CLAIMS

1. A blood collection apparatus, comprising:

a connector comprising a distal end, a proximal end, and a lumen extending there between, wherein the distal end comprises a male luer lock fitting configured to couple to a proximal end of a catheter adapter, and wherein the proximal end comprises a male luer slip fitting.

2. The blood collection apparatus of claim 1, further comprising a lid for a blood collection tube, the lid comprising:

a body having a cover portion and an inner wall extending from the cover portion, wherein the inner wall is aligned with an aperture extending through the cover portion, wherein the inner wall and the aperture form a channel configured to receive the male luer slip fitting;

a closure, wherein the closure comprises an annular flange that fits inside and contacts a circumference of the channel when the closure is in a closed position; and

a tether connecting the body to the closure.

3. The blood collection apparatus of claim 2, wherein the annular flange comprises an outer circumference less than a circumference of the channel.

4. The blood collection apparatus of claim 2, wherein the annular flange comprises an outer circumference larger than a circumference of the channel or approximately a same size as the circumference of the channel.

5. The blood collection apparatus of claim 2, wherein the body further comprises a generally cylindrical outer wall, wherein the closure further comprises another annular flange, wherein the other annular flange contacts the outer circumference of the outer wall when the closure is in a closed position.

6. The blood collection apparatus of claim 5, wherein the other annular flange comprises an inner circumference greater than the outer circumference of the outer wall.

7. The blood collection apparatus of claim 5, wherein the other annular flange comprises an inner circumference less than or approximately equal to the outer circumference of the outer wall.

8. The blood collection apparatus of claim 2, wherein the inner wall is tapered to receive the male luer slip fitting.

9. The blood collection apparatus of claim 2, wherein the body further comprises a generally cylindrical outer wall, wherein an inner surface of the outer wall comprises a plurality of grooves extending generally parallel to a central axis of the lid.

10. The blood collection apparatus of claim 2, wherein an outer surface of the cover portion is generally planar.

11. The blood collection apparatus of claim 2, wherein an inner surface of the cover portion disposed between the inner wall and the outer wall is generally planar.

12. The blood collection apparatus of claim 2, wherein the body further comprises a generally cylindrical outer wall, further comprising the blood collection tube coupled to the lid, wherein the blood collection tube comprises a rim forming an opening into a cavity of the blood collection tube, wherein the inner wall extends through the opening, wherein the rim contacts an inner surface of the outer wall of the body.

13. The blood collection apparatus of claim 12, wherein the inner surface of the outer wall comprises a plurality of grooves extending generally parallel to a central axis of the lid, wherein the plurality of grooves are permeable to air but not blood.

14. A blood collection apparatus, comprising:

a lid for a blood collection tube, the lid comprising:

a body having a cover portion and an inner wall extending from the cover portion, the inner wall aligned with an aperture extending through the cover portion, the inner wall and the aperture forming a channel;

a closure; and

a tether connecting the body to the closure,

wherein the closure comprises an annular flange that fits inside and contacts the circumference of the channel when the closure is in a closed position.

15. The blood collection apparatus of claim 14, wherein the inner wall is tapered.

16. The blood collection apparatus of claim 14, wherein the body further comprises a generally cylindrical outer wall, wherein the closure further comprises another annular flange, wherein the other annular flange contacts the outer circumference of the outer wall when the closure is in a closed position.

17. The blood collection apparatus of claim 16, wherein an inner surface of the outer wall comprises a plurality of grooves extending generally parallel to a central axis of the lid.

18. The blood collection apparatus of claim 16, further comprising the blood collection tube coupled to the lid, wherein the blood collection tube comprises a rim forming an opening into a cavity of the blood collection tube, wherein the inner wall extends through the opening, wherein the rim contacts an inner surface of the outer wall of the body.

19. The blood collection apparatus of claim 18, wherein the inner surface of the outer wall comprises a plurality of grooves extending generally parallel to a central axis of the lid, wherein the plurality of grooves are permeable to air but not blood.

20. The blood collection apparatus of claim 14, further comprising a connector comprising a distal end, a proximal end, and a lumen extending there between, wherein the distal end comprises a male luer lock fitting configured to couple to a proximal end of a catheter adapter, wherein the proximal end comprises a male luer slip fitting, wherein the lid is coupled to the connector.

