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
“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

- 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
Most meters with USB adapters will currently upload BG values into the ezManager (Bayer, LifeScan, MediSence, Therasense and Roche) not BD.

BG values will be populated into the insulin delivery reports for the appropriate date and time.
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 GB  | 67  | 129   | 207   | 237   | 79    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 198  |
| CH    | 186 | 56    | 4.1   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 584  |
| INS   |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 54   |
| 6/8/2002 GB  | 211 | 86    | 118   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 511  |
| CH    | 187 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 81   |
| INS   | 3.4 | 10.1  | 4.1   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 88   |
| 6/9/2002 GB  | 187 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 185  |
| CH    | 154 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 687  |
| INS   | 2.9 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 82   |
| 6/10/2002 GB  | 235 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 96   |
| CH    | 101 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 821  |
| INS   | 6.8 | 6.1   | 3.7   | 13.7  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 96   |
| 6/11/2002 GB  | 178 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 174  |
| CH    | 141 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 601  |
| INS   | 8.7 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 78   |
| 6/12/2002 GB  | 191 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 147  |
| CH    | 99  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 605  |
| INS   | 14.4|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 76   |
| 6/13/2002 GB  | 57  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 139  |
| CH    | 83  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 520  |
| INS   | 4.4 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 75   |
| AVG   | 139 | 111   | 188   | 239   | 207   | 212   | 248   | 245   | 211   | 215   | 114   | 92    | 97    | 119   | 146   | 151   | 146   | 121   | 159   | 179   | 65   | 185   | 153   | 216   | 152   | 193   | 192   | 225   | 194   | 198   | 188   | 95   |
| CH    | 112 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 95   |
| INS   | 5   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 6    |

The DAY column contains the daily average of BG and the total intake of CH and INS.
Daily report for: Annie Maas
Date: Friday, 6/14/2002

BG Graph

Carbs Graph

Insulin Graph

BG Log

<table>
<thead>
<tr>
<th>Time</th>
<th>BG Val</th>
</tr>
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<tbody>
<tr>
<td>01:19</td>
<td>205</td>
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<tr>
<td>02:05</td>
<td>205</td>
</tr>
<tr>
<td>08:46</td>
<td>204</td>
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<tr>
<td>09:32</td>
<td>278</td>
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<tr>
<td>15:12</td>
<td>136</td>
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<tr>
<td>15:44</td>
<td>218</td>
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<tr>
<td>16:57</td>
<td>240</td>
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<td>18:02</td>
<td>50</td>
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<td>19:28</td>
<td>139</td>
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<tr>
<td>23:39</td>
<td>264</td>
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Meal Log

<table>
<thead>
<tr>
<th>Time</th>
<th>Carbs</th>
<th>Fiber</th>
<th>Proteins</th>
<th>Calories</th>
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<tbody>
<tr>
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<td>4</td>
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<td>239</td>
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<tr>
<td>02:15</td>
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</tr>
<tr>
<td>03:03</td>
<td>16</td>
<td>4</td>
<td>16</td>
<td>218</td>
</tr>
<tr>
<td>05:32</td>
<td>33</td>
<td>7</td>
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<tr>
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<td>95</td>
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<td>14:31</td>
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<td>4</td>
<td>15</td>
<td>56</td>
</tr>
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<td>14:38</td>
<td>16</td>
<td>2</td>
<td>11</td>
<td>197</td>
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<tr>
<td>16:04</td>
<td>1</td>
<td>6</td>
<td>16</td>
<td>58</td>
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<tr>
<td>22:28</td>
<td>55</td>
<td>0</td>
<td>16</td>
<td>28</td>
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Insulin Log

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<tr>
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<td>E</td>
<td>12.7</td>
</tr>
<tr>
<td>07:10</td>
<td>I</td>
<td>19.6</td>
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<tr>
<td>08:19</td>
<td>E</td>
<td>19.8</td>
</tr>
<tr>
<td>10:51</td>
<td>I</td>
<td>19.7</td>
</tr>
<tr>
<td>12:41</td>
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<td>13:08</td>
<td>E</td>
<td>12.1</td>
</tr>
<tr>
<td>18:06</td>
<td>E</td>
<td>5.1</td>
</tr>
<tr>
<td>19:52</td>
<td>B</td>
<td>9.8</td>
</tr>
<tr>
<td>22:40</td>
<td>I</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Notes

- 02:05: This note is the note test number 2 for 6/14/2002.
- 07:10: This note is the note test number 1 for 6/14/2002.
- 19:44: 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.

