~~CLAIMS~~

~~1. A vascular access device, comprising:~~

~~a housing, comprising a proximal end, a distal end, and a slot; and~~

~~an instrument disposed within the housing, wherein the instrument comprises a proximal end and a distal tip, wherein the instrument comprises a catheter or a probe, wherein the proximal end of the instrument extends through the slot and is configured to move along the slot from a proximal position to a distal position, wherein in response to movement of the proximal end of the instrument from the proximal position to the distal position, the instrument is advanced beyond the distal end of the housing.~~

~~2. The vascular access device of claim 1, wherein the instrument comprises the catheter, wherein the proximal end of the instrument is coupled with an adapter, wherein the adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the syringe or the blood collection tube in response to the syringe or the blood collection tube being advanced into the cavity of the adapter.~~

~~3. The vascular access device of claim 1, wherein the housing is rigid or semi-rigid.~~

~~4. The vascular access device of claim 1, wherein the proximal end of the instrument comprises a luer fitting.~~

~~5. The vascular access device of claim 1, wherein the adapter is angled with respect to the housing.~~

~~6. The vascular access device of claim 1, wherein the adapter is oriented parallel to a longitudinal axis of the housing.~~

~~7. The vascular access device of claim 1, further comprising an advancement tab coupled with the instrument.~~

~~8. The vascular access device of claim 7, wherein the advancement tab is offset from the slot.~~

~~9. A vascular access device, comprising:~~

~~a sleeve, comprising a proximal end and a distal end, wherein the distal end is configured to be coupled to a catheter assembly, wherein the sleeve is compressible in a distal direction; and~~

~~an instrument disposed within the sleeve, wherein the instrument comprises a proximal end and a distal tip, wherein the instrument comprises a catheter or a probe, wherein the instrument is configured to move from a proximal position to a distal position, wherein the instrument is advanced beyond the distal end of the sleeve when the adapter is disposed in the distal position.~~

~~10. The vascular access device of claim 9, further comprising a housing comprising a proximal end and a distal end, wherein the distal end is configured to be coupled to the catheter assembly, wherein the catheter is advanced to a position beyond the distal end of the housing when the sleeve is compressed in the distal direction.~~

~~11. The vascular access device of claim 9, wherein the instrument comprises the catheter, further comprising an adapter coupled with the proximal end of the instrument, wherein the adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the syringe or the blood collection tube in response to the syringe or the blood collection tube being advanced into the cavity of the adapter.~~

~~12. A vascular access system, comprising:~~

a peripheral intravenous catheter assembly, comprising:

a catheter adapter, comprising a distal end, a proximal end, and a lumen extending therebetween, the catheter adapter having an integrated extension tube; and

a first catheter, wherein the first catheter extends distally from the catheter adapter; and

an extension, comprising:

a housing, comprising a proximal end and a distal end; and

an instrument disposed within the housing, wherein the instrument comprises a second catheter or a probe, wherein the instrument comprises a proximal end and a distal tip, wherein the instrument is configured to move with respect to the housing from a proximal position to a distal position, wherein the instrument is advanced beyond the distal tip of the first catheter when the instrument is disposed in the distal position.

13. The vascular access system claim 12, wherein the housing further comprises a slot, wherein the proximal end of the instrument extends through the slot, wherein the second catheter is advanced beyond the distal tip of the first catheter in response to movement of the proximal end of the instrument along the slot.

14. The vascular access system of claim 13, wherein the housing is rigid or semi-rigid.

15. The vascular access system of claim 13, wherein the instrument comprises the second catheter, further comprising an adapter coupled to the proximal end of the instrument, wherein the adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the syringe or the blood collection tube in response to the syringe or the blood

~~collection tube being advanced into the cavity of the adapter, wherein the adapter is angled with respect to the housing.~~

~~16. The vascular access system of claim 13, wherein the instrument comprises the second catheter, further comprising an adapter coupled to the proximal end of the instrument, wherein the adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the syringe or the blood collection tube in response to the syringe or the blood collection tube being advanced into the cavity of the adapter, wherein the adapter is oriented parallel to a longitudinal axis of the housing.~~

~~17. The vascular access system of claim 13, further comprising an advancement tap coupled with the second catheter.~~

