to be added to the intelliDOT medication database.

Dose Out of Range

Based on hospital policy, some medications in the iConnect System may be configured to require that the entry of a dose given amount be with a defined range. For example:

```
┌──────────────────────────────┐
│        Multi -Dose Vial      │
│             <?>              │
│          Enter Dose          │
│      ▄▄▄▄▄▖   ≡      ED       │
└──────────────────────────────┘
```
iConnect Handheld screen

If the nurse is prompted to enter the dose amount and if the entry is outside of the defined range, the message "Out of Range" will be displayed.
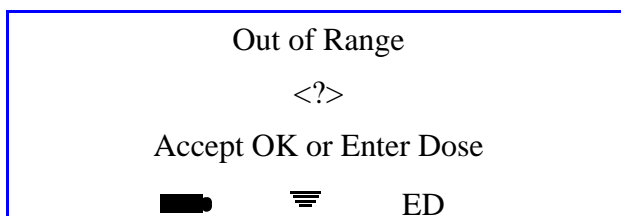
```
┌──────────────────────────────┐
│         Out of Range         │
│             <?>              │
│     Accept OK or Enter Dose  │
│      ▄▄▄▄▄▖   ≡      ED       │
└──────────────────────────────┘
```
iConnect Handheld screen

If the amount was entered in error, the nurse can use the Backspace iDOT to remove the incorrect entry and reenter it. For medications requesting the nurse to enter a dose, the iConnect Handheld will display "out of range" if the dose entered is more or less than the accepted dosage range set by pharmacy. If this message is displayed, the nurse must reenter a dose in range, or scan a reason for giving the "out of range" dose.

If the nurse decides to proceed with giving a dose amount that is outside of the range defined in the iConnect System, an Override Reason iDOT may be scanned when the out of range warming is displayed.

"No Order Found" Warning

The No Order Found warning will appear when a patient is scanned followed by the scanning of a medication for which no current order exists in the iConnect system or pharmacy system. This can happen when:
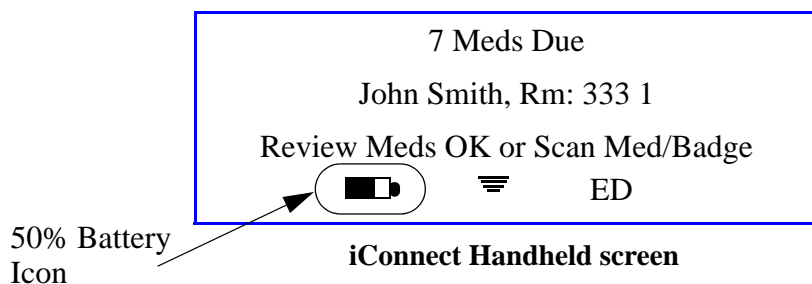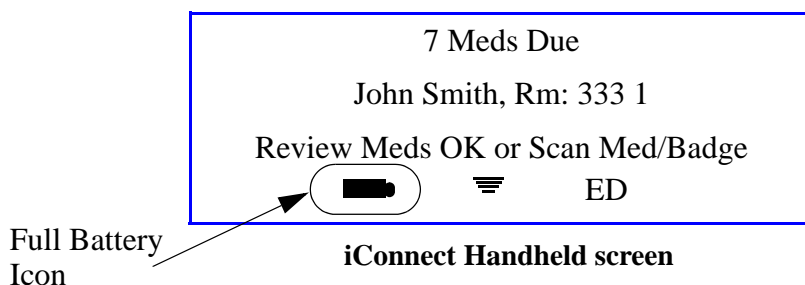
1. You are scanning a medication for administration before pharmacy has processed and entered a new medication order. In this case, you should double check the patient, medication, dose, route, and administration time (the 5-Rights). If you decide to proceed after receiving the No Order Found warning, you will be prompted to enter an Override Reason. Override Reasons are configurable by your system manager. iDOTs for Override Reasons can be found on the Medication Administration DOT sheet.

Warning: Always check the patient chart and Physician Order if iConnect Handheld prompts with "No Order Found". It is possible that the medication may not be ordered for this patient.

Battery Low Warning

The normal battery life for the iConnect Handheld is approximately 12 hours. The battery low warning appears on your iConnect Handheld LCD when the battery charge falls to 18%. The battery icon located on the bottom left side of your iConnect Handheld LCD shows the amount of battery life remaining. Be sure to check this periodically throughout the day to assure that you have enough battery life to get through your shift. Refer to the following for an illustration of the battery icon on the iConnect Handheld:

7 Meds Due

John Smith, Rm: 333 1

Review Meds OK or Scan Med/Badge

ED

Full Battery Icon

iConnect Handheld screen

7 Meds Due

John Smith, Rm: 333 1

Review Meds OK or Scan Med/Badge

ED

50% Battery Icon

iConnect Handheld screen

If the iConnect Handheld needs to be charged, place it in the charging cradle and get a new iConnect Handheld from the charging cradle. Be sure to log onto the new iConnect Handheld, Refer to *Login/Logout* on page 2-5.

