

## Chapter 5:

# The basics of stoma care in neonates and children

Adult stoma care principles apply to neonates and children. However, special attention should be given to the skin characteristics and body profile of premature neonates, neonates and children at various ages. This requires that stoma nurses always use their clinical judgement to provide the best practice in care.

### The following factors must be assessed and documented when changing the stoma appliance:

- Stoma: size, protrusion (budded, flush or retracted below skin level), shape, colour, appearance
- Peristomal skin: intact, macerated, red, eroded, infected, allergic dermatitis, granuloma
- Muco-cutaneous junction: intact, separated
- Characteristics of effluents:  
Stool: consistency, quantity, colour  
Urine: clear, cloudy, with mucous, odour

### Stoma care nurses should also document:

- Reason(s) for changing the pouching system
- In case of leakage, the area of the skin involved
- Reactions of the patient/parents/caregivers, i.e. level of comfort with stoma care
- Signs and symptoms of dehydration

### Body profile

Babies usually have a short abdomen that is round, especially at the top portion. They have skin folds in the lower part of the abdomen near the groin, and there may be some friction between the pouch and the thigh when the baby is moving. These observations must be taken into consideration when selecting and applying a pouch to make sure that the stoma product does not interfere with the baby's mobility and comfort.

### Body profile



Baby body profile with double barreled stoma



Toddler body profile

### Use of convexity in neonates and children

According to literature, convexity should be avoided in newly formed stomas.<sup>6</sup> The stoma nurse should make sure that the suture line of the stoma is healed before using any convexity, even a flexible one. In older babies and infants, the use of a flexible convex support can help to prevent leakage of stool or urine under the skin protective barrier.

Using a progressive convexity is recommended. For babies and infants, a convexity can be built using hydrocolloids and barrier rings. In toddlers, convexity can be created by adding pieces of barrier supplement, strips or rings to the wafer prior to application.<sup>7</sup> In school age children and adolescents, a soft convexity paediatric stoma product can be used, if available.

Paediatric belts, which improve the efficiency of the convexity, are available. If you do not have these at your facility, you can either create one yourself, or adjust an adult stoma belt to fit the child, ensuring the buckles on the belt do not injure the skin.

### Care of mucous fistula

According to literature, a mucous fistula may not require pouching, unless there is an associated discharge, or pouching is required to protect the stoma. In some cases, the fistula should be pouched separately from the functioning stoma. This is necessary if the stomas are spaced far enough apart on the abdomen, if a mucous fistula is present between the distal limb of the bowel and the urinary tract.<sup>8</sup> To prevent the risk of a urinary tract infection, a urinary stoma should never be put in the same pouch as a digestive stoma.

Literature also states that the mucous fistula may be left uncovered within an infant's diaper, if it is placed lower than the functioning stoma and there is no risk of the infant handling the stoma. If the infant is particularly active, the fistula could become irritated or begin to bleed due to friction from the diaper. If this occurs, it may be necessary to cover the mucous fistula.<sup>9</sup> When needed, the mucous fistula can be covered with a silicone dressing, a stoma cap, or with a neonate pouch. The covering can be left in place for several days, until it comes off or if leakage is observed. Ideally, the use of a transparent stoma product is recommended, so that the mucous fistula can be assessed daily.

### Care of multiple stomas

Generally speaking, multiple intestinal stomas may be pouched within the same appliance.<sup>10</sup> However, some precautions see Section A, Chapter 6, Stoma care; Care of mucous fistula.

