Dexcom®
CONTINUOUS GLUCOSE MONITORING

G5 Mobile Marketing Plan

Course Title: Technology Marketing

Course Number: ETM 555
Instructor: Dr. Sule Balkan
Term: Spring
Year: 2017
Author(s):
Agam Ebramsyah
Asma Razavi
Catalina Reyes
Cody Miller
William Perreira
Charles Asafo-Adjei

Table of Contents

Executive Summary

Dexcom is a medical device company primarily focused on the design, development, and commercialization of continuous glucose monitoring (CGM) systems. These CGMs are used by people with insulin intensive diabetes. Insulin intensive diabetes requires active management of blood glucose levels to avoid adverse affects such shaking, sweating, and in the most extreme cases seizures and loss of consciousness. The G5 Mobile CGM system is a capable of giving people with intensive diabetes state of the art technology to control the blood glucose level and maintain it to be within a specified range.

Since inception, we have devoted most of our resources to start-up activities, such as raising capital and conducting research and development, including product design, testing, manufacturing, and clinical trials. Since 2006, we have devoted considerable resources to the commercialization of CGMs as well as the continued research and clinical development of their technology platform.[5] Now it is time to focus on increasing brand and product awareness. The objective of this marketing plan is to increase brand and product awareness to move us beyond the chasm on the technology adoption life curve. To increase brand and product awareness we plan to increase online and offline advertising targeting people with insulin intensive Type I and Type II diabetes.

We are competing against well known established medical companies for a market potential of three million customers. Our customers are feature and price sensitive. We will rely on our strengths and opportunities, while mitigating our weaknesses and threats. Our strengths include a commitment to R&D which has resulted in 300+ patents and the FDA approval to use the G5 Mobile as therapeutic medical device allowing users to make medical decision based solely on the data it provides. Our opportunities include partnerships with companies in adjacent markets such as insulin pump manufacturers and partnerships with medical experts able to influence others in order to convince doctors and patients to consider the G5 Mobile CGM system. The biggest weakness has been operating our business at a loss. The intent of this marketing plan is to turn that around. The largest threat we have can not be influenced by us. We are at the mercy of the FDA.

Our pricing management strategy is to switch from a value based pricing to penetration pricing in order to attract more customer away from using traditional finger prick blood glucose monitors. Even though we feel our value based pricing strategy was a good idea it can not increase our growth as quickly as desired. Switching to a penetration pricing strategy will make the G5 Mobile CGM system more competitive with our competitor's products. We sell the G5 Mobile CGM system and the consumables for it through a direct sales force and through other distribution arrangements. We have contracts with distributors who fulfill orders for our products from their inventory. We also have contracts with distributors where products are shipped directly to the customer from our warehouses.[5]

Communication is the key to our strategy. In order to cross the chasm on the technology adoption life curve we need to inform diabetes patients about Dexcom, the G5 Mobile, and how we will improve their lives. To implement this strategy we will need to work with a marketing firm to help us navigate the numerous advertising channels we are targeting. The success of this

strategy can only be known if we have data showing where we have been, where we are, and where we are going. Customer feedback and ROI are two key factors that will be monitored closely.

Introduction

Diabetes is a global epidemic. According to the International Diabetes Foundation approximately 642 million people are projected to be diagnosed with either Type 1 or Type 2 diabetes by the year 2040.[9] In the US alone, 29.1 million people are reported to be diagnosed with diabetes.[20] More shocking is the report that 1 out of 4 individuals do not know they have diabetes. The accelerated increase and the pervasive nature of diabetes, coupled with the integration of medical insurance coverage as a result of healthcare reform, has triggered the US medical care device market to identify innovative ways to manage and monitor the disease preemptively. The proliferation of the disease in the US has some analysts estimating a potential market growth revenue of nearly $16 billion by end of 2017. The question is how effectively can individuals manage this disease in a manner that doesn't impede their daily routine?[26]

Currently, there are a number of products available on the market that are helping individuals manage this epidemic disease. These include a variety of oral and injectable medications, together with insulin pens, insulin pumps, and blood glucose test strips. Traditional Self Monitoring Blood Glucose (SMBG) devices, such as meters, strips and lancing devices currently account for 70% of the diabetes devices market. These products widely receive medical insurance reimbursement. They have become commoditized products with strong price competition and synonymous as a low-cost approach to managing diabetes.

This marketing plan focuses on continuous glucose monitoring (CGM) devices. Among the Food and Drug Administration (FDA) approved CGM devices, there are two competing companies that are working vigorously in this space including Dexcom and Medtronic. Our marketing plan will be concentrating on an evolutionary product, the G5 Mobile CGM system. Over the years, we have launched a series of CGM products, the most recent being the G5 Mobile.

This marketing plan incorporates the revenue producing objectives for Dexcom G5. Through this marketing plan we will attempt to consider the preceding talking points in order to propose effectual marketing strategies that could propel the Dexcom G5 into market dominance.

Company Analysis

Dexcom Inc. is a medical device company founded in 1999 and approved by the FDA in 2006. The company designs, develops and commercializes CGM systems for people with diabetes to manage their blood glucose levels. In 2012, The G4 PLATINUM product was launched, making it the most advanced CGM system in the market at that time. In September 2015, the G5 Mobile CGM System was launched and became the first CGM system to allow blood glucose levels be shared with friends and family using a compatible smart device.[8]

Currently, we are commercializing two main products, the G4 PLATINUM and the G5 Mobile. Dexcom has gotten an accumulated deficit of $621.0 million since 1999 and expect losses to continue due to research and development activities, although this is a common financial behaviour in companies like Dexcom (Further details shown in Appendix 1). In the figure 1 [29]

and 2, it is shown the behaviour of the company since they released the G4 PLATINUM model and then 3 years later an improved version (the G5 Mobile CGM System) was released, helping the company to increase their price in the stock market and to get closer to cross the chasm on the technology adoption life curve.

Figure 1: Historical Situation of Dexcom in the Stock Market

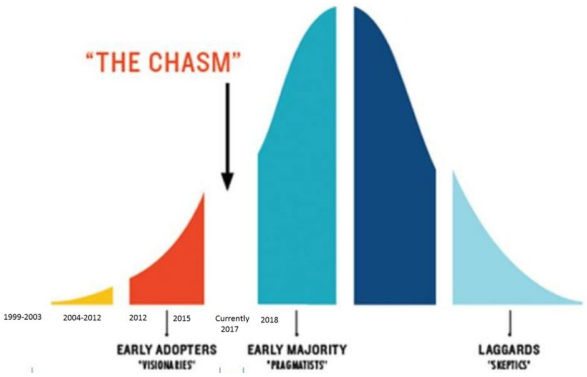


Figure 2:Dexcom G5 Mobile Tech Adoption Life Curve Current Position

We have few tangible assets. Our largest tangible asset is our employees. As of 2016, more than 1,900 full-time employees and more than 400 contract and temporary employees globally. No employees are represented by a labor union or covered by a collective bargaining agreement. We are yet to experience any employment-related work stoppages and considers their employee relations to be good. The next largest tangible asset we have is building leases. In 2017, we had leases costing $7.5M. The leases are located in San Diego, CA, Edinburgh, Scotland, and Mesa, AZ. The Mesa, AZ lease arrangement involves the construction of a new manufacturing facility, which is expected to be operational during 2018, subject to FDA approval.[5]

Our intangible assets are more impressive. We rely on a combination of patent, copyright and other intellectual property laws, trade secrets, nondisclosure agreements and other measures to protect our proprietary rights. As of February 2017, we have obtained 334 issued U.S. patents, and have 327 U.S. patent applications pending [6][7]. It could take up to five years, and possibly longer, for these pending U.S. patent applications to result in issued patents. We have 48 international patents and 63 applications for international patents. It is important to note that patents begin expiring in 2017.[5]

Product and Brand Management

Two key factors that are centric to marketing strategy are product and brand management. Brand management is defined as the analysis and planning on how a particular brand is perceived in the market by its target segment. Nothing is more crucial than perception when it comes to marketing. Perception builds trust and trust win customers leading to more sales. Therefore this section will attempt to convey some of the advantages the Dexcom CGM brings to strengthen its brand in the medical industry.

Product Overview

The G5 Mobile is a noninvasive CGM system able to be worn externally. It is the next evolutionary product subsequent to the G4 PLATINUM that was released in late 2015. Comparable to the G4 PLATINUM product, the G5 Mobile is a standalone CGM (Continuous Glucose Monitoring) product. The G5 Mobile CGM system also consists of 3 components including sensor electrode, transmitter and a receiver (or your smartphone device. See below for more details.

G4 PLATINUM	G5 Mobile CGM system
▪iPhone only	▪1ST FDA approved CGM Device for Android & iOS
▪Data UL to Cloud/Clarity req. user plug-in	▪Data UL to Cloud/Clarity App is Automatic
▪Data Tx & Rx uses RF Wireless - limitation multi-dev comm.	▪BT Technology allowing for multi-dev comm.
▪User must carry receiver & smartphone device	▪User can carry just smartphone w/o receiver
	▪91% Data Accuracy – Highest among all CGM Dev

Table 0: Dexcom CGM G-Series Feature Comparison

The G5 Mobile solution is the only FDA approved CGM product that's compatible with two of the most dominant mobile platforms OS; iOS and Android. Having these strategic partnerships not only strengthens the Dexcom brand but opens the door to attract more consumers across the board.

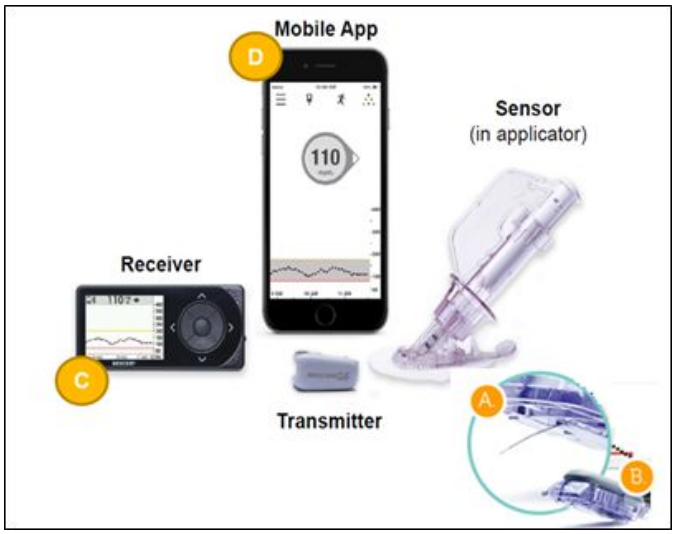


Figure 3: G5 Mobile CGM System

To reiterate, the G5 Mobile CGM system consists of three parts [18].

- Small Sensor That Measures Glucose Levels Just Underneath The Skin.
- Transmitter that is fastened on top of the sensor and sends data wirelessly to your compatible smart device or the G5 Mobile receiver.
- A display device which can be a compatible smart device with the G5 Mobile App or the G5 Mobile receiver.

