

# A Review of Insulin Pen Devices

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**Abstract** - The prevalence of diabetes (DM) in the elderly currently accounts for about half of all people with diabetes. DM treatment often requires a variety of medications including insulin therapy; however, because of discomfort such as dementia, loss of vision, emotional dysfunction, discomfort, and manual labor, elderly patients may increase the risk of hypoglycaemia and other measurement errors related to insulin administration. Since the introduction of insulin pens in 1985, there has been steady improvement in the provision of several benefits over traditional vial delivery and insulin delivery syringes. In recent years, pens have become easier to use.

**Index Terms** - insulin, pen, elderly.

## INTRODUCTION

The number of patients diagnosed with Mel lotus (DM) in the United States in 2007 has reached an estimated 100 million. An additional 5.7 million people are considered undiagnosed, bringing the total to 8% of the US population thought to have DM.<sup>1</sup> While the disease affects a large percentage of the population, it also affects a large number of elderly patients. The prevalence of DM in patients aged 60 or over is estimated at more than 12 million in 2007, representing about a quarter of the elderly and more than half of the population in DM.

Insulin pens have been shown to contain many benefits over insulin delivery and syringe injection, including patient satisfaction and adherence, greater ease of use, and greater accuracy.<sup>4-10</sup> About three insulin ingredients in Europe and three parts of Japan are pen-shaped devices<sup>9</sup> simultaneously. -15% of patients thought to be using insulin pens in the US.<sup>11</sup> According to a recent report, Access to Quality Care and Medical Devices Diabetes in Europe, there are still 12 cases of inequality in access to insulin pens throughout Europe.

## INSULIN PENS COMPARED TO INSULIN CONTAINERS AND SYRINGES

To determine whether insulin pen devices are involved in the treatment of elderly DM patients, it is important to understand the benefits of these services that provide more than seven containers and injections. Many patients find that these devices are very simple as they make the language a requirement for volume.<sup>5</sup> The ability to dial the desired volume can lead to greater accuracy and reliability, especially with lower doses often needed in adults. <sup>7,8</sup> The sensory and auditory response associated with the dial system is on Many pens can also help those with symptoms of blurred vision.

## IDEAS

### Healthcare Providers

It has been shown that the physician plays an important role in patiently accepting the insulin pen as an option.<sup>16</sup> In fact, the strongest prediction for the use of the pen has been found to be true doctor's recommendation. This underscores the importance of the physician's role in this practice. It also emphasizes the need to ensure that physicians are aware of their insulin levels and how they can detect patient adherence leading to better outcomes. Nurses with diabetes educators should also be familiar with the various insulin pens so that they can communicate the potential benefits to their patients and provide advice on which device meets their patient needs.

## PATIENTS

The idea of patience was also seen as an important prediction of pen use. The container and the injection are confusing to say the least but, over time, most people get used to it. The insulin pen, if kept on the other side, can easily fit into a pocket or purse, last a long time, and have an easy-to-use handle.

The container and syringe have many problems including fear of injections, incorrect dosage, social rejection, long-term training, and difficulty walking.<sup>21</sup> in achieving euglycemia.

### DOSING AND SAFETY

Studies have shown that patients who use a traditional container and delivery syringe method have a higher risk of improperly building up insulin volume, with an estimated error of about 19% gaining an input rate accuracy.<sup>11</sup> High defects are more likely to be seen in adults.

Measurement accuracy can help insulin pen devices in addition to the traditional vial and syringe method especially in small doses (, 5 units) .<sup>7</sup> Some products allow volume adjustment, and if used in large quantities, the volume can be adjusted by reverse dialing. According to Korytkowski et al 73% of patients report high confidence in providing the right dose with an insulin pen device compared to 19% of patients using the vial / syringe method.

### USES OF INSULIN PEN

For all insulin pen devices, pen needles are available separately and may require a separate medical note. Pen needles are available in a variety of styles manufacturers and come in sizes ranging from 29 G to 32 G, with lengths ranging from 4 to 12.7 mm. Recent advances have led to the introduction of protective needle shoes that not only damage the crutches but can also reduce patient pressure with the use of a needle. Directive 2010/32 / EU.

In another 12-week study of adult diabetic patients 60 years of age and older, patients were tested on the ability to use a pre-filled insulin pen compared to a vial / syringe way. Patients were periodically given a vial / syringe or metal pen six weeks later and transferred to another delivery program for another six weeks. At 2 and 6 weeks of insulin delivery pen device, patients were asked to complete a questionnaire that assessed patients' ability to use the pen tool compared to the vial / syringe delivery method; 90% of patients measured with a pen device can be very simple or easily understood. <sup>9</sup> As a precaution, Korytkowski et al found that 85% of patients found it easier to read insulin dose and pen compared to 10% of patients using a container / injection; 74% of patients have experienced this that the pen was easier to use than the insulin vial / syringe delivery method.

### PREFERENCES

When pre-Flex Pen ® disposal is incorporated into a standard vial / syringe, 74% of patients express preference with a pen device compared to 20% of patients opting for a vial / syringe method, while most patients report an increase in independence - confidence in pen position. of insulin, confidence in balance and the ability to maintain glycemic control, and I felt that the pen was the most intelligent public use (Table 1).

Patient preference questionnaire	FlexPen N (%)	Vial/syringe N (%)
Confidence with method	86/105 (82%)	12/105 (11%)
Confidence in dosing accuracy	77/105 (73%)	20/105 (19%)
Confidence in ability to maintain glycemic control	63/103 (61%)	16/103 (16%)
Discreet to use in public	88/104 (85%)	9/104 (9%)

### INSULIN PENS LIMITS

Insulin pens are no longer within their limits it is important that patients and health workers <sup>60</sup> Sugar are able to ensure excellent results. The maximum capacity of most insulin pens is 60- 80 units, but with a syringe it is 100 units.

### AVAILABILITY

Most insulin is found in both insulin vessels and insulin pen devices. All available formats are available in vial formulation, and in all insulin except normal human insulin (Humulin® R and Novolin® R), NPH (Novolin® N and Humulin® N), and and standard insulins (Novolin® 70/30 and Humulin® 70/30) are available for pen devices.<sup>33-46</sup> Lastly <sup>2</sup> Novolin products were previously available on a device called Inlet®, however, this device was recently released by Novo Nordisk.

### CLINICAL STUDIES ABOUT COMPARABLE INSULIN FOLDERS

In general, the accuracy of the measurement is good.<sup>56,65-70</sup> Insulin pens also vary in intensity needed to inject insulin dosage, this feature has been investigated in several studies. <sup>56,68,71-73</sup> In general,

the difference in injection strength Insulin pens is very small.

#### CONCLUSIONS

In conclusion, insulin pens offer many benefits to diabetic people who use insulin. Give them the opportunity to choose a delivery tool to meet the specific needs of the patient.

Glycemic control is important in reducing the risk of long-term complications associated with DM. Insulin therapy is the management of essential glycemic substances; However, physical limitations and cognitive barriers are the starting point and addition of insulin therapy for the elderly. Since insulin is considered a major risk factor for the elderly, and since older people have a higher risk of hypoglycaemia than adults, it is important to find a safe and effective delivery system in a timely manner.

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