### Wear time of the stoma product

Keep in mind that the pouch wear-time for a pre-term infant is not comparable with that of an older child or an adult.<sup>11</sup> Considering that the premature neonate's skin has few cell layers and no or poor anchoring skin structures, the use of prolonged wear-time skin barriers can be detrimental to the skin of premature neonates and neonates. It is also important to avoid any product that increases the seal between the skin and the stoma product, such as cement or benzoin. Literature recommends that more frequent pouch changes may be preferable to ensure greater adhesion in the infant population and safeguard the infant's health.<sup>12</sup>

As mentioned at the outset of the guidelines, little evidence is available regarding paediatric stoma care. So be sure to incorporate available wound care evidence with stoma care. It is important to consider that:

- paediatric skin barriers are thinner to give them more flexibility, so they are less resistant to corrosive stool.
- neonates will spend most of their time in the supine position, so their skin is in constant contact with effluents.

The goal is to have the stoma product in place for a minimum of 24 hours to prevent disrupting the skin integrity due to poor anchoring structures, although with some poorly constructed stomas this may be a challenge. Erosion of the skin barrier should be observed daily to make sure that it still provides an adequate peristomal skin protection. If the skin barrier is still functional, the wear-time can be prolonged up to three days. Diet and positioning will affect the wear-time. «An infant ostomy appliance should be able to remain intact for at least 24 hours, or up to four days, with an average wear-time of two to three days. Wear-time decreases in premature infants, and acceptable wear-time may initially be 12 to 24 hours.» (WOCN Paediatric Ostomy Care p. 13)

### Cutting of the stoma skin barrier opening

Evidence about the size to cut the actual skin barrier in neonates and children was not found in existing literature. However, we know it is important to check the size of the stoma with each pouch change for the first few weeks after surgery, because the size and

shape of the stoma may change as the oedema subsides. We are also aware that the size of the stoma will change over time as the baby/child grows, so regular measurements of the stoma are needed. The protective skin barriers available today are more malleable and less likely to cut into the stoma. If cut larger than the stoma, the peristomal skin is exposed to the effluent, which may lead to leakage and skin breakdown. Literature recommends that the stoma opening should be no more than 1/8-inch (1-2mm) in diameter larger than the stoma diameter at skin level. This is to minimise the skin's exposure to effluent. The stoma opening should likewise be no less than equal to the stoma diameter to prevent trauma to the stoma or obstruction of its opening.<sup>13</sup> If the opening of the skin barrier leaves an area where the skin is exposed, we recommend using stoma paste or a ring.

In case of a prolapsed or mushroomed stoma, it may be difficult to measure the stoma base adequately. To ensure the peristomal skin is well protected by the skin barrier, the stoma must be gently lifted up to facilitate a correct measurement.

#### Dealing with a mushroomed or prolapsed stoma

It can also be a challenge to insert a prolapsed stoma in a pouch without causing any trauma to the skin. To make this insertion easier you can:

- use a skin barrier ring, either in its original shape or flatten and stretch it to make a wider barrier. This will allow the opening of the collaborative team approach skin barrier to be cut larger to accommodate the prolapsed/mushroomed stoma.
- cut radial slits around the opening of the skin barrier to make it easier to slip the pouch over the mushroomed/prolapsed stoma. Then the skin barrier can be flattened down around the base of the stoma.

#### Peristomal skin cleansing

Cleanse the stoma and peristomal skin using luke-warm water and a soft cloth. The skin should be patted dry gently without any friction. Avoid using commercial wipes, as these may contain additives that can cause skin irritation or allergies. Use a non-sterile soft cloth instead. Products containing oil, lanolin or natural commercial oils are also discouraged, as they will interfere with the adhesion of the stoma product.

#### Emptying the pouch

The pouch should be emptied when it is 1/3 full, which can be quite often in babies. This is because they evacuate a large amount of stool and their pouches are small. If the frequency of emptying the

pouch is high, consider using a small adult drainable pouch. If the infant has a urinary stoma, use a drainage bag overnight.

#### Gas

It is normal for babies to produce more gas than adults. They swallow air during sucking, and assisted ventilation produces extra air. Parents should be taught how to remove gas from the pouch. Some stoma pouches come with a filter. In other cases, the pouch can be opened up, or a vent can be added to the pouch to release the gas.

