

# Health and Internet

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**Abstract-** The society has greatly evolved and human life has experienced a huge transition from the past. People who have lived a major part of their life in the 20th century are testimony to the fact that not only has things become easier, but also that the human kind is at the colossus of technology. About technology and its impact it can easily be said that the horizons have greatly broadened now, what was considered impossible in the past has now been achieved. The industry, which has benefited the most from this inspiring increase in inventions, is the Health care industry.

## Introduction

A lot has been done to make all sorts of diseases curable as well as to control complications associated with them. The greatest breakthroughs have been made in perhaps the most common disease found, Diabetes. The disease has been a pain in the head for mankind since the inception of time, the constant threat of rising sugar levels is what makes diabetes even more threatening. Lately through extreme measures doctors from across the world have come with solutions that would soon make suffering from diabetes a thing of the past. The function of all such revolutionary inventions is not to eradicate disease from the face of this world, but to limit the pain and complications brought through them to some level.

### Why insulin pump is important to use?

Everyone who has recently been diagnosed with diabetes will generally know a lot about the over-whelming devices that have been made to limit the complications of this disease. The main goal for a person suffering from diabetes is to keep the sugar level in his/her blood under control to enjoy the perks of a life free of complications. Many people might know this, but the question that arises is how to manage the sugar level while simultaneously managing other issues associated with living. At this ephemeral junction the insulin pump is perhaps the most comprehensive and result oriented device.

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An insulin pump is a rather tiny device, which can be discreetly worn externally by putting it either in your pocket or clipping it with your belt. The insulin pump delivers small amounts of rapid-acting insulin to match the needs and expectations of one's body. The insulin pump is made of certain components that all work together to make the pump a top priority on the list of a diabetes patient. The first component is the pump itself, which is a small, durable and reliable tool that has 4 general specifications. (American Diabetes Association, 2015).

First of all, options are provided, in the form of buttons to program one's insulin, to help and assist with the task of programming an LCD is provided that will help in what a patient is programming as it will show the results of the actions he/she will be doing by pressing the buttons. The insulin requires a battery compartment to hold AAA alkaline battery, which helps in running the device through Direct Current.

The fourth and last specification of the insulin pump is that there is a reservoir compartment. The reservoir is a plastic cartridge that holds the insulin into place. It comes with a transfer guard, which assists in pulling the insulin into the reservoir from the vial. A reservoir can generally hold up to 300 units of insulin and is preferably changed after every 3 to 4 days, due to some precautionary measures. The third component of the pump is the infusion set that consists of a thin tube, which stretches from the reservoir to the infusion site on a patient's body. The cannula is generally inserted with the help of a thin needle that is removed once the tube is in position. Just like the reservoir, the infusion set is also preferably changed after every two to three days. The fourth and last component of a pump is the Infusion set insertion device; the infusion set is carefully placed in an insertion device and

with the push of a mere button the infusion set is sealed in the patient's body.

### **How insulin pump works?**

The working of the insulin pump is better divided into two sub categories; the Basal Rates and the Bolus doses. The Basal Rate is a preferably small amount of insulin delivered nonstop for the proper functioning of the body. The basal rate is given 24/7 and does not include food. The programmed rate is set by authorized individuals, and most probably by the patient's doctor.

Bolus dose is the second category. It is the amount of additional insulin that a patient delivers "on demand" most probably to match the food the patient is going to eat or to balance of a high sugar level. The insulin pumps have generally installed in bolus calculators that helps a patient to find out the amount needed to cater to the demand in his/her body. The calculator is modified again by authorized individuals. An insulin pump is an important part in the treatment of a diabetes patient. To make this treatment as successful as possible and to ensure the continuity of a good life, a healthy relation is needed between the patient and the doctor. The doctor is an important individual for the patient during this junction, he plays the role of a messiah for the patient and expert advice is often expected from his part. The doctor should consider it as morally bounding upon himself to guide the patient in all aspects of the treatment. The doctor must ensure that the patient knows the correct procedures for both putting on and taking off the insulin, because carelessness in any one of these activities can not only have costly effects on the patients pockets but in extreme cases can result in sudden deterioration in health. The doctor should look towards setting the basal rate and the bolus doses according to the needs of the patient and should be more case oriented than looking for the same solution for every one of his patients. Proper communication should be maintained with in both as with proper communication and an obedient patient; a lot of possible threats can be avoided.

