

DIABETES CLOSE UP

Diabetes Close Up, V2, #18
September 30, 2003

Greetings and warm wishes for the fall and the unofficial start of earnings season!

1. **Medtronic analyst meeting – Top 10 items of note for diabetes watchers**
2. **Upcoming earnings reports with implications for diabetes/obesity markets**
3. **Upcoming diabetes/obesity – related conferences**

APPENDIX: Detailed notes on the Medtronic meeting

1. **Medtronic Analyst Meeting – “Blueprint for Growth”:** Medtronic hosted an analyst/investor meeting today focused on its growth plans and objectives. My comments focus solely on the diabetes franchise – see Appendix for in-depth notes.
 - a. **Top Ten Most Interesting Diabetes-Related Items from today’s Medtronic meeting:**
 - i. **Candor:** In his early remarks, Scott Ward, SVP and President, Neurological and Diabetes, noted that Medtronic had not met expectations on the diabetes front to date, which he attributed largely to product quality and customer service issues – the introduction of Lantus was also mentioned. He acknowledged that product launches that were delayed or canceled prompted significant gaps in the pipeline; Medtronic, he said, has implemented aggressive actions to fix these shortcomings. Tangent on Lantus - there’s been a real back-and-forth over whether Lantus has helped or hurt the pump market – in my note, I go into why I think it’s contributing to market expansion by now and how this helps the entire pump industry.
 - ii. **Growth – big range:** When reviewing growth estimates for the businesses, Ryan pointed to 18% growth in the “base case,” with a possible 24% growth on the high end. 15% growth is expected from current offerings and hopes for 18% include the Paradigm 712, to be launched later this year. This is down from the original 30% stated around the time of acquisition of MiniMed.
 - iii. **International sales improving:** Medtronic has established new sales/distribution operations in 29 countries and international revenues have grown four fold (base year unclear). Unfortunately, they did not break out the mix, which would have been quite interesting. It will be key to watch where pump growth expands the most overseas. For example, in England, reimbursement is still quite tough (though this is said to be changing).
 - iv. **New products – Guardian still expected this year:**
 1. This is the product that has the hypoglycemic and hyperglycemic alarms but no real-time glucose readings – I’d expect reimbursement to be very limited (adjunctive, not substitute, product) but the patient information will likely be very valuable in working out kinks.
 2. I have been intrigued since January to hear Medtronic state so explicitly that this product will be introduced “later this [calendar] year.”
 3. Since I understand it was only submitted late last year, and given FDA sensitivities, I’m surprised to hear these launch plans.
 4. I’m wondering if it’s already approved and they aren’t rushing to get it to market because it won’t be reimbursed widely.

- v. **New products – Guardian 2 in 2005/6?**: So this is the continuous sensor that *does* have real time readings and would likely be reimbursed, if it works as planned. I found it interesting that this was one of the few products that the company didn't focus on in its forecasts, though I think the slide implied a fiscal 2005/6 launch. More detail to follow on this after further clarification.
- vi. **New products – Implantable pump coming soon?**: The company also didn't emphasize a particular date for the implantable pump in the US but did note that in Europe there are 400 patients on this product. Patients appear very enthusiastic though its unclear in what circumstances this is being reimbursed. Unsurprisingly, I've heard it's quite expensive. Trials started here recently and we heard from one of the folks in the trial who gave it very strong marks. Santa Barbara's Sansum Medical Research Institute appears to be the only US trialsite.
- vii. **New products – Closing the loop, artificial pancreas, version 1 and version 2**: The company had a cool looking chart showing plans for closing the loop with an external pump (a modified closed loop, of sorts) and also with an internal pump. Exact dates were not articulated but it was emphasized these were "separate but inter-related" initiatives.
- viii. **New products – Paradigm 712 – fixing the problem**: This pump was promised for later this year – this is the Paradigm that will hold 300 units of insulin. Apparently with the Paradigm, it had been hoped that a more concentrated insulin would be available, when this didn't pan out, customers that use more insulin were upset – even as others were happier with the smaller size. It will be interesting to see what sort of marketing will be done with Type 2 patients – likely this will help the whole market. I would think the Type 2 market would be the most likely to go for this product, as well as others more insulin resistant.
- ix. **"Proprietary"**: While there was no reference to a now-oft-noted lawsuit between Medtronic and Deltec. As I understand it, the issue is whether Medtronic has a patent on the unused insulin feature, part of the Bolus Wizard – can division, a simple math operation, be patented? Stay tuned. I am not surprised Medtronic didn't discuss this. In my humble view, take this much further and they could be accused of impeding progress for all patients with diabetes.
- x. **Synergy with rest of business**: I was surprised Medtronic didn't discuss more on synergy between cardiovascular complications and diabetes given the powerhouse nature of its cardiovascular franchise.

