Norway

Healthcare

Commissioned Research

02 October 2024

Lifecare ASA

Sweet potential in the diabetes technology market

Initiating Coverage

Fair value range:
NOK23.0–35.0

Share price:
NOK21.0

We initiate coverage of Lifecare, a Norwegian medical technology company in an early development stage. We see the company as well-positioned to capture a share of the rapidly growing global diabetes technology and continuous glucose monitoring markets. With its product Sencell, we believe Lifecare stands out among the global competition but will need to overcome regulatory hurdles before we will see product launch.

We expect the global continuous glucose monitoring (CGM) market to exceed USD10bn in 2024, with a projected CAGR of 8–13% until 2030. Lifecare's product Sencell is an implantable device that in our view addresses key patient concerns. The Sencell advantages we see include lower cost, calibration-free operation, and a longer sensor lifespan than the traditional CGM devices manufactured and marketed by Abbott, Dexcom and Medtronic. These features, along with the device being implantable, can improve convenience and patient comfort, potentially driving adoption rates once the product is launched.

With a unique product offering, Lifecare still faces risks related to commercialisation and regulatory hurdles. At least one more clinical pivotal study is needed before reaching approval in both the EU and US, and we consider the success of the launch to be heavily dependent on a potential licensing partner. Furthermore, implantable CGMs currently have a market share below 1%, signalling a long adoption journey ahead. Lifecare will also incur high operational costs as it advances through pivotal clinical trials and prepares for regulatory approval. This will likely require a capital injection to fund its development as well as scaling up production to achieve a successful market entry.

As we await clinical progress in the human studies, Lifecare's veterinary initiative can offer an additional revenue stream, with potential market entry by as early as YE(24). This opportunity could provide upside to our estimates, complementing the human market and contributing to Lifecare's overall growth strategy.

We arrive at a fair value range of NOK23–35 per share, using a traditional discounted cash flow model. We think Lifecare will see long-term growth despite near-term challenges.

Research analysts:
Ludvig Svensson
Maria Karlsson Osipova

Changes in this report (NOK)

	From	To	Chg
EPS adj. 2024e	n.a.	-4.50	n.a.
EPS adj. 2025e	n.a.	-4.34	n.a.
EPS adj. 2026e	n.a.	-4.75	n.a.

Upcoming events

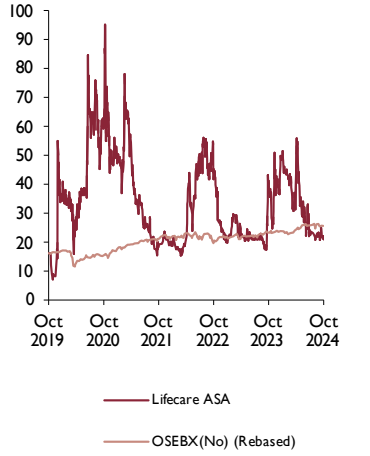
Q3 Report	13 Nov 2024

Key facts

No. shares (m)	15.0
Market cap. (USDm)	30
Market cap. (NOKm)	315
Net IB Debt. (NOKm)	-63
Adjustments (NOKm)	0
EV (2024e) (NOKm)	253
Free float	69.5%
Avg. daily vol. ('000)	28
Risk	High Risk
Fiscal year end	December
Share price as of (CET)	01 Oct 2024 16:13

Key figures (NOK)	2023	2024e	2025e	2026e
Sales (m)	0	1	7	14
EBITDA (m)	-32	-53	-60	-66
EBIT (m)	-35	-57	-65	-71
EPS	-3.62	-4.50	-4.34	-4.75
EPS adj.	-3.62	-4.50	-4.34	-4.75
DPS	0.00	0.00	0.00	0.00
Sales growth Y/Y	0%	+chg	844%	112%
EPS adj. growth Y/Y	-chg	-chg	+chg	-chg
EBIT margin	n.m.	n.m.	n.m.	-500.8%
P/E adj.	n.m.	n.m.	n.m.	n.m.
EV/EBIT	neg.	neg.	neg.	neg.
EV/EBITA	neg.	neg.	neg.	neg.
EV/EBITDA	neg.	neg.	neg.	neg.
P/BV	3.3	5.4	3.4	14.6
Dividend yield	0.0%	0.0%	0.0%	0.0%
FCF yield	-12.2%	-17.8%	-22.8%	-24.7%
Equity/Total Assets	76.9%	48.5%	58.1%	22.1%
ROCE	-52.9%	-80.3%	-75.1%	-103.9%
ROE adj.	-57.3%	-91.8%	-86.4%	-124.6%
Net IB debt/EBITDA	1.4	1.2	1.5	0.2

Share price -5Y



High/Low (12M) NOK55.8/20.4

Perf.	3M	6M	12M	YTD
Abs.	-11.7	-33.0	-49.1	-57.2
Rel.	-11.5	-40.2	-59.4	-66.2

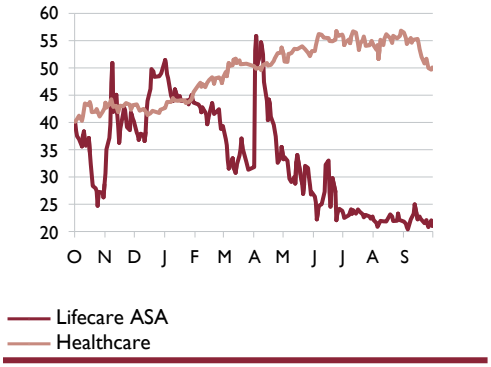
Source: Carnegie Research, FactSet, Millistream & company data

Performance & Valuation

Price relative to market – 1Y

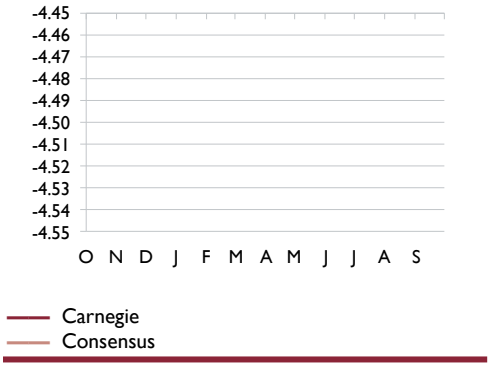
Source: FactSet

Price relative to sector – 1Y



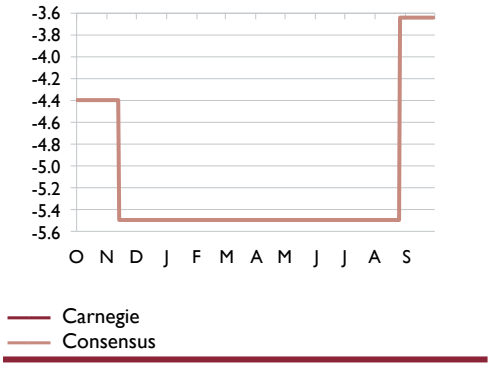
Source: FactSet

Adj. EPS expectations –2024e (NOK)



Source: Carnegie Research & FactSet

Adj. EPS expectations –2025e (NOK)



Source: Carnegie Research & FactSet

Major shareholders

Shareholders (%)	Capital	Votes
Lacal AS	14.7%	14.7%
Teigland Eiendom AS	14.0%	14.0%
Jostein Tjelta	6.0%	6.0%
Nordea Funds	4.7%	4.7%
Nordnet Livsforsikring AS	2.9%	2.9%
F2 Funds & Financial Funds	2.4%	2.4%

Source: FactSet

Company miscellaneous

CEO	Joacim Holter
CFO	Renete Kaarvik
IR	
Phone	
Web	www.lifecare.no
Address	Ytrebygdsvegen 215
City	Blomsterdalen

Source: Carnegie Research

Company description

Lifecare is a medtech company developing the next generation of Continuous Glucose Monitoring (CGM) systems.

Source: Carnegie Research & FactSet

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Investment thesis

Lifecare is a medtech company in the early stages of development, which presents a compelling investment case with its innovative implantable continuous glucose monitoring (CGM) device, Sencell. With its calibration-free design and cost advantages, we believe Lifecare could capture a market share in a huge and rapidly growing industry. Although we see risks, including commercial risks, regulatory and reimbursement hurdles, we believe Lifecare's strategic approach and unique product positioning provide strong potential for future growth in both the human and pet markets for CGM.

CGM market opportunity

The global diabetes and CGM markets are growing rapidly, driven by the increasing prevalence of diabetes and advancements in sensor technology. We estimate the current global CGM market to be more than USD10bn in 2024. CGM is the fastest-growing segment in diabetes technology, with an estimated CAGR of 8–13% until 2030. By offering a discreet implantable device and addressing key patient inconvenience points such as comfort, calibration and cost, we believe Lifecare is well-positioned to capture a portion of this market.

Despite the intense current competition in the field, dominated by three major players – Abbott, Dexcom and Medtronic – we believe there is untapped potential in the CGM market. We note that current penetration in the Type 1 diabetes population is quite high, estimated by industry leaders such as Dexcom to account for 55–80%. But current penetration for Type 2 diabetes patients on insulin is much lower – estimated to account for 30–45% by Senseonics and Dexcom. This indicates a large untapped market. Additionally, diabetic non-insulin users can present an even larger addressable market and significant market opportunity, even for smaller competitors.

Our estimates suggest an addressable population for an implantable CGM of 8.4m patients in the US and 4.2m patients in the EU4 and UK. Our target groups include both intensive insulin users, the primary market for CGMs, and those on basal insulin therapy, where we expect growing adoption of CGM technology. These patients rely on daily glucose monitoring in their diabetes management and often find it inconvenient to use either traditional glucose monitoring devices, which require numerous finger sticks per day, or the traditional CGM devices, which entail a sensor, and a transmitter attached to skin at all times.

Clinical data in line with the gold standard

In May 2023, Lifecare completed its first-in-human study, showing Sencell's accuracy with a mean average relative difference (MARD) of 9.6%, meeting the gold standard of MARD of <10% for glucose monitoring in the industry. The prototype sensors demonstrated a lifespan of over 24 weeks (172 days), indicating greater durability compared to most commercially available CGM devices, with average sensor life of 10–14 days.

Several important competitive advantages

Lifecare's Sencell offers patients a discreet, implantable CGM solution that provides long-term glucose tracking without the need for frequent sensor replacements and calibrations. With real-time data transmission to smartphones, it ensures easy glucose management while minimising visibility and discomfort. Sencell is especially beneficial for those with active lifestyles, reducing the risk of dislodging sensors during physical activities.

A key benefit of Sencell's key is its price. The company expects Sencell to be more affordable compared to the current implantable CGM system on the market. The lower price point broadens its appeal, particularly in markets with cost-sensitive healthcare systems. The company anticipates a price point significantly lower than implantable device from its main competitor, Senseonics, at USD2,000 per year per patient compared to >USD6,000 per year per patient.

Another one of Sencell's standout features is that the device is not dependent on calibration, while the key competitor's Eversense currently requires calibration at least every 24 hours during the first 14 days of wear. Sencell's built-in reference sensor removes this need entirely, making it more convenient and user-friendly. This could drive higher adoption rates, especially as we believe that calibration-free technology is increasingly sought after in the CGM market. Sencell offers longer wear duration than most other CGM systems, with the exception of Eversense, which can currently be worn for up to 365 days. The extended wear time minimises the frequency of sensor replacements, providing an additional layer of convenience for users.

However, we believe that entering the CGM market will be a major challenge. The CGM market is highly competitive, with major players like Abbott, Medtronic, and Dexcom dominating the space. Based on available for us data, the implantable device only has a market share of <1%, which signals that there is a long adoption journey ahead for all implantable devices, Lifecare's Sencell included.

Regulatory and commercialisation pathway

We recognise significant potential in Lifecare, particularly as it advances its technology. However, realising this potential will depend on securing a strategic licensing partner. Lifecare is a small company in a highly competitive market and will need a licensing partner to succeed at a large-scale commercialisation. We base our modelling on Senseonics and its product Eversense, which shares many similarities with Sencell (a smaller company trying to penetrate a large market with established players). Senseonics launched Eversense in the US through its commercial partner, Ascensia. We assume similar terms of agreement, implying that Lifecare will receive a share of the net revenue, which will range from the mid-teens to mid-forties percent based on global net sales.

Lifecare is expecting to start a pivotal clinical trial in H1(25), which would make it possible to achieve a CE mark approval in Europe by 2026, with a commercial plan to launch the product in the European market the same year. Our understanding is that Lifecare is planning to pursue the 510(k) pathway in the US and launch the product in the US market by 2027. The US and Europe have many similarities in their regulatory framework, and we believe that clinical data generated in each region can be leveraged for market submissions in both markets. However, we also believe that additional studies may be required for approval in the US.

From a regulatory perspective, having a competitor such as Senseonics can be beneficial for Lifecare. Senseonics' product Eversense has paved the regulatory pathway for implantable CGM devices in the US, becoming the first such system to receive FDA approval. Its success has set a precedent for future implantable CGM technologies, which we believe is an advantage for Lifecare both from a regulatory and market uptake perspective.

Potential revenue streams from the pet market

We expect Lifecare's veterinary initiative to play a significant role in further business development. We see this as an important add-on and a potential upside in our valuation since income from the veterinary initiative will contribute to future revenue streams. A key strength is that the product Sencell for pets can reach the market much sooner, potentially in 2024 according to the CEO, due to somewhat less complicated regulatory processes in both Europe and subsequently the US. We estimate a total addressable market for Sencell of 30,000 diabetic cats and dogs in the US and 200,000 in high-income European OECD countries, based on data from American Veterinary Association (AVMA), North American Pet Health Insurance Association (NAPHIA) and the European Pet Food Industry Federation (FEDIAF) among others. We assume pet owners with insurance are more likely to pay for veterinary services, including devices such as Sencell. Our assumptions are quite conservative, as the pet opportunity has not been extensively explored or tested yet. However, we are prepared to reevaluate our assumptions if or when the company demonstrates commercial progress and thus provide investors with increased confidence.

Financial forecasts

We think the company may start generating modest revenue in 2024 from the veterinary business, however the revenues from Sencell for humans will take longer – until 2026 in the EU and 2027 in the US. Due to the early stage of development, we expect R&D spending to increase in the short term, as well as capex. If our assumptions of product launch play out, we expect Lifecare to become profitable on an EBITDA level in 2030.

When modelling revenue to account for risk, we assume a likelihood of 40% that our modelled scenario will play out, which includes adjustments for development, regulatory and commercial risks. In practical terms, this means we are risk adjusting our sales estimates by 40%, as well as the costs we model post launch. In our view, the commercial risk is by far the most relevant to the Sencell case, due to Lifecare being highly dependent on a strong partner to commercialise the product.

At the end of June 2024, Lifecare had roughly NOK101m in cash after a rights issue. We believe that further capital injections will be required before the company can turn to profitability. In our model, we assume that current cash can fund operations until mid- to late-2025.

Valuation

We value Lifecare with a traditional discounted cash flow model. We exclude peer valuation, as this is challenging due to the company's early stage of development and the absence of established revenue streams or positive EBIT, making multiples irrelevant. The DCF analysis provides a fair value range of NOK23–35 per share.

Company description

Lifecare, based in Bergen, Norway, is at the forefront of medical sensor technology, specialising in the development of next-generation continuous glucose monitoring (CGM) systems. The company's flagship product, Sencell, is a miniaturised, implantable glucose sensor designed to provide continuous, real-time glucose monitoring for individuals with diabetes. This innovative technology aims to significantly improve the quality of life for millions of diabetes patients by offering a more convenient alternative to traditional glucose monitoring methods.

Lifecare AS has emerged as a niche player in glucose monitoring technology in 2006, grounded in a key discovery from the 1970s in Førde, Norway. This finding linked glucose levels with osmotic pressure, providing a new approach to diabetes management. Over the years, Lifecare has steadily progressed, achieving important milestones such as securing multiple regulatory approvals and patents, as well as its listing on the Merkur Oslo Stock Exchange.

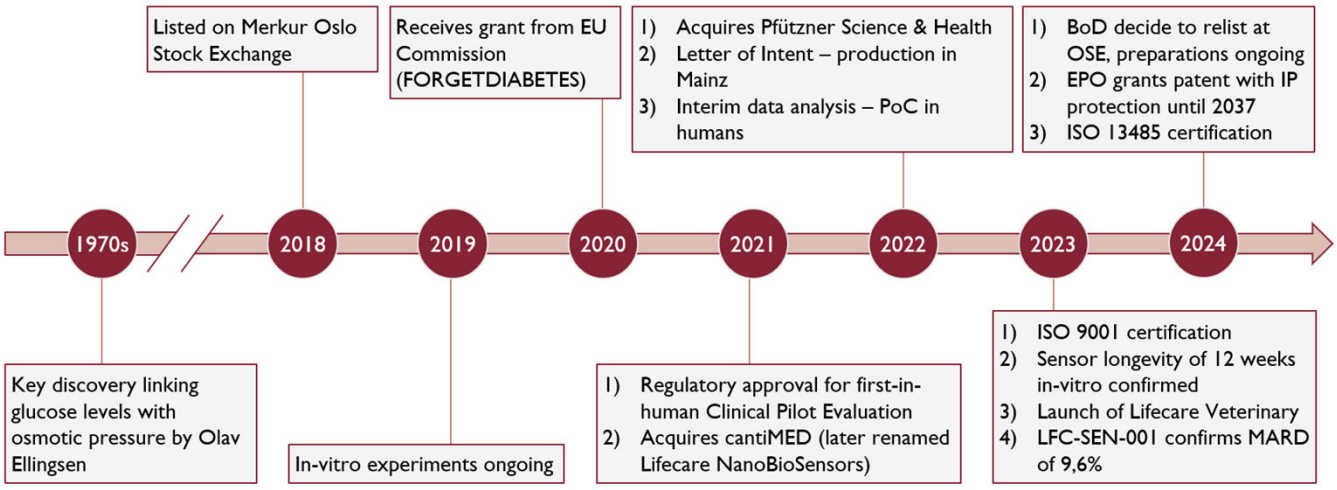
Key discovery in the 1970s

The pivotal link between glucose levels and osmotic pressure was identified following a critical incident at a regional hospital in Førde, Norway. Olav Ellingsen's teenage son, suffering from diabetes, was admitted with severe symptoms including facial swelling and bulging eyes. Medical professionals determined these symptoms resulted from extremely high glucose levels causing cellular rupture. Upon administering insulin, the symptoms subsided. This incident led Olav Ellingsen to discern the direct correlation between osmotic pressure and glucose levels, laying the groundwork for Lifecare's innovative solutions.

Source: Lifecare

Headquartered in Bergen, Norway, Lifecare conducts its research and development in Mainz and Reutlingen, Germany, while its chemistry lab is in Bristol, UK. The company collaborates with partners across Europe on various development projects.

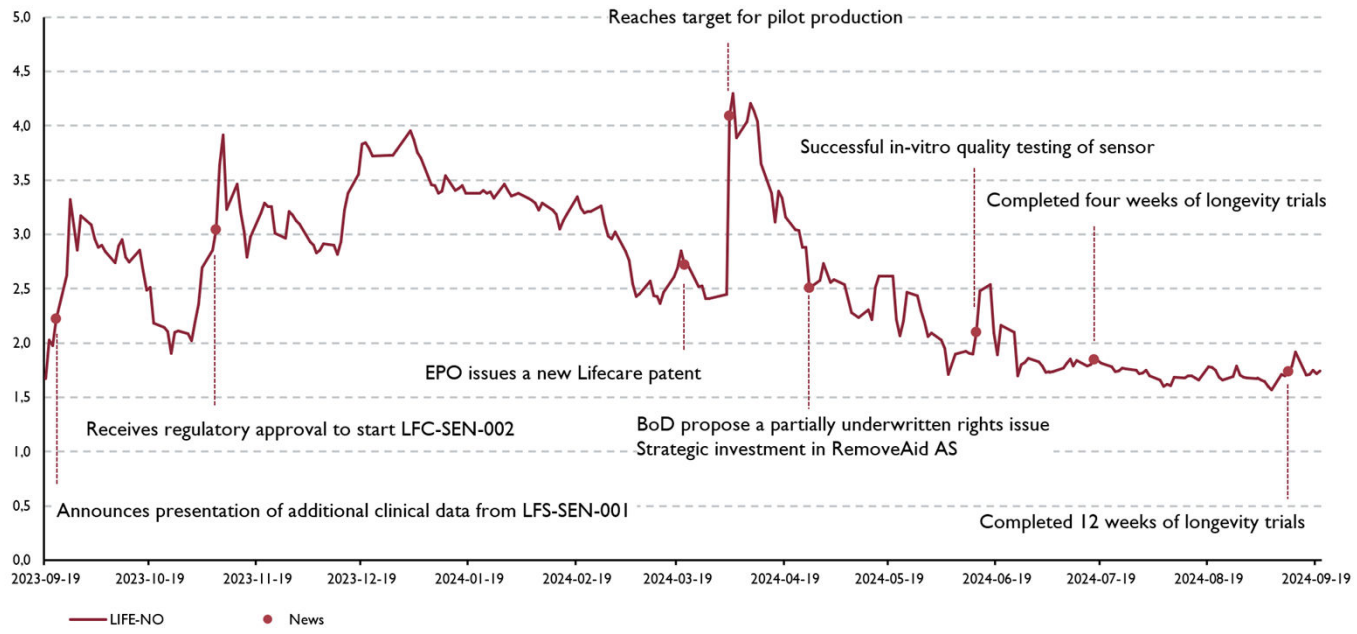
Company timeline



Source: Lifecare, Carnegie Research

Share price performance and upcoming triggers

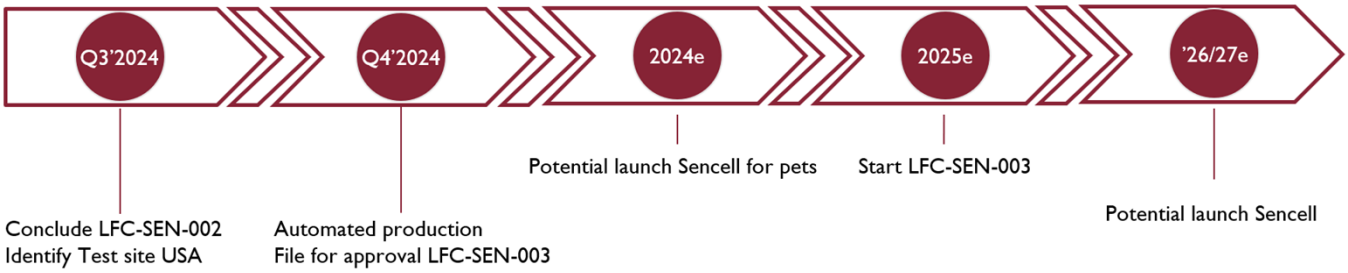
Share price performance 1YR



Source: InFront, MFN, Carnegie Research

Lifecare has achieved several significant milestones recently. In 2023, the company received regulatory approval to commence the LFC-SEN-002 study to test the technology in dogs for up to 90 days and announced additional clinical data from the LFS-SEN-001 study – the company's first proof-of-concept study. In 2024, Lifecare was granted a new patent by the European Patent Office and reached its pilot production target by 3 April. The company made a strategic investment in RemovAid and successfully completed a rights issue for funding continued R&D activities and automated production in June. By 13 June, it completed in-vitro quality testing of a sensor, followed by the completion of 12 weeks of longevity trials in September. On 1 October a consolidation (reverse split) of shares and warrants was carried out.