### **Insulin pumps devices**

A variety of insulin pumps are available on the internet which achieve all the aims of a proper insulin pump and furthermore go on to make accessibility really easy. Some of the most versatile/innovative/durable/mobile insulin pumps are. The cell novo system; the cell novo system succeeds in combining popular mobile technologies with an advanced medical system to develop a perfect combination that reduces the stress of diabetes. The cell novo system has a pump which connects directly to an app based touch screen system which can be considered the

brain of the system. The tool records the blood glucose, insulin dose, and diet information automatically. All of this is send via a secure connection to the clinic through which the aim of a good patient-doctor relationship is artistically met. The second device which has been making rounds as a complete combination of all things that a patient looks for in an insulin pump is the Jewel Pump; the jewel pump uses the MEMS integrated and exquisitely ultra-precise disposable pump-chip technology, which helps in providing supreme accuracy levels.

The tool is controlled with the jewelCom system, an extensively integrated Smart Phone PDA with applications, which are designed considering the demands of a patient, instead of being a general device. The jewel pump has customized versions for both type 1 and type 2 diabetes. (Healthline.com, 2015)

The Dana Diabecare IIS insulin pump comes amongst the best insulin pumps available on the Internet as it has the ability to meet every kind of patient demands. Customized basically to help the patient, the Dana Diabecare IIS insulin pump carries a minimum and maximum bolus rate, which can make the doctor, set the rate as a prerequisite for further treatment. The device also carries an account of the last 300 bolus rates, which helps the doctor in assessing the dulcet level. Another device is the Animas Vibe System; carrying a plethora of advantages the animas vibe system is perhaps everything that an insulin patient needs. The delivery of insulin is tuned and fine, small introducer needles work as a method of putting in the tube for all amateur users. Customizable alerts, serve as a warning for patients if the insulin or bolus level has exceeded the limit set by the doctor. With water durability and an accurate sensor, the Animas Vibe System eloquently merges innovation with mobility.

### **Internet of things in healthcare**

Apart from diabetes the Internet of things in healthcare has to a large extent revolutionized the health and medicine industry. The market of health care is currently imbued with opulent devices that can create a sense of imbroglio in the patients mind on what to lay hands on. The Internet of things in health care has brought forward many lissome devices but there are some out of this lot of lagniappes that can be considered the best.

Infant Monitors; developed to help parents regarding the health of their child. The infant monitor updates the parents about the breathing, sleeping position, activity and skin temperature of their baby. The app and the technology are designed in such a way that the

updates are directly sent to the smart phone of the parents. This can be really helpful for parents for keeping track of their toddler during the incipient of his life.

### **Conclusion**

Perhaps the most important breakthrough for the usage of internet of things in healthcare is Remote Monitoring. Remote Monitoring assists people across the globe, those who do not have access to effective health monitoring. By using remote monitoring with the help of wireless connections through IOT it has been made possible for monitoring to reach them. This can be done by compiling health data through wireless connections and sending them to the nearest clinics for analyzing so that people living even in the remotest of areas are provided with the luxury of basic health care. (Preventice.com, 2015)

The internet of things in health care has not achieved the highest level of self actualization or moral achievement, but the rate at which health care is embracing the changing trends is really inspiring and makes one cynosure about the future of the health care industry once it has been transformed completely into the modern technology. The examples mentioned in the article are just the tip of the proverbial iceberg; in the future with the proper help and assistance of qualified individuals, the internet of things in health care would transform the industry into a panacea.

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