

Cutting Edge Technology in the Palm of Your Hand

Collecting VITALS and I & O with the PDA.....

Improving nursing efficiency and data collection with the integration of handheld technology and the Hospital Information System (McKesson – Series).

If you see a nurse at Fairfield Medical Center entering information into his/her Personal Digital Assistant (PDA), you can rest assured it's not for the purpose of looking up a phone number.

Utilizing the latest in technology the Center has incorporated the use of PDA's into the everyday care of patients. "Technology is supposed to make us more efficient," It's fun to use, and we all like electronic devices. But the bottom line is that people need to spend more time doing what they do professionally, and these tools will help them stay at the bedside and do what they do professionally – provide expert patient care.

Cutting Edge Technology in the Palm of Your Hand

There are a couple of reasons to go to Palm Technology. One is that we gather the same data (**Vital Signs, Intake & Output**) on patients continuously. The data when tracked with paper and pencil does not create a picture and can be difficult to read. By using Palm Technology, we can standardize how the data is collected and how it looks, which means we can ask the computer to summarize and graphically present the data. It makes the data more easily understood. "It saves a nurse, time and energy from having to create graphs themselves as well as making it easier for people to read. It is also faster. Instead of carrying around a piece of paper, writing down the data and then taking it to the graph and writing it down again, it's one step." Secondly, the PDA is mobile. The nurse takes the PDA to the patient's bedside and inputs the vital information, such as blood pressure, temperature, intake, output, diets and various other data. The nurse then syncs the PDA to the computer using IR (infrared) capabilities, and that information becomes a part of the patient's record.

The data collected by the PDA is stored in the HIS – Vitals database. Physicians as well as caregivers can access the patient's record via a Web enabled application on the PC. Reports and graphical flow sheets can be reviewed on-line or printed and incorporated into the chart.

FMC - Informatics Team

- Ed Krile
- Jon Kusumo
- Susan Schiffer
- Nancy Weigman RN

Project - Nursingdoc

- Improve Data Collection
 - Reduce multiple documentation steps (3x)
 - Reduce time to create Flow Sheets
 - Auto Graphing
 - Auto Calculations
 - Running Totals
 - Shift
 - 24 hour
 - LOS

Project - Nursingdoc

- Real-Time Vitals, I&O
- Clinician Access
- Mobile Computing
- Precursor to CIS

Design – Nursingdoc

In conjunction with the opening of the Progressive Care Unit

- Mobile (POC devices)
- Web Browser (report viewer)
- Minimize manual charting
- Extension of caregiver (workflow)
- Simple/Common Methodology
 - Writing
 - Letters
 - Numbers
 - Tap (pop up selections) menus
 - Check Boxes

Roll-Out of Nursingdoc

- Authentication
 - User ID/User Name
 - Password
- Education & Training
 - Documentation
 - Training, 2 to 4 hour classes
 - Many First Time Users
 - HIS
 - PC's
 - Internet Browser
 - Clinical Competency Scenarios
 - Training Environment

Roll-Out of Nursingdoc

- Infrastructure
 - Wireless
 - IR (Infrared) Ports– PDA syncing
 - Wall Mount
 - Desk top
 - 802.11 (Mobile Laptops)
 - PDA's

Roll-Out of Nursingdoc

- Software (Self Developed)
 - DB2: Vitals Database (modified HIS)
 - HIS: Screen Modifications
 - Nursingdoc
- PDA: Palm Operating System
 - Nursingdoc (pdb., prc. Files)...Application
 - SuperWaba (pdb. & prc. Files)...Screen Size
 - Clarinet IR (prc. Files)...Network – TCP/IP
- Proxy Server
 - SQL (Calls and Inserts to DB2 database)
 - Browser – Report Viewer
 - Forms populated with vitals data

Outcomes - Nursingdoc

- Common Look and Feel
- On line Flow Sheets
 - Detailed Vitals
 - Intake & Output
 - 1, 3, and 5 Day Graphs (Temp, Pulse, Resp. B/P)
- Real Time Access
- Physician Specific
- Integration with Physician Portal

Using the PDA to Collect Vitals, Intake&Output

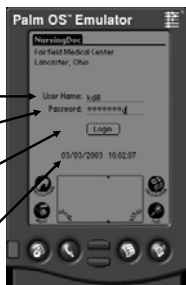
Each caregiver will be assigned a PDA (Personal Digital Assistant) at the beginning of their shift.

To Collect Patient Data, each caregiver must authenticate (Login) by entering their **Network User Name** and **Network Password**.

Note: The password is character protected. As you enter each character, the previous entry is protected (asterisk *****, enabled). Please observe the characters as you enter, to assure proper entry.