Triggers and milestones ahead



Source: Lifecare, Senseonics, Carnegie Research

In the coming 12–18 months, we anticipate Lifecare achieving several important milestones. We expect the longevity study in dogs (LCF-SEN-002) to confirm operational lifetime and preparations for LFC-SEN-003 clinical study to be finalised. The purpose of the LFC-SEN-003 study is to collect solid data for the technical files needed to claim the CE mark for Sencell for the human market. We expect that the company can file all the required documentation before YE(24), and thus start the study in H1(25). We also expect automated production to be completed by the end of 2024. The shortest-term milestone would be a launch of Sencell in the pet market, which we believe the company can do before YE(24).

Lifecare is also aiming to uplist from Euronext Growth to the Oslo Stock Exchange in October 2024.

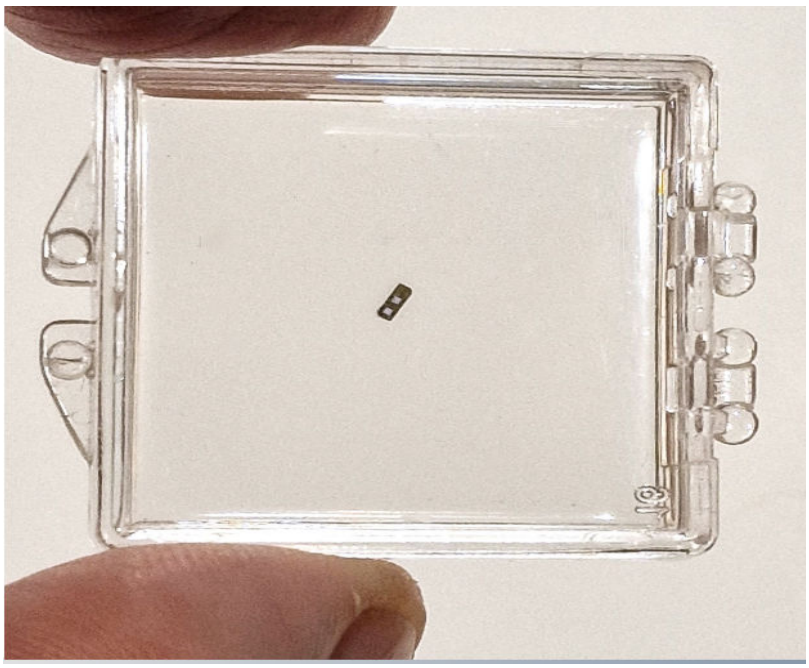
Product overview

Sencell is the next generation of CGM device, designed to be small, implantable, and long-lasting. By measuring osmotic pressure changes in a closed chamber, it monitors glucose levels in interstitial fluid (the fluid surrounding the body's cells). The sensor transmits glucose data wirelessly to a connected smart device, such as a smartphone or a smartwatch, in real-time.

Sencell – the next generation CGM: a miniaturised and implantable device

The sensor is miniaturised to the size of a grain of rice, with dimensions of 2mm x 3mm x 6mm, making it less intrusive and more suitable for long-term implantation. It is inserted under the skin with a simple injector device, eliminating the need for surgery. In the long run, Lifecare wants to develop an injection tool that will make it possible for the patient to insert the sensor themselves. So far, there have been no cases in the clinical trials of rejection of the sensor.

The Sencell system – size of a grain of rice



Source: Company material, Carnegie Research

Standout features include no requirement of an external transmitter and calibrations, eliminating the need for any external components for discreteness and comfort. Additionally, the sensor is designed to function for at least 180 days

One of Sencell's standout features is that it is fully implantable and does not require an external transmitter to be placed on the skin. The fully implantable design aims to offer a more discreet and low-maintenance option, eliminating the need for external components once the device is implanted. It also has a reference sensor in the sensor, which means that the device requires no calibrations. Our understanding is that this is one of the most sought-after improvements, according to CGM users.

The sensor is designed to function for at least 180 days before needing replacement, significantly reducing the need for frequent replacements that are typical of current CGM systems (Eversense excluded). It is powered and read by a wrist-worn, watch-like device that provides inductive power and data readout capabilities. This ensures the sensor operates independently and continuously without the need for daily maintenance. Additionally, Sencell includes alarm functions that alert the user when glucose levels exceed set thresholds, helping to maintain optimal glucose control.

Insertion and removal are a challenge for implantable CGM devices. Lifecare acquired RemovAid to access the technology of inserting and removing implants

Our understating is that the insertion/removal process is typically harder for extracting the sensor than inserting it. To remove it, the patients must go to their doctor, locate the sensor, and have it cut out. Lifecare acquired RemovAid in 2024, which has a patented and CE-approved device to remove contraceptives. The rationale behind the acquisition was for Lifecare to get access to this technology to implement it for Sencell (as well as capitalising on other indications).

Production

Earlier in 2024, Lifecare presented the advances behind its pilot production, which is now finalised. Lifecare is 3D-printing Sencell using a scanning electron microscope (SEM). An SEM device provides detailed images of the surfaces of materials at a very high resolution. It enables Lifecare to obtain the precision necessary to apply pressure-sensing elements down to nanometre size.

The company is now working towards a fully automated production line. The automated production will take place in the cleanroom in Mainz, which was installed in August 2024. The automated production process consists of two stages. First, it uses a sophisticated 3D printing technique in an SEM, controlled by customised software, to create the Sencell sensor. In the second stage, an automated system fills the nanosized chambers of the sensors with the company's glucose-reactive chemical solution. This process also includes sealing the chambers with nano-porous membranes.

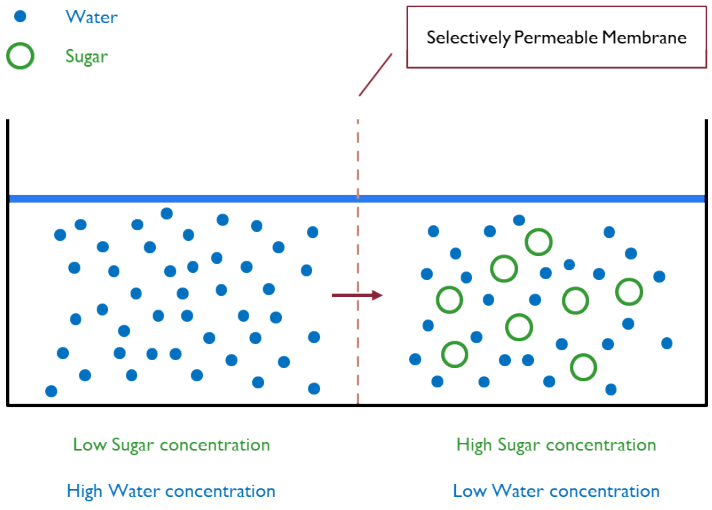
Osmotic pressure

Sencell measures blood sugar based on the concept of osmotic pressure. This is the pressure stopping the movement of liquid from less concentrated to a more concentrated solution through a membrane. In biological systems, osmotic pressure is a crucial factor that helps regulate the movement of fluids and solutes in and out of cells and tissues.

Sencell measures blood sugar by detecting changes in osmotic pressure as glucose enters its semipermeable membrane, converting this data into an electrical signal for continuous glucose monitoring via a smartphone app or external receiver

Sencell contains a semipermeable membrane and is filled with a specific solution that interacts with glucose in the interstitial fluid. When glucose in the interstitial fluid enters the Sencell device through the semipermeable membrane, it changes the osmotic pressure inside the sensor. The device measures the change in osmotic pressure caused by the glucose entering the sensor. This measurement is then correlated with glucose concentration levels. The sensor converts the osmotic pressure data into an electrical signal, which is transmitted wirelessly to an external receiver or a smartphone app. This allows for continuous monitoring of glucose levels.

The technology behind Sencell – measuring osmotic pressure



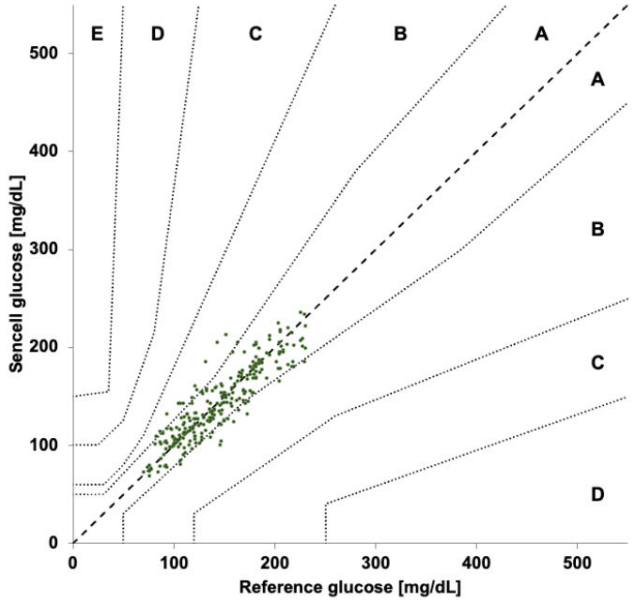
Source: Company material, Carnegie Research

Proof of concept and clinical data

LFC-SEN-001

In May 2023, Lifecare concluded its first-in-human study, called LFC-SEN-001, which displayed sensitivity in line with the commercially available CGM devices. In the study, Sencell showed a mean average relative difference (MARD) of 9.6%, which meets the generally accepted for glucose monitoring accuracy of <10%. Additionally, the prototype sensors showed an operational lifespan of over 24 weeks (172 days). This indicates superior durability compared to most of the commercially available CGM devices. While there could be cases where the longevity of the sensor has exceeded 180 days, the labelled duration of the sensor will be based on the shortest survivability.

Results from LFC-SEN-001: Retrospective consensus error-grid analysis



Zone A	237	90.8%
Zone B	24	9.2%
Zone C	0	0 %
Zone D	0	0 %
Zone E	0	0,%
n=261		

Source: Company material, Carnegie Research

MARD – Mean Absolute Relative Difference

Mean Absolute Relative Difference (MARD) is a key metric for the accuracy of CGM devices. It quantifies the average difference between the glucose readings provided by the CGM device and a reference blood glucose measurement, typically obtained through a laboratory or finger stick test.

MARD is expressed as a percentage; a lower MARD value indicates higher accuracy of the CGM device. For instance, a CGM with a MARD of 10% would, on average, show a 10% difference between its readings and the reference values. The lower the MARD, the closer the CGM readings are to the actual blood glucose levels, making it a critical factor in evaluating the performance of CGMs. In practical terms, a MARD of less than 10% is generally considered very accurate for CGM devices, and many of the newer devices strive to achieve or surpass this level of accuracy.

Source: American Diabetes Association, Journal of Diabetes Science and Technology

LFC-SEN-002

In June 2024, Lifecare initiated a study of longevity in dogs using wireless data readout. During the first seven days, the sensor implanted under the first subject's skin successfully transmitted more than 1,000 data points to an external reader. The study has been ongoing throughout the summer, and the company reports that the results so far are promising. In mid-August, Lifecare reported positive outcomes from nine weeks and later in September from 12 weeks of testing the sensor's longevity.

LFC-SEN-003

Later in 2024, Lifecare's ambition is to prepare for another trial, LFC-SEN-003. The purpose of this study is to connect data for the technical files needed to claim the CE mark for Sencell for the human market.

Estimated pathway to market approval for Sencell

For the European market, Lifecare has a clear plan for a pivotal study to gain a CE approval. The company is working on finalising the study protocol and identifying a contract research organisation (CRO) to be able to submit an application by the end of 2024. If this timeline holds, Lifecare would be able to initiate the trial in H1(25). If patient recruitment progresses well, this would set up the company for getting a CE mark by H1(26). According to Lifecare, 200–350 patients will be included in the trial. For reference, Senseonics had about 125 patients in its clinical data package when submitting for its first PMA for the 90-day version of Eversense.

A pivotal study to gain CE approval in Europe is planned for H1(25), with potential launch H1(26). We project a US launch in 2027, though a clear regulatory pathway has yet to be developed by the company

Lifecare has no clear plan for the US market yet, since its current focus is on the European market. We believe that an additional trial including US patients will be required for approval. We view it as likely that the company could pursue the 510k pathway using Eversense (or possibly another CGM) as a predicate device. We currently model a US market launch for Sencell in 2027.

When considering the possible regulatory pathway forward to a market approval for Sencell in the US, we believe it is wise to study the pathway to market pursued by the companies that have CGM products on the market today. Below, we highlight the trials conducted with Eversense, which we argue is the closest peer product.

For reference – Eversense's pathway to market

We view Senseonics' regulatory pathway with Eversense as a reference for Sencell. Senseonics has conducted several clinical trials involving more than 471 patients. An approval for the Eversense 365-days system is pending, with a potential launch in Q4(24)

So far, Senseonics has conducted several clinical trials with Eversense. When adding all these studies together, we conclude that more than 471 patients have been included in the clinical trials. In June 2018, Senseonics received its first PMA approval (90-day system) based on the data from the PRECISE II (n=90) and PRECISION (n=35) studies.

Following the approval for the 90-day Eversense system, Senseonics conducted another clinical trial to increase the system's longevity from 90 days to 180 days. The PROMISE study included 181 patients. Data from the trial was successful and the 180-day system received FDA approval in February 2022.

Most recently, Senseonics pursued the ENHANCE study to evaluate the accuracy and safety of Eversense for 365 days. More than 165 patients were included in this study and enrolment was completed in September 2022. On 17 September, Senseonics and its partner Ascensia Diabetes Care announced FDA clearance for its implantable Eversense 365 for adults with Type 1 and Type 2 diabetes. Eversense 365 will be launched in the US in the coming months. Pricing has not yet been announced.

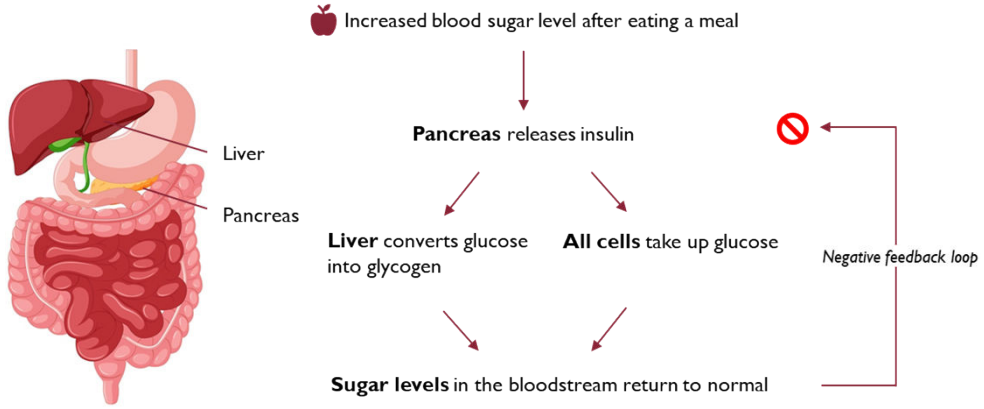
Diabetes

To understand the need for CGM systems one needs to acknowledge the medical needs of patients with diabetes. Diabetes is a condition that occurs when a patient's blood sugar (glucose) levels are too high. It occurs when the pancreas does not make enough insulin, or any at all, or when a patient's body is not responding to the effects of insulin. Diabetes affects people of all ages, and most forms of diabetes are chronic.

Disease overview

Glucose mainly comes from carbohydrates in food and drinks and is the body's primary source of energy. Once ingested, carbohydrates are broken down throughout the digestive system. As carbohydrates are consumed and broken down, blood sugar levels increase which stimulates the pancreas to secrete insulin. Insulin signals the body's cells to absorb glucose for energy or storage. If blood glucose falls, the pancreas makes glucagon, stimulating the liver to release stored glucose.

Carbohydrates in your body



Source: Carnegie Research

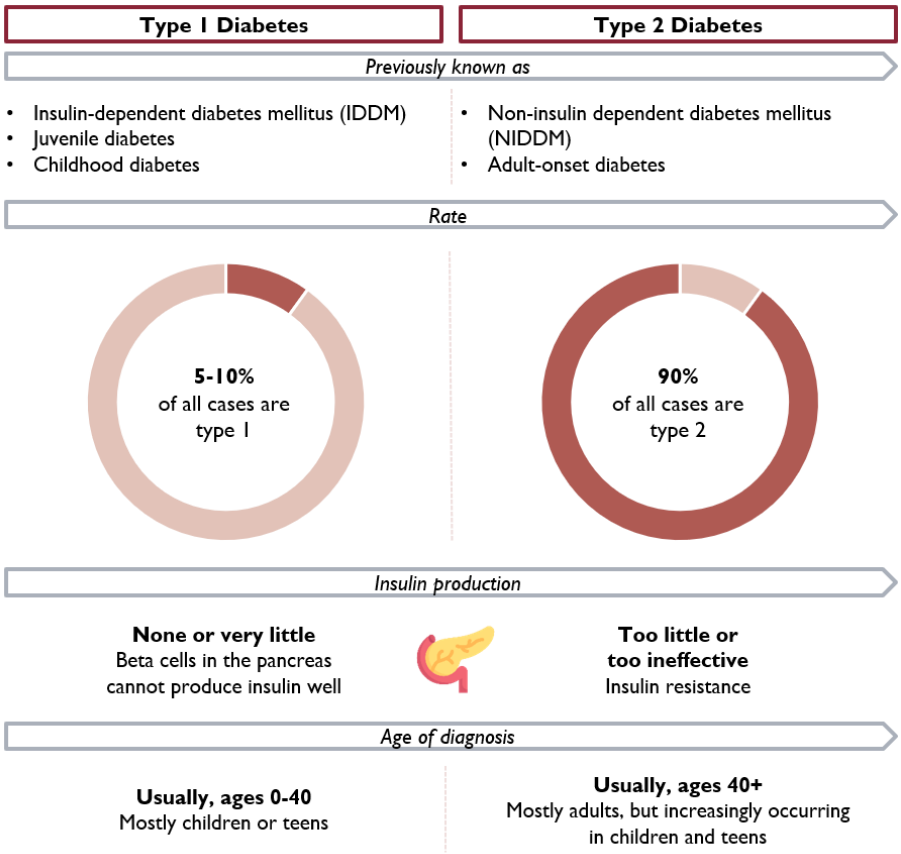
If the pancreas fails to make enough insulin or the body is not using it properly, glucose builds up in the bloodstream causing high blood sugar (hyperglycaemia). Over time, consistently high levels of blood sugar can cause health problems such as heart disease, nerve damage and eye problems. This condition, when the body either does not make enough insulin or cannot use it properly is called diabetes, or diabetes mellitus.

Diabetes occurs when the body fails to produce enough insulin or cannot use it properly, leading to high blood sugar levels, which can cause health issues including heart disease and nerve damage. The most common forms are Type 1, where the immune system destroys insulin-producing cells, and Type 2, characterised by insulin resistance

There are several forms of diabetes, most commonly diabetes Type 1 and diabetes Type 2, with the latter accounting for the majority of diabetes cases. Other forms include gestational diabetes, latent autoimmune diabetes in adults (LADA), and maturity-onset diabetes of the young (MODY). Type 1 diabetes is a condition when the body's immune system attacks and destroys the insulin-producing cells in the pancreas, for unknown reasons, leading to little or no insulin production. Type 1 diabetes is often diagnosed in children and young adults, but can develop at any age. With Type 2 diabetes the body does not make enough insulin or the body's cells do not respond normally to insulin (insulin resistance). This mainly affects adults, but children and young adults can also be affected. Gestational diabetes develops in some cases during pregnancy and usually subsides after the baby is delivered. However, pregnant women with gestational diabetes are at a higher risk of developing Type 2 diabetes later in life.

There is also a condition called pre-diabetes, a stage of the condition that is typically diagnosed before full onset of Type 2 diabetes. In this condition, blood glucose levels are higher than normal but not high enough for an official Type 2 diabetes diagnosis.

