Claims:

1. A guide catheter for delivering an expandable flow modifying apparatus to a heart passage, the guide catheter comprising:

a flexible elongate shaft comprising:

a proximal portion comprising a fitting for receiving an insertion instrument; and

a distal portion comprising a distal tip, wherein the distal tip comprises an enlarged tip to prevent the flexible elongate shaft from passing through the expandable flow modifying apparatus.

2. The guide catheter of claim 1, wherein the flexible elongate shaft has a diameter of approximately 3.0 millimeters.

3. The guide catheter of claim 1, wherein the enlarged tip comprises a flared tip.

4. The guide catheter of claim 3, wherein the flared tip extends approximately 2 millimeters in length and has a maximum diameter of approximately 3.3 millimeters.

5. The guide catheter of claim 1, wherein the enlarged tip comprises a funnel tip.

6. The guide catheter of claim 5, wherein the funnel tip extends approximately 10 millimeters to approximately 20 millimeters in length and has a maximum diameter of approximately 3.3 millimeters.

7. The guide catheter of claim 1, wherein the enlarged tip comprises a prolapse tip.

8. The guide catheter of claim 7, wherein the prolapse tip comprises a length of the flexible elongate shaft folded radially outward over another length of the flexible elongate shaft.

9. The guide catheter of claim 8, wherein the length of the flexible elongate shaft folded radially outward forms an oblique angle with a central axis of the another length of the flexible elongate shaft.

10. The guide catheter of claim 8, wherein the prolapse tip is configured to be straightened to align with the another length of the flexible elongate shaft and is configured to be constricted to contact the flexible elongate shaft.

11. The guide catheter of claim 1, wherein the enlarged tip comprises a balloon tip.

12. The guide catheter of claim 11, wherein the balloon tip comprises a length of the flexible elongate shaft that is inflatable.

13. The guide catheter of claim 12, wherein the flexible elongate shaft comprises a fluid passage extending internally through at least a portion of the flexible elongate shaft to connect to an airspace within the balloon tip.

14. The guide catheter of claim 1, further comprising a containment sheath slidable along the flexible elongate shaft to collapse the enlarged tip.

15. A system for implanting a flow modifying device in vasculature of a heart, the system comprising:

a flow modifying device comprising:

a tubular body comprising:

a first opening located at a proximal end of the tubular body;

a second opening located at a distal end of the tubular body; and

a neck positioned between the first opening and the second opening, wherein the tubular body is configured to expand from a first configuration to a second configuration, wherein in the second configuration the first opening comprises a first diameter and the neck comprises a second diameter smaller than the first diameter; and

a guide catheter comprising:

a flexible elongate shaft comprising:

a proximal portion comprising a fitting for receiving an insertion instrument; and

a distal portion comprising a distal tip configured to be receivable by the first opening of the tubular body when the tubular body is in the second configuration, wherein the distal tip comprises an enlarged tip to prevent the flexible elongate shaft from passing through the neck of the flow modifying device when the tubular body is in the second configuration.

16. The system of claim 15, wherein:

when the tubular body is in the second configuration a respective diameter of the first opening and the second opening is larger than when the tubular body is in the first configuration.

17. The system of claim 15, wherein a section of the distal portion of the flexible elongate shaft is sized smaller than the neck in the second configuration and the enlarged tip of the distal portion is sized larger than the neck in the second configuration.

18. The system of claim 15, wherein the tubular body increases in diameter from the neck to the first opening and the second opening and the enlarged tip is shaped to conform to a shape of the tubular body between the neck and one of the first opening and the second opening.

19. The system of claim 15, wherein, in the second configuration, the tubular body comprises:

a first flared section extending from the first opening; and

a second flared section extending from the neck.

20. The system of claim 19, wherein the tubular body further comprises in the second configuration:

a first conical section positioned between the first opening and the first flared section; and

a second conical section positioned between the second opening and the second flared section.

21. The system of claim 15, wherein the neck comprises a curved portion of the tubular body in the second configuration.

22. The system of claim 19, wherein the enlarged tip is shaped to conform to the first flared section.

23. The system of claim 15, wherein the enlarged tip comprises a flared tip.

24. The system of claim 15, wherein the enlarged tip comprises a funnel tip.

25. The system of claim 15, wherein the enlarged tip comprises a prolapse tip.

26. The system of claim 15, wherein the enlarged tip comprises a balloon tip.

27. The system of claim 15, further comprising a containment sheath slidable along the flexible elongate shaft and configured to collapse the enlarged tip.

28. The system of claim 15, further comprising a balloon catheter comprising:

an elongate shaft; and

an inflatable balloon configured to be inserted into the tubular body of the flow modifying device when the tubular body is in the first configuration, the inflatable balloon comprising:

a first end configured to expand the first opening of the tubular body; and

a second end configured to expand the second opening of the tubular body;

wherein the first end of the inflatable balloon is configured to engage the enlarged tip of the guide catheter to urge the inflatable balloon back into the guide catheter in a deflated state.

29. The system of claim 28, wherein the enlarged tip of the guide catheter is configured to engage the inflatable balloon in a non-axial direction.

30. The system of claim 28, wherein the enlarged tip of the guide catheter comprises a conical wall disposed at an angle relative to the flexible elongate shaft of the guide catheter such that the conical wall is tangent to the first end of the inflatable balloon when the inflatable balloon is in an inflated state.

31. The system of claim 28, wherein the enlarged tip of the guide catheter comprises a rounded leading edge configured to engage the first end of the inflatable balloon over an arcuate contact area.

32. The system of claim 28, wherein the enlarged tip of the guide catheter is configured to reinforce the guide catheter to resist inward forces generated by the inflatable balloon being pulled into the guide catheter in the deflated state to prevent invagination of the enlarged tip.

33. The system of claim 15, wherein when the tubular body is in the second configuration a diameter of the neck is larger than when the tubular body is in the first configuration.