

CLAIMS

What is claimed is:

1. A method for inserting a rapidly insertable central catheter ("RICC") into a blood-vessel lumen of a patient, comprising:
 - obtaining a catheter assembly including:
 - an introducer combination of an introducer needle disposed in an introducer-catheter lumen of an introducer catheter; and
 - the RICC including a catheter tube with an introducing lumen and a side opening through a side of the catheter tube that opens into the introducing lumen, the introducer combination disposed through the side opening, along a distal-end portion of the catheter tube within the introducing lumen, and through a distal end of the catheter tube;
 - establishing a needle tract with a tip of the introducer needle, the needle tract extending from an area of skin to the blood-vessel lumen of the patient;
 - removing the introducer needle from the introducer combination leaving the introducer catheter in place;
 - advancing the introducer catheter into the blood-vessel lumen; and
 - advancing the RICC into the blood-vessel lumen over the introducer catheter until a distal end of the RICC is commensurate with a distal end of the introducer catheter, the RICC is pushed off the introducer catheter, or the distal end of the RICC is past the distal end of the introducer catheter but not pushed off the introducer catheter.
2. The method of claim 1, further comprising disposing the introducer combination in the side opening of the catheter tube.
3. The method of either claim 1 or 2, further comprising:
 - adjusting the introducer combination such that at least about 1-7 cm of the introducer combination extends from the distal end of the RICC; and
 - ensuring the tip of the introducer needle extends past the distal end of the introducer catheter before establishing the needle tract.
4. The method of any claim of claims 1-3, further comprising aspirating blood with a syringe fluidly connected to the introducer needle to confirm the tip of the introducer

needle is disposed in the blood-vessel lumen before removing the introducer needle from the introducer combination.

5. The method of any claim of claims 1-4, wherein advancing the introducer catheter into the blood-vessel lumen includes advancing the introducer catheter at least about 1-7 cm into the blood-vessel lumen to ensure the introducer catheter is sufficiently disposed in the blood-vessel lumen before advancing the RICC into the blood-vessel lumen.

6. The method of any claim of claims 1-5, wherein the RICC is advanced into the blood-vessel lumen over the introducer catheter until the distal end of the RICC is commensurate with the distal end of the introducer catheter or the distal end of the RICC is past the distal end of the introducer catheter but not pushed off the introducer catheter.

7. The method of claim 6, further comprising removing the introducer catheter from the RICC through the side opening through the side of the catheter tube.

8. The method of any claim of claims 1-5, wherein advancing the RICC into the blood-vessel lumen over the introducer catheter until the RICC is pushed off the introducer catheter simultaneously removes the introducer catheter from the RICC through the side opening through the side of the catheter tube.

9. A rapidly insertable central catheter ("RICC"), comprising:

a catheter tube including:

an introducing lumen of a number of catheter-tube lumens, the introducing lumen extending from a proximal end of the catheter tube to a distal end of the catheter tube; and

a side opening through a side of the catheter tube that opens into the introducing lumen in a distal-end portion of the catheter tube, the catheter tube configured to accommodate an introducer needle, an introducer catheter, or a combination thereof through the side opening, along the distal-end portion of the catheter tube within the introducing lumen, and through the distal end of the catheter tube for introducing the RICC into a blood vessel of a patient;

a hub coupled to a proximal-end portion of the catheter tube including a number of hub lumens equal in number to the number of catheter-tube lumens; and

a number of extension legs extending from the hub equal in number to the number of catheter-tube lumens, each extension leg of the number of extension legs including an extension-leg lumen.

10. The RICC of claim 9, wherein the side opening is configured to seal when the introducer needle, the introducer catheter, or the combination thereof is removed from the RICC.

11. The RICC of claim 10, wherein the side opening is a puncture established by the introducer needle, the introducer catheter, or the combination thereof, the catheter tube around at least the puncture formed of an elastomeric material configured to return to its default state when the introducer needle, the introducer catheter, or the combination thereof is removed from the puncture, thereby sealing the puncture.