Quick facts about diabetes Types 1 and 2



Source: Carnegie Research

Epidemiology and symptoms

The IDF reports that about 10% of adults have diabetes, with nearly half unaware of it, and projects a 46% increase to 780m cases by 2045. The increase in prevalence is driven by factors like urbanization, aging, and obesity.

The International Diabetes Federation (IDF) Atlas reported that about 10% of the global adult population (aged 20–79) has diabetes, with almost half being unaware that they are living with the condition. More than 500m individuals in the world have some form of diabetes, and IDF projects an increase of about 46% to more than 780m individuals by 2045. Key contributing factors to such an increase include urbanisation, ageing population, generally decreasing levels of physical activity, and increasing overweight and obesity prevalence. The most common type of diabetes is Type 2, constituting 90–95% of all diabetes cases.

Type 1 diabetes represents 5–10% of all cases. Symptoms of diabetes include increased thirst, frequent urination, fatigue, and slow-healing cuts and sores. These symptoms can develop rather quickly (over a few weeks or months) in Type 1 diabetes, whereas with Type 2 diabetes they develop very slowly. These symptoms are usually more intense in Type 1 diabetes than Type 2. Anyone who has symptoms of diabetes should be tested for the disease. People with risk factors for Type 2 diabetes need to be tested, as well as most pregnant women, who should routinely be tested for gestational diabetes.

Causes and complications

Type 2 diabetes mainly results from insulin resistance. Several factors and underlying conditions contribute to varying degrees of insulin resistance, including obesity, lack of physical activity, diet, hormonal imbalances, genetics and certain medication (NIH). Type 1 diabetes and LADA are caused by an immune system attack on the insulin-producing cells in the pancreas.

Both types of diabetes can lead to acute and long-term complications, mainly due to extreme or prolonged high blood sugar levels. Acute complications include hyperosmolar hyperglycaemia state (HHS), diabetes-related ketoacidosis (DKA) and severe low blood sugar (hypoglycaemia). HHS affects mainly people with Type 2 diabetes and occurs when blood sugar levels stay high for a prolonged period, which leads to severe dehydration and as a result confusion. DKA mainly affects people with Type 1 diabetes and occurs when instead of breaking down sugar for energy, due to the insufficient amount of insulin, the body starts breaking down fat instead. This process releases substances such as ketones, which leads to a raised level of acidity in the blood. Hypoglycaemia signs include blurred or double vision, clumsiness, disorientation and seizures. All these conditions require immediate medical attention and treatment.

Long-term complications arise from blood glucose levels remaining high for too long, which can damage the body's nerves and blood vessels. These include cardiovascular issues such as coronary artery disease, heart attack, stroke, atherosclerosis and other conditions such as nerve damage, retinopathy and nephropathy.

Treatment and monitoring

Depending on what type of diabetes a patient has, treatment and monitoring routines may vary – but in general, treatment and monitoring include blood sugar monitoring, insulin, and oral drugs. Non-pharmaceutical treatments are also an important part of managing diabetes, such as a healthy diet, weight loss and regular physical activity.

Treatment for Type 1 diabetes involves insulin injections or use of an insulin pump, and monitoring involves frequent blood sugar checks. For patients with Type 2 diabetes the treatment involves mostly lifestyle changes, monitoring blood sugar levels along with oral diabetes drugs, insulin or both (Mayo Clinic).

Diabetes treatment and monitoring vary by type but generally include blood sugar monitoring, insulin, or oral drugs, alongside lifestyle changes like a healthy diet, weight loss, and physical activity. Type 1 diabetes requires insulin injections or pumps with frequent blood sugar checks, while Type 2 treatment focuses on lifestyle changes and may involve oral drugs, insulin, or both

Many types of insulin are available, including short-acting (regular) insulin, rapid-acting insulin, long-acting insulin, and intermediate options. Insulin does not take effect if taken orally, since stomach enzymes interfere with insulin and thus destroy it. Instead, it is usually injected with a fine needle and syringe or an insulin pen. Another option for patients requiring daily insulin treatment is an insulin pump, which is a small device worn outside the body. A fine tube connects the reservoir for insulin into a plastic catheter that is inserted under the skin on the abdomen (see image below).

Insulin pumps, syringes and insulin pens: an illustrative example

Source: Carnegie Research

Treatment regime glossary

For a person with diabetes the number of insulin injections depends on the treatment regime. The most common for Type 1 diabetes is multiple daily injections – MDI. In an MDI regimen, basal (long-acting) insulin is usually injected once or twice a day. Prandial – rapid or short-acting insulin – is injected before meals or in cases of hyperglycaemia. Basal glucose level means the fasting glucose level and prandial refers to glucose levels around mealtimes.

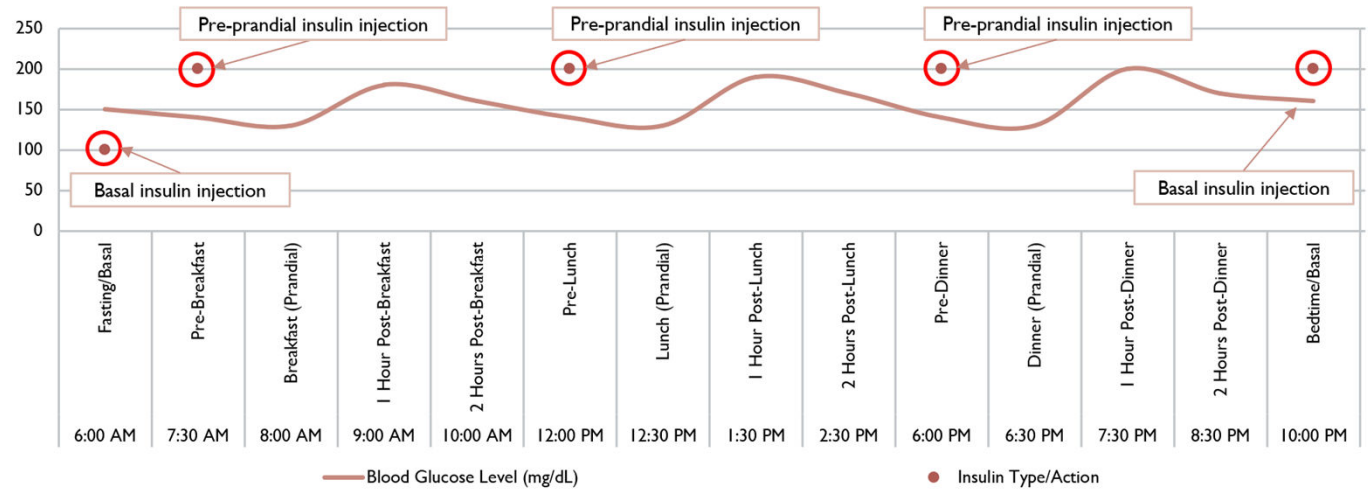
Source: ADA

Blood sugar levels may be checked up to four times a day for patients with Type 1 or insulin-treated Type 2 diabetes. Current guidelines suggest that all Type 1 and insulin-intensive Type 2 diabetes patients should use a CGM, and studies show CGM can lower HbA1c in poorly controlled Type 2 diabetes.

Depending on the treatment plan for either Type 1 or Type 2 diabetes, blood sugar levels may be checked as many as four times per day, sometimes even more in a patient who is medicated with insulin. However, in general patients with Type 2 diabetes check their sugar levels much less frequently. Besides daily blood sugar monitoring, a regular average blood glucose (HbA1C) testing is often recommended by physicians to measure a patient's average blood sugar level for the past two to three months.

Latest recommendations on monitoring state that all people with Type 1 and Type 2 diabetes on multiple daily doses of insulin (MDI) should use a CGM. The role of CGM in individuals with Type 2 diabetes using less-intensive insulin regimens is not well defined, but studies have shown that among adults with poorly controlled Type 2 diabetes treated with basal insulin without prandial insulin, CGM, as compared with BGM monitoring, resulted in significantly lower HbA1c levels at eight months (JAMA).

Daily BG levels profile for Type 1 diabetes patients with basal and prandial insulin therapy: an example



Source: American Diabetes Association, Carnegie Research

What is HbA1c?

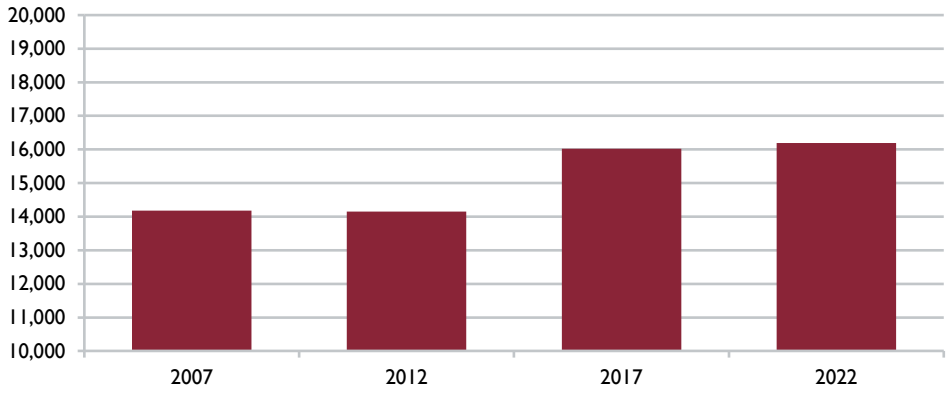
Glycated haemoglobin, known as HbA1c, forms when glucose binds to red blood cells. Due to improper sugar utilisation, more glucose attaches to these cells, increasing blood sugar levels. HbA1c measures a patient's average blood glucose levels over the previous 2–3 months. For those with diabetes, an optimal HbA1c level is 48 mmol/mol or lower. Since red blood cells are active for about 2–3 months, the HbA1c reading reflects this period. Elevated HbA1c indicates high blood sugar, raising the risk of diabetes-related complications.

Source: Diabetes UK

Burden of diabetes

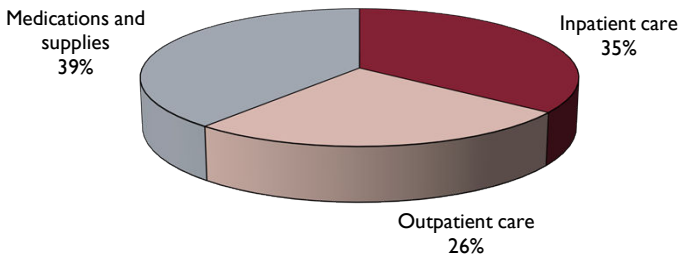
In a Diabetes Care article from 2017, the total cost of diagnosed diabetes was estimated at USD327bn, which includes USD237bn in direct medical costs and USD90bn in reduced productivity. Care for people diagnosed with diabetes accounts for one in four healthcare dollars in the US. Additionally, diabetes reduces the quality of life, leading to daily management challenges, mental health issues such as depression, and long-term disability. This burden affects not only patients but also their families and caregivers.

Annual healthcare cost per person with diabetes in the US (USD)



Source: Parker et al. 2023, Carnegie Research

Distribution of costs for a diabetes patient



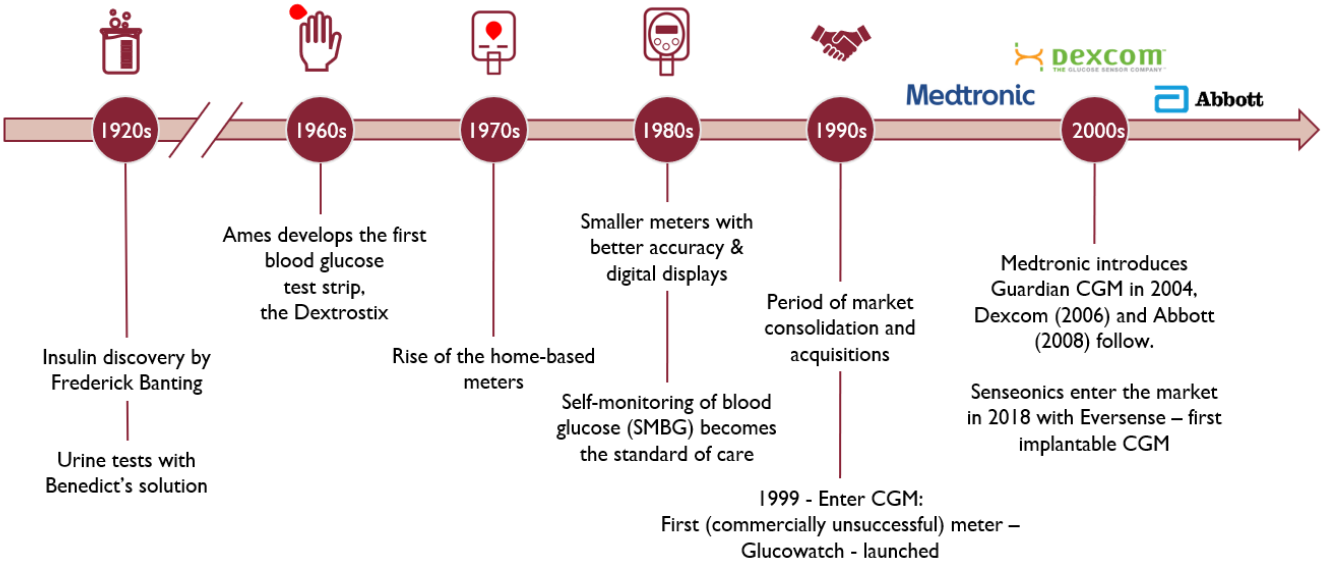
Source: Parker et al. 2023, Carnegie Research

The history of blood sugar monitoring

The evolution of glucose monitoring for diabetes patients has progressed from basic urine testing to advanced CGM systems today. Overall, the advances in glucose monitoring technology have greatly improved the quality of life and health outcomes for diabetes patients.

Back in the 1920s, blood sugar monitoring began with a basic test that looked for sugar in urine. Special strips were used that changed colour based on the amount of sugar in the urine. The sugar level was estimated by comparing the colour on the strip to a colour chart. Although the method of measuring blood sugar in urine was not very reliable, in the absence of alternatives it remained the gold standard for nearly 50 years.

History of blood glucose monitoring



Source: Clinical Compendia, Dexcom, Abbott, Medtronic, Carnegie Research

In the 1960s, doctors started using small strips to measure sugar directly in the blood, which made the readings more accurate. A large drop of blood was placed on the strip for 60 seconds and was then washed away. The doctor compared the generated colour to a chart on the bottle to assess the blood glucose level (Hirsch et al., 2018).

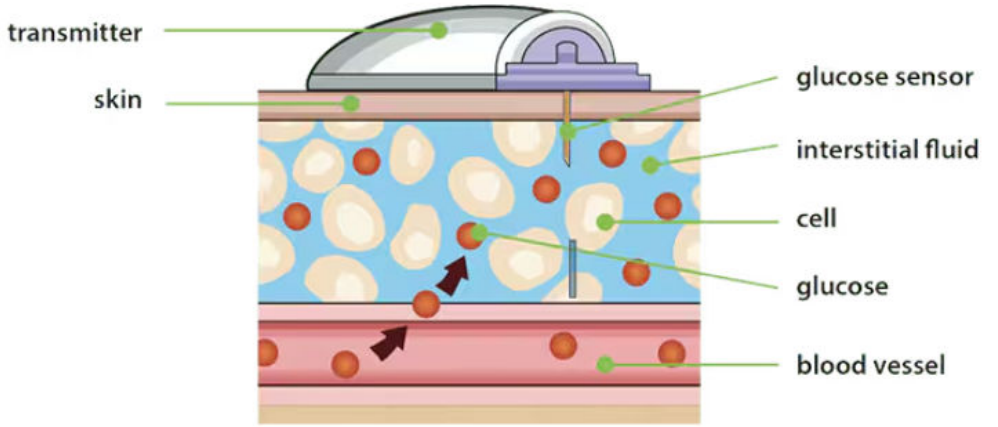
Over the next decades, the evolution of blood sugar monitoring really accelerated. In the 1980s, self-monitoring of blood glucose (SMBG) became the gold standard for measuring blood sugar. The major advancement with SMBG was that the patient could regularly check their own blood sugar without having to interact with a doctor. The process involved pricking the finger to obtain a small drop of blood, which was placed on a test strip inserted into the meter. The meter then provided a digital readout of the blood glucose level.

In 1999, the evolution entered the next phase with the FDA approving the first continuous glucose monitoring (CGM). CGMs have revolutionised the blood sugar monitoring field by offering both clinical and convenience advantages compared to their predecessors, blood glucose monitoring systems (BGMs). CGMs work by measuring blood sugar levels 24 hours a day with a sensor that is implanted under the patient's skin, usually on the belly or arm. Most CGM devices take readings every five minutes, and the patient has real-time access to data on their glucose levels through a reader or smartphone. It is something that facilitates disease management by providing insight into how the blood sugar reacts to insulin, food, and exercise.

How does a CGM device work?

A CGM device helps track glucose levels in the patient's body continuously. It involves placing a small sensor under the patient's skin, usually on the belly or arm. This sensor measures glucose levels in the interstitial fluid, which itself contains glucose that leaks out from blood capillaries. As glucose enters the bloodstream first and then moves into the interstitial fluid, there is a slight delay between changes in blood glucose levels and interstitial glucose levels. Consequently, CGM readings can lag by a few minutes compared to traditional finger stick blood glucose measurements. This delay is normal and reflects the time it takes for glucose to diffuse from the blood into the interstitial fluid.

Example of how a CGM device can work

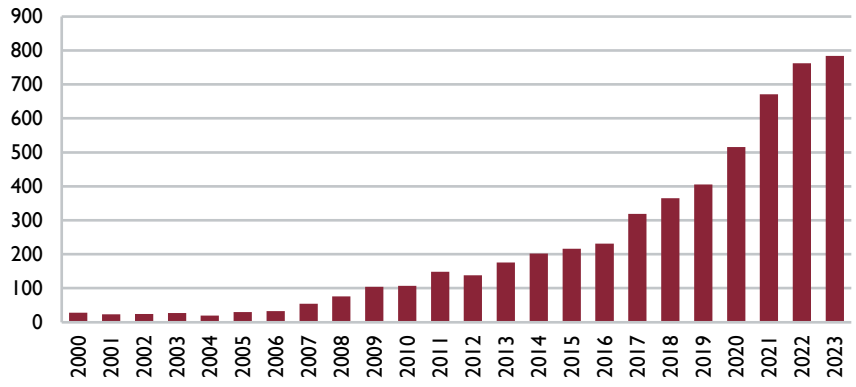


Source: Medtronic, Carnegie Research

The sensor transmits data wirelessly to a receiver, such as a smartphone or insulin pump, providing real-time glucose readings. This allows the patient to see trends and patterns in their glucose levels and receive alerts if their levels become too high or too low. By continuously monitoring glucose levels, the CGM helps patients manage their diabetes more effectively. The real-time data and trends can be shared with healthcare providers and family to optimise treatment plans. This technology reduces the risk of complications from diabetes by enabling better control and timely adjustments to the patient's care routine.

CGMs have attracted significant interest over the past decade, and the number of search results on PubMed has increased vastly.

Number of publications related to CGM



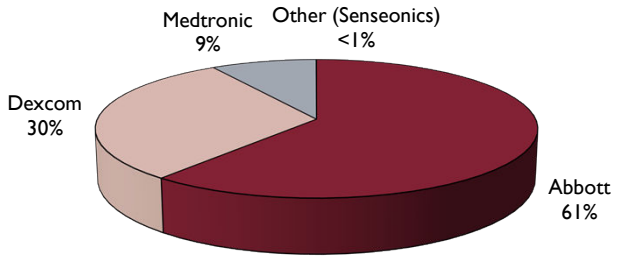
Source: PubMed 2024, Carnegie Research

Competitive landscape of the CGM space

Currently available minimally invasive CGM systems are based on glucose sensors with limited lifetime. Medtronic's device is approved for a 7-day duration, while the sensor from Dexcom lasts for 10 days and Abbott's device can be worn for 14 days. Senseonics' CGM device, Eversense, currently has the best longevity in the market with a duration of 180 days.

We estimate that Abbott dominates the market with a market share of more than 60%, followed by Dexcom at 30% and Medtronic around 9%. Senseonics, with its implantable CGM, likely holds less than 1% of the market.

Estimated market share among CMG players (2022)



Source: Seagrove Partners, Carnegie Research

Some players in the CGM and sensor technology space

Abbott (FreeStyle Libre)

Abbott is the market leader in CGM. Abbott's FreeStyle Libre system is popular for its affordability and ease of use. The FreeStyle Libre provides flash glucose monitoring, where users can scan a sensor on their arm to get glucose readings without finger sticks. The latest version, FreeStyle Libre 3, offers continuous real-time data and alerts for glucose levels, making it a robust option for diabetes management.

Dexcom (Dexcom G6 and G7)

Dexcom has been a significant player in the CGM market for many years and its systems are typically renowned for their accuracy and user-friendly features. The Dexcom G6 requires no finger stick calibrations and offers real-time glucose monitoring. The recently launched G7 is the smallest and most accurate Dexcom CGM to date, with a 30-minute sensor warm-up time and integration with various insulin pumps and digital health apps. These systems provide predictive alerts for hypoglycaemia and hyperglycaemia, and allow real-time data-sharing with caregivers.

Medtronic (Guardian Connect)

Medtronic's Diabetes Group markets several CGM products, including the Guardian Connect standalone CGM and the Simplera disposable CGM system. Medtronic also integrates CGM technology with insulin pumps, providing automated insulin delivery systems that suspend insulin administration when glucose levels are low.

Senseonics (Eversense)

Eversense features a long-term implantable sensor that can last up to six months. The system includes a wearable transmitter that communicates glucose data to a mobile app, providing real-time glucose readings and alerts.