How Product Works

As mentioned previously, the G5 Mobile is a noninvasive CGM device that measures individual glucose levels in the interstitial fluid to provide glucose readings and data about glucose trends continuously in real-time. Given that 45% of the human skin is made up of interstitial fluid (IF), the glucose values being monitored by the G5 Mobile sensor depends on the amount of capillary glucose being diffused under the skin and the rate of glucose uptake by the skin cells. The transmitter is plastered on your side abdomen and the sensor electrode attached to the transmitter penetrates into the the interstitial fluid level as opposed to the blood vessel, thus the reason for G5 Mobile noninvasive nature. The transmitter is enclosed in a plastic case that can be worn discretely while your receiver device (or smartphone) is either held in hand or in your pocket. The system was designed to be comfortable and discreet. The G5 Mobile transmitter is only a fraction of the typical weight of smartphones at 2.4 oz. As depicted below in Figure 4, the discretionary nature of the product modularity allow diabetic patients to roam freely without being constrained to SMBG nature of managing one's glucose level fluctuation. This aspect of the G5 Mobile solution alone is a significant advantage over traditional SMBG approach.

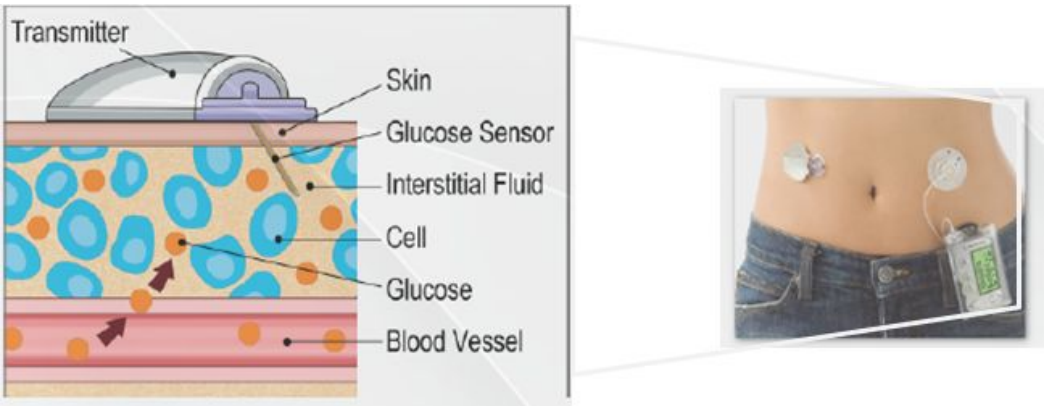


Figure 4: Depiction of How G5 Mobile Sensor Is Worn

Sensor Insertion

The smaller insertion needle makes for a much more comfortable insertion process. The diameter of the sensor is no more than that of a strand of hair. A diabetic patient can hardly feel it when it is inserted under their skin. Children as young as 7 and 8 years old have been able to insert the sensor themselves without much effort.

The G5 Mobile CGM system provides diabetic patients a more comprehensive analysis of their blood glucose trend in near real-time; something a typical SMBG meter cannot. Self monitoring blood glucose meters only give you a single glucose number for that period of time when a patient test their BG levels. However, a CGM system will provide you with 24/7 glucose number readings, trending information and historical data to better equip the patient in making informed treatment decision. As with any wearable IoT technology, there are default risks associated with device usage that must be mitigated by taken necessary preemptive action. Please reference Appendix 2 for side-by-side comparison of the risks associated with either the traditional approach versus CGM approach for managing diabetic patients' glucose levels.

What types of Personas Utilizes the G5 Mobile CGM System

In the early stages of the evolution of CGM devices, there was very little cross-segment participation among consumers. However, since it's inception into the medical industry we're seeing significant increase of CGM customer base. Across the gender and social-status ladder, all kinds of individual are reaping value proposition that a product like the G5 Mobile offers to patients - that is freedom and independence to monitor BG levels in a proactive manner without missing out on one's social life. The G5 Mobile does not discriminate by age, gender, profession and or socio-economic status. The system is worn by individuals from all facets of life. See Appendix 3 for example personas benefiting from the G5 Mobile solution.

Value Proposition

Synonymous to buying a house or a car deciding to purchase a CGM product is no small task. Finding a CGM product that meets a patient needs must require a serious consideration [19].

You have to know what you're looking for and the value you stand to gain. There are several key features that diabetic patients should consider when selecting a standalone CGM product. Based on research comparison and analysis of current offerings, the G5 Mobile is setting the industry standard due to the following user values:

- It's the only FDA approved CGM product compatible with iOS & Android
- It provide patients with real-time trend data w/unlimited historical data storage
- Catch Hypoglycemic and Hyperglycemic events and inform patients ahead of time
- Minimize guesswork solely on blood glucose metering number reading like SMBG
- Patients can share with loved ones and caregivers their blood glucose levels via Dexcom Clarity app remotely.
- Unlike SBGM method CGM requires only two finger pricking daily for the purpose of calibrating device for more accurate reporting.
- The G5 Mobile CGM system is discrete and comfortable to wear - no prying eyes

Brand Management

The process of maintaining, improving, and upholding a product brand so that the name resonates with positive results is an important aspect of a marketing strategy. So, what does brand management involves? The criteria for brand management varies from product to product. For CGM products such as the G5 Mobile, some of the most common characteristics when it comes to brand management involves cost, sensor data accuracy, product reliability, easy integration into daily life routine and most importantly government backing in terms of obtaining FDA approval. Brand management must be built on trust in order to attract consumers. Our brand is built on the values patients gained from using our CGM solutions. These includes but not limited to the following:

- **Eliminate Inconvenience**

Managing blood sugar levels in and day out can be an overwhelming task for diabetics. Imagine having to constantly prick your finger before and after every meal**.** As articulated by CEO Kevin Sayer, "At Dexcom, our mission is to empower people to take control of their diabetes. Managing blood sugars is a 24/7 job and is full of so many inconveniences. As a result, the majority of people with diabetes struggle to keep their blood sugar levels in a safe range. Our CGM system is designed to address the needs most critical to them, so they can do a better job managing their glucose levels."[28] At Dexcom we understand that managing blood sugar levels is a constant daily effort. As result we aim to built our brand around eliminate these inconveniences so patients can move on with their lives. As patients entrust us to provide them accurate readings of their BG levels we must protect that trust. Therefore building our brand around a accuracy and reliability of data readings must rank among our highest priority.

- **Accuracy and Reliability**

Since the evolution of CGM products appeared on the market, various people have done tests looking at the accuracy of the different solutions in addition to scientific research. Personal tests have become a common and an important method of assessing product reliability and an impetus to buy or not to buy. There is an article where various CGM products were compared on the scale of accuracy; the Libre, the G5 Mobile, Veo with Minilink and 640G with Guardian 2

(R1) against each other. The verdict showed that the G5 Mobile stood on the pedestal among its competitors in terms of sensor data accuracy readings. See Appendix 4: MARD Rankings. Additionally, getting government backing in terms of FDA approval convey a message of reliability and trust.[27]

A recent article in Diabetic Tech online magazine, ***"What's the best CGM solution?"*** confirmed that there are two key drivers that are commonly considered by diabetes patients when deciding to buy a CGM product, "How accurate is it?" and "How much does it cost?" According to the article the choice comes down to two commonly known brands, Medtronic and Dexcom. However, after many people utilized a Medtronic system, they decided to switch to Dexcom. [27] As long as Dexcom continue on this trajectory its brand will continue to draw more and more consumers. We intend to build on these foundations in addition strategic partnerships and ongoing development of patents etc.

Conversely, there are macroeconomic factors that Dexcom must maintain awareness so that management can respond preemptively. These includes political and medical policies (e.g. coding & coverage. As a case in point:

On December 20, 2016 the Food & Drug Administration (FDA) granted premarket approval to Dexcom, Inc. for an expanded application of Dexcom G5 in terms of replacing fingerstick blood glucose monitor (BGM) testing for diabetes treatment decisions. This is referred to as "non-adjunctive" use. On January 12, 2017 the Centers for Medicare & Medicaid Services (CMS) issued CMS Ruling 1682R addressing the benefit category for non-adjunctive CGM systems. CMS Ruling 1682R classified CGM systems into therapeutic and non-therapeutic systems. It is important to note that while such ruling improves the company brand in terms of building consumer trust and confidence, Dexcom management team must not take such policies for granted. Policies that improve CGM companies brand today could change tomorrow. As such Dexcom must continue to release to market quality and reliable products that continue to gain government backing and ultimately the public trust.[32]

Market Definition

What is a CGM?

Continuous glucose monitors are electronic devices that measure and display blood glucose levels in the body continuously throughout the day and night [21].

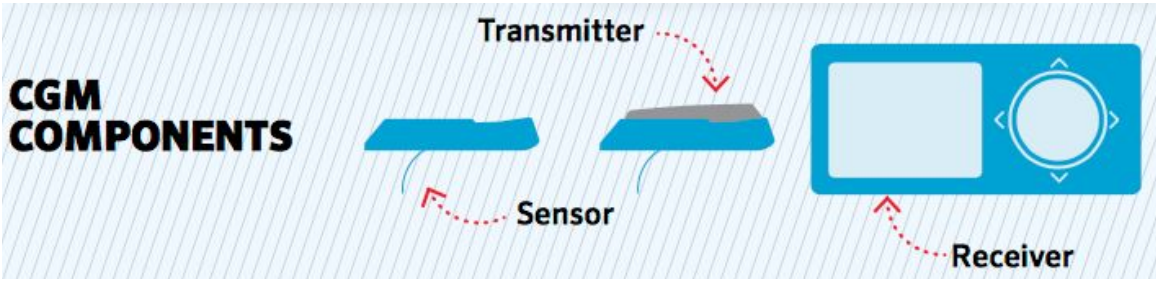


Figure 5: Continuous Glucose Monitoring Components

The G5 Mobile CGM system consists of three basic parts: the wireless monitor, often called a receiver; the transmitter; and the sensor. The handheld monitor, about the size of a cell phone, has a screen where one can check their current glucose level, look at historical data, and get trends about whether glucose is likely to go up or down, and how fast. The transmitter is a simple device—about the size of a quarter—that hooks into the sensor and streams glucose information over radio waves to the monitor.

Compared with the sensor, the hardware for the transmitter and monitor is relatively standard. The sensor, the most sophisticated piece of the CGM system, is thinner than a needle and about half an inch long. The sensor is inserted just under the skin, where it remains in place for several days, detecting glucose in the surrounding fluid.