2. Upcoming earnings reports with implications for diabetes/obesity markets:

- a. **MDT – Thursday, October 2**, 4:30 pm EST – Intra-Quarter Financial Update
- b. **ABT – Thursday, October 9**, 9:50 am EST - 3Q03 results www.abott.com
- c. **JNJ – Tuesday, October 14**, 8:30 am EST – 3Q03 results www.jnj.com
- d. **Roche – Thursday, October 16**, details TBD.
- e. **BDX – TBD; likely week of October 13** – F2Q03 results www.bdx.com
- f. **THER – Wednesday, October 22**, 5 pm PST. www.therasense.com
- g. **IMDC** – Details TBD; www.inamed.com
- h. **AMLN** – Details TBD; www.amylin.com.

3. Upcoming diabetes/obesity – related conferences:

- a. **October 11-15: NAASO Annual Scientific Meeting**: Ft Lauderdale www.naaso.org/meetings/
- b. **October 15 – 18: Canadian Diabetes Association**: Ottawa, Canada. www.diabetes.ca
- c. **October 25: Diabetes Research Institute, 4th Annual Conference**, New York
http://www.drinet.org/html/4th_annual_research_conference.htm
- d. **November 4-8: Rachmiel Levine Symposium: Advances in Diabetes Research**: From Cell Biology to Cell Therapy. Universal City <http://levinesymposium.coh.org>
- e. **November 8: American Heart Association**: Diabetes symposium led by the esteemed Dr. Steve Marso: Orlando www.scientificsessions.org.
- f. **November 6-8: Diabetes Technology**: San Francisco www.diabetestechology.org

- g. **February 6-8, 2004:** ADA 51st Annual Postgraduate Course. San Francisco, CA
<http://www.diabetes.org/main/professional/conferences/default.jsp>

