



## Medtronic Diabetes Advocate Forum 2016

April 14, 2016; Northridge, CA; Highlights - Draft

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### Executive Highlights

Greetings from Northridge, CA and Medtronic's fourth Diabetes Advocate Forum, where about 20 others involved in patient advocacy and social media (including a heavy contingent from Latin America) met yesterday. This iteration gathered international bloggers for the first time - US, Latin America, and Canada - to learn about the company's vision and roadmap to transform diabetes care. We were extremely impressed to hear several presentations and have Q&A time with senior leadership: Group President Hooman Hakami, Chief Medical Officer Dr. Fran Kaufman, Service and Solutions President Annette Bröils, Intensive Insulin Management President Alejandro Galindo, new Chief Patient Officer Louis Dias, and many others. There's no question that Medtronic Diabetes is a truly different company than the type 1-focused pump and CGM organization at the last Advocate Forum in early 2014. The biggest topline highlights from the day are immediately below, followed by deeper discussion and our key questions.

### Overall Business Highlights

1. Medtronic's worldwide installed base is ~1.2 million patients, with ~60% now outside the US (~700,000) and ~40% in the US (~500,000 patients). This figure has risen a notable ~500,000 patients from the last estimate we heard [one year ago](#) and the international increase is quite notable. Medtronic's ambitious goal remains serving 20 million patients by 2020 - a ~20-fold increase in four years. Management estimates there are 12 million type 1s globally (very close to previous IDF estimates), and that just under 400 million type 2 patients globally breaks down as follows: 11 million on intensive insulin therapy (3%); 38 million on non-intensive insulin therapy (10%); 97 million on orals (26%); 43 million on behavior (11%); and 190 million undiagnosed (50%).

2. Medtronic Diabetes Group President Hooman Hakami reiterated the company's vision: becoming a "holistic diabetes management company" that is paid for delivering outcomes - not for selling more hardware. "In five years, I don't want us to be a company that sells a product. I want to provide a better outcome - that's the company we need to be..." This was fantastic to hear. He also shared views on what each of the Medtronic Diabetes business units will look like in five years, which was quite fascinating.

### Intensive Insulin Management Highlights

3. On an exciting note, Medtronic's fifth-generation sensor is about to start an FDA pivotal trial. Consistent with the [ATTD poster](#) shown in Milan in February, the plan is 10-day wear and one fingerstick calibration per day, matching Dexcom's G6 (pivotal in 2Q16). Medtronic expects a sub-10% MARD.

4. An FDA PMA submission is being prepared for the MiniMed 670G hybrid closed loop system, on par with [4Q15](#) plans to submit before the end of June. Management did not share any launch expectations. We spoke to one 670G trial participant recently that loves the system, particularly overnight. Medtronic is developing a 670G go-to-market strategy so payers won't be concerned with incremental cost.

5. A combined seven-day (!) infusion set and CGM sensor is in R&D. Consistent with [ATTD](#), management shared plans to eventually build Bluetooth directly into Medtronic pumps. Other pipeline plans mentioned in passing include: "type 1 vs. type 2 modes" (we love this idea to customize!), pre-filled insulin cartridges, more flexible wearing options, a "simple bolus calculator," "guided setup," "caregiver-specific features," and "pictographic activity display"

6. Medtronic soon plans to roll out a pilot for a subscription model for sensor-augmented pump therapy in Mexico. Also on the business model front, a recent look at Truven claims data revealed something surprising: pump patients are substantially less costly overall to a health system.

7. Next plans for the IIM business are additional segmentation to drive different product development (e.g., pediatric, adolescent, adult, geriatric). We are particularly eager to see more done on the geriatric side since we have heard so many concerns there and since there is so much work needed to get CGM in type 1 approved in Medicare.

