Equine Nasogastric Intubation

Disclaimer

A series of booklets (instructions for skills and flipped classroom materials) has been developed by the Clinical Skills Lab team (staff, recent graduates and students) from Bristol Veterinary School, University of Bristol, UK.

Please note:

- Each flipped classroom booklet includes ways to prepare for learning a skill in class; it is acknowledged that there are often other approaches. Before using the booklets, students should check with their university or college to determine whether the approaches illustrated are acceptable in their context or whether an alternative resources should be used.
- The booklets are made available in good faith and may be subject to changes.
- In using these booklets, you must adopt safe working procedures and take your own risk assessments (as and when appropriate), checked by your university, college etc. The University of Bristol will not be liable for any loss or damage resulting from failure to adhere to such practices.

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Equipment list:
Equine Nasogastric Intubation

Equipment for this station:

- Equine nasogastric intubation model
- Nasogastric tube:
  - End to be inserted into nostril (blue arrow)
  - End where funnel is attached (yellow arrow)
- Funnel
- Jug (filled with water)
- 2 x empty buckets
  - One placed on the table behind the model
  - One on the floor to collect the fluid (reflux)
- Black vacuum cleaner hose ('trachea')

Considerations for this station:

- When passing a NG tube in a live horse, lubricant is placed on the end of the nasogastric tube before insertion to aid its passage by reducing friction. However, **do not use lubricant** with the model.
- **Do not** suck on or blow down the tube in this model.
- Personal protective equipment (PPE) must be worn when working with horses, including safety boots and a hard hat.
- For the model, work in **pairs**:
  - One student passes the tube.
  - The other student guides the tube down the oesophagus and into the bucket.

Anyone working in the Clinical Skills Lab must read the 'CSL_I01 Induction' and agree to abide by the 'CSL_I00 House Rules' & 'CSL_I02 Lab Area Rules'

Please inform a member of staff if equipment is damaged or about to run out.

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Clinical Skills:

Equine Nasogastric Intubation

Stand to one side of the model horse's head. Loop the nasogastric tube over your shoulders so you don't trip over it.

The hand that is closest to the horse is placed on the nose and your thumb lifts the alar cartilage. Your other hand will hold and guide the tube into the ventral meatus.

Place the tube into the ventromedial aspect of the nasal ostia then immediately use the thumb of the hand resting on the nose to guide the tube as far medial and ventral as possible (to access the ventral meatus) and use the hand holding the tube to gently advance it forward.

The thumb also holds the tube in place/stops the tube slipping back out as you regrip more tube to advance.

Horses may object to being touched on the sensitive nasal mucosa. The first 10cm or so is often the worst bit. If possible, pass the first part of the tube swiftly and smoothly as it is more likely to be better tolerated. Then continue advancing the tube slowly, stopping if the tube meets resistance.

Flex the head when at the nasopharynx to help aim the end of the tube dorsal to the larynx to gain access to the oesophagus. You will feel a very slight increase to the resistance as the tube passes into the oesophagus.

Note: In a live horse, gently moving the tube back and forth can encourage swallowing. Never force the tube.

Once the tube is in the oesophagus (the horse has swallowed the tube), let the head unflex (relax into a neutral position).

In the live horse, there are several ways to check the tube is in the oesophagus and not in the trachea.

1) If the tube is in the oesophagus, the end can be seen moving down the oesophagus under the skin on the left side of the neck.
2) If the tube is in the trachea, the horse will often cough.
3) Hold the end of the tube next to your ear. If the tube is in the trachea, you will feel and hear air movement.
4) If the tube is in the trachea, pull it back to the pharynx and try again.

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Clinical Skills:

Equine Nasogastric Intubation

Pass the tube down the oesophagus until it is in the stomach.

The **other student** should now guide the tube down the oesophagus and into the bucket ('stomach').

Note: In a real horse, once the tube is in the stomach you should hear gurgling or stomach gas being released.

Once in the stomach, check for any reflux – obtaining more than 1-2 litres indicates gastric overfilling.

To check for reflux using the siphoning method, you next attach the funnel to the end of the tube.

Pour ½-1 litre of clean water from the jug into the funnel.

Note: Keep note of how much water you pour in, so you can calculate how much net fluid comes out.

Lift the funnel up high enough for the water to run part way down the tube by gravity.

Note: The funnel needs to be higher than the stomach for water to flow in, and lower than the stomach for water to flow out.

Detach the funnel and rapidly lower the end of the tube into the collection bucket on the floor.

