

Q: How can we avoid damage at the septum and around the nares?

A: Prevention is the key. The delicate skin of the neonate is prone to skin breakdown if subjected to continuous pressure, friction and/or moisture. Vigilance and proper setup will help prevent tissue breakdown.

The FlexiTrunk™

Use the shortest length possible. The FlexiTrunk clear tubing should not extend over the infant's head. Excess length may cause the assembly to tilt backwards. This may cause undue pressure either on the septum when using prongs or on the bridge of the nose when using mask. (Fig. 1)

The FlexiTrunk should lie parallel to the infant's face. This can be adjusted using the removable foam strips. **DO NOT** discard the extra foam strip(s)*.

Support the FlexiTrunk flexible extensions where they drop from the infant's head and are connected to the breathing circuits. Support the breathing circuits where they exit the warmer or incubator. (Fig. 2)

The Nasal Prongs

Use the correct size prongs. The prongs should fill the nasal opening completely without stretching the skin. Prongs that are too small will tend to apply pressure on the septum. Nasal secretions may cause movement and the end of the undersized prongs can graze the internal lining of the nares, causing bleeding.

- If the nare diameter measures between two sizes, choose the bigger size.
- Maintain a 2 mm gap between prongs and septum. The prongs should not be resting on the philtrum. (Fig. 3)
- An hourly visual check on the integrity of the septum is recommended. The use of mustaches or other adhesive protective strips, etc. is not recommended as these can conceal the initial stage of tissue breakdown.

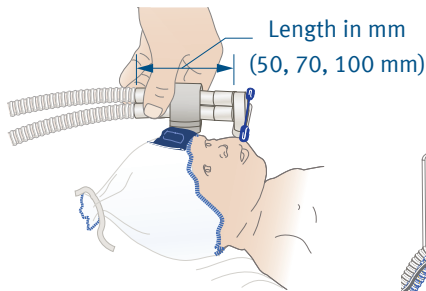


Fig. 1

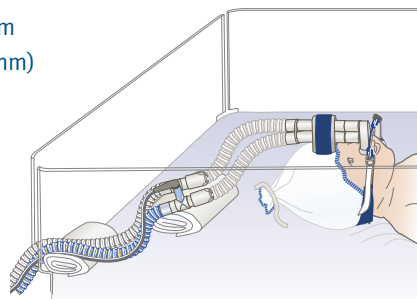


Fig. 2

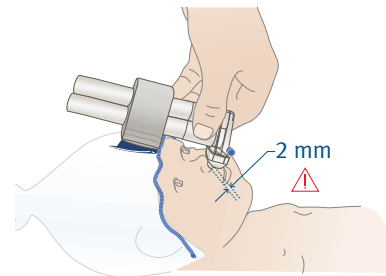


Fig. 3

* Shifting from prongs to masks changes the setup angle. This may require adding foam strip(s) back on to the nasal tubing for proper alignment, better seal and reduced pressure at the bridge of the nose. The FlexiTrunk should be parallel to the infant's face.

The Nasal Mask

- Use the correct-sized mask. The mask should sit comfortably around the nose, not over lips or eyes.
- Masks should not touch the edge of the nose, septum or occlude the nostrils.
- The prongs and mask can be used alternately to help alleviate pressure sores. A 4-6 hr swap has been shown to give positive benefits in clinical practice (as observed in the NICU at Waikato Hospital, Hamilton, New Zealand). If initial skin damage is observed, adjust the cycle time to allow for skin recovery. Refer to hospital protocol.

3 main factors need to be managed to help prevent pressure sores from developing:

- **Applied mask force (AMF)** – Use the least tension possible to maintain prescribed CPAP level and stability of the infant interface. Reduction of strapping force will decrease the likelihood of developing pressure sores.
- **Time** - Cycle often (4-6 hrs) between prongs and mask, depending on the skin condition around the nares. This will help prevent the progression of any skin irritation. Refer to hospital protocol.
- **Fit** – Use correct size of mask with proper height and angle to ensure even application of

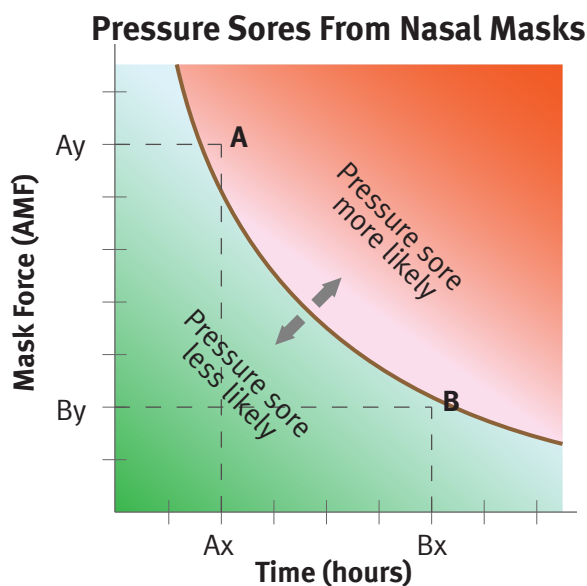


Fig. 4

sealing force.

Fig. 4 Demonstrates the relationship of applied mask, time and development of pressure sores.¹ The graph is representative of the concept as a training tool. Values will differ depending on condition of patient, age, cycle time, duration of therapy, etc.

Point 'A' represents when a high strapping force is applied (A_y), the patient's AMF is high, which means he/she is more likely to experience a pressure sore in a shorter period of time (A_x). A more desirable condition is point B, where patient has less AMF/strapping force (B_y). He/she will carry on for a longer period of time without developing a sore. It is the duty of the clinician to monitor the pressure appropriately to determine patient tolerance.

- Interrupting the sealing surface of the mask (e.g. using nasogastric tube) is not recommended as users tend to apply more force to seal. If it is necessary, consider increasing the flow within the recommended flow range to compensate for the leak rather than tightening the straps. Otherwise, an orogastric tube can be used.
- An hourly visual check on the integrity of the skin around the nares, particularly at the bridge of the nose, is recommended.

Bonnet/Head Gear

- The bonnet should cover the ears completely to ensure the straps are in the proper place. The front edge of the bonnet should be just above or on the eyebrows covering the ears and the bottom of the bonnet should rest at the base of the head. (For detailed information on the interface setup, please refer to the Infant Interface User Guide - Part Number: 185046676.)
- Use a snug-fitting bonnet. The bonnet is the anchor of the interface set-up. If the bonnet is loose, it will cause excessive movement of the interface.
- Ensure that the foam block of the FlexiTrunk™ is sitting on the blue strap of the bonnet along the forehead or when using the head gear, along the gray strap, and not directly on the infant's forehead.

Ref:

¹Sacks, Alvin H. Theoretical prediction of a time-at-pressure curve for avoiding pressure sores. Journal of Rehabilitation Research and Development. Vol. 26;No.3:27-34.