

# The Innovator will Prevail in Glucose Monitoring

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As well as the expanding diabetes market for glucose-monitoring devices, there are other applications for these products and opportunities for companies with the will to innovate. One area that is explored here is the intensive care unit.

## Today's profitability

"Diabetes is a major threat to global public health that is rapidly getting worse and the biggest impact is on adults of working age in developing countries. At least 171 million people worldwide have diabetes. This figure is likely to more than double by 2030 to reach 366 million," World Health Organisation (WHO)<sup>1</sup> (see Figure 1).

Since Anton Hubert Clemens received the first patent for the Ames Reflectance Meter, a blood-glucose meter, on 14 September 1971, there have been incremental and innovative

steps forward in glucose monitoring. The first products required a long manual process in which the user had to provide more than just a drop of blood, wash the strip before feeding it into the reader and counting down a predefined number of seconds. Today's devices provide the results much quicker and with an attractive looking product, some of which have an integrated strip mechanism and most require only a small amount of blood.

The four big manufacturers: Roche Diagnostics ([www.roche-diagnostics.com](http://www.roche-diagnostics.com)), Bayer ([www.bayer.com](http://www.bayer.com)), Johnson & Johnson ([www.jnj.com](http://www.jnj.com)) and Abbott Laboratories ([www.abbott.com](http://www.abbott.com)) currently dominate the market. They have achieved this mainly through acquiring a number of smaller innovative players such as Miles Ames, Lifescan, MediSense, Inverness Medical, Therasense and Boehringer Mannheim. The market that these companies have created is profitable for one principal reason: consumables. The meters are often sold at cost or given away, whilst the cost for each strip ranges between US\$0.40 and 0.80. This results in a daily cost of between US\$2 and 3, taking into account the fact that every diabetes sufferer should test up to four times a day for the whole of their lives. Therefore, this is a very

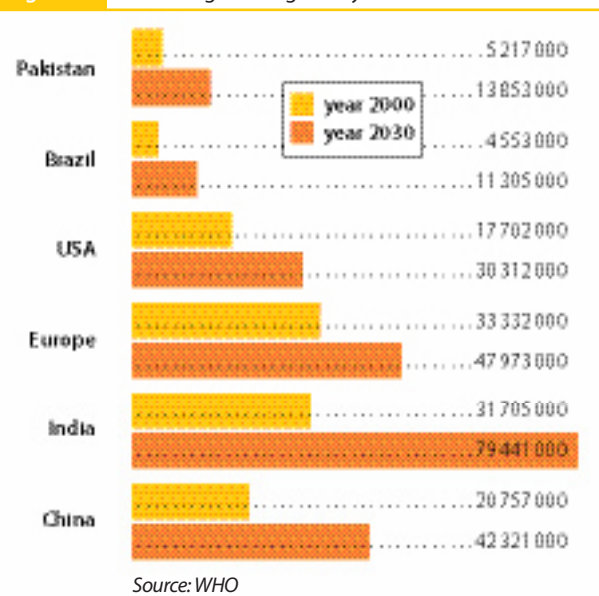
profitable and growing market.

## Drivers of today's innovation

There are two major market drivers affecting companies involved in developing glucose monitors. The first is low-cost competitors in Eastern European and Far East countries. These companies are not yet of equal capabilities, but as patents expire and as their ability to offer low-cost consumables increases they are a potential threat to the market shares of the current manufacturers. But how do companies compete? The most manageable route is through innovation, whether this comes from the market leaders developing their own products or by acquiring smaller innovative companies.

The other major market driver is the user. As the number of cases of diabetes increases across the world, which in part can be attributed to the influence of Western cultures and obesity, the market increases in size and collectively the users will be in a better buying position. Increasingly, diabetes sufferers want to manage their disease and not let it manage them. They want something that is discreet, fast, easier to use and less painful. The ideal is a noninvasive device, but despite the claims made in the 1980s and 1990s that this was close, one has yet to enter the market.

Figure 1: Diabetes growth figures by number of sufferers.



### The consumables obstacle

As mentioned above, consumables offer huge revenue streams for suppliers and these will increase over time as the number of sufferers doubles. However, the reliance on these strips as a source of revenue means that even if a company did develop a noninvasive monitor, it would need to ensure that the resulting product had a consumable aspect and therefore a profitable revenue stream. This potential obstacle reduces the chances of major innovative leaps forward in diabetes monitoring and instead points to the continuation of incremental, but important steps in this area such as the integration of the lancing device within the meter.

### New application opportunity

The diabetes market is not the only opportunity for glucose monitoring, although it will remain a major focus. It has been demonstrated that maintaining a blood-glucose level at, or below, 110 mg/decilitre reduced mortality and morbidity amongst patients in a critical condition in an intensive care unit.<sup>2</sup> This presents a significant opportunity for patients to be monitored through an attached or implantable glucose monitor, which can monitor glucose levels on a continuous basis and alert caregivers if the level increases.

Devices in this area do not face the same constraints as user-friendly diabetes monitors because they do not need to be designed to fit in a handbag or need an easy-to-use interface. However, the products would have a series of different constraints to overcome such as integration with current and future monitoring systems. The products would need to be small if they are to be implanted, but any cost increase could be offset through the use of cheap standards-based wireless technologies such as Bluetooth, ZigBee or Near Field Communication.

### The future

There are always opportunities for innovation in any market sector, including glucose monitoring. Given

the market size and predicted growth rates the biggest opportunity is, and looks set to continue to be, personal diabetes systems. However, with its reliance on consumables and the dominance of the big four manufacturers, it is a difficult market to enter. The real opportunity in this market is to provide the next innovative step, that is, a device that is as reliable as current devices and complies with the regulations,<sup>3</sup> as well as offering patent and intellectual property protection.

A significant opportunity exists within intensive care units, which have a different set of restrictions and potentially a different business model. There are still challenges with regards to understanding this new market, integrating wireless technology and gaining adoption within hospitals, but if this can be done at low-cost and provide the accuracy found in today's diabetes monitors, there are many highly profitable opportunities for the bold few.

### References

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