CLAIMS

1. A catheter assembly comprising:

   a flexible catheter;

   a needle having a sharp distal tip, the needle disposed in the flexible catheter and moving from a first position that exposes the needle to a second position;

   an outer member that is configured to engage and disengage a catheter hub;

   an inner member disposed in the outer member; and

   a needle protection member disposed in the inner member, the needle protection member enclosing at least a portion of the needle when the needle is in the second position.

2. The catheter assembly according to claim 1, wherein the outer member interlocks the catheter hub when the needle is in the first position.

3. The catheter assembly according to claim 2, wherein a catch in the outer member interlocks a protrusion in the catheter hub.

4. The catheter assembly according to claim 1, wherein:
   the inner member includes an opposing member; and
   the opposing member is disposed in the catheter hub when the needle is in the first position.

5. The catheter assembly according to claim 4, wherein when the opposing member is disposed in the catheter hub, the outer member engages the catheter hub.

6. The catheter assembly according to claim 1, wherein the inner member is configured to axially move inside and relative to the outer member when the needle is in the second position.

7. The catheter assembly according to claim 1, wherein the needle protection member comprises a resilient clip.

8. The catheter assembly according to claim 7, wherein the needle biases the resilient clip into an open position before the needle reaches the second position.

9. The catheter assembly according to claim 7, wherein:
the resilient clip includes at least one arm; and

the needle biases the at least one arm into an open position before the needle reaches the second position.

10. The catheter assembly according to claim 7, wherein the resilient clip includes at least one tab that engages a shoulder in the outer member when the needle is in the first position.

11. The catheter assembly according to claim 10, wherein the at least one tab of the resilient clip disengages the shoulder in the outer member when the needle is in the second position.

12. The catheter assembly according to claim 1, wherein:

the needle further includes a deformation; and

the deformation is enclosed by the needle protection member when the needle is in the second position.

13. The catheter assembly according to claim 12, wherein the deformation in the needle is configured to cause the inner member to axially move relative to the outer member.

14. The catheter assembly according to claim 1, wherein

the outer member is an outer sleeve; and

the inner member is an inner sleeve.

15. A catheter assembly comprising:

a flexible catheter;

a needle having a sharp distal tip, the needle disposed in the flexible catheter and moving from a first position that exposes the needle to a second position;

an outer member configured to engage and disengage a catheter hub;

an inner member disposed in the outer member, the inner member having an opposing member that engages the catheter hub when the needle is in the first position; and

a needle protection member disposed in the inner member that encloses at least a portion of the needle when the needle is in the second position;

wherein when the needle is in the second position, the inner member axially moves relative to the outer member causing the opposing member to disengage the catheter hub and allowing the outer member to disengage from the catheter hub.

16. The catheter assembly according to claim 15, wherein

the outer member is an outer sleeve; and

the inner member is an inner sleeve.

17. A method of operating a catheter assembly comprising:
disposing a needle having a sharp distal tip in a flexible catheter and in a first position;

retracting the needle through the flexible catheter;

enclosing at least a portion of the needle by a needle protection member in a second position; and

moving the needle protection member that is disposed in an inner member when retracting the needle in the second position and thereby causing the inner member to axially move inside an outer member and permitting the outer member to disengage the catheter hub.

18. The method according to claim 17, further comprising:
disengaging the inner member from the catheter hub prior to disengaging the outer member from the catheter hub.

19. The method according to claim 17, further comprising:
interlocking the outer member and the catheter hub when the needle is in the first position.

20. The method according to claim 17, further comprising:
biasing the needle protection member into an open position when the needle is in the first position;

wherein the needle protection member is a resilient clip.