Once you have entered your User Name and Password, you may login. To Login, align your PDA's IR (Infrared) port in a straight line (no greater than 3 feet) from the ClarinetIR wall or desk unit and tap the login button with your stylus.

PDA Current Date and Time:
Synced to Server

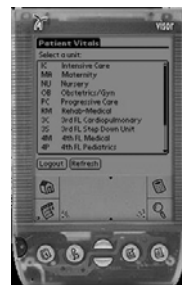


Using the PDA to Collect Vitals, Intake&Output

Unit List:

Upon successful Login, your PDA will be populated with a list of the hospital's nursing units. Select the appropriate unit and your PDA will be populated with the current patient census for that Unit. You will note as the Patient List is populating the PDA, you will see the following message..... loading..... formatting. What is occurring, is the patient data is being loaded to the PDA and then being formatted for the application. When downloading Patient Data, once you notice the word formatting on the screen, you may walk away from the IR port. Your Patient Data has been received and the application ("NursingDoc") is now formatting the records for your use.

Please note: The PDA must be properly aligned with the ClarinetIR port to receive the Unit List as well as the Patient List.



Using the PDA to Collect Vitals, Intake&Output

Patient List:

Room #
Account #
Patient Name

Select Patient by tapping ONCE the stylus on the appropriate patient.



Using the PDA to Collect Vitals, Intake&Output

Time Stamp:

Note: When you begin the collections of VITALS, Input and Output, the current PDA – Date & Time (Hour and Minutes) will be time stamped to the record.

If you need to change the time stamp (Date & Time), you may use the Graffiti Tool or the Pop-Up Calendar and/or scroll buttons to adjust.



Using the PDA to Collect Vitals, Intake&Output

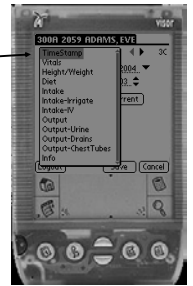
Pop - Up Calendar:



Using the PDA to Collect Vitals, Intake&Output

Drop Down Menu:

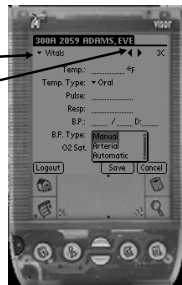
Timestamp is the first screen.



Using the PDA to Collect Vitals, Intake&Output

Drop Down Menu

Scroll Menu



Using the PDA to Collect Vitals, Intake&Output

Height and Weight:

Weight...

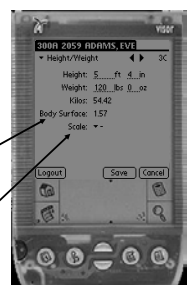
Please note: You must enter Pounds and Ounces.

•Example 150 lbs, 8 oz., not 150.5. The Hospital Information System (AS/400) stores weight in pounds and ounces.

Kilos Conversion: As you enter the weight in Pounds and Ounces, the system will automatically convert as well.

Body Surface: Will be automatically converted as well.

Scale: is a **Required Field**. A Drop Down Menu is used to select the collection method (Balance, Electronic or Bed) for your weight to be submitted.

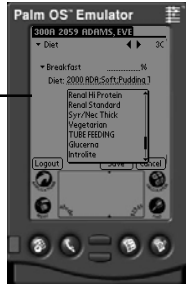


Using the PDA to Collect Vitals, Intake&Output

Diet: Quick Entry Screen

Select the quick entry screen and select (tap) the appropriate diet. This label will populate your diet field. You may append up to two (2) additional entries for each diet or nourishment field. To add multiple records, select the first item by tapping the appropriate quick entry, then select the next and finally the third item.

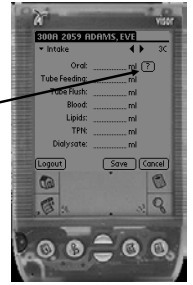
Tube Feeding are listed at the end.



Using the PDA to Collect Vitals, Intake&Output

Intake Screen:

Pop - Up Help Screen



Using the PDA to Collect Vitals, Intake&Output

Pop - Up Help Screen



Using the PDA to Collect Vitals, Intake&Output

Intake-Irrigate Screen:



“NursingDoc” – Collection of Vitals & I/O

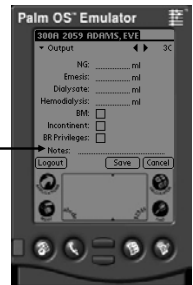
Intake-IV Screen:



Using the PDA to Collect Vitals, Intake&Output

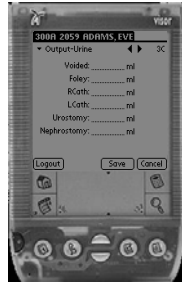
Output Screen:

Text Area for free form Notes:



Using the PDA to Collect Vitals, Intake&Output

Output-Urine Screen:



Using the PDA to Collect Vitals, Intake&Output

Output-Drains Screen:



Using the PDA to Collect Vitals, Intake&Output

Output-Chest Tubes:



Using the PDA to Collect Vitals, Intake&Output

Patient Record Information:

If you tap **Save**, the patient information will be saved in your PDA until you submit. If you tap **Cancel**, the patient information will be erased.