The competitive landscape of CGM and implantable sensor technology

Source: Seagrove Partners, Carnegie Research

Roche (Accu-Chek SmartGuide)

Roche's Accu-Chek SmartGuide CGM received CE mark approval for use in Europe in July 2024, allowing it to be used by adults with Type 1 and Type 2 diabetes on flexible insulin therapy. It is an advanced CGM system designed to predict glucose levels up to two hours in advance, helping diabetes patients act before problems arise. Its AI-driven alerts notify users of potential hypoglycaemia 30 minutes ahead. The device has a 14-day wear time and provides real-time glucose data every five minutes. Its predictive capabilities stand out as a key innovation.

Indigo

Indigo develops technology for continuous multi-metabolite monitoring. Its continuous multi-metabolite monitoring (CMM) sensor is a small spectrometer-on-a-chip to monitor multiple metabolites in-vivo simultaneously and continuously.

Profusa

Profusa is developing tissue-integrating biosensors for continuous monitoring of body chemistries.

Biorasis

Biorasis is developing an implantable multi-sensor platform for real-time, continuous monitoring. Biorasis' product GLUCOWIZZARD is a miniaturised device under development that reads glucose levels and transmits information to any personal digital accessory.

Integrated Medical Sensors (IMS)

IMS is a smaller start-up developing a solution for diabetes monitoring using semiconductor and wireless technologies.

OTC sensors

In 2024, over-the-counter (OTC) sensors are being introduced in the market. These sensors typically target fitness enthusiasts or those looking for insights into how diet, exercise and stress affect glucose. OTC sensors usually have simpler functionalities, such as no direct insulin dosing capabilities or predictive algorithms for hypoglycaemia, and are typically not covered by insurance.

While OTC CGMs could appeal to people who are health conscious or prediabetic, our view is that they are unlikely to replace prescription CGMs for those who need more precise and medically-tailored diabetes management. Therefore, while OTC and prescription CGMs might serve overlapping purposes for general glucose tracking, they cater to different levels of need in terms of disease management versus lifestyle monitoring.

Pricing in the CGM space

Pricing varies significantly in the CGM space according to brand and the technology offered. Dexcom's CGM system costs about USD4,173 per year, while Medtronic's system is slightly higher at USD4,208 per year. Abbott offers a more affordable option at USD1,582 per year, making it an attractive budget choice. Senseonics' Eversense implantable CGM costs USD6,400 per year, making it a premium option in the market.

Estimated cost for CGM systems

CGM system	Estimated cost/year (USD)	Estimated cost/month (USD)
Dexcom	4,173	347
Medtronic	4,208	351
Abbott	1,582	132
Eversense	6,400	533

Source: Company material, Carnegie Research

Different approaches in the CGM space

CGM has evolved over the past few years, not least with the development and roll-out of Senseonics' product. There are two main types of CGM: real-time (rtCGM), and intermittently scanned (isCGM). Lifecare's product Sencell is a real-time CGM, which means it is made up of three components: the sensor, a transmitter, and a handheld receiver and/or smartphone that displays the user's glucose data in real time. Intermittently scanned CGMs require the user to scan the device to get the glucose data and consists of two components: a combined sensor/transmitter, and a separate reader device (ADA). Real-time CGMs are superior to isCGMs in cost effectiveness. A real-time CGM has both economic and clinical benefits, resulting in lower HbA1c, fewer severe hypoglycaemic events, and reduced fear of hypoglycaemia (Source: Diabetologia).

An overview of a selection of CGMs

Device	Frequency of measurement	Approved ages	Sensor life	Calibration	Warm-up	MARD (%)	Alerts
 Abbott FreeStyle Libre 2	Measures BG every minute; records every 15 min	≥ 4 yrs	14 days	No	1hr	9.7% (age 18+)	Yes
Abbott FreeStyle Libre 2 Plus	Every minute	≥ 2 yrs	15 days	No	1hr	-	Yes
 Abbott Freestyle Libre 14	Measures BG every minute; records every 15 min	≥ 18 yrs	14 days	No	1hr	-	No, trend arrows
 Dexcom G6	Readings sent to receiver/smart device every 5 min	≥ 2 yrs	10 days	No	2 hr	9% (age 18+)	Yes
 Dexcom G7	Readings sent to receiver/smart device every 5 min	≥ 2 yrs	10 days	No	30 min	-	Yes
 Medtronic Guardian Connect	Readings sent to smart device every 5 min	14 - 75 yrs	7 days	Yes*	2 hr	10.5% (abdomen, age 14+)	Yes
 Senseonics Eversense	Readings sent to smart device every 5 min	≥ 18 yrs	Up to 365 days	Yes**	2hr	8.5 – 9.6% (age 18+)	Yes

*After initialisation every 12 hours; **Once-weekly after Day 14 of wear (once-daily before Day 14)

Source: American Association of Clinical Endocrinology, Abbott, Dexcom, Medtronic, Senseonics, Carnegie Research

Glucose oxidase (Freestyle Libre and others)

The giants of the CGM market (Abbott, Dexcom and Medtronic), all use a similar technology – electrochemical-based glucose sensors. This technology is based on the enzyme-electrochemical reaction, which uses glucose oxidase (GOx) as the enzyme to oxidise glucose molecules present in the interstitial fluid. The enzyme catalyses a reaction that generates an electrical signal proportional to the glucose concentration. The hydrogen peroxide produced undergoes a redox reaction at the electrode surface within the sensor, generating an electrical current proportional to the glucose concentration.

Flourescence (Eversense)

Senseonics' product Eversense utilises a small fluorescent glucose indicator that is implanted under the skin. The sensor contains a polymer coating with a fluorescent dye. Glucose levels are measured by detecting changes in the fluorescence emitted by the dye when exposed to an LED light. The sensor communicates wirelessly with a transmitter worn on the skin. The transmitter processes the data and sends it to a mobile app, providing real-time glucose readings.

Unlike electrochemical-based glucose sensors, Eversense uses boronic-acid derivatives as the fluorescent indicator to sense glucose (Sensors & Diagnostics, 2022). The small sensor (3.3mm × 15mm) is coated with a polymer case consisting of an LED for fluorophore excitations and two photodiodes for fluorescent signal measurements. Glucose indicating hydrogel, covering the outside of the sensor, contains the boronic-acid derivative (i.e. the fluorophore), which can reversibly bind with glucose molecules to measure the concentration of glucose based on changes in fluorescence.

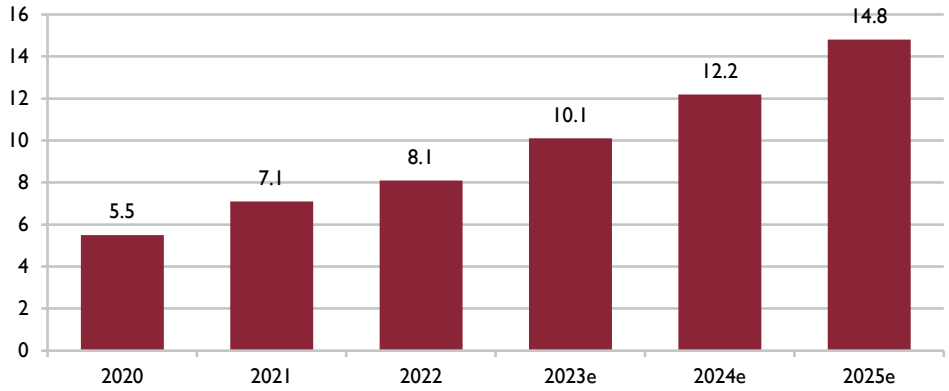
Market overview

The CGM market grew significantly from 2020 to 2023 due to the rising prevalence of diabetes and advancements in medical technology. We believe the rapid growth in the US over the past year is largely attributable to the extension of Medicare coverage for CGMs in early 2023, particularly for Type 2 diabetes patients on basal insulin. Additionally, there has been increasing focus on the role of CGMs in initiating and adjusting therapies, which has further fuelled market growth.

Leading CGM device manufacturers estimate the CGM market at over USD10bn, with a projected CAGR of 8–13% until 2030, dominated by Dexcom, Abbott, and Medtronic

Based on publicly available sales data and guidance from leading companies in the field, we estimate the current global CGM market to more than USD10bn. CGM is the fastest-growing segment in diabetes technology, with an estimated CAGR of 8–13% until 2030. The field is dominated by three key players: Dexcom, Abbott and Medtronic.

Global CGM market size (USDbn)

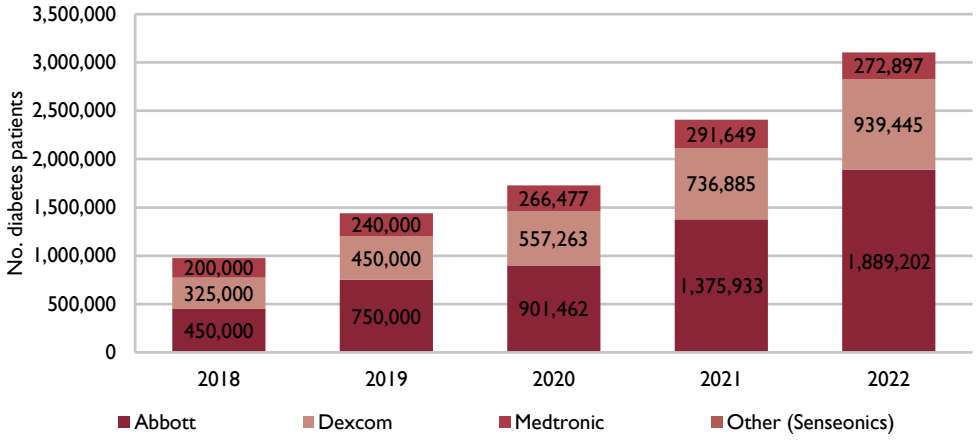


Source: Senseonics Investor Presentation, Carnegie Research

For the US market, we note that Senseonics estimates the annual total addressable market (TAM) for CGM systems to be over USD20bn. This is built on the number of diabetes diagnoses for which CGM is covered. According to our research, the US market includes about 2m Type 1 diabetes patients and 6.5m Type 2 patients on basal insulin therapy. There are also more than 24m people with Type 2 diabetes who are not on insulin (Source: IDF Diabetes Atlas 2021, Diabetes UK). And about 96m people are estimated to have prediabetes, further expanding the future market potential for CGM systems (Source: Dexcom, 2023).

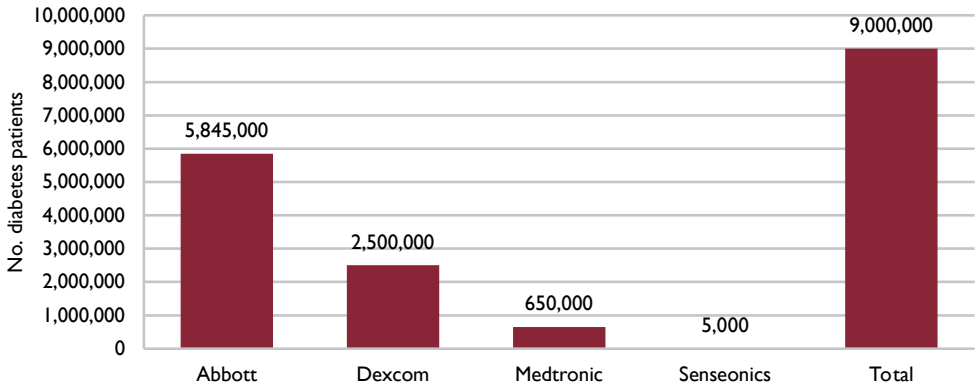
According to a report by Seagrove Partners, the CGM user base in the US surpassed 3,000,000 in 2022. Abbott and Freestyle Libre had the largest share of patients. Globally, based mainly on company data, we estimate the current CGM user base to be about 9,000,000 patients.

Estimated CGM US user base



Source: Seagrove Partners, Carnegie Research

Estimated global CGM user base (2024)



Source: Carnegie Research

From initially being focused on Type 1 diabetes patients, the market for CGM has expanded to Type 2 patients and this is now the fastest growing segment in the market. Latest recommendations on monitoring entail all people with Type 1 and Type 2 diabetes on MDI should use a CGM (Source: Jackson et al., 2021).

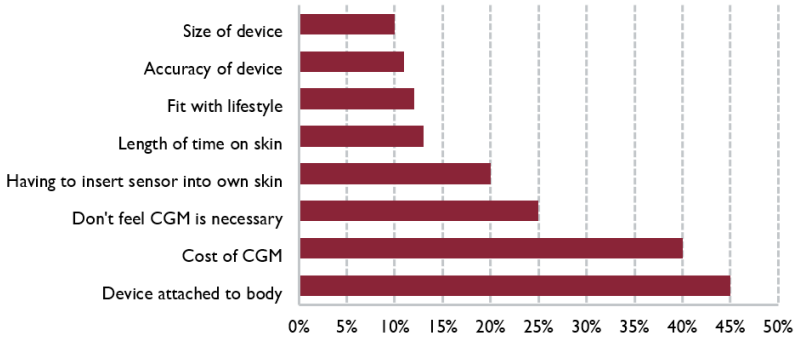
We note different estimates for current CGM penetration in the diabetes population. Senseonics estimates CGM penetration in the US at about 80% for Type 1 patients and 30% for insulin-treated Type 2 patients. However, Dexcom estimates penetration for CGM systems at about 55% among Type 1 patients and 40–45% among Type 2 patients on intensive insulin therapy. For other segments, such as Type 2 basal-only and non-insulin users, penetration is significantly lower, indicating a large untapped market (Source: Dexcom, 2023).

CGM use in Type 2 basal-only insulin users remains low (30–40%), presenting a large untapped market. Penetration in Europe and other high-income countries is slightly lower than in the US, while access in many other parts of the world is overall limited

We believe that CGM penetration rates in Europe and other high-income countries should be slightly lower than in the US, while most patients in other parts of the world can neither afford nor have access to CGM technologies.

Although CGM has gained tremendous traction over the past decade, there are still patients on BGMs that are unwilling to swap to a CGM. According to market segmentation research presented by Senseonics, the top three reasons for these patients not to swap are that the device is attached to the body, the cost of CGM, and that they do not feel that CGM is necessary.

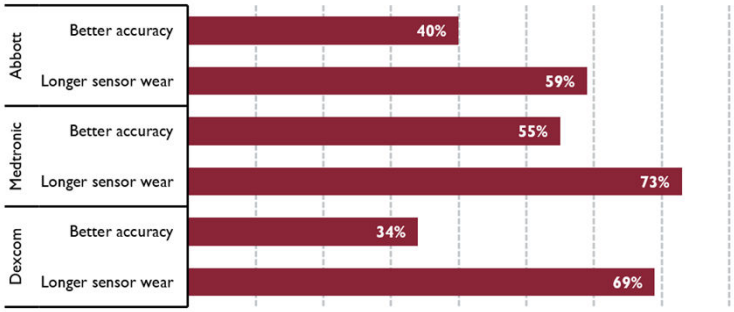
Reasons for BGM users not to swap to CGM



Source: Senseonics Investor Presentation, Carnegie Research

According to a patient survey conducted by dQ&A in 2022, the most desired improvements for current CGM devices would be longer sensor wear and better accuracy. Senseonics also cites market research that has shown an uptick in interest in not having to calibrate the device on a daily basis.

Most desired CGM improvements



Source: Senseonics Investor Presentation, Carnegie Research

The adoption journey of contraceptive implants – a US example

We believe the adoption of implantable CGMs may follow a path similar to that of contraceptive implants, which faced initial hesitance due to their invasive nature but gradually gained acceptance through demonstrated efficacy, patient education, and insurance coverage

When looking at potential for implantable CGMs, a rather new technology, we choose to look at a technology that has undergone a similar adoption journey – implantable contraceptives. Contraceptive implants still face hesitance due to their invasive nature, but are gradually gaining acceptance as their long-term efficacy and convenience are demonstrated. Below, we illustrate an example of the adoption journey of contraceptive implants in the US to highlight difference and potential similarities to the path we see ahead of the CGM devices.

Both implantable CGM in the form of Eversense's market entry and contraceptive implants have undergone rigorous clinical testing to ensure their safety and efficacy, and both required extensive patient education to overcome initial resistance and misconceptions. However, implantable CGMs involve a much more complex technology, with real-time data transmission and software applications, compared to the relatively simpler hormonal release mechanism of contraceptive implants. Nevertheless, we believe the adoption of implantable CGM will follow a similar trajectory, with increasing acceptance driven by patient and HCP education, and by reimbursement coverage. However, much like contraceptive implants, we expect most patients will not opt for an implant, as suggested by the low adoption rates of contraceptive implants at 3–4%.

In 1990 the FDA approved the first contraceptive implant, and the newest generation of implants was introduced to the US market in 2006 – and remains the only contraceptive implant available in the US.

Leading medical groups, including the American College of Obstetricians and Gynecologists and the American Academy of Pediatrics, have recommended the used of implants for most women of reproductive age, including adolescents. However, research still demonstrates persistent misperceptions and lack of awareness about implants. The Survey of Family Planning and Women's Lives (SFPWL) was a nationally representative survey of 1,990 women of reproductive age (ages 18–44) by the Urban Institute in the US in 2016. It found that women of reproductive age (18–44) were most familiar with birth control pills and condoms; only 31% of those women had heard a lot about two more effective methods, intrauterine devices (IUDs) and implants. Less than half of the women in the survey – 37% – viewed implants as very effective. More than one in five women were unsure of the safety of IUDs or implants.

In 2015–17, the most recent years for which there is national data, about 4% of women aged 15–44 currently using contraception used the implant, an increase from 1% in 2011–13. Other sources indicate even lower contraception adoption rates, see table below.

Estimated share of contraception being implants	
Centers for Disease Control and Prevention	3.0%
Guttmacher Institute	3.1%
Kaiser Family Foundation	4.0%
Average	**3.4%**

Source: Above mentioned sources, Carnegie Research

Despite a low share of contraceptives being implants (3–4%), there is a high continuation rate and perceived satisfaction

However, data from 2011–14 shows that among women choosing the implant there is a generally high continuation rate and perceived satisfaction with the method – 83% and 79% respectively (Source: CHOICE project, Obstetrics and Gynaecology).

Another adoption barrier in the US, besides lack of awareness and misperceptions, is the cost. However, the US Affordable Care Act's requirement for coverage of contraceptive services and supplies without cost sharing removed cost barriers for millions of women, and policy changes in some state Medicaid programmes are reducing the cost burden associated with stocking contraceptive implants in clinics. We believe that with elimination of high up-front financial barriers combined with counselling and patient education, the use of contraceptive implants may increase. In our view, a similar adoption journey lies ahead for the implantable CGM.

User experience – Senseonics' implantable CGM device, Eversense

The future success of Sencell is fully contingent on user adoption journey of implantable CGM. There is only one other implantable CGM device available on the market now – Eversense from Senseonics. To assess the adoption success of Eversense contra user experience from conventional CGM, we have looked at various forums for diabetic patients, where they share their user experiences of both implantable and traditional CGM. Recurring themes are calibration and accuracy, surgical procedures due to insertion of the sensor, skin reactions to adhesives, insurance and cost issues, device reliability, and personal preference.

Calibration and accuracy: Frequent mention is made of the need for daily calibrations with Eversense, particularly in the initial days of use. Users report challenges with calibration accuracy, especially at high glucose levels.

Surgical procedures: The Eversense CGM requires a minor surgical procedure for sensor insertion and removal. This involves coordination with specific doctors, which can be inconvenient, especially in areas with limited availability of approved doctors.

Adhesive and skin reactions: Users switch to Eversense due to allergic reactions to adhesives used in other CGMs such as Dexcom and Libre.

Insurance and cost issues: There are recurring issues with insurance coverage, particularly regarding the cost of surgeries for sensor insertion and removal. This can become a significant barrier for users, as some insurance companies may be reluctant to cover these costs.

Device reliability: Users discuss the reliability of the Eversense sensor, noting instances of sensor malfunction and the importance of correct transmitter placement. While some appreciate the accuracy and the lack of adhesive-related problems, others find the system finicky, with issues such as sensors failing shortly after insertion.

Product evolution and anticipation: There is a recurring theme of anticipation for improvements in the Eversense product line, such as the upcoming 365-day sensor.

Source: Healthline, Reddit

Reimbursement traction for CGMs…

In 2023, Medicare expanded CGM coverage, easing documentation requirements and increasing access for more than 6m eligible individuals. This has also positively influenced commercial payer policies, leading many insurers to broaden CGM coverage as well. However, the reimbursement traction is slower for implantable devices, especially among some commercial payers in the US

In March 2023, Medicare decided to expand the coverage for CGM systems, becoming effective from April 2023. This policy change means that more Medicare beneficiaries could access CGM technology. The new criteria allow Medicare coverage for CGM systems for patients using any insulin regimen (not just multiple daily injections) and for those with documented recurrent hypoglycaemic events. The policy also removes some previous documentation burdens, such as frequent adjustments to insulin treatment based on blood glucose monitoring. This simplification can make it easier for healthcare providers to prescribe CGM systems.

According to Dexcom, the expansion of CMS coverage has also positively influenced commercial payer policies. Many commercial insurers often follow CMS guidelines, and the broadening of Medicare coverage for CGM systems has led to similar expansions in commercial insurance coverage. As of December 31, 2023, the eight largest private third-party payors have issued coverage policies for the category of CGM. Dexcom states that their CGM systems have broad reimbursement coverage, with more than 6 million people in the US eligible for CGMs but not yet using them. A broad commercial payer coverage ensures that more patients can access CGM systems through their health insurance plans, reducing out-of-pocket costs and increasing adoption.

