CLAIMS

1. A ported catheter assembly, comprising:

a catheter adapter having a proximal end, a distal end and a lumen extending therebetween, the catheter adapter further comprising a side port forming a pathway through a sidewall of the catheter adapter and in communication with the lumen;

a valve disposed within the lumen and having a proximal opening, a distal membrane, and an inner cavity extending therebetween, the valve comprising an outer surface in contact with an inner surface of the catheter adapter, wherein a portion of the outer surface forms a seal between the lumen and the pathway of the side port, and wherein the distal membrane divides the lumen into a proximal chamber and a distal chamber; and

a vent interposed between the outer surface of the valve and an inner surface of the catheter adapter, wherein the vent comprises a first end proximate the distal chamber and a second end disposed towards a middle portion of the valve, wherein the vent comprises a cross-sectional area that permits the passage of air and prevents the passage of blood.

2. The ported catheter assembly of claim 1, further comprising a valve actuator disposed within the proximal chamber and having a base, a tip and a body extending therebetween, the body being at least partially positioned within the inner cavity such that the tip of the valve actuator is positioned proximate to the distal membrane, and the base is positioned proximate to the proximal end of the catheter adapter.

3. The ported catheter assembly of claim 2, wherein the proximal end of the catheter adapter further comprises an opening through which the base of the valve actuator may be accessed.

4. The ported catheter assembly of claim 2, further comprising an actuator retention tab coupled to an outer surface of the valve actuator and positioned within an annular groove formed on an inner surface of the catheter adapter within the proximal chamber.

5. The ported catheter assembly of claim 4, wherein the lumen comprises a minimum diameter, the annular groove comprises a diameter that is greater than the minimum diameter,

and the retention tab comprises an outer diameter that is less than the diameter of the annular groove and greater than the minimum diameter.

6. The ported catheter assembly of claim 4, wherein the annular groove comprises a first end, a second end, and a length extending therebetween, wherein the retention tab travels within the annular groove between the first and second ends to advance the tip of the valve actuator though a slit in the distal membrane of the valve.

7. The ported catheter assembly of claim 2, wherein the valve may be defeated to provide a pathway through the distal membrane by advancing the tip of the valve actuator through a slit in the distal membrane.

8. The ported catheter assembly of claim 1, wherein the valve may be defeated by injecting a fluid through the side port, whereby fluid pressure from the injected fluid temporarily deforms the body of the valve to permit the injected fluid to flow into the proximal chamber of the lumen via the pathway though the sidewall of the catheter adapter.

9. The ported catheter assembly of claim 1, wherein the vent comprises at least one of one or more recessed surfaces formed in the outer surface of the valve and one or more recessed surfaces formed in the inner surface of the catheter adapter.

10. The ported catheter assembly of claim 1, wherein the second end of the vent is disposed distal to the pathway through the sidewall of the catheter adapter.

11. The ported catheter assembly of claim 1, wherein the outer surface of the valve further comprises an annular recess or a partial annular recess in fluid communication with the vent and comprising an opening to permit fluid communication between the vent and the inner cavity of the valve via the annular recess or the partial annular recess.

12. The ported catheter assembly of claim 1, wherein the cross-sectional area of the vent permits the passage of air at a desired flow rate from 0.5 ml/min to 3 ml/min.

13. The ported catheter assembly of claim 1, wherein the cross-sectional area of the vent permits the passage of air at a desired flow rate from 0.1 ml/min to 10 ml/min.

14. The ported catheter assembly of claim 1, wherein the valve comprises a flexible tube having an outer diameter that is approximately the same size as an inner diameter of the lumen, whereby the valve is retained within the lumen by an interference fit.

15. A blood control valve for use in a ported catheter adapter, the valve comprising:

a flexible tube, comprising:

a proximal opening;

a distal membrane;

an inner cavity extending between the proximal opening and the distal membrane;

an outer surface having a diameter that is approximately equal to an inner diameter of the ported catheter adapter, whereby the valve is configured to be retained within the catheter adapter via a friction fit, the outer surface further having a length sufficient to form a seal between a lumen of the catheter adapter and a pathway of a side port of the ported catheter adapter, and wherein the distal membrane divides the lumen of the ported catheter adapter into a proximal chamber and distal chamber; and

a recess formed in the outer surface of the flexible tube, wherein the recess comprises a first end proximate the distal chamber when the valve is inserted into the catheter adapter and a second end disposed towards a middle portion of the flexible tube, wherein the recess has a cross-sectional area that permits the passage of air and prevents the passage of blood.

16. The blood control valve of claim 15, wherein the seal may be selectively defeated by injecting a fluid through the side port, thereby temporarily permitting the fluid to flow through the pathway of the side port and into the lumen of the catheter adapter through a space provided between the outer surface of the flexible tube and an inner surface of the catheter adapter.

17. The blood control valve of claim 16, wherein the outer surface of the flexible tube further comprises a vent ring in fluid communication with the recess and comprising an opening to permit fluid communication between the vent ring and the inner cavity of the flexible tube.

18. The ported catheter assembly of claim 11, wherein the annular recess or the partial annular recess is disposed at the second end of the vent.