The sensor uses the same enzyme to measure glucose levels as a test strip: glucose oxidase. This enzyme converts glucose to hydrogen peroxide. The peroxide reacts with platinum inside the sensor, generating an electrical signal that travels through a tiny wire to the transmitter. A computer algorithm in the receiver converts the electrical signal into a blood glucose reading. The chemical layers on top of the glucose oxidase keep the sensors functional under the very poor working conditions that exist inside the body.[11]

Market demographics

Continuous Glucose Monitors are one of the most interesting diabetes-treatment technologies emerged in the recent years. They target to ease the lives of more than 415 million diabetic people [20]. Diabetics are inconvenienced every time they need to check their blood glucose levels by pricking their finger almost 6 times a day. Not only the pain, the cost associated with lancets and strips is recurring too. In a perfect world, blood sugar testing would be quick and painless and our product, the G5 Mobile, aims to achieve this. In this report we focus on the diabetics in the USA as our potential market. See Appendix 5 for an in-depth analysis of the diabetes and its effects.

Market Potential

Rising predominance of diabetes has given a chance to manufacturers to concentrate on creating symptomatic systems that are exceedingly solid and screens person's blood glucose levels with more prominent exactness with the capacity to enhance glycemic control and patient prosperity. By joining of detecting components, gadgets alongside a dependable power source in a solitary unit, noninvasive blood glucose monitors are putting forth huge open door for all the gadget makers alongside patients and different social insurance suppliers over the world.[3]

Continuous glucose monitors one of such strategies is viewed as the most noteworthy leap forward in diabetes administration in the previous 40 years. The conventional glucose observing has been a finger stick meter. CGM increases the utilization of glucose meters for the administration of diabetes. Meters are as yet required to align CGMs and for direction in settling on treatment and feast choices.[4] Since, CGMs are designed to monitor glucose levels in a much accurate way; it is assumed that the total CGM market would reach a value of at least

$783.9 million by 2019. This is due to the increasing acceptance of clinical trials showing the efficacy of CGM in abating the number of hypoglycemic episodes, as well as the growth in the number of people globally with diabetes. The overall compound annual growth rate (CAGR) for this market from 2014 through 2019 is expected to be approximately 19.6%, see figure 6.[13]

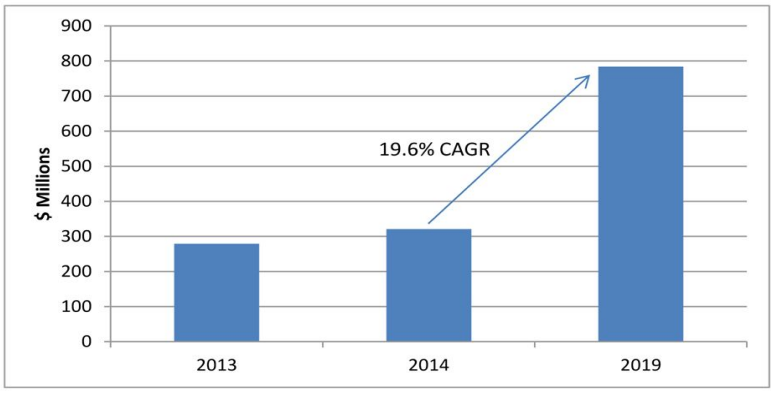


Figure 6: CGM Market[13]

With the growing rate of diabetes and anticipated growth of CGM market, Dexcom believes that continuous glucose monitoring has the potential to enable more people with diabetes to achieve and sustain tight glycemic control. According to the Journal of the American Medical Association in 2004, less than 50% of diabetes patients were meeting ADA standards for glucose control (A1c), and only 37% of people with diabetes were achieving their glycemic targets. The CDC estimated that as of 2006, 63.4% of all adults with diabetes were monitoring their blood glucose levels on a daily basis, and that 86.7% of insulin-requiring patients with diabetes monitored daily. Hence, the increasing interests of people to better and daily monitor their glucose levels also provides Dexcom the ground to develop more advanced glucose monitoring devices.[5]

Market Need and Drivers

Need

The following image describes the diabetics' opinion (captured through a survey) on the use of traditional glucose monitoring behaviours. The level of discomfort diabetic patients experience in managing their blood sugar levels on a daily basis can be reduced through the adoption of Dexcom G5 Mobile solution.

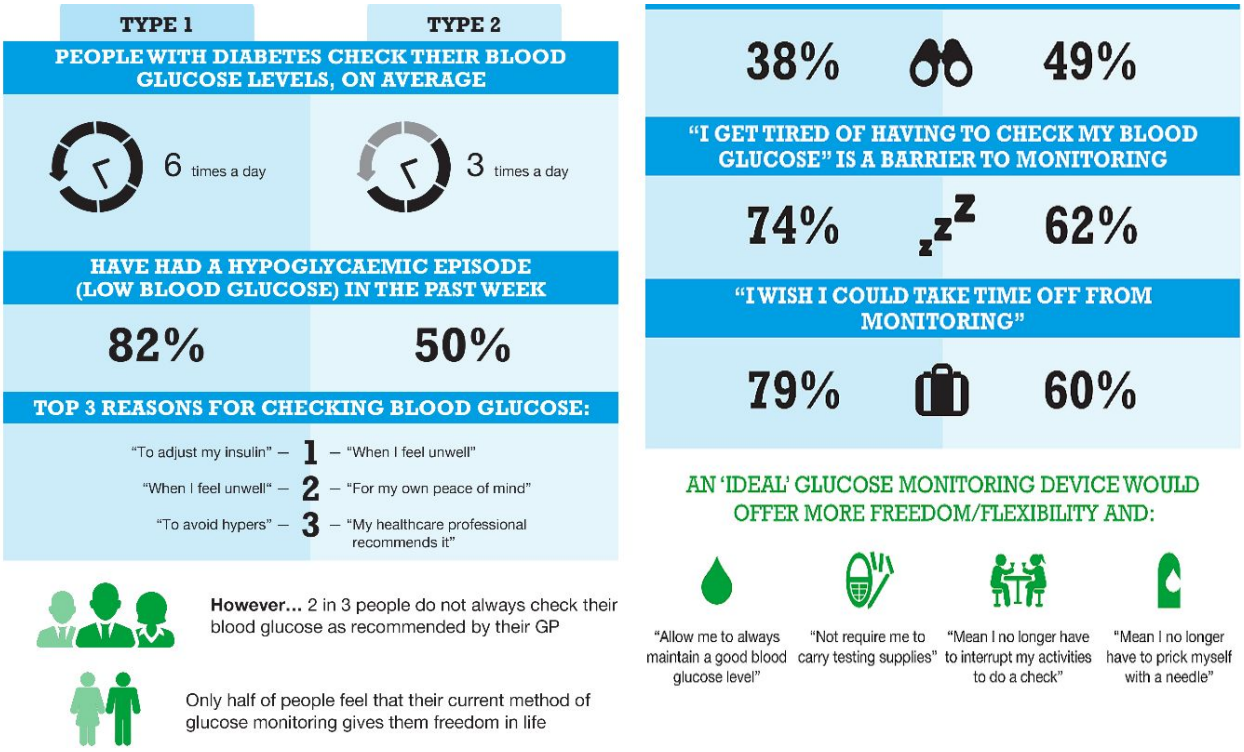


Figure 7: Glucose Monitoring Behaviors and Attitudes [30]

Currently, many people with diabetes need to measure their blood glucose levels by pricking their fingers, squeezing drops of blood onto test strips, and processing the results with portable glucometers. The process can be uncomfortable, messy and often has to be repeated several times every day. The information yielded through such process is also a single point in time measurements.This is why CGMs are important for people with diabetes because they provide a crucial and much-appreciated safety net for people with diabetes and their families.[14]

To help people we believe a market opportunity exists for a glucose monitoring system that provides continuous glucose information, including trends, and that is convenient and easy to use.

The traditional devices suffer from several limitations, listed in below table:[1]

Limitations of Traditional Devices	
Limited Information	• Infrequent measurement • Restrictions in keeping the blood glucose levels without adequate data • No measurements while sleeping • Historic readings storage manual
Inconvenience	• Each prick disrupts the normal routine

	• The kit needs to be carried everytime to monitor glucose levels regularly • Could cause uneasiness in public
Difficulty of use	• Multiple pricks could be required for a single reading
Pain	• Fingertips that are thickly populated with very touchy nerve endings make the blood draw excruciating • Multiple pricks on the same surface make the process very painful

Table 1: Limitations of Traditional Devices

Figure 9 shows the limited information provided by four single-point measurements during a single day using a traditional single-point finger stick device, compared to the data provided by our continuous sensor. The data presented in the graph is from a clinical trial Dexcom completed in 2003 with a continuous glucose monitoring system, where the patient was blinded to the continuous glucose data. The continuous data indicates that, even with four finger sticks in one day, the patient's blood glucose levels were above the target range of 80-140 milligrams per deciliter ("mg/dl") for a period of 13.5 hours.

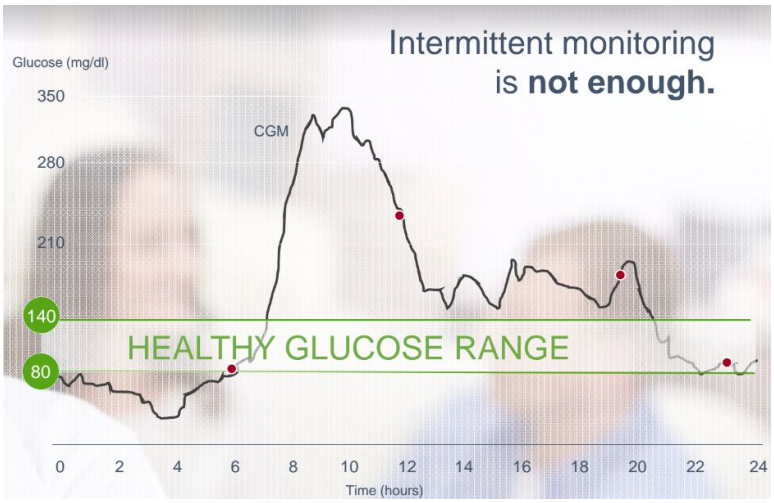


Figure 9: Single Day Continuous Data [8]

We believe limitations noted in Figure 9 could drive the sales of CGMs throughout the country as people are educated more about CGMs. We believe the period between 2016 to 2024 will be a lucrative growth as diabetes existence is increasing worldwide; hence CGMs can hold a firm place in market.

Drivers

The expanding predominance of diabetes is one of the key drivers, fuelling the development of the worldwide SMBG devices market. The numbers of diabetes cases are expanding because of unhealthy lifestyle, terrible eating routine, overabundance liquor utilization, and absence of physical activities. The expansion in diabetes cases worldwide is prompting the development in the growth of glucose monitoring devices, which is creating the interest for worldwide SMBG devices market. The strips market developed with a normal yearly development rate of more than 5.1% amid 2011-2014.

The expanding aging population is pushing the development of the worldwide SMBG gadgets market. The reason being the loss of hunger, less liquid intake, and different diseases. In the elderly population, the pancreas does not work properly, therefore insulin generation is low or zero bringing about diabetes, which is again fuelling the request of the worldwide SMBG gadgets market.