### **Service and Solutions Highlights**

8. The first-gen app with IBM Watson is now expected to launch in late summer/early fall. The app is being positioned as a "Personal Diabetes Assistant," offering far more functionality than just early hypo prediction. Exciting! It will address three questions: How have I been doing? How will I be doing? What should I be doing? This was fascinating commentary and everyone was leaning in, listening to it. Management showed retrospective analysis ("In the last 30 days, high glucose pattern found usually after glazed donut for breakfast") and compelling real-time advice potential ("Hello William, how can I help?" William: "I would like to do a 30-minute run today. How should I prepare?"). We love the upside here and share questions below.

9. MiniMed Connect is launching globally "in the coming months and quarters." This is the first global launch timeline management has ever shared. Notably, 82% of MiniMed Connect users have improved their time-in-range (less hypoglycemia and less hyperglycemia) after starting on the device. Management did not quantify the size of the improvements. Medtronic will soon launch updated CareLink reports that show patients and providers the same information.

10. In new news, Medtronic hopes to expand the Diabeter clinic model outside of Europe to the Middle East and Africa. Previously, only an expansion in Europe has been discussed.

### **Non-intensive Diabetes Therapy (Type 2) Highlights**

11. Medtronic aims to "become the #1 glucose monitoring company for people with type 2 diabetes." The company believes that <10% of type 2s globally are pump candidates (11 million on intensive insulin; see #1 above), while 100% of type 2s "need to know their glucose." As the population with type 2 expands exponentially, so will the number of type 2 patients who are pump and CGM candidates. We believe the type 2 population overall needs far better therapeutic advice, and there is a lot of opportunity here.

12. Medtronic breaks down type 2s into three groups: (i) Lifestyle - At risk and are not seeking treatment, with 50% undiagnosed; (ii) Diagnostic - Patients treated to failure (not a term we love), with >20% confused at diagnosis, ~50% follow therapy guidance, and ~65% with related diseases; and (iii) Dosing - High level of effort and do not know how to take action. It sounds like diagnostic CGM will be the main focus in this business. We're not positive about all of the "groupings" (there are certainly some on dosing who do know how to take action), but we are thrilled Medtronic is thinking about type 2 so expansively.

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### **Overall Business Highlights**

**1. We were very glad to hear updated estimates from Medtronic on its base of patients. Specifically, Medtronic's worldwide installed base is ~1.2 million patients, with ~60% outside the US (~700,000) and ~40% in the US (~500,000 patients).** This global installed base figure has risen a notable ~500,000 patients from the last estimate we heard [one year ago in our interview](#) with Hooman

Hakami and Annette Brüls (~700,000). The counting of customers has likely changed slightly, as Medtronic's sales have probably not risen enough to account for that step-function change - we didn't get full details on that. That said, the company has seen double-digit operational sales growth for [three straight quarters](#) (15%, 11%, 11%). We also assume more type 2s are being reached in the US through the recent [primary care distribution partnership with Henry Schein](#), which is still a bit under-the-radar. Sales of the MiniMed 640G are also going very well in Europe, while MiniMed Connect sales have exceeded expectations in the US; we're not sure how much those are expanding the base vs. selling to existing pumpers (we assume the latter - there are still many patients in the US waiting eagerly for Medtronic's new Enlite 3 sensor, coming next year with the MiniMed 670G and Guardian Connect mobile CGM).

- Medtronic estimates there are 12 million type 1s globally and another 11 million type 2s on intensive insulin therapy.** The company gave very detailed estimates breaking down type 2 diabetes by therapy stage - sources were not listed but management said they combine many different estimates. The difference between "intensive insulin" and "insulin" was not specified.

Therapy Type	Number of Type 2s (% of global total)
Intensive Insulin	11 million (3%)
Insulin	38 million (10%)
Behavior Modification	43 million (11%)
Orals	97 million (26%)
Not Diagnosed	190 million (50%)
<b>Global Total</b>	<b>379 million</b>

- Medtronic's ambitious goal remains serving 20 million patients by 2020 - a ~20-fold increase in four years.** The company recognizes this cannot happen from selling hardware alone, hence the focus on moving into services and type 2 (see below).

