

Pumps and Dosing Software: The Latest Advances

Andrea Gasper, MS, PA-C



Insulin Pump Options



- Animas 2020
- Accu-Chek Spirit
- Paradigm 522/722
- Deltec Cozmo 1800
- OmniPod



Personal Diabetes Manager (PDM)



OmniPod



Model 522

“Smart” Pumps

- Meal and/ or correction boluses are calculated based on preprogrammed insulin to carbohydrate ratios, correction factors, glucose targets and insulin duration of action.

Animas 2020 Insulin Pump



- Released 3/19/2007
- The first and only insulin pump with a flat panel, high-contrast color screen.

IR 2020 vs. IR 1250



- Makes for easier viewing and readability
- White-on-dark type and a yellow bar that highlights each function as you navigate the screen.

Animas 2020/1250



- Smallest full-feature insulin pump (3" x 2" x .76")
- Smallest basal rate increment (0.025 U/hr)
- Waterproof at 12 feet for 24 hours
- **ezCarb**: meal bolus calculator w/ optional correction bolus
- **ezBG**: correction bolus calculator
- **ezBolus**: shortcut to give set insulin dose

Animas

Carb Counter

Take the guesswork out of counting carbs

- Create a food database on your pump using CalorieKing
- Choose up to 500 foods from a list of 7,000
- Add family favorites
- Enter up to 9 food items for any one meal – the IR 1250 totals the carbs and calculates the insulin dose



The IR 1250 is available

- In-pump food database that can be accessed via the **ezCarb** bolus menu.
- Select amount of carb based on serving size.
- Total carb number transferred directly to meal bolus calculator.

Direct Glucose Transfer?

- Currently Animas does not offer a meter with direct BG transfer from meter to pump.
- Integrated LifeScan meter is in the works (OneTouch2, OneTouch Ultra).
- Meter will transmit BG wirelessly and it will transmit boluses remotely.



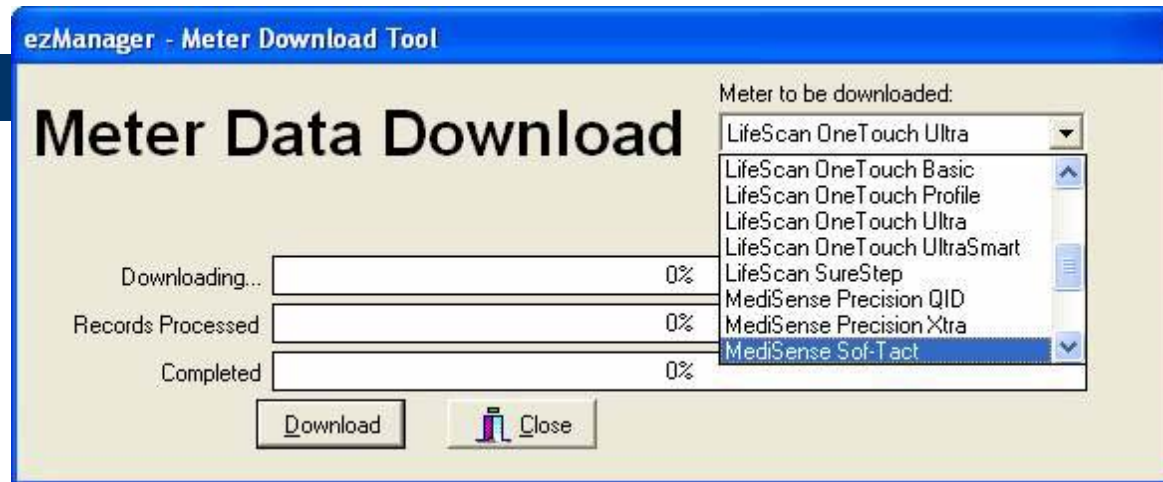
Software for Palm and PC





- InfraRed data exchange (IR kit included)
- Download pump settings, manually entered BG values and daily totals from pump to PC (***a Mac version will be out later in the year.***)
- Personalize basal profiles ex. “Weekend” and “School Day”
- Upload music and special tones from a selected list for customized reminders and alerts
- Add sick day quick reference tips

Meters Compatible with ezManager Software



- Most meters with USB adapters will currently upload BG values into the ezManager (Bayer, LifeScan, MediSense, Therasense and Roche) *not BD*
- BG values will be populated into the insulin delivery reports for the appropriate date and time.

Log Book



Log Book for: Annie Maas

Start Date: 6/7/2002

End Date: 6/14/2002

DATE	RC	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAY	
6/7/2002	BG	67	129		207	237						79							267	269				280		198	
	CH			186			103						113					27								586	
	INS			5.8		4.1			9.5								0.8	3.6	8.1				3.3	3.9		54	
6/8/2002	BG	211							93	60			145			65		109	206				187			233	156
	CH			86		1	187					116						140								597	
	INS					3.4		10.1			4.1			8.7	11.2	7.1	5.1				12.1					81	
6/9/2002	BG			187			127	242	204		121		200						118	146	288		225			185	
	CH	154	101		42					237			31		119											687	
	INS		2.9			9.8	12.3				3.7	8.1				14.9		8.6			10.0	3.3				82	
6/10/2002	BG				235								58		190				284			294		96	101	178	
	CH	102	87	117	78	122												113								620	
	INS	3.0			6.1	10.7	13.7				14.3	14.8	0.7							11.6			2.5			90	
6/11/2002	BG				178	104	255				189		118				159			153		174		263		174	
	CH	141	156	147				42	46																	600	
	INS	8.7					1.1					9.4	10.1		13.7		11.1			1.1	14.2	5.4				78	
6/12/2002	BG			191						149			174	59				112	83	217	94	194			197	147	
	CH	99	167						84			83	37				133									605	
	INS			14.1						6.9	4.2	12.0					6.7	0.6		6.6	12.2			6.6	76		
6/13/2002	BG		57							192	63		59				218		270	81		114				139	
	CH	63	118			32	66										29									528	
	INS							9.4		7.7					2.0	1.4		7.0		13.8	3.4				5.5	67	
AVG.	BG	139	111	188	239	207	128	248	185	151	146		121	59	179	65	185	153	216	152	193	192	225	194	198	168	
	CH	112	141	98	80	52	138	57	65	119		99	69		119		81	93								95	
	INS	5	2	8	9	7	10	9	10	10		6	10	5	7	9	11	5	4	8	8	8	4	2	6	6	7