The technological advancement in the worldwide market of SMBG is prompting expanded acknowledgments of such gadgets. The utilization of these gadgets consumes less time, when contrasted with the glucose testing by conventional techniques in labs. These devices are compact, easy to carry and can be taken care of effortlessly. These gadgets permit leading the test by patient, according to their benefit at their own particular home, which makes them well known.[15]

The World Health Organization also expects the number of people with diabetes worldwide to reach to 300 million by 2025. This could be resulting into further growth opportunity for the glucose meter market. This indicates that the demand for glucose meter is going to increase in the future and companies entering the business can still have an opportunity to make profits in the long run.[16]

Market Demands

Maximum potential sales available in the United States to all companies or players in this industry is called Total Available Market (TAM). As shown in the data from CDC above, there are 29.1 million or almost 30 million diabetes patients in the US, these are the numbers for TAM. From TAM, we can move on to the Total Serviceable Market (SAM), which is the total serviceable market or total potential volume in a defined segment.

In order to get the SAM numbers, first we need to breakdown the TAM numbers. Out of almost 30 million diabetes patients in the US, around 1.05 million patients are type 1 diabetes. As explained in the section above, type 1 diabetes requires daily administration of insulin or also called intensive insulin treatment. The rest of the population, around 28 million are type 2 diabetes.

Furthermore, we can also breakdown the 28 million of type 2 diabetes patients into two different types of population: Type 2 with daily insulin treatment (T2 intensive insulin) and type 2 without

daily insulin treatment (T2 non-intensive insulin). There are around 1.65 million with intensive insulin and 25.3 million with non-intensive insulin or even non-insulin at all.

Figure 10 summarizes the breakdown above, where out of almost 30 million diabetes patients (TAM), there are 1.05 million T1 patients, 1.65 million T2 Intensive, and 25.3 million T2 non-intensive and non-insulin patients. Only 300K patients currently use CGM devices.

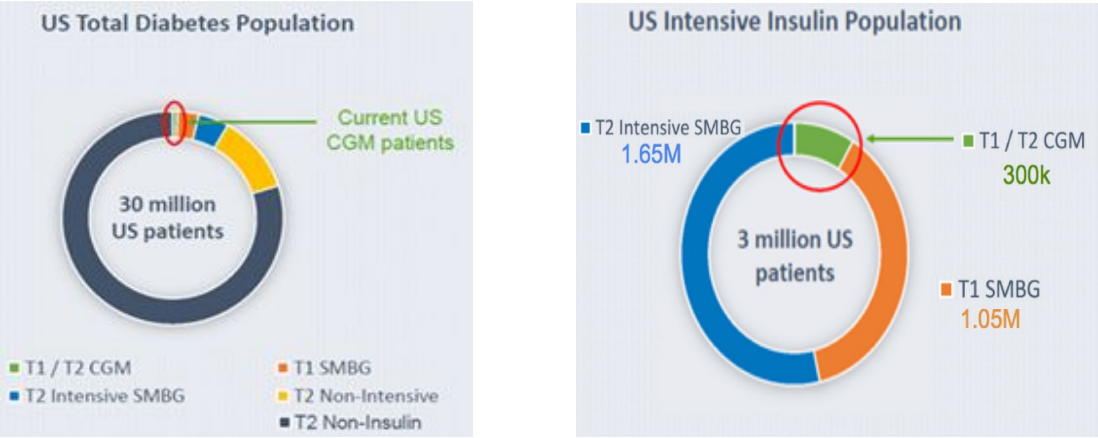


Figure 10: Breakdown of US Diabetes and Intensive Insulin Populations [8]

From the segmentations above, the key potential customers are the 1.05 million of T1 patients and 1.65 million of T2 intensive patients. The reason is, as explained in the preceding section, people with intensive insulin treatments need to monitor their glucose level on an hourly basis so they can take actions if the level is too high or too low. These two types of patients add up to 3 million people, and these are the SAM numbers. Currently, as of end of 2016, only 300 thousand patients use CGM, out of potentially 3 million people. Clearly, we still have lots of market potential to go after.

Competitor Analysis

The market for blood glucose monitoring devices is extremely competitive, subject to rapid change and significantly affected by new product introductions and other market activities of industry participants. The G4 PLATINUM, and G5 Mobile CGM systems, compete directly with Roche Diabetes Care, LifeScan, a division of Johnson and Johnson, the Diabetic CAre division of Abbott laboratories, and Panasonic Healthcare Holdings. These companies, comprise the majority of the worldwide sales of self-monitored glucose testing systems.

Additionally, multiple companies are developing or commercializing short-term continuous glucose monitoring products, that compete directly with Dexcom products. Medtronics recently filed for FDA approval to commercialize a standalone glucose monitoring product called Guardian Connect. In 2015 Abbott Diabetes launched a consumer flash glucose monitoring system, Freestyle Libre, outside the United States, and has filed to receive FDA approval for this system.

Medtronic, and other 3rd parties have developed, or are developing insulin pumps augmented with continuous glucose monitoring systems. Medtronic received FDA approval for its 670G insulin delivery system in September 2016 and announced plans to launch this system in 2017.[5] Figure 11 shows Porter's 5 Forces.

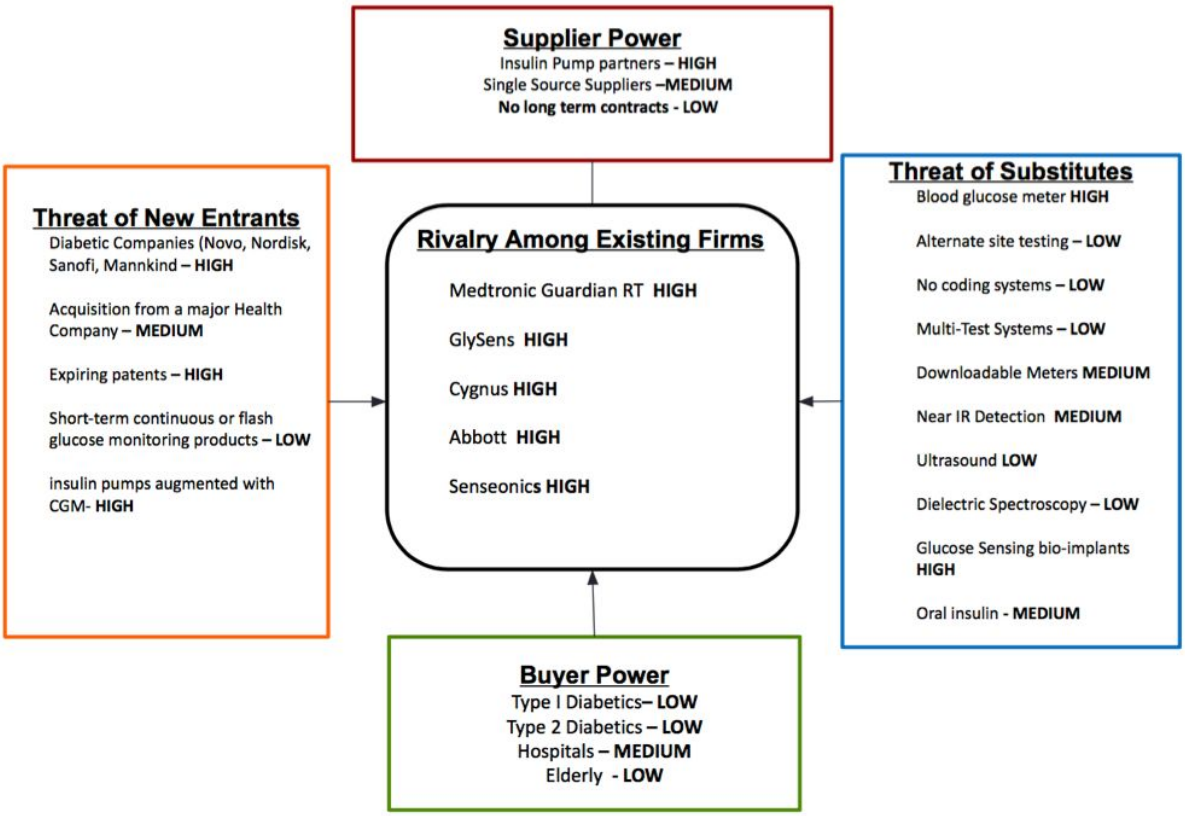


Figure 11: Porter's 5 Forces

Appendix 6 shows a comparison of CGMs on the market, and their differentiations. Dexcom is the only current stand-alone continuous glucose monitor. As you can see in figure 8, its primary competition is in the "Combination Continuous Glucose Monitor-Insulin Pumps". Dexcom CGM, is present in 50% of these competitors, the T:slim G4 pump, and Animas Vibe, come with the Dexcom CGM module.

It's important to note, that these are still considered rivals. Dexcom enjoys product sales, when a Tandem, or Animas product is sold, but if these companies decide to not partner with Dexcom, a large majority of our G4 PLATINUM and G5 Mobile sales could be at risk.

Additionally, Appendix 4, contains an analysis done by Diabetes Lab to determine the accuracy levels of various CGMs, the following results were obtained. CGM accuracy was measured using MARD (mean absolute relative difference between CGM readings and blood glucose readings). MARD is a statistical measure of accuracy accepted as the industry standard for measuring performance of glucose monitors; the lower the number, the better.[1]

Customer Analysis

Buyer behavior

The G5 Mobile is the first, and only CGM system approved by the FDA for both adults, and children. It is the only FDA approved CGM that acts as a replacement to finger stick testing, for treatment decisions. Users of the G5 Mobile do not have to prick their fingers, excluding morning, and nightly calibrations. When it comes to buyer behavior of CGM products, Table 2 provides the following factors a prospective Dexcom customer would be looking for.

Buyer's preferences	Dexcom G5
Accuracy	Clinical performance data from the sensor used in the G5 Mobile shows an overall MARD* of 10%*–a level that approaches the accuracy of SMBG devices.
Ease of use	The G5 Mobile provides a simplified mobile interface with color dials and directional arrows that allow for easy viewing, identification and assessment of glucose status. The G5 Mobile device integrates with the Health App on iPhone, allowing users to share glucose data with other apps and, with user permission, enabling data to flow seamlessly from the G5 Mobile app into EHR software. [2]
No coding necessary	No coding required
Sample size	The G5 Mobile needs two start-up fingerstick calibrations.
Data transfer Capability	The G5 Mobile gives the ability to track the glucose trends affected by daily activities through a transmitter that can be paired with smart devices.
Affordable test strips	Test strips are not required.

Table 2: CGM Buyer Comparison

Target Market and Customer Segments

We have identified three primary markets to target with the G5 Mobile, Type 1 Diabetics, Type 2 Diabetics, existing CGM users of G4 PLATINUM product, and CGM competitors. See Table 2. The G5 Mobile, is positioned as an alternative, to traditional diabetic monitoring methods. Traditional diabetic monitors, provide your glucose levels at a given time in the day. The G5 Mobile, upends this notion, and provides continuous updates of your glucose levels, throughout the day.

Type I Diabetics, produce no insulin, and require continuous monitoring of their glucose levels. With the help of the G5 Mobile, patients can learn to manage their condition, and live long, healthy lives.