**2. Medtronic Diabetes President Hooman Hakami reiterated the company's vision: becoming a "holistic diabetes management company" that is paid for delivering outcomes - not for selling more hardware.** Some of our favorite quotable quotes from his remarks:

- "In five years, I don't want us to be a company that sells a product. I want to provide a better outcome - that's the company we need to be...**Moving from a medical device company to driving an outcome is the right strategic answer for the business, for payers, for providers, and for patients. It's not about a product. This whole push to being a more outcome-based company goes way beyond just hardware - that's an important point and critical to transform diabetes. We think we are the right people and the right company to lead it, and it's going to help differentiate us."
- "We want to be a holistic diabetes management company. We reorganized the business not around products, but around patients.** Intensive insulin management (IIM) is focused on type 1 diabetes. Non-intensive diabetes therapies (NDT) is focused on type 2 diabetes. Diabetes Service and Solutions (DSS) is thinking more expansively about software, and outcomes; not just hardware. It's a total change in the organization."
- "If we're going to transform diabetes, we can't do it alone. We don't have all the answers. We have that element of partnership with IBM, and you'll see others over next 12-24 months.** We have to create an ecosystem to transform this disease. We have great relationships in the type 1 clinician community, and we have to expand that to type 2." It was terrific to hear the company use words like "partnership" and "ecosystem" and we hope that results in more

open data and interoperability. To date, it remains a problem that CareLink data isn't open, though we have high hopes that existing Glooko partnership can change this (no timing shared on launch).

- **"What will each of the Medtronic Diabetes business units look like in five years," we asked. Mr. Hakami didn't hesitate:**
  - "IIM will be more global, and patients will have greater access. We'll have systems that are state of the art, which means the 670G and beyond."
  - "NDT will have much deeper relationships with the PCP community. We'll have a next gen, intermittent CGM that is simpler and easier for patients and physicians. This will be the start of a broader global footprint."
  - "DSS will have more value-based healthcare models with providers and payers. We'll have much more sophisticated apps and algorithms. This will be a different business than today, which is largely still revenue consumables."

### Intensive Insulin Management (IIM; type 1)

**3. Medtronic's fifth-generation sensor is about to start an FDA pivotal trial. Consistent with the [ATTD poster](#), the plan is 10-day wear and one fingerstick calibration per day. Management expects a sub-10% MARD.** As a reminder, the [ATTD](#) poster found a MARD of 10.9% vs. the Bayer Contour Next Link meter (n=55 sensors, 25 participants, 5,709 evaluation points). The fifth-gen CGM includes a 90-minute warm up, redundancy via two sensor flexes, a proprietary fusion algorithm to combine the two outputs, and intelligent diagnostics to assist with fault detection and sensor health. The plan for ten-day wear and one calibration per day would exactly match Dexcom's plans for G6, which is expected to enter a pivotal trial in Q2 of this year (per [February's call](#)). Boy is CGM moving fast and getting a lot better - we love that the competition is driving better innovation.

**4. Medtronic is preparing the FDA PMA submission for the MiniMed 670G/Enlite 3 hybrid closed loop, on par with [4Q15](#) plans to submit before the end of June.** Management did not sure any launch expectations, given the uncertainty over FDA approval timing. The company will need a fairly speedy review of ~9-10 months (assuming a June submission) to meet the JPM guidance for a launch by April 2017 - overall, this is certainly possible but many things definitely have to go right for them to hit the target. That said, this was a very ambitious timeline, and a launch *sometime* in 2017 seems doable. Management was visibly excited about this product, and as we emphasized last month, early patients are too: 80% of pivotal trial participants have opted into the FDA continued access program, a notable vote of confidence.

