

## DexCom, Inc.

Healthcare- Real-time Diagnostics June 9, 2011

*Company Description: DexCom is a real-time diagnostics medical device company focused on the continuous glucose monitoring (CGM) market for both diabetics and critical care patients. The company has several ongoing development agreements to provide its technology for use with insulin pumps and in the critical care market.*

### DexCom: Halfway to tipping point; initiating with HOLD, \$16.25 PT (DXCM - \$13.91) HOLD

#### Key Points

- **DexCom is halfway to a tipping point where continuous glucose monitor (CGM) adoption amongst Type 1 diabetics will accelerate.**
- **Substantial potential markets.** The blood glucose (BG) testing market is currently near \$10 billion and less than 2% penetrated by CGMs.
- **Type 2 diabetic reimbursement nonexistent.** If future studies show that CGMs can benefit Type 2 diabetics, the potential market could expand five-fold.
- **Margin expansion potential:** 2012 gross margin could double from 2010's 35% level.
- **Fairly valued.** At ~10.5x 2011 EV/sales, we believe DexCom is fairly valued at current levels.
- **Initiating: HOLD rating and \$16.25 price target (8x 2012 EV/sales).**

#### INVESTMENT SUMMARY:

We believe DexCom's continuous glucose monitor (CGM) technology has great potential in a lightly penetrated market. We estimate the mature CGM market at ~\$4 billion annually – up from just ~\$150 million or 3-4% penetration amongst Type 1 diabetics in 2010. DexCom's management believes adoption will accelerate once 8% penetration is reached based upon their past experience with insulin pumps.

The current penetration rate amongst Type 2 diabetics is nonexistent. Management believes that their CGM technology could help 27% of Type 2 diabetics who must use insulin. Research studies have shown positive preliminary data suggesting Type 2 diabetics could benefit from CGM usage. Should these studies cause payors to begin CGM reimbursement for Type 2 diabetics, the potential market could expand by a factor of five.

Management believes 65%+ sensor margin and 50% system margin can be realized as volume ramps. This has the potential to nearly double gross margins in 2012 from the 35% in 2010.

DexCom is fairly valued, currently trading at ~10.5x 2011 EV/sales. We believe that an appropriate acquisition multiple for a fast-growing, diabetes-related medical device firm is 8x trailing-twelve month sales based upon past acquisitions and have set our \$16.25 twelve-month price target based upon 8x projected 2012 sales. DexCom's relatively high valuation assumes perfection and when not met the resulting pain has been harsh (DexCom's stock fell 22% after missing estimates for Q3 2010). We like the company but would wait for a more attractive entry point.

#### Financial Summary

Rev(mil)	2010A	2011E	2012E
Mar	\$9.5A	\$14.2A	\$23.7E
June	\$11.8A	\$21.8E	\$29.5E
Sept	\$11.7A	\$20.3E	\$32.7E
Dec	\$15.6A	\$23.4E	\$36.7E
FY	\$48.6A	\$79.7E	\$122.6E
P/Sales	19.4x	11.9x	7.7x

EPS	2010A	2011E	2012E
Mar	(\$0.40)A	(\$0.19)A	(\$0.06)E
Jun	(\$0.20)A	(\$0.13)E	(\$0.03)E
Sept	(\$0.23)A	(\$0.16)E	(\$0.00)E
Dec	(\$0.16)A	(\$0.11)E	\$0.04E
FY	(\$0.97)A	(\$0.58)E	(\$0.05)E
P/E	NM	NM	NM

Price:	\$13.91
52-Week Range:	\$16.91 - \$8.92
Target:	\$16.25
Rating:	HOLD
Shares Outstanding:	67.0 mil
Mkt. Capitalization:	\$945 mil
Ave. Volume:	450,000
Instit. Ownership:	99%
BV / Share:	\$1.70
Debt / Tot. Cap.:	0%
Est. LT EPS Growth:	40%

## INVESTMENT THESIS

We are initiating DexCom with a HOLD rating and a 12-month price target of \$16.25 (8x 2012 EV/sales). DexCom is a real-time diagnostics company focused on developing continuous glucose monitors (CGMs) for use by diabetics and in critical care settings. We believe DexCom will grow at a rate of over 40% Y/Y for the foreseeable future and successfully reach profitability by 2013. However, we perceive DexCom's current valuation (~10.5x 2011 EV/sales) as leaving little margin for error. Therefore, we rate DexCom a HOLD.

## Investment Opportunities

**CGM industry near tipping point.** DexCom management's past experience with the insulin pump market showed that once the 8% penetration level is reached, adoption accelerates. We estimate slightly less than 5% current adoption for CGMs presently. Once the tipping point is reached, we would expect penetration to quadruple over the next decade, similar to the rate at which insulin pumps grew over the past decade.

**Large target markets.** DexCom targets the ~\$10 billion diabetes testing market. We estimate the potential market for CGMs amongst Type 1 diabetics and in critical care settings to be ~\$4 billion combined. However, if CGMs become commonly used by Type 2 diabetics, the potential market could be far larger, perhaps five to six times larger.

**Margin improvement potential.** Management believes they will be able to achieve gross margins above 65% on sensors and around 50% on systems once sensor production hits a 1-1.5 million sensor run rate, a run rate that is attainable by year-end 2011. This has the power to nearly double gross margin in 2012 from 35% in 2010.

**Best technology currently on the market.** We believe that DexCom currently has the best CGM technology on the market. This is evidenced by two-thirds of the dozen or so artificial pancreas projects currently ongoing using DexCom technology. Further, we believe DexCom is taking market share from Medtronic; we estimate they are winning over 40% of new CGM users and doing even better amongst diabetics who are highly involved in their treatment decisions.

**Experienced management team.** DexCom has a solid management team with a number of those in senior management formerly involved in senior management of MiniMed, Inc., a medical technology company focused on insulin pumps, which was sold to Medtronic (MDT – not rated) for \$3.4 billion in 2001. We believe this team's past diabetes-related experience will successfully lead DexCom to profitability.

## Investment Risks

**DexCom's new products do not obtain FDA approval in a timely fashion.** The FDA has significantly slowed down its rate of medical device approvals and all of DexCom's development agreement projects have slipped far beyond their initial intended timelines. While we believe management's current submission schedule is reasonable and that the company has far better visibility into what the FDA will see as approvable, the risk remains that the approvals will continue to slip, causing investors to lose confidence in the company.

**The CGM industry is likely to become much more competitive.** Currently, only DexCom and Medtronic (MDT – not rated) have CGM systems that are being sold in the US. Numerous companies are attempting to develop CGM systems (see "Glucose Monitors in Development" section for discussion), and many have larger budgets and more experience commercializing technology. One company in particular, Echo Therapeutics (ECTE – SB), is developing a noninvasive CGM system, which could redefine the market to the detriment of the minimally invasive systems offered by DexCom and Medtronic.

**Abbott patent litigation.** DexCom is currently involved in a patent fight with Abbott (ABT – not rated) which may result in DexCom being forced into a licensing agreement on unfavorable terms or see its products removed from the market. While we believe that the latter scenario is unlikely to occur, investors may adjust their valuations to account for this possibility as a final decision draws closer.

## Valuation

We derive our valuation using an EV/sales methodology. We believe this is appropriate being that DexCom will not likely generate positive EBITDA or earnings until 2013 by our estimates. Based upon past acquisition multiples for diabetes-related companies, which we believe to be approximately 8x trailing-twelve-month sales, as well as the rapid growth of the CGM industry, we think an 8x revenue multiple is appropriate for valuing DexCom. Our \$16.25 price target represents a 8x EV/sales multiple on our 2012 sales estimate of \$122.6 million plus net cash of ~\$110 million.

## Thoughts on Mergers and Acquisitions in Diabetes-Related Industry

Disappointing results from past acquisitions have left large medical-device firms adopting a wait-and-see approach to acquisitions in the diabetes segment – they would rather pay up for a proven opportunity than take chances too early. Although potentially limiting venture capital investment in the segment, this could drive higher valuations for acquisitions of successfully proven technologies given the difficulty of gaining necessary approvals and implies a significant financial barrier to entry, a limited willingness (or interest) to fund new entrants.

Given that the CGM market has the potential to be a multi-billion dollar segment of the blood glucose testing industry, perhaps 15-20 times its current size, we believe that acquisition multiples would likely be higher than a typical “high-growth” medical technology firm, such as those seen in the table below (mean TTM EV/sales multiple of 7.1x). That said, it has been half a decade since a major diabetes-related acquisition has been announced. We believe this is a sufficiently attractive industry thanks to its sheer size that acquisition multiples may be higher than have been seen in the past.

We further believe that many of the management teams in the upstart CGM industry would rather sell to a larger enterprise than try and build a sustainable franchise based upon their technology due to the risk of an innovative new technology upsetting the apple cart. Additionally, the liquidity event may entice some executives to sell.

This confluence of factors surrounding the CGM industry points towards higher multiples than are typically paid in an average high-growth medical technology acquisition. As we believe that the most likely outcome for a successful CGM-related firm is eventual acquisition, we have chosen to value CGM firms on a private-market value. As such, we have based our 8x EV/sales multiple for DexCom on mean TTM EV/sales multiples for diabetes-related (7.9x) and the mean TTM/sales multiple for the top eight fastest growing firms below (8.6x).

Selected High-Growth Medical Technology Acquisitions											
(Deal value in millions, growth rate reflects estimated Y/Y revenue growth)											
Target	Acquiror	Announced	Deal Value	Growth	Revenue		EBITDA		P/E		
					TTM	NTM	TTM	NTM	TTM	NTM	
AGA Medical	St. Jude Medical, Inc.	10/18/2010	\$ 1,300	13%	6.2	5.5	25.3	18.9	45.2	33	
ev3 Inc.	Covidien	6/1/2010	\$ 2,600	15%	5.4	4.7	37.4	22	46.1	25.4	
SenoRX, Inc.	C.R. Bard	5/5/2010	\$ 200	13%	3.5	3.1	60.6	22.9			
Acclarent, Inc.	Johnson & Johnson	12/16/2009	\$ 785	52%	8.5	5.6					
Ascent Healthcare Solutions, Inc.	Stryker Corporation	11/30/2009	\$ 525	n/a	5.3		17.5				
Advanced Bionics Corporation	Sonova Holding AG	11/9/2009	\$ 489	n/a	4.2						
VNUS Medical Technologies, Inc.	Covidien	5/8/2009	\$ 440	6%	3.7	3.5	18.6	19.6	54.4	57.8	
Omxix Biopharmaceuticals, Inc.	Johnson & Johnson	11/23/2008	\$ 438	10%	5.7	5.2	52.6	33.8	97.7	57.6	
Cryocath	Medtronic, Inc.	9/25/2008	\$ 380	37%	11.5	8.4					
SurgRx, Inc.	Johnson & Johnson	8/11/2008	n/a	n/a							
LifeCell Corporation	Kinetic Concepts, Inc.	4/7/2008	\$ 1,700	27%	9	7.1	35.7	16.7		49	
HemoSense, Inc.	Inverness Medical Technology, Inc.	8/6/2007	\$ 165	42%	6.1	4.3					
Kyphon Inc.	Medtronic, Inc.	7/27/2007	\$ 3,900	48%	8.9	6		23.9		57.3	
Cytc Corporation	Hologic, Inc.	5/21/2007	\$ 6,200	26%	9.8	7.8	25.8	20	36.9	35.3	
IntraLase Corp.	Advanced Medical Optics, Inc.	1/8/2007	\$ 808	29%	5.8	4.5		17.7		29.9	
St. Francis Medical Technologies, Inc.	Kyphon	12/4/2006	\$ 525	n/a		8.1		18.9			
Confluent Surgical, Inc.	Tyco International Ltd.	7/18/2006	\$ 245	n/a							
<b>Animas Corporation</b>	<b>Johnson &amp; Johnson</b>	<b>12/16/2005</b>	<b>\$ 518</b>	<b>26%</b>	<b>6.3</b>	<b>5</b>					
Advanced Neuromodulation Systems, Inc.	St. Jude Medical, Inc.	10/16/2005	\$ 1,300	17%	8.3	7.1	32.7	26.8	67.3	53.1	
Closure Medical Corporation	Johnson & Johnson	3/4/2005	\$ 370	26%	9.2	7.3	25.5	18.5	47.7	34.8	
Alaris Medical Systems, Inc.	Cardinal Health, Inc.	5/19/2004	\$ 2,000	19%	3.8	3.2	15.7		41.7	26.9	
Novacept, Inc.	Cytc Corporation	3/1/2004	\$ 325	76%	8.1	4.6					
<b>TheraSense, Inc.</b>	<b>Abbott Laboratories</b>	<b>1/13/2004</b>	<b>\$ 1,200</b>	<b>22%</b>	<b>5.5</b>	<b>4.5</b>					
Biocompatibles Eyecare, Inc.	Abbott Laboratories	3/18/2002	\$ 97	22%	10	8.2					
ORATEC Interventions, Inc.	Smith & Nephew plc	2/14/2002	\$ 258	32%	5.4	4.1					
VidaMed, Inc.	Medtronic, Inc.	12/6/2001	\$ 326	n/a		12.1					
Cardiac Pathways Corporation	Boston Scientific	6/29/2001	\$ 115	71%	7	4.1					
<b>MiniMed Inc.</b>	<b>Medtronic, Inc.</b>	<b>5/30/2001</b>	<b>\$ 3,700</b>	<b>46%</b>	<b>10.1</b>	<b>6.9</b>				<b>63.6</b>	
<b>Inverness Medical Technology, Inc.(1)</b>	<b>Johnson &amp; Johnson</b>	<b>5/23/2001</b>	<b>\$ 1,300</b>	<b>n/a</b>	<b>9.7</b>						
InterVentional Technologies Inc.	Boston Scientific	2/15/2001	\$ 345	110%	8.2	3.9					
<b>Mean</b>			<b>\$ 1,123</b>	<b>34%</b>	<b>7.1</b>	<b>5.8</b>	<b>31.6</b>	<b>21.6</b>	<b>54.6</b>	<b>43.6</b>	
<b>Median</b>			<b>\$ 518</b>	<b>26%</b>	<b>6.7</b>	<b>5.2</b>	<b>25.8</b>	<b>19.8</b>	<b>46.9</b>	<b>42.2</b>	
<b>Mean (diabetes-related)</b>			<b>\$ 1,680</b>	<b>32%</b>	<b>7.9</b>	<b>5.5</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>63.6</b>	
<b>Median (diabetes-related)</b>			<b>\$ 1,250</b>	<b>26%</b>	<b>8.0</b>	<b>5.0</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>63.6</b>	

(1) diabetes division of Inverness

## Company Overview

DexCom is a real-time diagnostics medical device company focused on the continuous glucose monitoring (CGM) market for both diabetics and critical care patients. The company received FDA approval and commercialized its first CGM product in 2006. DexCom's third generation ambulatory product line, the SEVEN PLUS, has been on the market since 2009. DexCom is currently developing a fourth and fifth generation sensor.

