

CLAIMS

1. An extension set to couple to a vascular access device, the extension set comprising:
 - a distal connector;
 - a proximal connector;
 - a housing, comprising a distal end coupled to the distal connector and a proximal end coupled to the proximal connector;
 - a tube disposed within the housing and configured to move distally such that a distal end of the tube is distal to the distal connector; and
 - a coil spring disposed within the tube, wherein a distal end of the coil spring is distal to the distal end of the tube or the coil spring is configured to move distally such that the distal end of the coil spring is distal to the distal end of the tube.
2. The extension set of claim 1, wherein the distal end of the coil spring is distal to the distal end of the tube.
3. The extension set of claim 1, wherein the coil spring is configured to move distally such that the distal end of the coil spring is distal to the distal end of the tube.
4. The extension set of claim 1, wherein the distal connector comprises an inner diameter, wherein an outer surface of the tube comprises a feature, wherein the feature comprises an outer diameter, wherein the outer diameter of the feature is greater than the inner diameter such that the feature is prevented from moving distally through the distal connector.
5. The extension set of claim 1, wherein the coil spring is configured to move distally such that the distal end of the coil spring is distal to the distal end of the tube, wherein the tube comprises an inner diameter, wherein a proximal portion of the coil spring comprises an outer diameter, wherein the outer diameter is greater than the inner diameter such that the

proximal portion of the coil spring is prevented moving distal to the inner diameter of the tube.

6. The extension set of claim 1, wherein a pitch of the coil spring varies.
7. The extension set of claim 1, wherein a pitch of the coil spring is uniform.
8. The extension set of claim 1, wherein an outer diameter of the distal end of the coil spring is less than an outer diameter of a proximal portion of the coil spring.
9. The extension set of claim 1, wherein the tube has a variable outer diameter.
10. The extension set of claim 1, wherein the tube comprises a plurality of side holes.
11. A catheter system, comprising:
a catheter assembly, comprising:
a catheter adapter, comprising a distal end, a proximal end, and a lumen extending through the distal end and the proximal end; and
a catheter extending distally from the distal end of the catheter adapter; and
a coil spring extending through a distal opening of the catheter.
12. The catheter assembly of claim 11, wherein a pitch of the coil spring proximate a distal opening of the catheter is less than a pitch of the coil spring proximal to the distal opening of the catheter.
13. The catheter system of claim 11, further comprising a guidewire extending through the coil spring.
14. The catheter assembly of claim 13, wherein the guidewire includes an obturator, wherein an outer surface of the obturator contacts an inner surface of the coil spring along a length of the coil spring.

15. The catheter system of claim 11, further comprising another coil spring extending through the distal opening of the catheter, wherein the other coil spring is configured to rotate and advance distally with respect to the coil spring.
16. The catheter system of claim 11, further comprising a connector coupled to the proximal end of the catheter adapter, wherein the coil spring is coupled to the connector and extends distally from the connector through the catheter.
17. The catheter system of claim 11, wherein the catheter assembly further comprises an extension set, wherein the catheter adapter further comprises a side port coupled to the extension set, further comprising a connector coupled to the extension set, wherein the coil spring is coupled to the connector and extends distally from the connector through the catheter.
18. A catheter system, comprising:
a catheter assembly, comprising:
 a catheter adapter, comprising a distal end, a proximal end, and a lumen extending through the distal end and the proximal end; and
 a catheter extending distally from the distal end of the catheter adapter;
a straightener tube disposed within the catheter; and
a guidewire disposed within the straightener tube, wherein in response to removal of a distal end of the guidewire from the straightener tube, the guidewire automatically bends into a coil spring.
19. The catheter system of claim 18, wherein the guidewire is configured to advance distally with respect to the straightener tube, wherein in response to the guidewire advancing

distally beyond a distal end of the straightener tube, the guidewire automatically bends into the coil spring.

20. The catheter system of claim 18, wherein the straightener tube is configured to retract proximally with respect to the guidewire, wherein in response to the straightener tube being retracted proximally with respect to the guidewire, the guidewire is configured to bend into the coil spring.