CLAIMS

1. A system for intradermal or subdermal fluid delivery into a site of injection, comprising:

a housing compartment comprising a flange holder system, a plunger retainer system, and an actuator of an injection mechanism that expels a controlled dose fluid, wherein the flange holder system comprises a movable flange holder and a flange holder hard stop and the plunger retainer system comprises a moveable plunger retainer and a plunger retainer hard stop , and wherein the flange holder and the plunger retainer are each movable in a proximal direction along a central axis of the housing compartment;

a fluid-filled syringe comprising a flange and a plunger, wherein the flange is situated within the flange holder and plunger is situated in the plunger retainer; and

a needle assembly attached to the fluid-filled syringe, the needle assembly comprising a needle that is in operable connection with the fluid-filled syringe;

wherein actuation of the injection mechanism via the actuator results in the flange holder and the plunger retainer moving in the proximal direction resulting in moving the fluid-filled syringe inclusive of the flange and the plunger, and the needle assembly in the proximal direction until the flange holder contacts the flange holder hard stop halting the proximal movement of the flange and the needle assembly;

wherein when the flange holder contacts the flange holder hard stop, the plunger retainer continues to move in the proximal direction resulting in the plunger to continue to move in the proximal direction until the plunger retainer contacts the plunger retainer hard stop halting the proximal movement of the plunger; and

wherein the continued proximal movement of the plunger after the halting of the proximal movement of the flange and the needle assembly results in expulsion of the controlled dose of fluid from the fluid-filled syringe via the needle of the needle assembly.

2. The system of claim 1, wherein the flange holder comprises a groove, and the plunger retainer comprises a slider that cooperates within the groove; and wherein when the flange holder contacts the flange holder hard stop, the plunger retainer continues to move in the proximal direction via the slider within the groove.

3. The system of claim 1 or 2, wherein a latch connects the flange holder and the plunger retainer; and wherein when the flange holder contacts the flange holder hard stop, the latch is released allowing the plunger retainer to continue to move in the proximal direction independent of the flange holder movement.

4. The system of claim 3 further comprising a force for providing proximal movement, wherein the plunger retainer is in connection with the force for providing proximal movement such that the plunger retainer moves in the proximal direction via the actuation of the injection mechanism; and wherein the flange holder moves in the proximal direction via the latch connecting the flange holder and the plunger retainer.

5. The system of claim 4, wherein the force for providing proximal movement is a compressed spring or an electromechanical linear actuator.

6. The system of any one of claims 1 to 5, wherein the dose amount of the controlled dose of fluid is determined in part by the continued proximal movement of the plunger after the halting of the proximal movement of the flange and the needle assembly.

7 The system of any one of claims 1 to 6, wherein the movement of the flange holder in the proximal direction is configured to result in the needle inserting into a site of injection when a proximal face of the housing compartment is in contact with the site of injection.

8. The system of any one of claims 1 to 7, wherein the flange holder contains an indentation that is contoured to the shape of the flange.

9. The system of any one of claims 1 to 8, wherein the plunger retainer contains at least one indentation that is contoured to the shape of a plunger grip at the distal end of the plunger.

10. The system of claim 9, wherein the plunger retainer contains a plurality of indentations that allow for flexibility of the plunger grip location.

11. The system of claim 1, , wherein the actuator of the injection mechanism comprises a button, wherein one or more inward protruding struts is in connection with button and the flange holder; wherein when the button is depressed, the one or more inward protruding struts prevents proximal movement of the flange holder; and wherein compression of the button results in a disconnection between the one or more inward protruding struts and the flange holder, allowing proximal movement of the flange holder, or

wherein compression of the button results in linear force provided by an electromechanical linear actuator to provide proximal movement of the plunger retainer.

12. The system of any one of claims 1 to 11, wherein the needle has a length that such that the needle tip extends beyond the proximal face a length equal to an intradermal insertion depth when inserted into skin of an individual; or

wherein the needle assembly further comprises a needle cap; and wherein the needle has a length such that the needle tip is extends beyond the needle cap a length equal to an intradermal insertion depth when inserted into skin of an individual.

13. The system of any one of claim 1 to 11, wherein the needle assembly further comprises a needle cover that surrounds the needle and a spring in connection with the needle cover; wherein when the spring is decompressed, the needle cover prevents exposure of a tip of the needle; and wherein when the spring is compressed, the tip of the needle is exposed.

14. The system of claim 13, wherein the needle assembly further comprises an outer cylinder encircling the needle cover, wherein an inner face of the outer cylinder comprises one or more slotted tracks; wherein the needle cover comprises a protruding slider that

extends from an outer face of the needle cover and into the one or more slotted tracks; and wherein the interaction between the protruding slider and the one or more slotted tracks allows for limited exposure of the needle when the spring is compressed.

15. The system of claim 14, wherein the needle assembly further comprises an actuator with an arm that is capable of inserting within the one or more slotted tracks; and wherein the needle assembly actuator with the arm is capable of preventing exposure of the needle by preventing compression of the spring by preventing the protruding slider from moving within the one or more slotted tracks.