DexCom has built a sales organization of ~70 salespeople who call on endocrinologists, physicians, and diabetes educators, or those who can educate and influence patient adoption of CGM systems. The company currently sells its products in the US, Europe, and Israel markets, but plans to expand its sales reach in the future.

Additionally, the company has several ongoing development agreements to provide its technology for use with insulin pumps and in the critical care market. The insulin pump agreements are with Animas (JNJ – not rated) and Insulet (PODD – not rated), while the critical care agreement is with Edwards Lifesciences (EW – not rated). Please see the "Development Agreements" section for further discussion.

The CGM market is a de facto duopoly between DexCom and Medtronic (MDT – not rated), with Medtronic controlling the majority of the market. A healthcare information firm, dQ&A Market Research, Inc., reported that DexCom's share of the US CGM market was 48% in February 2011, up from 37% in October 2009. However, we believe these figures are more representative of DexCom's new user "win" rate than their true market share worldwide; we view these studies as more heavily weighted to very active diabetics who are more involved in their treatment decisions than the population as a whole. We estimate DexCom controls 25-30% of the worldwide CGM market.

## Product Overview

The DexCom SEVEN PLUS continuous glucose monitor (CGM) system consists of three components: a sensor, transmitter, and receiver. To use the CGM system, the user inserts the sensor (shown below) with an insertion device and attaches the transmitter (shown below). Once the sensor is inserted, the user waits two hours, then calibrates the device by using a fingerstick and blood glucose meter. The sensor is indicated for seven-day wear, longer than any sensor currently on the market, and must be calibrated every 12 hours by fingerstick and blood glucose meter. In practice, most users

extend the life of their sensors beyond the indicated seven day indication; we believe DexCom's average customer uses 6.5 to 7.5 sensors per quarter.

DexCom SEVEN PLUS Sensor and Transmitter



Source: DexCom website.

The sensor has a platinum-based wire (or needle) that sticks underneath the skin to obtain a blood glucose reading, which the transmitter then sends to the receiver (shown below) every five minutes. The sensor and transmitter are waterproof. The receiver displays the current blood glucose (BG) level, a directional BG trend indicator, and a graph of the user's BG values over 1-hour, 3-hour, 6-hour, 12-hour, and 24-hour time periods that can be chosen by the user.



Source: DexCom Website

The following table details the specifications of the CGMs currently approved by the FDA. Please note that the Abbott CGM system appears to be on indefinite backorder and that Medtronic offers several CGM systems, but the specifications on the sensors are similar.

Continuous Glucose Monitor Comparison			
	Abbott FreeStyle Navigator	Medtronic Guardian RT	DexCom SEVEN PLUS
Noninvasive	No	No	No
Sensor Life	5 days	3 days	7 days
Initialization Time	10 hours	2 hours	2 hours
Fingerstick Calibration	10, 12, 24, and 74 hours after sensor insertion	Every 12 hours	Every 12 hours
MARD (1)	12.8%	19.7% (user's manual), 18.4% with SofSensor, 15.3% with Enlite sensor	16%
Accuracy (A & B)	98.3%	96%	96%
Measurement Frequency	1 minute	5 minutes	5 minutes
Status	Approved, appears to be on indefinite back-order	Approved	Approved



Target Markets	Home use	Home use	Critical care, home use
Starter Kit Pricing (retail)	\$1200 (est)	\$2,000	\$999.99
Sensor Pricing (retail)	\$500 (box of 6 - est)	\$348.34 (box of 4)	\$399.99 (box of 4)
Estimated First Year Cost (2)	\$7,283	\$12,595	\$6,214

(1) Mean absolute relative difference, lower is better.

(2) Based on retail pricing.

Source: Product user manuals, online medical equipment distributors, company filings, Feltl and Company estimates.

Currently, most diabetics measure their blood glucose using blood glucose meters and test strips; the nascent continuous glucose monitoring (CGM) industry comprises less than 2% of the ~\$10 billion-dollar blood glucose measurement market. Importantly for DexCom and other CGM players, the industry is growing at an incredibly rapid rate; we estimate well over 25% per year. The reason for this growth is that CGMs offer a great deal of clinical value to diabetics; if a diabetic stays in the euglycemic (normal blood glucose) range, major complications can be avoided. The continuous stream of data provided by a CGM differs greatly from the current practice of monitoring blood glucose with fingersticks and meters. For example, imagine a diabetic measures his glucose four times per day using a BG meter, each measurement could indicate that his blood glucose was in the normal range, but in the time between measurements he could have had dangerous excursions into the hypoglycemic (low blood glucose) or hyperglycemic (high blood glucose) range. While CGMs do not eliminate the need to perform fingerstick BG tests, they do reduce the frequency. A large part of the clinical value of a CGM lies in alerting via an alarm before a diabetic experiences dangerous excursions into the hypoglycemic and hyperglycemic range, allowing for prompt treatment.

## Development Agreements

In early 2008, DexCom began inking agreements to develop its CGM technology for new applications. The first two agreements took place in January 2008 with Insulet Corporation (PODD – not rated) and Animas Corporation (JNJ – not rated). Both centered around integrating DexCom’s CGM sensor systems with each company’s insulin pump. A third agreement, with Edwards Lifesciences (EW – not rated), took place in November 2008 to develop CGM products for the hospital market. Unfortunately for all parties, the difficult FDA approval environment has delayed the initially intended submission and approval timelines. The details of each agreement will be discussed in the subsections that follow.

### Insulet Corporation Agreement

DexCom’s agreement to integrate its CGM system into Insulet’s OmniPod Insulin Management System took place on January 7, 2008. DexCom and Insulet planned on combining the functionality of both systems’ handheld receivers into a single handheld device, the OmniPod Personal Diabetes Manager (PDM). Initially, the companies targeted a mid-2009 product launch and contemplated further work on a closed-loop, or artificial pancreas, system. The agreement with Insulet covers the US market and is nonexclusive.

### Animas Corporation Agreement

Three days after announcing their agreement with Insulet, DexCom announced a similar agreement with Animas to wirelessly send readings from its SEVEN system to the Animas’ OneTouch Ping insulin pump’s display, eliminating the need for duplicate handhelds. The anticipated launch date for the integrated system was late 2009 or early 2010. Initially, the Animas agreement specified \$750,000 to offset development and regulatory expenses and \$5 million upon receipt of a CE Mark. However, the agreement was amended on January 13, 2009 to give Animas exclusive rights to develop CGM-enabled ambulatory insulin pumps outside the US (OUS) in exchange for a \$5 million payment to DexCom upon the first regulatory approval OUS, which DexCom believed would take place in the first half of 2010. The agreement was further amended on July 30, 2009 to provide DexCom \$1 million (paid Q1 2011) on performance qualification of the sensor manufacturing line and \$4 million (paid Q2 2011) on the first OUS approval instead of the \$5 million initially agreed upon. The Animas deal is exclusive outside the US until the end of 2013 but nonexclusive for the US market. The Animas/DexCom product has now been renamed as the “Vibe” and has gained CE Mark approval as of June 2, 2011, triggering the agreed upon \$4 million payment from Animas.

### Edwards Lifesciences Agreement

On November 10, 2008, DexCom and Edwards announced a collaboration agreement to develop a CGM system for the hospital market. Hospitals at the time had widely adopted tight glycemic control (TGC – please see “Tight Glycemic

Control” section for discussion) for critically ill patients, both diabetic and non-diabetic, after a 2001 study showed mortality benefits from adopting TGC. More recent studies have called the 2001 study’s findings into question, but we believe that the risk of inducing hyperglycemic and hypoglycemic states by traditional TGC methods (which require drawing a blood sample every 30 to 60 minutes) could largely be ameliorated through the use of a CGM system.

As initially announced, the Edwards agreement provided for an upfront licensing and collaboration fee of \$13 million and up to \$24 million over the following three years in product development costs and regulatory approval milestone payments. Additionally, DexCom will receive either a profit-sharing payment of 10% or a royalty of up to 6% on commercial sales. Edwards would be responsible for all global sales and marketing, which were expected to begin in 2010, with DexCom responsible for the initial manufacturing.

DexCom and Edwards achieved CE Mark approval for the first generation of GlucoClear (the trade name of their product) on October 30, 2009. A very limited launch of the blood-based in-vivo GlucoClear system occurred in Europe later that year. Since then, the companies have decided to concentrate on the second generation of GlucoClear and the original agreement will likely be renegotiated.

### Regulatory Submission Schedule and Estimated Milestone Payments

DexCom has a busy regulatory calendar over the next several quarters as shown in the table below. The Animas insulin pump/CGM has been achieved CE mark approval as of Q2 2011, triggering a \$4 million milestone payment. Additionally, DexCom will receive \$200 per insulin pump/CGM combo sold by Animas and a small amount on disposable transfer pricing.

Several submissions depend on the approval of Dexcom’s fourth generation sensor (Gen 4) which is next on the agenda for submission to the FDA. DexCom has maintained an open dialog with the FDA on a pre-IDE basis on its Gen 4 sensor. The company expects to reach an understanding with the FDA regarding study design, which should enable them to file a formal IDE and commence the trial for the Gen 4 sensor in late summer 2011. While IDEs are typically a 30-day statutory response time, there have been some indications that the FDA is presently taking longer to respond. Once the trial is complete, DexCom will file an amendment to the PMA supplement for Gen 4. Based upon an FDA request, DexCom has agreed to delay filing the Animas and Insulet insulin pump/CGM submissions until 90 to 100 days after the Gen 4 sensor has gained approval. We estimate that the Gen 4 sensor will be approved early in the first half of 2012, enabling submission of those two filings in the first half 2012. Importantly, the human factor studies being required for the two insulin pump/CGM combos will be conducted in parallel to the Gen 4 study and DexCom will file their submissions for those products as soon as the FDA permits it.

In addition, DexCom plans on submitting for CE Mark approval of the second generation of the GlucoClear product with Edwards Lifesciences in late 2011 or early 2012. FDA filing for GlucoClear should follow soon after that, although the company is still in discussions with the FDA as to what the standards shall be for evaluating a CGM product intended to be utilized in critical care settings. We believe there is approximately \$12 million remaining in milestones and development funding forthcoming from Edwards, but the agreement is likely to be amended.

Lastly, we estimate the Gen 5 sensor will see approval in 2013. The company mentioned positive results from Gen 5 pilot studies on their Q1 2011 conference call – single-digit MARDs (a measure of sensor error) amongst a variety of patients receiving analgesics and other concomitant medications. We believe DexCom could submit for approval on Gen 5 sooner than we have estimated as we anticipate they would choose to seek approval more quickly to maintain their technological lead rather than be worried about the cadence of new product introductions.

**DexCom Submission and Approval Schedule with Milestone Payments**

Estimated Submission Dates to 2014						
	2011		2012		2013	
	1H	2H	1H	2H	1H	2H
GlucoClear CGM System						
Animas Insulin Pump/CGM						
Insulet Insulin Pump/CGM						
Gen 4 Sensor						
Gen 5 Sensor						
Estimated Approvals to 2014						
GlucoClear CGM System				 TBD	 TBD	
Animas Insulin Pump/CGM	 \$4M			 NA		
Insulet Insulin Pump/CGM				 NA		
Gen 4 Sensor			 NA			
Gen 5 Sensor					 NA	 NA

Source: Feltl and Company estimates.

