CLAIMS

1. A catheter system, comprising:

a catheter assembly, comprising:

a catheter adapter, comprising a distal end and a proximal end;

a catheter extending distally from the distal end of the catheter adapter; and

a needle assembly, comprising:

a needle hub, comprising a distal end and a proximal end;

an introducer needle, comprising a distal end and a proximal end, wherein the proximal end of the introducer needle is secured within the needle hub, wherein the distal end of the introducer needle extends beyond a distal end of the catheter; and

a vent plug, comprising a distal end and a proximal end, wherein the distal end of the vent plug comprises a male luer adapter, wherein the male luer adapter comprises a cannula and a collar surrounding the cannula, wherein the cannula comprises a cavity to receive blood flowing proximally through the introducer needle, wherein a proximal end of the cavity is formed by a wall extending across the cannula and disposed within the needle hub, wherein the cannula is inserted into proximal end of the needle hub.

2. The catheter system of claim 1, wherein a bottom portion of the cavity extends distal to the proximal end of the introducer needle.

3. The catheter system of claim 2, wherein a portion of the cannula distal to the wall is semi-annular such that there is a gap oriented above the introducer needle to facilitate visualization of blood exiting the proximal end of the introducer needle.

4. The catheter system of claim 1, wherein the wall comprises a vent membrane.

5. The catheter system of claim 1, wherein the catheter system further comprises a cap coupled to the proximal end of the vent plug, wherein the wall is spaced apart from a proximal end of the cap.

6. The catheter system of claim 5, wherein the vent plug comprises an annular channel extending from the wall to the proximal end of the cap.

7. The catheter system of claim 6, wherein the cap comprises another male luer, wherein the other male luer comprises another cannula and another collar surrounding the other cannula, wherein the proximal end of the cap comprises the other cannula.

8. The catheter system of claim 1, wherein a thickness of the needle hub allows visualization of blood that has exited the proximal end of the introducer needle.

9. The catheter system of claim 1, wherein the needle hub comprises an annular wall, wherein a top portion of the annular wall comprises a pocket to reduce a thickness of the top portion of the annular wall.

10. The catheter system of claim 9, wherein a portion of the cannula distal to the wall is semi-annular such that there is a gap oriented above the introducer needle to facilitate visualization of blood exiting the proximal end of the introducer needle.

~~11. A catheter system, comprising:~~

~~a catheter assembly, comprising:~~

~~a catheter adapter, comprising a distal end and a proximal end;~~

~~a catheter extending distally from the distal end of the catheter adapter; and~~

~~a needle assembly, comprising:~~

~~a needle hub, comprising a distal end, a proximal end, and an annular wall, wherein a top portion of the annular wall comprises a pocket to reduce a thickness of the top portion of the annular wall;~~

~~an introducer needle, comprising a distal end and a proximal end, wherein the proximal end of the introducer needle is secured within the needle hub, wherein the distal end of the introducer needle extends beyond a distal end of the catheter; and~~

~~a vent plug, comprising a distal end and a proximal end, wherein the distal end of the vent plug comprises a male luer adapter, wherein the male luer adapter comprises a cannula and a collar surrounding the cannula.~~

12. ~~The catheter system of claim 11, wherein the cannula comprises a cavity to receive blood flowing proximally through the introducer needle, wherein a proximal end of the cavity is formed by a wall extending across the cannula and disposed within the needle hub, wherein the cannula is inserted into proximal end of the needle hub.~~

13. ~~The catheter system of claim 12, wherein a portion of the cannula distal to the wall is semi-annular such that there is a gap oriented above the introducer needle to facilitate visualization of blood exiting the proximal end of the introducer needle.~~

14. ~~The catheter system of claim 13, wherein a bottom portion of the cavity extends distal to the proximal end of the introducer needle.~~

15. ~~The catheter system of claim 12, wherein the wall comprises a vent membrane.~~

16. ~~The catheter system of claim 11, wherein the catheter system further comprises a cap coupled to the proximal end of the vent plug, wherein the wall is spaced apart from a proximal end of the cap.~~

~~17. The catheter system of claim 16, wherein the vent plug comprises an annular channel extending from the wall to the proximal end of the cap.~~

~~18. The catheter system of claim 17, wherein the cap comprises another male luer, wherein the other male luer comprises another cannula and another collar surrounding the other cannula, wherein the proximal end of the cap comprises the other cannula.~~

~~19. The catheter system of claim 11, wherein the catheter comprises a peripheral intravenous catheter.~~