

CLAIMS

What is claimed is:

1. A rapidly inserted central catheter ("RICC"), comprising:
 - a first section of a catheter tube formed of a first material having a first durometer, the first section in a distal-end portion of the catheter tube;
 - a second section of the catheter tube formed of a second material having a second durometer less than the first durometer, the second section in the distal-end portion of the catheter tube proximal of the first section; and
 - a junction between the first and second sections of the catheter tube, the first and second sections of the catheter tube having a column strength sufficient to prevent buckling of the catheter tube when inserted into an insertion site and advanced through a vasculature of a patient.
2. The RICC of claim 1, wherein the junction is a third section of the catheter tube formed of a third material having a third durometer between the first and second durometers.
3. The RICC of claim 2, wherein the junction includes a tapered distal-end portion, the first section of the catheter tube includes a flared proximal-end portion, and the tapered distal-end portion of the junction sits within the flared proximal-end portion of the first section of the catheter tube.
4. The RICC of either claim 2 or 3, wherein the junction includes a proximal-end portion, the second section of the catheter tube includes a distal-end portion, and the proximal-end portion of the junction abuts the distal-end portion of the second section of the catheter tube.
5. The RICC of any claim of claims 1-3, wherein each section of the first and second sections of the catheter tube is welded to the junction in a heat weld.
6. The RICC of any claim of claims 1-3, wherein each section of the first and second sections of the catheter tube is welded to the junction in a solvent weld.
7. The RICC of claim 1, wherein the first section of the catheter tube includes a flared proximal-end portion, the second section of the catheter tube includes a tapered distal-

end portion, and the tapered distal-end portion of the second section of the catheter tube sits within the flared proximal-end portion of the first section of the catheter tube.

8. The RICC of claim 7, wherein each section of the first and second sections of the catheter tube is welded to the other section in a heat weld, thereby forming the junction between the first and second sections of the catheter tube.

9. The RICC of claim 7, wherein each section of the first and second sections of the catheter tube is welded to the other section in a solvent weld, thereby forming the junction between the first and second sections of the catheter tube.

10. The RICC of any claim of claims 1-9, wherein the RICC includes a necked-down section about the junction, the necked-down section configured to provide a smooth transition between the first and second sections of the catheter tube.

11. The RICC of any claim of claims 1-10, wherein the first section of the catheter tube is polytetrafluoroethylene, polypropylene, or polyurethane.

12. The RICC of any claim of claims 1-11, wherein the second section of the catheter tube is polyvinyl chloride, polyethylene, polyurethane, or silicone.

13. A method of making a rapidly inserted central catheter ("RICC"), comprising:
obtaining a first section of a catheter tube formed of a first material having a first durometer, a second section of the catheter tube formed of a second material having a second durometer, and a third section of the catheter tube formed of a third material having a third durometer between the first and second durometers;
flaring a proximal-end portion of the first section of the catheter tube to form a flared proximal-end portion of the first section of the catheter tube;
inserting a tapered distal-end portion of the third section of the catheter tube into the flared proximal-end portion of the first section of the catheter tube;
abutting a distal-end portion of the second section of the catheter tube and a proximal-end portion of the third section of the catheter tube; and
welding the first, second, and third sections of the catheter tube together to form a junction of the third material between the first and second sections of the catheter tube.

14. The method of claim 13, wherein welding the second and third sections of the catheter tube is before inserting the tapered distal-end portion of the third section of the catheter tube into the flared proximal-end portion of the first section of the catheter tube and welding the first and third sections of the catheter tube together.

15. The method of either claim 13 or 14, wherein the welding is independently heat welding or solvent welding.

16. The method of any claim of claims 13-15, further comprising tapering a non-tapered distal-end portion of the third section of the catheter tube to form the tapered distal-end portion of the third section of the catheter tube.

17. The method of any claim of claims 13-16, further comprising necking down the catheter tube to form a necked-down section about the junction, the necked-down section configured to provide a smooth transition between the first, second, and third sections of the catheter tube.

18. A method of making a rapidly inserted central catheter ("RICC"), comprising:
obtaining a first section of a catheter tube formed of a first material having a first durometer and a second section of the catheter tube formed of a second material having second durometer less than the first durometer;
flaring a proximal-end portion of the first section of the catheter tube to form a flared proximal-end portion of the first section of the catheter tube;
inserting a tapered distal-end portion of the second section of the catheter tube into the flared proximal-end portion of the first section of the catheter tube;
and
welding the first and second sections of the catheter tube together to form a junction between the first and second sections of the catheter tube.

19. The method of claim 18, wherein the welding is heat welding or solvent welding.

20. The method of either claim 18 or 19, further comprising tapering a non-tapered distal-end portion of the second section of the catheter tube to form the tapered distal-end portion of the second section of the catheter tube.

21. The method of any claim of claims 18-20, further comprising necking down the catheter tube to form a necked-down section about the junction, the necked-down section configured to provide a smooth transition between the first and second sections of the catheter tube.

22. A method of a rapidly inserted central catheter ("RICC"), comprising:
creating an insertion site with a needle to access a vasculature of a patient;
inserting a distal-end portion of a catheter tube of the RICC into the insertion site over the needle; and
advancing the distal-end portion of the catheter tube through the vasculature of the patient without use of a Seldinger technique.

23. The method of claim 22, further comprising: withdrawing the needle from the RICC after creating the insertion site.

24. The method of either claim 22 or 23, wherein the insertion site is at a right subclavian vein or a right internal jugular vein.

25. The method of claim 24, wherein advancing the distal-end portion of the catheter tube through the vasculature of the patient includes advancing the distal-end portion of the catheter tube through the right subclavian vein or the right internal jugular vein, a right brachiocephalic vein, and into a superior vena cava.

26. A rapidly inserted central catheter ("RICC"), comprising:
a first section of a catheter tube formed of a first material having a first durometer, the first section in a distal-end portion of the catheter tube having a single lumen;
a second section of the catheter tube formed of a second material having a second durometer less than the first durometer, the second section in the distal-end portion of the catheter tube proximal of the first section having a pair of lumens; and
a junction between the first and second sections of the catheter tube in which the pair of lumens transitions into the single lumen, the first and second sections of the catheter tube having a column strength sufficient to prevent buckling of the catheter tube when inserted into an insertion site and advanced through a vasculature of a patient.

27. A rapidly inserted central catheter (“RICC”), comprising:
- a first section in a distal-end portion of a catheter tube;
 - a second section in the distal-end portion of the catheter tube proximal of the first section; and
 - a junction between the first and second sections of the catheter tube, the first and second sections of the catheter tube formed of a same material or different materials having substantially equal durometers provided a column strength of the catheter tube is sufficient to prevent buckling of the catheter tube when inserted into an insertion site and advanced through a vasculature of a patient.