CLAIMS

What is claimed:

1. A catheter assembly, comprising:

a catheter adapter, comprising a distal end, a proximal end, a lumen extending through the distal end of the catheter adapter and the proximal end of the catheter adapter, and a side port disposed between the distal end of the catheter adapter and the proximal end of the catheter adapter;

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

an annular valve disposed within the lumen and configured to seal the side port from the lumen; and

a retainer element configured to secure the annular valve within the lumen, wherein the retainer element is disposed within the lumen proximal to a proximal end of the annular valve or within the proximal end of the annular valve.

2. The catheter assembly of claim 1, wherein the retainer element contacts the annular valve.

3. The catheter assembly of claim 1, wherein the retainer element comprises a ring, wherein the ring is disposed proximal to the annular valve.

4. The catheter assembly of claim 1, wherein the retainer element comprises a C-shape, wherein the retainer element pinches the annular valve between the C-shape and the catheter adapter.

5. The catheter assembly of claim 4, wherein a portion of the annular valve within an open portion of the C-shape is unclamped.

6. The catheter assembly of claim 5, wherein the portion of the annular valve is on a same side of the catheter assembly as the side port.

7. The catheter assembly of claim 1, further comprising an antimicrobial coating disposed on an outer surface of the retainer element.