… but a bit slower for implantables

Senseonics reports that it is experiencing challenges with reimbursement among some commercial payers in the US. In its annual report for 2023, the company said that some commercial payers have denied coverage for Eversense, labelling it an "experimental and investigational" technology. These payers are waiting for additional clinical evidence, more safety data, and more time in the market before providing coverage. Until consistent reimbursement for the Eversense sensor placement is established, some patients must bear the financial cost themselves. This financial burden can deter patients and healthcare providers from choosing Eversense, limiting its widespread use.

SWOT

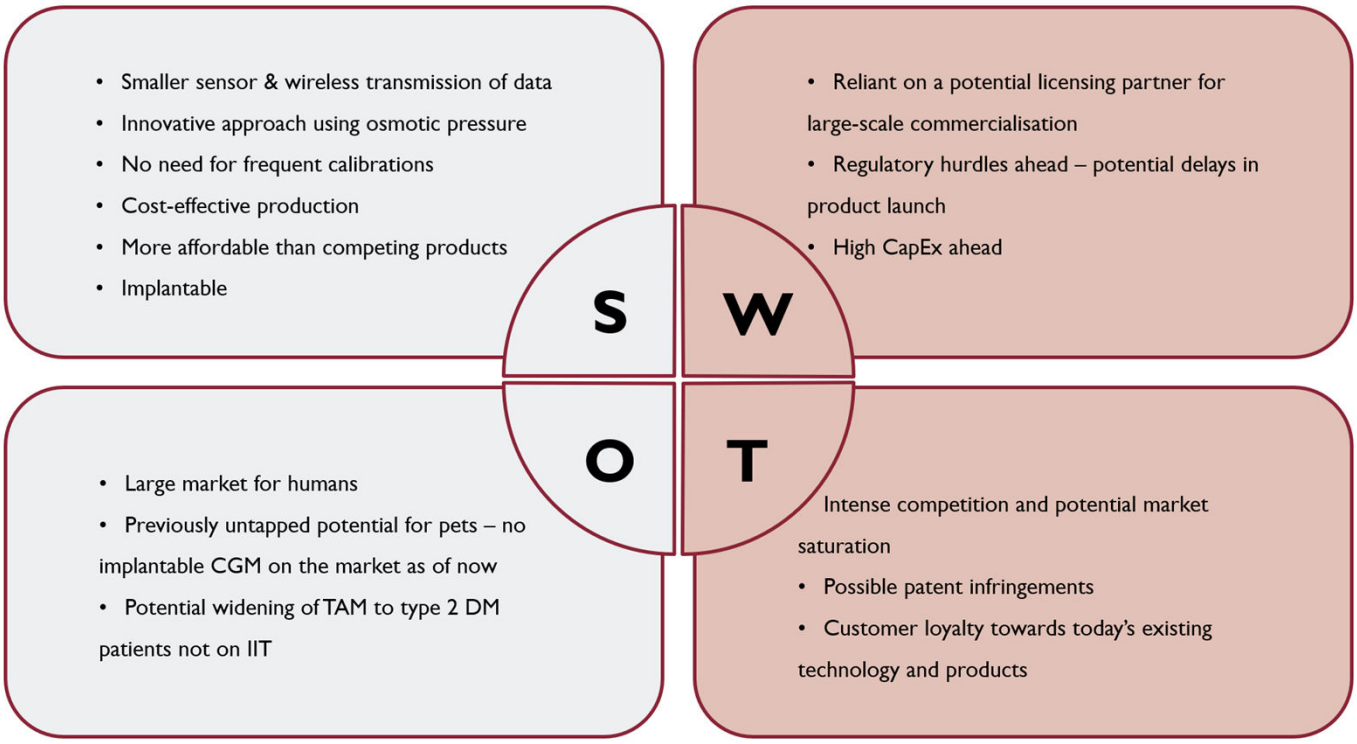
In this SWOT analysis, we examine Lifecare's strategic position. We find major strengths in the Sencell product – a smaller, implantable, and wireless sensor with innovative osmotic pressure technology. The Sencell potentially has superior longevity compared to most CGMs on the market (with the exception of Senseonics' Eversense), no need for frequent calibration and, most importantly, a lower price.

The biggest opportunity we see lies in a large market for CGM and the previously untapped potential in the pet market for CGM since there are currently no available implantable CGM devices for pets. Since CGMs are used mostly in patients with Type 1 diabetes we also see an opportunity to expand the patient base to include patients with Type 2 who are not on insulin intensive therapy (IIT).

Lifecare is a small company active in a market that is highly competitive and, in our view, will need a licensing partner to succeed at a large-scale commercialisation, which we see as a weakness in the case. Another weakness we see is in the regulatory hurdles ahead – we have seen promising clinical data from Lifecare, but a pivotal study has yet to be conducted, which entails risks and potential delays in product launch.

Potential threats include intense competition, potential patent issues, and strong customer loyalty to existing products.

SWOT analysis



Source: Carnegie Research

Intellectual property

Lifecare's core technology is protected by three active patents and one pending patent. The company also relies on know-how and proprietary technology, which are not protectable by patents, to maintain its competitive position. To safeguard this information, Lifecare enters into confidentiality agreements and intellectual property assignment agreements with employees and consultants regarding intellectual property and proprietary technology.

Risks associated with intellectual property include patent infringement lawsuits, challenges to the company's patents, and the possibility of competitors copying or reverse-engineering Lifecare's technology.

Patent families

- Apparatus and methods for measuring augmented osmotic pressure in a reference cavity (granted in 2018 in Europe and 2013 in the US). This patent pertains to a device for monitoring changes in osmotic pressure in response to concentration changes of specific dissolved solute particles. The patent expires in 2030.

- Interstitial fluid osmotic pressuring device system and method (granted in 2011 in Europe). This patent describes a sensor design aimed at improving signal amplitude, increasing the accuracy of subcutaneous glucose assessments, and enhancing sensor longevity and resistance to environmental interferences. It also allows for the measurement of other analytes in addition to glucose. The patent expires 2038.

- Fluid composition, method for preparing the composition and use was granted in 2024 in Europe. This patent covers the modular chemical composition used in Lifecare's miniaturised sensor technology. The active fluid enables glucose monitoring through osmotic pressure, improving sensor lifetime, measurement response symmetry and sensitivity. This technology supports miniaturisation and long-term continuous in vivo monitoring without patient discomfort or reduced quality of life. The patent expires in 2037.

- A new patent for conceptual chemistry composition including modular receptor molecules was filed in May 2024. The patent relates to a new conceptual chemistry composition that includes modular receptor molecules for detecting a wide range of diseases or conditions. This chemistry invention comprises various receptors (cellular, biological, artificial, synthesised, oligonucleotides, inorganic receptor layers etc.) designed to induce changes in osmotic pressure. The purpose of this invention is to identify and/or monitor diseases or conditions associated with acute or chronic disorders, such as cardiovascular disease, metabolic disorders, infections, immune diseases in addition to Lifecare's primary focus on diabetes. This patent application signals Lifecare's expansion beyond glucose monitoring, aiming to become a broader sensor company.

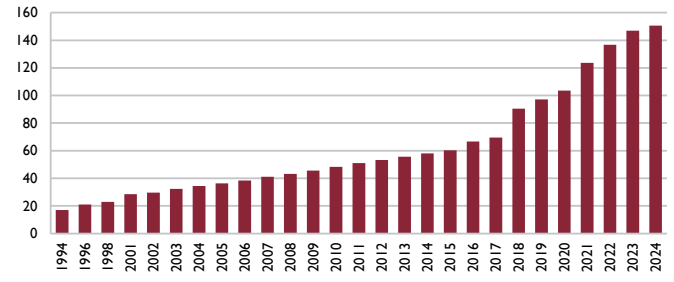
Unlocking potential revenue streams in pet market

In our view, Lifecare's veterinary initiative should play a significant role in further business development. We see this as an important add-on and potential upside in our valuation since income from the veterinary initiative will contribute to future revenue streams. A key strength is that the Sencell product for pets can reach the market much sooner than Sencell for humans, potentially in 2024, according to the CEO, due to somewhat less complicated regulatory processes in Europe and the US. Below, we describe the potential we see in the pet market as well as the growth drivers behind it, and the potential addressable market.

The increasing recognition of pets as essential family members has significantly boosted the popularity and demand for pet products, services, and consumables. The American Veterinary Medical Association (AVMA) estimates that about 45% of US households own one or more dogs and about 26% own one cat or more, corresponding to more than 80m dogs and 60m cats in the US alone. The European Pet Food Industry Federation (FEIDAF) estimates the pet population in Europe to amount to 104m dogs and 127m cats. The Covid-19 pandemic significantly boosted growth in the pet population in the US and Europe; many people, spending more time at home due to lockdowns and remote work, sought companionship, leading to a surge in pet adoptions and purchases. Pets are increasingly seen as integral members of households, deeply influencing family dynamics and daily routines.

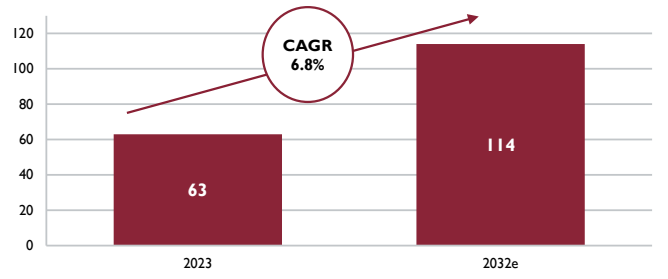
This growing bond has led to a heightened emphasis on pet health and well-being. Total sector expenditure in the US is projected to grow from USD137bn in 2022 to USD144bn in 2023, according to the American Pet Products Association (APPA). The pet healthcare market constitutes a significant portion of total pet sector expenditure, encompassing veterinary services, medications, preventive care, and wellness products. In 2023, the global pet healthcare market size was valued at USD63bn. It is projected to reach USD114bn by the end of 2032, with a CAGR(23–32e) of almost 7% (Source: APPA).

U.S. Pet industry expenditure (USDbn)



Source: Statista

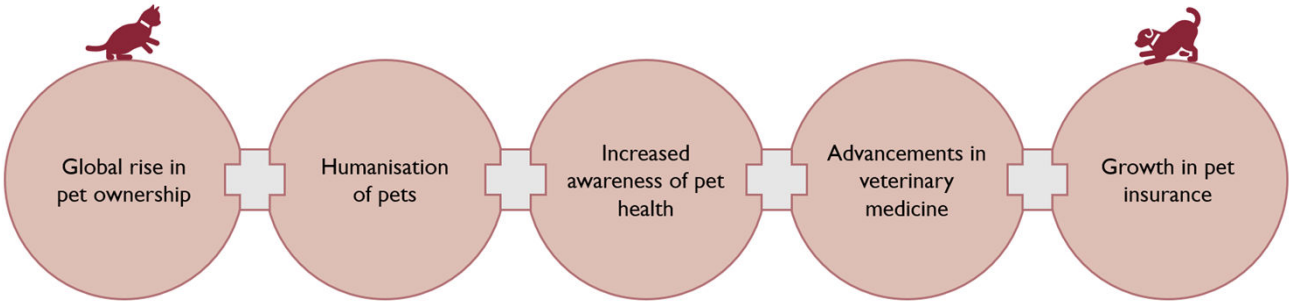
Pet healthcare market



Source: APPA

This segment is driven by several key growth factors. We consider the most important of these to be the growing pet population worldwide, and the premiumisation of services resulting from the continued humanisation of animal companions. With that comes increased awareness of pet health, which further drives advancements in veterinary medicine and contributes to growth in pet insurance. With society increasingly viewing pets as family members, there is a growing demand for premium healthcare products and advanced medical treatments for animals. As advanced treatments and improved veterinary care become more accessible, the lifespan of pets is increasing as well, leading to an ageing pet population. This growing demographic requires more frequent and specialised healthcare services, further driving demand in the pet healthcare market.

Key growth drivers boosting the pet industry



Source: Carnegie Research

Pet insurance

The price of pet insurance is an important factor to consider since it directly affects pet owners' ability to afford advanced medical treatments and preventive care. Higher insurance adoption rates can lead to increased demand for innovative healthcare products, such as Lifecare's CGM sensors, as more pet owners are financially equipped to invest in their pets' health.

Pet insurance levels are now the highest they have ever been, reflecting a growing recognition of the importance of financial protection against veterinary costs. However, adoption rates differ significantly between the US and Europe. We find that coverage data varies widely depending on the source. For example, coverage rates for dogs in the UK range from 11% to 35%, whereas Sweden boasts insurance rates of about 90% for dogs and 50% for cats. In contrast, the US has a penetration rate of around 4% for pets – roughly 1% for cats and 7% for dogs (Source: Statista, NAPHIA, Fidanimo). Over 80% of Americans consider their pets to be family members, but the number of insured pets does not currently reflect this, which in our view indicates that the pet insurance sector is ripe for expansion.

Pet population and insurance ratios in high-income European OECD countries

European high income OECD countrie	Dogs	Cats	Coverage rate: dogs	Coverage rate: cats
Austria	0.8	2		
Belgium	2	2.5		
Czech Republic	2.2	1.1		
Denmark	1	1.7		
Finland	0.8	1		
France	7.6	14.9	15%	15%
Germany	10.6	15.2	30%	23%
Greece	0.7	0.6		
Hungary	2.2	2.4		
Ireland	0.5	0.4		
Italy	8.8	10.2	29%	29%
Netherlands	1.8	3		
Norway	0.5	0.8		
Portugal	2.1	1.5		
Spain	9.3	5.9	10%	10%
Sweden	0.7	1.7		
Switzerland	0.5	1.6		
UK	13.5	12.5	11%	22%
Total	**65.7**	**78.9**		
Average			**19%**	**20%**

Source: FEDIAF, GlobalPETS, ÖHTV Austrian Pet Association, Statista, Insurtech Insights, Euromonitor, Carnegie Research

The latest numbers from NAPHIA indicate Y/Y growth of almost 22% in 2023. Total premium volume for the American pet insurance sector reached almost USD4bn in 2023, while we expect a modest CAGR of about 9% in 2024–29 in Europe. We base these estimates on data from Fidanimo and Forbes articles on the topic of pet insurance. Data on pet insurance coverage in Europe is less comprehensive compared to NAPHIA in North America, as Europe lacks a single unified body like NAPHIA to aggregate and standardise data across the region.

Diabetes in pets

Diabetes is one of the most common health conditions in middle-aged dogs and cats. Managing this chronic disease requires regular monitoring of blood glucose levels and insulin administration. Traditional methods of blood glucose monitoring in pets can be stressful and inconvenient, both for the animal and the owner. So, we see a niche where Lifecare can enter the pet market with its Sencell product, addressing the need for a convenient pet healthcare solution and improve the quality of life for diabetic pets while also easing the burden on their caretakers.

Diabetes in dogs and cats is typically diagnosed at 7–10 years of age, with dogs usually developing Type 1 diabetes and cats developing either Type 1 or Type 2. Treatment requires insulin therapy, dietary management and regular monitoring, but high costs and lifestyle impacts lead some pet owners to opt for euthanasia

According to the AVMA, diabetes in dogs and cats can occur at any age, but most are diagnosed at about 7–10 years of age. The average lifespan for dogs is around 12 years and for cats 15 years (Source: AKC, AVMA), which means that, at the time of diagnosis, the average pet still has a long life to live. Epidemiologic data on diabetes mellitus and survival of dogs and cats with the condition is limited. The few sources report overall diabetes incidence of 3% and a hospital prevalence rate of 0.4–1.2% in dogs and cats *(Source:* Journal of Endocrinology, Veterinary Science). Dogs usually get Type 1 diabetes and Rarely Type 2 diabetes, while cats can get either Type 1 or Type 2 (Source: Journal of Diabetes Science and Technology).

Diabetes in pets requires diagnosis through veterinary evaluation, including blood and urine tests, and treatment plans typically involve insulin therapy, dietary management, and regular monitoring. Medical treatment usually entails insulin therapy for life for dogs, while cats can sometimes have their condition managed through diet and weight control, although some will also require insulin therapy. This requires regular veterinary check-ups to adjust insulin dosages and monitor the pet's overall health. However, the large population of uninsured cats and dogs gives rise to the question whether pet owners are willing to pay for such treatment and follow-up procedures. Current pet diabetes treatment necessitates active daily involvement of the owners and can be costly. Pet owners who receive news about a disease such as diabetes do not always go forward with complicated treatments.

The Big Pet Diabetes Survey published in Veterinary Science included answers from a total of 1,192 veterinarians in the US on the topic of euthanasia. A survey by Veterinary Science revealed that within two years of diagnosis, 20% of the owners opted for euthanasia, of which 50% already decided to euthanise their pet at the time of diagnosis. Perceived most important motivating factors included costs, animal age, pet welfare and owner's lifestyle (Source: Veterinary Science).

We believe Lifecare's product Sencell has the potential to remove the burden of pet owners of diabetic cats and dogs and contribute to the future of novel and more successful diabetes treatment and monitoring protocols – where ideal treatment and monitoring characteristics would be effective, carry a low hypoglycaemia risk and reduce impact on owner lifestyle.

Regulatory pathway in the pet market – US and EU

Less stringent regulatory pathway for medical devices in the pet market than for humans. The FDA's Center for Veterinary Medicine oversees devices in the US, while in the EU national authorities regulate veterinary products. This leads to inconsistent regulation across member states, with some countries having little or no oversight of veterinary medical devices

The regulatory pathway for medical devices in the pet market tends to be less stringent than that for human market. In the US, the FDA's Centre for Veterinary Medicine (CVM) oversees medical devices, while in the EU the EMA is responsible for the evaluation, supervision and safety monitoring of veterinary products along with various national authorities.

Unlike human medical devices, most medical devices for pets do not require a pre-market approval process such as the 510(k) or PMAs. However, the manufacturer is responsible for ensuring that the product is safe, effective and properly labelled. In other words, the regulatory oversight for medical devices in the pet market is less intense and focuses more on post-market actions if issues arise. In the EU, however, veterinary medical devices are not regulated at the EU level. For matters of certification and/or placing veterinary medical devices on the market, companies are advised to address the competent national authorities of the member state concerned (Source: RAPS). In general, we find the regulatory landscape for veterinary products in EU somewhat chaotic – a recent study found that only six out of the EU's 28 member states (Belgium, Croatia, Czech Republic, Germany, Hungary, and Slovakia) were found to have at least a degree of regulation of veterinary devices. As a result, a single product may be regulated as a veterinary medicinal product, a veterinary medical device or not be regulated at all, depending on the particular EU member state in question (Source: Animal Welfare, 2020).

Pet market model

We estimate a TAM for Sencell of 30,000 diabetic cats and dogs in the US and 200,000 in high-income European OECD countries. We assume pet owners with insurance are more likely to pay for veterinary services, including devices such as Sencell

Our model is based on assumptions of prevalence and growth of pet ownership, diabetes prevalence, and insurance rates for both cats and dogs. We see a TAM for Sencell in the pet market of 20,000 diabetic cats and dogs in the US and 200,000 diabetes cats and dogs in high-income European OECD countries, with the latter representing a larger portion of the TAM due to higher insurance uptake for pets in Europe.

Based on available for us data from AVMA, Journal of Veterinary Internal Medicine, NAPHIA, and FEDIAF, we see a total population of dogs and cats of roughly 90 and 60 million respectively in the US. In Europe, we assume a pet population of 67 million dogs and 82 million cats. Furthermore, we assume that 7% of the dogs and 1% of the cats are insured in the US whereas in Europe we assume generally higher rates of insurance coverage – 19% and 20% respectively. Lastly, data from the Journal of Veterinary Internal Medicine suggests that the prevalence of diabetes in dogs is 0.3% and in cats is 0.4%, based on population studies in the US. For Europe, we assume higher prevalence rates of 1.2% in dogs and 2% in cats. Our understanding is that the higher diabetes prevalence in European pets compared to the US may be due to differences in diagnostic practices, pet demographics and lifestyle factors like diet and obesity. Better access to veterinary care and discrepancies in data collection may also contribute to the difference in reported rates. We assume that those paying for insurance for their pet demonstrate a willingness to also pay for veterinary services and would opt in for a product such as Sencell. Our understanding is that Lifecare aims to launch Sencell for pets at YE(24), primarily in the European market. We have assumed the same ASP level for Sencell for pets as we have assumed for the human market.

Total addressable market for pets in the US and high-income European OECD countries

USA	(%)*	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Dogs (millions)		88.1	88.5	89.0	89.5	89.9	90.4	90.8	91.3	91.8	92.3	92.7	93.2	93.7	94.2	94.7	95.1	95.6
Cats (millions)		62.3	62.7	63.0	63.3	63.6	64.0	64.3	64.6	64.9	65.3	65.6	66.0	66.3	66.6	67.0	67.3	67.7
Diabetic dogs (prevalence rate)	0.3%																	
Diabetic cats (prevalence rate)	0.4%																	
Insured dogs (millions)	7.2%	6.3	6.4	6.4	6.4	6.5	6.5	6.5	6.6	6.6	6.6	6.7	6.7	6.7	6.8	6.8	6.8	6.9
Insured cats (millions)	1.4%	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Addressable dog population (millions)		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Addressable cat population (millions)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total addressable pet population (m)		**0.02**	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**

Europe (HI-OECD)*		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Dogs (millions)		66.9	67.6	68.2	68.9	69.6	70.2	70.9	71.6	72.3	73.0	73.7	74.4	75.1	75.8	76.6	77.3	78.0
Cats (millions)		82.1	83.8	85.4	87.1	88.9	90.7	92.5	94.3	96.2	98.1	100.1	102.1	104.1	106.2	108.4	110.5	112.7
Diabetic dogs (prevalence rate)	1.2%																	
Diabetic cats (prevalence rate)	0.4%																	
Insured dogs (millions)	19%	12.7	12.8	13.0	13.1	13.2	13.3	13.5	13.6	13.7	13.9	14.0	14.1	14.3	14.4	14.5	14.7	14.8
Insured cats (millions)	20%	16.4	16.8	17.1	17.4	17.8	18.1	18.5	18.9	19.2	19.6	20.0	20.4	20.8	21.2	21.7	22.1	22.5
Addressable dog population (millions)		0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18
Addressable cat population (millions)		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09
Total addressable pet population (m)		**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**

**Assumed insurance coverage rates and prevalence rates*
***HI-OECD: High-income OECD countries in Europe*
Source: Carnegie Research

Recent research assumed the global pet diabetes care device market to be roughly USD2bn in 2021 and projected it to reach USD 3.5bn by 2031, with a CAGR(22–31) of 8% (Source: Journal of Diabetes Science and Technology). The scarcity of data for the diabetes pet market forces us to rely heavily on these assumptions.

