

What is claimed is:

1. A syringe comprising:

5 a syringe barrel having a distal end, an open proximal end, and a sidewall extending between the distal end to the open proximal end, the sidewall defining a chamber, an outer circumferential surface, and a snap-in, syringe engagement feature oriented on the outer circumferential surface adjacent the distal end thereof;

10 a non-luer tip oriented on the distal end of the syringe barrel, dimensioned such that the non-luer tip is not connectable to an intravenous device, the non-luer tip defining a fluid pathway in fluid communication with the chamber;

15 an enteral collar, defining a bore in communication with a distal end and a proximal end thereof, the bore having a snap-in, enteral collar engagement feature oriented at the proximal end of the enteral collar that is complementary to and engageable with the syringe engagement feature, the enteral collar engagement feature selectively biased initially in a direction away from a centerline of the bore upon initial axial insertion and advancement of the tip of the syringe into the bore and then biased in a direction toward the bore centerline upon snap-in engagement with the syringe engagement feature; and

20 the enteral collar surrounding the non-luer tip when the syringe engagement feature is engaged with the enteral collar engagement feature, and the enteral collar being sized to permit connection to an enteral device and prevent connection to a device having a luer connector.

25 2. The syringe of claim 1, wherein the respective enteral collar engagement and syringe engagement features comprise a concave recess formed on one of the engagement features and a complementary mating convex projection on the other of the engagement features.

3. The syringe of claim 1, wherein the enteral collar engagement feature comprises at least one cantilever snap joint, with a cantilever arm coupled to the bore of the enteral collar.

4. The syringe of claim 3, wherein the syringe engagement feature comprises a recess formed in the outer circumferential surface of the barrel, which captures an opposed projecting hook formed in the cantilever arm of the cantilever snap joint.
- 5 5. The syringe of claim 3, further comprising a plurality of cantilever snap joints oriented circumferentially about the bore of the enteral collar.
6. The syringe of claim 5, the enteral collar further comprising a relief cut formed in the proximal end thereof between a pair of cantilever snap joints.
- 10 7. The syringe of claim 1, wherein the proximal end of the enteral collar includes the syringe engagement feature and the distal end of the enteral collar includes threads formed in the bore thereof, for engaging a threaded, non-luer connector.
- 15 8. The syringe of claim 7, wherein all the threads are axially separated from the enteral collar engagement feature.
9. The syringe of claim 1, wherein after mating engagement of the syringe engagement feature and the enteral collar engagement feature, the enteral collar is not separable from the
- 20 syringe.
10. The syringe of claim 1, further comprising mating anti-rotation features formed respectively in the outer circumferential surface of the syringe barrel and in the bore of the enteral collar, so that the enteral collar is not rotatable with respect to the syringe after mating
- 25 engagement of the syringe engagement feature and the enteral collar engagement feature.
11. The syringe of claim 1, wherein the chamber has a volume in a range of 5ml and less than 10 ml, and a dead space region that retains fluid in the chamber after fluid is expelled from the chamber, wherein the dead space region contains less than 0.075 ml of fluid.
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12. The syringe of claim 1, wherein axial length of the non-luer tip is greater than the axial length of the bore of the enteral collar, so that the non-luer tip projects out of the distal end of the enteral collar after engagement of the respective syringe and enteral collar engagement features.
- 5 13. The syringe of claim 1, wherein the enteral collar is outside the fluid pathway and not in fluid communication with the chamber.
14. The syringe of claim 1, further comprising radially oriented relief cuts formed in the proximal end of the enteral collar.
- 10 15. A syringe comprising:
a syringe barrel having a distal end, an open proximal end, and a sidewall extending between the distal end to the open proximal end; the sidewall defining a chamber, an outer circumferential surface and a snap-in, syringe engagement feature radially projecting from the outer circumferential surface adjacent the distal end thereof;
- 15 a non-luer tip oriented on the distal end of the syringe barrel, dimensioned such that the non-luer tip is not connectable to an intravenous device, the non-luer tip defining a fluid pathway in fluid communication with the chamber;
- 20 an enteral collar, defining a bore in communication with a distal end and a proximal end thereof, threads formed in the bore on the distal end thereof, for engaging a threaded, non-luer connector, the bore having a snap-in, enteral collar engagement feature oriented at the proximal end of the enteral collar that is complementary to and engageable with the syringe engagement feature, the enteral collar engagement feature axially separated from the threads;
- 25 a concave recess formed on one of the engagement features and a complementary mating convex projection on the other of the engagement features;
- the enteral collar engagement feature selectively biased initially in a direction away from a centerline of the bore upon initial axial insertion and advancement of the tip of the syringe into the bore and then biased in a direction toward the bore centerline upon snap-in engagement with the syringe engagement feature; and
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the enteral collar surrounding the non-luer tip when the syringe engagement feature is engaged with the enteral collar engagement feature, and the enteral collar being sized to permit connection to an enteral device and prevent connection to a device having a luer connector.

5 16. The syringe of claim 15, wherein the syringe engagement feature includes the concave recess, and the enteral collar engagement feature comprises at least one cantilever snap joint, including a cantilever arm, a proximal end of the arm coupled to the bore of the enteral collar and a hook coupled to a distal end of the arm, the hook projecting toward the centerline of the bore, for snap-in engagement with the concave recess of the syringe engagement feature.

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17. The syringe of claim 16, further comprising a plurality of cantilever snap joints circumferentially about the bore of the enteral collar and a corresponding concave recess of the syringe engagement feature.

15 18. The syringe of claim 17, further comprising a relief cut formed in the proximal end of the enteral collar between a pair of cantilever snap joints.

19. A syringe comprising:

20 a barrel having a distal end, an open proximal end, and a sidewall extending between the distal end to the open proximal end; the sidewall defining a chamber, an outer circumferential surface, and a plurality of snap-in, syringe engagement features oriented about and radially projecting from the outer circumferential surface adjacent the distal end thereof, each syringe engagement feature defining a recess;

25 a non-luer tip oriented on the distal end of the syringe barrel, dimensioned such that the non-luer tip is not connectable to an intravenous device, the non-luer tip defining a fluid pathway in fluid communication with the chamber;

30 an enteral collar, defining a bore in communication with a distal end and a proximal end thereof, threads formed in the bore on the distal end thereof, for engaging a threaded, non-luer connector, the bore having a snap-in, enteral collar engagement feature, for engagement with a corresponding syringe engagement feature, the enteral collar engagement feature axially separated from the threads and oriented at the proximal end of the enteral collar;

the enteral collar engagement feature formed as a discontinuous-annular snap joint, including a plurality of cantilever snap joints, each cantilever snap joint including a cantilever arm, a proximal end of the arm coupled to the bore of the enteral collar and a hook coupled to a distal end of the arm, the hook projecting toward a centerline of the bore, for snap-in
5 engagement with the recess of its corresponding syringe engagement feature; and

the enteral collar surrounding the non-luer tip when the syringe engagement feature is engaged with the enteral collar engagement feature, and the enteral collar being sized to permit connection to an enteral device and prevent connection to a device having a luer connector.

10 20. The syringe of claim 19, further comprising a relief cut formed in the proximal end of the enteral collar between a pair of the cantilever snap joints.