Using the PDA to Collect Vitals, Intake&Output

Warnings:

The "NursingDoc" application has been designed with built-in warnings, identifying which data points (Vitals) are outside the normal range, or the **type of scale has not been selected**. To adjust these warnings, tap the appropriate warnings, and the application will take you directly to the data point.

You may submit the data, even though there is a warning, except **Scale**, as this is a required field.

Intake/Output Total:

The "NursingDoc" application will track and Total your Patient's Intake and Output each time you collect data.



Using the PDA to Collect Vitals, Intake&Output

Pending List:

Your PDA will hold (cache) all patient data until you are ready to submit.

To submit your patients, align the PDA's IR port in line with the ClarinetIR port and tap **submit**.

You will note, as the Patient Data is sent to the Hospital Information System (AS/400), each patient will disappear from the pending screen.



Flow Sheet – Report Viewer

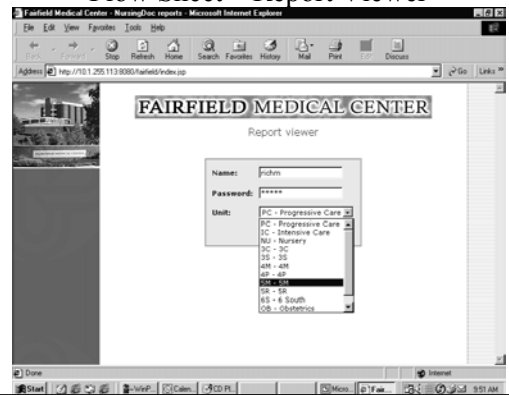
Flow Sheets:

- Detailed Vitals Sign
- Intake-Output
- One Day Graphic Chart
- Three Day Graphic Chart
- Five Day Graphic Chart

Access to Flow Sheets is via the FMC Intranet – Vitals hyperlink. Select Assessments/Vitals, I&O Flow Sheets



Flow Sheet – Report Viewer



Flow Sheet – Single Report Viewer

Select the patient to print the required report.

Identify the required report and then select View. Your reports are created and presented to the screen.

At this point you can select the print function and your requested reports will print to the network printer located on your unit.

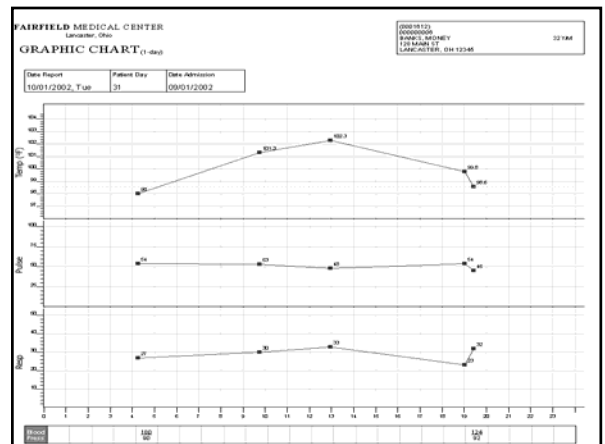
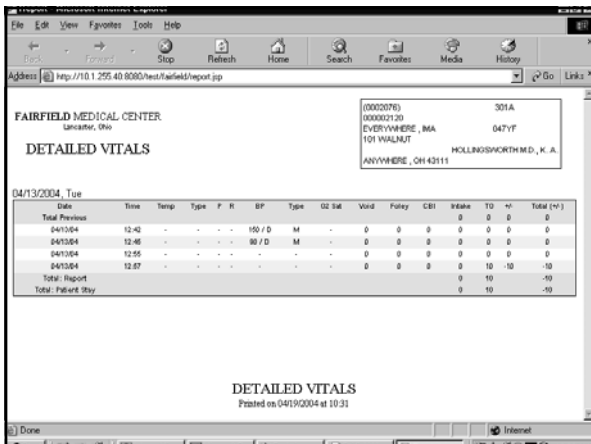


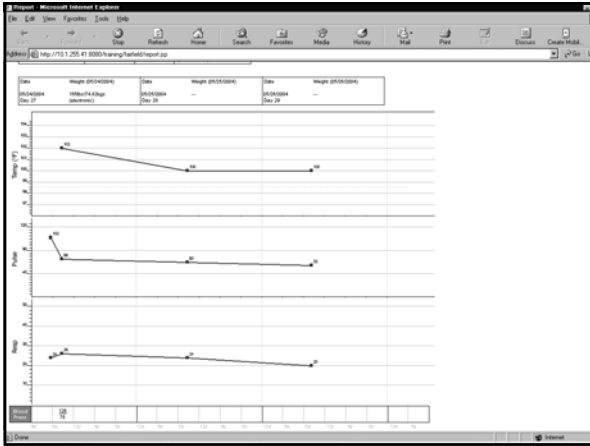
Flow Sheet – Multiple Report Viewer

You can select multiple patients to print the required report.