Type 2 Diabetics, the body either doesn't produce enough insulin, or it resists insulin. With the help of the G5 Mobile, patients can learn to manage their condition, and live long, healthy lives.

Existing CGM patients, and current users of the G4 PLATINUM, as outlined in Table 3, need to stay up-to-date with increased MARD ratings, and iterative updates to the Dexcom product line, resulting in increased patient satisfaction, when upgrading Dexcom models. By not upgrading models, patients lose increased glucose monitoring accuracy, additional calibrations, and out-dated receiver/transmitter technology. See Appendix 7, for comparison of the G4 PLATINUM and G5 Mobile feature sets.

Segment	Description	Size
T1 Patients	**Customers that require an insulin pump**	**1,050,000**
T2 Patients	**Customers require continuous monitoring of glucose**	**1,065,000**
People using G4 PLATINUM /Competitor CGM	**Current G4 PLATINUM users, looking to upgrade to the G5 Mobile, and users of competitors**	**300,000**

Table 3: Customer Segments [8]

Collaborators

We have announced several High-Profile collaborations. In 2015, we announced that we had entered into an agreement with the life sciences team at Google to jointly develop a series of next generation CGM products that are designed to be smaller and less expensive than existing technologies. These new products will incorporate Google’s miniaturized electronics platform with Dexcom's best-in-class sensor technology. Collaboration and License Agreement with Google Life Sciences LLC, now named Verily Life Sciences.[5]

Additionally, we have partnerships, collaborations, and development agreements with Animas Corporation, a subsidiary of Johnson & Johnson, and Insulet Corporation.In 2012 and 2015, Dexcom entered into development agreements with Tandem Diabetes Care, Inc. The purpose of each of these development relationships is to integrate our technology into the insulin pump.

SWOT Analysis

Figure 12: Strength, Weakness, Opportunity, Threat

Strength

One of our core strengths, a commitment to research and development, has been rewarded by the 300+ patents issued in the US. For any high-tech product intellectual property needs to be protected and patents are good method of protection. Another strength that we have is the only product on the market that is approved for therapeutic use by the FDA. This specific FDA approval allows users to make blood glucose management decisions using only the information provided by the G5 Mobile. Other products, including our G4 PLATINUM, require the user to verify the measurement with a finger prick before making management decisions. To fund all of its activities we have been working with banks to ensure its operations can continue. Thus far Dexcom has been able to secure funds through revenue, loans, and lines of credit.

Weakness

Over the last year, we have been focusing on one specific weakness, our inexperience with direct sales. Our executive leadership has acknowledged the fact that we have little experience in this area and so has been investing heavily in hiring and retaining direct sales staff. In spite of continuing to increased top line revenue we continue to lose money. As mentioned previously, this is typical of companies in the high-tech medical industry. A weakness specific to the G5 Mobile CGM system is the need to calibrate the sensor using a finger prick twice daily. Twice

daily is a much smaller number compared to the up to eight finger pricks intensive diabetes patients need, but moving toward a zero finger prick solution is desirable.

Opportunity

There are many opportunities for us. Data collected by the CDC shows the US market for CGM products continues to grow.[20] We need continue fostering partnerships with insulin pump manufacturers and product development companies. For people with intensive diabetes an insulin pump is required to manage their condition. Being able to pair the CGM with an insulin pump is beneficial for everyone, especially the diabetes patients. Product development companies such as Verily Life Sciences (previously known Google Life Sciences LLC) will help improve key features of the CGM such as size and battery life.

Threat

The biggest threat to us is also the threat they can do least about. As a medical equipment manufacturer we are subject to the rules and regulations of the FDA. Such a restriction means our suppliers are also required to have FDA approval. This means the number of suppliers is limited. Should any one of our suppliers decide to stop supplying us it will be difficult for us to find an alternative in a short time. The market we operate in is a competitive one. There are four competitors that are well known in the medical industry. The last threat that we have is with respect to its patents. In 2017 patents will begin expiring. All our patents won't expire overnight but we will need to manage this threat going forward.

Marketing Objectives & Goals

For the G4 PLATINUM and G5 Mobile CGM systems to overcome the chasm and to reach the pragmatist stage, we need to guarantee that Dexcom's vision is related with our marketing goals and objectives. Currently Dexcom is the leader provider in the US Market of GSM products and our vision is to give the opportunity for more people to get our products.

Company's vision:
To give the opportunity for more people to get our products.

Marketing Goals	Marketing objectives
Increase the sales and turn losses into profit	*** Create a marketing campaign for customers that bought G4 PLATINUM model and get them to buy the G5 Mobile systems version.** *** Create a marketing campaign to retain current customers**

Continued growth of number of customers	*** Create a marketing strategy for new customers. This should be a different campaign than the one explained above for current customer who own the G4 PLATINUM model.**
Increase channels of marketing	*** Identify the current marketing channels and create more to provide clients more options to get out products**
Create awareness of the benefits of the CGM systems	*** Provide classes and training sessions to the hospitals and people with diabetes to ensure they understand the benefits of the products, the use and to provide support for those who need it.**

Table 4: Marketing Goals

Marketing Strategy

We aim to increase our revenues by reaching out to more people and create more diabetes awareness with the following strategies:

1. **Increasing Social Media presence**

Social media if properly utilised could be very engaging for the consumers. Currently, we have a presence on these platforms, but we aim to increase our consumers through these platforms by being more informative about our developments. By publishing our latest researches & developments and clinical trial results we could connect with more people and hence could achieve a bigger customer database. At present we are the most accurate CGM provider in the market and we feel this needs to be touted as much as possible to gain a leg up from our competitors. By using these platforms as a discussion room we could increase our credibility by directly connecting with our targeted audience.

2. **Utilizing PPC(Pay-per-Click) ads on search engines**

We feel PPC ads through Google adwords, LinkedIn Ads, etc. are very cost-effective way of increasing brand recognition and direct customers. Currently we are showing our information to anyone searching information for CGMs. However, we think to increase our presence, we could utilise PPCs to be more targeted for any search related to keywords diabetes or glucose management. For example, even if anyone looks for ‘diabetes recipes’ we want our ad link to be in the top list.

3. **Buying the email list to send relevant info**

To get the better worth of investments from PPCs, we also intend to buy the list from the search engines where our ads got clicked. This way we could provide more detailed information to the people who showed interests in our product.

4. **Increase direct sales force team to bring more partnerships**

We believe to capture the increasing audience, we need to further strengthen our direct sales force. Currently, we have 132 direct sales employees in the United States. This helps to build partnerships and drive adoption of our products through our channels. We intend to continue the same technique to bring further adoptions and brand/ product awareness.

5. **Celebrity Endorsement for brand recognition**

We have contracted with Nick Jonas, a type 1 diabetic, to create brand awareness. We believe that this would be helpful to create a great impact as when people will hear or see him, they would associate Dexcom with him. We believe that this partnership would help us in tapping the fan base of Nick Jonas and hence will create a brand value too.

Based on the above strategies we have estimated a revenue stream for the next three years. We have been very pessimistic with our calculations. Yet, the results below prove that even in the worst circumstances, the above thought strategies would bring positive revenue streams.

The below table shows the calculations on following parameters:

- Total serviceable market is 3 Million
- The G5 Mobile price: $914
- Marketing budget: 5 Million

Strategy	Percent Reachable	Pessimist Conversion Rate	People Targeted	Marketing Cost
Social Media	4%	0.5%	15000	$50,000.00
PPC	1.79%	0.5%	15000	$1,250,000.00
Emails	2.42%	0.05%	1500	$50,000.00
DirectSales	2.2%	1%	30000	$2,400,000.00
Celebrity endorsements	4%	1%	15000	$1,250,000.00

Table 5: Dexcom Serviceable Market Categories [31]

The percent reachable column is the average number of people reachable through the respective strategy. The conversion rate is our pessimistic conversion rate of people from percent reachable. Calculating the number of people reachable within SAM (conversion rate * SAM) gives the number of people targeted. We have put the planned amount of money into respective strategies. Direct sales is the most expensive technique but brings the most number of customers.Celebrity Endorsement amount is one time expense and is assumed to be a 3 year contract, the remaining expenses are on an annual basis.

The following table shows the revenues after calculating the number of people targeted.We have assumed that the number of people in year 2 and 3 would be less than year 1 as we don't want to underestimate the threats of new entrants, and that's why we have been pessimistic about the numbers here.

The additional expenses are assumed to be 40% of the total income.

Years	People Targeted	Revenues	Expenses	Revenue Less Expenses	ROI
1	76500	$69,921,000.00	$ 32,968,400.00	$36,952,600.00	12%
2	70000	$63,980,000.00	$ 29,342,000.00	$34,638,000.00	18%
3	70000	$63,980,000.00	$ 29,342,000.00	$34,638,000.00	18%

Table 6: Revenue Calculations

From the above calculations it is clear that we have chosen the right strategies and even under the pessimistic conditions we will achieve good ROIs in the consecutive three years.

Positioning Statement

The marketing team has identified the following positioning statement for the G5 Mobile: “Providing new medical technology, to improve consumers understanding and management of diabetes.”

Pricing Management

Dexcom’s current pricing strategy is Value-Based. Market share has been growing slower than expected. In order to accelerate market share, and profitability, we must take market share from low priced competitors, SBGMs. In order to facilitate this, we must switch from Value-Based Pricing, to Penetration-Pricing.

We have a 65% profit margin on G5 Mobile sales. Recommended strategy is to drop the G5 Mobile by 20%, for 1 year, in order to accelerate sales, and move customers from SBGM to CGM. On the release of our next product, the price will be raised back up to maintain a 65% profit margin. Looking at macroeconomic factors, the team believes, any higher price increases, will result in a loss of market share. We currently have two SKU’s for the G5 Mobile. Table 7 outlines these SKU’s.

SKU	Items	Cost
SKU1	**Including Receiver**	**$1,380.90**
SKU2	**Without Receiver**	**$914.95**

Table 7: G5 Mobile SKU

Distribution Management

We manufacture the key components and the wire-based sensors for the G4 PLATINUM and the G5 Mobile CGM systems. The other components are manufactured by suppliers which we then assembled in house. The larger supplier we have are: OnCore Manufacturing Services, which manufactures circuit boards for our receiver and transmitter; and The Tech Group, which produces injection molded components.

The current distribution channels for us are:

- Direct sales to:
  - doctors, hospitals, and our website.
- Retail thru authorized pharmacists who use online platforms to sell the products such as:
  - Amazon and eBay.
- We also have partnerships with different medical suppliers as:

- Byram, Edgepark and a couple other distributors that have the rights to sell our products.

To cross the chasm on the technology adoption life curve, our company has to implement and invest recruiting and retaining a stronger salesforce team, which is constantly in training and aware of the latest situation in the diabetes sector. In 2016 we increased our investment in Sales, General, and Administrative by 40%. This trend will continue in 2017 as we continue to invest in our sales teams and increase the support they get. This will go hand in hand with our communication strategy.