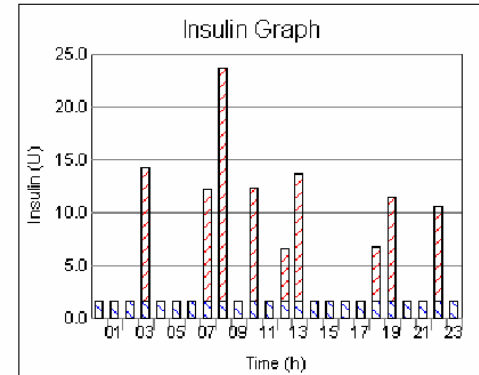
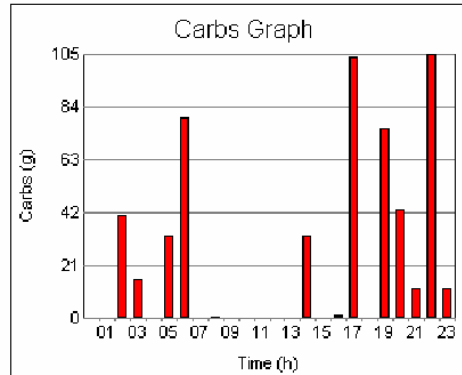
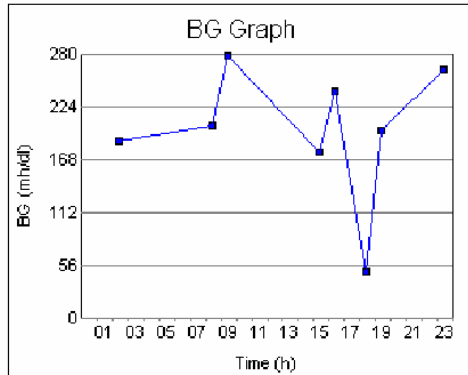
The DAY column contains the daily average of BG and the total intake of CH and INS.

Daily Report



Daily report for: Annie Maas

Date: Friday, 6/14/2002



BG Log	
Time	BG Val
02:19	205
02:47	172
08:46	204
09:32	278
15:12	136
15:44	218
16:57	240
18:02	50
19:28	199
23:39	264

Meal Log					
Time	Carbs	Fiber	Proteins	Calories	
02:06	34	4	12	239	
02:15	6	7	19	152	
03:03	16	4	16	218	
05:32	33	7	9	251	
06:44	44	9	4	275	
06:53	35	3	4	102	
08:24	0	1	12	95	
14:31	17	4	15	56	
14:38	16	2	11	197	
16:04	1	6	16	58	
17:08	59	0	16	28	

Activity Log		
Time	Activity	Duration
08:12	Test Activity	91
12:04	Test Activity	50
23:26	Test Activity	10

Insulin Log		
Time	Type	Units
03:52	E	12.7
07:10	I	10.6
08:19	I	10.8
08:29	E	11.3
10:51	I	10.7
12:41	E	5.0
13:06	E	12.1
18:06	E	5.1
19:52	B	9.8
22:40	I	9.0

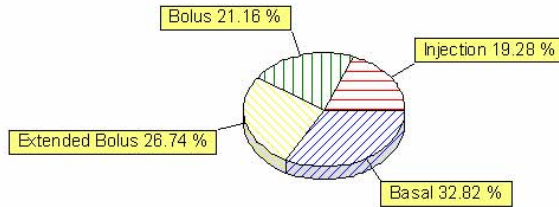
Notes
02:05 This note is the note test number 2 for 6/14/2002.
10:27 This note is the note test number 1 for 6/14/2002.
10:44 This note is the note test number 3 for 6/14/2002.
11:53 This note is the note test number 5 for 6/14/2002.
16:08 This note is the note test number 4 for 6/14/2002.

Basal Rt.	
Time	U/h
00:00	1.60

Start Date: 6/7/2002

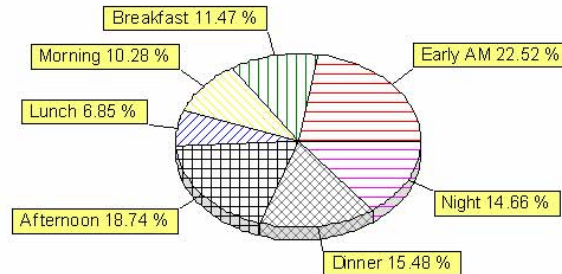
End Date: 6/14/2002

Insulin Intake Distribution



The Insulin Intake Distribution graph shows the insulin distribution between various intake methods over the selected period of time. The Basal total is computed using the Active program selected in the Basal Programs screen.

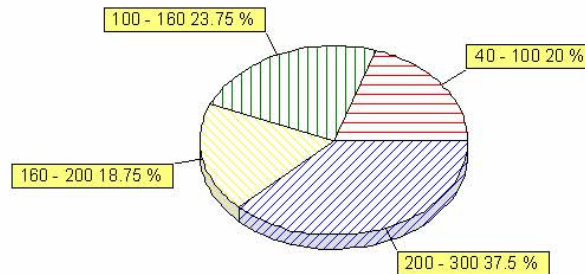
Carbohydrates Distribution



The Carbohydrates Distribution graph shows the distribution of carbohydrates intake between the time intervals set in the Settings screen. The time intervals used for this report are listed below (hours in 24h format).

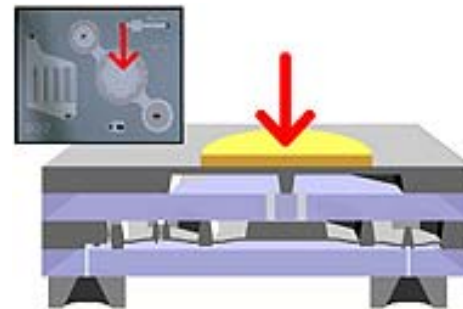
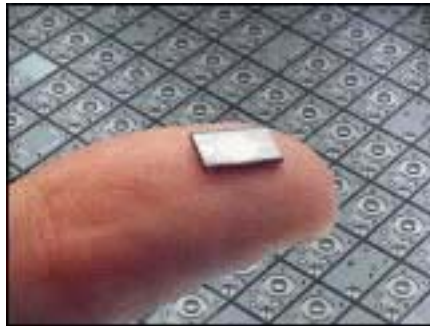
- 0
- Early AM 6
- Breakfast 9
- Morning 12
- Lunch 14
- Afternoon 18
- Dinner 21
- Night 24

Blood Glucose Levels Distribution



The Blood Glucose Levels Distribution graph shows the distribution of blood levels between the BG intervals set in the Settings screen. The BG intervals are described in the graph labels, next to the percentage values.

Debiotech



Insulin Nanopump™

- Technology purchased by Animas in 2005.
- Based on the MEMS Nanopump™ technology- (Micro-Electro-Mechanical System) a high-performance micropump.
- Small size and weight.