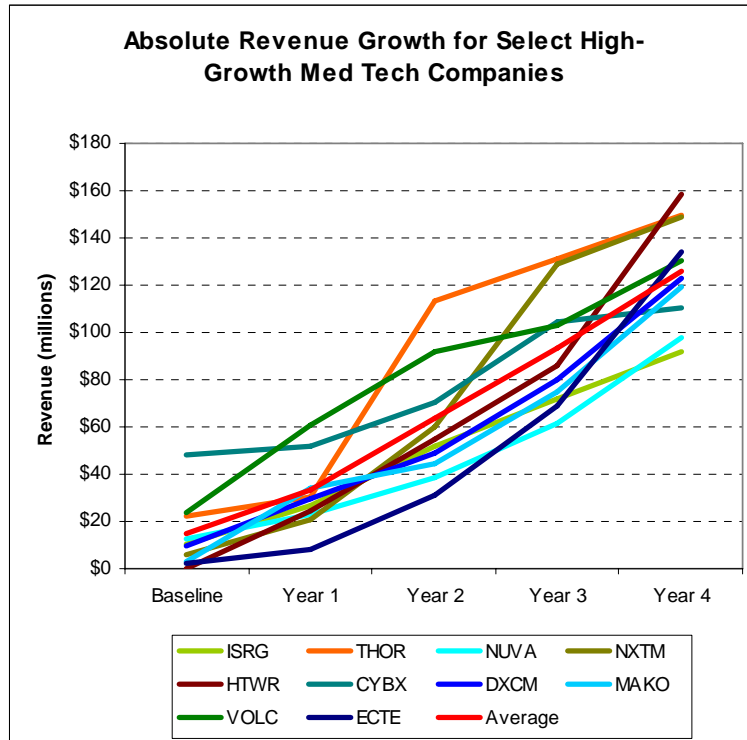
**Key Model Assumptions**

We have attempted to take a conservative approach to modeling DexCom's growth. Our model assumes the approval timeline discussed previously, however, we have chosen to assume minimal revenue from the partnership agreements with Edwards Lifescience, Insulet, or Animas prior to 2014. Further assumptions, with notes, are as follows:

- DexCom began the 2011 fiscal year at approximately 22,300 current users. The company refuses to disclose current user numbers for competitive reasons.
- The company will experience 4% quarter-over-quarter attrition from the existing client base - again, no guidance in the past.
- Net new customer adds of 16,300 in 2011 based upon estimated starter kit sales and assumed attrition rate.
- Sensors sold per user per quarter ranges between 6 and 7.5 sensors, in line with management's guidance of 2 to 2.5 sensors per month.
- Gross margin north of 65% at a million sensor per year run rate, approximately 50% on systems, in line with guidance. Management believes the sensor margin will increase above 75% at a 1.5 million sensor run rate, but we have chosen to model 70% maximum.
- Approximately \$14 million of development grant and other revenue through the end of 2013, corresponding to the remaining \$12 million on the Edwards Lifesciences agreement and \$2 million in total royalty revenue.
- Gross margins on development revenue of ~33%, at the low end of past experience.
- Starter kit and sensor pricing similar to that of Q1 2011 results.
- R&D spending of approximately \$7 million per quarter in 2011, in line with management guidance.
- SG&A expenses up ~20% Y/Y in 2011 per management guidance.
- DexCom has significant NOLs and is unlikely to pay taxes prior to 2015.

The following chart shows our expectations for DexCom's revenue growth as compared to select high-growth medical technology companies that launched products in similar high-growth markets or pioneered a new technology.



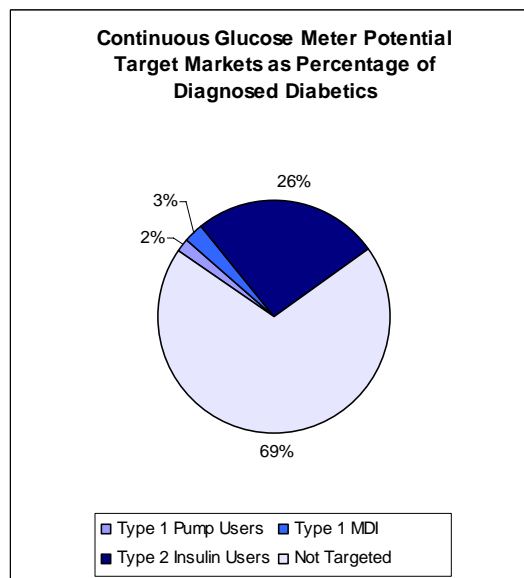


Source: Company filings, Feltl and Company estimates.

## Market Opportunities

### Continuous Glucose Monitors for Home Use – Type 1 Diabetes

Given current reimbursement policies, we believe the most easily accessed market for the near-to-intermediate future will be Type 1 diabetics who use insulin pumps or multiple daily injections of insulin. This group represents about 5% of the diagnosed diabetics in the US, although some estimate it could be as high as 10%. The chart below details the breakdown of diagnosed diabetic patients who could potentially benefit from the use of CGM in the US.



Source: Feltl and Company estimates.

Based upon our estimates of the patient population that is accessible to CGM producers, as well as estimated average sensor pricing, the following table details our view of the potential home-use Type 1 CGM market, ~\$2.5 billion. Please note this does not include system costs, only the replacement sensors.

US CGM Type 1 Home-Use Market Opportunity			
	Total Type 1 Diabetics (thousands)	Cost per Day	Total Market Opportunity (millions)
Insulin Pump Users	320.1	\$ 8.00	\$ 934.8
MDI Users	533.6	\$ 8.00	\$ 1,558.0
<b>Total Market Opportunity (millions)</b>			<b>\$ 2,492.8</b>

Source: Feltl and Company estimates.

#### Continuous Glucose Monitors for Home Use – Type 2 Diabetes

The Type 2 potential market is far larger than the Type 1 market, as shown in the table below. We believe that Type 2 diabetics who use insulin (~26% of Type 2 diabetics) could benefit from CGM usage. This opportunity may take a number of years to materialize as payors evaluate CGM studies on Type 2 patients and formulate coverage decisions. One recent study, “The Effect of Real-Time Continuous Glucose Monitoring on Glycemic Control in Patients with Type 2 Diabetes Mellitus”, has shown positive preliminary data, but may enable CGM market participants to begin the conversation with payors if the full study results are positive when released in mid-2012.

US CGM Type 2 Home-Use Market Opportunity		
Total Type 2 Diabetics (thousands)	Cost per Day	Total Annual Market Opportunity (millions)
4,845.9	\$ 8.00	\$14,150.1

Source: Feltl and Company estimates.

#### Continuous Glucose Monitors in Critical Care

DexCom and Edwards plan on targeting the critical care market with their GlucoClear product. As tight glycemic control (TGC, see “Tight Glycemic Control” section for further discussion) has become the standard of care in US critical care settings, we believe CGMs can provide tremendous value to nurses who are charged with maintaining tight glycemic control 90% of the time. A 2006 survey of nurses on TGC, results below, showed that by and large nurses feel that maintaining TGC is a hassle and would appreciate an automated system.

##### Survey of Nurses' Opinions on Tight Glycemic Control

Too much work	24%
Takes too much time	44%
Waste of time	6%
<i>Easier if automated</i>	<i>86%</i>
Like doing it	2%
Is not difficult to do	38%
Normal part of patient care	45%
Should be done by someone other than RN	15%
Willing to dedicate IV line if automated and displayed	76%

Source: Aragon, D. Evaluation of nursing work effort and perceptions about blood glucose testing in tight glycemic control. Am J Crit Care 2006;15:370-7.

We estimate the potential market for critical care CGM to be \$1.6 billion, as shown in the following table. This assumes the GlucoClear critical care CGM costs \$50/day and is based upon 2008 NHAMCS data.

US CGM Critical Care Market Opportunity					
	Average length of stay (days)	Number of admissions	Total days	Cost per day	Market opportunity
Critical care unit	4.8	2.1	10.2	\$50.00	\$509.8
Step-down unit	4.8	3.2	15.4	\$50.00	\$772.1

Diabetes discharges	1	7.1	7.1	\$50.00	\$357.4
<b>Total market opportunity (millions)</b>					<b>\$1,639.3</b>

Source: Centers for Disease Control: National Hospital Ambulatory Medical Care Survey, Feltl and Company estimates.

Even the least expensive manner of providing tight glycemic control entails a large amount of labor by the caregiver. We believe fingerstick testing with blood glucose (BG) meters is currently the least expensive option. This method appears to be the choice of nurses due to the fact that it is quick to conduct; it may take only five minutes. Fingerstick testing is less accurate than laboratory methods which may take an hour or more to return a result. However, it should be done hourly to maintain TGC, which adds up to a full 2 hours per day. In contrast, the characteristics of the GlucoClear would allow nurses to cut this time down to 15 minutes per day while giving the added benefit of automated continuous monitoring, which should improve care. The table below lays out the differences in cost between BG test strips and our estimates for GlucoClear.

#### Comparison of GlucoClear versus Blood Glucose Test Strips in the Critical Care Market

	Test strips	GlucoClear
<b>Labor costs</b>		
Average staff nurse salary	\$65,246	\$65,246
Average critical care patients monitored per nurse per shift	2	2
Annual days worked per nurse	250	250
Shifts per day	3	3
Nursing cost per patient per day	\$391.48	\$391.48
Cost per hour per patient	\$16.31	\$16.31
Time per test (in minutes)	5	5
Total tests required to maintain TGC	24	3
Total hours per day spent testing blood glucose	2.0	0.3
<b>Total labor costs per patient per day for testing</b>	<b>\$32.62</b>	<b>\$4.08</b>
<b>Testing device costs</b>		
Cost of testing device (wholesale estimate)	\$0.25	\$50.00
Testing devices used per patient per day for TGC	24	1
<b>Total device costs per patient per day</b>	<b>\$6.00</b>	<b>\$50.00</b>
<b>Total cost per patient per day</b>	<b>\$38.62</b>	<b>\$54.08</b>

Source: Salary.com, Feltl and Company estimates.

### Patent Dispute with Abbott Diabetes Care

DexCom has been involved in a patent dispute with Abbott Diabetes Care, Inc. since August 2005. Abbott launched the lawsuit prior to DexCom entering the CGM market, which some would view as more of a harassment action than a meritorious suit. At issue are seven Abbott patents and 15 DexCom patents.

All seven Abbott patents have ongoing reexamination requests in various stages with the US Patent Office (USPTO). DexCom has presented prior art against numerous Abbott claims. DexCom believes that two of these reexaminations have resulted in favorable decisions, but Abbott may seek judicial review of these decisions. Four of the other reexaminations are ongoing but not resolved and the final reexamination request resulted in DexCom submitting a subsequent reexamination request. A couple of these patents have expired or will expire by 2013.

Since 2008, Abbott has filed reexamination requests for 15 of DexCom's patents, which are in varying stages of the reexamination process at the USPTO, which can take three to five years. DexCom has filed responses with the USPTO seeking claim construction to differentiate certain claims from the prior art presented during the reexaminations. Additionally, Abbott has stated that it may attempt to provoke an interference with some of DexCom's pending patent applications and has copied patent claims from several of DexCom's pending applications.

While DexCom has issued the obligatory, "we believe these lawsuits have no merit", statements, it is highly unlikely that the end result will be total absolution of DexCom to Abbott's claims and complete vindication for DexCom's patents. Based upon past medical device suits of this type, we believe the worst outcome for DexCom would be dismissal of important

DexCom patent claims and a licensing/royalty deal with Abbott. Should Abbott prevail, we believe an injunction against DexCom to stop production and sale of infringing products would be sought as a negotiating ploy to force DexCom into licensing/royalty deal. However, we believe it equally, if not more, likely that the end result is DexCom prevails on the Abbott patents, but Abbott is successful in weakening some of DexCom's patents.

## Management

### Terrance H. Gregg - CEO

Terrance H. Gregg joined the Dexcom Board of Directors in 2005 and was subsequently appointed President and CEO in 2007 and President in 2011. Prior to joining DexCom, Mr. Gregg was President and Chief Operating Officer of MiniMed, Inc., a medical technology company focused on insulin pumps for people with diabetes, from 1996 until MiniMed was acquired by Medtronic for \$3.4 billion in 2001, after which he became President of Medtronic MiniMed until his retirement in 2001. Mr. Gregg also served as the 2003-2004 Chair of the Research Foundation Board of the American Diabetes Association.

### Kevin Sayer, CPA - President

Kevin Sayer served as Chief Financial Officer of Biosensors International Group, Ltd., a medical technology company developing, manufacturing, and commercializing medical devices used in interventional cardiology and critical care procedures through December 2010. Prior to joining Biosensors International Group, Mr. Sayer served as an independent healthcare and medical technology industry consultant. From 2004 to 2005, Mr. Sayer was Executive Vice President and Chief Financial Officer of Specialty Laboratories, Inc., a company offering clinical reference laboratory services. Mr. Sayer also served in MiniMed senior management with Mr. Gregg as Chief Financial Officer from May 1994 until its acquisition by Medtronic, Inc.