Advance Prepared Items

Some medications must be prepared (e.g., measured or mixed) by the nurse before being taken to the point of administration. Your iConnect system manager will designate these medications as "Prepared Items" in the iConnect medication formulary. The iConnect Handheld provides a special work pathway for these medications.
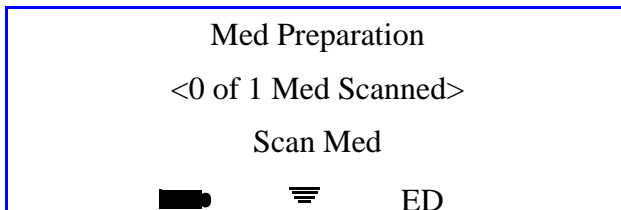
There are five different cases where the special preparation work path applies, and there are two possible processes for administering these doses once prepared.

- *Case 1 - Prepared Item that is printed on the Prospective MAR*

- *Case 2 - Prepared Item that is printed on the Prospective MAR and requiring a witness*

- *Case 3 - Prepared Item with multiple medications that is printed on the Prospective MAR*

- *Case 4 - Administering Medications for Cases 1-3*

- *Case 5 - Prepared Item that is NOT yet printed on the Prospective MAR*

- *Case 6 - Prepared Item with multiple medications that is NOT yet printed on the Prospective MAR*

- *Case 7 - Administering Medications for Cases 4-5*

Case 1 - Prepared Item that is printed on the Prospective MAR

This case describes the handling of a prepared item that is printed on the Prospective MAR. An iDOT will appear on the MAR to the left of the item. To prepare this dose:
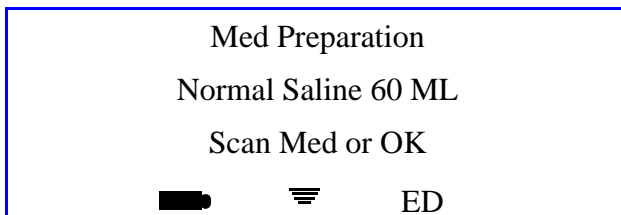
1. Scan the iDOT next to the medication to be prepared on the Prospective MAR. The following screen will appear.

> Med Preparation
>
> <0 of 1 Med Scanned>
>
> Scan Med
>
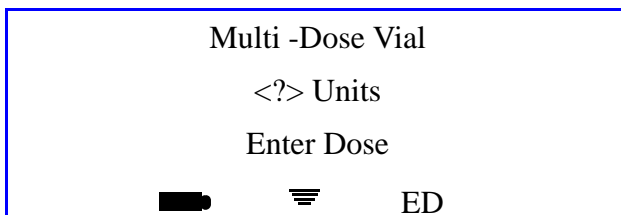> ED

iConnect Handheld screen

2. Scan the **bar code** on the medication you are preparing. The following will screen appear.

> Med Preparation
>
> Normal Saline 60 ML
>
> Scan Med or OK
>
> ED
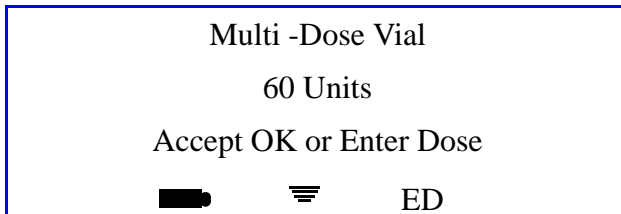
iConnect Handheld screen

3. Verify that the correct medication is displayed, then press **OK**. The following screen will appear.

> Multi -Dose Vial
>
> <?> Units
>
> Enter Dose
>
> ED

iConnect Handheld screen
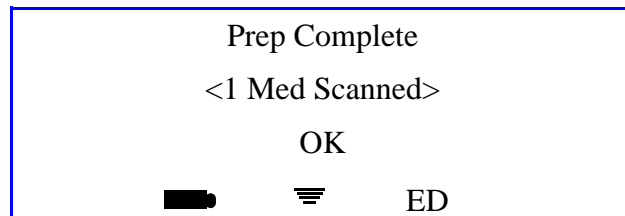
4. Enter the dose amount you are preparing using the numbered iDOTs on the Medication Administration DOT sheet. The screen will display your entry.