ACCU-CHEK[®] Spirit

INSULIN PUMP SYSTEM



ACCU-CHEK™ Spirit Insulin Pump System

launched 10/31/2006

- ACCU-CHEK Spirit insulin pump
- Palm® PDA or optional smartphone
- ACCU-CHEK Pocket Compass software with bolus calculator
- Choice of ACCU-CHEK blood glucose meter
- Accu-Chek Pump Configuration Software



* Smartphone shown is an extra-cost option

ACCU-CHEK[®] Spirit

INSULIN PUMP SYSTEM



- Holds up to 315-units of insulin
- 0.1 U is smallest basal and bolus increment
- Side-mounted tactile buttons
- Reversible display
- Programming and customization easier with Accu-Chek Pump Configuration Software

Pump Functions	STANDARD Menu	ADVANCED Menu	CUSTOM Menu
Standard Bolus	•	•	•
Extended Bolus		•	•
MultiWave Bolus		•	
Temporary Basal Rate	•	•	•
Information	•	•	•
Change Basal Rate Profile		•	•
Program Basal Rate Profile 1	•	•	•
Basal Rate Profile 2		•	•
Basal Rate Profile 3		•	
Basal Rate Profile 4		•	
Basal Rate Profile 5		•	
Alarm Clock		•	•
Set Time & Date	•	•	•
Setup Menu Standard	•	•	•
Setup Menu Advanced		•	
Select User Menu	•	•	•

ACCU-CHEK Pocket Compass software with bolus calculator

- Palm® PDA or optional smartphone
- Convenient bolusing from a remote device
- Bolus calculator (*not accessible from the pump*)
- “Standard” boluses given via the pump are *not factored into the IOB*
- Daily insulin totals displayed in units, not percents (*bolus total includes both the meal and the correction*)



ACCU-CHEK Pocket Compass software with bolus calculator

- Electronic diary
- Customizable “adjustment” factors (*stress, exercise*)
- There is a low BG “manager” that recommends carb intake for low blood sugar
- Calorie King software can be loaded onto PDA as a reference (*not carb counter*)



Uploads and Downloads



1. User tests BG.
2. BG is then uploaded to PDA from the meter via IR (“import”).
3. Bolus calculator makes recommendation.
4. Bolus amount is then transmitted to pump by IR.
5. PDA and meter data transmitted to PC.

MiniMed Paradigm® REAL-Time System



1. Glucose Sensor



2. RF Transmitter



4. CareLink® and Solutions® Therapy Management Software



3. Glucose Meter



MiniMed Paradigm 522/722

- 522 holds up to 176 units/722 holds up to 300 units
- Basal increments 0.05 but bolus increments 0.1
- Intuitive menu with less scrolling
- **Bolus Wizard:** bolus calculator
- Tracts insulin on board
- History: total carbs, TDD, %meal, %corr, %basal
- BD meter transmits BG directly
- Optional remote for remote bolusing
- Optional Real Time CGM (MiniLink approved 2/2007)

CareLink[®] Personal Software

- Secure, online tool that integrates pump, meter, sensor, and logbook data into a series of reports
- Downloads can take place at patients homes
- Link to access downloads can be emailed to provider
- 13 different meters are compatible with CareLink software

How to access CareLink® Personal Software

Address <http://www.minimed.com/>

Medtronic MINIMED

Online Store | **CareLink** | Pump School Online | Contact Us

Home | Insulin Pump Therapy | Product Information | Help & Support | Healthcare Professionals | About Us

A REAL Breakthrough

The world's first insulin pump with REAL-Time continuous glucose monitoring

Paradigm REAL-Time

live life the way I want

click here to learn more

Learn more here

Welcome to Medtronic Diabetes

We are the world leader in insulin pump therapy and continuous glucose monitoring systems. Everyday, our products and services help hundreds of thousands of people living with diabetes lead healthier and more normal lives.

Upgrade your insulin pump today

With the MiniMed Paradigm REAL-Time System. [Learn more about the Paradigm® Pathway™ Program.](#)

Free Insulin Pump Information Events and other classes

Thinking of going on an insulin pump? Sign up for a free [Insulin Pump Information Event](#) near you.

Healthcare Professionals

Attend a free, educational [Webinar event](#)

The Guardian® RT
CONTINUOUS GLUCOSE MONITORING SYSTEM

REAL-Time Glucose Monitoring is Here!

NOW AVAILABLE IN SELECT CITIES!

Click here for more information

Study Shows - Insulin Pumps significantly improve blood sugar control over Lantus®

Yale University School of Medicine conducts first head-to-head study and finds: [Insulin Pumps are better than multiple daily injections with Lantus.](#)

International Locations

New TSA guidelines for air travel and carry-on baggage

Request information on the MiniMed Paradigm® REAL-Time System

Learn how the system better assists you in managing your diabetes.

Find a Physician

Find an insulin pump and Continuous Glucose Monitoring specialist near you by using our Physician Locator.

Message from Medtronic Diabetes President, Robert M. Guevara

A personal note from our president regarding the future of diabetes care.

Learn About...	You and Your Insulin Pump	Healthcare Professionals
<ul style="list-style-type: none">Paradigm Pathway ProgramGood ControlHow Insulin Pump Therapy WorksWhy Insulin Pump Therapy is Better Than Multiple Daily Injections	<ul style="list-style-type: none">Daily JournalUser GuidesInsulin Pump TipsPump School Online	<ul style="list-style-type: none">Continuous Glucose MonitoringCoverage and Reimbursement Primer

- <http://www.minimed.com> to access Carelink Online from main home page

- <http://carelink.minimed.com>

Address <https://carelink.minimed.com/>

Medtronic

Medtronic CareLink®
Therapy Management System for Diabetes

Welcome to the Medtronic CareLink Therapy Management System for Diabetes. This Web-based system is designed to help you take information from all of your diabetes management tools – your insulin pump, blood glucose meter(s), and logbook – and organize it into easy-to-read charts, graphs and tables. These reports can help you and your healthcare provider discover trends and other information that can lead to improved therapy management for greater control.

Now everything is at your fingertips. Start today.

[Sign Up Now](#)

Already a member? Sign In Here:

Username

Password

[Sign In](#) [Forgot your password?](#)

Other Resources:

- [MiniMed.com](#)
- [Pump School Online](#)
- [Medtronic MiniMed Online Store](#)

Features of the Medtronic CareLink System:

- **Personal treatment reports with the information you need**
- **Works with our newest pumps and many popular blood glucose meters**
- **A guide for reading your custom reports**

Some devices supported by this system may not be available in all countries where this system is approved for use

privacy statement | terms of use | contact us | faq

Choose Report and Time Ranges

Medtronic CareLink® Therapy Management System for Diabetes

[My Info](#) [Preferences](#) [Help](#) [Log-Off](#)

Home Upload Logbook Preferences Reports

Reports

Report: Quick View Summary End Date: 09/03/2006 Go

Reports require [Acrobat® Reader®](#)

What Reports are Available?