APPENDIX
More on Medtronic

1. **Detailed notes: CEO Art Collins** kicked off the day's session. Notes of interest vis a vis the diabetes market:
 - a. **Population growth expectations** for the 60-and-over set, noting that 78% of healthcare expenditures in the US are for those with chronic diseases. This certainly builds an argument for good prospects for companies in such businesses, for anyone that hadn't been persuaded.
 - b. **On the diabetes front**, evidence supports the benefits of pump therapy versus shots and that less than 20% of Type 1 patients alone use pumps, **though over 60% of healthcare professionals with diabetes wear pumps**. From Collins remarks, that a significant penetration opportunity exists is clear – the key to growth from my view will be persuading patients, doctors and CDEs through: (i) continued product improvements, (ii) availability of a reliable continuous sensor (that will help educate patients on how well they aren't doing¹) and (iii) better reimbursement for equipment/education.
 - c. **More predictable, timely reimbursement is needed**. On the pump front, I would suggest that this is true for the device and equally importantly for diabetes education. MiniMed did a fantastic job in the mid to late 1990s improving device reimbursement – reimbursement on education still needs big help though.
 - i. Endocrinologists are among the lowest paid of all doctors. The work involved is immense and many don't have the time/resources to encourage pump therapy, despite the evidence.
 - ii. Many others work tirelessly to train patients and go unreimbursed.
 - iii. The US is facing severe shortages in the endo community. There are only 4334 endocrinologists in the U.S., and 689 pediatric endocrinologists, as of 2002. These numbers appear to be going down over time, not up, despite the immense growth in the populations with diabetes and pre-diabetes – 29 million in the US alone according to a report earlier this month in *Morbidity and Mortality Weekly*, a report published by the Centers for Disease Control and Prevention. (<http://207.36.37.10/Newsletter/NHANES.pdf> - quite valuable statistics update)
2. **Scott Ward, SVP and President, Neurological and Diabetes, spoke on neuro and diabetes. Of note on the diabetes front:**
 - a. **Ward outlined key growth drivers** for the division, which appear particularly suited to diabetes:
 - i. **Accelerate patient access**
 1. Patient awareness
 2. Clinical capacity
 3. Health economics and reimbursement
 4. Global expansion
 - ii. **Innovative new product development**
 1. Product line extensions
 2. New product categories
 - iii. **Novel therapies for unmet needs**
 1. Leverage core technology
 2. Chronic disease
 - b. **Candid discussion of diabetes ensued.**
 - i. **Ward noted that Medtronic** had not met expectations on the diabetes front to date, attributed largely to product quality and customer service issues, as well as the introduction of Lantus. He also acknowledged that product launches that were delayed or canceled prompted significant gaps in the pipeline; Medtronic, he said, has implemented aggressive actions to fix.

¹ I've always thought it would be much better for long-term outcomes if hyperglycemia were painful – hyperglycemia is basically the root of all complications, spending on which represents the vast majority of spending on diabetes - \$132 billion in the US alone in '02.

- ii. **On Lantus**, Ward allowed that although Lantus had caused turbulence in prescribing patterns, this has prompted only a temporary delay. In discussing this point with clinicians and patients, it appears to me that the Lantus introduction has prompted nearly a new “language.” While for some time, endos and CDEs have been focused on basal and prandial meal time insulin needs, insulin used to be a bit more of a black box for patients – long acting insulin, in particular, could be quite unstable prior to Lantus. From my anecdotal conversations, it does seem now that more patients understand they have a “basal” need for insulin and a “prandial” need. Ward argued that many patients now see they still needed 4-6 shots a day and they are turning to pumps. While the extent to which this is happening can be debated, I agree that pump therapy should see broader penetration - also due to new products (smaller pumps, smarter pumps, links with monitors, etc.)
- c. **Pipeline news** was detailed – Ward said Medtronic will develop the world’s first artificial pancreas, which is now firmly in grasp and noted the other following plans:
 - i. **Recent offerings/Coming soon:**
 1. **In his remarks, Ward discussed products as far out as 2007, however he promised patients wouldn’t have to wait until then for improvements.** He reviewed the Paradigm 512 launch last July and noted this product and the related meter were being well received. As a reminder, this wireless technology automatically transmits patient glucose readings to the pump via the bolus wizard and performs complex diabetes math and recommends insulin doses. Other competitive smart pumps are expected to follow – Deltec is already on the market with its Cozmo².
 2. **2003- The Guardian** (patient version of CGMS) launch was promised for later this year:
 - a. **Target:** This is the hyperglycemic and hypoglycemic alarm product. Ward suggested it would be aimed at children and patients with hypoglycemic unawareness.
 - b. **Timing:** For some time, Medtronic has been firm that this product will be launched this year, even though it was submitted only in late 2002.
 - c. **Reimbursement:** Because this will not be a substitute for current meters, I would guess the labeling would be quite restrictive, but no doubt patient use will provide valuable feedback to the company and a chance to work out any kinks.
 3. **2003 - The Paradigm 712** will be introduced later this year, which is the same as the standard Paradigm but with a 300 insulin unit reservoir. The original Paradigm reservoir holds only 150 units - as I understand it, initially a more concentrated insulin was expected to be available. When this did not happen, the 150-unit reservoir size – which had enabled a smaller pump – became a limiting factor for some. This pump will be aimed at anyone needing more than 50 units of insulin per day. (A general rule of thumb for insulin needs is body weight multiplied by 0.2.)
 4. **2004 – A new infusion set will be launched**, which will have a low profile and new connector and rotates at infusion site.
 5. **Fiscal 2005, second half:** The Guardian and the Paradigm pump will be linked. (Note – Guardian 1.)

