CLAIMS

1. A vascular access device, comprising:

a catheter adapter extending along a longitudinal axis and comprising a proximal end, a distal end, and a lumen extending therebetween;

a port opening formed in a surface of the catheter adapter and in fluid communication with a side port of the catheter adapter and the lumen, the port opening comprising a structural geometry to direct a fluid into the lumen in a proximal direction; and

an elastomeric port valve disposed within the lumen and sealing the port opening, the elastomeric port valve configured to deform in response to a transverse force applied thereto such that a proximal gap is created between an inner wall forming the lumen and a proximal side of the elastomeric port valve, wherein the proximal gap opens a fluid path.

2. The vascular access device of claim 1, wherein the structural geometry comprises a sloped surface to direct the fluid into the lumen in the proximal direction.
3. The vascular access device of claim 2, wherein the sloped surface extends in the proximal direction from a distal wall of the side port to the port opening.
4. The vascular access device of claim 2, wherein the sloped surface extends in a transverse direction from a position on the distal wall that is elevated relative to the port opening along a transverse axis, to a location adjacent to the port opening.
5. The vascular access device of claim 1, wherein the port opening is configured to couple to a syringe to deliver the fluid to the fluid path.
6. The vascular access device of claim 1, wherein the structural geometry comprises one of a half-circle shape and a pie shape.

7. The vascular access device of claim 1, wherein the structural geometry comprises a rib extending across at least a portion of the port opening to direct the fluid in the proximal direction through the port opening.

8. The vascular access device of claim 7, wherein the port opening is disposed proximate to a proximal wall of the side port.

9. The vascular access device of claim 7, wherein the port opening comprises a periphery smaller than a periphery of a distal end of the side port such that the port opening comprises a closed portion and an open portion.

~~10. A method, comprising:~~

~~coupling an infusion device to a side port of a vascular access device, wherein the vascular access device comprises:~~

~~a catheter adapter extending along a longitudinal axis and comprising a proximal end, a distal end, and a lumen extending therebetween;~~

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

~~the side port extending from a surface of the catheter adapter in a direction substantially transverse to the longitudinal axis, wherein the side port communicates with the lumen through a port opening, the port opening having a structural geometry configured to direct a fluid into the lumen in a proximal direction; and~~

~~an elastomeric port valve disposed within the lumen and sealing the port opening, the elastomeric port valve configured to deform in response to a force applied thereto;~~

~~activating the infusion device, wherein in response to activating the infusion device, a proximal end of the elastomeric port valve is deformed and a proximal gap is created between the~~

proximal end of the elastomeric port valve and an inner surface of the catheter adapter such that fluid flows proximally therethrough.

11. The method of claim 10, wherein in response to activating the infusion device, a transverse force is applied to the elastomeric port valve via the infusion device to create the proximal gap.

12. The method of claim 10, wherein coupling the infusion device to the side port comprises inserting a syringe into the side port such that a distal end of the syringe is disposed adjacent to the port opening.

13. The method of claim 12, wherein applying the transverse force comprises depressing a plunger of the syringe to deform the elastomeric port valve.

14. The method of claim 13, wherein depressing the plunger forces fluid from the distal end of the syringe to deform a side of the elastomeric port valve.

15. The method of claim 10, wherein in response to activating the infusion device, fluid is directed through the structural geometry of the port opening, wherein the structural geometry comprises one of a half-circle shape, a pie shape, and a circle shape having a circumference smaller than the distal end of the side port.

16. The method of claim 10, wherein in response to activating the infusion device, fluid is directed towards a rib disposed across the port opening, wherein the rib includes a contour to direct the fluid into the lumen in the proximal direction.

17. The method of claim 10, wherein the elastomeric valve is secured within the lumen via friction.

18. The method of claim 10, wherein in response to activating the infusion device, fluid is directed towards a sloped surface, wherein the sloped surface extends in the transverse direction from a distal wall of the side port to the port opening.

~~19. The method of claim 18, wherein the sloped surface comprises an angle between about 30º and about 80º.~~

~~20. The method of claim 18, wherein the sloped surface comprises a curve.~~