[Understanding My Reports](#)

Quick View Summary
This report shows graphical summaries of glucose and insulin along with statistical information and logbook data in tables for a two-week period.
It is designed to assist your healthcare provider with a one-page summary of the most important information about your therapy.

Daily Summary
This report shows glucose readings, insulin delivered by the pump and important pump changes, and carbohydrate and exercise entries recorded in the logbook for the day selected.
It is designed to allow you to see a "graphical logbook" of the interaction of your pump with the other events in your day to assist you in using your pump for optimal control.

Logbook Diary
This report provides a chronological listing of glucose readings, insulin usage, and logbook entries.

Modal Day Periods
This report displays blood glucose readings over a period of time, looking at them grouped by periods in

Press "Go" To Generate the Reports

Name of Report

Time Range Desired for Report

12 Types of Reports

Drop Down Menu

Medtronic CareLink® Therapy Management System for Diabetes
[My Info](#) [Preferences](#) [Help](#) [Log-Off](#)

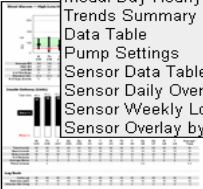
Home
Upload
Logbook
Reports

Report: Quick View Summary End Date: Go

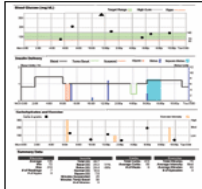
Reports require [Acrobat® Reader®](#)

What Reports are Available?


- Quick View Summary
- Daily Summary
- Logbook Diary
- Modal Day Periods
- Modal Day Hourly
- Trends Summary
- Data Table
- Pump Settings
- Sensor Data Table
- Sensor Daily Overlay
- Sensor Weekly Logbook
- Sensor Overlay by Meal



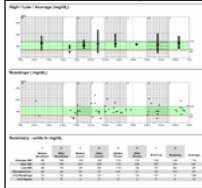
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This report shows glucose readings, insulin delivered by the pump and important pump changes, and carbohydrate and exercise entries recorded in the logbook for the day selected.
It is designed to allow you to see a "graphical logbook" of the interaction of your pump with the other events in your day to assist you in using your pump for optimal control.




Logbook Diary
This report provides a chronological listing of glucose readings, insulin usage, and logbook entries.
It is designed to provide the same information as a daily logbook or diary.




Modal Day Periods
This report displays blood glucose readings over a period of time, looking at them grouped by periods in the day (around meals).
It is designed to assist you in seeing how well your glucose stayed within your target range before and after meals, in the evening and during sleep time.




Modal Day Hourly
This report displays blood glucose readings over a period of time, looking at them grouped by hour of the day.
It is designed to assist you in seeing patterns in your blood glucose related to the time of the day, and also to provide an overall summary of your blood glucose readings.



Trends Summary
This report shows summaries of glucose, insulin and carbohydrates by one, two, four or six day averages, depending on the duration selected.
It is designed to show trends and interactions of these three kinds of information to assist you and your healthcare professional in understanding how well your therapy management is working over longer periods of time than the Quick View Summary.



Data Table
This report provides a chronological listing of all collected data, including



Pump Settings
This report shows the settings in your pump as of the date and time selected

Bolus Wizard Settings

Bolus Wizard

Bolus Wizard On
BW Setup Status Complete

BG Units mg/dL
Carb Units grams

Active Insulin Time 4 hours

Carbohydrate Ratio	
grams/Unit	
Time	Ratio
12:00a	5
11:30a	5
04:30p	5
-	-
-	-
-	-
-	-
-	-
-	-

Insulin Sensitivity	
mg/dL per Unit	
Time	Sensitivity
12:00a	30
12:00p	40
06:00p	30
-	-
-	-
-	-
-	-
-	-
-	-

Blood Glucose Target		
mg/dL		
Time	BG Low	BG High
12:00a	90	130
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Sensor Settings

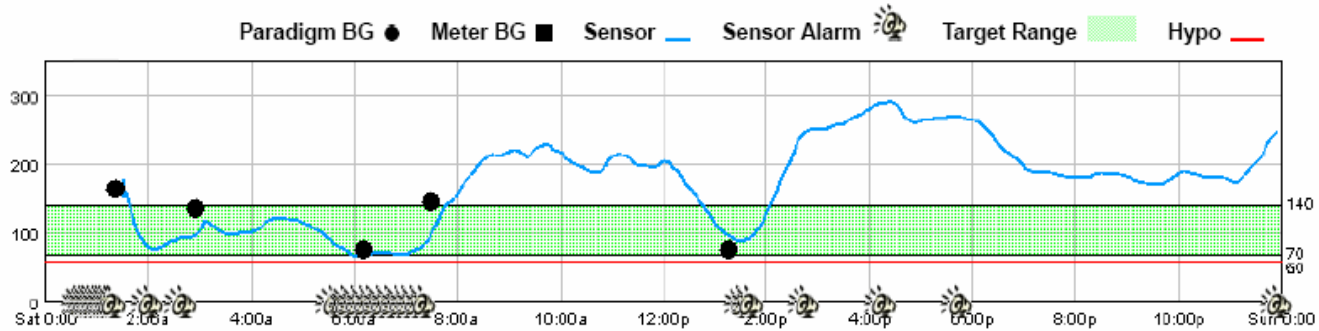
Sensor Feature On
Sensor ID 0001780
Cal Reminder On
Cal Time Reminder 10 minutes

High Glucose Limit On
High Glucose Value 240 mg/dL
High Glucose Snooze 90 minutes
Low Glucose Limit On
Low Glucose Value 90 mg/dL
Low Glucose Snooze 10 minutes

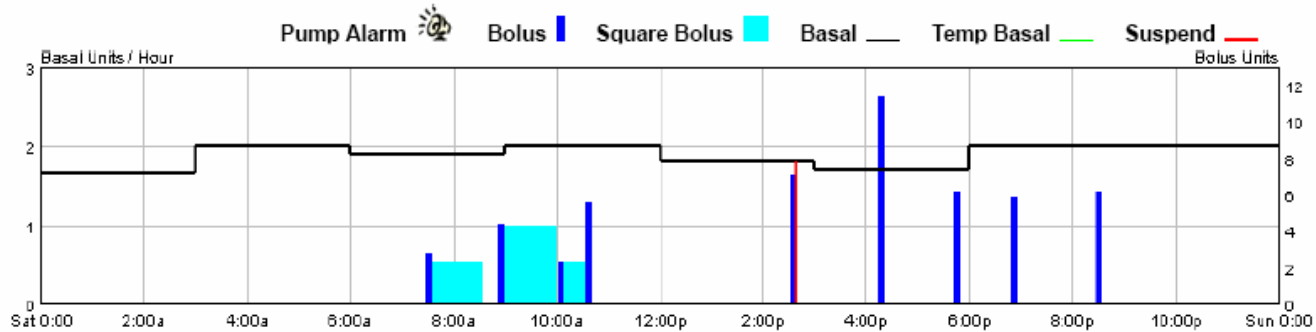
BG Units mg/dL
Missed Data 30 minutes
Alarm Snooze 10 minutes