### Jess Roper, CPA - Vice President and Chief Financial Officer

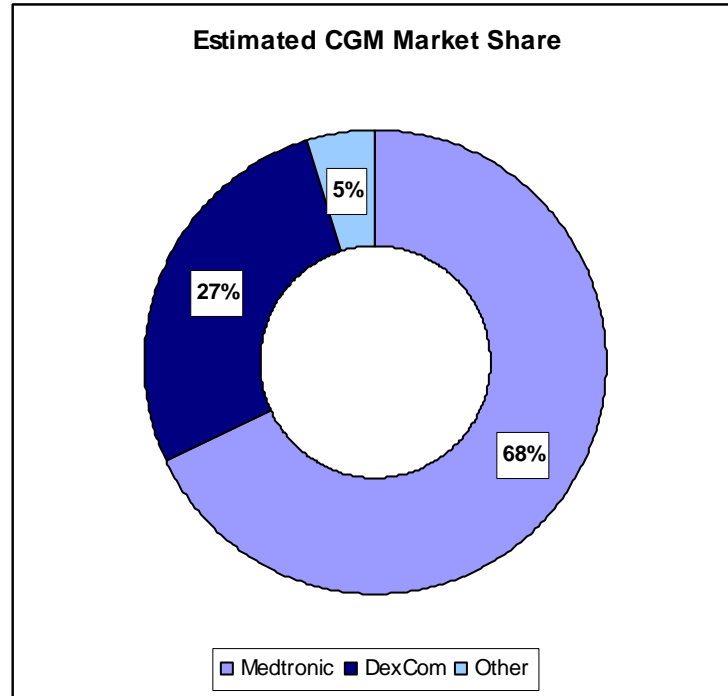
Jess Roper was promoted to Vice President and Chief Financial Officer in March 2008. Mr. Roper joined Dexcom in March 2005 as Director of Finance, and served as Interim Chief Financial Officer from July 2007 through March 2008. He has over 15 years of financial management and auditing experience. Mr. Roper previously held financial management positions with two other NASDAQ listed companies and one venture funded company, and has been a key participant in two initial public offerings, acquisitions/divestitures, and several equity and debt financings. In previous roles, Mr. Roper was an auditor with PricewaterhouseCoopers, and a bank and information systems examiner with the Office of the Comptroller of the Currency.

### Steven R. Pacelli - Chief Operating Officer

Steven Pacelli was promoted to Chief Operating Officer in June 2010. In this role, Mr. Pacelli is responsible for the strategic and operational leadership of Dexcom's sales, marketing and other core commercial functions, including finance, customer support, quality assurance, corporate development, managed care, human resources, legal and intellectual property and investor relations. Mr. Pacelli has served in various roles with Dexcom since April 2006, including as Chief Administrative Officer, Senior Vice President of Corporate Affairs, and Vice President of Legal Affairs. From March 2003 to April 2006, Mr. Pacelli served as a corporate attorney with Stradling Yocca Carlson & Rauth where he specialized in public and private finance, mergers and acquisitions, and general corporate matters for life sciences and technology companies. From February 2001 to March 2003, Mr. Pacelli served as Vice President of Corporate Development, Secretary, and General Counsel of Axcelerant, Inc., a provider of secure managed business network services.

## Continuous Glucose Monitor (CGM) Market Characteristics

The CGM market is a de facto duopoly between DexCom and Medtronic (MDT – not rated). Worldwide CGM sales ranged from \$125 to \$175 million in 2010 with ~\$40 million attributed to DexCom, \$5-10 million to Abbott (ABT – not rated) and A. Menarini (Italy) and Medtronic responsible for the balance, as can be seen below. The true size of the market is a bit difficult to ascertain as Medtronic, the largest player, does not break out its CGM revenues. Further, we are not including development revenues in our estimates of CGM market size.



Source: Feltl and Company estimates.

The market exhibits characteristics of a razor/razorblade-type market with sensors, which are approved for wear for up to seven days, representing a large percentage of total CGM market sales (~70% in the case of DexCom).

**CGM Comparison**

The following table breaks down the specifications and pricing of the three CGMs that are currently available in the US as well as Echo Therapeutics (ECTE – SB) coming product.

Continuous Glucose Monitor Comparison				
	Echo Therapeutics Symphony	Abbott FreeStyle Navigator	Medtronic Guardian RT	DexCom SEVEN PLUS
Noninvasive	Yes	No	No	No
Sensor Life	1 - 2 days	5 days	3 days	7 days
Initialization Time	1 hour	10 hours	2 hours	2 hours
Fingerstick Calibration	TBD (estimated every 8 to 12 hours, depending on target market)	10, 12, 24, and 74 hours after sensor insertion	Every 12 hours	Every 12 hours
MARD (1)	7.5%, 11%, 11%, 12.8%, 13.8%, and 16% over six trials	12.8%	19.7% (user's manual), 18.4% with SofSensor, 15.3% with Enlite sensor	16%
Accuracy (A & B)	97-100%	98.3%	96%	96%
Measurement Frequency	1 minute	1 minute	5 minutes	5 minutes
Status	Clinical trials	Approved, appears to be on indefinite back-order	Approved	Approved
Target Markets	Critical care, home use	Home use	Home use	Critical care, home use
Starter Kit Pricing (retail)	\$500 (est)	\$1200 (est)	\$2,000	\$999.99
Sensor Pricing (retail)	\$8 (est)	\$500 (box of 6 - est)	\$348.34 (box of 4)	\$399.99 (box of 4)
Estimated First Year Cost (2)	\$3,420	\$7,283	\$12,595	\$6,214

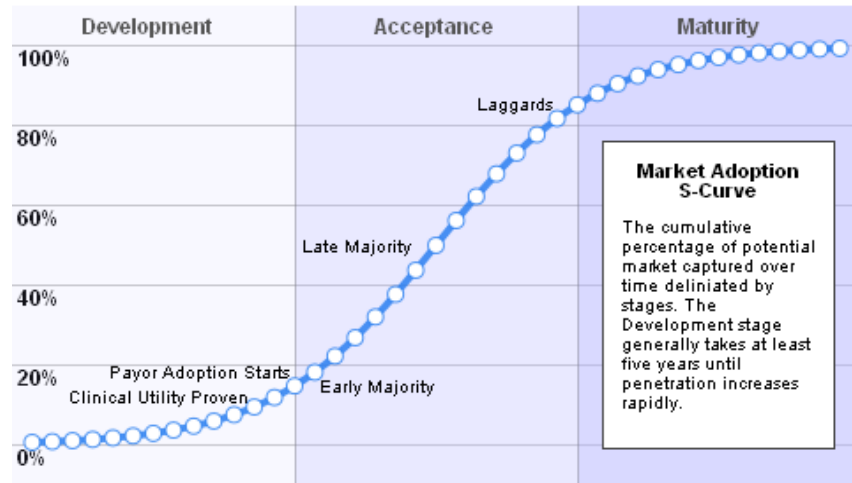
(1) Mean absolute relative difference, lower is better.

(2) Based upon retail cost

Source: Product user manuals, online medical equipment distributors, company filings, Feltl and Company estimates.

CGM Users

We estimate the penetration rate of CGMs amongst Type 1 diabetics is currently in the 3-4% range, with virtually zero penetration amongst Type 2 diabetics. Diabetics who use insulin represent the target market for CGM systems. This encompasses the entire Type 1 population as well as 25-30% of the Type 2 population. However, thanks to the current reimbursement environment, most CGM firms are targeting the 30% of Type 1 diabetics who use insulin pumps and the 50% of Type 1 diabetics who perform multiple daily injections (MDI) of insulin. The management team at DexCom has stated that once the 8% penetration rate threshold is reached, adoption should accelerate. We believe DexCom management bases this on past experience in the insulin pump market. This suggests that diabetics adopt new therapies more quickly than the standard adoption curve, seen below, would dictate. We believe this could very well be the case, as evidenced by reports, albeit anecdotal, that instead of the oft-cited “six degrees of separation” between any two people, amongst diabetics it may be as little as three degrees. Thus, it does not seem, to us, to be a stretch that diabetics would adopt new treatments at a rate nearly twice as fast as the general populace.



Third-Party Payor Reimbursement

CGM systems can be reimbursed by private insurance carriers, but only under certain circumstances. In general, one must be a Type 1 diabetic intensively managing their glucose levels to have their CGM reimbursed. DexCom currently boasts reimbursement contracts from six of the seven largest private payors, covering approximately 95% of its customers. All of the seven largest private payors currently have issued coverage policies for CGMs, although depending on the payor, documentation needs change; some are very restrictive requiring 2-3 months of blood glucose logs, whereas others only require a doctor to write a letter of medical necessity. DexCom employs a number of reimbursement specialists in their back-office to help secure reimbursement for patients. The table that follows details current coverage policies for a number of private payors.

Long-Term CGM Coverage Policies for Select Health Plans	
Firm	Coverage Policy
Aetna	Type 1 diabetics over age 25, under 25 with recurrent severe hypoglycemia
BCBS of MA	Type 1 diabetics with recurrent unexplained severe hypoglycemia and pregnant Type 1 diabetics
BCBS of IL	Type 1 diabetics over age 25
CIGNA	Type 1 diabetics over age 25, under 25 with recurrent severe hypoglycemia
Group Health (WA)	No formal coverage
Harvard Pilgrim (MA)	Type 1 diabetics with prior authorization
Highmark BCBS (PA)	Type 1 diabetics with recurrent severe hypoglycemia or hypoglycemia unawareness
Horizon BCBS (NJ)	Type 1 diabetics with recurrent severe hypoglycemia
Humana	Type 1 diabetics with inadequate glycemic control, recurrent severe hypoglycemia, or hypoglycemia



<b>Kaiser Permanente Northern and Southern CA</b>	unawareness
<b>Tufts (MA)</b>	Type 1 diabetics
<b>United</b>	Type 1 diabetics with hypoglycemia unawareness
	Type 1 diabetics with inadequate glycemic control or hypoglycemia unawareness
<b>Wellpoint/Anthem</b>	Type 1 diabetics over age 25, under 25 with recurrent severe hypoglycemia

Source: Company websites, coverage policy documents.

Reimbursement policies have become more liberal as more and more positive clinical research has been published. As little clinical data has been released on CGMs in the Type 2 diabetes population, reimbursement for Type 2 diabetics is virtually nonexistent. Management mentioned positive early results from a currently ongoing study in the Type 2 population on their first quarter 2011 earnings call. However, DexCom plans on focusing on the Type 1 market until the reimbursement landscape for Type 2 patients is clearer.

Although the Centers for Medicare and Medicaid Services (CMS) assigned HCPCS procedure codes in 2008, Medicare does not currently reimburse for CGM systems.

### Glucose Monitors in Development

At least a couple dozen firms are currently developing glucose monitors of some type, not all of which are continuous or noninvasive. Approximately half of the firms in the table below are taking a spectroscopic approach, which we believe to have a low probability of success. Our understanding of the technology involved in developing a CGM as well as current funding levels of the various firms leads us to believe that AiMedics, Bayer, Cascade Metrix, Cnoga Medical, DexCom, Echo Therapeutics, GluMetrics, and OrSense have the highest odds of successfully bringing a CGM to market in the next couple of years. Several of the firms listed may be defunct or their CGM projects abandoned, such as GlySens, Grove Instruments, Lifecare A/S, LightTouch Medical, and Luminous Medical; we were unable to confirm continued development by the companies. However, we decided to include them for sake of completeness.

Firm	Location	Noninvasive	Continuous	Estimated Approval	Technology Type
AiMedics	Australia	Yes	Yes	Australia & EU 2011	Physiological
Uses physiological characteristics to sound an alert if patient becomes hypoglycemic, does not result in blood glucose readings.					
Bayer Diabetes Care	Tarrytown, NY	No	Yes	Late 2013	Electrochemical
Development not yet complete, reports suggest that product is at least 2 years away, uses thinner needle than DexCom and Medtronic, may be using iSense's technology which Bayer acquired around 2008.					
Becton Dickinson (BDX – not rated)	Franklin Lakes, NJ	No	Yes	2014-2015	Electrochemical
Collaboration with Juvenile Diabetes Research Foundation for sensor development, appears electrochemical based.					
Biorasis	Mansfield, CT	No	Yes	2017	Electrochemical
The GLUCOWIZZARD is an implantable sensor, University of Connecticut developed.					
Biosign Technologies (BIO.V – not rated)	Toronto, Ontario	Yes	No	EU 2010	?
Launching UFIT TEN-20 in Q2 2011, device connects to computer, measures other medical parameters as well.					
Cascade Metrix	Indianapolis, IN	No	Yes	Early 2012	Electrochemical
AutoSampler uses catheter, targeted at critical care market, expect to file 510(k) in Q4 2011.					
Cnoga Medical	Or Akiva, Israel	Yes	No	July 2011	Spectroscopic