However, various sources conclude that there is substantial potential for growth in the pet diabetes market and pet market overall by increasing pet insurance uptake and therefore exceed the CAGR expectations presented above. Despite the growing awareness of pet insurance in the US, most pets remain uninsured. Pet insurance levels are higher in high-income European OECD countries compared to the US, but there is still considerable room for growth, as many pet owners have yet to embrace the full benefits of insuring their pets. This presents a significant opportunity for growth in the pet diabetes market, as many pet owners are still not taking advantage of the financial security that insurance can offer for their pets' health.

How much is your pet's life worth?

The Vet Record journal analysed 306 anonymous online survey responses from a random sample of pet dog owners across the US. When asked about coverage aspects and willingness to pay for insurance, pet owners assigned significant value to preventive care coverage but also showed a 12% increase in uptake for pet insurance after they learn about treatment costs for common canine diseases. We view this as potential for growth in the pet insurance market if pet owners are informed and learn about treatment costs without insurance.

In addition, Vet Record estimated the participants' maximum willingness to pay for an emergency treatment that prolongs their dog's lifespan for a year, with a good quality of life; about 46% of the survey participants valued a year of their pet dog's life at USD3,000 or more, while 44% valued it at less than or equal to USD1,000.

Source:Vet Record (2021)

Commercial strategy in the human market

Lifecare does not have CE approval and therefore cannot sell Sencell in Europe yet. We estimate that the company could obtain CE approval and launch Sencell by 2026. We assume that a pivotal trial will cost about USD3m–4m to conduct. For the US market, we assume that an additional study in the US may be required for approval. We expect that US approval will be possible no earlier than 2027.

To successfully sell a CGM system, targeting key stakeholders is essential. Diabetes patients can be handled by both primary care providers and endocrinologists, depending on the complexity of the patient's condition and other factors. Given that it would be difficult for Lifecare to set up a sales force to commercialise Sencell on its own, we believe it is likely to pursue a partner strategy.

Senseonics – Ascensia case study

In our view, Senseonics is a relevant case study for Lifecare since it is considerably smaller than the other giants operating in the CGM field. Because of this, it has chosen to pursue a partner approach and entered into a commercial agreement with Ascensia Diabetes Care. Ascensia is a global company that specialises in developing, manufacturing, and marketing blood glucose monitoring systems and other products for people with diabetes. It operates in more than 125 countries.

Eversense was approved by the FDA for 90-day use in 2018. Subsequently, the FDA approved the extended life (180 days) Eversense E3 in 2022, and Ascensia began commercialising the Eversense E3 in the US in Q2(22). Ascensia has been given exclusive rights to distribute the 90-day and 180-day system worldwide.

Under the terms of the agreement, Senseonics handles product development, manufacturing, regulatory approvals, and second-level customer support. Senseonics has a presence in the US with a support team of 100 people. Ascensia takes care of sales, marketing, market access, patient and provider onboarding, and first-level customer support. According to the agreement, Ascensia must meet certain annual revenue and sales and marketing spending targets. Ascensia sells the products directly to strategic partners, who provide Eversense to healthcare providers and patients through a prescribed request and invoice insurance payors for reimbursement.

The agreement is based on a revenue split approach. From an investor deck provided by Senseonics in 2023, we learn that Senseonics likely received 70% of the Eversense revenue in 2023. For 2024 and 2025, the share is likely to go down to 60%. Given the terms of the contract, the Senseonics share of revenue is likely to be 55% for 2026 and beyond. For Senseonics, revenue is recognised when the product is sent to Ascensia, with about a one-quarter lag before it reaches patients.

Senseonics' share of revenue from Eversense

SENS	2023			2024			2025		
SENS Revenue Share %	70.0%	-	75.0%	60.0%	-	65.0%	60.0%	-	65.0%
Senseonics Revenue	$ 20.0	-	$ 24.0	$ 40.0	-	$ 50.0	$ 100.0	-	$ 120.0
Gross Margin	7.5%	-	12.5%	25.0%	-	30.0%	35.0%	-	40.0%
Operating Expenses	$ 75.0	-	$ 85.0	$ 75.0	-	$ 85.0	$ 85.0	-	$ 95.0

Source: Senseonics Investor Deck 2023, Carnegie Research

At the end of 2023, Ascensia/Senseonics disclosed that they had more than 4,000 active patients globally. At the end of 2024, they expect to have more than 6,000 patients globally. And at the end of 2025 with commercialisation of the 365-day product and hospital system initiatives, they aim to have more than 12,000 patients. Ascensia has communicated a goal to reach >USD500m in sales for Eversense in 2027, which would still represent less than 5% of the CGM market.

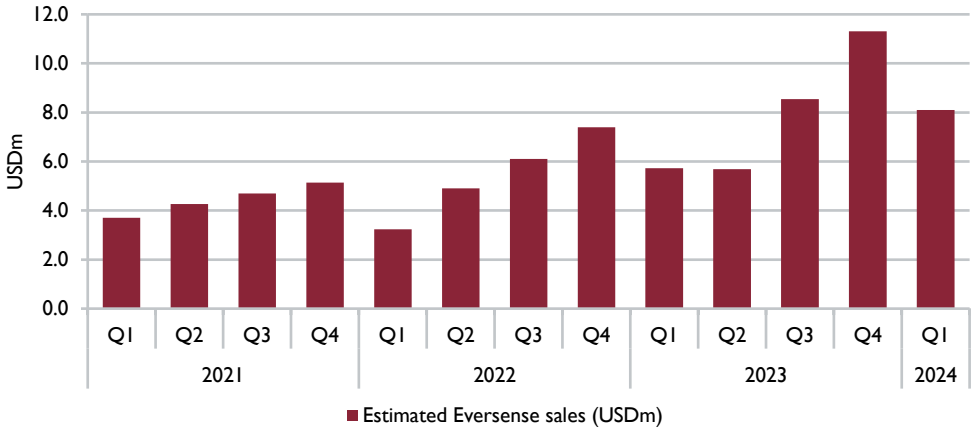
The 365-day longevity sensor, approved by the FDA in September 2024 and planned for launch in Q4(24), will require only weekly calibrations instead of daily. The 365-day sensor is being reclassified as a class II device by the FDA, while the 180-day sensor is currently classified as a class III device. We believe the reclassification may have a positive impact on the market uptake for the product due to a lower barrier for physicians to try the product.

The correlation between device classes and physician uptake lies in the regulatory burden and perceived risk associated with each class. Class III devices are considered high risk and require more rigorous regulatory approval processes (source: FDA), including extensive clinical trials and ongoing monitoring. This can make physicians more hesitant to adopt these products, as they may perceive them as more complex or risky.

Class II devices, on the other hand, are considered moderate risk and have a simpler regulatory pathway. This reduced regulatory burden generally translates to a lower barrier for physicians, as they may feel more comfortable prescribing or trying the device, knowing it has fewer regulatory hurdles and a lower perceived risk. Thus, we believe reclassifying the 365-day sensor from Class III to Class II can lead to higher physician uptake due to the simplified regulatory approval and greater confidence in the device's safety.

It is challenging to estimate the actual Eversense sales since Ascensia is not publicly listed and information is scarce. Based on Senseonics' quarterly reports and information presented above, we estimate that Eversense sales exceeded USD30m in 2023.

Estimated Eversense quarterly sales



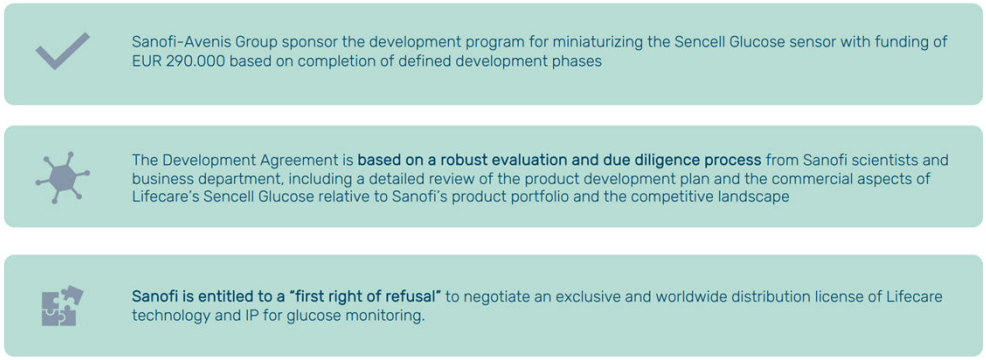
Source: Financial Reports, Carnegie Research

Lifecare development deal with Sanofi

In 2023, Lifecare entered a development agreement with Sanofi, a pharmaceutical giant that has established a strong focus on diabetes care in recent years. Under the terms of this deal, Sanofi will contribute around EUR0.3m, tied to key development milestones, to help speed up Lifecare's work on miniaturising its Sencell sensor. Furthermore, the agreement also gives Sanofi the right of first refusal on Sencell's glucose monitoring technology and intellectual property. This right stays in effect until Lifecare receives CE marking for the Sencell, giving Sanofi the first opportunity to acquire the rights before any other interested parties.

To our knowledge, this development deal is currently the only interest Sanofi has in the diabetes monitoring market. While this is not yet a commercial deal, it still means that Sanofi has Sencell on its radar and, if the upcoming studies show good outcomes, it is possible that Sanofi will choose to acquire the rights for the product.

Lifecare – Sanofi development deal for Sencell



Source: Company presentation

Financials

Sales

When estimating sales for Sencell, we include the US and EU4 (Germany, France, Spain, Italy) + the UK in our model. The US and Europe have many similarities in their regulatory framework, and we believe that clinical data generated in each region can be leveraged for market submissions in both markets. We see Japan and RoW as options for potential upside to our estimates.

In our modelling, we take inspiration from Senseonics and its product Eversense, which shares many similarities with Sencell (a smaller company trying to penetrate a large market with established players). Senseonics is launching Eversense through its commercial partner Ascensia. As Lifecare is a small company with limited financial muscle, we believe it will also pursue a partner strategy when commercialising Sencell. We assume similar terms of agreement, implying that Lifecare will receive a share of the net revenue, which will range from the mid-teens to mid-forties percent based on global net sales. In first year of estimated sales (2027), we assume that Lifecare will receive 75% of global net sales, declining to 50% in 2032.

We expect an S-shaped launch curve for Sencell. We believe sales is likely to start off slow as it will initially be viewed as an experimental technology among physicians and payers. It also typically takes some time for a newly launched product to obtain widespread reimbursement coverage. Just like for Eversense, we expect that Sencell could experience some initial pushback among commercial payers. Until consistent reimbursement for Sencell is established, some patients must bear the financial cost themselves, which will limit market uptake for the product.

We see a more lucrative market for Sencell in the Type 1 diabetes population as compared to Type 2. In general, there is a bigger need for these patients to have access to 24/7 glucose data, they are also typically early adopters of new products, and we believe doctors are more likely to recommend an advanced CGM device to these patients. Based on these factors, we assume a higher market penetration in the Type 1 diabetes population.

For now, we have adopted a conservative approach for Sencell in the pet market. Once we have clearer proof of demand and relevance in this niche, we will feel more confident in revising our estimates.

Diabetes population

When estimating diabetes prevalence in the US and Europe, most of the data is acquired from the International Diabetes Federation (IDF) atlas. In 2021, there were about 32.2m people living with diabetes in the US and 23.7m in the EU4+UK. We assume that 7% of these are Type 1 diabetes patients and 93% are Type 2. The diagnosis rate of diabetes varies according to region; the US typically has a higher diagnosis rate than Europe. We model an 88% diagnosis rate in the US and 64% in Europe. Finally, we assume that all diagnosed Type 1 patients are being treated with insulin, while about 22% of Type 2 patients are taking insulin on a regular basis.

Taken together, these assumptions lead to an estimated addressable patient population of 8.5m in the US and 4.3m in the EU4+UK. Based on the forecasts from IDF, we model annual growth of 0.8% until 2045. Note that we include patients on basal insulin therapy in our sales model even though patients on IIT are the primary target population for CGMs. Given CGMs' proven benefits even in the population receiving basal insulin therapy, we believe that CGMs are likely to gain traction in this segment as well.

Estimated prevalence of diabetes in the US and EU4 + UK (m)

	USA	2021	2022	2023	2024
0.8%	Diabetes prevalence, adults	32.2	32.5	32.7	33.0
7%	Type 1	2.3	2.3	2.3	2.3
93%	Type 2	30.0	30.2	30.4	30.7
88%	Diagnosed Type 1	2.0	2.0	2.0	2.0
88%	Diagnosed Type 2	26.2	26.4	26.6	26.8
24%	Diagnosed Type 2, receiving insulin	6.3	6.4	6.4	6.5
	EU4 + UK				
0.8%	Diabetes prevalence, adults	23.7	23.9	24.1	24.3
7%	Type 1	1.7	1.7	1.7	1.7
93%	Type 2	22.0	22.2	22.4	22.6
64%	Diagnosed Type 1	1.1	1.1	1.1	1.1
64%	Diagnosed Type 2	14.1	14.2	14.3	14.4
22%	Diagnosed Type 2, receiving insulin	3.1	3.1	3.2	3.2

Source: Carnegie Research, IDF

Based on numbers from Dexcom and Senseonics, we assume a current CGM penetration of 70% in the Type 1 diabetes patient population in the US and of 60% in the EU4+UK. We believe this is likely to expand further over the coming years and peak at 90% and 80% in the US and EU4+UK, respectively. For the Type 2 diabetes population on insulin therapy (IT), we assume a current CGM penetration of 25% and 20% in the US and EU4+UK, respectively.

Also, we choose to slice the TAM further, estimating the share of patients that will be willing to have an implantable CGM. Using real-world data from the contraception indication as an analogue, we believe that 10% of CGM users will choose an implantable version at a more mature stage. At current, with Eversense being the only implantable on the market, we estimate the current implantable CGM penetration to <1% of all CGM users, which translates into about 5000 patients. At its peak, we model Sencell winning 33% market share in the implantable CGM niche in the Type 1 diabetes population and 20% market share in Type 2. We believe Eversense will remain market leader in the long term in the implantable niche due to its first-mover advantage.

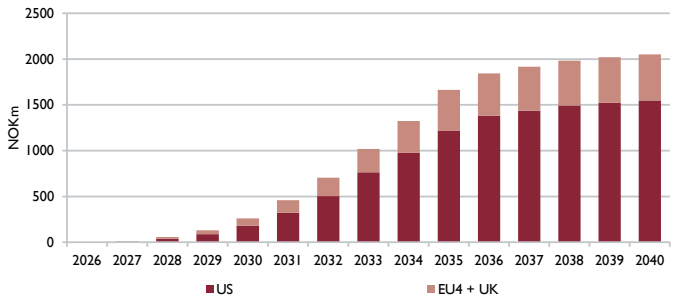
Given a longevity of 26 weeks, two sensors will be sold per patient/year, implying revenue of USD2,000 per patient annually (at an ASP of USD1,000) in the US, and USD1,500 in Europe. Since Sencell is an implantable device, we model a compliance rate of 100%.

To account for risk, we assume a likelihood of 40% that our modelled scenario will play out, which includes adjustments for development, regulatory and commercial risks. We assume an 80% likelihood that Sencell will be approved in Europe and the US, in combination with a 50% likelihood that Lifecare will attract a partner that can enable a successful launch. In practical terms, this means we are risk-adjusting our sales estimates by 40%, as well as the costs we model post-launch. In our view, the commercial risk is by far the most relevant to the Sencell case, due to Lifecare being highly dependent on a strong partner to commercialise the product.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Type 1 diabetes															
US															
Type 1 diabetes patients on insulin (m)	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3
Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
CGM penetration (%)	79%	82%	85%	89%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Patients on CGMs (m)	1.6	1.7	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
Implantable CGM penetration (%)	0.5%	0.9%	1.5%	2.3%	3.5%	4.9%	6.4%	7.7%	9.2%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%
Patients on implantable CGMs	7741	14608	26033	43666	67343	95035	124534	150636	182209	202033	203650	205279	206921	208577	210245
Sencell penetration (%)	0.0%	1.3%	5.6%	8.3%	11.6%	15.5%	19.8%	24.1%	24.8%	27.1%	30.4%	31.4%	32.3%	32.7%	33.0%
Patients treated	0	193	1460	3602	7778	14740	24658	36288	45097	54670	61828	64355	66918	68142	69381
Sensors sold	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
ASP (USD)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
ASP increase			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sales (USDm)	**0**	**0**	**3**	**7**	**16**	**29**	**49**	**73**	**90**	**109**	**124**	**129**	**134**	**136**	**139**
Sales (NOKm)	**0**	**4**	**31**	**77**	**167**	**316**	**529**	**778**	**967**	**1172**	**1326**	**1380**	**1435**	**1461**	**1488**
EU4 + UK															
Type 1 diabetes patients on insulin (m)	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
CGM penetration (%)	67%	70%	73%	76%	79%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Patients on CGMs (m)	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Implantable CGM penetration (%)	0.5%	0.9%	1.5%	2.3%	3.5%	4.9%	6.4%	7.7%	9.2%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%
Patients on implantable CGMs	3571	6738	12007	20140	31670	45283	59339	71776	86821	96267	97037	97813	98596	99385	100180
Sencell penetration (%)	1.0%	5.9%	8.3%	11.6%	15.5%	19.8%	24.1%	24.8%	27.1%	30.4%	31.4%	32.3%	32.7%	33.0%	33.0%
Patients treated	35	400	991	2326	4912	8966	14295	17765	23494	29227	30421	31633	32211	32797	33059
Sensors sold	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
ASP (USD)	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
ASP increase			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sales (USDm)	**0**	**1**	**1**	**3**	**7**	**13**	**21**	**27**	**35**	**44**	**46**	**47**	**48**	**49**	**50**
Sales (NOKm)	**1**	**6**	**16**	**37**	**79**	**144**	**230**	**286**	**378**	**470**	**489**	**509**	**518**	**527**	**532**
Type 2 diabetes IT															
US															
Type 2 diabetes patients on insulin (m)	6.6	6.6	6.7	6.7	6.8	6.9	6.9	7.0	7.0	7.1	7.1	7.2	7.2	7.3	7.4
Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
CGM penetration (%)	30%	32%	33%	35%	38%	40%	42%	45%	47%	50%	50%	50%	50%	50%	50%
Patients on CGMs (m)	2.0	2.1	2.2	2.4	2.6	2.7	2.9	3.1	3.3	3.6	3.6	3.6	3.6	3.7	3.7
Implantable CGM penetration (%)	0.5%	0.9%	1.5%	2.3%	3.5%	4.9%	6.4%	7.7%	9.2%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%
Patients on implantable CGMs	9386	18053	32791	56058	89846	134398	186682	239360	306901	360709	363595	366504	369436	372391	375370
Sencell penetration (%)	0.0%	0.6%	3.6%	5.0%	7.0%	9.4%	12.0%	14.6%	15.0%	16.4%	18.4%	19.0%	19.6%	19.8%	20.0%
Patients treated	0	108	1180	2803	6289	12633	22402	34946	46035	59156	66901	69636	72409	73733	75074
Sensors sold	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
ASP (USD)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
ASP increase			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sales (USDm)	**0**	**0**	**2**	**6**	**13**	**25**	**45**	**70**	**92**	**118**	**134**	**139**	**145**	**147**	**150**
Sales (NOKm)	**0**	**2**	**25**	**60**	**135**	**271**	**480**	**749**	**987**	**1268**	**1434**	**1493**	**1552**	**1581**	**1610**
EU4 + UK															
Type 2 diabetes patients on insulin (m)	3.2	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.6	3.6	3.6
Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
CGM penetration (%)	24%	25%	27%	28%	30%	32%	34%	36%	38%	40%	40%	40%	40%	40%	40%
Patients on CGMs (m)	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.5
Implantable CGM penetration (%)	0.5%	0.9%	1.5%	2.3%	3.5%	4.9%	6.4%	7.7%	9.2%	10.1%	10.1%	10.1%	10.1%	10.1%	10.1%
Patients on implantable CGMs	3683	7084	12867	21998	35256	52739	73256	93927	120430	141545	142678	143819	144970	146129	147298
Sencell penetration (%)	0.6%	3.6%	5.0%	7.0%	9.4%	12.0%	14.6%	15.0%	16.4%	18.4%	19.0%	19.6%	19.8%	20.0%	20.0%
Patients treated	22	255	643	1540	3314	6329	10695	14089	19751	26044	27109	28189	28704	29226	29460
Sensors sold	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
ASP (USD)	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
ASP increase			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sales (USDm)	**0**	**0**	**1**	**2**	**5**	**9**	**16**	**21**	**30**	**39**	**41**	**42**	**43**	**44**	**44**
Sales (NOKm)	**0**	**4**	**10**	**25**	**53**	**102**	**172**	**227**	**318**	**419**	**436**	**453**	**462**	**470**	**474**
Senscell sales (USDm)	**0**	**2**	**8**	**19**	**40**	**78**	**132**	**190**	**247**	**311**	**344**	**358**	**370**	**377**	**383**
US	0	1	5	13	28	55	94	142	182	228	257	268	279	284	289
EU4 + UK	0	1	2	6	12	23	37	48	65	83	86	90	91	93	94
Senscell sales (NOKm)	**1**	**17**	**83**	**199**	**434**	**833**	**1411**	**2039**	**2649**	**3329**	**3685**	**3835**	**3967**	**4039**	**4102**
US	0	6	57	137	302	587	1009	1527	1954	2440	2760	2873	2987	3042	3097
EU4 + UK	1	11	26	62	132	246	402	512	695	889	925	962	980	997	1005
Lifecare sales (NOKm)	**1**	**13**	**58**	**130**	**260**	**458**	**705**	**1020**	**1325**	**1665**	**1843**	**1917**	**1983**	**2020**	**2051**
US	0	5	40	89	181	323	504	764	977	1220	1380	1436	1494	1521	1549
EU4 + UK	1	8	18	40	79	135	201	256	348	444	463	481	490	499	503
Share of revenue (%)	75%	75%	70%	65%	60%	55%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Risk-adjusted Lifecare sales (NOKm)	**0**	**5**	**23**	**52**	**104**	**183**	**282**	**408**	**530**	**666**	**737**	**767**	**793**	**808**	**820**
US	0	2	16	36	72	129	202	305	391	488	552	575	597	608	619
EU4 + UK	0	3	7	16	32	54	80	102	139	178	185	192	196	199	201