Daily Summary

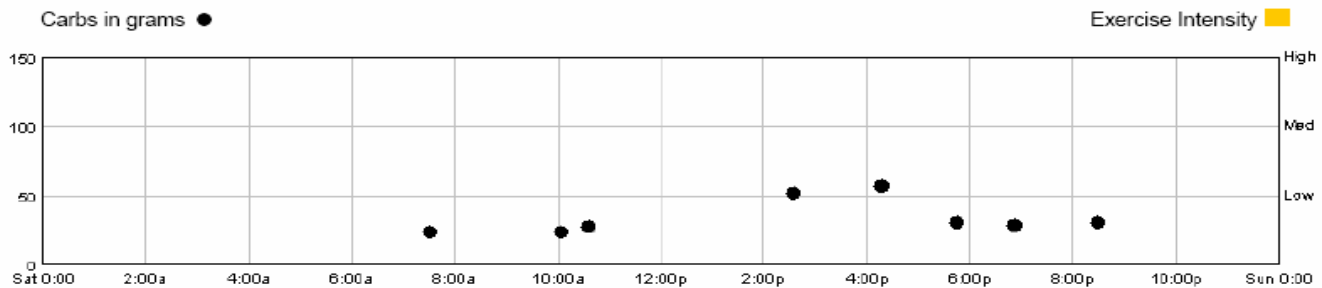
Glucose (mg/dL)



Insulin Delivery

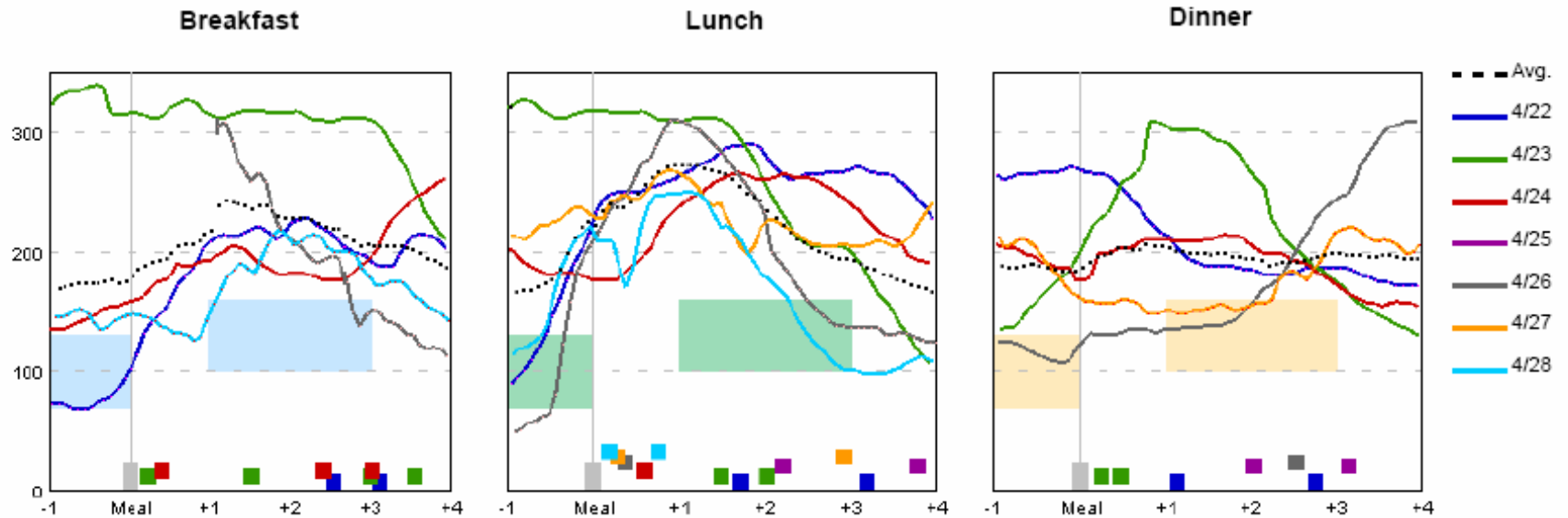


Carbohydrates and Exercise



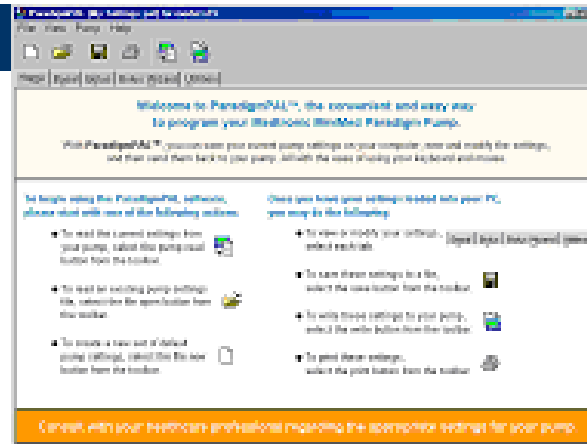
Sensor overlay by meal

Overlay by Meal Event (mg/dL)



	Sleeping 3:00 AM - 6:00 AM	Before Breakfast	After Breakfast	Before Lunch	After Lunch	Before Dinner	After Dinner	Evening 11:00 PM - 3:00 AM	All Time Periods
Range	100 - 150	70 - 130	100 - 160	70 - 130	100 - 160	70 - 130	100 - 160	100 - 150	
Average SG	146	173	227	190	234	186	195	162	185
High SG	248	340	318	326	312	270	302	308	340
Low SG	56	68	138	48	100	106	134	72	48
Standard Dev.	50	95	51	76	50	51	42	59	65
# of Readings	180	48	119	72	144	60	120	252	995

ParadigmPAL™ Software



- PC based application
- Allows you to view, modify, back up, and program the Paradigm pump
- Once pump settings adjusted, they are transmitted to pump using Paradigm Link Blood Glucose Monitor or ComLink device

Pediatric Models: 522K and 722K - Available May 2007

- Previously approved for only adult patients, CGM will soon be available in models specifically for children and teenagers ages 7-17 as part of the MiniMed Paradigm® REAL-Time System, the world's only system combining an insulin pump with continuous glucose monitoring! REAL-Time CGM offers important therapeutic benefits. The pediatric insulin pump models with REAL-Time functionality for children and teens will be denoted with a "K" for "Kids" (model 522K or 722K).