Technology based on "real-time tissue photography", Glucometer-Combo does not require supplies, can do continuous monitoring for 10 minutes, launching OUS in July 2011, undertaking clinical trials in the US currently.					
DexCom (DXCM)	San Diego, CA	No	Yes	Multiple	Electrochemical
DexCom has several CGM products under development, including the 4th and 5th generations of its current product and a second generation of a critical care product with Edwards (EW - not rated).					
Echo Therapeutics (ECTE - SB)	Philadelphia, PA	Yes	Yes	Late 2012	Transdermal
Symphony tCGM uses proprietary skin permeation technology and electrochemical sensor. PMA submission anticipated early 2012, MARDs between 7% and 16% in 6 trials.					
EyeSense	Basel, Switzerland	Yes	No	2013	Spectroscopic
QIAGEN minority owner, started as spin-out from Ciba Vision AG, uses fluorescence-based optical technology to measure glucose through eye.					
Freedom Meditech	San Diego, CA	Yes	No	?	Spectroscopic
Ophthalmic determination of glucose levels.					
GluMetrics	Irvine, CA	No	Yes	?	Electrochemical
GluCath uses a catheter with fluorescent chemistry and fiber optics, most accurate in hypoglycemic range, 48-72 hour sensor lifespan, 60-90 minute calibration.					
GlySens	San Diego, CA	No	Yes	?	Electrochemical
Implantable, long-term CGM, focused on hypoglycemia, website mentions preparation for clinical trials in 2010.					
Grove Instruments	Worcester, MA	Yes	No	?	Spectroscopic
Formerly Vivascan, uses "squeeze" technique, company's website cites 2009 as FDA submission date, no submission record in FDA databases, may be defunct.					
InLight Solutions	Albuquerque, NM	Yes	No	?	Spectroscopic
In development since 1993, currently looking for a research partner, no press releases on website since 2004, formerly partnered with LifeScan.					
Integrity Applications	Ashkelon, Israel	Yes	No	2013	Spectroscopic
GlucoTrack product uses spectroscopic and thermal measurements, MARDs of 21.1% and 25.4% in two trials, planning trials in 2011.					
Lein Applied Diagnostics	Berkshire, England	Yes	No	?	Spectroscopic
Ophthalmic determination of glucose levels.					
Lifecare A/S	Bergen, Norway	No	Yes	?	Electrochemical
Implantable sensor, began development in 2003, website mentions lab and performance testing as of October 2009.					
LightTouch Medical	Bryn Athyn, PA	No	Yes	?	Spectroscopic
Raman-base spectroscopy, clinical trials began in 1999, mention home version being available 6-9 months after FDA approval.					
Luminous Medical	Carlsbad, CA	No	Yes	?	Electrochemical
Gave up on spectroscopic attempts, was preparing to file 510(k) in 2010.					
OptiScan Biomedical	Hayward, CA	No	Yes	?	Spectroscopic
The OptiScanner draws a small amount of a patient's blood every 15 minutes, targeted at the critical care market.					
OrSense	Nes Ziona, Israel	Yes	Yes	?	Spectroscopic
OrSense's NBM-200G uses occlusion spectroscopy, targeted at acute care market for tight glycemic control, recently received \$18 million in VC funding.					
Roche	Basel, Switzerland	No	Yes	?	Microdialysis

SCGM 1 has been mentioned in various academic papers starting in 2003, mentions have stopped recently, unsure if still under development.					
Sensors for Medicine and Science	Germantown, MD	No	Yes	?	Electrochemical
Under development, implantable subdermal sensor, targeting 6-12 month sensor life.					
Solianis Monitoring AG	Zurich, Switzerland	Yes	Yes	?	Spectroscopic
Employs impedance spectroscopy. Uses multisensor concept to attempt to remove the influence of perturbing factors.					
Ultradian Diagnostics	Rensselaer, NY	No	Yes	?	Electrochemical
The Biologue device appears similar to those currently on the market, company was looking for funding to get through 2010, unsure if funding was achieved, claimed one calibration for 5 day sensor.					
VeraLight	Albuquerque, NM	Yes	No	Canada & EU 2011, US 2013	Spectroscopic
SCOUT DS diabetes screening device approved in Canada. \$43 million in venture capital invested, looking for \$15 million more, started as InLight Solutions spin-off.					

Source: Company websites, Feltl and Company estimates.

### FDA Evaluation of Blood Glucose Meters and CGMs

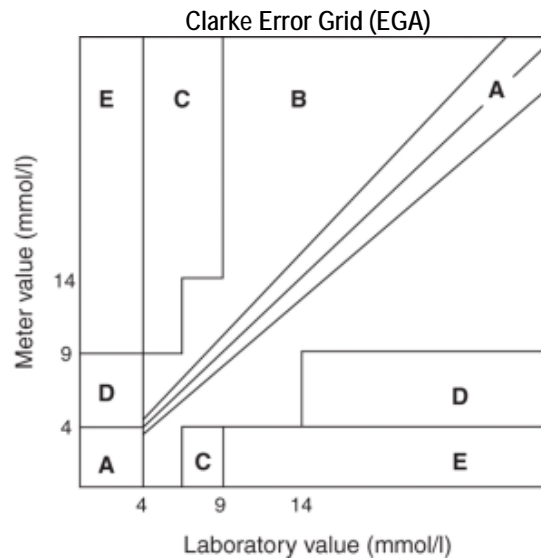
The FDA has begun to take a closer look at the standards by which it judges blood glucose (BG) meters and CGMs. The impetus appears to be the off-label use of BG meters in critical care setting to maintain tight glycemic control (TGC). This off-label use generally happens due to several reasons. First, an over-the-counter BG meter provides a reading in less than 10 seconds. Second, OTC BG meters are inexpensive compared to the cost of point-of-care lab instruments. Third, many ICU patients are anemic and OTC BG meters minimize blood loss in relation to what is required for lab equipment. A more thorough comparison between the two BG testing types is given in the table below.

Glucose Analysis: Lab Instruments versus Point-of-care Meters	
Lab Instrument	Glucose Meter
Standard reference materials	No standard reference materials
Elimination of hematocrit effect by analysis of serum or plasma	Hematocrit effect mitigated by measurement or algorithms
Can cost more than \$10,000	Costs less than \$100
Maintenance is more than \$1,000 a year	No maintenance required
Trained technician	Layperson
Calibrated many times daily	No user calibration
Controlled environment	Variable temperature, altitude, and other factors
Controls run frequently	Control solution use limited
Large, stationary, sensitive to shock	Small, portable, resistant to shock
≥5 mL sample	≤1 µL sample
≥60 second throughput	≤10 second throughput
±4% to ±10% inaccuracy	Inaccuracy is generally ≥2X reference

	method (laboratory instrument)
Source: AdvaMed, Clinical Laboratory News, May 2010	

**Quantification of Errors**

The Clarke Error Grid Analysis (EGA), shown below, was developed by Dr. William Clarke in 1987 to quantify clinical accuracy of blood glucose (BG) meters. The EGA is used to compare meter-determined blood glucose estimates to a reference value. When evaluating a BG device using the EGA, regions A and B are considered the “safe” regions, region C would cause unnecessary treatment, and regions D and E would be dangerous failures to detect hypo or hyperglycemia or confusing of appropriate treatments. The EGA has become the “gold standard” in determining accuracy of blood glucose meters. However, while it is applicable to CGMs, it is not necessarily a “good” measure of accuracy for CGMs. The EGA was developed at a time when diabetics typically measured their blood glucose using fingersticks and blood glucose meters a handful of times a day.



Obviously, measuring blood glucose a few times daily is not nearly the same thing as measuring it 288-1,440+ times per day as is done by most CGMs today. For example, assume a diabetic is measuring BG every hour of the day by fingerstick and sees readings of 100, 100, 300, 100, and 100 over the course of four hours. Under the EGA, those readings could have been accurate. However, if one is using a CGM that reads BG every minute and sees those same readings, in which the 300 reading would be obviously erroneous, as BG cannot spike and return to normal over the course of several minutes, a CGM would be evaluated as generating serious errors under the EGA.

The FDA seems cognizant of this fact and is apparently attempting to initiate a new standard that will likely apply to both blood glucose meters and CGMs. It should be noted that current CGMs are approved only for tracking and trending purposes (or adjunctive), not standalone BG measurement. DexCom indicated recently that the FDA has taken issue with the current ISO standard for blood glucose meters and that the FDA has requested comments from various parties on the establishment of a new standard for CGMs. The FDA-recognized BG meter ISO standard (15197:2003) requires that 95% of all results be within +/- 15 mg/dL when reference glucose levels are less than 75 mg/dL and within +/- 20 mg/dL when reference levels are greater than 75 mg/dL. Further, the ISO standard requires testing a wide range of glucose concentration levels as shown in the table below.

ISO Category	Glucose Concentration Range	% Results Required for Clinical Evaluation
1	<50 mg/dL	5
2	50-80 mg/dL	15
3	81-120 mg/dL	20
4	121-200 mg/dL	30
5	201-300 mg/dL	15
6	301-400 mg/dL	10
7	>400 mg/dL	5

There has been some indication that the FDA will wind up evaluating CGMs on something similar to the continuous glucose error grid (CG-EGA), also developed by Dr. Clarke's group. The CG-EGA attempts to take into account the interdependency of successive data by combining point accuracy with rate (directional change) accuracy. While we are unsure which approach the FDA will ultimately take, it appears that they intend to regulate using a two-track approach, with one standard for home use and another for the hospital and other medical professional use. The current consensus appears to be interested in tightening up the ISO range to +/- 15 mg/dL, or 15 mg/dL mean absolute relative distance (MARD), across the full spectrum. Likewise, there has been some discussion of requiring a 12 mg/dL MARD in the hypoglycemic range for CGMs targeted at the critical care market.

However, we believe that the FDA will end up evaluating CGMs on multiple metrics with a focus on the risk/reward trade-off. In practice, this may raise the difficulty level in achieving FDA approval for minimally invasive devices, such as those that use a needle to draw fluids to measure glucose, especially those targeting the critical care market due to the potential risk of hospital-acquired infections (HAIs). We believe this can be looked at two ways. Firstly, this benefits existing players who have critical care approvals already as new applicants will have a more difficult time getting their minimally invasive CGM through the FDA, but has the corollary of making it more difficult for those same firms to gain approval for new versions of their devices. Secondly, this could benefit firms who utilize a noninvasive approach in the sense that the FDA may not apply a strict MARD standard on a noninvasive device as the risk of HAIs would be lessened considerably or eliminated.

The table below details the FDA-approved CGMs. Given the past CGM approvals, it would appear that the best a new entrant into the CGM market could hope for is a little less than a year, but that time frame can stretch considerably if numerous amendments are made to the filing.

	Approved	Amendments	Time to Approval	Notes
MiniMed CGMS	6/15/1999	9	18 months	MiniMed acquired by Medtronic
GlucoWatch	3/22/2001	18	23 months	Discontinued July 2008, purchased by Animas, now J&J
DexCom STS CGMS	3/24/2006	14	10 months	First generation DexCom CGM
FreeStyle Navigator CGMS	3/12/2008	18	33 months	System back-ordered indefinitely, sensors still available

### Challenges to Developing Continuous Glucose Monitors

CGMs have been seen as a highly desirable product since at least the 1980s. The combination of a large potential market and the emotional appeal of developing a product that would largely help children with Type 1 diabetes has led to a great deal of investment as well as mal-investment. Of the four FDA CGM approvals cited in the previous section, only two of those companies currently have CGMs on the market – DexCom and Medtronic (or three if you count Abbott's FreeStyle Navigator which seems to have been on back-order for several quarters). As such, it would follow that achieving FDA

approval on a CGM system would lead to at least a modest share of a potentially multi-billion dollar market that is growing rapidly.

The CGMs currently on the market are invasive or minimally invasive. No noninvasive CGMs are currently on the market. The conventional wisdom is that noninvasive continuous glucose monitoring represents the true “Holy Grail” of glucose monitoring. Hundreds of millions of investor dollars have been spent on developing a noninvasive CGM – some on incredibly smart scientists and some on charlatans, as one would expect in a field that has such a large potential market.

Accurately measuring blood glucose noninvasively is a challenge that has confounded some of the brightest minds in academia and industry. Unfortunately for diabetics, it's not easily measured noninvasively. The subsections that follow discuss several broadly defined approaches for measuring glucose noninvasively as well as the corresponding challenges they face.

### Spectroscopic

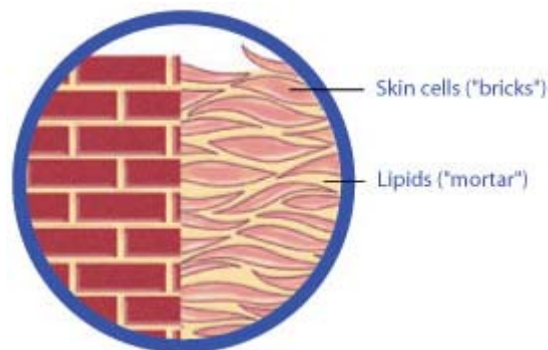
Glucose is nearly impossible to accurately measure via spectroscopic techniques such as those that are employed to measure hemoglobin noninvasively. The reason behind this is simple: glucose does not show up particularly well under any wavelength in the electromagnetic spectrum. This fact essentially rules out any spectroscopic attempt to measure blood glucose; over the past several decades, numerous mathematical techniques have been attempted to “tease” a glucose reading out of spectroscopic measurements. We believe that, save a brilliant new approach, spectroscopy is highly unlikely to generate a noninvasive CGM unless paired with another approach, as is currently being attempted by GluMetrics.

### Subdermal

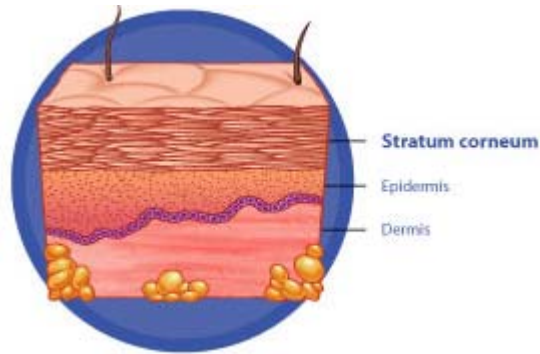
Subdermal approaches are often referred to as the “tattoo” method. A “reporter molecule” is placed under the skin that changes color in response to varying glucose levels under the tattoo approach. Numerous companies have attempted this, including Argose, Becton Dickinson, BioPeak, GluMetrics, MiniMed, Motorola, and Sensor Technologies. The practical complications of this approach haunt all researchers attempting to develop in vivo sensors. Basically, a foreign substance will be incorporated into the tissue of the body by a coating of protein if that foreign substance does not generate an immunogenic rejection response. This causes the access of the reporter molecule to glucose-bearing fluids to be reduced and lowers the response time to changes in glucose. Effectively, in a time period as short as several days, the ability to measure accurately degrades to the point of uselessness. Additionally, this method is obviously invasive.

