We claim:

1. A sheath assembly comprising:

a medical device configured to be inserted into a blood vessel, a first portion of the medical device having a first width, and a second portion of the medical device having a second width that is smaller than the first width;

a first sheath having a first lumen extending between proximal and distal ends of the first sheath configured to allow for passage of the second portion of the medical device; a first hub coupled to the proximal end of the first sheath;

a second sheath having a second lumen extending between proximal and distal ends of the second sheath, the second lumen being expandable;

and a second hub coupled to the proximal end of the second sheath, wherein the second lumen is configured to have a first inner diameter at rest, and to elastically expand from the first inner diameter to a second inner diameter during passage of the first portion of the medical device, wherein the second lumen is configured to contract from the second inner diameter to the first inner diameter during the passage of the second portion of the medical device, leaving a gap between an inner surface of the second sheath and an outer surface of the second portion of the medical device, and wherein the first sheath is configured to fill the gap and form a seal between the inner surface of the second sheath and the second portion of the medical device when the second sheath is inserted in the blood vessel and the first sheath is inserted into the second lumen over the second portion of the medical device, such that blood from the blood vessel is substantially prevented from migrating past the seal.

2. The sheath assembly of claim 1, further comprising a port configured to enable delivery of a fluid between an inner surface of the first sheath and the outer surface of the second portion of the medical device when the second portion of the medical device is contained within the first lumen.

3. The sheath assembly of claim 2, wherein the port is located on the first hub.

4. The sheath assembly of claim 1, further comprising a port configured to enable delivery of a fluid between the inner surface of the second sheath and an outer surface of the first sheath when the first sheath is inserted into the second lumen.

5. The sheath assembly of claim 4, wherein the port is located on the second hub.

6. The sheath assembly of claim 1, wherein the first hub further comprises a port configured to enable delivery of a fluid into the second lumen of the second sheath when the first sheath is inserted into the second lumen.

7. The sheath assembly of claim 1, wherein the first sheath further comprises an auxiliary lumen substantially parallel to the first lumen and extending from the proximal end to the distal end of the first sheath, the auxiliary lumen configured to allow for passage of a guidewire.

8. The sheath assembly of claim 7, wherein the first hub further comprises a port in communication with the auxiliary lumen, the port configured to allow for the passage of the guidewire.

9. The sheath assembly of claim 1, wherein an outer surface of the first sheath is tapered from the proximal end to the distal end of the first sheath, an outer diameter of the first sheath at the proximal end of the first sheath being larger than an outer diameter of the first sheath at the distal end of the first sheath.

10. The sheath assembly of claim 1, wherein the first sheath further comprises an expandable balloon configured to enable varying of a diameter of the second lumen when the first sheath is inserted into the second lumen.

11. The sheath assembly of claim 10, wherein the first hub comprises a balloon port in

communication with the expandable balloon.

12. The sheath assembly of claim 1, wherein the first hub and the second hub are configured to couple to each other via at least one of: a threaded connection, a press fit connection or a cliplock connection.

13. The sheath assembly of claim 1, wherein the first hub includes a feature configured for suturing to a patient.

14. The sheath assembly of claim 13, wherein the feature configured for suturing to the patient includes a pair of suture wings.

15. The sheath assembly of claim 1, wherein an outer diameter of the second sheath is dimensioned to be introduced through a percutaneous access site of about 20 Fr (6.67 mm) or less.

16. The sheath assembly of claim 1, wherein the second sheath comprises either a porous material or a mesh material.

17. The sheath assembly of claim 1, wherein an outer surface of the first sheath comprises one of: radiopaque markers, visible markers, or markers for determining a depth of insertion.

18. The sheath assembly of claim 1, wherein an outer surface of the first sheath is coated with one of: an antithrombogenic coating, or a coating configured to reduce a likelihood of blood clot formation between the first sheath and the second sheath when inserted into the blood vessel.

19. The sheath assembly of claim 1, wherein an outer surface of the second sheath is coated with one of: a hydrophilic coating, a hydrophobic coating, or a coating to reduce friction.

20. The sheath assembly of claim 1, wherein an outer surface of the second sheath is coated with one of: an antimicrobial coating, or a coating configured to reduce a likelihood of infection occurring in the blood vessel when the second sheath is inserted into the blood vessel.

21. The sheath assembly of claim 1, wherein the first sheath is configured to be inserted into the second sheath by moving the first sheath and the second sheath axially relative to one another along a longitudinal axis of the first sheath and the second sheath.

22. The sheath assembly of claim 21, wherein both of the first sheath and the second sheath are configured to be slidably coupled to the second portion of the medical device.

23. The sheath assembly of claim 22, wherein the medical device is a percutaneous heart pump.

24. The sheath assembly of claim 1, wherein the second sheath is configured to be expandable by blood pressure within the blood vessel so as to seal a space between an outer surface of the second sheath and an arteriotomy in the blood vessel.

25. The sheath assembly of claim 1, further comprising:

a rigid third sheath having a third lumen extending between proximal and distal ends of the third sheath configured to allow for the passage of the first portion and the passage of the second portion of the medical device,

wherein the third sheath is configured to be inserted into the second sheath and to allow insertion of the first portion of the medical device into the blood vessel, and

wherein the third sheath is a peel-away sheath configured to be removable from the medical device while the first portion of the medical device remains positioned in the blood vessel.