Executive Highlights

The bustling EASD 2012 Exhibit Hall featured 92 exhibitors, up from 70 the year before in Lisbon. We present here our coverage of 29 companies' exhibits. There were a number of new technologies in particular that many, including us, were eager to see. For example, we saw Insulet's small pod at the Ypsomed booth - it had begun shipping about a week and a half earlier in the EU, and from the crowds at the booth, there was definitely significant interest. As well, we had a fresh look at Debiotech's updated Jewel patch pump, a device that has flown under the radar since its debut at ADA 2010 - it has never been launched and we hadn't been sure of its status, but trials will soon commence to support submission to European regulators and the FDA. The newest feature is a pump controller that doubles as a sleek, fully functional cellphone and includes an integrated blood glucose meter . We got a full working demo of the pump and a much better feel for how Debiotech plans to differentiate the Jewel from other pumps (the BGM/cellphone controller, a 500-unit reservoir, on-demand bolusing without the controller, size, cloud-based data capabilities). Other notable device news came from Roche: the launch of the Accu-Chek Combo pump-BGM system in the US and news that the first data on the company's own CGM will emerge at ATTD 2013. Dexcom was also present in the exhibit hall, showcasing their new G4 Platinum sensor and Studio software that was reviewed in more detail during a packed corporate symposium the day prior. Medtronic had a busy booth throughout the conference as well, drawing attendees seeking more information on the Veo low glucose suspend pump. On the drug side, the biggest areas of focus seemed to be SGLT-2 inhibitors (BI and J&J Janssen) and DPP-4 inhibitors (BMS/AZ, Merck, Novartis, BI/Lilly). Relative to last year's big-time launch of Bydureon at the Lilly booth, GLP-1 had less fanfare in the 2012 exhibit hall - Victoza had its strong and well advertised presence in Novo Nordisk's booth, though as might be expected given the BMS/AZ acquisition of Amylin, Lilly devoted just a small corner of its booth to Byetta and Bydureon. The three big insulin manufacturers all took a very international focus in their exhibits, emphasizing Life for a Child (Lilly); the vast unmet international needs in diabetes care (a striking five-column sculpture displaying the 366 million people worldwide that have diabetes, the 50% of those are diagnosed, the 50% of diagnosed patients that receive professional care, the 50% of those that actually reach treatment targets, and the small remaining portion that are free of complications) and the GAPP2 survey that looks into insulin and type 2 diabetes globally (Novo Nordisk); and various diabetes programs in India, China, and Saudi Arabia (Sanofi). There were games galore in this year's exhibit hall as well: two hypoglycemia simulators, various uses of motion-sensing videogame technology and plenty of Jeopardy! to go around. And as we've come to expect at every EASD, there was definitely no shortage of gargantuan espresso machines, artful smoothies, and reusable shopping bags to carry freebies home. Companies highlighted in yellow are new additions to the report that were not initially included in our daily updates from Berlin.

- **A. Menarini:** The sizable A. Menarini booth had a wealth of information about the company's glucose and glucose + ketone meters (strips by Arkray and Nova Biomedical, respectively), but the real focus was on two new software applications: GlucoLog Mobile and GlucoLog Lite. The versatile apps, available for free download on both Android and Apple phones and tablets, allow glycemic data to be sent from the mobile device in emails or text messages, to family members and healthcare providers. In a victory for user-friendliness, the system does not require manuallogging: by plugging the new GlucoLog B.T. device (about the size of a stopwatch) into an A. Menarini meter, patients can send data via Bluetooth directly to the screen. Overall, the interface was not flashy, and the Bluetooth data downloading took about 40" in the demo we saw - though we are glad to see A. Menarini entering the mobile health arena and hope that development efforts continue after European launch of the GlucoLog B.T. (reps forecasted European launch of the GlucoLog B.T. within

the next month or so). Refreshments included coffee and continuously churned shakes; the booth's architecture and white-and-green décor echoed the "M" in Menarini.

- **Arkray:** In this big, white booth we got the chance to sip coffee out of a porcelain mug while learning about Arkray's blood glucose meters on display: the classic Glucocard Sigma, the "high-end" Glucocard X-mini plus, and the Glucocard Sigma-mini - a small meter that a rep told us will be focused on emerging markets. (He noted that currently in Romania, one of Europe's poorest countries, the only place where people can afford to buy strips through Arkray's distributor is in Bucharest. He expressed hopes that access will broaden with the European launch of the Sigma-mini sometime in the next year or so.) We also got a look at Arkray's latest A1c analyzer, the HA-8180 T (short for thalassemia) -an upgrade of the 8180 V (short for variant), which debuted three years ago. Targeted for EU launch in November, the T can identify a greater variety of blood abnormalities that would otherwise interfere with accuracy. The booth's main source of entertainment (and exercise) was a balancing game that symbolized the challenge of good diabetes management. Two (or four) players at a time stood on a wood platform that was curved on the bottom, and then by rocking back and forth strategically they had to guide a small metal ball through a maze carved into the middle of the platform's surface. Like diabetes care, the game was much harder than it looked - we made it through eventually, though our partner did at one point have to give us an "insulin shot" (i.e., picking the ball up and moving it closer to the center).
- **Bayer**: Bayer's exhibit had a clean, crisp feel to it with large visual displays at every corner. Matching its brand's color scheme, the booth was decorated in white, green, and blue - even its juice bar offered either bright blue or green concoctions. On the device side, the highly accurate Next platform was the focus (see the table below for a guide to all the meters). Representatives eagerly pointed out Contour Next USB's logbook feature, which allows users to log carbohydrate and insulin doses, a feature that the previous generation lacked. The Contour Next USB launched internationally in June 2012 (representatives were unsure of the US launch timeline, but from our understanding at the AADE 2012 exhibit hall, an early 2013 launch is likely). Representatives were hopeful that the Contour Next Link (recently launched in the US; see our report at http://www.closeconcerns.com/knowledgebase/r/74562cb9) would be available next year in Europe - unfortunately, the US version doesn't work with Medtronic pumps in Europe due to differing radio frequencies. Also missing from the exhibit was the Contour Next, which received FDA 510(k) clearance on July 26. Sales representatives could provide no detail on the timeline for CE Mark or US launch. Notably, a major part of Bayer's display was devoted to Glucobay (acarbose), Bayer's alpha-glucosidase inhibitor used to treat pre-diabetes in parts of Asia. Stands sported the tagline: "Protect them from the danger of glucotoxicity." At one Glucobay station, visitors had 40 seconds to identify five differences between two pictures of a plateful of French fries (assembled to resemble a scorpion). Winners received a USB, which we thought was a nice link back to the booth's Contour Next USB.