- **We spoke to one 670G trial participant and Forum attendee that loves the system. The biggest win is overnight - the system eliminates hypoglycemia and shaves off many of the highs.** The Enlite 3 sensor has also improved significantly, an opinion shared by some trial participants that normally use Dexcom. Key areas for improvement include the user interface (lots of menus) and the ability to deal with exercise. Still, we find the early adopter enthusiasm encouraging and wonder how the 670G will be received by a broader patient population (particularly those on MDI).
- **Medtronic has a 670G go-to-market strategy so payers won't be concerned with incremental cost.** This presumably means similar costs to current sensor-augmented pumping, though of course, better outcomes with automation - a total win for payers. This was consistent with Dr. Kaufman's remarks at the [CARB DM summit](#) a few weeks ago. We would certainly think that if there is a notable A1c drop as well as a notable hypoglycemia drop and the system is not "high hassle" that the sum of the increased benefits would result in higher demand.
- **Attendees voiced concern about managing patient expectations with the 670G. One remembered the misleading use of "artificial pancreas" in the popular press after the MiniMed 530G launched.** It was terrific to hear the following from impressive head of intensive diabetes management Alejandro Galindo: "We've learned from past experiences, and we have a dedicated team of marketers to properly position the message of the therapy we're launching. We are going to very explicitly say what it does and doesn't do. The linkage of the artificial pancreas to a

system like the 530G without a qualifier - 'one step towards' - was obviously perceived as incorrect. We're not going to do that; the labeling is explicit to begin with, and it's all about careful crafting of the messaging. The 670G is not a closed-loop system; it's another significant step towards a fully automated artificial pancreas. But it still requires interaction with the system, and we have to explain that extremely well to patients, physicians, and providers."

- **"I came here six years ago to work on the artificial pancreas. I would say that is on the top of my mind, day and night and all the time. We are excited about where we are - in a leadership role,** and my goal is to be able to keep that. We will go through multiple generations of products. We are great right off the bat and we want to keep making it greater. I've been doing this so long - I started my career with animal insulin and urine testing! The artificial pancreas will be a phase shift. We want to keep making that the best progress possible." - Dr. Fran Kaufman, who was ecstatic about the 670G in our conversations at lunchtime.

**5. In new news, Medtronic's is working on a combined infusion set and CGM sensor that will last seven days, use a new sterilization technology, and offer improved usability.** Management called the seven-day infusion set wear a "formidable challenge," but the company believes this could be transformational. As a reminder, Medtronic's MiniMed Duo combination insulin infusion-CGM sensor set launched in Europe [in June 2014](#), but the three-day wear was not ideal for the CGM sensor. We assume the company learned a great deal from this product that it can integrate into a more commercially viable set.

- **Consistent with [ATTD](#), management shared plans to eventually build Bluetooth directly into Medtronic pumps. No timing was attached,** but this will definitely come after the 670G launches. The big advantage is eliminating the hassle of carrying the MiniMed Connect keychain device, enabling seamless, always-on smartphone app communication and remote monitoring.
- **Other pipeline plans mentioned in passing include: "type 1 vs. type 2 modes" (we love this idea to customize!), pre-filled insulin cartridges, more flexible wearing options,** a "simple bolus calculator," "guided setup," "caregiver-specific features," and "pictographic activity display" (we're not sure what that entails). No timing was attached but we're glad to see Medtronic thinking about the user experience part of pumps, which can definitely use simplification and greater customization.

**6. Medtronic soon plans to roll out a pilot for a subscription model for sensor-augmented pump therapy in Mexico. The pay-as-you-go model makes more sense for patients,** who must pay out-of-pocket and therefore cannot afford the full upfront cost of a pump. This is an interesting shift and we wonder about the impact to the traditional DME business model. The company also has an at-risk contact with the Chengdu, China government to expand access to insulin pumps and manage a population of patients at lower cost. We love that Medtronic is thinking of new business models, which are undoubtedly needed in diabetes. Several startups have talked recently about subscription business models (Bigfoot, LabStyle, Livongo, OneDrop), which makes us wonder if it will be common industry-wide in five or ten years. The Insulet business model is actual higher-revenue overall than the traditional pump model, even though there is less revenue upfront.

