CLAIMS

1. A flush syringe assembly comprising: a barrel including a side wall having an inside surface defining a chamber for retaining fluid, an outside surface, an open proximal end, a distal end including a distal wall having a passageway therethrough in fluid communication with the chamber; an elongate plunger rod disposed within the barrel, the plunger rod comprising a distal end including a stopper slidably positioned in fluid-tight contact with the inside surface of the barrel for driving fluid out of the chamber by movement of the stopper relative to the barrel, wherein the stopper comprises a stopper body and a detachable stopper tip; a cap comprising an outer wall surrounding a Luer connection, wherein the cap comprising a passageway for fluid communication therethrough, wherein the passageway is undercut to receive and retain the stopper tip when the plunger rod is fully depressed, the cap further comprises a distal end for releasably attaching the cap to a vascular access device (VAD) and a proximal end for releasably attaching the cap to the barrel; a sleeve external to the barrel having a distal end and a proximal end, and an inside surface and an outside surface, wherein the sleeve slides from distal to proximal positions in relationship to the barrel; and a disinfecting system comprising a disinfectant contained in a hub wherein the disinfectant system is released upon proximal motion of the sleeve.

2. The flush syringe assembly of claim 1, wherein the cap is threaded to engage complementary threads on the VAD.

3. The flush syringe assembly of claim 1 wherein the cap engages the VAD with an interference fit.

4. The flush syringe assembly of claim 1, wherein the undercut of the passageway of the cap creates a tight interference fit sufficient for retaining the stopper tip within the cap upon movement of the plunger rod away from the cap after emptying the fluid from the syringe.

5. The flush syringe assembly of claim 1, wherein stopper tip has threads which engage with complementary threads on the stopper body.

6. The flush syringe assembly of claim 1, wherein the stopper tip is secured to the stopper body using an interference fit.

7. The flush syringe assembly of claim 1, wherein the stopper body is made of material selected from the list consisting of thermoplastic elastomers, natural rubber, synthetic rubber, thermoplastic materials and combinations thereof.

8. The flush syringe assembly of claim 1, wherein the stopper tip is made of material selected from the list consisting of thermoplastic elastomers, natural rubber, synthetic rubber, thermoplastic materials and combinations thereof.

9. The flush syringe assembly of claim 1, wherein the sleeve further comprises one or more cutouts to provide visibility to contents of the barrel.

10. The flush syringe assembly of claim 1, wherein the outside surface of the barrel further comprises two annular positioning ridges, a distal annular positioning ridge and a proximal

annular positioning ridge.

11. The flush syringe assembly of claim 10, wherein the inside surface of the sleeve further comprises at least one annular positioning groove for controlling the position of the sleeve relative to the barrel by engaging with the annular positioning ridges on the outside surface of the barrel.

12. The flush syringe assembly of claim 11, wherein the outside surface of the barrel comprises one or more ridges that extend along a length of the barrel and engage with a corresponding groove on the inside surface of the sleeve.

13. The flush syringe assembly of claim 1, wherein the plunger is of sufficient length relative to the sleeve and the barrel that when plunger is fully depressed after all flushing solution has been expelled from the syringe, the sleeve retracts to expose the cap.

14. The flush syringe assembly of claim 1, wherein the distal end of the sleeve is threaded to engage complementary threads on the disinfectant system.

15. The flush syringe assembly of claim 1, wherein the distal end of the sleeve is attached to the disinfectant system using an interference fit.

16. The flush syringe assembly of claim 1, wherein the disinfecting system further comprises a removable cover to protect the disinfectant system prior to use and a disinfectant-carrying medium.

17. The flush syringe assembly of claim 16, wherein the disinfectant is made of material selected from the list consisting of alcohol, an antiseptic gel and combinations thereof.

18. The flush syringe assembly of claim 1 wherein the passageway of the cap is coated with an antimicrobial agent.