Product	Description	Timeline
Contour Next EZ (Contour XT outside the US)	A form factor similar to the Contour but using the new Next strips.	Launched in August 2012 in the US and in April 2012 internationally.
Contour Next USB	A form factor similar to the Contour USB but using the new Next strips.	FDA cleared but not yet launched. Launched internationally in June 2012.
Contour Next Link	A form factor similar to (but slightly larger than) the Contour USB but also using the new Next strips, able to sync with the	Available with new Medtronic Revel or Guardian CGM orders as of September 2012. Those not ordering a new pump or CGM will

	Medtronic Revel pump and Guardian CGM, and including a built-in CareLink USB.	be contacted by Medtronic in January 2013 to obtain the new meter.
Contour Next	Unspecified features.	Approved by FDA on July 26, 2012 (see FDA report at http://1.usa.gov/TxT89R). Launch timeline unclear.

- **BD:** Standing at the corner of the BD booth were two shiny white mannequins, holding pen needles in cupped hands and inviting curiosity. Pads on their thighs and abdomens could be injected with the pen needles (once the rep brought over a clean pen), allowing a simulated head- to-head comparison of 4 mm and 8 mm needle lengths. Upon injection with the 4 mm needle, the dummy emitted a pleasant ding (signaling successful subcutaneous insulin delivery), but the 8 mm needle provoked a buzz (representing intramuscular delivery, which speeds insulin kinetics in an unpredictable and potentially dangerous way). The 4 mm Micro-Fine needle (called "Nano" in the US) is recommended for all patients regardless of age or body composition, the rep reminded us, since nearly everyone's skin thickness is about 2 mm. (He explained that the past two years have seen a science-spurred shift relative to the prior two decades, when BD and other companies recommended that needles as long as 12.7 mm should be used in heavier patients - advice that he admitted was based on little more than "rule of thumb.") Signage around the booth's central column promoted new 5-bevel Pentapoint technology, which is incorporated into the Micro-Fine line (still sold as long as 12.7 mm for those who still want them). In the far corner away from the mannequins, an infographic depicted the prevalence of needle stick incidence (NSI) among European nurses: 32% of survey respondents have accidentally pricked themselves when managing diabetes (Castigliola et al., *Diabetes & Metabolism* 2012). Nearby, demos were available of the BD AutoShield Duo safety pen needle, which gets shielded on both ends after use to prevent NSI. All in all, the booth's conveyed a sense that one was quite welcome: it was set back from the main hustle and bustle, fairly open-air except the only real enclosure was a rectangular orange arch that spanned the booth lengthwise, and the only espresso machine appeared to be self-serve.
- **BMS/AZ:** BMS/AZ's blue and white general exhibit booth was fairly populated during our visit. Our eyes immediately focused on the far left of the booth, wherein two visitors stood in front of their respective monitors and moved the images on the screen by moving their hands (similar to how one would play the hands-free Xbox Kinect). The middle section of the booth housed a coffee bar surrounded by white bar stools, five touchscreens, and four waist-high learning stations. As a representative enthusiastically explained, each station included educational videos on type 2 diabetes (four in total), as well as four slide deck presentations (the materials can be found at www.regulationofglucose.com with the password Diab3t3s). The exhibit was capped on the right side by the medical information center, which was designed like a pristine modern bar with white hanging globe lights, low white leather seats, and more bar tables, complete with visitors lounging on the barstools.

  BMS/AZ also had a separate massive booth that spanned nearly half the length of one exhibit hall, with one side dedicated to Onglyza and Kombiglyze and the other to the more general BMS/AZ diabetes alliance. A long wall separated the two sides and was painted with a large cartoon picture of a patient with his doctor alongside the words "Start Onglyza as add-on therapy to stand strong against rising HbA1c." Fifteen enthusiastic and sharply dressed representatives manned the Onglyza exhibit, which boasted a color scheme of white with Mardi Gras shades of green and purple. Most notable was the "hypoglycemia simulator" on the far left of the exhibit, which housed a circle of six white, egg-like pods, each equipped with a steering wheel and futuristic- looking headpiece (Novo Nordisk also had a hypoglycemia simulator). Once within a simulator, participants found themselves in the driver's seat of a car and had to navigate both city roads and highways as the "DPP-4 FM" radio station described the symptoms of hypoglycemia. As the simulation progressed, the driver's

vision blurred, his hands (or rather, the steering wheel) began to shake, and reaction time slowed down. Next to the hypoglycemia simulator stood a popular lounging area with a coffee station, tall circular tables, and white leather barstools. Three waist- high white touchscreens stood near the front of the exhibit, each playing three videos: a one-and- a-half minute video on Onglyza's mechanism of action, a nine minute video on the epidemiology and burden of diabetes, and a four-and-a-half minute video on Kombiglyze. The far right of the exhibit housed the "interactive area" with four touchscreens and two interactive tables resting on green carpeting. The representatives were eager to hand each visitor a key card, which unlocked an educational package containing videos, publications, and materials on diabetes and DPP-4 inhibitors (the package is available at www.makingtreatmentpersonal.com with the password Personal).