### Transdermal

Under a transdermal approach, a biosensor attempts to measure glucose through the skin. However, this is made particularly difficult by the stratum corneum, the outermost layer of the epidermis, which acts as a barrier to the movement of glucose. In fact, the stratum corneum actually looks like bricks and mortar (see graphic below). Further, glucose requires either a transporter molecules to carry it across the cell membrane or free diffusion of glucose such as with endothelial cells which line the surfaces of blood vessels. Thus, in order to measure glucose, cell membranes must either be not intact, in which case one must employ force (as was used by the now-defunct Cygnus) or measure at a point where capillary diffusion happens readily. Employing force disrupts the normal equilibrium of the body, raises the body's defense mechanisms, and alters the local concentration of glucose, making it a challenge to obtain accurate readings.







Source: Google Images

### The CGM Dead Pool

What follows over the next page and a half is a non-exhaustive list of companies who have attempted to develop a CGM over the past couple of decades. Where possible, we have attempted to note the approach taken by each firm to measure glucose. Of particular note is the sheer number of spectroscopic attempts that fell short. As such, we would be wary of any glucose-monitoring technology that depended on technology other than the tried-and-true glucose oxidase (or similar electrochemical) method of measuring blood glucose.

Advanced BioSensors	Appears to be defunct, attempted to measure glucose in the dermis as opposed to the epidermis.
Argose	Chapter 7 in 2008. Attempted subdermal approach.
ArithMed GmbH	Claimed production of CGM in 2000, never to be seen again.
Biocontrol Technology	Bankrupt 2004 after being publicly traded as BICO.
Biopeak	Website still exists, appears not to be focusing on glucose monitoring at the moment, may be looking for a partner to advance glucose monitoring development program. Interestingly, Biopeak was the only company on this list to respond to our inquiries regarding the state of their glucose monitoring development.
BioTex	Refocused business, dropped spectroscopic glucose sensor program.
Calisto Medical	Appears to be defunct, claimed an extensive clinical trial about to begin in 2005 on website, last news posted in 2006. Attempted spectroscopic approach.
Cell Robotics	Appears to be defunct, website no longer available.
ChemImage	Appears to be defunct, website no longer available.
Cybiocare	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Cygnus	Technology developed at U of California San Francisco, FDA approved, used reverse iontophoresis transdermal approach, an electrical current to extract glucose molecules out of the body, company went bankrupt, assets sold to Animas for \$10 million.
Diabetex International	Appears to be defunct, website no longer available.
Diametrics Medical	Appears to be defunct, website no longer available.
DIRAmed	May be defunct, attempted Raman spectroscopic approach.
Fluent Bio	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Fovi Optics	Defunct, likely attempted spectroscopic approach, given the business' name.
Futrex	"DreamBeam" spectroscopic attempt was a failure, company moved on to near-infrared body fat meters.
GlucoLight	Defunct after failing to achieve funding, attempted spectroscopic approach.
Glucon Medical	Appears to be defunct, website no longer available.
GlucoSense	Appears to be defunct.
Gluko MediTech AG	Expected launch 2003/2004, appears to be defunct.
Guided Therapeutics (GTHP)	Appears to have given up on its spectroscopic attempt to focus on other businesses.
Hitachi	Appears to have given up on its hybrid approach announced in 2004.
Hypoguard	Appears to be defunct, website no longer available.

Infratec	Appears to be defunct, never had a website.
Integ	Acquired by Inverness Medical in 2000, in turn acquired by LifeScan, appears to have never been commercialized.
International Diagnostic Technologies	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
iSense	Acquired by Bayer, one source gives purchase price of \$17 million.
KES	Received LifeScan "poke-around" grant.
Kromoscopy	Inverness Medical purchased option to pursue their technology.
MicroSense International	Defunct 2003.
Nexense	Appears to have moved on to other businesses. Attempted spectroscopic approach.
NIR Diagnostics	Received "poke-around" grant from LifeScan, went out of business in 2008. Attempted spectroscopic approach.
The Non Invasive Blood Glucose Project	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Oculir	Defunct. Likely attempted spectroscopic approach based upon name of company.
OptiScan Biomedical	Attempted spectroscopic approach, moved on to other businesses.
Pelikan Technologies	Appears to have been shuttered after developing an electronic lancing product, has many patents that others are supposedly looking to acquire.
Pendragon Medical	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Phoenix Biosystem	Appears to be defunct, website no longer available. Attempted silicon-based MEMS approach.
Pindi Products	Appears to be defunct, website no longer available.
PowderChek Diagnostics	Defunct around 2009, attempted to use pressurized blast of fine particles to perforate skin and vacuum out interstitial fluid for testing.
PreciSense	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Queststar Medical	Appears to be defunct, website no longer available.
Q Step Technologies	Appears to be defunct, website no longer available. Attempted "photonic" approach.
Rare Light	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Sensys	Followed a similar development path to InLight Solutions, with the two companies often filing patents within months of one another. Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Sentek Group	Appears to be defunct, website no longer available.
Spire	Appears to have given up spectroscopic approach to concentrate on other businesses.
Standard Diagnostics	Appears to have given up spectroscopic approach to concentrate on other businesses.
SugarTrac/LifeTrac	LifeScan paid \$1 million for the rights to the technology for 3 months
Synthetic Blood International	Appears to be defunct, website no longer available. Attempted implantable biosensor.
Technical Chemicals & Products	Gave up on CGM program in 2001.
TecMed	Appears to be defunct, website no longer updated.
Visionary Medical Products	Appears to be defunct, website no longer available. Attempted spectroscopic approach.
Visual Pathways	Appears to have given up spectroscopic approach to concentrate on other businesses.
VivaScan	Became Grove Instruments, attempted to use a "squeeze" spectroscopic technique, Dean Kamen attempted to court LifeScan to invest.
VivoMedical	Appears to be defunct, website no longer available. Attempted to measure glucose in sweat.
Zyvex	Collaborated with Diabetech, appears to be no longer pursuing project.

Source: Company websites, news stories, Feltl and Company research.

## Artificial Pancreas Projects

The artificial pancreas is a technology under development to emulate the function of a healthy pancreas to help diabetics. Numerous approaches are under active research, including bioengineering, gene therapy, and medical device approaches. We believe the medical device approach will be the first to succeed as all the components to build an artificial pancreas are currently available; the remaining hurdles are regulatory in nature. DexCom systems are currently involved in approximately two-thirds of the dozen or so artificial pancreas projects ongoing.

The medical device approach to a “closed-loop” artificial pancreas would minimally require an insulin pump and a CGM working in conjunction. Presently, diabetics who use an insulin pump and CGM do so in an “open loop”. First, they test their blood glucose (BG) with a fingerstick and blood glucose meter to calibrate the CGM system (CGMs are currently classified as adjunctive devices). Then, when the CGM indicates that the user needs insulin, the required dose is calculated and the insulin pump is setup to deliver it. A closed-loop system would have the CGM send the estimated insulin dosing level wirelessly to the insulin pump for delivery, likely employing some adaptive filtering techniques that “learn” the unique basal rate of the user.

While the technologies are available to build a medical-device-based artificial pancreas, the FDA is likely several years away from approving such a product. The FDA will likely have several “open loop” applications before it in the next six-to-nine months, including two from DexCom. We believe that the FDA will need to become comfortable with “open loop” configurations prior to approving a “closed loop” one. Further, it appears that the approval timeline for medical devices has stretched considerably under the current FDA. The FDA is concerned with what might happen should a closed-loop system malfunction – problems with a CGM or insulin pump could lead to a potentially lethal dose of insulin being delivered to the user. As such, we believe that diabetics outside the US will be the first to utilize a medical-device-based artificial pancreas.

## Diabetes: The Disease, Prevalence, and Growth

Diabetes can take several forms: Type 1, Type 2, and gestational. Type 1 and Type 2 are chronic diseases.

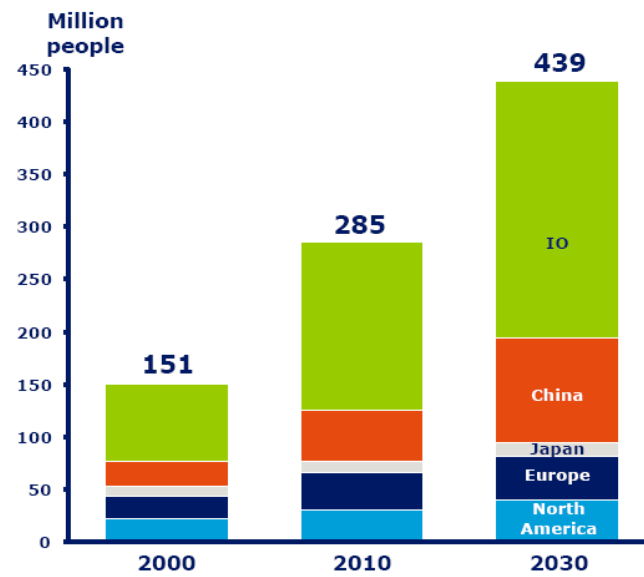
Type 1 diabetes, previously known as juvenile or insulin-dependent diabetes, occurs when the pancreas' beta cells do not produce enough insulin to properly control blood sugar levels and must be treated indefinitely with insulin or the patient must undergo pancreatic transplant or pancreatic islet cell transplantation (neither of which are common). Type 1 diabetes is not fully understood, but is believed to be of immunological origin. Further, most people who develop Type 1 diabetes are otherwise healthy. While Type 1 diabetes cannot currently be prevented, methods of preserving beta cell function are currently being investigated including immunosuppressive drugs and a vaccine containing GAD65, an autoantigen involved in Type 1 diabetes.

Type 2 diabetes commonly results from genetic and lifestyle factors. Of the lifestyle factors, obesity, hypertension, high cholesterol, age, and sedentary lifestyle are linked to the development of diabetes. Approximately 55% of newly diagnosed Type 2 diabetics are obese, although some research shows that diabetes may cause obesity. Of the genetic factors, having first-degree relatives who have Type 2 diabetes raises risks significantly. Type 2 diabetics may not need insulin, at least initially, but as time goes on, the likelihood of a Type 2 diabetic needing insulin increases.

Gestational diabetes occurs during 2-10% of pregnancies. Post-pregnancy, women with gestational diabetes are reported to suffer from diabetes 5-10% of the time and have a 35-60% chance of developing Type 2 diabetes within the following 20 years.

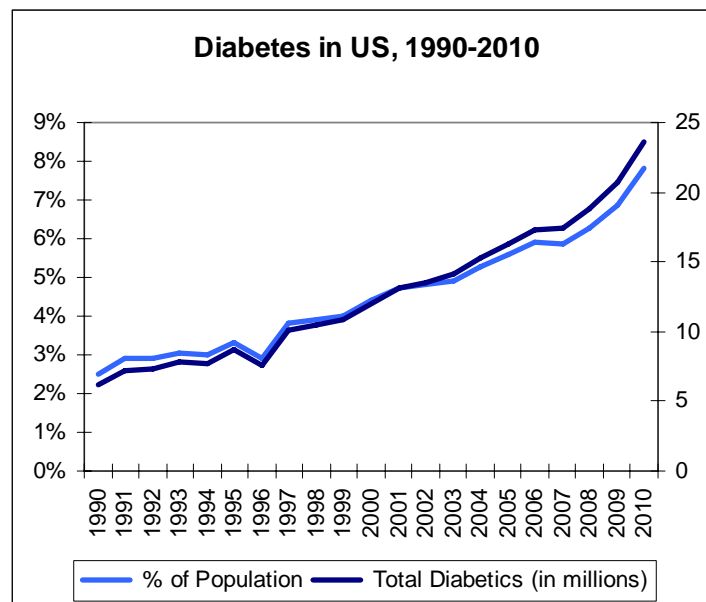
The complications associated with diabetes are serious and include high blood pressure, high cholesterol, kidney disease and failure, stroke, diabetic ulcers (which can result in amputation), peripheral vascular disease, cataracts, nerve damage, cataracts, and blindness. As with nearly any chronic disease, expenditures on treating complications can make up a huge portion of the total cost of treatment.

