

CLAIMS

1. A needle assembly comprising:
a needle hub with a needle comprising a wall surface defining a needle shaft having a
5 needle lumen and a needle tip;
a notch formed through the wall surface of the needle proximal of the needle tip, so that
blood is allowed to flow from the needle lumen through the notch and
the notch is equipped, loaded, or packed with a flashback indicator;
wherein the flashback indicator having a material that can absorb fluid, change color, or
10 both.
2. The needle assembly of claim 1, further comprising a catheter hub having an interior
cavity and a catheter tube having a bore and wherein the needle projects through the bore of the
catheter tube and the notch is located inside the catheter tube.
3. The needle assembly of claim 2, further comprising a valve located in the interior cavity
15 of the catheter hub.
4. The needle assembly of claim 3, further comprising an activator located in the interior
cavity of the catheter hub proximal of the valve, and wherein the activator is configured to press
open the valve.
5. The needle assembly according to any one of the preceding claims, wherein the flashback
20 indicator is made from at least one of a cellulose acetate material, a colloid material, a cotton
material, a chromogenic polymer, an acrylic copolymer material, a fibrous material coated with
an amphipathic material comprising carboxylates (RCO_2), sulfates (RSO_4), sulfonates (RSO_3), or
phosphates, or combinations thereof.
6. The needle assembly according to any one of the preceding claims, further comprising a
25 change in profile located along an axial position on the shaft with the notch.
7. The needle assembly according to any one of claims 2 to 6, wherein the flashback
indicator is porous and visible through the catheter tube.
8. The needle assembly according to any one of the preceding claims, further comprising a
support element having a catheter tube extending from a distal end thereof, a catheter hub
30 attached to the support element via a flexible buffer element, and a needle hub positioned

proximally of the catheter hub; wherein the needle projects through the catheter tube and the notch is located inside the flexible buffer element or inside the catheter tube.

9. The needle assembly of claim 8, wherein the needle is coupled to the needle hub via a needle wire.

5 10. The needle assembly according to any one of claims 8 and 9, wherein the notch is located proximally of the support element.

11. The needle assembly according to any one of claims 2 to 10, wherein the notch is located outside of the catheter tube.

10 12. The needle assembly according to any one of claims 8 to 11, wherein the catheter hub comprises a Y-site.

13. The needle assembly according to any one of the preceding claims, wherein the flashback indicator is located in the notch and at least partly in the needle lumen.

14. The needle assembly according to any one of the preceding claims, wherein the flashback indicator is partially inside the notch and partially outside the notch or wholly outside of the
15 notch.

15. The needle assembly according to any one of the preceding claims, wherein the flashback indicator comprises a distal edge that lies above the notch, aligned with a proximal edge of the notch, or is located just proximal of the proximal edge of the notch.

16. The needle assembly according to any one of the preceding claims, wherein the flashback
20 indicator is a sheet wrapped around an exterior of the needle shaft.

17. The needle assembly according to any one of the preceding claims, wherein the flashback indicator, when filled with blood, prevents blood from dripping out of the needle.

18. The needle assembly according to any one of the preceding claims, further comprising a sleeve wrapped around the flashback indicator.

25 19. The needle assembly according to any one of the preceding claims, further comprising a recessed section on the needle shaft for receiving the flashback indicator.

20. A method for manufacturing a needle assembly comprising:

forming a needle hub with a needle comprising a wall surface defining a needle shaft having a needle lumen, a needle tip, and a notch formed through the wall surface of the needle
30 shaft so that blood is allowed to flow from the needle lumen through the notch;

equipping the notch with a flashback indicator, the flashback indicator having an absorbent material to indicate presence of a fluid;

forming a catheter tube and projecting the needle through the catheter tube and out a distal end of the catheter tube.