- **Boehringer Ingelheim:** In a white-and-purple colored booth, Boehringer Ingelheim showcased its DPP-4 inhibitor Trajenta (linagliptin) and its DPP-4 inhibitor/metformin combination Jentadueto. The main draw at the booth was the interactive, motion-sensing videogame "Flight of the Weaver Bird." Booth visitors played as the weaver bird (the mascot for Trajenta), flapping their arms as if they were flying in attempts to collect grass tokens to build a nest before time expired. At first we wondered how the game would inform visitors about Boehringer Ingelheim's medications, but we soon had our question answered - the grass tokens players collected were each accompanied by a short blurb on the efficacy or safety of Trajenta or Jentadueto. Lining the sides of the booth, touchscreen panels displayed more detailed information on Trajenta and Jentadueto, the mechanism of action of SGLT-2 inhibitors, the challenges of treating patients with renal impairment, and Boehringer Ingelheim's alliance with Eli Lilly. In true EASD style, the booth also had a coffee station, and provided seating for conference attendees to relax and unwind.
- **Cellnovo:** Cellnovo's booth hinged on futuristic - a central black hub with several white descending arches that reached the floor at points along the boundary of the exhibit created a sense of stepping into a teleport machine. Lining the black hub were televisions with a "CellnovoAcademy" video directing passersby to visit the company's online tutorial for their cloud connected pump. We requested our own Cellnovo tutorial and the sales representative was happy to oblige. The hand held has an integrated BGM, connects wirelessly with the pump and a secure online provider and patient portal, and features an intuitive, user-friendly interface. The hand held stores blood glucose and insulin delivery data and includes applications for tracking activity (with an accelerometer integrated into the pump) and logging food intake. We've seen the pump for some time now at conferences and are curious to hear how patients like it. A 100-patient usability study begun in the UK this February, and we're very eager for updates on the study since its initiation. The sales representative said the pump would be launching "soon-ish" in the UK. It is disappointing to hear about the delays considering the device has been CE marked for over a year, though it's obviously important for the company to make sure customer service, sales reps, manufacturing, and the like are all in place. The sales representative wasn't able to provide details on a US submission timeline, but our understanding from ADA 2012 was that Cellnovo planned to submit to the FDA later this year in hopes of launching the product in the US in 2013. To our knowledge, the integrated BGM will use LifeScan's OneTouch Verio strips in the US, whereas those distributed in the UK will use LifeScan's Vita strips.
- **C8 MediSensors:** Emblazoned with the slogan "Non-invasive continuous glucose monitoring," C8 MediSensors reprised its silver, professional-looking booth from last year's EASD (see our extensive coverage of the device in last year's report at https://closeconcerns.box.net/shared/dyqqxdtfedsre3nloeqz). According to the rep, the non-invasive CGM was submitted for CE Mark in April 2012 and the company hopes it will be approved for sale later this year. This is an approximate one-year delay from what we heard at EASD 2011. As a reminder, it will be sold direct to consumers without a prescription for 3,000 euros. The company is continuing to take reservations on its website at www.c8medisensors.com. New in the last year is the addition of adhesive to the device's elastic waistband, which helps protect against slippage that negatively affects accuracy. The rep was wearing the device around his waist and showed us his blood glucose reading on an Android

smartphone; it will compatible with Android 2.2 and 2.3 to start, with the iPhone expected sometime next year. We asked about the device's accuracy and the rep displayed the latest clinical data on an iPad: 47% of points in the Clarke A Zone and a median ARD of 24.5% in 35 patients - this is relatively low accuracy in our view and is on par with the Dexcom STS, which had a mean ARD of 26% (by comparison, Dexcom's G4 Platinum sensor has a mean ARD of 13.2% and 80% of points in the Clarke A Zone). Indeed, the rep acknowledged that this "is on the high end of CGM" and the company plans to go to market with an improved device that will hopefully bring the median ARD down to 17%. Calibration will be required when you first get the device and is recommended when you put it somewhere else on your body (apparently, the label will not have a specific calibration scheme). We look forward to testing the device on our own (the rep would not let us do so) and getting a better sense of the accuracy and wearability (the large waistband is a downside, though the non-invasive factor is good trade off for many).