#### Rectal discharge

Parents (and the child, if appropriate) should be advised that it is normal to have some rectal discharge. This can be due to:

- The distal bowel expelling the stool left over in it after the stoma was surgically created;
- The distal bowel wall continuing to produce mucous, which is periodically expelled from the rectum;<sup>14</sup>
- Diversion colitis, which is an inflammation of the non-functional bowel. This condition may cause a dark or foul-smelling rectal discharge; or<sup>14</sup>
- A loop stoma that does not divert stool completely. In these cases, spill over from the proximal to the distal bowel results in stool passage from the rectum.<sup>14</sup>

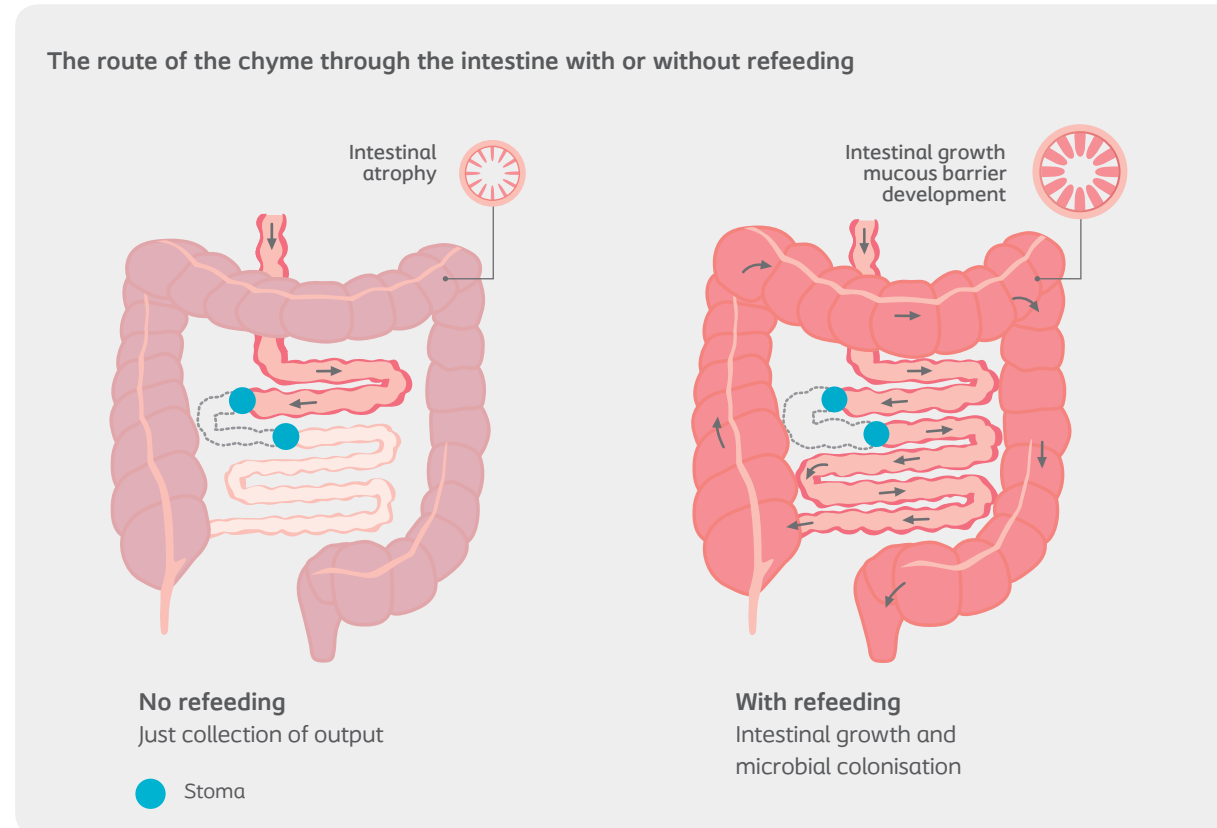
In older children, it may be necessary to irrigate the rectum or mucous fistula, depending on the amount of mucus being produced. This is done with a fluid prescribed by the doctor or stoma nurse.