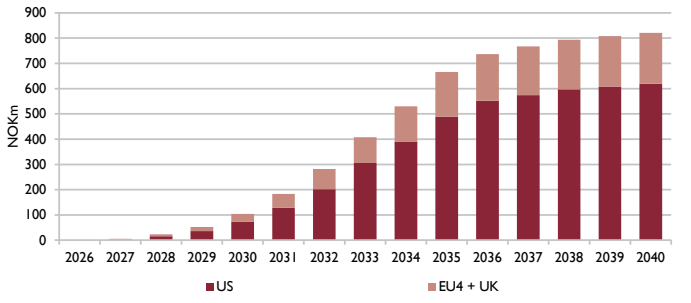
Source: Carnegie Research

Sales estimates, human market



Source: Carnegie Research

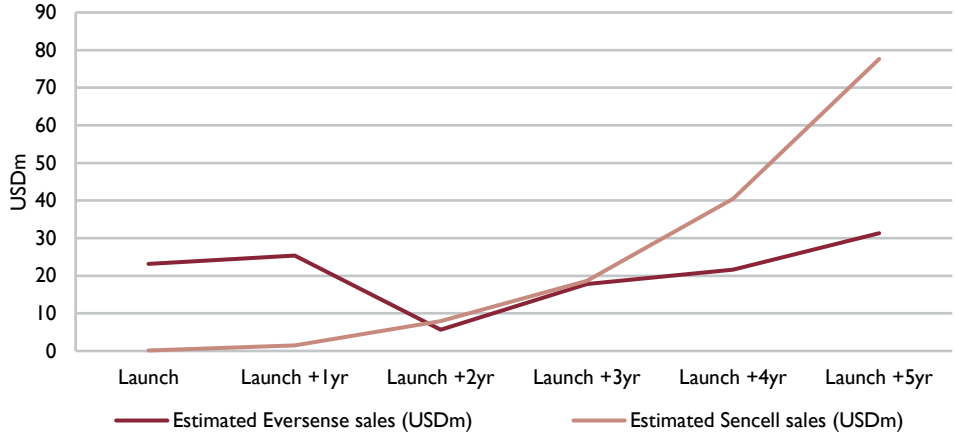
Sales estimates, human market (risk adjusted)



Source: Carnegie Research

Below, we present a graph comparing our estimated launch curve of Sencell with the actual launch curve of Eversense. In our view, there are factors that speak in favour of a faster market uptake curve for Sencell compared to Eversense. For example, at the time of launch, Eversense had shorter longevity and more frequent need for calibration, which limited its competitive advantage against already established systems. Sencell is planned to be launched with improved longevity compared to the first-generation Eversense and without the need for calibrations. Furthermore, in 2020, Senseonics decided to suspend new sales of Eversense in the wake of the corona pandemic as all planned procedures were suspended due to widespread healthcare restrictions and prioritisation of critical medical resources. This obviously caused a major disruption in the product's launch curve and the trajectory may have looked completely different without this event. Also, Senseonics has experienced some reimbursement pushback among commercial payers for Eversense since launch, which has limited the market uptake for the product. However, our understanding is that the situation is gradually improving. Our understanding is that these factors, among others, may have contributed to the stock depreciation over the last three years – down by around 90%.

Launch curve Eversense vs Sencell - estimates

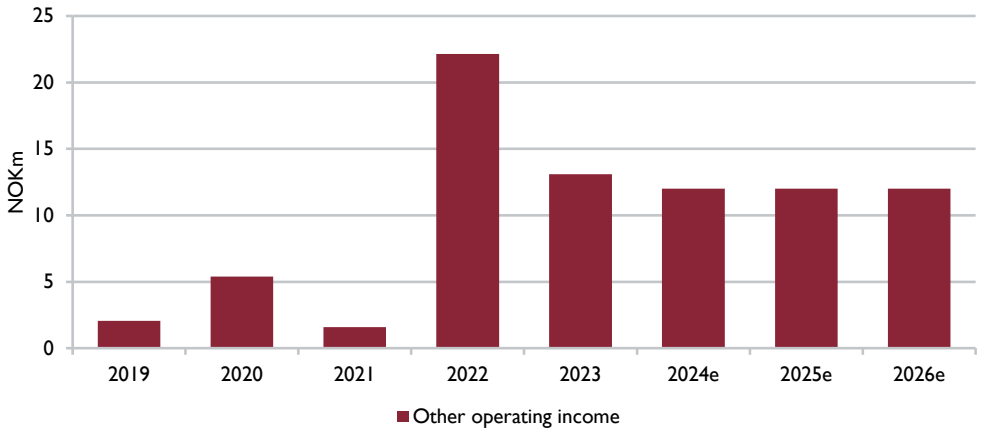


Source: Financial Reports, Carnegie Research

Other operating income

Although Sencell has not yet been launched, Lifecare does already have some operating income in the form of revenue from laboratory services and public grants. In 2022, this income was boosted considerably, from NOK1.6m in 2021 to NOK22.1m. This growth was largely due to the company's laboratory in Mainz securing accreditation as a Covid-19 testing centre. As a result, Lifecare was able to participate in government-funded testing in Germany, although the activity tapered off throughout 2022. However, our understanding is that the laboratory is still generating some income through its external laboratory services. We model this business contributing SEK12m annually going forward.

Other operating income



Source: Carnegie Research

Cost of goods sold

Since Sencell is not yet commercialised, we have no historical gross margins as a reference in our modelling. The production method may be somewhat time consuming, but our understanding is that the components are very affordable. Lifecare estimates that it will cost below double-digit euros to produce one sensor. Given an ASP of USD1,000 per sensor, we believe that the company could reach strong margins. However, we assume that USD1,000 per sensor will be the list price set by Lifecare's future partner. We assume that Lifecare will have gross margins of 60% at a more mature stage.

Operating expenses

R&D

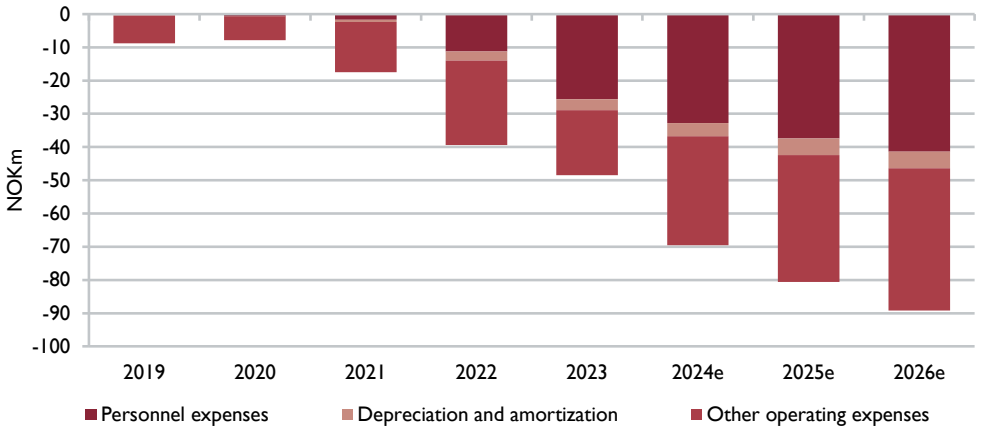
Lifecare's spending on research and development has mainly been on clinical trials with Sencell. Due to the company's reporting structure, we cannot separate the actual R&D expenses from other operating expenses (opex). A large increase in opex in Q2(24) was related to a ramp-up of R&D activities and pilot production of the sensor, according to the company. Opex in RemovAid also started being recognised from May.

We believe that future R&D spending will primarily be related to clinical trials. The LFC-SEN-002 trial is ongoing, and the company aims to initiate LFC-SEN-003 in early 2025. Future discussions with regulatory agencies will determine how many patients will be required for a pivotal study with Sencell. The company currently assumes about 200–350 patients for such a trial. Our estimate is that a trial of this size would cost about USD3m–4m to conduct. For reference, Senseonics included about 270 patients in its clinical data package when it submitted a PMA for the 180-day version of Eversense, and only 125 patients for its 90-day version.

SG&A

Currently, Lifecare's cost base is dominated by personnel expenses. The company has 32 FTEs. We believe that SG&A expenses will continue to increase over time, driven by personnel expenses.

Costs and expenses



Source: Carnegie Research

Net financials

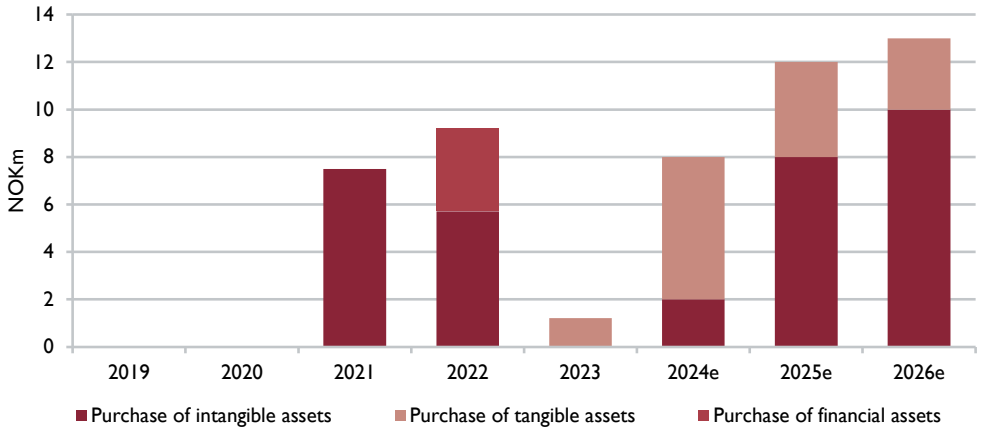
Lifecare has no interest-bearing long-term debt on its balance sheet, and consequently interest payments are negligible.

Cash flow and balance sheet

Investments/capex

Historically, Lifecare's investments have been related to both intangible and tangible assets. It has acquired companies such as Cantimed UG, Pfützner Science & Health Institute GmbH, and RemovAid to advance the development of Sencell. Total capex has averaged about NOK6m annually over the past three years. The company is also investing in the automated production line for Sencell.

Capex

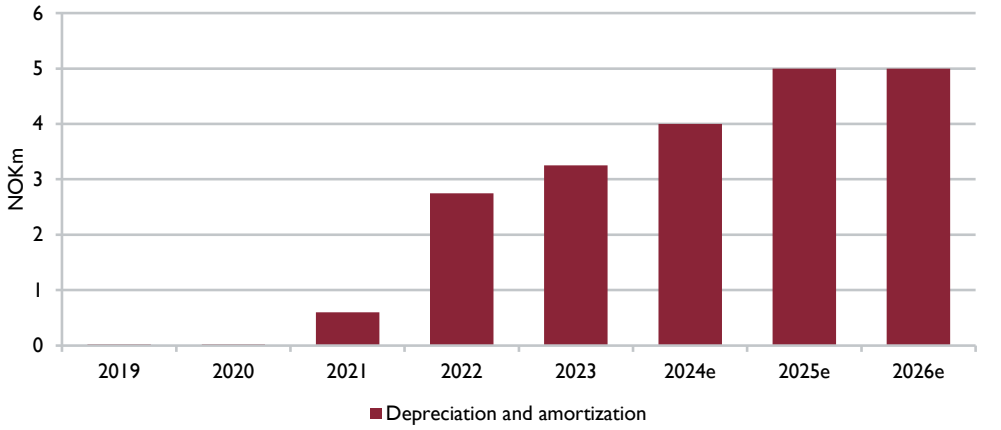


Source: Carnegie Research, Company data

Depreciation/amortisation

Lifecare's non-current assets consist of tangible and intangible assets. Both tangible and intangible assets are typically amortised over 5–10 years. Total depreciation and amortisation has averaged about NOK2m annually over the past three years.

Depreciation and amortization



Source: Carnegie Research, Company Reports

Working capital

Since Lifecare has not yet launched any products, it does not bind much working capital. As it is likely to seek a partner for launching Sencell and not have to carry the responsibility of sales and distribution, we believe that the business can be run in an asset-light manner even in a commercial stage. We assume a future partner will hold and manage most of the inventory to support demand for the product, while Lifecare will be responsible for manufacturing.

Financing

At the end of June 2024, Lifecare had roughly NOK101m in cash. We believe that further capital injections will be required before the company can turn cash flow positive. In our model, we have assumed that current cash can fund operations until mid- to late-2025. We have modelled Lifecare receiving NOK100m from the warrant programme in 2025. However, due to the uncertainly on how many shares need to be issued and at what price, we choose to instead add a funding discount of 10% on our DCF value.

Major financing rounds

Year	Transaction type	Subscription price (NOK)	Shares (m)	Gross proceeds (NOKm)
2024	Rights issue	1.5	59	90
2023	Private placement	2.5	17	42.5
2022	Private placement	2.5	18	45
2021	Private placement	1.7	15	26

Source: Carnegie Research, Company data

Warrant programmes

In June 2024, Lifecare successfully completed a partially underwritten rights issue of 59,038,955 new shares. As part of the deal, subscribers received one warrant for every two new shares they purchased, resulting in the issuance of 29,519,478 warrants. Additionally, Munkekullen 5 Förvaltning AB and Buntel AB, which had underwritten NOK50m of the rights issue, were compensated with 25,000,000 warrants on the same terms as those issued in the rights offering. In total, 54,519,478 warrants were distributed to both subscribers and underwriters.

These warrants can be exercised between 2 June and 13 June 2025, and are listed and tradable on Euronext Growth Oslo under the ticker LIFE TR. If all the warrants are exercised, Lifecare anticipates raising up to about NOK108m, based on a maximum exercise price of NOK1.98174. However, if some warrants are not exercised, the gross proceeds will decrease proportionally.

Each warrant allows the holder to purchase one new share in Lifecare at a price equal to the volume-weighted average price of the company's shares on Euronext Growth Oslo during the last three trading days before the first exercise date, minus 30%. The exercise price will not be lower than the share's par value of NOK1.98, nor will it exceed the rights issue subscription price plus 30%, which amounts to NOK25.76262.

In connection with the planned uplisting of the company's shares from Euronext Growth Oslo to Oslo Børs (alternatively Euronext Expand), it was necessary to carry out a share consolidation in order to ensure that the company fulfils the requirement for a minimum market value of NOK10 per share at the time of listing. The company's shares were consolidated (reverse split) in the ratio of 13:1. This was carried out on 1 October 2024.

Stock option programmes

Lifecare has established a share option programme aimed at aligning the company's long-term performance with the interests of its shareholders, while also helping to attract and retain senior management. This programme grants participants the right to buy shares from the company at an exercise price specified in their individual option agreements. This exercise price is set based on the market value of the shares at the time the options are granted. As of 30 June 2024, there were 4,969,173 options outstanding. The strike price for all these options was set at NOK19.81746.

Generally, these options have a five-year expiration period from the date they are granted and vest in equal portions over three years. The value of the options is calculated using the Black-Scholes pricing model, which factors in the share price at the time of grant, the time until execution, the exercise price, the risk-free interest rate, and market volatility.

Valuation

Our fair value range is based solely on a DCF valuation. Conducting a peer valuation on Lifecare is challenging due to the lack of sales and positive EBIT, which makes valuation multiples irrelevant. Using the DCF valuation (including a funding discount of 10%) as a starting point, we take into account the potential for a better/worse performance and uncertainty surrounding terms and amounts of any potential future funding needs, and we arrive at a fair value range of NOK23–35.

In our DCF model, we estimate sales reaching NOK1.9bn in 2036e (NOK800m on risk-adjusted numbers). After this, we model a decline in sales growth due to potential competitors gaining traction in the market. The terminal year in our forecast period is 2043e, after which we model a perpetual growth rate of 2%. We expect Lifecare to reach positive FCF in 2030e and thereafter continue to deliver growth under profitability. We assume a terminal EBITDA margin of 25%. We discount future cash flows using a WACC of 12%.

				Average year				Terminal
DCF assumptions - Summary	**2024e**	**2025e**	**2026e**	**4-5**	**6-10**	**11-15**	**16-20**	**period**
Total sales growth	7021.1%	843.8%	111.8%	127.8%	48.4%	12.2%	5.6%	2.0%
EBITDA margin	neg.	neg.	neg.	-103.1%	10.1%	24.2%	25.0%	25.0%
Depreciation % of sales	nm.	nm.	nm.	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%
EBITA margin	neg.	neg.	neg.	-104.1%	9.1%	23.2%	24.0%	24.0%
Amortisations % of sales	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EBIT margin	neg.	neg.	neg.	-104.1%	9.1%	23.2%	24.0%	24.0%
Capex % of sales	nm.	nm.	nm.	-9.5%	-6.0%	-1.6%	-1.0%	-1.0%
Paid tax rate	0.0%	0.0%	0.0%	0.0%	-4.4%	-22.0%	-22.0%	-22.0%
NWC to sales	nm.	nm.	nm.	62.5%	18.4%	15.0%	15.0%	15.0%
Sales	1	7	14	54	300	788	1,108	1,232
EBITDA	**-53**	**-60**	**-66**	**-44**	**46**	**192**	**277**	**308**
Capex	-11	-4	-3	-5	-16	-12	-11	-12
Taxes	0	0	0	0	-5	-40	-58	65
Other	3	2	1	-19	-8	-12	-9	1,881
Free cash flow	**-61**	**-62**	**-68**	**-68**	**17**	**127**	**199**	**2,242**
Discounted FCF	-57	-52	-52	-44	5	30	27	246
Share of total discounted FCF	-18%	-17%	-17%	-28%	9%	48%	44%	79%

Valuation	**(curr.)m**	**Per share**
EV (discounted FCF)	311	20.7
- Net debt (2023)	44	2.9
+ Associates	0	0.0
- Minority interest	0	0.0
- Outstanding warrants	0	0.0
Other debt adjustments	83	5.5
ESG penalty	0	0.0
Equity value at YE (23)	**437**	**29.1**
Time adjustment	39	2.6
Dividend	0	0.0
Current equity value	**476**	**31.7**

WACC assumptions	
Risk free interest rate	4.0%
Debt risk premium	0.5%
Equity risk premium	4.0%
Equity beta	2.00
Cost of Equity	**12.0%**
Tax rate	22.0%
After tax cost of debt	3.5%
Equity weight	100%
WACC	**12.0%**

Source: Carnegie Research

As can be seen in the tables below, the implied value per share derived from the DCF is sensitive to the WACC, the terminal growth rate and terminal EBITDA margin applied.

		WACC						
		10.5%	**11.0%**	**11.5%**	**12.0%**	**12.5%**	**13.0%**	**13.5%**
Terminal growth (%)	**3.5%**	51.1	44.8	39.4	34.7	30.7	27.1	24.1
	3.0%	49.0	43.1	38.0	33.6	29.7	26.4	23.5
	2.5%	47.2	41.6	36.8	32.6	28.9	25.7	22.9
	2.0%	45.5	40.3	35.7	31.7	28.2	25.1	22.4
	1.5%	44.1	39.1	34.7	30.9	27.5	24.5	21.9
	1.0%	42.8	38.0	33.8	30.1	26.9	24.0	21.5
	0.5%	41.6	37.0	33.0	29.5	26.3	23.5	21.1

Source: Carnegie Research

		WACC						
		10.5%	**11.0%**	**11.5%**	**12.0%**	**12.5%**	**13.0%**	**13.5%**
Terminal EBITDA (%	**40.0%**	64.5	56.8	50.1	44.3	39.2	34.8	30.9
	35.0%	58.2	51.3	45.3	40.1	35.6	31.6	28.1
	30.0%	51.9	45.8	40.5	35.9	31.9	28.3	25.2
	25.0%	45.5	40.3	35.7	31.7	28.2	25.1	22.4
	20.0%	39.2	34.7	30.9	27.5	24.5	21.9	19.5
	15.0%	32.8	29.2	26.1	23.3	20.8	18.6	16.7
	10.0%	26.5	23.7	21.3	19.1	17.1	15.4	13.8

Source: Carnegie Research

Valuation of peer companies

As Lifecare is still in a relatively early stage of development and commercialisation, with Sencell not yet on the market, we do not consider the recognised key performance indicators as particularly relevant in a relative valuation. We use EV/S to illustrate and evaluate Lifecare versus a broader group of global medtech companies in an early stage of development and commercialisation.