- **Debiotech:** The Swiss company has been quiet since we first saw them debut at ADA 2010 (see page 403 of our ADA 2010 report at http://www.closeconcerns.com/knowledgebase/r/442541d6 or our first *Closer Look* on the company at http://www.closeconcerns.com/knowledgebase/r/63d5438a though two years have brought significant updates to the company's Jewel patch pump. The system consists of three parts: a cradle containing a cannula that is placed on the skin, a detachable 500-unit insulin reservoir that slides onto the cradle (which also contains a battery and the tiny silicon-wafer-based pumping mechanism), and the newest feature, a fully functional cellphone/pump controller with an integrated blood glucose meter. According to the rep we spoke to, Debiotech will initiate clinical studies of the pump in early 2013 to support regulatory approval in both the US and Europe (obviously far behind the late 2011 forecast for USlaunch that we heard at ADA 2010). The company has had a pre-IDE meeting with the FDA. A seven center clinical trial ("Diabeloop") using the pump was freshly completed yesterday - it was aimed at developing new algorithms for a closed-loop system using the Jewel Pump and a Dexcom CGM sensor.
    - **We appreciated a live working demo of the Jewel pump** that included dialing in a bolus dose on the cellphone controller app and watching the patch pump infuse saline into our hand. During the demo, the rep repeatedly demonstrated sliding the reservoir off the cradle, which is immediately detected by the cellphone controller and triggers an alarm and a suspension of insulin delivery. This is a cool feature, though we do wonder if the reservoir could inadvertently slide off while sleeping, exercising, etc.
    - **The patch pump itself will come in two models:** one with two bolus buttons on the patch pump body (allowing on-demand bolusing without the cellphone controller) and one without on-pump buttons. This feature was not part of the pumps displayed at ADA two years ago. The on-body patch also has vibration feedback that confirms initiation or completed delivery of a programmed bolus and guides a user when using the on-pump buttons for bolusing. The patch pump body (60 x 40 x 13 mm) is comparable in volume to the second-gen OmniPod (52 x 39 x 15 mm) and holds a notable 500 units of insulin. The rep noted that the reservoir would only need to be changed once every seven days.
    - **Accuracy and safety were big themes in the booth.** A video screen compared the delivery accuracy and occlusion detection of the Jewel pump to other patch pumps (presumably just OmniPod) and durable pumps (we do not believe Tandem's t:slim pump was included). This data will be published at a later time and was initially discussed at DTM 2010 by Debiotech's CEO Dr. Frederic Neftel (see pages 71-72 of our report at http://www.closeconcerns.com/knowledgebase/r/c618b0f3). While the industry typically uses trumpet curves for accuracy, Debiotech believes the time-rated accuracy shown below is a very valuable way to assess insulin delivery accuracy. The data looks quite good for the Jewel pump, though we do wonder how clinically meaningful these differences are and whether it would be possible to demonstrate a glycemic benefit. Note that accuracy improves as you extend the time horizon because values converge to the mean.

	Debiotech Jewel Pump	Conventional Patch Pumps	Durable Pumps
Time to occlusion detection	12 minutes	3 hours	>9 hours
Delivery error over three minutes	±5%	±50%	±50%
Delivery error over 30 minutes	±5%	±30%	±30%
Delivery error over 60 minutes	±5%	±15%	±12%

- **The pump doses in increments of 0.02 units,** larger than the Tandem t:slim's0.001 units, on par with 0.025 units for the Animas OneTouch Ping and MedtronicParadigm, and smaller than 0.05 units for the Insulet OmniPod - of course, it's unclear to us whether these differences have an impact on glycemic control or if they matter to patients when choosing a pump, though we recognize that pump companies do point this out as a differentiating factor.
- **The controller is a fully functional Android cellphone that also includes an integrated blood glucose meter.** Debiotech is employing a novel strategy to ensure data encryption: the phone will use two SIM cards, one to encrypt communication between the pump and controller (included in the starter kit) and the other for standard cellphone use (provided by the user). This is the first time we've heard of such a strategy and we wonder what the FDA thinks of it - in the past, the agency has appeared wary of mixing medical devices and mobile phones due to primary protocol concerns, so it will be interesting to see how this process evolves and if Debiotech will be able to get the handheld approved as a fully functional cellphone. As we understand it, the blood glucose meter is in partnership with a major manufacturer that has products in both the US and Europe. Debiotech has plans to send data from the cellphone to a cloud-based online platform, though this will not be part of the first generation system.

- **Dexcom:** On the heels of Dexcom's excellent star-studded corporate symposium on the first day of the conference (see our report at http://closeconcerns.us1.list-manage.com/track/click?u=8855a320a24ebfbc0280ac3e1&id=ba67de556a&e=b47ef0a822) was the opening of its fairly low-key booth in the EASD exposition. As expected, the focus was on the new G4 Platinum sensor, which is now available through distributors in 18 countries in Europe plus New Zealand and coming soon to Australia, Canada, France, and India - we thought this was pretty impressive distribution given the very recent launch. We had a chance to play with the new receiver, and the biggest changes are the improved form factor (iPod nano-like), the color screen, and micro-USB cable - the menu structure and user interface is largely the same except for the addition of a "Profiles" menu that streamlines setting alarm vibration/sound settings. Compared to the Seven Plus, the new G4 receiver is louder (a frequent complaint from patients on the Seven Plus) and downloads to a PC in ten seconds instead of several minutes (a frequent complaint from time-pressed HCPs). Dexcom had a sharp colored three-page brochure highlighting the features and accuracy of the new CGM - what stood out most was the accuracy comparison between the Dexcom G4 (14% MARD), SMBG (10-15% MARD), and the Seven Plus (16%). A printout also highlighted an EASD poster on the G4 pivotal study data and its comparison to the Seven Plus.
  - **We appreciated a more complete run through of Dexcom's new PC-based Studio software that will accompany the G4 Platinum sensor.** As noted in our coverage of Dexcom's corporate symposium yesterday, the biggest difference from the

previous gen DM3 software is pattern recognition. According to the rep we spoke to, the high or low pattern is based on the duration, frequency, and intensity of a hyperglycemic or hypoglycemic excursion - we're glad to see this is an algorithm rather than a simple above/below threshold frequency calculation. We were also encouraged to hear about the development of the new Studio software, which was largely guided by feedback from HCPs. The software's user interface redesign was clearly built with this in mind - e.g., pattern recognition up front, a "possible considerations" list to help guide therapy changes, an "interpretation" section to facilitate discussion with patients and help with CGM data analysis reimbursement (apparently, some insurance companies require documentation that the CGM data report was actually used, and HCPs had a hard time finding a place to handwrite on the previous version of the document). Lastly, we learned that Dexcom will be able to remotely upgrade the software and features on the G4 Platinum receiver through the Studio software - this is great to hear from a patient perspective given the long FDA review times and cost of getting a new device when a next-gen version comes out.