#### Mucous fistula refeeding (MFR)

The practice of mucous fistula refeeding (MFR) is still controversial and practices varies from one health-care centre to another. Due to the risk of complications, it is recommended that this procedure be implemented in specialised centres.<sup>15</sup> It is important that you familiarise yourself with the protocol in your institution when practising MFR. Optimal care and management of MFR is achieved by using an evidence-based, and collaborative team approach. The institution must also have a thorough understanding of the technique and supplies to be used.

#### Definition and indications

«MFR involves the introduction of proximal enterostomy effluent into the mucous fistula (distal loop), so as to mimic the complete physiological pathway that normal intestinal content will go through.»<sup>16</sup> MFR is indicated for patients with short bowel syndrome (SBS) to prevent fluid and electrolyte im-



balance and parenteral nutrition (PN) complications, while maximising growth.

#### Benefits and complications

The MFR procedure comes with benefits as well as potential complications.

#### Benefits:

- Maximises absorption of nutrients and assists with reabsorption of water and electrolytes
- Decreases or eliminates the need for parenteral nutrition (PN).
- Stimulates intestinal activity at the distal portion of the bowel to minimise the discrepancy in lumen size between the two ends, in this way preventing anastomotic complications such as stricture and leakage.

#### Potential complications:

- Perforation of the bowel.
- Intolerance of refeeding.
- Skin irritation around mucous fistula (MF).
- Difficulty keeping tube/catheter secured in mucous fistula.

#### Candidates for MFR

The attending paediatric surgeon is the health care professional determining whether or not the infant or child is a candidate for the MFR procedure. Typical

candidates will be patients who have one or more of the following symptoms/characteristics:

- An ileostomy or jejunostomy and a mucous fistula;
- Substantial length of bowel distal to the primary ileostomy/jejunostomy;
- Stable systemically;
- Not gained weight with optimal calories through enteral feeds; or
- An established enteral feeding program.

#### The MFR technique

##### Collection of effluent:

- Collect effluent from proximal stoma using a drainable pouch
- Use of skin barrier paste or powder is not recommended as these can become mixed with the effluent.
- If MF is close to the proximal stoma, it can be included in the same pouch.<sup>17</sup> However, there is a risk of the feeds going into the MF draining back into the pouch unnoticed.

##### Delivery of effluent:

- The initial tube/catheter should be inserted by the surgeon.
- A 6-8 Fr tube (Feeding or indwelling catheter) is advanced in the MF for a distance of ideally about 5 cm, depending on ease of insertion.<sup>18</sup>

- The tube can sometimes be inserted up to 10 cm; however, it is the paediatric surgeon who makes the final decision on insertion length.
- Size of the tube may vary according to the size of the baby, the size of the MF and the consistency of the effluent. The surgeon decides on the type and size of the tube.<sup>17</sup>
- If you use an indwelling catheter, the amount of sterile water used to inflate the balloon should be selected by the surgeon. Usually indwelling tubes are inflated with 1-2 ml of sterile water.
- Ensure that inflating the balloon does not obstruct the distal bowel.
- If the tube/catheter was inserted without difficulty, then it can be reinserted by a stoma-trained nurse or bedside nurse.<sup>19</sup> However, fewer complications were observed in facilities where only the surgeon can place or replace the tube/catheter.<sup>20</sup>

#### Securement of tube:

- A secure fixation of the tube/catheter is mandatory to prevent any dislodgement.
- Different fixation techniques can be used:
  - The tube/catheter may be secured by placing it through a stoma appliance and taping it securely to the pouch.
  - It can be secured between the pouch and skin barrier. If this technique is used, you need to vary the location where the tube/catheter is secured with each pouch change. This decreases the risk of trauma to the MF.
- A third option is to use commercial fixation devices.

