

Standard operating procedure: Husbandry of SCID pigs in BioBubble

Date Created: 6/24/2020 **Date Revised:** 11/7/24

Developed by Tuggle Lab at ISU Dept AN SCI

Purpose: Provide a protocol for husbandry of SCID pigs while housed in biocontainment bubbles. This includes feeding, monitoring, and cleaning.

Procedure:

Colostrum Feeding

1. Immediately post C-section, after cleaning and the weight of the newborn piglet is documented post-C-section, mix up bovine colostrum using 3 cups or 24 ounces of water with one bag of colostrum powder using the container provided.
2. Fill the baby bottle up to use for feeding the piglets.
3. Insert the baby bottle into the piglet's mouth while holding it close, but not touching any human skin that might be exposed in the bubble.
4. Solicit a suckling response by using the other hand to rub the throat gently.
5. Getting the piglet up to a good temperature, 38.5 C, and keeping the piglet warm will help them have an appetite, so be sure to place the piglet back in the bus next to the heat lamp as quickly as possible.
6. Continue through with all of the other piglets in the litter, spending extra time with the piglets that don't know how to suckle or eat very much.
7. Continue feeding the piglets every 45 minutes to have a total colostrum intake of 250 ml or more within the first 36 hours.
8. Record all feeding amounts in order to total at the end.
9. Twelve hours after birth, place a bowl with colostrum in the bus and encourage the piglets to drink from it.
10. Pigs that don't show interest or are having trouble eating will need to continue to be bottle-fed until they start eating on their own from the bowl.

Birthright milk replacer feeding

1. Starting at 36 hours of age, birthright will also be given in addition to bovine colostrum in the baby bottle or bowls.
2. Birthright can be mixed up using 5 cups of birthright powder and 1 gallon of water in a mixing container.
3. The mixture can be made up at 50/50 for a week. After a full week, cut colostrum down to 25% then continue this until mash is started.
4. Assist piglets in locating bowls by showing them where they are and encouraging them to eat from the bowls.
5. Monitor piglets during feeding times for 10-20 minutes to ensure all are eating well and properly.

6. Piglets that aren't drinking from the bowls will need to be encouraged (i.e., dip nose in the bowl); hand feeding may need to continue to ensure piglets are consuming enough.
7. Clean bowls between feedings with rescue and water.
8. Record the time of feedings, amounts of feed given, and any unusual behaviors in feeding records.

Teklad/Invigo dry feed

1. Once all piglets have reached 10 days of age, in a bowl place 1 scoop of dry feed, some colostrum powder and cover with birthright milk replacer to make a mash.
2. Monitor for ~10-20 minutes to observe interest in feed and ensure all piglets are eating. Mix the mash first before offering birthright
3. Clean the bowl before each feeding with sterile water and rescue.
4. Keep offering mash before birthright until they eat it consistently.
5. If eating, feed well; mix only mash.
6. Around 14 days of age, offer dry feed in feeders.
7. Once piglets begin eating the dry feed, then can discontinue the mash.

Daily Monitoring of SCID pigs

1. After c-section, piglets are monitored 24 hours a day to ensure eating and doing well.
2. Once piglets are eating well, shifts can be further apart, like every 4, 6, and then 8 hours apart.
3. A morning shift will consist of feeding, temping, and weighing piglets.
4. Other shifts throughout the day will consist of temping and feeding.
5. A piglet should be weighed before eating to ensure the weight is not misinterpreted from eating. Baby scales and totes can be used to weigh the pigs.
6. Taking temperatures is essential to know if a SCID pig has an infectious disease, so temping is done at the beginning of a shift. This should be done using a microchip reader without getting the pig too worked up.
7. The microchip is also used to identify the pigs.

Cleaning inside the biocontainment bubble

1. Cleaning is the majority of keeping a SCID pig alive. If their environment is clean, they are more likely to stay healthy.
2. Once piglets start eating from bowls consistently, they will be very messy.
3. Cleaning the buses every other day will be a major part of the shifts with SCID pigs.
4. Pigs can be removed from the buses and put into the tote for quick cleaning of the bottom of the bus.
5. Move heat lamps out of the way while cleaning so they don't get wet and break.
6. Hard-to-remove grime can be scrubbed with a scrub brush.
7. The floor can then be sprayed down using the hose, pushing the debris toward the drain.
8. The floor should be sprayed daily once the buses are removed.
9. Piglets can be cleaned with a wet autoclaved towel to remove grime.
10. The cart and containers for making food should also be cleaned regularly.

- 11.** Disinfectant wipes and rescue are provided for regular disinfection of the floor and equipment.
- 12.** When finished using the hose, it should be unhooked from the spigot and drained before hanging back up.