All the selected companies are either in a pre-commercialisation or early commercialisation stage, with some only starting to report revenues. Lifecare trades at a premium on 2024 levels, which in our opinion may indicate rather high expectations. Lifecare also is the only company below listed in Norway, while the rest are listed in Sweden. In our view, all of the above factors make a peer valuation irrelevant.

A selection of medtech companies in early stages of development and commercialisation

	MCAP (SEKm)	EV (SEKm)	EV / Sales 2024e	2025e	2026e
Promimic	641	611	-	-	-
AcouSort	203	187	23.40x	13.00x	5.83x
Micropos Medical	311	293	-	-	-
Episurf Medical	112	29	2.05x	1.03x	0.48x
Iconovo	106	91	1.76x	1.19x	0.72x
Q-linea	344	380	25.31x	5.58x	3.16x
Acarix	321	273	14.59x	2.78x	1.63x
Lifecare	**322**	**233**	**15.19x**	**6.38x**	**2.02x**
Mean		**266**	**13.42x**	**4.72x**	**2.37x**
Median		**273**	**14.59x**	**2.78x**	**1.63x**

Source: FactSet (on 22 of September 2024)

Risks

Lifecare, currently in the early stages of product development, faces several substantial risks which we summarise below. We highlight risks concerning both internal and external factors which apply to Lifecare specifically, but also to the medtech industry. Before it can enter the market Lifecare will need to clear regulatory hurdles and conduct more studies. Its main post-approval challenges include finding suitable commercial partners, establishing a strong direct sales team, and gaining traction in a direct-to-consumer (DTC) setting. The presence of strong competitors in the CGM market with substantial market share adds to these challenges.

Competition and commercialisation risks

Commercialisation risks for Lifecare in the CGM market include competing with established companies such as Abbott, Dexcom, Medtronics and newcomers such as Senseonics, which already has a proven presence and customer base. Senseonics' product – an implantable CGM – benefits from a first-mover advantage, having gained early adoption among diabetes patients. In our view, this presents a major risk as Lifecare must overcome the already entrenched position of its competitors. It will require significant investment in marketing and distribution to establish its foothold in the competitive landscape. However, a licensing partnership with an experienced major actor may partly or wholly mitigate these risks.

Leadership risks

Lifecare faces some managerial risks when it comes to operation, given its modest management team of just two members and the geographical division of its business operations between Norway, the UK and Germany. Management risks include the potential for overburdening the small team, maintaining effective communication and coordination across different locations, and the need for comprehensive strategic oversight. However, Lifecare benefits from the international expertise of its Board of Directors, which brings significant experience in diabetes technology and legal matters. Additionally, the company's Scientific Advisory Board is composed of highly reputable experts in diabetes technology, clinical medicine and endocrinology, physics, and nanotechnology, which provides strong scientific and technical guidance.

Macroeconomic risks

Lifecare, as a global business, is exposed to numerous local and global economic risks. Weak economic performance in various regions may lead to reduced allocations of national budgets to the healthcare sector. To mitigate these country-specific risks, Lifecare aims to diversify its geographical exposure. Another macroeconomic concern is the current inflationary environment, which has triggered interest rate hikes worldwide. This poses a risk for Lifecare, as it may not always be able to adjust its prices to customers to offset higher cost structures.

Regulatory risks

As a global business, Lifecare is also exposed to numerous local regulatory risks. Relevant legislation includes regulations in the healthcare segment, trade barriers, competition laws, and requirements for medtech products and techniques. If regulatory authorities adjust their demands, it may lead to substantial delays and additional costs for Lifecare. As detailed in this report, there is significant uncertainty regarding the timing of regulatory approval for Lifecare's Sencell product in both the EU and the US. This is an area where we would prefer a clearer understanding of the regulatory strategy, and it is uncertain how much detailed insight Lifecare has into the process. We believe Lifecare's financial targets are heavily dependent on this launch.

Reimbursement risks

The complexity and variability of reimbursement processes across different regions can delay market entry and revenue generation. In the US, Medicare expanded coverage for CGM systems in 2023, which significantly lowered the reimbursement risk. CMS coverage has also been positively affected by that decision, which in turn has influenced commercial payer policies by creating a precedent for reimbursement. When Medicare, a significant government payer, approves coverage for a specific medical device or technology, it often encourages private insurers to follow suit, as it establishes a level of trust and validation in the product's clinical efficacy and cost-effectiveness. However, in other regions the situation with CGM is decided on a country-by-country basis, which creates some uncertainty on uptake in markets outside the US. Additionally, securing regulatory approval does not guarantee reimbursement, as additional evidence demonstrating cost-effectiveness and clinical benefits may be required, leading to potential delays and increased costs. Frequent changes in reimbursement policies can further impact the profitability of existing products and the feasibility of new developments, as criteria and reimbursement levels may change unpredictably.

Financial risks

Owing to the company's current cash position, it will, in our view, need to take on capital to run its business, unless it signs a licensing deal. There are no guarantees that it can raise the necessary capital at favourable terms, or that it can raise any such capital at all. Should it not manage to raise this capital, we see a risk to its continued operation. We believe the risk associated with its financial position is low in the short term, due to the recent rights issue, but elevated in the long run.

Sustainability

Lifecare is a smaller medtech company and has yet to use specific reporting standards or guidelines for corporate social responsibility (CSR), sustainability and ethical guidelines. Lifecare's strategy and operations are generally focused on human welfare through its vision of "Changing lives through medical technology".

Lifecare focuses on development of sensor technology for continuous monitoring of glucose and other body analytes. This vision and focus may directly contribute to one of the UN's 17 sustainable development goals, #3: Good health and well-being.

All international medical development is strictly regulated regarding animal welfare and with a high focus on safety and well-being for patients participating in clinical trials. Lifecare has internal routines to secure that the group and service providers comply with all relevant standards. The group's operations are of such character that they do not significantly affect the environment beyond the normal course of business for a small medtech company. Travelling, and the need for shipment of devices and materials, are identified as the activities with the greatest environmental impact. Group meetings and external meetings are evaluated for use of virtual meeting tools when appropriate, to limit travel to what is considered necessary from an operational perspective.

Lifecare is positioned to benefit from the growing demand for healthcare solutions that are both effective and environmentally responsible. Lifecare's products, which enhance patient safety and reduce medical waste, provide a competitive advantage relative to peers. For example, its self-destructing syringe technology aligns with environmental regulations by ensuring safe disposal, minimising the environmental impact of medical waste. Additionally, Lifecare's technology caters to the increasing consumer and regulatory emphasis on sustainability in healthcare, making its offerings more attractive to environmentally conscious customers and healthcare providers.

Sustainability related risks

As we see it, the main sustainability risks for Lifecare are environmental. Once the production plant is set up the company will have to set routines in place for properly getting rid of harmful waste, controlling pollution, or managing other things that could harm the environment while making the products.

The company has not been involved in any significant sustainability-related incidents to date.

Appendix – Management

Joacim Holter, Chief Executive Officer

Joacim Holter has 16 years of management experience, including six years leading international R&D and product development in Switzerland. He has held various board positions, serving as chairman and member of Lifecare's Board of Directors from 2011 to 2020. Holter holds an LL.M from the University of Bergen, Norway.

Prof. Dr. med. Dr. rer. nat. Andreas Pfützner, Chief Scientific Officer

Andreas Pfützner is Lifecare's Chief Scientific Officer (CSO) and the Managing Director of Pfützner Science & Health Institute GmbH, Diabetes Center & Practice, in Mainz, Germany, since 2013. He is also a professor of internal medicine and laboratory medicine at DTMD University Luxembourg. With over 30 years of experience in pharmaceutical and device development in diabetes technology, Pfützner brings a wealth of knowledge and expertise to his roles in both academia and industry.

Renete Kaarvik, Chief Financial Officer

Renete Kaarvik joined Lifecare in 2024 from her position as Global Finance Officer at Grieg Seafood ASA, a position she held for close to six years. Kaarvik graduated in 2004 from Macquarie University, Sydney, Australia, with a Master of Applied Finance. She also holds a Master of Science in Business from Bodø Graduate School of Business. In addition to her experience from Grieg Seafood ASA, Kaarvik has held Group Controller, Compliance Officer and Finance Manager positions with Mowi ASA and Marine Farms ASA, as well as Manager and Senior Associate positions with Ernst & Young and PricewaterhouseCoopers in Transaction and Business Advisory Services and Auditing.

Appendix – Board of Directors

Morten Foros Krohnstad, Chairman of the Board

Morten Foros Krohnstad is the Chairman of the Board at Lifecare ASA. He is a partner at the law firm Schjødt, with extensive experience as a business lawyer. Krohnstad serves on several boards of Norwegian listed and unlisted companies, bringing substantial legal and business expertise to his role at Lifecare.

Trine Teigland, Board member

Trine Teigland is a board member at Lifecare ASA. She holds an MBA from the University of St. Gallen (HSG) and has managed the sales and marketing activities of the Swiss company Osmotex. Additionally, she has experience working in Singapore for a leading provider of integrated shipping services. Teigland holds a BA in International Business with Chinese.

Prof Dr Lutz Heinemann, Board member

Prof Dr Lutz Heinemann is a board member at Lifecare ASA. He has a broad academic background with a focus on insulin pharmacology and diabetes technology research and development. He established the Profil Institute for Metabolic Research in Neuss, Germany, in 2009 and has been the Managing Editor of The Journal of Diabetes Science and Technology since 2011.

Tone Kvåle, Board member

Tone Kvåle is CFO of Herantis Pharma Plc. in Finland. She has more than 25 years of experience from the biotech, medtech and life sciences industry. She held CFO roles at Nordic Nanovector ASA, NorDiag ASA, Kavli Holding AS, Dynal Biotech, as well as senior management positions at Invitrogen/Life Technologies, in the US, now part of Thermo Fisher. She is member of the board and audit committee president of MedinCell in France and has been board member and chair of the audit committee of Bonesupport AB, Sweden. Tone has a diploma in finance and administration from UiT, the Arctic University of Norway, Harstad. She has completed the prescribed course of study and the examination for Advanced Programme in Corporate Finance at the Norwegian School of Economics, NHH.

Hans Johan Hekland, Board member

Hans Johan Hekland is a board member at Lifecare ASA. He holds a master's degree in economics from the Norwegian School of Management (NHH). Since 2001, he has worked as Managing Partner at Sarsia Venture Management. Hekland brings broad expertise in fund management, strategy, business development, and finance. He also has extensive experience from board positions and involvement in medical development companies, as well as other listed and unlisted companies.

Financial statements

Profit & loss (NOKm)	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
Sales	0	0	0	0	0	0	0	1	7	14
COGS	0	0	0	0	0	0	0	0	-3	-6
Gross profit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**9**
Other income & costs	0	0	-7	-2	-16	-15	-32	-54	-64	-75
Share in ass. operations and JV	0	0	0	0	0	0	0	0	0	0
EBITDA	**0**	**0**	**-7**	**-2**	**-16**	**-15**	**-32**	**-53**	**-60**	**-66**
Depreciation PPE	0	0	0	0	0	-2	-2	-2	-2	-2
Depreciation lease assets	0	0	0	0	0	0	0	0	0	0
Amortisation development costs	0	0	0	0	0	0	0	0	0	0
Amortisation other intangibles	0	0	0	0	0	-1	-1	-2	-3	-3
Impairments / writedowns	0	0	0	0	0	0	0	0	0	0
EBITA	**0**	**0**	**-7**	**-2**	**-16**	**-17**	**-35**	**-57**	**-65**	**-71**
Amortization acquisition related	0	0	0	0	0	0	0	0	0	0
Impairment acquisition related	0	0	0	0	0	0	0	0	0	0
EBIT	**0**	**0**	**-7**	**-2**	**-16**	**-17**	**-35**	**-57**	**-65**	**-71**
Share in ass. operations and JV	0	0	0	0	0	0	0	0	0	0
Net financial items	0	0	0	0	0	0	0	0	0	0
of which interest income/expenses	0	0	0	0	0	0	0	0	0	0
of which interest on lease liabilities	0	0	0	0	0	0	0	0	0	0
of which other items	0	0	0	0	0	0	0	0	0	0
Pre-tax profit	**0**	**0**	**-7**	**-3**	**-16**	**-17**	**-35**	**-57**	**-65**	**-71**
Taxes	0	0	0	0	0	-1	0	0	0	0
Post-tax minorities interest	0	0	0	0	0	0	0	0	0	0
Discontinued operations	0	0	0	0	0	0	0	0	0	0
Net profit	**0**	**0**	**-7**	**-3**	**-16**	**-17**	**-35**	**-57**	**-65**	**-71**
Adjusted EBITDA	0	0	-7	-2	-16	-15	-32	-53	-60	-66
Adjusted EBITA	0	0	-7	-2	-16	-17	-35	-57	-65	-71
Adjusted EBIT	0	0	-7	-2	-16	-17	-35	-57	-65	-71
Adjusted net profit	0	0	-7	-3	-16	-17	-35	-57	-65	-71
Sales growth Y/Y	na	na	+chg	0.0%	0.0%	0.0%	0.0%	7021.2%	843.8%	111.8%
EBITDA growth Y/Y	na	na	-chg	+chg	-chg	+chg	-chg	-chg	-chg	-chg
EBITA growth Y/Y	na	na	-chg	+chg	-chg	-chg	-chg	-chg	-chg	-chg
EBIT growth Y/Y	na	na	-chg	+chg	-chg	-chg	-chg	-chg	-chg	-chg
EBITDA margin	nm	nm	na	na	na	na	na	na	-896.5%	-465.7%
EBITA margin	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm
EBIT margin	nm	nm	na	na	na	na	na	na	na	-500.8%
Tax rate	na	na	na	na	0.6%	-3.1%	0.3%	na	na	na

Cash flow (NOKm)	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
EBITDA	0	0	-7	-2	-16	-15	-32	-53	-60	-66
Paid taxes	0	0	0	0	0	-1	-1	0	0	0
Change in NWC	0	0	0	0	2	-3	-6	6	2	1
Non cash adjustments	0	0	0	0	0	0	4	-1	-2	1
Discontinued operations	0	0	0	0	0	0	0	0	0	0
Total operating activities	**0**	**0**	**-7**	**-3**	**-14**	**-18**	**-36**	**-48**	**-60**	**-65**
Capex tangible assets	0	0	0	0	0	0	-1	-6	-4	-3
Capitalised development costs	0	0	0	0	0	0	0	0	0	0
Capex - other intangible assets	0	0	0	0	-7	-6	0	-2	-8	-10
Acquisitions/divestments	0	0	0	0	0	0	0	-3	0	0
Other non-cash adjustments	0	0	0	0	1	-3	0	0	0	0
Total investing activities	**0**	**0**	**0**	**0**	**-7**	**-9**	**-1**	**-11**	**-12**	**-13**
Net financial items	0	0	0	0	0	0	0	0	0	0
Lease payments	0	0	0	0	0	0	-1	0	0	0
Dividend paid and received	0	0	0	0	0	0	0	0	0	0
Share issues & buybacks	0	0	0	0	27	48	43	83	100	0
Change in bank debt	0	0	1	0	3	5	-3	0	0	0
Other cash flow items	0	0	0	0	0	0	0	0	0	0
Total financing activities	**0**	**0**	**1**	**0**	**30**	**54**	**38**	**83**	**100**	**0**
Operating cash flow	0	0	-7	-3	-14	-18	-36	-48	-60	-65
Free cash flow	0	0	-7	-3	-22	-24	-39	-56	-72	-78
Net cash flow	0	0	-6	-3	9	27	1	24	28	-78
Change in net IB debt	0	0	-7	-3	5	17	2	19	28	-78
Capex / Sales	nm	nm	0.0%	0.0%	0.0%	0.0%	12149.0%	842.6%	59.5%	21.1%
NWC / Sales	nm	nm	4093.7%	12725.2%	3276.2%	-7104.6%	35132.2%	617.9%	5.6%	-7.9%

Source: Carnegie Research & company data

Financial statements, cont.

Balance sheet (NOKm)	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
Acquired intangible assets	0	0	0	0	2	7	7	7	7	7
Other fixed intangible assets	0	0	0	0	7	6	5	5	10	17
Capitalised development	0	0	0	0	0	0	0	0	0	0
Tangible assets	0	0	0	0	0	3	3	7	9	10
Lease assets	0	0	0	0	0	4	7	12	12	12
Other IB assets (1)	0	0	0	0	0	0	0	0	0	0
Other non-IB assets	0	0	0	0	0	0	0	0	0	0
Fixed assets	**0**	**0**	**0**	**0**	**9**	**20**	**22**	**31**	**38**	**46**
Inventories (2)	0	0	0	0	0	0	0	0	0	0
Receivables (2)	0	0	0	0	0	1	4	5	9	14
Prepaid exp. & other NWC items (2)	0	0	2	3	2	6	12	11	12	14
IB current assets (1)	0	0	0	0	0	0	0	0	0	0
Other current assets	0	0	0	0	0	0	0	0	0	0
Cash & cash equivalents (1)	0	0	15	11	21	48	48	73	101	23
Current assets	**0**	**0**	**17**	**14**	**23**	**55**	**64**	**89**	**121**	**51**
Total assets	**0**	**0**	**17**	**15**	**32**	**75**	**86**	**120**	**160**	**98**
Shareholders' equity	0	0	16	13	24	56	66	58	93	22
Minorities	0	0	0	0	0	0	0	0	0	0
Other equity	0	0	0	0	0	0	0	0	0	0
Total equity	**0**	**0**	**16**	**13**	**24**	**56**	**66**	**58**	**93**	**22**
Deferred tax	0	0	0	0	2	1	2	2	2	2
LT IB debt (1)	0	0	0	0	0	0	0	0	0	0
Other IB provisions (1)	0	0	0	0	0	0	0	0	0	0
Lease libilities	0	0	0	0	0	3	5	10	10	10
Other non-IB liabilities	0	0	0	0	3	4	3	0	0	0
LT liabilities	**0**	**0**	**0**	**0**	**4**	**9**	**9**	**12**	**12**	**12**
ST IB debt (1)	0	0	0	0	0	0	0	0	0	0
Payables (2)	0	0	1	0	2	2	3	5	12	16
Accrued exp. & other NWC items (2)	0	0	1	1	2	6	5	9	9	14
Other ST non-IB liabilities	0	0	0	0	0	2	2	35	34	34
Liabilities - assets held for sale	0	0	0	0	0	0	0	0	0	0
Current liabilities	**0**	**0**	**2**	**1**	**4**	**10**	**11**	**50**	**55**	**64**
Total equity and liabilities	**0**	**0**	**17**	**15**	**32**	**75**	**86**	**120**	**160**	**98**
Net IB debt (=1)	0	0	-15	-11	-21	-45	-44	-63	-91	-13
Net working capital (NWC) (=2)	0	0	1	2	-1	0	7	1	-1	-2
Capital employed (CE)	0	0	16	13	26	61	73	70	104	33
Capital invested (CI)	0	0	1	2	8	20	30	33	38	45
Equity / Total assets	nm	nm	90%	91%	75%	75%	77%	48%	58%	22%
Net IB debt / EBITDA	nm	nm	2.2	4.7	1.3	3.1	1.4	1.2	1.5	0.2

Per share data (NOK)	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
Adj. no. of shares in issue YE (m)	0.00	0.00	0.00	6.25	7.54	9.06	10.37	15.02	15.02	15.02
Diluted no. of Shares YE (m)	0.00	0.00	0.00	6.25	7.54	9.06	10.37	15.02	15.02	15.02
EPS	na	na	na	-0.83	-2.30	-2.10	-3.62	-4.50	-4.34	-4.75
EPS adj.	na	na	na	-0.83	-2.30	-2.10	-3.62	-4.50	-4.34	-4.75
CEPS	na	na	na	-0.83	-2.30	-1.77	-3.42	-4.19	-4.01	-4.41
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BVPS	na	na	na	2.13	3.22	6.23	6.41	3.87	6.18	1.44

Performance measures	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
ROE	nm	nm	-83.2%	-17.9%	-84.5%	-43.3%	-57.3%	-91.8%	-86.4%	-124.6%
Adj. ROCE pre-tax	na	na	na	-16.8%	-81.4%	-40.0%	-52.9%	-80.3%	-75.1%	-103.9%
Adj. ROIC after-tax	na	na	na	-163.8%	-328.8%	-129.2%	-141.9%	-182.9%	-185.3%	-172.9%

Valuation	2017	2018	2019	2020	2021	2022	2023	2024e	2025e	2026e
FCF yield	0.0%	0.0%	-2.1%	-0.9%	-6.9%	-7.5%	-12.2%	-17.8%	-22.8%	-24.7%
Dividend yield YE	na	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dividend payout ratio	na	na	na	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dividend + buy backs yield YE	na	nm	nm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EV/Sales YE	na	nm	neg.	>50	>50	>50	>50	>50	33.40	21.24
EV/EBITDA YE	na	nm	2.2	neg.	neg.	neg.	neg.	neg.	neg.	neg.
EV/EBITA YE	na	nm	2.2	neg.	neg.	neg.	neg.	neg.	neg.	neg.
EV/EBITA adj. YE	na	nm	2.2	neg.	neg.	neg.	neg.	neg.	neg.	neg.
EV/EBIT YE	na	nm	2.2	neg.	neg.	neg.	neg.	neg.	neg.	neg.
P/E YE	na	na	na	nm	nm	nm	nm	nm	nm	nm
P/E adj. YE	na	na	na	nm	nm	nm	nm	nm	nm	nm
P/BV YE	na	na	na	22.48	5.81	3.18	7.65	5.43	3.40	14.62
Share price YE (NOK)		28.1	36.3	47.9	18.7	19.8	49.0	21.0		

Source: Carnegie Research & company data

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