Communications Management

Promotion and Advertising Target

As described earlier in this marketing plan, the key market segments for our G5 Mobile are type 1 and type 2 insulin-intensive diabetes patients, approximately 3 million people in the US market. The marketing communication tools and promotion or advertising strategies for us should target primarily these market segments. In order to reach out to these groups of diabetes patients, we will utilize the marketing communication tools directed not only to the patients themselves but also to endocrinologists, physicians, and diabetes educators simply because these people can educate the patients and influence the adoption of our G5 Mobile CGM system through effective educational and training programs.

To target these groups of people, as well as the patients themselves, we are currently implementing a mix of advertising and promotion strategies. The advertising and promotion mix from us includes media advertising, online and internet advertising such as social media, website, display ads/search ads, public relations and trade show advertising, and direct sales advertising such as personal visits to hospitals and health care providers.

Current Marketing Communication Tools

Media Advertising

In terms of media advertising tool, we are currently utilizing TV ads and print ads in major medical publications, including, but not limited to, The Journal of the American Medical Association, New England Journal of Medicine, and Annals of Internal Medicine. This type of mass media advertising is at the bottom of the advertising and promotion pyramid, which means it covers broad target of audience with relatively lower cost, but the effectiveness is not as high as other communication tools. The annual cost for media advertising (Q2 2016 until Q1 2017) is calculated or approximated to be $ 52,000 and the ROI is calculated to be 5.92%.

Online Advertising

For online advertising tool, we are continuing the use of the website, but we're also putting priority in the search engine optimization through Google Adwords. Social media is another important aspect of the online advertising tool, patients and health care providers can share

stories and create networks to reach out to many potential customers. We are using traditional social media sources, such as Facebook, Instagram, Twitter, and Linkedin.

There are various ways of calculating the cost for online advertising, for this marketing plan we decided to use the CPM method for cost calculations. Data for CPM for social media sources mentioned above is obtained from Salesforce Advertising Index Q2 2016 [22] and the annual costs from Q2 2016 until Q1 2017 is calculated to be $ 267, 404 while the ROI comes out to be around 11.35%.

Public Relations

Another marketing communication tool proved to be effective to reach out to customers is public relations, in the forms of sponsoring conferences and hosting or participating in diabetes-related events like trade shows or symposiums. According to Trade Show News Network (TSNN) [23], 81% of trade show attendees have buying authority and 67% of attendees represent a new and potential customer.

There are about 35 diabetes-related conferences and events throughout the year [24], that we are participating in. These events cost a lot of money, calculated to be $280,000 in a year and the ROI is about 16.8%.

Direct Marketing

This is the marketing communication tool that is the most expensive and yet very effective. Direct marketing communication tool involves all our sales personnel in the US to perform personal visits to hospitals, doctors, and health care providers. In Q1 of 2017, there are 7,254 doctors and endocrinologists in the US [25], compared to 3 million diabetes patients. This type of group can certainly create referrals that drive the adoption of our G5 Mobile CGM system. The cost for this communication tool on average is around $ 400,000 a year with the ROI of 18.1%.

Table 8 summarizes the annual marketing cost and ROI for each of the marketing communication tools described above

Marketing Communication Tools		Q2 2016	Q3 2016	Q4 2016	Q1 2017	Annual Marketing Cost	Annual Revenues	Operating Expenses	Op Expenses + Marketing Cost	Profit (pre taxes)	ROI
Direct Marketing	Personal visits to Hospitals and Health Care Providers	$ 100,000	$ 100,000	$ 100,000	$ 100,000	**$400,000**	$6,855,000	$2,742,000	$ 3,142,000	$3,713,000	**18.17%**
Trade Shows / Events	Average of $8,000 per Event Number of events varies per quarter	$ 112,000	$ 72,000	$ 32,000	$ 64,000	**$280,000**	$4,570,000	$1,828,000	$ 2,108,000	$2,462,000	**16.79%**
Online Advertising	Google Adworks	$ 20,000	$ 20,000	$ 20,000	$ 20,000	**$267,404**	$3,656,000	$1,462,400	$ 1,729,804	$1,926,196	**11.35%**
	Website	$ 5,000	$ 5,000	$ 5,000	$ 5,000						
	Facebook	$ 11,835	$ 11,835	$ 11,835	$ 11,835						
	Instagram	$ 4,725	$ 4,725	$ 4,725	$ 4,725						
	Twitter	$ 3,218	$ 3,218	$ 3,218	$ 3,218						
	Linkedin	$ 22,073	$ 22,073	$ 22,073	$ 22,073						
Media Advertising	TV Ads	$ 5,000	$ 5,000	$ 5,000	$ 5,000	**$ 52,000**	$2,742,000	$1,279,600	$ 1,331,600	$1,410,400	**5.92%**
	Medication Journals	$ 4,500	$ 4,500	$ 4,500	$ 4,500						
	Health Magazine	$ 3,500	$ 3,500	$ 3,500	$ 3,500						

Table 8: Summary of Annual Marketing Communication Cost and ROI

Implementation & Control

Over the next year we need to increase awareness of the G5 Mobile and capitalize on it being the market leading product. We are proposing to spend approximately $1M to increase awareness of the G5 Mobile. The specific breakdown of how the money will be spend can be found in the Annual Marketing Communication Cost and ROI table. We do not have expertise in working with all the communication channels described above. We recommend hiring an advertising company to help navigate the many companies needed to implement each communication channels. We will also need to capture customer feedback in order to determine if we were successful in our communication strategy. Surveys and questionnaires will be used to solicit customer feedback.

To ensure this marketing plan works specific goals and target should be monitored. To quantify the success of online and offline advertising we will monitor customer feedback to determine how they were first introduced to the G5 Mobile. The goal is to achieve a 25% of customers obtained via online/offline ads with an ROI >10% for online advertising and >5% for offline advertising. We want to continue investing in direct sales because that is where we see the greatest potential. We set a goal ROI of >10%. With respect to partnerships with insulin pump manufactures and product development companies, those partnerships will be managed as projects. Each partnership should be managed as a project. Budget, cost, and schedule need to be fully vetted before beginning a project.

Conclusion

The evolvement of diabetes as one of the healthcare epidemic has shown rising prevalence globally. The numbers are staggering, 422 million patients in the world and 29.1 million patients in the US, and according to the CDC in 2013, diabetes was the seventh leading cause of death by a disease in the US.[20] All of these facts highlight the importance of managing and monitoring the disease preemptively.

Most common method for diabetes patients to monitor and measure blood glucose level is by using single-point finger stick devices. This method has drawbacks associated with pain, inconvenience, difficulty of use, and limited information as patients cannot prick their fingers too many times a day. The US medical equipment market has identified continuous glucose monitoring (CGM) devices as a more innovative and less invasive way of monitoring blood glucose level. Our G5 Mobile is a FDA-approved CGM device that can provide such a solution to diabetes patients. This technology is currently crossing the chasm on the technology adoption life curve and this G5 Mobile version is expected to accelerate this process to get to early majority stage. The total CGM market has reached slightly over $300 million in 2014, and is expected to reach $783.9 million by 2019.

The US TAM is 29.1 million, which is the number of diabetes patients in the US. The SAM in the US is 3 million as explained in this marketing plan. Furthermore, we can breakdown or segment this 3-million market based on the type of diabetes patients: 1.05M of T1 patients (require insulin pump), 1.65M of T2 patients (require monitoring of glucose intensively), and 300K

patients that are already using CGM. The goal of this marketing plan is to have the G5 Mobile capture majority of this market share.

To reach to the 2.65M of potential customers, the marketing communication tools that we are currently utilizing include media advertising, online advertising, hosting or participating in diabetes-related events and trade shows, and direct sales to the patients, doctors, and health care providers. For the next three years, our marketing strategy remains to evolve and enhance these tools. Our efforts to enhance them will be focused on increasing social media presence and utilizing PPC (Pay-per-Click) ads on search engines. We have found that our direct marketing method gives the highest ROI and we are further strengthening our direct sales force to increase adoption of our products through our channels. We are also increasing our brand recognition through celebrity endorsement to create brand awareness.

To fund this strategic marketing plan, we request a marketing budget of $5 million to implement the marketing strategy as explained in this marketing plan. We are targeting 76.5K new customers in year 1, 70K in year 2 and another 70K in year 3. We believe with those many customers targeted and with the pricing strategy of the G5 Mobile outlined in this marketing plan, we can achieve the projected ROI of 12%, 18%, and 18% in first, second, and third year respectively.

Last but not least, a good marketing plan needs to have implementation plans and control mechanisms in place. Increasing online/offline advertising and strengthening our direct sales force remain the highest priority in our implementation plans as these are the key items in our marketing strategy. Comparison of results to objectives will be conducted as part of our marketing plan control and corrective actions will be taken when results do not meet the success criteria. To quantify the success criteria, we have set the goal ROI of >10% for online advertising and direct sales and >5% for offline advertising.

References

1. “Dexcom G5® Mobile CGM System - Sensor Accuracy in Pediatric Patients,” Dexcom G5® Mobile CGM System - Sensor Accuracy in Pediatric Patients | Dexcom Provider. [Online]. Available: https://provider.dexcom.com/education-research/evidence/clinical-studies/dexcom-g5-mobile-cgm-system-sensor-accuracy-pediatric . [Accessed: 18-May-2017].
2. “Dexcom G5 Mobile Continuous Glucose Monitoring System now available on the Apple Watch,” Medical Design and Outsourcing, Jul-2016. [Online]. Available: http://www.medicaldesignandoutsourcing.com/dexcom-g5-mobile-continuous-glucose-monitoring-system-now-available-apple-watch/. [Accessed: 18-May-2017].
3. F. M. Insights, “Market Research on Non-Invasive Blood Glucose Monitoring Devices Market 2017 and Analysis to 2027 |,” Medgadget, Mar-2017. [Online]. Available: https://www.medgadget.com/2017/05/market-research-on-non-invasive-blood-glucose-monitoring-devices-market-2017-and-analysis-to-2027.html. [Accessed: 18-May-2017].
4. “Login | Evaluate,” Login | Evaluate. [Online]. Available: http://evaluategroup.com/Universal/View.aspx?type=Story&id=627281. [Accessed: 18-May-2017].
5. “SEC Filings,” DexCom - SEC Filings. [Online]. Available: http://investor.shareholder.com/dexcom/sec.cfm. [Accessed: 18-May-2017].
6. “Free Patents Online.” [Online]. Available: http://www.freepatentsonline.com/search.html. [Accessed: 18-May-2017].
7. Dexcom, “Leading CGM Further,” 2017. [Online]. Available: http://www.freepatentsonline.com/search.html. [Accessed: 18-May-2017].
8. Dexcom, “About Dexcom - Continuous Glucose Monitoring Company.” [Online]. Available: http://files.shareholder.com/downloads/DXCM/4304023943x0x829930/B3155CE9-B5FD-4A56-A98F-3619634581B5/Investor_Presentation_01-12-17.pdf. [Accessed: 17-May-2017].
9. WHO, “Diabetes,” 2016. [Online]. Available: http://www.who.int/mediacentre/factsheets/fs312/en/. [Accessed: 17-May-2017].
10. International Diabetes Federation, “What is diabetes.” [Online]. Available: https://www.idf.org/about-diabetes/what-is-diabetes. [Accessed: 17-May-2017].
11. “Anatomy of a CGM Sensor,” Diabetes Forecast. [Online]. Available: http://www.diabetesforecast.org/2014/05-may/anatomy-of-a-cgm-sensor.html. [Accessed: 18-May-2017].