Activity Log

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:12</td>
<td>Test Activity</td>
<td>91</td>
</tr>
<tr>
<td>12:04</td>
<td>Test Activity</td>
<td>50</td>
</tr>
<tr>
<td>23:26</td>
<td>Test Activity</td>
<td>10</td>
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</table>

Basal Rt.

<table>
<thead>
<tr>
<th>Time</th>
<th>U/Ih</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00</td>
<td>1.60</td>
</tr>
</tbody>
</table>
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.

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.

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):

- Early AM: 0
- Breakfast: 6
- Morning: 9
- Lunch: 12
- Afternoon: 14
- Dinner: 18
- Night: 21
- 00: 24
Debiotech

**Insulin Nanopump™**

- Based on the MEMS Nanopump™ technology- (Micro-Electro-Mechanical System) a high-performance micropump.
- Small size and weight.
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
- 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
<table>
<thead>
<tr>
<th>Pump Functions</th>
<th>STANDARD Menu</th>
<th>ADVANCED Menu</th>
<th>CUSTOM Menu</th>
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<tbody>
<tr>
<td>Standard Bolus</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>Extended Bolus</td>
<td></td>
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<td>●</td>
</tr>
<tr>
<td>MultiWave Bolus</td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Temporary Basal Rate</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Information</td>
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<td>●</td>
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<tr>
<td>Change Basal Rate Profile</td>
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<td>Program Basal Rate Profile 1</td>
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<td>●</td>
</tr>
<tr>
<td>Basal Rate Profile 3</td>
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<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Basal Rate Profile 4</td>
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<tr>
<td>Basal Rate Profile 5</td>
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<tr>
<td>Basal Rate Profile 6</td>
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<td>Setup Menu Standard</td>
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<td>Setup Menu Advanced</td>
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</tr>
<tr>
<td>Select User Menu</td>
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<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
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
3. Glucose Meter
4. CareLink® and Solutions® Therapy Management Software
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

- http://www.minimed.com to access Carelink Online from main home page
- http://carelink.minimed.com
Choose Report and Time Ranges

Press “Go” To Generate the Reports

Name of Report

Time Range Desired for Report
12 Types of Reports

- **Quick View Summary**: This report provides a chronological listing of the most important information about your therapy.

- **Daily Summary**: This report shows glucose readings, insulin delivered by the pump, and important pump details, along with statistical information and logbook summaries 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.

- **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, location.

- **Pump Settings**: This report shows the settings in your pump as of the date and time selected.
## Bolus Wizard Settings

### Bolus Wizard
- **Bolus Wizard Status**: On
- **BW Setup Status**: Complete
- **BG Units**: mg/dL
- **Carb Units**: grams
- **Active Insulin Time**: 4 hours

### Carbohydrate Ratio

<table>
<thead>
<tr>
<th>Time</th>
<th>Ratio</th>
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<tbody>
<tr>
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<tr>
<td>11:30a</td>
<td>5</td>
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<td>04:30p</td>
<td>5</td>
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</table>

### Insulin Sensitivity

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</table>

### Blood Glucose Target

<table>
<thead>
<tr>
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<th>BG High</th>
</tr>
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<tbody>
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<td>130</td>
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</tr>
</tbody>
</table>

### 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
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

- 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 Medtronics 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.
- Medtronics recently announced they are terminating the implantable pump study in the U.S.
- Patients will need to return their pumps to Medtronics by July 1, 2007.

- [www.theiipump.com](http://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

- Enable Hypo Manager
- Use specific target BG of 100 mg/dl for Hypo Manager
- Look out Hypo Manager for 3:00 hhm 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

The image shows a software interface titled "CoZmanager 2.0: History Reports - Jolie" with several options and settings. The interface includes:

- **Settings**:
  - Start date: 8/1/2006
  - End date: 8/8/2006
  - Display Blood Glucose In: mg/dL (default)

- **View**:
  - Options include: Bolus History, Blood Glucose History, Delivery Summary, Complete Event History, Logbook, Basal as Percent of Total Daily Dose (TDD), Therapy Effectiveness Scorecard

- **Basal Test**:
  - Options: Morning, Afternoon, Evening, Overnight

The interface is designed to allow users to select specific options for generating history reports based on the date range and preferred units. The highlighted areas in red indicate specific test times for basal testing.
Basal Rate Test - Morning
Pump User Name: Raphine
Pump User ID: [Redacted]
1/8/2005 - 7/22/2005

