

Perimeter Fill Syringes for Safe Use

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- Pharmaceuticals

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- Drug Delivery
- Injections
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In healthcare, along with proper procedures, administering medications correctly and at proper dosage is vital for both patients and health care providers. Administering an inappropriate dose can be serious and result in adverse drug reactions, sub-par therapeutic effect, or even death. One such drug that has a critical need to be dosed appropriately to achieve a therapeutic effect is insulin for the treatment of Diabetes, given with injections. Conventional syringes have a hollow barrel and a solid plunger that is used to push fluid through the tip. Since insulin is dosed in small volumes and the barrels are narrow, it is difficult for patients to handle the syringe and read markings appropriately, which can cause multiple potentially fatal mix-ups. Thus, there is an unmet need for syringes to allow safe and reliable administration of a drug. Although programs and advertising campaigns are available to help educate patients about syringes with high concentration insulin, this has thus far not resulted in reliably accurate administration practices.

At Purdue University, researchers have strived to overcome this problem and have developed a series of perimeter fill safety syringes. The syringe features a novel design that allows better accuracy and safety in the administration of concentrated doses of insulin. These syringes use a solid core. Fluid fills an area around the perimeter of the barrel. This smaller filling space provides a wider diameter for the barrel, thus increasing the visibility of the markings and allowing for better handling by the patient or health care provider. Another feature of this design is that the geometry improves safety during use, for example, designating rectangle shaped syringes for higher concentrations and the traditional cylindrical shape for lower concentrations. Additionally, these syringes have greater diameter that permits better grip, larger print, and easier manipulation. This technology can be applied not only to insulin administration but to medications of all types that are to be administered via a syringe. Hence, this would greatly reduce medication errors from the use of injectable syringes.

Advantages:

- Accurate administration of medication doses
- Greater diameter for improved handling

-Applies to multiple injectable medications

Potential Applications:

- Medical/Health
- Diabetes treatment

People:

- Hultgren, Kyle Emerson (Project leader)

Intellectual Property:

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