#### Refeeding:

- The refeeding rate is prescribed by the paediatric surgeon/gastrointestinal doctor. Lau recommends a rate not exceeding 6 ml/h and hypothesises that this rate helps to maintain the MF with sufficient stimulation, while avoiding overloading.<sup>20</sup>
- The infusion rate is gradually increased until it ideally matches the total proximal output.<sup>20</sup>
- Effluent is collected every 4 hours. Collections are coordinated with handling times of the infant.
- Use a syringe to drain the stoma pouch.<sup>17,20</sup>
- The collected effluent is delivered in the MF using a syringe pump that has been programmed to deliver the effluent over the following 4 hours. Small volumes can be delivered slowly manually by syringe.<sup>17</sup>

#### Precautions:

- Before refeeding, all patients need to have a lower gastrointestinal series to rule out stricture or obstruction of the distal bowel that would interfere with refeeding.<sup>21</sup>
- Clearly identify the infusion pump and tubing to prevent errors in connecting to the wrong system (Enteral feeds, IV)
- Monitor the stoma site for signs of irritation, laceration, prolapse or necrosis.<sup>22</sup>
- Assess and care for the skin around the stoma and the MF to avoid irritation or skin breakdown due to leakage.<sup>21</sup>
- Carefully measure the effluent and monitor it for a milky or undigested appearance.<sup>21</sup>
- Closely monitor the infant's weight, head circumference, length, stoma losses, serum electrolytes, blood gases and liver function tests.<sup>21</sup>
- Monitor rectal output.
- Check urine weekly for sodium and potassium levels.
- Assess for signs of intolerance such as discomfort, distension.
- Change the tube according to the hospital policy and physician preference.

In summary, literature concludes that MFR "...is safe, and can decrease the risk of anastomotic complication and parenteral nutrition-related cholestasis. It provides both diagnostic and therapeutic value and its use should be advocated."<sup>18</sup> However, stringent guidelines need to be in place for intubation of the MF and the method of feeding delivery.<sup>23</sup>

For more information, please go to:

[http://policy.nshealth.ca/site\\_published/iwk/document\\_render.aspx?documentRender.](http://policy.nshealth.ca/site_published/iwk/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=50846)

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[GenericField=&documentRender.Id=50846](http://policy.nshealth.ca/site_published/iwk/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=50846)

#### Vesicostomies

Vesicostomies are difficult stomas to pouch because of their location in the very lower part of the abdomen (they are commonly placed in the middle of skin creases). Vesicostomies are usually reversed before the age of 2.5-3 years, so the child can be potty-trained. If not reversed before the child is 4-5 years of age, the stoma nurse may help to find a way to contain urine.

Vesicostomies can be managed with diapers, but they usually cause leakage problems. To address this, place the diaper on backwards, as the back portion will extend further up over abdomen.

Skin breakdown is common with vesicostomies, and the child is especially prone to fungal infections. Continue to use antifungal cream/powder for seven days after the disappearance of clinical signs. It is important to inform parents about the clinical signs of infection and how to apply antifungal products.

A vesicostomy usually drains continuously. The absence of drainage may be a sign of stenosis; parents must be made aware of this complication and that they should contact the stoma nurse/physician if such a situation is observed.

#### Challenges unique to paediatrics

The following chart outlines some challenges that are unique to paediatric stoma care, as well as our recommendations on how to address these challenges.

6 WOCN PEDIATRIC OSTOMY CARE: Best Practice for Clinicians, 2011, p. 20

7 «Convexity can be created by adding pieces of barrier supplement/strips/rings to the wafer before it is applied» (WOCN PEDIATRIC OSTOMY CARE: Best Practice for Clinicians, 2011).

