CLAIMS

1. A delivery device for delivering an instrument through an intravenous catheter, comprising:

a housing, comprising a port;

a connector, wherein the connector comprises:

a primary fluid pathway; and

a plurality of secondary fluid pathways in fluid communication with the primary fluid pathway;

a rotary element disposed within the housing and coupled to the connector, wherein the connector extends through the rotary element, wherein the rotary element comprises:

a groove extending around at least a portion of a circumference of the rotary element; and

a channel; and

an instrument, comprising a first end and a second end, wherein the instrument is disposed within the groove and between the rotary element and the housing,

wherein the rotary element is configured to rotate with respect to the housing between a first position and a second position,

wherein in response to the rotary element being in the first position, the second end of the instrument is aligned with the plurality of secondary fluid pathways, the channel is not aligned with the plurality of secondary fluid pathways, and the first end of the instrument is disposed in a first location;

wherein in response to the rotary element being in the second position, the channel is aligned with the plurality of secondary fluid pathways, the second end of the instrument is not

aligned with the plurality of secondary fluid pathways, and the first end of the instrument is disposed in a second location.

2. The delivery device of claim 1, wherein in response to rotation of the rotary element from the second position to the first position, the instrument is advanced distally through the port.

3. The delivery device of claim 1, wherein the rotary element rotates from the first position to the second position in response to rotation of the rotary element less than a full turn.

4. The delivery device of claim 1, wherein the rotary element is configured to rotate with respect to the housing between the first position, the second position, and a third position,

wherein in response to the rotary element being in the third position, the second end of the instrument is aligned with the plurality of secondary fluid pathways, the channel is aligned with the plurality of secondary fluid pathways, and the first end of the instrument is disposed in a third location.

5. The delivery device of claim 4, wherein in response to rotation of the rotary element from the third position to the first position, the instrument is advanced distally through the port.

6. The delivery device of claim 4, wherein the rotary element rotates from the first position to the third position in response to rotation of the rotary element about one-fourth of a full turn.

7. The delivery device of claim 1, wherein the instrument comprises tubing.

8. The delivery device of claim 1, wherein the connector comprises a luer adapter.

9. The delivery device of claim 1, further comprising an extension tube integrated within the port.

10. The delivery device of claim 1, wherein the second end of the instrument is secured within the groove.

11. The delivery device of claim 1, wherein the groove extends inwardly from the circumference toward a central axis of rotation of the rotary element.

12. A catheter system, comprising:

a catheter assembly, comprising:

a catheter adapter; and

a catheter having a distal end, wherein the catheter extends distally from the catheter adapter; and

a delivery device coupled to the catheter assembly, comprising:

a housing, comprising an port;

a connector, wherein the connector comprises:

a primary fluid pathway; and

a plurality of secondary fluid pathways in fluid communication with the primary fluid pathway;

a rotary element disposed within the housing and coupled to the connector, wherein the connector extends through the rotary element, wherein the rotary element comprises:

a groove extending around at least a portion of a circumference of the rotary element; and

a channel; and

an instrument, comprising a first end and a second end, wherein the instrument is disposed within the groove and between the rotary element and the housing,

wherein the rotary element is configured to rotate with respect to the housing between a first position and an second position,

wherein in response to the rotary element being in the first position, the second end of the instrument is aligned with the plurality of secondary fluid pathways, the channel is not aligned with the plurality of secondary fluid pathways, and the first end of the instrument is disposed in a first location, wherein the first location is distal to the distal end of the catheter,

wherein in response to the rotary element being in the second position, the channel is aligned with the plurality of secondary fluid pathways, the second end of the instrument is not aligned with the plurality of secondary fluid pathways, and the first end of the instrument is disposed in a second location, wherein the second location is proximal to the distal end of the catheter.

13. The catheter system of claim 12, further comprising an extension tube, comprising a proximal end and a distal end, wherein the proximal end of the extension tube is integrated within the port, wherein the distal end of the extension tube is integrated within the catheter adapter.

14. The catheter system of claim 12, wherein the instrument comprises tubing.

15. A delivery device for delivering an instrument through an intravenous catheter, comprising:

a housing, comprising a first port, a second port, and a protrusion;

a rotary element disposed within the housing, wherein the rotary element comprises:

a groove extending around at least a portion of a circumference of the rotary element;

an upper end, comprising a connector;

a lower end;

a lumen extending through the upper end and the lower end;

an upper septum disposed within the lumen;

a lower septum disposed within the lumen, wherein in response to connection of a medical device to the connector, the upper septum is configured to move towards the lower septum to allow fluid to flow around the upper septum, and

the instrument, comprising a first end and a second end, wherein the instrument is disposed within the groove and between the rotary element and the housing,

wherein the rotary element is configured to rotate with respect to the housing between a first position and an second position,

wherein in response to the rotary element being rotated to the first position, the lower septum contacts the protrusion and is moved towards an opening, the lower septum divides the lumen into an upper chamber and a lower chamber sealed from the upper chamber, the upper chamber is in fluid communication with the second end of the instrument, the instrument extends through the first port, and the first end of the instrument is disposed in a first location, wherein the second port is in fluid communication with the lower chamber;

wherein in response to the rotary element being rotated to the second position, the lower septum moves away from the opening, the upper chamber, the lower chamber, and the second end of the instrument are in fluid communication, and the first end of the instrument is disposed in a second location.

16. The delivery device of claim 15, further comprising a spring disposed within the lumen, wherein the spring urges the upper septum upwardly against the housing to prevent fluid from flowing around the upper septum.

17. The delivery device of claim 15, wherein the instrument comprises tubing.

18. The delivery device of claim 15, wherein the second end of the instrument is secured within the groove.

19. The delivery device of claim 15, further comprising a channel disposed between the lower end of the rotary element and the housing, wherein the channel is in fluid communication with the lower chamber.

20. The delivery device of claim 15, wherein the connector comprises a luer adapter.