* 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
<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrates per day</td>
<td>340 g</td>
</tr>
<tr>
<td>Total Daily Insulin</td>
<td>71.04 u</td>
</tr>
<tr>
<td>Meal Bolus</td>
<td>55.44%</td>
</tr>
<tr>
<td>Correction Bolus</td>
<td>3.00%</td>
</tr>
<tr>
<td>Basal</td>
<td>40.70%</td>
</tr>
<tr>
<td>Blood Glucose</td>
<td>135 mg/dl</td>
</tr>
<tr>
<td>BG tests per day</td>
<td>4.0</td>
</tr>
<tr>
<td>BG Standard Deviation</td>
<td>8.7 mg/dl</td>
</tr>
</tbody>
</table>
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
Alerts 1

Alert Preferences:
- Alert method:
  - Beep
  - Vibrate
  - Key beeps
- Alert volume:
  - High
  - Medium
  - Low

Delivery Limit:
- Give alert when [5] units of insulin are delivered in 1 hour

Low Cartridge Alert:
- Give alert when cartridge volume reaches [20] units

Missed Meal Bolus Alerts:
- Alert if no meal bolus taken:
  - Use: [12:00 AM, 12:00 AM]
  - Start Time: [12:00 AM, 12:00 AM]
  - End Time: [12:00 AM, 12:00 AM]

Missed Meal Bolus Alerts - Weekly Schedule:
- Weekday:
  - Enable this set:
  - The name of this set is: [Weekday]
- Alert if no meal bolus taken:
  - Use: [06:30 AM, 07:30 AM]
  - Start Time: [11:30 AM, 12:30 PM]
  - End Time: [06:00 PM, 07:00 PM]
  - Time: [12:00 AM, 12:00 AM]
Alerts 2

CoZmanager 2.0: Personalize - CES Training Profile (Modified)

Alerts 1

Blood Glucose Reminders
- Give BG reminder at mm:hh after bolus or cartridge change
- If BG below 70 mg/dl, give reminder after mm:hh
- If BG above 200 mg/dl, give reminder after mm:hh

Custom Alerts

<table>
<thead>
<tr>
<th>Use</th>
<th>Name</th>
<th>Time</th>
<th>Type</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>BG Alert 1</td>
<td>10:30 AM</td>
<td>Recurring</td>
<td>Daily</td>
</tr>
<tr>
<td>✔</td>
<td>BG Alert 2</td>
<td>12:00 AM</td>
<td>Single</td>
<td>Sunday</td>
</tr>
<tr>
<td></td>
<td>BG Alert 3</td>
<td>12:00 AM</td>
<td>Single</td>
<td>Sunday</td>
</tr>
<tr>
<td></td>
<td>BG Alert 4</td>
<td>12:00 AM</td>
<td>Single</td>
<td>Sunday</td>
</tr>
<tr>
<td>✔</td>
<td>Dance Class</td>
<td>04:00 PM</td>
<td>Recurring</td>
<td>Tuesday</td>
</tr>
<tr>
<td>✔</td>
<td>Call Mom</td>
<td>05:30 PM</td>
<td>Recurring</td>
<td>Schedule</td>
</tr>
<tr>
<td>✔</td>
<td>Allergy Med</td>
<td>09:00 AM</td>
<td>Single</td>
<td>Thursday</td>
</tr>
<tr>
<td>✔</td>
<td>Tennis</td>
<td>12:00 AM</td>
<td>Recurring</td>
<td>Thursday</td>
</tr>
</tbody>
</table>

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
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

### Master Foods
- Starches
- Fruits & Vegetables
- Milk, Yogurt, Cheese
- Meats & Meat Substitutes
- Fats & Oils
- Sweets & Desserts
- Combination & Restaurant Foods
- Condiments
- Beverages
- my favs
- CozFoods 2006
- CVD071806
- Denise Favorites
- Joe's CozFoods
- Restaurant Lists

### CozFoods

#### School Lunch
- Pizza lunch:
  - Carrots 
  - Milk, ff skim
  - Brownie
  - Pizza etc.

#### Favorites
- Breakfast:
  - OJ Fresh
  - Strawberry
  - Scrambled egg
  - Crisp bacon
  - Bread, ww
  - Banana, sm
  - Cranberry reg
  - Ice cream
  - Angel food
  - Oatmeal raisin
  - Apple pie
  - Sub turkey 6
  - Lemonade
  - Bread, ww

### Nutritional Information

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrates</td>
<td>48 g</td>
</tr>
<tr>
<td>Fiber</td>
<td>x</td>
</tr>
<tr>
<td>Fat</td>
<td>17.0 g</td>
</tr>
<tr>
<td>Protein</td>
<td>20.0 g</td>
</tr>
<tr>
<td>Calories</td>
<td>415</td>
</tr>
</tbody>
</table>

*Incomplete information*
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**
- 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
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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