12. “Glucometer Buying Guide - How to choose?,” Consumersearch. [Online]. Available: http://www.consumersearch.com/blood-glucose-meters/how-to-buy-a-blood-glucose-meter. [Accessed: 18-May-2017].
13. “Continuous Glucose Monitoring Market Surging at 19.6% CAGR; R&D Soon to Create Devices for Faster Administration,” Continuous Glucose Monitoring Market Surging at 19.6% CAGR; R&D Soon to Create Devices for Faster Administration | Articles | drug development and delivery back issues | Drug Development & Delivery. [Online]. Available: http://drug-dev.com/Main/Back-Issues/Continuous-Glucose-Monitoring-Market-Surging-at-19-847.aspx. [Accessed: 18-May-2017].
14. “Making Sense of Medicare, CGMs, and Why It Matters,” diaTribe, 2015. [Online]. Available: https://diatribe.org/making-sense-medicare-cgms-and-why-it-matters. [Accessed: 18-May-2017].
15. S. Parsons, “Self-monitoring of blood glucose (SMBG): comparison of no SMBG, SMBG alone and SMBG with telecare,” http://isrctn.org/>, 2014.
16. “Home,” Analysis of the glucose meter market - Free Marketing Essay - Essay UK. [Online]. Available: http://www.essay.uk.com/free-essays/marketing/analysis-of-the-glucose-meter-market.php. [Accessed: 18-May-2017].
17. “Home Blood Sugar Testing,” WebMD. [Online]. Available: http://www.webmd.com/diabetes/home-blood-glucose-testing#1. [Accessed: 18-May-2017].
18. “Anatomy of a CGM Sensor,” Diabetes Forecast. [Online]. Available: http://www.diabetesforecast.org/2014/05-may/anatomy-of-a-cgm-sensor.html. [Accessed: 18-May-2017].
19. “Glucometer Buying Guide - How to choose?,” Consumersearch. [Online]. Available: http://www.consumersearch.com/blood-glucose-meters/how-to-buy-a-blood-glucose-meter. [Accessed: 18-May-2017].
20. CDC, “2014 National Diabetes Statistics Report,” 2014. [Online]. Available: https://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html. [Accessed: 18-May-2017].
21. “Continuous Glucose Monitors.” [Online]. Available: http://main.diabetes.org/dforg/pdfs/2016/2016-cg-cgm-chart.pdf. [Accessed: 18-May-2017].
22. “Salesforce Advertising Index Q2 2016,” 2016. [Online]. Available: https://www.marketingcloud.com/advertising-index-q2-2016/. [Accessed: 30-May-2017].
23. “Value of Trade Shows,” 2013. [Online]. Available: http://www.tsnn.com/news-blogs/16-powerful-stats-value-trade-shows. [Accessed: 30-May-2017]
24. “Your 2016 Diabetes Conference Calendar!,” 2016 [Online]. Available: http://www.theperfectd.com/2015/11/30/your-2016-diabetes-conference-calendar/. [Accessed: 30-May-2017]
25. “Number of active physicians in the U.S. in 2017, by specialty area”, 2017. [Online]. Available:https://www.statista.com/statistics/209424/us-number-of-active-physicians-by-specialty-area/. [Accessed: 30-May-2017].
26. “What Is Diabetes”, by IDF - Available: https://www.idf.org/about-diabetes/what-is-diabetes.html [Accessed: 40-May-2017]

27. “What’s the best CGM solution? A simple question with a complex answer…” Available: http://www.diabettech.com/cgm/whats-the-best-cgm-solution-an-easy-question-with-a-more-difficult-answer/ [Accessed:15-March-2017]
28. “Dexcom Innovates With Painless Diabetes Monitoring” Available: http://brandchannel.com/2017/02/27/dexcom-022717/ [Accessed: 27-Feb-2017]
29. DXCM Income Statement. (n.d.). Retrieved June 10, 2017, from http://www.nasdaq.com/symbol/dxcm/financials?query=income-statement
30. “Glucose Monitoring Doesn’t Tire Me, Diabetes Does” Available: http://www.type1writes.com/2016/04/18/yoursay-attitudes-glucose-monitoring/[Accessed 18-April-2016]
31. jonathan.govette, “7 Medical Marketing Media Strategies That Really Work,” *Patient Access, Referral Management & E-Consult Software - referraMD*, 2016. [Online]. Available: https://getreferralmd.com/2015/02/7-medical-marketing-and-dental-media-strategies-that-really-work/. [Accessed: 15-Jun-2017].
32. “Coding and Coverage - Therapeutic Continuous Glucose Monitors (CGM)” Available: https://med.noridianmedicare.com/web/jddme/policies/dmd-articles/coding-and-coverage-therapeutic-continuous-glucose-monitors.[Accessed: 23-March-2017]

Appendix 1: Company Income Statement Summary

Annual Income Statement (values in 000's)					Get Quarterly Data
Period Ending:	**Trend**	**12/31/2016**	**12/31/2015**	**12/31/2014**	**12/31/2013**
Total Revenue		$573,300	$402,000	$259,200	$160,000
Cost of Revenue		$194,900	$123,600	$82,900	$59,900
Gross Profit		**$378,400**	**$278,400**	**$176,300**	**$100,100**
Operating Expenses					
Research and Development		$156,100	$137,500	$69,400	$44,800
Sales, General and Admin.		$286,200	$198,000	$128,400	$84,200
Operating Income		**($63,900)**	**($57,100)**	**($21,500)**	**($28,900)**
Net Income		**($65,600)**	**($57,600)**	**($22,400)**	**($29,800)**

Total Revenue

High investments in Research and Development

Appendix 2: CGM versus SMBG Risk Analysis

Risks Associated w/CGM	Dexcom CGM (low/Med/High)	SMBG (low/Med/High)
CGM Alarm/Alerts Failures	High	N/A
Alert function is turned off	Low	N/A
Transmitter and display device are out of range	Low	N/A
Receiver or smart device not showing sensor glucose readings - data gaps	High	N/A
Receiver or smart device battery is dead	Low	N/A
Unable to hear Alarm/Alerts or feel vibration	Low	N/A
App not running in the background	Low	N/A
Signal Loss/Frequency Interference	Low	N/A
Device Fingerpick Calibration	Low (2 per day)	High (6> per day)
Guide treatment decisions	Low	High
Able to set alarms for rapid rise/rapid fall Rate	Low	High
Track rate of change	Low	High
Access glucose data by physician & family	Low	High

Appendix 3: Profile of Personas Utilizing G5 Mobile

Persona 1

- Celebrated five No. 1 hits
- Earned nominations for GRAMMY Best Country Song
- ACM Song of the Year
- CMA Song of The Year

"I'm thrilled to be in control of my diabetes. I don't let it limit me in any way – in fact, it's motivated me even more to follow my dream no matter what."

❖ **Eric Paslay -** Abilene, Texas

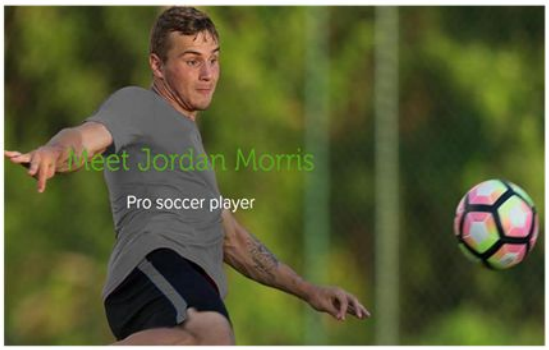
❖ **Diagnosed:** Type 1 Diabetes at young age after levels spiraled to 500 mg/dL .

❖ **Occupation:** Touring Musician

Challenge: Stay informed about his glucose trends and patterns when on stage performing and on road trips…

Solution: Dexcom CGM G5 allows him to get into a song and put on an amazing show for fans without suffering from irritability due to high blood sugar levels. Mobile app & ***Share*** feature allow his manager to also monitor Eric levels from backstage.

Persona 2



- *Best XI in 2011*
- *Golden Ball winner in 2012*
- *NSCAA WA State Player of the Year in 2012*
- *Hermann Trophy winner 2016 Div-I Soccer*

"CGM has helped me to accomplish my goals without limitations, and I'm so eager to share that with others."

❖ **Jordan Morris –** Seattle, WA

❖ **Diagnosed:** Type 1 Diabetes at 9 yrs. old

❖ **Occupation:** Prof. Soccer Player (Seattle Sounders)

Challenge: As prof. athlete his physical abilities are constantly tested, and having diabetes adds an extra challenge especially playing a game **intrinsic** to high stressful

Solution: Dexcom CGM helps him avoid surprise highs or lows when he's out on the field. Mobile app & ***Share*** feature allow his coach and dad to monitor his levels during games and take **preemptive** action when necessary.

Persona 3

- Ashley & Emily are part of Bubba's Blaze Factory BMX
- Both ranked in the top 10 nationally in their age group
- Both are now BMX Olympic hopefuls.

"In our family, diabetes is a team sport, and now the Dexcom CGM System has made us all better players… I could seriously kiss the person who invented this!"

↗ **The Hayes Family –** Seattle, WA

↗ **Diagnosed:** Over period of nine years, 4 of 5 children were diagnosed with Type 1. 14-year-old twin daughters Ashley and Emily, diagnosed at ages 3 and 4.

↗ **Occupation:** BMX Bike competitors

↗ **Challenge:** As parents we were shocked, scared and confused. It was heartbreaking to have two of our daughters diagnosed at age 3. Five years later Melanie, our 11 yr old daughter, was diagnosed. In 2013, our son Mack was diagnosed at age 14. They get tested 4-5 times per BMX workout.

Solution: Ashley and Emily are fierce competitors in BMX. They work incredibly hard to be at the top of their sport and are at the gym several times a week. Now they can be at the gym w/o the hassle and annoyance of the interruptions. With the Dexcom CGM System, all they have to do is check their glucose on their phones and do a finger stick if they need to.