> Multi -Dose Vial
>
> 60 Units
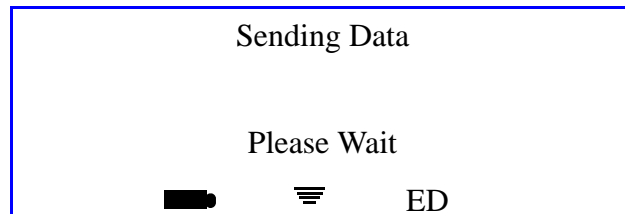>
> Accept OK or Enter Dose
>
> ED

iConnect Handheld screen

5. If you entered an incorrect dose, scan the **Back** iDOT on the Medication Administration DOT sheet to back up one space. Scan the # iDOT to clear the previous entry and reenter the correct amount.

6. Verify that you have entered the correct dose amount. If necessary, use the Backspace iDOT to remove your entry and reenter the dose amount.

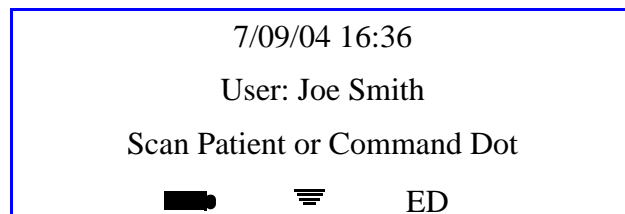7. Press the **OK** button to accept the entry. The following screen will appear:

```
┌─────────────────────────────┐
│         Prep Complete       │
│                             │
│       <1 Med Scanned>       │
│                             │
│            OK               │
│    ▬▬▬▶    ≡        ED      │
└─────────────────────────────┘
```
iConnect Handheld screen

8. Press **OK** to complete. The following screen will appear while the information is stored.

```
┌─────────────────────────────┐
│         Sending Data        │
│                             │
│                             │
│         Please Wait         │
│    ▬▬▬▶    ≡        ED      │
└─────────────────────────────┘
```
iConnect Handheld screen

When the following screen appears, the preparation process is complete.

```
┌─────────────────────────────┐
│        7/09/04 16:36        │
│                             │
│       User: Joe Smith       │
│                             │
│   Scan Patient or Command Dot │
│    ▬▬▬▶    ≡        ED      │
└─────────────────────────────┘
```
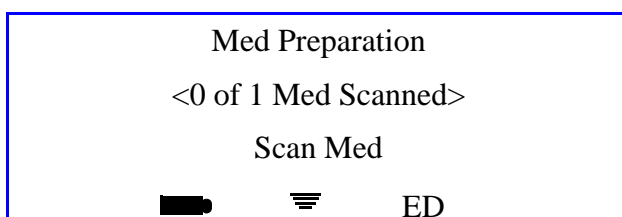**iConnect Handheld screen**

9. When you later scan the patient wristband, iConnect will display the prepared medication for administration.

Case 2 - Prepared Item that is printed on the Prospective MAR and requiring a witness
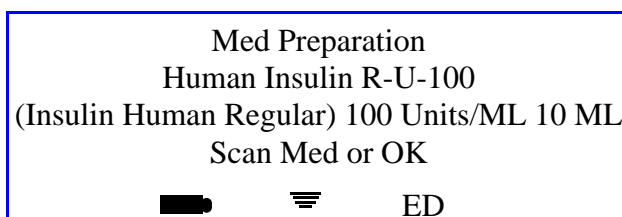
Certain medications, such as Insulin, may require a witness to confirm proper dose preparation and measurement. To prepare a medication that requires a witness:

1. Scan the iDOT next to the medication to be prepared on the Prospective MAR. The following screen will appear.

> Med Preparation
>
> <0 of 1 Med Scanned>
>
> Scan Med
>
> ▬▶   ≡   ED

iConnect Handheld screen

2. Scan the bar code on the medication you are preparing. The following screen will appear.

> Med Preparation
> Human Insulin R-U-100
> (Insulin Human Regular) 100 Units/ML 10 ML
> Scan Med or OK
>
> ▬▶   ≡   ED

iConnect Handheld screen

3. Verify that the correct medication is displayed, then press **OK**. The following screen will appear:

   The multi-dose vial screen will appear only if the amount of medication to be administered can be less than the total amount in the container dispensed by pharmacy. Insulin 100/Units per ML 10 ML is a multi-dose vial.