This creates a siphon and will pull any fluid out of the stomach, so long as the tube is submerged in the stomach fluid pocket.

When collecting reflux (step 11), the **other student** holds the end of the tube under the water in the 'stomach' i.e. the bucket on the table behind the model.

The tube must be in the 'stomach' i.e. in the bucket, and the end of the tube needs to be under the water otherwise you will not be able to siphon any water out.

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Clinical Skills:

Equine Nasogastric Intubation

Removing the tube.

Kink the tube to ensure any residual fluid will not accidentally go down the trachea. Maintain the kink until the tube is removed entirely.

In smooth, downward motions, pull the tube out.

Continue until the tube is fully removed. In the process, wrap the tube in a circle to avoid dropping it on the floor.

The tube must be passed down the oesophagus. Sometimes the tube goes into the trachea initially. To appreciate the feel of the tracheal ring, pass the tube down the mock 'trachea' - black vacuum cleaner hose.

There is a sense of 'space', no resistance and sometimes a rattling sensation.

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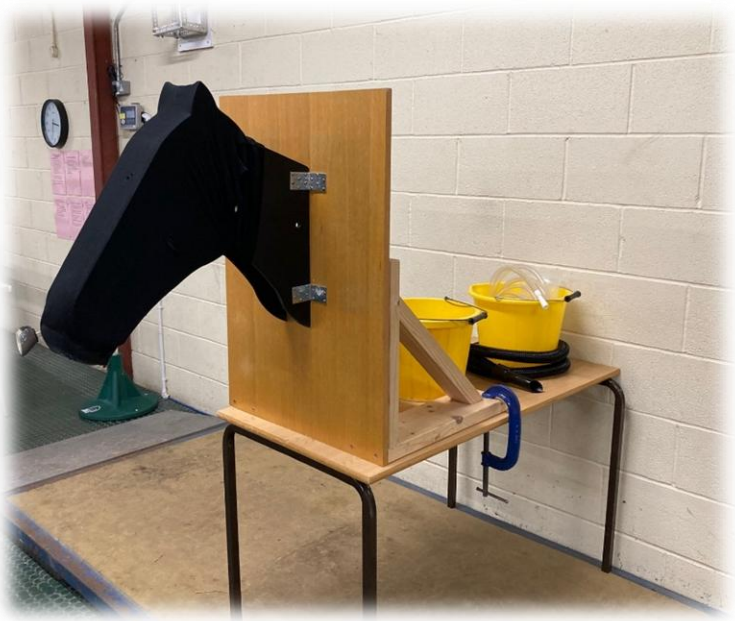
Resetting the station:
Equine Nasogastric Intubation

1. Empty the buckets into a sink or drain.
2. Place the buckets on the table.
3. Place the tube, funnel and jug in one of the buckets. Do not curl the tube too tightly, just enough to fit in the bucket.
4. Place the black vacuum cleaner hose on the table, loosely wrapped round one of the buckets.

Station ready for the next person:



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I wish I'd known:

Equine Nasogastric Intubation

- Before you start you may find it helpful to hold the tube next to the horse's head with the end level with the pharynx. With a marker, mark the position of the nostril on the tube. The distance ranges from approx. 25 - 40cm for pony to large horse. When passing the tube, the end of the tube will be level with the pharynx when the mark is at the nostril.
- Horses will often throw their heads up when you insert the first 10cm of tube into the sensitive nasal passage. Standing to one side of the horse will prevent you from being hit.
- Ensure the horse is adequately restrained and/or sedated, the handler should stand on the opposite side of the horse to you.
- When the tube end/tip is at the nasopharynx in a live horse, the end of the tube might be pointing ventrally, but the oesophagus is dorsal. Therefore, turn the tube 180 degrees. Then move the tube gently back and forth to encourage swallowing – blowing down the tube may help.
- If you aren't confident the tube is in the stomach, don't pour water into the tube!
- Some vets aspirate (suck) on the end of the tube to:
  - Check if the tube is in the oesophagus or trachea
    - If in the oesophagus - air cannot be sucked back through the tube if it is in the oesophagus (as known as negative pressure).
    - If in the trachea - air is easily sucked back through the tube.
  - Encourage/start reflux of fluid from the stomach
  - However, for health and safety reasons sucking on the tube is not recommended
- There is more resistance to the flow of fluid in narrower tubes, so it is harder to reflux small ponies and foals.
- Think of the height differences when siphoning – initially you need to hold the funnel higher than the horse's stomach to allow fluid to flow in, then you need to lower the tube end to allow the stomach contents to flow out.