What is claimed is:

1. A catheter assembly (100) comprising:

a catheter unit (102) comprising a catheter hub (106) having a hub body (120) with a proximal opening (184) and having a catheter tube (108) extending from a distal end of the catheter hub (106), the catheter tube (108) having a catheter tube opening (116);

an integrated needle unit (104) comprising a needle hub (110) with a body (134) and having a needle (112) with a needle lumen extending out a distal end of the needle hub (110), wherein the needle hub (110) comprises:

a distal path (140) having a distal path opening (140a) and having the needle (112) attached to an end of the distal path (140);

a proximal path (144) having a proximal path opening (144a) and a rear-most opening (144b);

a working surface (138) on a working platform (136) located between the distal path opening (140a) and the proximal path opening (144a); and

wherein the working surface (138) is exposed from a side of the body (134),

wherein a guidewire (148) extends through both the distal path (140), the proximal path (144), and at least part of the needle lumen; and

wherein the needle hub (110), the needle (112), and the guidewire (148) are completely separated from the catheter hub (106), when the needle hub (110) and the catheter hub (106) are moved away from one another.

2. The catheter assembly (100) of claim 1, wherein the proximal opening of the hub body (120) comprises a female Luer receiving a distal end of the needle hub (110).

3. The catheter assembly (100) of claim 1 or 2, wherein a tubing (158) having a first end (160) coupled directly to the needle hub (110).

4. The catheter assembly (100) of claim 3, wherein the first end (160) projects into the rear-most opening (144b) of the needle hub (110).

5. The catheter assembly (100) of claim 3 or 4, wherein the guidewire (148) is partly located inside the tubing (158).

6. The catheter assembly (100) according to any one of claims 3 to 5, wherein the tubing (158) has a second end (162) and wherein the second end (162) is unsupported or wherein the second end (162) is supported by a socket (164) located on the needle hub (110).

7. The catheter assembly (100) according to any one of claims 1 to 6, wherein the guidewire (148) has a proximal end (180) and wherein the proximal end (180) is sized and shaped to abut the rear-most opening (144b) of the needle hub (110) to stop distal movement of the guidewire (148) or wherein the guidewire (148) has an enlarged section and wherein the enlarged section is sized and shaped to abut a crimp on the needle (112) from inside the needle (112) to stop distal movement of the guidewire (148).

8. The catheter assembly (100) according to any one of claims 1 to 7, wherein the needle hub (110) has a first proximal path section (144(1)) and a guide stub (150) extending from a proximal end surface (152) of the needle hub (110) and a second proximal path section (144(2)) aligned with the first proximal path section (144(1)).

9. The catheter assembly (100) according to any one of claims 1 to 8, wherein the needle hub (110) has a receiving cavity (246) at the distal path (140).

10. The catheter assembly (100) according to any one of claims 1 to 9, further comprising a flow restrictor (250) located in the receiving cavity (246), said flow restrictor (250) comprising one of a septum, a valve, or a hydrophobic filter.

11. The catheter assembly (100) according to any one of claims 1 to 10, wherein the needle hub (100) has a channel and wherein the working platform (136) is part of the channel and the channel having sidewalls (264, 264) extending from the working surface (138).

12. The catheter assembly (100) according to any one of claims 1 to 11, further comprising a needle guard (200) located in an interior of the catheter hub (106), said needle guard (200) comprising two arms biased outwardly by the needle (112).

13. The catheter assembly (100) of claim 12, further comprising a valve (192) and a valve opener (194) located in the interior of the catheter hub (106).

14. The catheter assembly (100) according to any one of claims 1 to 13, wherein a tubing (158) is attached to the needle hub (110) and wherein a guidewire (148) is partly located inside the tubing (158) and partly located inside the needle (112).

15. The catheter assembly (100) of claim 14, wherein the guidewire (148) passes through both the distal path (140) and the proximal path (144).

16. A method of manufacturing a catheter assembly (100) according to any one of claims 1 to 15 comprising:

forming a catheter unit (102) comprising a catheter hub (106) having a hub body (120) with a proximal opening (184) and having a catheter tube (108) extending from a distal end of the catheter hub (106), the catheter tube (108) having a catheter tube opening (116);

forming an integrated needle unit (104) comprising a needle hub (110) with a body (134) and having a needle (112) with a needle lumen extending out a distal end of the needle hub (110), wherein the needle hub (110) comprises:

a distal path (140) having a distal path opening (140a) and having the needle (112) attached to an end of the distal path (140);

a proximal path (144) having a proximal path opening (144a) and a rear-most opening (144b);

a working surface (138) on a working platform (136) located between the distal path opening (140a) and the proximal path opening (144a); and

wherein the working surface (138) is exposed from a side of the body (134), and

passing a guidewire (148) through proximal path (144), through the distal path (140), and at least partly into the needle lumen.

17. The method of claim 16, further comprising exposing the guidewire (148) at the working surface (138) between the proximal path (144) and through the distal path (140) for pushing by a user.

18. The method according to any one of claims 16 to 17, further comprising placing a flow restrictor (250) into a receiving cavity (246) formed at a distal end of the needle hub (110).