- **Medtronic's recent look at Truven claims data revealed something surprising: pumps patients are substantially less costly overall to a health system.** Here's how Hooman Hakami described it: "As we started to take a look at the cost associated with diabetes, it was very hard to find anything other than slivers of cost around diabetes and diabetes management. When you go and talk to a payer or health system, they're not just focused on the cost of hypoglycemic events. They care about the *total* cost of diabetes and diabetes management. We could point to OpT2mise, for instance, which reduced insulin utilization by 19%. But that's not the full picture. About nine months ago, we starting looking at Truven claims data to understand the cost associated with diabetes from a patient, health system, and provider perspective. We went through millions of claims and pieced together some interesting information that is relevant and eye opening for payers. When you compare like cohorts of MDI patients vs. pump patients and their total cost of care

(inpatient, outpatient, pharmacy) pump patients were substantially less costly to a health system. This was eye opening to us - the extent of the reduction. We thought it was something to share with payers who are looking at population management and system costs. Paradoxically, better access in the end doesn't necessarily mean higher cost for them. We have started very actively taking this information to payers, and in many cases they want to see it run on their own members. As we're doing that, we have a better appreciation for technology and the impact that technology can have. This is not just a US exercise; we're trying to do it on a global basis."

**7. Next plans for the IIM business are additional segmentation to drive different product development (e.g., pediatric, adolescent, adult, geriatric).** This is far different from the current model: "Let me build a singular pump and try to make it relevant for everyone." The other business units will also evolve to segment around different clusters of patients.

### Diabetes Service and Solutions

**8. The first-generation of the app with IBM Watson is now expected to launch in late summer/early fall. The app is being positioned as a "Personal Diabetes Assistant," offering far more functionality than just early hypoglycemia prediction (e.g., real-time coaching, decision support).** Medtronic could still hit the [CES launch timing](#) for "summer 2016," though the inclusion of "early fall" suggests things may well be pushed back a bit. It sounds like regulatory discussions are still underway and will drive what the app includes in the first-generation - at CES, the company said features requiring less regulatory oversight will precede those that require more stringent review.

- **Notably, management said that the Medtronic-IBM Watson app will ultimately address three questions: How have I been doing? How will I be doing? What should I be doing?** A slide showed compelling examples of all three:
  - **Retrospective analysis:** "In the last 30 days, high glucose pattern found usually after glazed donut for breakfast." The example showed a CGM trace, making the food-glucose cause-and-effect relationship very clear. This has been missing for too long in diabetes, though of course it requires accurate and specific food entry - not easy.
  - **Real-time advice:** Chat box: "Hello William, how can I help?" William: "I would like to do a 30-minute run today. How should I prepare?" We LOVE this!! We have a feeling this is the true vision for this app and wonder how long it will take to get there.
  - **Future prediction:** We first saw this über hypoglycemia prediction capability at [DTM last fall](#) and heard more about it at [CES](#). The system reportedly has 80-90% accuracy predicting hypoglycemia within three hours of bolus insulin delivery. Alarm annoyance factor and false alarms are the big unknowns here, but this kind of hypoglycemia prediction could be compelling.
- **At [CES](#), Medtronic CEO Omar Ishrak shared other compelling possibilities for the future of this app:** leveraging technology adjacencies (e.g., activity trackers) and Watson's population-level analytics (e.g., "What has happened to other patients like me when they have taken X boluses of insulin at a glucose level of Y?") to generate even more clinically relevant insights. This is amazing potential - undoubtedly cool if it can be pulled off.
- **Based on CES commentary, the first-gen app is expected be compatible with iOS system at launch, followed by Android. It will leverage MiniMed Connect** to bring real-time pump and CGM data into the app. This obviously won't be required once the Bluetooth-enabled Guardian Connect mobile CGM launches (under FDA review; launching in Europe in the coming months) or once Bluetooth is built into Medtronic pumps (after the 670G). The company has positioned the Watson app as a product for those not on automated insulin delivery, though we assume many on the 670G and beyond could benefit from it. Presumably the product will read data from other devices and apps on the phone (food, activity, sleep), though we're not sure what will be incorporated in the first-gen version.