Medtronic Implantable Insulin Pump

- In US, over 300 research subjects implanted with Medtronic Internal Insulin Pump
- Today approximately 35 patients still have their devices implanted.
- Hockey puck-sized device implanted under the skin of the abdomen
- Delivers insulin to hepatic portal circulation via peritoneal cavity.
- Uses specially concentrated insulin approved in Europe.
- Pump refilled every 2-3 mos.
- Insulin delivered in short bursts throughout the day and at higher amounts at mealtimes.



Medtronic Implantable Pump



- In Europe the Medtronic Internal Insulin Pump is approved for use.
- Not FDA approved for use in the US.
- Medtronic recently announced they are terminating the implantable pump study in the U.S.
- Patients will need to return their pumps to Medtronic by July 1, 2007.
- www.theiipump.com

Deltec Cozmo® Model 1800 Insulin Pump



New Deltec Cozmo® Model 1800



The same in many ways.....

- Attachable FreeStyle glucose meter with direct meter entry
- 300-unit cartridge
- Easy to read LCD display
- Correction and meal bolus calculator
- No-look, “touch” boluses
- IR connection to PC for data download
- Personalized reminders and alerts

New Cozmo® Model 1800 Features

Launched January 2007

- CoZmanager 2.0 PC Communications Software
- Hypo Manager
- Disconnect
- Basal Test
- Therapy Effectiveness Scorecard
- Weekly Schedule
- Enhanced Meal Maker with CozFoods List



Hypo Manager™ Feature



- Monitors for carbohydrate deficit or insulin excess at each blood glucose test.
- If blood glucose is below target, recommends an amount of carbohydrate to correct hypoglycemia.
- Can prevent over-treating lows
- After a blood glucose test, if there is insulin excess, recommends an amount of carbohydrate to prevent hypoglycemia.

Hypo Manager™ Feature

CoZmanager 2.0: Personalize - No Program (Modified)

Basal | Meal Boluses | **Correction Boluses** | Temporary Rates | Alerts | Weekly Schedule | History | Options

Correction Bolus Availability ?

- Display in Main Menu
- Use with Meal Bolus

Blood Glucose (BG) ?

Blood Glucose measured in:

- mg/dl
- mmol/L

Target Blood Glucose:

Start Time	mg/dl
12:00 AM	150

Enable editing of Target BG while programming Correction Bolus

Correction Factors ?

Start Time	Factor (mg/dl)
12:00 AM	40

Correction Bolus based on BG ?

- Increase Correction Bolus based on Blood Glucose
- If BG is above 250 mg/dl, add 1 %
- If BG is above 300 mg/dl, add 1 %
- If BG is above 400 mg/dl, add 1 %
- If BG is above 500 mg/dl, add 1 %

Insulin Action ?

Duration of action 03:00 hh:mm

Display Insulin On Board (IOB) home screen

Hypo Manager ?

- Enable Hypo Manager
- Use specific target BG of 100 mg/dl for Hypo Manager
- Lock out Hypo Manager for 03:00 hh:mm after meal bolus

Disconnect

- This feature will allow a patient to take a portion of their projected basal insulin prior to disconnecting.
- Calculates for disconnections of 15 minutes or more, up to 2 hours.
- When the patient reconnects, patient reminded to test BG (correction bolus recommended on missed basal and high blood glucose if needed).
- Missed basal delivered is included in Insulin On Board whether given at disconnection or reconnection.

Basal Testing on the Deltec Cozmo® pump

- In-pump guide to simplify basal rate testing
- Patient gets a reminder to test BG q 2-3 hours
- Test automatically ends when:
 1. BG exceeds the “High” limit
 2. BG falls below the “Low” limit
 3. If bolus is given
 4. If battery or cartridge changed

Basal Testing on the Deltec Cozmo® pump



History Reports

CoZmanager 2.0: History Reports - Jolie

Settings ?

Start: 8/1/2006 [Previous]

End: 8/8/2006 [Next]

Display Blood Glucose in:
 mg/dl
 mmol/L

View ?

Bolus History
 Blood Glucose History
 Delivery Summary
 Therapy Effectiveness Scorecard

Complete Event History
 Logbook
 Basal as Percent of Total Daily Dose (TDD)

Basal Test ?

Morning
 Evening
 Afternoon
 Overnight

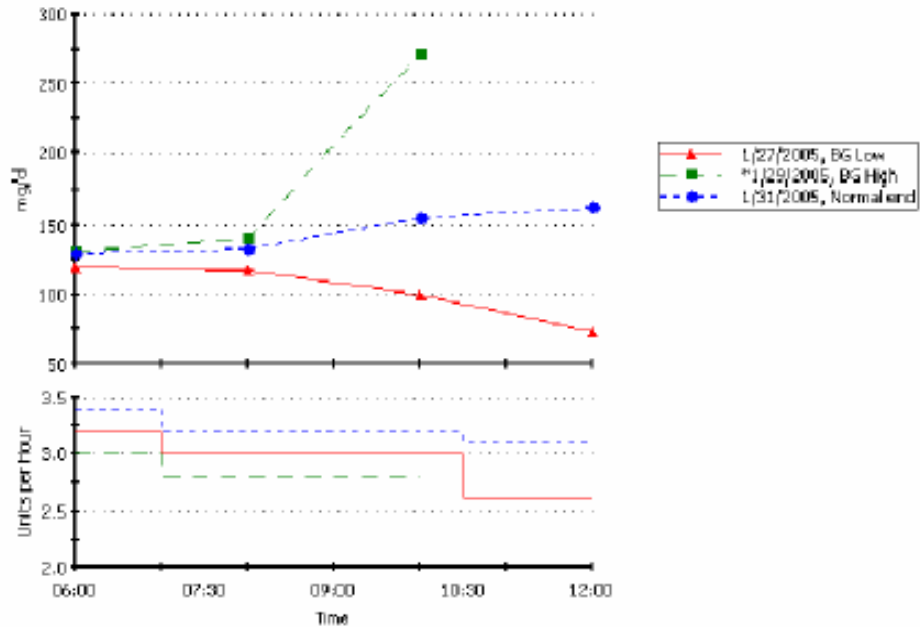
start [Taskbar icons] 2 C [Taskbar icons] 10:25 PM

Basal Rate Test - Morning

Pump User Name: Daphne

Pump User ID:

1/8/2005 - 7/25/2005



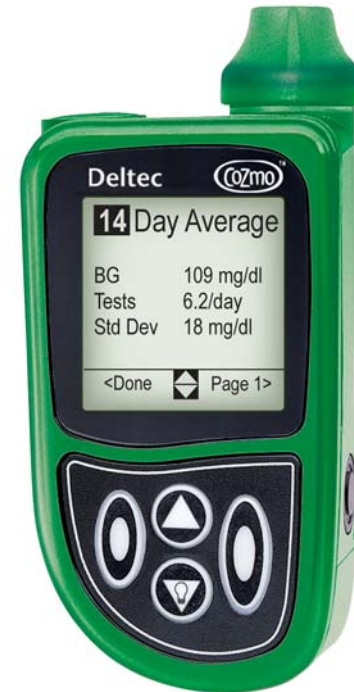
* There was insulin on board at the time of the first BG reading. For details, refer to the log below.