- **Diasend:** A company representative at Diasend's booth briefed us comprehensively on two unique aspects of their software - its wide compatibility with various devices, as well as its reliable cloud-based technology. Diasend Clinic offers healthcare professionals fast and easy uploading of glucose and insulin pump data using the Diasend communication system, a cellular network-enabled transmitter in the form of a small white box kept at the clinic. Healthcare professionals or their patients connect their device(s) to the box, which transmits and compiles data into customizable PDF reports online without the use of any software. As the rep informed us, the technology is compatible with "almost all" glucose meters, insulin pumps and CGM devices, with the exception of Medtronic's pumps. Diasend has also partnered with Animas to offer Diasend Personal to all Animas users, which permits patients to upload their own information onto a secure account and construct customizable reports that they can give their healthcare provider access to at their own discretion. Because the technology is compatible with so many devices, doctors don't need to familiarize themselves with the different types of glucose management software to accommodate the variety of pumps and other devices their patients might bring in.
- **GI Dynamics: E**ach time we passed by GI Dynamics' booth, it was packed with attendees interested in learning about the company's EndoBarrier gastrointestinal liner. Company representatives explained how the EndoBarrier is implanted and how the device works, using the device and models of the stomach and duodenum as visual aids. GI Dynamics positioned the EndoBarrier as "a non-surgical, non-pharmaceutical treatment option for obese patients with type 2 diabetes unable to reach their goals with conventional drug therapy," emphasizing the dual benefits of glycemic control and weight loss. In Europe, the EndoBarrier is available in Austria, Italy, the Netherlands, Germany, and the United Kingdom. Meanwhile, in the US, GI Dynamics received conditional approval from the FDA in August to begin a pivotal clinical trial for obese patients with uncontrolled type 2 diabetes.
- **Infopia:** The most prominently advertised new device at this year's Infopia booth was the HealthGate medical gateway - a small telemonitoring console capable of connecting with Infopia's blood glucose meters, immunoassay, A1c analyzer, etc., as well as unspecified third- party devices. The HealthGate is still in preparation, and we didn't hear any timeline for launch. Further along in development, the GluConnect iPhone-connected glucose meter has been submitted for CE mark clearance and could be cleared before the end of the year. Last year at EASD we saw only a prototype of the meter, which unlike the iBGStar lacks its own screen and therefore must be connected to the iPhone in order to operate. This year reps were demonstrating the meter and its software, which we thought looked pretty polished and Apple-esque. Glucose test results can be sent via email; discussions with Apple about iCloud upload are ongoing, but a rep proudly told us that glucose data can already be posted to Facebook or Tweeted directly through Infopia's app. Closer still to market is the GluNEO- a GDH-FAD-based, LED-backlit, and ergonomically curvaceous meter that is slated for European rollout in November.