12. The RICC of claim 10, wherein the catheter tube includes a flap over the side opening, extending into the side opening, or both configured to be held open by the introducer needle, the introducer catheter, or the combination thereof and return to its default state when the introducer needle, the introducer catheter, or the combination thereof is removed from the side opening, thereby sealing the side opening.

13. The RICC of any claim of claims 9-12, wherein the catheter tube includes an area of reinforcement about the side opening configured to maintain an integrity of the catheter tube about the side opening.

14. The RICC of any claim of claims 9-13, wherein the number of catheter-tube lumens, the number of hub lumens, and a number of extension-leg lumens is three, the RICC including a set of three lumens including a distal lumen, a medial lumen, and a proximal lumen formed of fluidly connected portions of the catheter-tube lumens, the hub lumens, and the extension-leg lumens.

15. The RICC of claim 14, wherein the distal lumen has a distal-lumen opening in a distal end of the RICC, the medial lumen has a medial-lumen opening in the side of the catheter tube distal of the side opening, and the proximal lumen has a proximal-lumen opening in the side of the catheter tube distal of the side opening but proximal of the medial-lumen opening.

16. A catheter assembly, comprising:
 - an introducer catheter;
 - an introducer needle disposed in an introducer-catheter lumen of the introducer catheter forming an introducer combination; and
 - rapidly insertable central catheter ("RICC") including:
 - a catheter tube including:
 - an introducing lumen of a number of catheter-tube lumens, the introducing lumen extending from a proximal end of the catheter tube to a distal end of the catheter tube; and
 - a side opening through a side of the catheter tube that opens into the introducing lumen in a distal-end portion of the catheter tube, the introducer combination disposed through the side opening, along the distal-end portion of the catheter tube within the introducing lumen, and through the distal end of the catheter tube for introducing the RICC into a blood vessel of a patient.
17. The catheter assembly of claim 16, further comprising a syringe including a tip extending from a barrel of the syringe, the tip configured as a Luer connector for connecting to a hub of the introducer needle configured as a complementary Luer connector.
18. The catheter assembly of either claim 16 or 17, wherein the side opening is configured to seal when the introducer catheter is removed from the RICC.
19. The catheter assembly of claim 18, wherein the side opening is a puncture established by the introducer needle, the catheter tube around at least the puncture formed of an elastomeric material configured to return to its default state when the introducer catheter is removed from the puncture, thereby sealing the puncture.
20. The catheter assembly of claim 18, wherein the catheter tube includes a flap over the side opening, extending into the side opening, or both configured to be held open by the introducer catheter and return to its default state when the introducer catheter is removed from the side opening, thereby sealing the side opening.
21. The catheter assembly of any claim of claims 16-20, wherein the catheter tube includes an area of reinforcement about the side opening configured to maintain an integrity of the catheter tube about the side opening.

22. The catheter assembly of any claim of claims 16-21, the RICC further comprising:

a hub coupled to a proximal-end portion of the catheter tube including a number of hub lumens equal in number to the number of catheter-tube lumens; and
a number of extension legs extending from the hub equal in number to the number of catheter-tube lumens, each extension leg of the number of extension legs including an extension-leg lumen.

23. The catheter assembly of claim 22, wherein the number of catheter-tube lumens, the number of hub lumens, and a number of extension-leg lumens is three, the RICC including a set of three lumens including a distal lumen, a medial lumen, and a proximal lumen formed of fluidly connected portions of the catheter-tube lumens, the hub lumens, and the extension-leg lumens.

24. The catheter assembly of claim 23, wherein the distal lumen has a distal-lumen opening in a distal end of the RICC, the medial lumen has a medial-lumen opening in the side of the catheter tube distal of the side opening, and the proximal lumen has a proximal-lumen opening in the side of the catheter tube distal of the side opening but proximal of the medial-lumen opening.