

CLAIMS

What is claimed is:

1. A catheter assembly for accessing a vasculature of a patient, comprising:
an elongate catheter body extending from a proximal end to a distal end, and
defining a first lumen, the catheter body comprising:
a central venous catheter (“CVC”) portion, including a needle access
aperture disposed through a side wall thereof;
a transition portion; and
a peripheral intravenous (“PIV”) portion, defining a PIV lumen
portion of the first lumen; and
a catheter hub coupled to the proximal end of the catheter body;
a peripheral intravenous (“PIV”) hub, defining a PIV hub lumen;
a needle, defining a needle lumen, and a needle hub coupled to a proximal
end thereof, the needle extending through the PIV hub lumen, the needle
access aperture, and the PIV lumen portion to a point distal of the distal
end of the elongate body; and
a guidewire disposed in a proximal portion of the first lumen.
2. The catheter assembly according to claim 1, wherein the guidewire includes a
guidewire hub permanently attached to a proximal end thereof and configured to prevent the
proximal end of the guidewire from advancing distally into the first lumen.
3. The catheter assembly according to either claim 1 or 2, further including a
syringe coupled to the needle hub and in fluid communication with the needle lumen, the
syringe creating a vacuum to draw a blood flow through the needle lumen and confirm vascular
access.
4. The catheter assembly according to any claim of claims 1-3, wherein the PIV
hub includes a clip to couple the PIV hub to the catheter body.
5. The catheter assembly according to any claim of claims 1-4, wherein the PIV
hub is configured to align a tip of the needle with the distal end of the catheter body such that
a bevel of the needle is distal to the distal end of the catheter body.

6. The catheter assembly according to any claim of claims 1-5, wherein the PIV hub includes an anti-rotation feature that orients a bevel of the needle in a predetermined position.

7. The catheter assembly according to claim 6, wherein the anti-rotation feature includes a slot disposed in the PIV hub and a rib disposed on the needle hub, the rib and the slot oriented so that the PIV hub and the needle hub only fully engage when the bevel is oriented in an upward position.

8. The catheter assembly according to any claim of claims 1-7, wherein the catheter hub includes an extension leg extending proximally from a proximal end thereof, the extension leg defining an extension leg lumen in fluid communication with the first lumen, the extension leg including a connector at a proximal end thereof.

9. The catheter assembly according to any claim of claims 1-8, wherein the needle access aperture includes a slit valve that closes the needle access aperture when the needle is removed therefrom.

10. The catheter assembly according to any claim of claims 1-9, wherein the catheter body further includes a second lumen extending from the catheter hub to an outlet aperture disposed through the side wall of the CVC portion proximate a distal end thereof.

11. The catheter assembly according to claim 10, wherein the catheter hub includes a second extension leg defining a second extension leg lumen that is in fluid communication with the second lumen of the catheter body.

12. The catheter assembly according to any claim of claims 1-11, wherein the PIV portion defines a first diameter and the CVC portion defines a second diameter, the first diameter being less than the second diameter.

13. The catheter assembly according to claim 12, wherein the transition portion includes a tapered outer surface extending from the first diameter to the second diameter.

14. The catheter assembly according to any claim of claims 1-13, wherein the PIV portion includes a tip, the tip defining a tapered outer profile and defining an inner lumen diameter, the inner lumen diameter being less than an outer diameter of a shaft of the needle.

15. A method of inserting a catheter into a vasculature of a patient, comprising:
providing a catheter assembly, comprising:
an elongate catheter body extending from a proximal end to a distal end,
and defining a first lumen, the catheter body comprising:
a central venous catheter (“CVC”) portion, including a needle
access aperture disposed through a side wall thereof;
an transition portion; and
a peripheral intravenous (“PIV”) portion defining a PIV lumen
portion of the first lumen;
a catheter hub disposed at the proximal end of the catheter body;
a peripheral intravenous (“PIV”) hub coupled to the catheter body and
defining a PIV hub lumen;
a needle defining a needle lumen and including a needle hub coupled to
the PIV hub, the needle disposed through the PIV hub lumen, the
needle access aperture, the PIV lumen portion, and extending beyond
the distal end of the catheter body; and
a guidewire, disposed within the first lumen;
inserting the needle into the patient to access the vasculature thereof such that
the distal end of the catheter body is disposed within the vasculature;
observing a blood flow at the needle hub to confirm vascular access;
detaching the needle hub from the PIV hub;
withdrawing the needle proximally from the PIV hub;
advancing the PIV portion distally into the vasculature;
detaching the PIV hub from the catheter body;
advancing the guidewire through the first lumen such that a distal end of the
guidewire distal of the distal end of the catheter body; and
advancing the catheter body over the guidewire such that a the CVC portion is
disposed within the vasculature.

16. The method according to claim 15, wherein the PIV portion includes a tip, the
tip defining a tapered outer profile and defining an inner lumen diameter, the inner lumen
diameter being less than an outer diameter of a shaft of the needle to secure the tip of the PIV
portion thereto.

17. The method according to either claim 15 or 16, wherein the PIV portion defines a first diameter and the CVC portion defines a second diameter, the first diameter being less than the second diameter, the transition portion including a tapered outer surface extending from the first diameter to the second diameter.

18. The method according to any claim of claims 15-17, wherein the PIV hub includes a clip to couple the PIV hub to the catheter body and includes an anti-rotation feature that engages the needle hub to orientate a bevel of the needle in a predetermined position.

19. The method according to claim 18, wherein the anti-rotation feature includes a slot disposed in the PIV hub and a rib disposed on the needle hub, the rib engaging the slot to orient the bevel in an upward position.

20. The method according to any claim of claims 15-19, wherein the needle access aperture includes a valve that closes the needle access aperture when the needle is removed therefrom.

21. The method according to any claim of claims 15-20, wherein the catheter body further includes a second lumen extending from the catheter hub to an outlet aperture disposed through a side wall of the CVC portion, the catheter hub including a second extension leg defining a second extension leg lumen that is in fluid communication with the second lumen.

22. The method according to any claim of claims 15-21, wherein a distal end of the guidewire is disposed proximate the needle access aperture prior to the needle accessing the vasculature of the patient.

23. The method according to any claim of claims 15-22, further including a syringe coupled to the needle hub and in fluid communication with the needle lumen, the syringe creating a vacuum to draw a blood flow through the needle lumen and confirming vascular access.