- **Will the Watson app live up to the hype? Will the Watson app make Medtronic's CGM a more compelling choice vs. competitors? How gamechanging could a Personal Diabetes Assistant be?** How much useful real-time and retrospective insight will the app provide in the first-generation? Will the hypoglycemia prediction capabilities generate too many alarms? How long will it take to get to the Holy Grail - "Watson, how much insulin should I take right now?"
- **"We love the partnership with IBM. Diabetes is a big data disease in many ways. What happens from a patient's perspective is hundreds of decisions every day.** The provider sees patients every three months, and in between, there are 300 meals, 700 blood glucose readings, 1,000 alarms; they have to distill all that, interpret it, and come up with recommendation for therapy optimization in their head. We don't believe either of those things are optimal today. We really think through cognitive computing and the power of Watson, we can make better sense out of data and give actionable insights to providers and patients. We're really excited about what IBM brings." - Hooman Hakami
- **"What are the implications of Google (Verily) on your work with IBM?"** Mr. Hakami answered this tough question very diplomatically: "Verily is looking at diabetes in similar ways. How we view that product is too early to tell. The fact that there is interest from multiple companies using cognitive computing to drive disease management is going to be great for the industry."
- **We wonder what broader business model learning IBM can bring to Medtronic.** IBM used to be a hardware company (1990s) and has successfully transitioned to a service company. Will Medtronic Diabetes look like this in ten years time?

**9. MiniMed Connect is launching globally "in the coming months and quarters."** This is the first global launch timeline management has ever shared since the device was cleared at ADA 2015 and launched in September. The product's sales have exceeded management's expectations and we expect nothing different abroad. As we understand it, it has taken some time to update the device for compatibility with the new 640G platform.

- **Notably, 82% of MiniMed Connect users have improved their time-in-range (less hypoglycemia and less hyperglycemia) after starting on the device.** Management did not quantify the size of the improvements, but we hope this CareLink analysis will be published - it's a compelling reminder that just sending data to the phone gives patients greater awareness and more convenience to continuously monitor sensor data and insulin-on-board. Hopefully the outcomes will be even better once the Watson app launches.
- **Medtronic will soon launch updated CareLink reports that show patients and providers the same information.** This has been a longstanding complaint and it's great to hear patients will get access to more powerful data analysis and insights. This was consistent with remarks from [ATTD](#), which said such reports would launch "in the coming months." We're very happy to hear this since it goes without saying many patients want to see exactly what their HCPs see and have more time to spend on it (and some more insight).

**10. In new news, Medtronic hopes to expand the Diabeter clinic model outside of Europe to the Middle East and Africa. Previously, only an expansion in Europe has been discussed.** The innovative Netherlands-based type 1 diabetes clinic was acquired [last April](#) and it sounded like Medtronic has learned a lot about delivering IT-enabled, value-based healthcare so far. The clinic's 36-person staff heavily leverages technology to manage over 1,500 pediatric and young adult patients with type 1 diabetes. Notably, ~85% of the center's pump/CGM users and ~50% of its MDI users have an A1c <7.5% - impressive considering the high A1cs typically seen in the young adult population. Also notable is the clinic's reimbursement model - Diabeter receives a fixed fee from insurance companies to provide care for each patient. As a result, it's in their best interest to provide the best care at the lowest cost - and at Diabeter, that's enabled through heavy use of pumps and CGMs (over 50%), remote monitoring, data management, and personalized care.

- **Aside from Diabeter and integrated care delivery, the Service and Solutions business includes infusion sets and supplies (the core business) and connected care (e.g., the IBM Watson partnership).** The mission of this business unit is "to offer people with diabetes access, insights, and services for clinical outcomes and economic value today and tomorrow."