1/31/2005 12:00:00PM	End test - Normal
1/31/2005 12:00:00PM	Blood Glucose from CoZmonitor 163 mg/dl
1/31/2005 10:30:00AM	Basal rate changed to 3.10 units/hour
1/31/2005 10:00:00AM	Blood Glucose from CoZmonitor 155 mg/dl
1/31/2005 8:00:00AM	Blood Glucose from CoZmonitor 133 mg/dl
1/31/2005 7:00:00AM	Basal rate changed to 3.20 units/hour
1/31/2005 6:00:00AM	Basal rate at test start 3.40 units/hour
1/31/2005 6:00:00AM	Basal test started
1/31/2005 6:00:00AM	IOB at first BG Reminder 0.0 units

Therapy Effectiveness Scorecard

- Quick & easy analysis tool to help modify pump settings
- Look up last 2-30 days
- Report accessible on CoZmanager® 2.0 software or directly on the pump.

Therapy Effectiveness Scorecard



Therapy Effectiveness Scorecard
Pump User Name: Scott K. Johnson

Pump User ID:
2/7/2007 - 2/14/2007

8 Day Averages

Carbohydrates per day	340 grams
Total Daily Dose	71.94 units
Meal Bolus	55.44%
Correction Bolus	3.80%
Basal	40.76%
Blood Glucose	136 mg/dl
BG tests per day	4.0
BG Standard Deviation	67 mg/dl

Weekly Schedule

- Allows you to assign basal profiles to days of the week
- The profile will *automatically* change when the day of the week changes
- Custom alerts can also be assigned by day of the week
- Great for school children, shift workers or other schedule variations

Weekly Schedule

CoZmanager 2.0: Personalize - CES Training Profile (Modified)

Basal Meal Boluses Correction Boluses Temporary Rates Alerts **Weekly Schedule** History Options

Enable weekly schedule

Day	Basal Pattern	Missed Meal Bolus Alert Set
Sunday	Weekend	Weekend
Monday	Weekday	Weekday
Tuesday	Weekday	Dance
Wednesday	Weekday	Weekday
Thursday	Weekday	Tennis
Friday	Valley Fair	Weekday
Saturday	Vacation(car)	Weekend

Monday

Legend:
Basal Pattern
Missed Meal Bolus Alerts
Custom Alerts - Recurring

Units per Hour

06:00 AM 06:00 PM

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Alerts 1

CoZmanager 2.0: Personalize - CES Training Profile (Modified)

Basal | Meal Boluses | Correction Boluses | Temporary Rates | **Alerts** | Weekly Schedule | History | Options

Alerts 1 | Alerts 2

Alert Preferences ?

Alert method:

- Beep
- Vibrate

Key beeps

Alert volume:

- High
- Medium
- Low

Delivery Limit ?

Give alert when units of insulin are delivered in 1 hour

Low Cartridge Alert ?

Give alert when cartridge volume reaches units

Missed Meal Bolus Alerts ?

Alert if no meal bolus taken:

Use	Start Time	End Time
<input type="checkbox"/>	12:00 AM	12:00 AM
<input type="checkbox"/>	12:00 AM	12:00 AM
<input type="checkbox"/>	12:00 AM	12:00 AM
<input type="checkbox"/>	12:00 AM	12:00 AM

Missed Meal Bolus Alerts - Weekly Schedule ?

Weekday | Weekend | Dance | Tennis

Enable this set

The name of this set is:

Alert if no meal bolus taken:

Use	Start Time	End Time
<input checked="" type="checkbox"/>	06:30 AM	07:30 AM
<input checked="" type="checkbox"/>	11:30 AM	12:30 PM
<input checked="" type="checkbox"/>	06:00 PM	07:00 PM
<input type="checkbox"/>	12:00 AM	12:00 AM

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Alerts 2

CoZmanager 2.0: Personalize - CES Training Profile (Modified)

Basal | Meal Boluses | Correction Boluses | Temporary Rates | **Alerts** | Weekly Schedule | History | Options

Alerts 1 | **Alerts 2**

Blood Glucose Reminders

- Give BG reminder 02:00 hh:mm after bolus or cartridge change
- If BG below 70 mg/dl, give reminder after 00:15 hh:mm
- If BG above 200 mg/dl, give reminder after 01:30 hh:mm

Custom Alerts

Use	Name	Time	Type	Days
<input checked="" type="checkbox"/>	BG Alert 1	10:30 AM	Recurring	Daily
<input type="checkbox"/>	BG Alert 2	12:00 AM	Single	Sunday
<input type="checkbox"/>	BG Alert 3	12:00 AM	Single	Sunday
<input type="checkbox"/>	BG Alert 4	12:00 AM	Single	Sunday
<input checked="" type="checkbox"/>	Dance Class	04:00 PM	Recurring	Tuesday
<input checked="" type="checkbox"/>	Call Mom	03:30 PM	Recurring	Schedule
<input checked="" type="checkbox"/>	Allergy Med	09:00 AM	Single	Thursday
<input checked="" type="checkbox"/>	Tennis	12:00 AM	Recurring	Thursday

Site Change Reminder

- Give site change reminder every 3 days at 08:00 AM
- Display Site Reminder (SR) home screen

Automatic Off

- Give alert after 10 hours
- Display this message:
Customer Service
800-826-9703

start | Microsoft P... | Inbox - Micr... | CoZmanag... | Document1 ... | 2:22 PM

Enhanced Meal Maker® with CozFoods™ List

- **Meal Maker:** tallies carbs as foods are selected from food list
- **CozFoods™:** food list with carb content that can be downloaded into pump
- Default database of 400 foods
- Additional foods must be entered manually to “Master Food List” with CoZmanager® 2.0
- Up to 600 items can be downloaded to pump

CozFoods

CoZmanager 2.0: Meal Maker

Master Foods Items: 2420 Categories: 379

- Master Foods
 - Starches
 - Fruits & Vegetables
 - Milk, Yogurt, Cheese
 - Meats & Meat Substitutes
 - Fats & Oils
 - Sweets & Desserts
 - Combination & Restaurant Foods
 - Condiments
 - Beverages
 - my favs
 - NSM CozFoods 2006
 - CWD071806
 - Denise Favorites
 - Jolie's CozFoods
 - Restaurant Lists

CozFoods Items: 27 Categories: 5

- School Lunch
 - School lunch
 - YOI Pizza lunch**
 - Carrots bby
 - Milk, ff skim
 - Brownie
 - Pizza chs
 - YOI Chix lunch
 - Favorites
 - YOI Breakfast
 - OJ Fresh
 - Strawberry
 - Scrmbld egg
 - Crisp bacon
 - Bread, ww
 - Banana, sm
 - Crnberry reg
 - Ice cream
 - Angel food
 - Oatml raisin
 - Apple pie
 - Sub turkey 6
 - Lemonade
 - Bread, ww

Add Category... Add Meal... Add Category... Add Meal...