### Projected number of people with diabetes



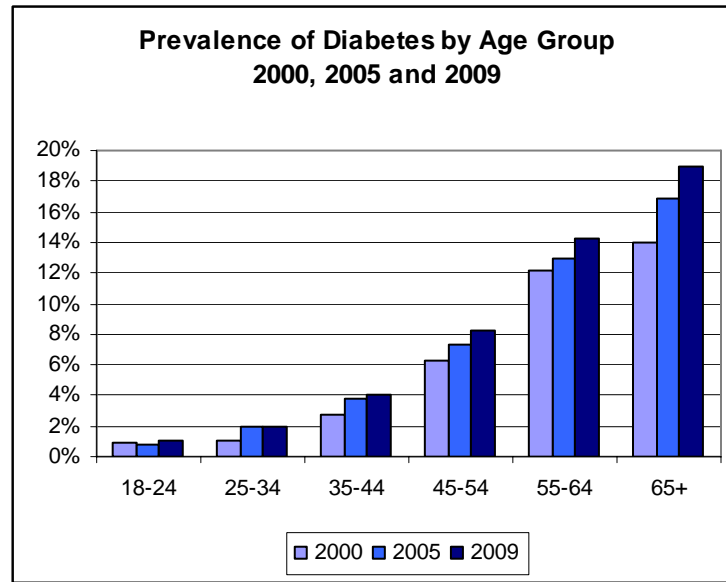
Source: WDF: Diabetes Atlas, 2000 and 2009  
Note: IO: International Operations, Japan includes Korea

Diabetes has become a global epidemic. It is currently estimated that 285 million people worldwide are afflicted with diabetes. Spot estimates place the number at 25.8 million in the US with 7 million of those undiagnosed. Estimates do vary, but one thing is clear – this is an extremely large market – afflicting over 8% of the US population and a little less than 5% of the worldwide population.



Source: Centers for Disease Control

The growth in diabetes is worrisome. Diabetes has become far more common in the US and around the world in the past decade. In the US, diabetes incidence increased from ~3% of the population to a little over 4% during the 1990s. However, since 2000, the trend has accelerated, almost doubling in incidence to nearly 8% of the US population. Worldwide the trend has been similar, in 2000 there were 151 million diabetics, which has since doubled to over 285 million. The chart below shows the increasing incidence of diabetes by age group in the US over the past decade.



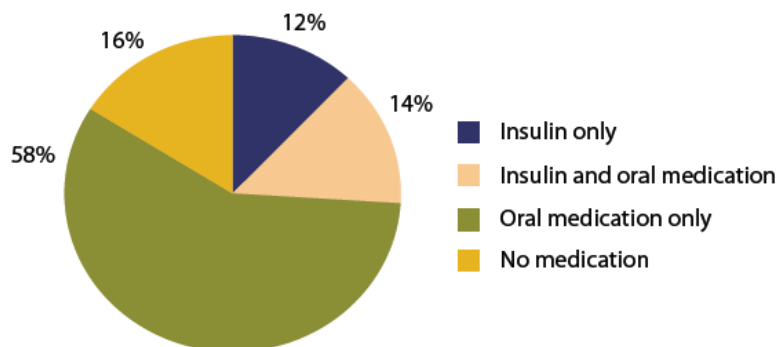
Source: Centers for Disease Control

### Diabetes Treatment and Glycemic Control

Diabetics must manage their blood glucose (BG) concentrations to avoid serious complications. Concentrations below 70 mg/dL are referred to hypoglycemic concentrations and those above 180 mg/dL are referred to as hyperglycemic. Hypoglycemic events can lead to coma or death in extreme circumstances, but symptoms can include fatigue, confusion, nausea, abnormal breathing, and seizures. Spending significant time in the hyperglycemic range causes kidney, neurological and cardiovascular damage. A diabetic will take insulin to bring down their BG level when hyperglycemic events occur and sugar when hypoglycemic events occur.

Diabetes treatment varies depending on the type of diabetes. Type 1 diabetics require insulin and administer it through an insulin pump, injected insulin, or inhaled insulin. Type 2 diabetics and women suffering from gestational diabetes are treated in a number of ways including oral medications such as Metformin, insulin, diet adjustments, increased physical activity, or a combination of the aforementioned. The following chart details the relative proportion of different types of treatments.

### Percentage of adults with diagnosed diabetes receiving treatment with insulin or oral medication, United States, 2007–2009



Source: 2007–2009 National Health Interview Survey

In terms of testing blood glucose, only ~5% of those not taking insulin test their blood glucose regularly, while those who do take insulin test BG more often.

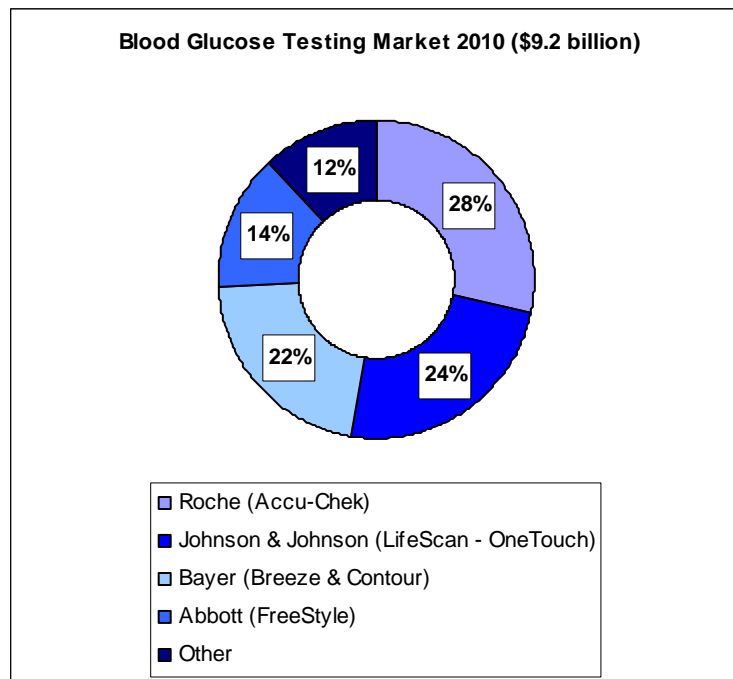
### Tight Glycemic Control (TGC)

Tight glycemic control (TGC) refers to managing one's glucose in a tight range in an attempt to get as close to the blood glucose levels a nondiabetic would experience. This has a number of benefits for diabetics including reducing diabetic eye disease, kidney disease, nerve diseases and others. The "Diabetes Control and Complications Trial" (DCCT) which followed 1,441 Type 1 diabetics from 1983 to 1993 helped establish the benefits of tight glycemic control (TGC). The DCCT found that diabetic eye disease was reduced by 75%, kidney disease started in less than half of diabetics, and nerve disease started in one-third as many people versus the control group.

In addition to using TGC in diabetics, TGC is also used in critical care settings on nondiabetics. Ten years ago, a study published in the New England Journal of Medicine found that maintaining adult surgical patients' glucose concentration to between 80 and 110 mg/dL (corresponding to fasting blood glucose levels) resulted in a 42% reduction in intensive care unit mortality and in-hospital mortality declined by 34%. After this study came out, TGC spread quickly in US hospitals. Several attempts to duplicate the conclusions of the study have been made, including the NICE-SUGAR trial in 2009. The NICE-SUGAR trial actually saw increased mortality for patients after 90 days, and it has been hypothesized that this was caused by a far greater number of hypoglycemic events under TGC. As a result, hospitals appear to have raised the target levels so as to reduce hypoglycemic events.

### Diabetes Device Market Characteristics

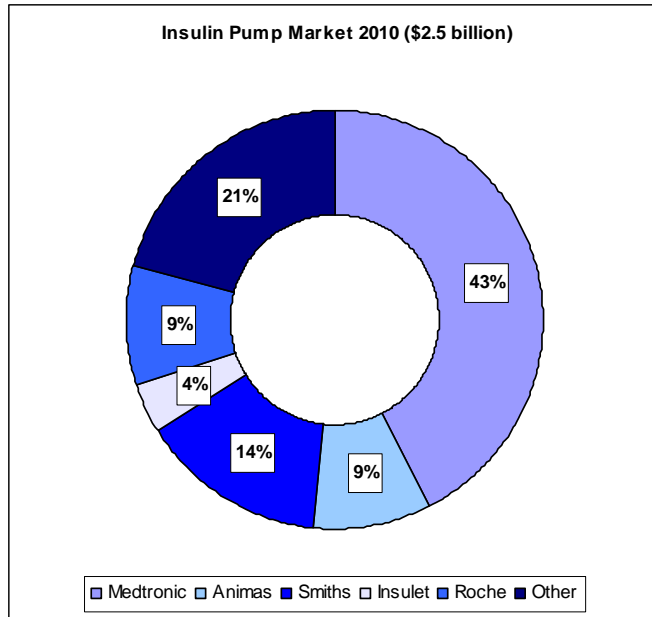
The diabetes testing market is largely composed of blood glucose meters and test strips. Products from Roche (Accu-Chek), Johnson & Johnson (LifeScan – OneTouch), Bayer (Breeze and Contour), and Abbott (FreeStyle) comprise 85-90% of the diabetes testing market. The market is often cited as being \$10-12 billion annually, which we believe to be roughly accurate as we can attribute \$8.1 billion in 2010 diabetes-testing revenue to the aforementioned companies, the breakdown of which is shown below.



Source: Company reports, analyst estimates

In addition to the testing market, we estimate that the insulin pump market was worth approximately \$2.5 billion in 2010, breakdown shown below. Since insulin pumps are utilized almost exclusively by Type 1 diabetics, the Type 1 market appears far more lucrative than the Type 2 market, at least in terms of devices and revenue per sufferer. Looking only at insulin pumps, which are used by only ~30% of Type 1 diabetics use, it is clear that this 6% of total diabetics make up far more of total industry revenues than their numbers would dictate.





Source: Company reports, analyst estimates

Consequently, device companies targeting diabetes would do well to at least initially target Type 1 diabetics. It is a relatively large, expensive-to-treat population and if the same devices have applicability to the entire diabetes-related market, this represents tremendous upside to potential sales.