- **Itamar Medical: R**eps in the intimate booth of Itamar Medical were describing and demonstrating the EndoPAT - a non-invasive device for measuring endothelial dysfunction, using caps worn around the fingertip. The test takes 15 minutes total and involves five minutes of brachial artery occlusion (aka tamping down blood flow in the arm) using a standard blood pressure cuff. Then the pressure is let off to allow the blood vessels to widen (vasodilation) - a compensatory response that is greater in patients with better endothelial function, and which canbe quantified as a change in peripheral arterial tone (PAT). PAT is measured at one fingertip on each hand - the fingertip on the blood-pressure-cuff side reflects the post-occlusion response, while the fingertip from the opposite side serves as a control value so that the occlusion/dilation effect can be isolated. The resulting measure of endothelial dysfunction - which we were told is 82% sensitive and 78% specific - is an independent cardiovascular risk factor validated in the Framingham Heart study, and widely used by both pharma and academia. (Clinical reimbursement still seems to be a challenge, though.) The booth also featured EndoPAT's ambulatory analog, WatchPAT, which we learned is the only non-EEG system that measures sleep staging (e.g., to diagnose sleep apnea - a common comorbidity of diabetes and obesity).
- **J&J Janssen:** Janssen's sleek two part exhibit was much more high profile than its quiet presence at ADA this year. The excitement for canagliflozin (submitted to the EMA in June 2012) was evident. One half of the exhibit was dedicated to "SGLT-2 in Type 2 Diabetes," complete with a large plastic renal system on display in front of a tranquil water wall. Visitors could learn more about the SGLT-2 mechanism of action from an iPad presentation and video. Additionally, the "Expert Update" portion of the exhibit was dedicated to large flat screens mounted on the wall where one could watch Dr. Guntram Schernthaner (University of Vienna) or Dr. Jochen Seufert (University of Wuerzburg Medical School) speak on "Unmet Needs" and "The Potential Role of the Kidney," respectively. The second half of Janssen's exhibit was dedicated to the Janssen Diabetes Forum, which we were told is an online educational resource for HCPs that will launch in November. Reps handed out flash drives containing slides about SGLT-2, and visitors were lining up to register for the forum.
- **LifeScan**: The company's product display spoke to the international status of EASD and featured demonstrations of the OneTouch VerioPro, OneTouch Verio IQ, OneTouch SelectSimple (a buttonless meter targeted towards emerging markets), and OneTouch VerioPro+ (a point-of-care hospital meter not available in the US). By requesting a demonstration of any of these products, visitors could trade in a voucher card for a complimentary medical dictionary. The LifeScan booth was decorated in blue hues and designed with soft curves, creating an inviting warmth. Of course, the coffee bar helped attendees as well. Cubes, each featuring a picture of a different meter, hung from tall curving metal poles integrated into the design of the demonstration booth. At the Animas station, sales representatives had the Animas Vibe with the integrated Dexcom Gen 4 CGM on display - we noticed that it didn't have the "Platinum" branding that we've seen associated with the new Dexcom Gen 4 standalone sensor at this meeting. The station highlighted Animas Vibe's waterproof quality with a small tank filled with water, pumps, and rubber duckies.
- **Lilly Diabetes:** Lilly's signature red display reading "Personal Solutions for Everyday Life" was featured very prominently, and the exhibit was certainly one of the largest. Just as at ADA and AADE this year, the exhibit was modeled after a home, with a different product or theme featured in each room of the house. Sleek iPad displays and animations walked visitors through information for each product. In the central "living room" area, a large flat screen television in front of plush couches played a documentary titled "Life for a Child" (produced by IDF and Lilly) was playing for weary conference goers to watch and relax. Humalog was prominently featured in the "kitchen" of the Lilly house, where cappuccinos were being served. Trajenta and Jentadueto were de-emphasized at Lilly's exhibit, as BI's exhibit was right next door. Similarly, Byetta and Bydureon had a modest presence in an outdoor park-like portion of the exhibit, where one could sit at a park bench or picnic table and read the 2011 Buse et al., *Annals of Internal Medicine* paper about using Byetta in conjunction with basal insulin. A final "room" in the exhibit was a child's bedroom focused on Lilly's partnership with Disney and its resources for children and teens.

- **Medtronic:** The Veo sensor-augmented pump was the main attraction at Medtronic's busy booth, and it was also the answer to various diabetes-related questions printed on the walls ("How can I help parents to overcome their fear of hypoglycemia?" "How can integrated technology better protect from hypoglycemia?"). We learned that the previous-generation CGM sensor, the Sof-Sensor, has now been almost entirely replaced by the Enlite in Germany (a local rep said that her team would likely phase out the Sof-Sensor next year). An up-close, hands-on comparison reminded us of the 70% reduction in implanted volume - one clear reason why patient feedback has reportedly been positive. Also being demonstrated was the CareLink Pro 3.0 software, which launched in its first round of European countries (including Germany) in May. Reps explained that the software's automated therapeutic considerations are something of a novelty and noted that Medtronic offers training sessions to clinicians. As for attractions: at one end of the booth, a lively man with a British accent and a pink sequined jacket was emcee-ing a trivia game called "Who wants to be a Diabetes Extraordinaire." At the other - as if to symbolize Medtronic's massive scale of manufacturing - were four Nespresso spouts, allowing the coffee line to move quickly.
- **Merck Sharp & Dohme:** Located near one of the main entrances to the exhibit hall, the MSD booth ensured every passer-by knew that Januvia (sitagliptin) is "the most widely prescribed DPP-4 inhibitor worldwide," with two ceiling hangings and multiple stands displaying this message. The booth also advertised that the drug is approved in over 85 countries, and had touchscreen maps on which people could determine if either Januvia or Janumet (sitagliptin/metformin) is approved in their country. On the opposite end of the booth, Merck showcased its other metabolic disease-related products (Ezetrol [ezetimide], Inegy [simvastatin/exetimibe], and Tredaptive [nicotinic acid/laropiprant]). When people spoke to an MSD rep about any of these drugs, they were given cards that could be redeemed in the center of the booth for a laptop sleeve and hardcover journal. This middle area also featured a mineral water bar (we heard several people ask if the drinks were alcoholic, upon seeing the high-end display), with options including Cucumber Fresh, Morning Glory, and Rose Drop. The drinks were delicious, and we appreciated their healthfulness (30 calories). The booth also had a station where visitors could create their own patient education handout on diabetes, cholesterol or atherosclerosis. Finally, MSD performed individualized A1c and lipid tests within personalized cubbies. After waiting several minutes for results (possibly at the cell phone charging station within the booth), one could have an MSD rep explain the results based on the recommended guidelines. Overall this station was very popular - at one point, the line to be tested was over thirty minutes long - and the booth might have offered the widest array of giveaways.
- **NeuroMetrix:** NeuroMetrix's booth, well-placed and busy, featured demonstrations of the company's NC-stat DPNCheck device for quantitative assessment of diabetic peripheral neuropathy. The Massachusetts-based company has a small international presence, so NeuroMetrix reps were mainly working to raise long-term awareness (general practitioners were especially interested) and field interest from potential international distributors. On this note, the company has already inked a deal with a Middle East-based firm that will act as an intermediary with country-specific distributors to be determined. A poster displayed the Sensus - the company's recently FDA-approved nerve stimulation device to treat painful diabetic neuropathy, which is worn on a band around the calf - though the device itself was not on hand. The company's plan with Sensus is to focus on the 4Q12 US launch and accumulate real-world experience with the device for the next half-year or so, expanding to international markets after that.
- **Nova Diabetes Care**: At the Nova booth, sales representatives were quick to highlight that Nova was taking a holistic perspective on diabetes monitoring products. "We're not just about blood glucose", said one sales representative, "we worry about ketones, creatinine, and cholesterol too." The tagline emblazoned on the backdrop to Nova's booth spoke to this multi-pronged approach: "Advanced Technology Monitors for Managing Diabetes and its Complications." Beneath were pictures of Nova products grouped into three categories: 1) glycemic control and prevention of ketoacidosis; 2) kidney disease; and 3) cardiovascular disease. The small booth was decorated in a