4. Enter the dose using the **numbered** iDOTs on the Medication Administration DOT sheet corresponding to the dose. The following screen will appear:

> Multi -Dose Vial
>
> 10 Units
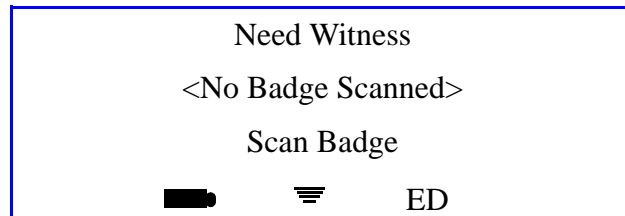>
> Accept OK or Enter Dose
>
> ▬▶   ≡   ED
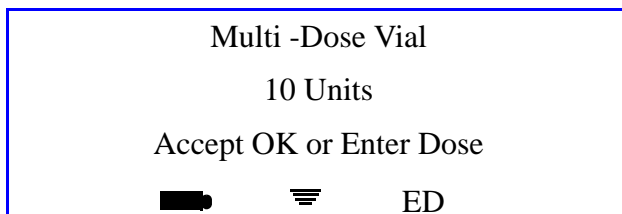
iConnect Handheld screen

5. Verify that you have entered the correct dose amount. If necessary, use the Backspace iDOT to remove your entry and reenter the dose amount.
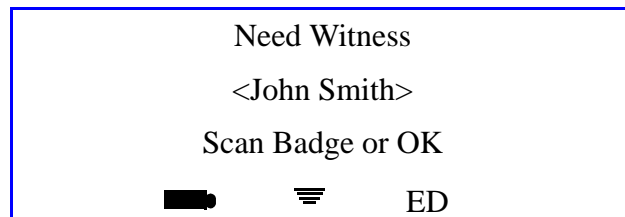
6. Press the **OK** button to accept the entry.   The Need Witness screen will appear:

> Need Witness
>
> <No Badge Scanned>
>
> Scan Badge
>
> ▬▬ ≡ ED

iConnect Handheld screen

7. Scan your witness's badge. The witness name will appear.

> Need Witness
>
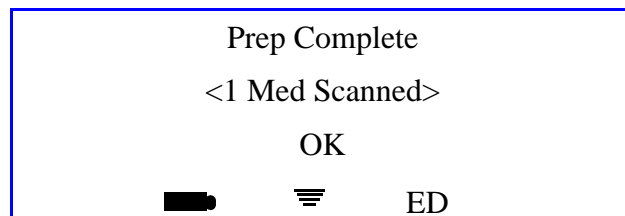> <John Smith>
>
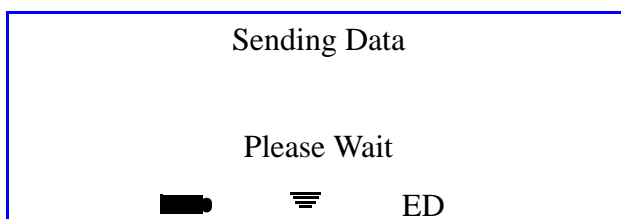> Scan Badge or OK
>
> ▬▬ ≡ ED

iConnect Handheld screen

Note: You cannot serve as a witness to your own preparations.

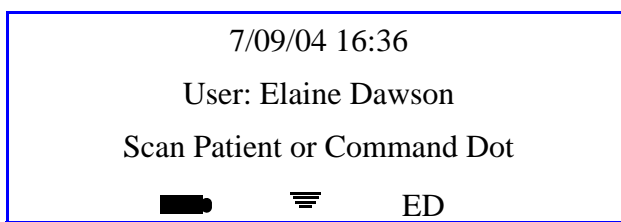8. Press the **OK** button to accept the entry. The following screen will appear.

> Prep Complete
>
> <1 Med Scanned>
>
> OK
>
> ▬▬ ≡ ED

iConnect Handheld screen

9. The following screen will appear while the information is stored.

```
Sending Data


Please Wait
▬▬▬▶    ≡      ED
```
iConnect Handheld screen

10. When the following screen appears, the preparation process is complete.

```
7/09/04 16:36

User: Elaine Dawson

Scan Patient or Command Dot
▬▬▬▶    ≡      ED
```
iConnect Handheld screen

> **Note:** The witness information is recorded in the shift column of the administered medication on the printed Prospective MAR as "Witnessed By: <user initials>". The witness user name and initials also display in the Nurse Signatures block at the bottom of the Prospective MAR. For the On-Line MAR, the text displays "Witnessed By: <User Name>" in the shift column of the administered medication.

11. Your preparation is complete. The medication may be taken to the patient for administration.