## DexCom, Inc. (DXCM)

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Income Statement (millions, except EPS)	2009	Q1	Q2	Q3	Q4	2010	Q1	Q2	Q3	Q4	2011	Q1	Q2	Q3	Q4	2012	2013
Product revenue	18.0	6.8	9.0	10.8	13.6	40.2	13.1	17.1	19.3	22.4	71.9	22.2	28.0	31.2	35.2	116.6	174.3
Y/Y growth	122.4%	153.1%	119.9%	133.2%	104.9%	122.7%	94.2%	89.1%	79.1%	64.7%	79.0%	68.7%	63.7%	61.9%	57.4%	62.2%	49.4%
Development grant and other revenue	11.7	2.8	2.7	0.9	2.0	8.5	1.0	4.7	1.0	1.0	7.7	1.5	1.5	1.5	1.5	6.0	6.0
Y/Y growth	573.8%	9.5%	3.9%	-66.4%	-46.8%	-27.5%	-62.8%	71.3%	12.6%	-51.1%	-8.5%	44.9%	-68.1%	50.0%	50.0%	-22.4%	0.0%
<b>Total revenue</b>	<b>29.7</b>	<b>9.5</b>	<b>11.8</b>	<b>11.7</b>	<b>15.6</b>	<b>48.6</b>	<b>14.2</b>	<b>21.8</b>	<b>20.3</b>	<b>23.4</b>	<b>79.7</b>	<b>23.7</b>	<b>29.5</b>	<b>32.7</b>	<b>36.7</b>	<b>122.6</b>	<b>180.3</b>
Product cost of sales	18.2	5.1	6.3	7.0	7.7	26.1	8.4	9.3	9.9	10.8	38.4	7.6	9.5	10.7	12.1	39.9	58.9
Gross margin (products)	-1.0%	24.0%	30.1%	35.2%	43.6%	35.0%	36.4%	45.4%	48.7%	51.9%	46.7%	65.5%	65.9%	65.8%	65.7%	65.8%	66.2%
Development and other cost of sales	7.8	0.9	0.9	1.2	1.0	4.1	0.7	1.5	1.2	1.2	4.6	1.0	1.0	1.0	1.0	4.0	4.0
Gross margin (development)	33.0%	66.0%	65.4%	-35.8%	51.9%	51.7%	31.8%	68.1%	-20.0%	-20.0%	40.5%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
Total cost of sales	26.0	6.1	7.3	8.2	8.6	30.2	9.1	10.8	11.1	12.0	43.0	8.6	10.5	11.7	13.1	43.9	62.9
<b>Gross profit</b>	<b>3.7</b>	<b>3.5</b>	<b>4.5</b>	<b>3.5</b>	<b>7.0</b>	<b>18.4</b>	<b>5.1</b>	<b>11.0</b>	<b>9.2</b>	<b>11.4</b>	<b>36.7</b>	<b>15.0</b>	<b>19.0</b>	<b>21.1</b>	<b>23.7</b>	<b>78.7</b>	<b>117.4</b>
<b>Gross margin</b>	<b>12.3%</b>	<b>36.2%</b>	<b>38.3%</b>	<b>29.8%</b>	<b>44.7%</b>	<b>37.9%</b>	<b>36.1%</b>	<b>50.3%</b>	<b>45.3%</b>	<b>48.8%</b>	<b>46.1%</b>	<b>63.5%</b>	<b>64.3%</b>	<b>64.3%</b>	<b>64.4%</b>	<b>64.2%</b>	<b>65.1%</b>
Operating expenses																	
R&D	14.3	4.7	5.4	6.2	6.9	23.2	6.3	7.0	7.2	7.2	27.7	7.5	7.5	7.5	7.5	30.0	32.0
% of sales	48.1%	49.6%	46.0%	52.8%	44.1%	47.8%	44.2%	32.1%	35.5%	30.8%	34.7%	31.7%	25.4%	22.9%	20.4%	24.5%	17.7%
SG&A	35.2	9.8	10.4	10.4	10.0	40.5	10.7	12.4	12.5	12.0	47.6	11.8	13.7	13.7	13.2	52.3	57.6
% of sales	118.5%	102.6%	87.9%	89.0%	63.8%	83.3%	75.6%	57.0%	61.4%	51.2%	59.7%	49.8%	46.4%	41.8%	35.8%	42.7%	31.9%
Total operating expenses	49.5	14.5	15.8	16.5	16.9	63.7	17.0	19.4	19.7	19.2	75.2	19.3	21.2	21.2	20.7	82.3	89.6
<b>Operating Income</b>	<b>(45.8)</b>	<b>(11.1)</b>	<b>(11.3)</b>	<b>(13.1)</b>	<b>(9.9)</b>	<b>(45.3)</b>	<b>(11.9)</b>	<b>(8.5)</b>	<b>(10.5)</b>	<b>(7.8)</b>	<b>(38.5)</b>	<b>(4.3)</b>	<b>(2.2)</b>	<b>(0.1)</b>	<b>3.0</b>	<b>(3.6)</b>	<b>27.8</b>
<b>Operating margin</b>	<b>-154.4%</b>	<b>-116.0%</b>	<b>-95.6%</b>	<b>-112.0%</b>	<b>-63.2%</b>	<b>-93.1%</b>	<b>-83.7%</b>	<b>-38.9%</b>	<b>-51.5%</b>	<b>-33.2%</b>	<b>-48.4%</b>	<b>-18.0%</b>	<b>-7.5%</b>	<b>-0.4%</b>	<b>8.2%</b>	<b>-2.9%</b>	<b>15.4%</b>
<b>EBITDA</b>	<b>(43.5)</b>	<b>(10.6)</b>	<b>(10.7)</b>	<b>(12.4)</b>	<b>(9.2)</b>	<b>(42.9)</b>	<b>(11.1)</b>	<b>(7.6)</b>	<b>(9.5)</b>	<b>(6.7)</b>	<b>(34.7)</b>	<b>(3.2)</b>	<b>(1.1)</b>	<b>1.0</b>	<b>4.1</b>	<b>0.8</b>	<b>32.2</b>
Total other income	(7.7)	(9.2)	(0.4)	(0.3)	0.1	(9.9)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1
<b>Net income</b>	<b>(53.5)</b>	<b>(20.3)</b>	<b>(11.7)</b>	<b>(13.4)</b>	<b>(9.8)</b>	<b>(55.2)</b>	<b>(11.9)</b>	<b>(8.5)</b>	<b>(10.4)</b>	<b>(7.7)</b>	<b>(38.5)</b>	<b>(4.2)</b>	<b>(2.2)</b>	<b>(0.1)</b>	<b>3.0</b>	<b>(3.5)</b>	<b>27.9</b>
<b>EPS</b>	<b>\$ (1.21)</b>	<b>\$ (0.40)</b>	<b>\$ (0.20)</b>	<b>\$ (0.23)</b>	<b>\$ (0.16)</b>	<b>\$ (0.97)</b>	<b>\$ (0.19)</b>	<b>\$ (0.13)</b>	<b>\$ (0.16)</b>	<b>\$ (0.11)</b>	<b>\$ (0.58)</b>	<b>\$ (0.06)</b>	<b>\$ (0.03)</b>	<b>\$ (0.00)</b>	<b>\$ 0.04</b>	<b>\$ (0.05)</b>	<b>\$ 0.39</b>
Shares outstanding	44.3	51.3	57.6	58.2	60.4	56.9	62.2	66.0	67.2	67.7	65.8	68.2	68.7	69.2	69.7	69.0	71.0
<b>Revenue Model Assumptions (thousands, except attrition rate and sensors)</b>																	
Starter kits sold	8.1	2.6	3.5	3.9	4.9	14.9	4.1	4.9	5.4	6.4	20.7	6.1	7.0	8.1	9.3	30.5	40.9
Current users (end of period)		12.6	15.3	18.5	22.6		25.7	29.6	33.8	38.8		43.4	48.7	54.8	61.9		
Attrition Q/Q		7.0%	6.0%	5.0%	4.0%		4.0%	4.0%	4.0%	4.0%		4.0%	4.0%	4.0%	4.0%		
Average users		11.7	14.0	16.9	20.5		24.2	27.7	31.7	36.3		41.1	46.0	51.7	58.3		
Sensors purchased per average user per Q		6.7	7.4	7.3	7.5		6.3	7.3	7.2	7.2		6.3	7.3	7.2	7.2		

## Analyst Certification

I, Ben Haynor, CFA, certify that the views expressed in this research report accurately reflect my personal views about the subject company and its securities. I also certify that I have not been, am not, and will not be receiving direct or indirect compensation related to the specific recommendations expressed in this report.

## Important Disclosures:

The analyst or a member of his/her household does not hold a long or short position, options, warrants, rights or futures of this security in their personal account(s).

As of the end of the month preceding the date of publication of this report, Feltl and Company did not beneficially own 1% or more of any class of common equity securities of the subject company.

There is not any actual material conflict of interest that either the analyst or Feltl and Company is aware of.

The analyst has not received any compensation for any investment banking business with this company in the past twelve months and does not expect to receive any in the next three months.

Feltl and Company has not been engaged for investment banking services with the subject company during the past twelve months and does not anticipate receiving compensation for such services in the next three months.

Feltl and Company has not served as a broker, either as agent or principal, buying back stock for the subject company's account as part of the company's authorized stock buy-back program in the last twelve months.

No director, officer or employee of Feltl and Company serves as a director, officer or advisory board member to the subject company.

**Feltl and Company Rating System:** Feltl and Company utilizes a four tier rating system for potential total returns over the next 12 months.

**Strong Buy:** The stock is expected to have total return potential of at least 30%. Catalysts exist to generate higher valuations, and positions should be initiated at current levels.

**Buy:** The stock is expected to have total return potential of at least 15%. Near term catalysts may not exist and the common stock needs further time to develop. Investors requiring time to build positions may consider current levels attractive.

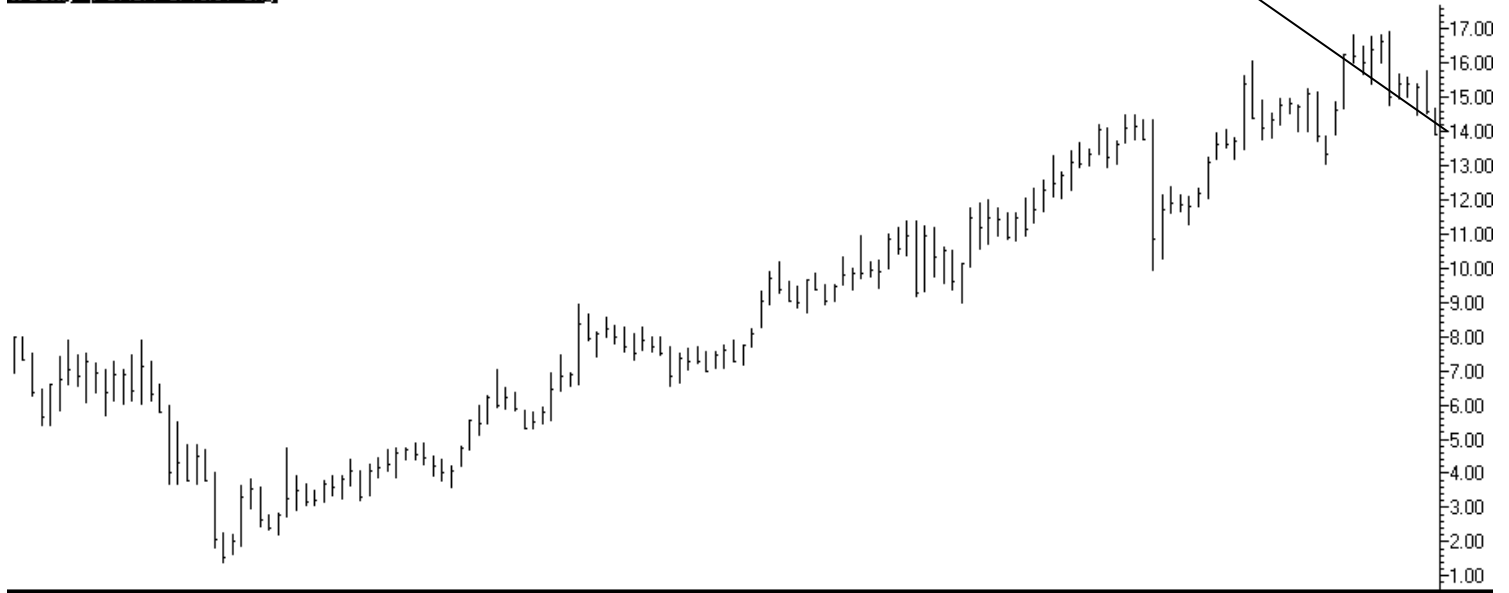
**Hold:** The stock is expected to have total return potential of less than 15%. Fundamental events are not present to make it either a Buy or a Sell. The stock is an acceptable longer-term holding.

**Sell:** Expect a negative total return. Current positions may be used as a source of funds.

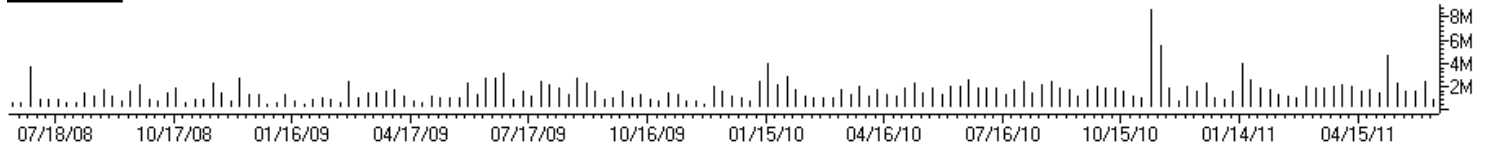
Ratings Distribution for Feltl and Company				
6/9/2011				
Rating	Number of Stocks	Percent of Total	----- Investment Banking -----	
			Number of Stocks	Percent of Rating category
SB/Buy	38	67%	3	8%
Hold	18	32%	0	0%
Sell	1	2%	0	0%
	57	100%	3	5%

The above represents our ratings distribution on the stocks in the Feltl and Company research universe, together with the number in (and percentage of) each category for which Feltl and Company provided investment-banking services in the previous twelve months.

Weekly > DXCM C: 13.91 Chg



> DXCM V: 0



Date	Nature of Report	Rating	Price Target
06/09/11	Initiation@\$13.91	Hold	\$16.25

Feltl and Company does make a market in the subject security at the date of publication of this report. As a market maker, Feltl and Company could act as principal or agent with respect to the purchase or sale of those securities.

**Valuation and Price Target Methodology:**

We derive our valuation using an EV/sales methodology. We believe this is appropriate being that DexCom will not likely generate positive EBITDA or earnings until 2013 by our estimates. Based upon past acquisition multiples for diabetes-related companies, which we believe to be approximately 8x trailing-twelve-month sales, as well as the rapid growth of the CGM industry, we think an 8x revenue multiple is appropriate to value DexCom upon. Our \$16.25 price target represents a 8x EV/sales multiple on our 2012 sales estimate of \$122.6 million plus net cash of ~\$110 million.

**Risks to Achievement of Estimates and Price Target:**

- DexCom's new products do not obtain FDA approval in a timely fashion. The FDA has significantly slowed down its rate of medical device approvals and all of DexCom's development agreement projects have slipped far beyond their initially intended timelines. While we believe management's current submission schedule is reasonable and that the company has far better guidance as to what the FDA will see as approvable, the risk remains that the approvals will continue to slip, causing investors to lose confidence in the company.
- The CGM industry is likely to become much more competitive. Currently, only DexCom and Medtronic (MDT – not rated) have CGM systems that are being sold in the US. Numerous companies are attempting to develop CGM systems (see "Glucose Monitors in Development" section for discussion), and many have larger budgets and more experience commercializing technology. One company in particular, Echo Therapeutics (ECTE – SB), is developing a noninvasive CGM system, which could redefine the market to the detriment of DexCom and Medtronic, who both have minimally invasive systems.
- Abbott patent litigation. DexCom is currently involved in a patent fight with Abbott (ABT – not rated) which may result in DexCom being forced into a licensing agreement on unfavorable terms or see its products removed from the market. While we believe that the latter scenario is unlikely to occur, investors may adjust their valuations to account for this possibility as a final decision draws closer.

**Other Disclosures:**

The information contained in this report is based on sources considered to be reliable, but not guaranteed, to be accurate or complete. Any opinions or estimates expressed herein reflect a judgment made as of this date, and are subject to change without notice. This report has been prepared solely for informative purposes and is not a solicitation or an offer to buy or sell any security. The securities described may not be qualified for purchase in all jurisdictions. Because of individual requirements, advice regarding securities mentioned in this report should not be construed as suitable for all accounts. This report does not take into account the investment objectives, financial situation and needs of any particular client of Feltl and Company. Some securities mentioned herein relate to small speculative companies that may not be suitable for some accounts. Feltl and Company suggests that prior to acting on any of the recommendations herein, the recipient should consider whether such a recommendation is appropriate given their investment objectives and current financial circumstances. Past performance does not guarantee future results. Additional information is available upon request.

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