~~18. The vascular access system of claim 12, further comprising a sleeve disposed within the housing, wherein the instrument is disposed within the sleeve, wherein the sleeve is compressible in a distal direction, wherein the second catheter is advanced beyond the distal tip of the first catheter when the instrument is disposed in the distal position and the sleeve is compressed in the distal direction.~~

~~19. The vascular access system of claim 12, further comprising an extension tube, wherein the extension tube comprises a proximal end and a distal end, wherein the proximal end of the instrument is coupled with the distal end of the extension tube.~~

~~20. The vascular access system of claim 19, further comprising an adapter, wherein the proximal end of the extension tube is coupled with the adapter, wherein the adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the~~

~~syringe or the blood collection tube in response to the syringe or the blood collection tube being advanced into the cavity of the adapter.~~

Claims

1. A vascular access device, comprising:

a catheter assembly comprising a catheter adapter having a distal end from which a catheter extends, a first port formed at the proximal end by which an introducer needle is selectively coupled to the catheter adapter, and a side port; and

an extension comprising:

a housing having a proximal end, a distal end that is coupled to the side port of the catheter adapter, and a slot, wherein the slot comprises a proximal end and a distal end, wherein the proximal end of the slot is distal to the proximal end of the housing; and

an instrument disposed within the housing, wherein the instrument comprises a a proximal end and a distal portion forming a distal tip through which blood can be collected, wherein the proximal end of the instrument extends out through the slot to form a blood collection adapter, the proximal end of the instrument, including the blood collection adapter, being configured to move along the slot from a proximal position distal to the proximal end of the slot to a distal position, wherein the vascular access device is configured such that, when the proximal end of the instrument is in the proximal position distal to the proximal end of the slot, the distal tip of the instrument is disposed with the housing, wherein in response to movement of the proximal end of the instrument from the proximal position to the distal position, the distal tip of the instrument is configured to advance out through the catheter to thereby enable blood to be collected directly from a patient's vasculature via the blood collection adapter.

2. The vascular access device of claim 1, wherein the blood collection adapter comprises a cavity configured to receive a syringe or blood collection tube, wherein the blood collection adapter further comprises a cannula disposed within the cavity and configured to puncture a septum of the syringe or the blood collection tube in response to the syringe or the blood collection tube being advanced into the cavity of the blood collection adapter.

3. The vascular access device of claim 1, wherein the housing is rigid or semi-rigid.

4. The vascular access device of claim 2, wherein the blood collection adapter is angled with respect to the housing.

5. The vascular access device of claim 2, wherein the blood collection adapter is

oriented parallel to a longitudinal axis of the housing.

6. The vascular access device of claim 1, further comprising an advancement tab coupled with the instrument.

7. The vascular access device of claim 6, wherein the advancement tab is offset from the slot.

8.. The vascular access device of claim 1, wherein the catheter assembly further includes a Y adapter that is coupled to the side port, the distal end of the housing being coupled to the side port via a first port of the Y adapter.

9. The vascular access device of claim 1, wherein the distal tip of the instrument includes a plurality of holes.

10. The vascular access device of claim 1, wherein the catheter assembly further includes a valve that forms a fluid seal between the side port and the housing, and wherein the distal tip of the instrument is configured to penetrate the valve.

11. The vascular access device of claim 1, wherein the distal portion of the instrument has a smaller outer diameter than a proximal portion of the instrument.

12. The vascular access device of claim 1, wherein a stiffness of the instrument varies along a length of the instrument.

13. The vascular access device of claim 1, wherein the distal portion of the instrument is less rigid than a proximal portion of the instrument.

14. The vascular access device of claim 1, wherein the instrument comprises a probe.

15. The vascular access device of claim 1, wherein the catheter assembly includes a septum that separates the first port from the catheter.

16. The vascular access device of claim 1, wherein the proximal end of the instrument that extends out through the slot comprises an extension tube.

17. The vascular access device of claim 1, further comprising:
a syringe that is configured to couple to the blood collection adapter.

18. The vascular access device of claim 1, further comprising:
a blood collection tube that is configured to couple to the blood collection adapter.

19. The vascular access device of claim 1, wherein the distal end of the housing includes a luer coupling mechanism.