warm blue color scheme that matched the company's signage, and sat along the wall next to the entrance of the hall. Nova has a large hand in hospital blood glucose meters, and representatives claimed that Nova hospital products were more accurate than even YSI (we find this hard to believe). In the US, Nova sports the StatStrip Glucose point-of-care glucose monitoring meter, and ex-US Nova offers a similar hospital product that can test both Glucose and Ketones - representatives stressed how important ketone monitoring is in diabetes and felt the dual capability of its products offered unique value.

- **Novartis**: The frame of Novartis' booth was made up of many (predominately white, but some red and orange) blocks, making it look like it had been built of extremely large sugar cubes. Visitors were given a card with the "Novartis Clinical Challenge," which consisted of nine multiple-choice questions about Galvus (vildagliptin), Eucreas (vildagliptin/metformin), and Lucentis (ranibizumab), such as, "What dose of vildagliptin should be used in patients with type 2 diabetes with renal impairment?" Visitors appeared to really enjoy the challenge, as we saw many scanning the stands surrounding the booth that displayed the drugs' clinical data and slogans (Lucentis' was "the world is beautiful look at it") and asking reps for help. Plus, upon successfully answering the questions, visitors received a Novartis USB flash drive. The center of the booth featured a popular hangout area that had an espresso bar and low, white, padded chairs arranged so visitors could easily carry out conversations with their friends. The booth also featured an interactive videogame in which players chose a character (like Maureen, a 60-year-old woman on metformin, who has comorbidities, and likes to garden), and tried to keep their glucose within range by adding and subtracting insulin and/or glucagon in response to their character's actions (e.g., having a snack, gardening, taking metformin, or going to bed).
- **Novo Nordisk:** Novo Nordisk's blue and white booth stood in the center of one of the two exhibit halls, with glossy white tiled floors and white orb lights hanging from the ceiling. The booth's popularity was boosted not only by its many interactive stations (manned by company representatives in white polo shirts), but by stacks of free bags in both Novo Nordisk blue and Victoza pink. One quadrant of the exhibit housed two large screens and two stations dedicated to Victoza, which was bordered by one green Levemir learning station and three orange stations for NovoRapid. A tall wall stood in the center of the booth and listed the top scorers in Novo Nordisk's iPad bubble game - players would tilt the iPad left and right to move a large bubble horizontally across the screen in order to collect smaller bubbles and avoid junk food. On the other side of the wall stood a refreshments station, which during our visit was just out of fruit drinks. The most striking structure was by far the collection of five glass rectangular columns visually illustrating the vast unmet need in diabetes. Each column displayed the number of people to reach a diagnostic threshold: 1) roughly 366 million people have diabetes; 2) only half of people with diabetes are diagnosed; 3) only half of these patients receive professional care; 4) only half of those receiving professional care reach their treatment target; and 5) only half of these patients live a life free from complications." On our way out of the booth, we stopped by the sign-up station for Novo Nordisk's 5K run on Thursday and learned that so far, roughly 1,500 runners have signed up. Believing we had viewed all of Novo Nordisk's offering, we nearly missed a smalladjacent booth dedicated to GAPP2 (Global Attitudes of Patients and Physicians), Novo Nordisk's survey that looks into insulin and type 2 diabetes. The walls of the booth displayed facts (presumably from the survey) on dosing irregularities and hypoglycemia. As in the BMS/AZ exhibit, the GAPP 2 booth boasted hypoglycemia simulators in which visitors stood while wearing futuristic-looking headgear and experienced a four-minute 3D video on what it is like to perform a range of activities while experiencing the symptoms of hypoglycemia.
- **Pendiq GmbH:** We were excited to get our hands on Pendiq's digital insulin pen, which boasts a memory function (up to 195 injections with date, time, and delivered dose), a rechargeable battery, and the ability to administer insulin in 0.1 unit increments. The representative we spoke with at Pendiq was eager to highlight the pen's key safety feature - the software requires you to check the last time you dosed to prevent mistaken double dosing. Moreover, a built-in 15-second counter

starts after every dose, to make sure the user holds the pen in long enough after injecting- a step we know a few too many people gloss over. We were impressed by the two-to-three weekbattery life, but even more so by the option to enter a manual mode when the battery empties. The pen is currently able to administer insulin produced by Eli Lilly, Sanofi, and Berlin-Chemie.

