Management of the Patient with a Fecal Ostomy:
Best Practice Guideline for Clinicians

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VIII. Stomal Complications

A. Stoma Necrosis

Stomal necrosis is defined by Colwell and Beitz (2007) as death of stomal tissue as a result of impaired blood flow. This may lead to a late complication of stomal stenosis defined as impairment of effluent drainage due to narrowing or contraction of the stoma tissue at skin or fascial level as a result of necrosis.

1. Definition – death of stomal tissue as a result of impaired blood flow (Colwell & Beitz, 2007)
2. Incidence 2-10%
3. Risk Factors - include obesity, hypotension, hypovolemia, bowel wall edema, embolus, extensive stripping and/or tension on the mesentery, sutures that are too close or too tight (Wound, Ostomy and Continence Nurses Society, 2005).
4. Assessment – visual inspection of the stoma revealing dark maroon to black stoma. 
   a. Lumen of the stoma may also need to be visualized to determine level of involvement.
   b. Palpation to determine mucosal temperature and turgor.
5. Interventions
   a. Medical Management - conservative management with debridement if necessary.
   b. If necrosis is below fascial level, emergent surgical revision is indicated.
   c. Local Care - protection of the skin, control of odor as needed

B. Stoma Stenosis

1. Definition – impairment of effluent drainage due to narrowing or contracting of the stoma tissue at skin or fascial level (Colwell & Beitz, 2007)
2. Incidence 2-10%
3. Risk factors - include excessive scar tissue formation at the skin or fascial level, which can be related to recurrent episodes of skin irritation, stoma necrosis, mucocutaneous separation, hyperplasia, inadequate excision of the skin during construction of a stoma, inadequate suturing of the fascial layer, peristomal sepsis, prior irradiation of the bowel segment, and recurrent disease (e.g., Crohn’s disease or tumor growth)
4. Assessment – narrowing of stoma lumen at skin level or at fascial level as indicated by inability to accommodate inserted finger. Observation of the following symptoms: explosive passage of stool, excessive flatus, episodes of diarrhea, narrowed caliber of stool, and abdominal cramping (Wound, Ostomy and Continence Nurses Society, 2005)
5. Interventions
   a. Medical Management - surgical intervention may be necessary
   b. Local Care - dietary changes to reduce insoluble fiber, stool softeners and increased fluid intake. While sometimes recommended as an intervention for stenosis, stomal dilation is not evidence based as treatment.
C. Stoma Prolapse

1. Definition – telescoping of the intestine through the stoma (Colwell & Beitz, 2007)
2. Incidence 2-25%
3. Risk factors - include the formation of a transverse loop colostomy, dilated bowel at time of surgery, inadequate fixation of the bowel to the abdominal wall or an abdominal wall opening that is larger than the bowel, increased abdominal pressure post-operatively related to coughing, tumor, infant crying, obesity, pregnancy, weak abdominal muscle tone, and lack of fascial support from repeated operations (Wound, Ostomy and Continence Nurses Society, 2005)
4. Assessment – stoma lengthens and often becomes edematous with the potential for blood flow compromise. This occurs with activities that increase intra-abdominal pressure.
5. Interventions
   a. Medical Management – surgery is urgently indicated if blood supply is compromised and prolapsed stoma cannot be manually reduced.
   b. Local Care - adjust pouch size to prevent trauma to the stoma, educate patient or care-giver on techniques to reduce prolapsed stoma, and/or use of hernia belt with a prolapsed stoma attachment.