Appendix 4: MARD Rankings

CGM System	MARD
Dexcom G5 Mobile	9% officially
Dexcom G4 PLATINUM	13.00% officially
Medtronic Enlite	13.60% officially
Abbott Freestyle Navigator2	11% officially
Abbott Freestyle Libre	11.4% officially

Appendix 5: Diabetes Facts and Figures

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.[9]

Type 1 Diabetes

Type1 diabetes (previously known as insulin-dependent, juvenile or childhood-onset) is characterized by deficient insulin production and requires daily administration of insulin. The cause of Type 1 diabetes is not known and it is not preventable with current knowledge. Symptoms include excessive excretion of urine (polyuria), thirst (polydipsia), constant hunger, weight loss, vision changes and fatigue. These symptoms may occur suddenly.[9]

Type 2 Diabetes

Type 2 diabetes (formerly called non-insulin-dependent or adult-onset) results from the body's ineffective use of insulin. Type2 diabetes comprises the majority of people with diabetes around the world, and is largely the result of excess body weight and physical inactivity. Symptoms may be similar to those of Type 1 diabetes, but are often less marked. As a result, the disease may be diagnosed several years after onset, once complications have already arisen. Until recently, this type of diabetes was seen only in adults but it is now also occurring increasingly frequently in children.[9]

Diabetes can be called a global pandemic. It is estimated that by 2040, globally, there would be 642 million diabetics.[10] But for the purpose of marketing, we are focusing on the Unites States as our current market. At present, 29.1 million or 9.3% of the U.S population is diabetics, out of which only 21 million people are diagnosed and remaining are undiagnosed. Hence, these 21 million constitute our total addressable market.

What are common consequences of diabetes?

Over time, diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves:[9]

- Adults with diabetes have a 2-3-fold increased risk of heart attacks and strokes.
- Combined with reduced blood flow, neuropathy (nerve damage) in the feet increases the chance of foot ulcers, infection and eventual need for limb amputation.
- Diabetic retinopathy is an important cause of blindness, and occurs as a result of long-term accumulated damage to the small blood vessels in the retina. 2.6% of global blindness can be attributed to diabetes.

- Diabetes is among the leading causes of kidney failure

Appendix 6: CGM Comparison

→ STAND-ALONE CONTINUOUS GLUCOSE MONITOR

Company Product	Transmitter and Sensor Size	Receiver Size	Battery	Range	Warm-Up Time	Calibration	Sensor Duration	Meter Interaction	Pump Functions?	Software
Dexcom G5 Mobile 	1.5 x 0.9 x 0.5 in. 0.4 oz. with sensor	4 x 1.8 x 0.5 in. (receiver not pictured) 2.4 oz.	Transmitter has integrated battery with a three-month warranty. Rechargeable receiver.	The sensor/transmitter must be within 20 (unobstructed) feet of a receiver or iPhone, iPad, or iPod Touch.	Takes 2 hours to be ready after inserting sensor	Calibrate every 12 hours. Blood glucose levels must be between 40 and 400 mg/dl to calibrate.	7 days	You can manually enter a glucose reading from any meter.	No, the Dexcom G5 Mobile is a stand-alone system.	Automatically sends data to the Dexcom Clarity Web-based diabetes management software.

→ COMBINATION CONTINUOUS GLUCOSE MONITOR–INSULIN PUMPS

Animas Corp. Vibe 	1.5 x 0.9 x 0.5 in. 0.3 oz. with sensor	2 x 3.25 x 0.85 in. 3.7 oz. without batteries and with empty reservoir	Transmitter has integrated battery that lasts a minimum of six months. Pump uses either a AA or 1.5-volt lithium AA battery.	The sensor/transmitter must be within 12 feet of the pump.	Takes 2 hours to be ready after inserting sensor	Calibrate every 12 hours. Blood glucose levels must be between 40 and 400 mg/dl to calibrate.	7 days	You can manually enter a glucose reading from any meter.	Yes, the Animas Vibe functions as both an insulin pump and a CGM, using Dexcom technology.	Works with Diasend Web-based data management software.
Medtronic Diabetes MiniMed 530G With Enlite 	1.4 x 1.12 x 0.37 in. 0.19 oz. without sensor	**Model 551:** 2 x 3.3 x 0.81 in. 3.4 oz. **Model 751:** 2 x 3.7 x 0.82 in. 3.7 oz. (weights for both models with battery and empty reservoir)	Rechargeable transmitter. Fully charged transmitter lasts for 14 days of continuous use. Charger uses 1 AAA battery that lasts for 40 charges. Pump uses 1 AAA battery.	The sensor/transmitter must be within 6 feet of the pump.	Takes 2 hours to be ready after inserting sensor	Calibrate every 12 hours. Blood glucose levels must be between 40 and 400 mg/dl to calibrate.	6 days	You can manually enter a glucose reading from any meter. The Contour Next Link meter wirelessly communicates with the system.	Yes, the MiniMed 530 With Enlite functions as both an insulin pump and a CGM.	Works with CareLink Personal data management software. Compatible with Windows (except Windows 8) and Mac operating systems.
Medtronic Diabetes MiniMed Paradigm Revel 	1.4 x 1.12 x 0.37 in. 0.19 oz. without sensor	**Model 523:** 2 x 3.3 x 0.82 in. 3.4 oz. **Model 723:** 2 x 3.7 x 0.84 in. 3.6 oz. (weights for both models with battery and empty reservoir)	Rechargeable transmitter. Fully charged transmitter lasts for 14 days of continuous use. Charger uses 1 AAA battery that lasts for 40 charges. Pump uses 1 AAA battery.	Receiver must be within 6 feet of sensor wearer	Takes 2 hours to be ready after inserting sensor	Calibrate every 12 hours. Blood glucose levels must be between 40 and 400 mg/dl to calibrate.	3 days	You can manually enter a glucose reading from any meter. The Contour Next Link meter wirelessly communicates with the system.	Yes, the MiniMed Paradigm Real-Time Revel functions as both an insulin pump and a CGM.	Works with CareLink Personal data management software. Compatible with Windows (except Windows 8) and Mac operating systems.
Tandem Diabetes Care T:slim G4 Pump 	1.5 x 0.9 x 0.5 in. 0.3 oz. with sensor	2 x 3.13 x 0.6 in. 3.9 oz. with battery and full reservoir	Transmitter has integrated battery that lasts a minimum of six months. Pump uses an integrated rechargeable lithium polymer battery.	The sensor/transmitter must be within 20 (unobstructed) feet of the pump.	Takes 2 hours to be ready after inserting sensor	Calibrate every 12 hours. Blood glucose levels must be between 40 and 400 mg/dl to calibrate.	7 days	You can manually enter a glucose reading from any meter.	Yes, the Tandem T:slim G4 Pump functions as both an insulin pump and a CGM, using Dexcom technology.	Works with T:Connect Diabetes Management Application, Tandem's Web-based software that is compatible with both Windows and Mac operating systems. Also works with Diasend Web-based glucose data management software.

Appendix 7: G4 PLATINUM vs. G5 Mobile

RTM 2012
G4

- iPhone only
- Data UL to Clarity req. user plug-in
- Data Tx to Rx uses RF Wireless

VS.

RTM 2015
G5

- 1ST FDA approved CGM Device for Android & iOS
- Data UL to Cloud/Clarity Automatic
- BT Technology allowing for multi-dev comm.
- Early notification of oncoming lows and highs
- 91% Data Accuracy – Highest among all CGM Dev

Appendix 8: Compatible Smart Devices in the USA

Dexcom G5 Mobile App	iPhone 4S, iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone 7, iPhone 7 Plus, iPhone SE iPod touch 5th Gen, iPod touch 6th Gen iPad 3, iPad 4, iPad Air, iPad Air 2, iPad Mini, iPad Mini 2, iPad Mini 3, iPad Mini 4, iPad Pro, iPad (5th Generation) Apple Watch (1st Generation), Apple Watch Series 1, Apple Watch Series 2 iOS 8.1.2, 8.1.3, 8.2, 8.3, 8.4, 8.4.1, 9.0, 9.0.1, 9.0.2, 9.1, 9.2, 9.3, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 10.0.1, 10.0.2, 10.0.3, 10.1, 10.1.1, 10.2, 10.2.1, 10.3, 10.3.1 WatchOS 3.0, 3.1, 3.1.3, 3.2
Dexcom Share2 App	iPhone 4S, iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone 7, iPhone 7 Plus, iPhone SE iPod touch 5th Gen, iPod touch 6th Gen iPad 3, iPad 4, iPad Air, iPad Air 2, iPad Mini, iPad Mini 2, iPad Mini 3, iPad Mini 4, iPad Pro, iPad (5th Generation) Apple Watch (1st Generation), Apple Watch Series 1, Apple Watch Series 2 iOS 7.0, 7.0.1, 7.0.2, 7.0.3, 7.0.4, 7.0.6, 7.1, 7.1.1, 7.1.2, 8.0, 8.0.2, 8.1, 8.1.1, 8.1.2, 8.1.3, 8.2, 8.3, 8.4, 8.4.1, 9.0, 9.0.1, 9.0.2, 9.1, 9.2, 9.3, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 10.0.1, 10.0.2, 10.0.3, 10.1, 10.1.1, 10.2, 10.2.1, 10.3, 10.3.1 watchOS 1.0, 1.0.1, 2.0, 2.0.1, 3.0, 3.1, 3.1.3, 3.2

Dexcom Share App	iPhone 4S, iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone 7, iPhone 7 Plus, iPhone SE iPod touch 5th Gen, iPod touch 6th Gen iOS 6.1.3, 6.1.4, 7.0, 7.0.1, 7.0.2, 7.0.3, 7.0.4, 7.0.6, 7.1, 7.1.1, 7.1.2, 8.0, 8.0.2, 8.1, 8.1.1, 8.1.2, 8.1.3, 8.2, 8.3, 8.4, 8.4.1, 9.0, 9.0.1, 9.0.2, 9.1, 9.2, 9.3, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 10.0.1, 10.0.2, 10.0.3, 10.1, 10.1.1, 10.2, 10.2.1, 10.3, 10.3.1
Dexcom Follow App	iPhone 4, iPhone 4S, iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone 7, iPhone 7 Plus, iPhone SE iPod touch 5th Gen, iPod touch 6th Gen iPad 2, iPad 3, iPad 4, iPad Air, iPad Air 2, iPad Mini, iPad Mini 2, iPad Mini 3, iPad Mini 4, iPad Pro, iPad (5th Generation) Apple Watch (1st Generation), Apple Watch Series 1, Apple Watch Series 2 iOS 6.1.3, 6.1.4, 7.0, 7.0.1, 7.0.2, 7.0.3, 7.0.4, 7.0.6, 7.1, 7.1.1, 7.1.2, 8.0, 8.0.2, 8.1, 8.1.1, 8.1.2, 8.1.3, 8.2, 8.3, 8.4, 8.4.1, 9.0, 9.0.1, 9.0.2, 9.1, 9.2, 9.3, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 10.0.1, 10.0.2, 10.0.3, 10.1, 10.1.1, 10.2, 10.2.1, 10.3, 10.3.1 watchOS 1.0, 1.0.1, 2.0, 2.0.1, 3.0, 3.1, 3.1.1, 3.2 Samsung Galaxy S5, Samsung Galaxy S6, Sony Xperia Z3, HTC One M8, Nexus 6 Android 4.4.4, 5.0, 5.0.1, 5.1.0, 5.1.1, 6.0 (Nexus 6 only), 6.0.1, 7.0 (Nexus 6 only)