Identify the required report and then using your shift keyboard button – highlight the patients and then select View. Your reports are created and presented to the screen.

At this point you can select the print function and your requested reports will print to the network printer located on your unit.





The screenshot shows a web browser window displaying the 'INTAKE AND OUTPUT' form for Fairfield Medical Center. The form includes patient information: 00000303 3A, 00000401 INOW, NOM, 02VF, and 0443076 MSCMD. Below this is a table for recording intake and output:

MEAL	AM NOURISHMENT
BREAKFAST	AM NOURISHMENT
LUNCH	PM NOURISHMENT
DINNER	PM NOURISHMENT

Below the table is a large grid for recording vital signs and other data. The grid has columns for 'Vital Signs' (Temp, Pulse, Resp, SpO2, BP, HR, RR, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10) and rows for 'Intake' (Oral, NG, IV, IM, SQ, SC, ID, IO, IA, IP, IV, IO, IA, IP) and 'Output' (Urine, Stool, Emesis, Sputum, Sweat, Saliva, Tears, Urine, Stool, Emesis, Sputum, Sweat, Saliva, Tears). The patient ID 05442004, FN is visible at the bottom right.

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The screenshot shows a terminal window titled 'Session A [24 x 60]'. The window displays patient information for 'FMC TRAINING HOSPITAL I/P-OBS Vital Signs Point'. The patient is identified as 'TARZAN, JANE' with account number 2910. Other details include: Attn Dr: VANFOSSEN D.P.M., B. J., N/S 3C Room/Bed 300 B; Height: Lb 170 Oz 8, Ft 6 In, Ca 182.9; Weight: Kg 77.34. Vital signs are listed: Respirations 20, Pulse 55, Systolic B/P 120, Diastolic B/P 60, Cuff X-B-Line, Fluids In, Fluids Out, Temperature 100.0 F, X-Oral, Rectal, Axillary, Pacifier, Tympanic, Core. The window also shows 'OR Notes: Vital Signs Taken: Date 5/26/04 20 Time 9:38 Last Point 5/26/2004 9:39:20' and instructions: 'Key In Data and press ENTER to Update By TSCA', 'F2-Restart F3-Exit F11-Ext Pat Maint F12-Previous'. The bottom right corner shows '06/026'.

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The screenshot shows a terminal window titled 'Session A [24 x 60]'. The window displays patient information for 'FMC TRAINING HOSPITAL I/P-OBS Vital Signs Point'. The patient is identified as 'TARZAN, JANE' with account number 2910. Other details include: Attn Dr: VANFOSSEN D.P.M., B. J., N/S 3C Room/Bed B; Height: Lb 170 Oz 8, Ft 6 In, Ca 182.9; Weight: Kg 77.34. Below this are sections for 'OUTPUT - URINE' and 'OUTPUT - CHEST TUBE'. The 'OUTPUT - URINE' section includes: NG, Emesis, Dialysate, Stool, Yes, No, Incontinent, Yes, No, Bathroom Privileges, Yes, No, Voided, Foley, R Cath, I Cath, Urostomy, Nephrostomy, Noted. The 'OUTPUT - CHEST TUBE' section includes: JP, Hemovac, Colostomy, Hemodialysis, Other. The window also shows 'Key In Data and press ENTER to Add' and instructions: 'F2-Restart F3-Exit F12-Previous'. The bottom right corner shows '08/011'.

CND49TR7 FMC TRAINING HOSPITAL T/P-OBS Vital Signs Point

Acct # 2910 Patient Name TARZON, JANE

Attn Dr VANFUSSEN D.P.N., B.J. R/S 3C Room/Bed B

Height: Lb 110 Oz 8 Height: Ft 6 In Body Surface 1.99

Kg 77.34 Ca 182.9

Breakfast 999 % IM Nourishment 999 %

Diet

Lunch 999 % PM Nourishment 999 %

Diet

Dinner 999 % HS Nourishment 999 %

Diet

F2-Restart F3-Exit F12-Previous

07/01/03