² **Is a smart pump really needed?** I often get this question: “It’s just simple math, right?” It’s worth noting that once one checks their blood sugar, the work has just begun! Then one needs to figure out (i) what the “correction” dose, if any, needs to be (either a dose of insulin for hyperglycemia or a dose of food for hypoglycemia); (ii) how much insulin to take for food to be eaten in the next half hour; (iii) as part of the insulin calculation, one must understand both the insulin/carb ratio (which often changes throughout the day), the insulin sensitivity factor (which changes throughout the day). If you want more detail on this, please ask and I’ll send you a spreadsheet.

6. **Fiscal 2006:** The Guardian 2 and Paradigm pump will be linked. This version of the Guardian is promised to have blood glucose readings displayed on the screen of the device, while the pump will have proprietary bolus wizard calculator based on scores detected by guardian 2.
 7. **Fiscal 2007:** A combination that “closes the loop” will be available, known as the external artificial pancreas.
 8. **Implantable pump update:**
 - a. **I didn’t catch the ultimate date forecast for US approval for this product, but it is available in France**, and nearly 400 people are said to be using it there.
 - b. **We heard one of four patients in the US implantable pump clinical trial speak.** Outtakes included:
 - i. “This pump therapy changes you ... it feels like I have all this energy.”
Little did the patient know before going on the implantable pump “life was just about to begin.” The patient noted that the product opened “a zillion doors to food.”
 - ii. “I’m the proudest human being on earth. Proud and excited and huge gratitude” to Medtronic.
 - iii. Interesting. This language reminded me of how I felt when I began using the conventional insulin pump – and of many other patient conversations I’d heard, once patients were convinced pump therapy was worth it.
 9. **Misc other diabetes references:**
 - a. “The global epidemic continues to grow.”
 - i. Type 1 – 5 m
 - ii. Type 2 – 25 m insulin dependent
 - b. “Diabetes has huge growth – has big challenges, but very excited.”
 - c. “Proprietary” – There was no mention of the suit filed against Deltec, which I understand relates to unused insulin in particular, but Medtronic did refer to its proprietary bolus wizard.
3. **Bob Ryan, SVP and CFO** – Ryan closed the session. When reviewing growth estimates for the businesses, Ryan pointed to 18% growth in the “base case,” with a possible 24% growth on the high end Growth. The growth seems to be forecast at “mid-teens” with the Paradigm 512, which will accelerate with the 712 – will be interesting to see if they have any new marketing programs in particular. This was termed “an important growth platform.” The Paradigm 512 and meter will accelerate near-term

Diabetes Close Up is an occasional newsletter that highlights notable goings-on related to selected companies with diabetes/obesity businesses. This newsletter is put forward as an unbiased commentary on the industry. If you have any suggestions that you think should be included, please contact info@closeconcerns.com. Many thanks!

Disclosure: Kelly L. Close is a specialized consultant to the medical technology/pharmaceutical industries. Companies 1) in which Kelly Close has a personal investment; 2) that are clients of Close Concerns, Inc.; and/or 3) on which Kelly Close serves on a speaker’s bureau include Abbott, Animas, Amylin, Aventis, Johnson & Johnson, SimpleChoice, and TheraSense. All observations expressed are the opinions of Close Concerns alone and should not be viewed as recommendations to investors on any companies in the industry. If you prefer not to be included on *Diabetes Close Up* mailings, or if you know others who would like to be on the mailing list for future occasional observations, please contact info@closeconcerns.com.