8 WOCN Pediatric Ostomy Care: Best Practice for Clinicians p. 27

9 WOCN Pediatric Ostomy Care: Best Practice for Clinicians p. 27

10 WOCN Pediatric Ostomy Care: Best Practice for Clinicians p. 24

11 Rogers V Managing Preemie stomas: More Than Just the Pouch JWOCN 2003:30 p. 108)

12 WOCN Paediatric Ostomy Care p. 41

13 WOCN Paediatric Ostomy Care p.24

14 WOCN Pediatric Ostomy Care, p. 7

15 Richardson, 2006

16 Lau et al, Beneficial effects of mucous fistula refeeding in necrotizing enterocolitis neonates with enterostomies. *Journal of Pediatric Surgery* 51 (2016) p. 1914

17 [http://extcontent.covenanthealth.ca/Policy/Enterostomy\\_Refeeding.pdf](http://extcontent.covenanthealth.ca/Policy/Enterostomy_Refeeding.pdf)

18 Al-Harbi et al., 1999

19 Haddock, 2015





20 Lau, 2016

21 (Al-Harbi & al Mucous refeeding in neonates with short bowel syndrome. *Journal of Pediatric Surgery*, Vol 34, No 7 (July), 1999: p 1100)



22 [http://extcontent.covenanthealth.ca/Policy/Enterostomy\\_Refeeding.pdf](http://extcontent.covenanthealth.ca/Policy/Enterostomy_Refeeding.pdf)

23 Haddock et al, 2015

Challenges with faecal stomas in neonates and children

Challenges	Recommendations
Stoma close to or within intact incision	If the incision is closed and no signs of infection are observed, the skin barrier can be applied over it.
 <p>Stoma close or within an incision/wound</p>	The wound should be managed as any other wound according to wound care principles and covered with a dressing, e.g. a thin hydrocolloid. If there is leakage, an absorbent dressing covered with a thin hydrocolloid or a transparent dressing can be used. The stoma product can be applied on top of the dressing.
 <p>Stoma close to umbilicus</p>	Off-centre the skin barrier opening. If there is a starter hole, cover it with a thin hydrocolloid dressing to prevent any exposure of the skin to effluent. Trim the skin barrier to accommodate the umbilicus.
 <p>Stoma close to central IV lines</p>	Cover central IV lines to avoid contamination (e.g. with a transparent dressing or a central IV line protector). Commercial central IV lines protectors have been developed.
Size of neonates	Create a customised pouching system.
Activity level of the child, crawling, jumping, playing, easy disengagement and accidental removal	One-piece outfits, onesies, hairband, sash
 <p>Skin level stoma opening</p>	When it is absolutely impossible to maintain a stoma product on the skin, it is recommended to protect the peristomal skin with a thick layer of zinc-oxide paste. Collect the stool with fluffy gauzes and change them when soiled. Dimethicone-based products can also be used, but in the case of neonates it is important to make sure that the skin is mature and not permeable to any noxious substance contained in the product. When the suture line and/or skin is healed, a flexible convexity can be used. (Ref to Use of convexity in children, p.XX)

Challenges with faecal stomas in neonates and children

Challenges	Recommendations
 <p>Multiple stomas</p>	Refer to chapter 6. Care of multiple stomas.
Skin becoming oily from oral supplements given to infants.	Some children, especially those with cystic fibrosis, may have oily skin that can interfere with stoma product adhesion. Tip: Cleanse the skin well. Put a small amount of stoma powder on the skin, and apply the pouch. The use of a medical adhesive may be necessary. Expect a shorter pouch wear-time.
 <p>Stoma product and diaper: in or out?</p>	When the baby/child is lying down, the pouch should be applied with the drain opening to the side. This makes it easier to put it outside the diaper and to empty. This will also prevent the pouch lying on the thigh and makes it easily accessible if the baby is in an incubator. Although sometimes necessary, folding the pouch should be avoided, as it will reduce its efficiency.  For toddlers and older children, the pouch should be applied vertically. This allows for easy emptying when the child sits on the commode. It is also helpful to position the pouch vertically when a belt is used, as the belt loops on the pouch are positioned at 3 and 9 o'clock.