

CLAIMS

We claim:

1. A method, comprising:

coupling a first delivery device to a catheter assembly, wherein the catheter assembly comprises a catheter dwelling within vasculature of a patient, wherein the first delivery device comprises:

a first housing; and

a first tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the first tubular instrument and the proximal end of the first tubular instrument, wherein the proximal end of the first tubular instrument is secured within the first housing, wherein the first tubular instrument is configured to advance distally from a proximal position to a distal position with respect to the first housing and the catheter assembly, wherein in response to the first tubular instrument being in the proximal position, the first tubular instrument is proximal to the catheter assembly, wherein in response to the first tubular instrument being in the distal position, a distal surface of the first tubular instrument is disposed distal to a distal tip of the catheter and at a first distance beyond the distal tip of the catheter;

after transferring a first volume of blood via the first tubular instrument to a first blood collection container and moving the tubular instrument from the distal position toward the proximal position, decoupling the first delivery device from the catheter assembly;

after decoupling the first delivery device from the catheter assembly, coupling a second delivery device to the catheter assembly, wherein the second delivery device comprises:

a second housing;

a second tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the second tubular instrument and the proximal end of the second tubular instrument, wherein the proximal end of the second tubular instrument is secured within the second housing, wherein the second tubular instrument is configured to advance distally from another proximal position to another distal position with respect to the second housing and the catheter, wherein in response to the second tubular instrument being in the proximal position, the second tubular instrument is proximal to the catheter assembly, wherein in response to the second tubular instrument being in the distal position, a distal surface of the second tubular instrument is disposed distal to the distal tip of the catheter and at a second distance from the distal tip of the catheter, wherein the second distance is greater than the first distance; and

after transferring a second volume of blood via the second tubular instrument to a second blood collection container and moving the second tubular instrument from the distal position toward the proximal position, decoupling the second delivery device from the catheter.

2. The method of claim 1, wherein a difference between the first distance and the second distance is 0.5 inches.
3. The method of claim 1, wherein the first distance is 1 inch or less.
4. The method of claim 3, wherein the second distance is 1.5 inches or less.
5. The method of claim 1, further comprising transferring the first volume of blood via the first tubular instrument to the first blood collection container on a first day, further comprising transferring the second volume of blood via the second tubular instrument to the second blood collection container on a second day.

6. The method of claim 1, wherein the distal end of the first tubular instrument and the second tubular instrument are closed.
7. The method of claim 1, wherein the distal end of the first tubular instrument and the distal end of the second tubular instrument comprise a plurality of side holes.
8. The method of claim 1, further comprising:
 - coupling a third delivery device to a catheter disposed within the vasculature of the patient, wherein the third delivery device comprises:
 - a third housing;
 - a third tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the third tubular instrument and the proximal end of the third tubular instrument, wherein the proximal end of the third tubular instrument is secured within the third housing, wherein the third tubular instrument is configured to advance distally from another proximal position to another distal position with respect to the third housing and the catheter, wherein in response to the third tubular instrument being in the other proximal position, the third tubular instrument is proximal to the catheter assembly, wherein in response to the third tubular instrument being in the other distal position, a distal surface of the third tubular instrument is disposed distal to the distal tip of the catheter and at a third distance from the distal tip of the catheter, wherein the third distance is greater than the second distance.
9. The method of claim 8, wherein the third distance is 2.0 inches or less.
10. The method of claim 9, wherein a difference between the second distance and the third distance is 0.5 inches.
11. A blood draw kit, comprising:
 - a first delivery device, comprising:

a first housing, wherein a distal end of the first housing comprises a first adapter configured to couple to a catheter assembly; and

a first tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the first tubular instrument and the proximal end of the first tubular instrument, wherein the proximal end of the first tubular instrument is secured within the first housing, wherein the first tubular instrument is configured to advance distally from a proximal position to a distal position with respect to the first housing and the catheter assembly, wherein in response to the first tubular instrument advancing distally from the proximal position to the distal position with respect to the first housing, a distal surface of the distal end of the first tubular instrument is disposed at a first distance beyond the distal end of the first housing;

a second delivery device, comprising:

a second housing, wherein a distal end of the second housing comprises a second adapter configured to couple to a catheter assembly; and

a second tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the second tubular instrument and the proximal end of the second tubular instrument, wherein the proximal end of the second tubular instrument is secured within the second housing, wherein the second tubular instrument is configured to advance distally from a proximal position to a distal position with respect to the second housing and the catheter assembly, wherein in response to the second tubular instrument advancing distally from the proximal position to the distal position with respect to the second housing, a distal surface of the distal end of the second tubular instrument is

disposed at a second distance beyond the distal end of the second housing, wherein the second distance is greater than the first distance.

12. The blood draw kit of claim 11, wherein the distal end of the first tubular instrument and the second tubular instrument are closed.
13. The blood draw kit of claim 11, wherein the distal end of the first tubular instrument and the distal end of the second tubular instrument comprise a plurality of side holes.
14. The blood draw kit of claim 11, further comprising:
a third delivery device, comprising:

a third housing, wherein a distal end of the third housing comprises a third adapter configured to couple to a catheter assembly; and

a third tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the third tubular instrument and the proximal end of the third tubular instrument, wherein the proximal end of the third tubular instrument is secured within the third housing, wherein the third tubular instrument is configured to advance distally from a proximal position to a distal position with respect to the third housing and the catheter assembly, wherein in response to the third tubular instrument advancing distally from the proximal position to the distal position with respect to the third housing, a distal surface of the distal end of the third tubular instrument is disposed at a third distance beyond the distal end of the third housing, wherein the third distance is greater than the second distance.

15. A delivery device to deliver a tubular instrument through a catheter of a catheter assembly, the delivery device comprising:

a housing, comprising a first marking, a second marking, and a slot, wherein the first marking is proximal to the second marking;

a tubular instrument, comprising a distal end, a proximal end, and a lumen extending between the distal end of the tubular instrument and the proximal end of the tubular instrument, wherein the proximal end of the tubular instrument is secured within the housing,

a slider coupled to the tubular instrument and slidable along the slot of the housing, wherein in response to advancing the slider distally from a proximal position to the first marking, a distal surface of the distal end of the tubular instrument is disposed at a first distance beyond the distal end of the housing, wherein in response to advancing the slider distally from the proximal position to the second marking, the distal surface of the distal end of the tubular instrument is disposed at a second distance beyond the distal end of the housing, wherein second distance is greater than the first distance.

16. The delivery device of claim 15, wherein a difference between the first distance and the second distance is 0.5 inches.
17. The delivery device of claim 15, wherein the first distance is 1 inch or less.
18. The delivery device of claim 17, wherein the second distance is 1.5 inches or less.
19. The delivery device of claim 15, wherein the housing comprises a third marking distal to the second marking, wherein in response to advancing the slider distally from the proximal position to the third marking, the distal surface of the distal end of the tubular instrument is disposed at a third distance beyond the distal end of the housing, wherein third distance is greater than the second distance.

20. The delivery device of claim 15, wherein in response to the slider being aligned with the first marking, the second marking, the third marking, or another marking on the housing, a distal surface of the tubular instrument is flush with a distal tip of the catheter.