CLAIMS

1. A catheter insertion device, comprising:

a needle, comprising a distal end, a proximal end, and an elongated body extending between the distal end and the proximal end, wherein the distal end comprises:

a distal tip;

a first beveled surface extending proximally from the distal tip;

a second beveled surface extending proximally from the distal tip; and

a third beveled surface extending proximally from the distal tip,

wherein the first beveled surface converges with the second beveled surface to form a first cutting edge, wherein the second beveled surface converges with the third beveled surface to form a second cutting edge, wherein the third beveled surface converges with the first beveled surface to form a third cutting edge,

wherein the first cutting edge is offset from the second cutting edge by about 120 degrees, wherein the second cutting edge is offset from the third cutting edge by about 120 degrees, wherein the third cutting edge is offset from the first cutting edge by about 120 degrees; and

a catheter, comprising a distal end, a proximal end, and a lumen extending through the distal end of the catheter and the proximal end of the catheter, wherein the needle extends through the catheter,

wherein a perimeter of the first beveled surface includes the first cutting edge, the third cutting edge, and a first proximal edge extending between the first cutting edge and the third cutting edge, a perimeter of the second beveled surface includes the first cutting edge, the second cutting edge, and a second proximal edge extending between the first

cutting edge and the second cutting edge, and a perimeter of the third beveled surface includes the second cutting edge, the third cutting edge, and a third proximal edge extending between the second cutting edge and the third cutting edge, and

wherein an outer surface of the elongated body comprises three chamfered transition surfaces, each chamfered transition surface being disposed between a respective pair of adjacent proximal edges, contiguous with the corresponding beveled surfaces, and configured to reduce accidental cutting of tissue and to distribute insertion forces during insertion.

2. The catheter insertion device of claim 1, wherein the needle further comprises a flash groove, wherein the flash groove comprises a distal end proximate the first beveled surface, the second beveled surface, or the third beveled surface, wherein the flash groove further comprises a proximal end disposed proximal to the distal end of the catheter.
3. The catheter insertion device of claim 1, wherein the needle comprises a lumen extending through the proximal end of the needle, wherein the first beveled surface, the second beveled surface, or the third beveled surface comprises a hole in fluid communication with the lumen of the needle.
4. The catheter insertion device of claim 1, wherein a length of the first beveled surface from the distal tip to an apex of the first proximal edge is equal to a length of the second beveled surface from the distal tip to an apex of the second proximal edge, and is equal to a length of the third beveled surface from the distal tip to an apex of the third proximal edge.
5. The catheter insertion device of claim 1, wherein the length of the perimeter of the first beveled surface, the length of the perimeter of the second beveled surface, and the length of the perimeter of the third beveled surface are equal.

6. The catheter insertion device of claim 1, wherein a length of the first beveled surface from the distal tip to an apex of the first proximal edge is greater than a length of the second beveled surface from the distal tip to an apex of the second proximal edge.
7. The catheter insertion device of claim 1, wherein the first beveled surface, the second beveled surface, and the third beveled surface are each planar.
8. The catheter insertion device of claim 1, wherein the needle is oriented within the catheter such that the first beveled surface, the second beveled surface, or the third beveled surface faces downwardly.
9. A needle, comprising:

a distal end comprising a distal tip, a first beveled surface, a second beveled surface, and a third beveled surface arranged as defined in claim 1;

a proximal end; and

an elongated body extending between the distal end and the proximal end,

wherein an outer surface of the elongated body comprises three chamfered transition surfaces disposed between respective pairs of adjacent proximal edges and contiguous with the beveled surfaces.

10. The needle of claim 9, wherein the needle is solid.
11. The needle of claim 10, wherein the needle further comprises a flash groove extending proximally from the first beveled surface, the second beveled surface, or the third beveled surface.
12. The needle of claim 9, wherein the needle comprises a lumen extending through the proximal end of the needle, wherein the first beveled surface, the second beveled surface, or the third beveled surface comprises a hole in fluid communication with the lumen of the needle.

13. The needle of claim 9, wherein the length of the perimeter of the first beveled surface, the length of the perimeter of the second beveled surface, and the length of the perimeter of the third beveled surface are equal, and the distal tip is aligned with a central axis of the needle.

14. The needle of claim 9, wherein the length of the perimeter of the first beveled surface, the length of the perimeter of the second beveled surface, and the length of the perimeter of the third beveled surface are not equal, and the distal tip is not aligned with a central axis of the needle.