Edit... Import... Edit... Open... Save Save As... Custom Bolus

Pizza lunch

Per meal

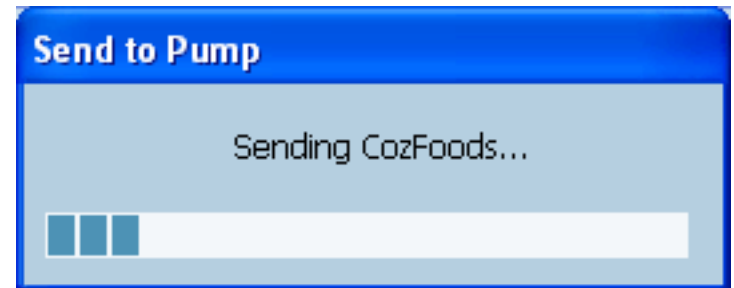
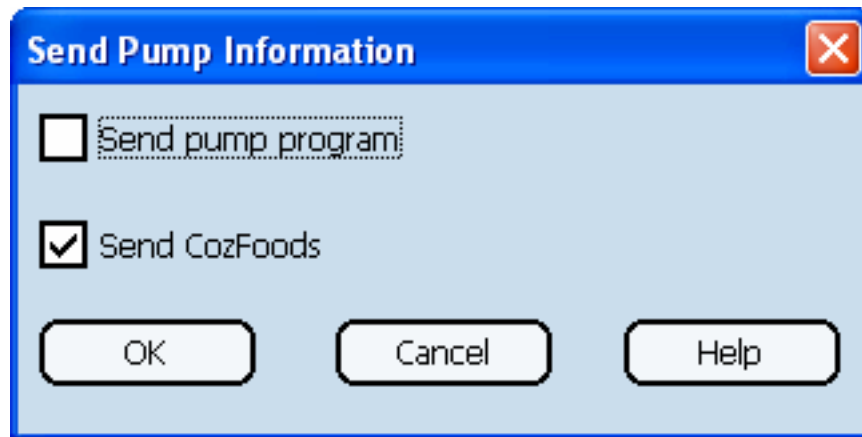
Carbohydrate	48 g
Fiber	*
Fat	17.0 g
Protein	20.0 g
Calories	415

*Incomplete information

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CozFoods download

- When sending information to Cozmo, you may either select CozFoods, the Pump Program, or both



OmniPod Insulin Management System



OmniPod Insulin Management System



PDM



OMNIPOD

PDM

- Wireless, handheld device transmits personalized insulin delivery instructions
- Incorporates a FreeStyle glucose meter

“Pod”

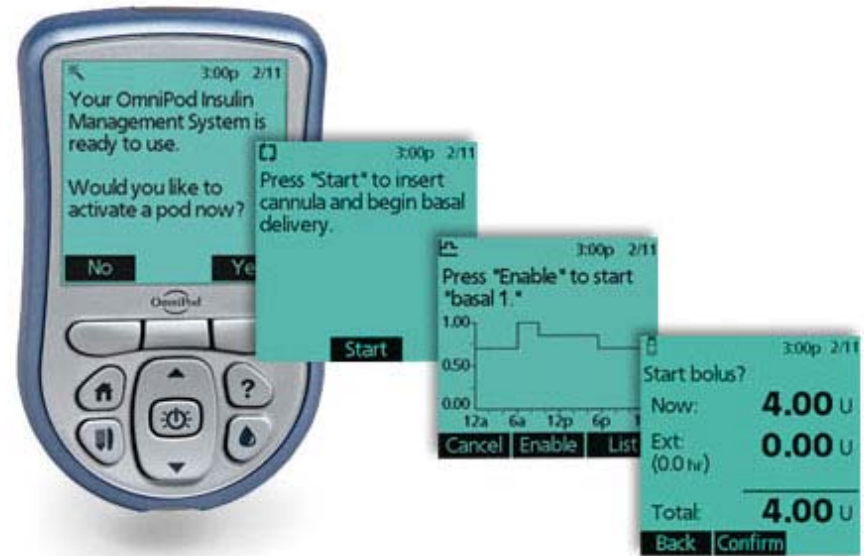
- Light-weight, self-adhesive, insulin reservoir
- Self contained cannula, insertion needle, battery and pump motor



“Pod”

- Holds up to 200 units of insulin
- Can be worn on abdomen, arm, thigh, lower back
- Worn for 3 days or 80 hours (previously 72 hr)
- Automatic priming and cannula insertion
- Watertight
- NO TUBING = “Freedom”

PDM



- Large easy to read display with backlighting
- Suggested bolus calculator (direct BG integration)
- 1000 food database (reference only)
- Stores and displays BG and total daily insulin and carbs (no software for analysis yet)
- Fits easily into pocket or purse
- Does not need to be with in certain distance of “Pod” to transmit basal insulin

“Changing your OmniPod couldn’t be simpler”



1. Fill new OmniPod with insulin.



2. Apply the OmniPod to your skin.



3. Press “Start” on the PDM for automated cannula insertion.

OmniPod *“Pay-As-You-Go”*

- Eliminates the large upfront cost of conventional insulin pumps

Automated Cannula Insertion

A decorative graphic on the left side of the slide consists of a light green vertical bar, a white rounded rectangle overlapping it, and a dark blue horizontal bar extending across the width of the slide below the title.

Valeritas' h-Patch™

"Make it simple and people will use it."

- Already has FDA approval.
- Will be initially marketed to T2D.
- Disposable, waterproof device as small as ChapStick™ tube.
- “Attractive alternative to other insulin delivery methods such as catheter-based electronic pump systems or injections.”



Valeritas' h-Patch™



- Patient peels protective liner from the adhesive backing.
- Start button is pushed, micro-needle is inserted and basal insulin starts.
- Can be attached to abdomen, arm or thigh.
- Wearer presses the bolus button and a click will be heard to indicate bolus has been delivered.
- Replaced every 24 hours.

Where next?

- Closed loop?
- Dual chamber pumps
- Faster acting insulins (Biodel)
- More sensor augmented pumps (Will Cozmo and OmniPod “marry” Navigator?)

Pens, Pumps and Dosing Software: The Latest Advances

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