CLAIMS

1. A blood collection apparatus, comprising:

a connector comprising a distal end, a proximal end, and a lumen extending there between, wherein the distal end comprises a male luer lock fitting configured to couple to a proximal end of a catheter adapter, and wherein the proximal end comprises a male luer slip fitting.

2. The blood collection apparatus of claim 1, further comprising a lid for a blood collection tube, the lid comprising:

a body having a cover portion and an inner wall extending from the cover portion, wherein the inner wall is aligned with an aperture extending through the cover portion, wherein the inner wall and the aperture form a channel configured to receive the male luer slip fitting;

a closure, wherein the closure comprises an annular flange that fits inside and contacts a circumference of the channel when the closure is in a closed position; and

a tether connecting the body to the closure.

3. The blood collection apparatus of claim 2, wherein the annular flange comprises an outer circumference less than a circumference of the channel.

4. The blood collection apparatus of claim 2, wherein the annular flange comprises an outer circumference larger than a circumference of the channel or a same size as the circumference of the channel.

5. The blood collection apparatus of claim 2, wherein the body further comprises a cylindrical outer wall, wherein the closure further comprises another annular flange, wherein the other annular flange contacts the outer circumference of the outer wall when the closure is in a closed position.

6. The blood collection apparatus of claim 5, wherein the other annular flange comprises an inner circumference greater than the outer circumference of the outer wall.

7. The blood collection apparatus of claim 5, wherein the other annular flange comprises an inner circumference less than or equal to the outer circumference of the outer wall.

8. The blood collection apparatus of claim 2, wherein the inner wall is tapered to receive the male luer slip fitting.

9. The blood collection apparatus of claim 2, wherein the body further comprises a cylindrical outer wall, wherein an inner surface of the outer wall comprises a plurality of grooves extending parallel to a central axis of the lid.

10. The blood collection apparatus of claim 2, wherein an outer surface of the cover portion is planar.

11. The blood collection apparatus of claim 5, wherein an inner surface of the cover portion disposed between the inner wall and the outer wall is planar.

12. The blood collection apparatus of claim 2, wherein the body further comprises a cylindrical outer wall, further comprising the blood collection tube coupled to the lid, wherein the blood collection tube comprises a rim forming an opening into a cavity of the blood collection tube, wherein the inner wall extends through the opening, wherein the rim contacts an inner surface of the outer wall of the body.

13. The blood collection apparatus of claim 12, wherein the inner surface of the outer wall comprises a plurality of grooves extending parallel to a central axis of the lid, wherein the plurality of grooves are permeable to air but not blood.

14. A blood collection apparatus, comprising:

a lid for a blood collection tube, the lid comprising:

a body having a cover portion and an inner wall extending from the cover portion, the inner wall aligned with an aperture extending through the cover portion, the inner wall and the aperture forming a channel;

a closure; and

a tether connecting the body to the closure,

wherein the closure comprises an annular flange that fits inside and contacts the circumference of the channel when the closure is in a closed position.

15. The blood collection apparatus of claim 14, wherein the inner wall is tapered.

16. The blood collection apparatus of claim 14, wherein the body further comprises a cylindrical outer wall, wherein the closure further comprises another annular flange, wherein the other annular flange contacts the outer circumference of the outer wall when the closure is in a closed position.

17. The blood collection apparatus of claim 16, wherein an inner surface of the outer wall comprises a plurality of grooves extending parallel to a central axis of the lid.

18. The blood collection apparatus of claim 16, further comprising the blood collection tube coupled to the lid, wherein the blood collection tube comprises a rim forming an opening into a cavity of the blood collection tube, wherein the inner wall extends through the opening, wherein the rim contacts an inner surface of the outer wall of the body.

19. The blood collection apparatus of claim 18, wherein the inner surface of the outer wall comprises a plurality of grooves extending parallel to a central axis of the lid, wherein the plurality of grooves are permeable to air but not blood.

20. The blood collection apparatus of claim 14, further comprising a connector comprising a distal end, a proximal end, and a lumen extending there between, wherein the distal end comprises a male luer lock fitting configured to couple to a proximal end of a catheter adapter, wherein the proximal end comprises a male luer slip fitting, wherein the lid is coupled to the connector.