### Non-intensive Diabetes Therapy (Type 2) Highlights

**11. Medtronic aims to "become the #1 glucose monitoring company for people with type 2 diabetes." The company believes that <10% of type 2s globally are pump candidates (11 million on intensive insulin; see #1 above), while 100% of type 2s "need to know their glucose."** The strategy for the type 2 business is to make glucose monitoring standard of care in type 2 diabetes (e.g., professional and intermittent CGM), to expand market access for type 2 diabetes and primary care, and to provide more integrated care for people with type 2 diabetes. Dr. Bob Vigersky was not present during the day, though perhaps a type 2-focused summit would include him.

**12. Medtronic breaks down type 2s into three groups, depending on their disease progression and needs.** The company hopes to serve all three segments with specific solutions:

- **Lifestyle - At risk and are not seeking treatment:** 50% undiagnosed, struggle to manage health, most "feel fine." Management did not share any specific product plans here.
- **Diagnostic - Patients treated to failure:** >20% confused at diagnosis, ~50% follow therapy guidance, ~65% with related diseases. Products for this segment (professional CGM) will enable the PCP to actively understand what is going on and give optimal treatment.
  - **"Diagnostic CGM is at the core of an integrated care model."** Professional CGM can collect observations, provide valuable insights, enable therapy optimization, support patient engagement, and drive action. Presumably apps and other data sources fit in here too.
- **Dosing - High level of effort and do not know how to take action:** painful fingersticks, unaware of lows and how to dose insulin, injections difficult, not discreet, expensive to manage. No specifics were shared here, but we assume simple patch insulin delivery devices could fit in, along with better insulin dosing guidance and a simple CGM. It was simplistic in our view to assume that all type 2s on "dosing" didn't know what to do, but we get it that they were trying to make this simple.

### Close Concerns Questions

**Q: What % of type 1 patients will ultimately be willing to go to go on automated insulin delivery? How much hassle will the 670G and subsequent generations beyond be?**

**Q: What can be learned from the people who have a *terrible* experience on pumps and CGM?** What can be learned from people who *refuse* to go on a pump or CGM based on past experience? (The presentations only mentioned patients who had a *great* experience with pumps and CGM.)

**Q: What clinical efficacy and cost is needed to make pumps and CGM standard of care therapy in type 1 diabetes?** In a world where doctors prescribe pumps and CGM at diagnosis, what do devices and business models need to look like?

**Q: How can patients be more involved in product design?** This is a recurring question in industry-patient gatherings though the tactics of doing so are never discussed - patient advisory boards? More frequent focus groups earlier in the design process? More ethnographic research? More big data mining? More research into quitters and detractors?

**Q: Will the Watson app live up to the excitement?** How compelling could be a personal diabetes assistant be? Could this make Medtronic's CGM truly compelling and differentiated? How much insight will the app provide in the first-generation and subsequent generations? How many false alarms will the hypoglycemia prediction app generate? For what patients will this app be most compelling? Is the low barrier

to downloading and using and discarding apps a major concern? How will app competition evolve? How long will it take to get to the holy grail - "Watson, how much insulin should I take?"

**Q: Where can Medtronic make the biggest difference in type 2 diabetes?** Will the company pursue simple insulin delivery devices (either in-house or through acquisition), or will it focus on glucose monitoring alone?

**Q: Can Medtronic move from a hardware- to service-driven company, just as IBM did?** When will service revenue be a sizeable portion of Medtronic's revenue? How quickly is value-based payment coming to diabetes? Will it be widespread in the US in five or ten years? Will traditional medical device companies adapt or consolidate?

**Q: What is the biggest challenge Medtronic faces in the next five years?** Which business unit (type 1, type 2, service) will be under the most pressure? Which business has the most gamechanging potential? Which unit has the stiffest competition?

**Q: How can Medtronic help patients truly struggling?**

**Q: What competitive products are the biggest threats to Medtronic's current and future business?**

**Q: How are the new heads of the three areas working with each other? Who has the most challenging position?**

*--by Adam Brown and Kelly Close*