- **ResMed:** ResMed's brightly lit exhibit had a homey but modern feel. Representatives manned a counter displaying materials from the company's corporate symposium on obstructive sleep apnea. We learned that diabetes and sleep apnea are strongly associated (and that obesity does not explain all of the excess risk for sleep apnea for people with diabetes), but it is not yet known which factor precipitates the other. A large flat screen displayed slides about sleep apnea and diabetes next to a modish display of ResMed products. Light silver mannequin heads modeled the Mirage Activa LT Nasal Mask and S9 series of CPAP (continuous positive airway pressure) therapy devices. The S9 machines seemed to be designed to look like stereo devices and sported sleek swirly decals - a successful effort to make these medical devices look less like medical devices and fit into patients' regular lives.
- **Roche Diagnostics GmbH**: Yesterday, Roche announced the US launch of the Accu-Chek Combo system (featuring two-way Bluetooth connectivity between the Accu-Chek Spirit Insulin pump and Accu-Chek Aviva Combo blood glucose meter) following a July FDA clearance. The Combo was showcased along with the whole gamut of Accu-Chek products including the 360 system, SmartPix, Aviva Nano, Performa Nano, Aviva Expert and DiaPort. Both the Aviva Expert and DiaPort were highlighted in Roche's corporate symposium on Day #2 of EASD (see page 47 of our report at http://www.closeconcerns.com/knowledgebase/r/ee283b0b). The sales representative at the Aviva Expert stand was unsure whether or not Roche would purse FDA clearance for the meter (which, unlike the Aviva, includes an integrated bolus advisor). At the DiaPort stand, we learned that the next generation DiaPort would be available to current centers of excellence this November, however introduction to the US seemed a long way away - the sales representative explained that in order for Roche to consider FDA submission of the DiaPort, insulin companies would first need to pursue an intraperitoneal delivery indication. Roche representatives couldn't tell us much about their CGM development, but did say that data on their sensor would be presented at ATTD in February. More broadly speaking, "Optimized Therapy," was the theme of Roche's exhibit, inviting EASD attendees to "experience what's possible" using Roche products. The overall layout of the booth encouraged visitors to stay a while. The center of the spacious booth was set with a plethora of tables, inviting passersby to come in, grab a complimentary coffee from Roche's espresso bar, and take a break from the hustle and bustle of the exhibit ball and conference center.
- **Sanofi Diabetes**: Sanofi Diabetes' exhibit centered around the message "A World of Solutions," which we thought had a clever double-meaning: first, panels in Sanofi Diabetes' always massiveexhibit detailed the company's initiatives around the world to help people better manage their diabetes. Such programs include Saath 7 in India ("Life is better under 7"), the "basal insulin club" in China, and a cartoon for children about diabetes care in Saudi Arabia. The "World of Solutions" slogan also invoked the breadth of pharmaceuticals and devices the company offers to patients. Giant TV screens at the perimeter of the exhibit advertised their various products, including Lantus, the BGStar, the iBGStar, Insuman (human insulin), Apidra, and Amaryl. A six-foot-tall BGStar device stood behind a group of exhibitors demonstrating to curious attendees the features of the glucose-monitoring tool that is not found in the states. The exhibition's open-air seating was designed to encourage conversation between visitors and exhibitors sitting on white semi-circle sofas.
- **Takeda:** As usual, Takeda's booth had a relaxed coffeehouse vibe, with its high-quality coffee, friendly baristas, and sofa seating. Compared to last year, Takeda's presence was noticeably diminished. The booth featured interactive displays with information on the cardiovascular profile of Actos in the PROactive trial, on Competact (Actos/metformin), and on Edarbi (an antihypertensive). When we browsed the booth, we didn't see any information on the potential risk of bladder cancer with Actos, or any informational materials on DPP-4 inhibition.

- **Ypsomed:** Ypsomed's massive, bright green booth rivaled the size of Novo Nordisk's neighboring exhibit. The company continues to expand its suite of mylife products, which now include the OmniPod, Clickfine pen needles, Roto infusion sets, Unio and Pura blood glucose meters, and the newly licensed DailyDose mini syringes (Insulution's product). The Ypsomed booth featured bar height tables and stools on the left side, a central countertop with snacks (the crisp green apples we've now come to expect), an in progress hand painted mural, and counters on the right side for product demos. We got a look at the new second-generation OmniPod, and according to the rep we spoke to, it is expected to launch in Germany, the Netherlands, and the UK following EASD - as a reminder, Insulet shipped 100,000 next-gen pods to Ypsomed in 1Q12 (see our report at http://www.closeconcerns.com/knowledgebase/r/e8bb16f6). We were unable to find out more information on the timeline for converting the entire European installed base to the new pod - as of Insulet 2Q12, the goal was by the end of 2012 (see our report at http://closeconcerns.us1.list-manage.com/track/click?u=8855a320a24ebfbc0280ac3e1&id=234e2454c2&e=b47ef0a822). This sounds somewhat ambitious given that the pod has still not launched in Europe, though perhaps it is doable assuming Insulet and Ypsomed are able to move quickly or perhaps this will move into 2013. Those interested in freebies could collect DailyDose sample packs and Clickfine pen needles in large bins on the booth's periphery, while attendees with more patience could wait in line to play a slot machine game and win a watch, thumb drive, or keychain.
    - **Our trip to the booth also included a demo of the Daily Dose, "The smallest insulin syringe in the world."** As a reminder, the DailyDose includes three small single-use syringes (10 units or 30 units) that fit together in a plastic holster. The rep explained the product's two major uses: 1) an alternative to carrying a "bulky pen" around for those on MDI; and 2) ideal as a backup device for insulin pumpers in case of pump failure. The rep demoed the easy filling of the DailyDose from a standard insulin pen: dialing the dose into the pen, inserting the DailyDose syringe into the pen's top, and filling the DailyDose with insulin. We're glad to see this product being more widely distributed as we think it's a discreet, well-designed, low-cost, and convenient product that many patients will appreciate.

-- by Adam Brown, Hannah Deming, Jessica Dong, Kira Maker, Nina Ran, Joseph Shivers, Tanayott Thaweethai, Vincent Wu, John Close, and Kelly Close