D. Peristomal (or Parastomal) Hernia

1. Definition – defect in the abdominal fascia that allows the intestine to bulge into the peristomal area (Colwell & Beitz, 2007). A fascial ring defect can be felt with a digital exam and a bulge is seen on patient’s abdomen around the stoma.
2. Incidence - 16% to 62.5%
3. Risk Factors - include factors/conditions that increase abdominal pressure such as excessive coughing and vomiting, intra-abdominal tumor growth, and pregnancy. Advanced age, weakness of abdominal musculature, obesity, wound infection, smoking and steroids have also been indicated as risk factors. Additional risk factors include if the fascial opening around the stoma is too large or if the stoma is not located within the rectus abdominis muscle (Wound, Ostomy and Continence Nurses Society, 2005; McGrath, Porrett, & Heyman, 2006; Burch, 2005).
4. Assessment – visible bulge around the stoma. Patients should be instructed to immediately report any signs of obstruction or incarceration of the hernia (i.e., darkening of stoma color, abdominal pain, no gas or stool from stoma, bloating, nausea and vomiting, and loss of appetite)(Gray, Colwell, & Goldberg, 2005).
5. Interventions
   a. Medical Management – urgent surgical intervention necessary if hernia incarcerates. Seek surgical opinion when a hernia is present. It may be better to have the hernia repaired at an early stage, rather than waiting until the patient is older and a higher risk for surgical complications.
   b. Local Care - use of hernia belt may be beneficial. Discontinue irrigation if water and stool do not easily return. Use a flexible pouching system to prevent peristomal skin trauma.
E. Mucocutaneous Separation

1. Definition - detachment of the stomal tissue from the surrounding skin (Colwell & Beitz, 2007)
2. Incidence - 2% to 30%
3. Risk factors - infection, tension on the suture line or poor healing potential
4. Assessment - separation of stoma from surrounding skin that results in a wound of various depths, which may be limited to a small area or include the entire circumference of the stoma.
5. Interventions
   a. Medical Management – antibiotic therapy may be indicated if infection occurs.
   b. Local Care - if the defect is very shallow, stoma powder can be sprinkled to absorb moisture and promote better pouch adherence. If depth is present, the dead space may be filled with an absorbent product such as an alginate or hydrofiber. If infection is a concern, an antimicrobial dressing may be used in addition to systemic treatment.

F. Stomal Trauma

1. Definition – an injury to the stomal mucosa often related to pressure or physical force (Colwell & Beitz, 2007)
2. Incidence - not reported
3. Risk Factors - a stoma greater than 3 cm in length that is easily bumped or rubs on clothing or a poor fitting pouching system that rubs on the stoma
4. Assessment – deep red, white or yellow linear discoloration on the stoma or the presence of raised mucosal protrusions
5. Interventions
   a. Medical Management – ongoing bleeding or bleeding that comes from inside the stoma should be reported to a primary care provider to rule out other disease-related complications.
   b. Local Care - proper sizing to prevent trauma from the pouching system and routine pouch changes are important.

G. Stomal Fistula

1. Definition – an abnormal communication between the stoma and surrounding tissue, or in the stoma other than the lumen (Colwell & Beitz, 2007)
2. Incidence - 3.9% to 15%
3. Risk Factors - Crohn’s disease, poor healing, major mechanical trauma
4. Assessment – stool draining from an opening in the stoma or surrounding tissue other than the lumen of the stoma.
5. Interventions
   a. Medical Management – may require surgical intervention to revise or relocate the stoma, systemic treatment for Crohn’s disease
   b. Local Care - ensure that pouching management system is adequate to protect the peristomal skin.
IX. Peristomal Complications

The peristomal skin should be intact with no evidence of redness, loss of epidermis or alteration in sensation (Colwell & Beitz, 2007). In a recent Danish study of patients with permanent stomas, more than 80% of participants with a skin disorder did not perceive that they had a skin irritation.

Overall, the incidence of peristomal complications is difficult to determine. This may be due to a lack of definition of peristomal skin reactions. In a recent systematic literature review, Salvadalen (2008) reported various limitations and differences in samples and study methods. Skin irritation was identified as the most common complication after the creation of an ileostomy in an actuarial review by Makela (1997). Lynch, et al. (2008) found the most commonly reported stoma related difficulty at 5 months post operation was painful or irritated peristomal skin (40% of participants). Peristomal complications are peristomal varices, peristomal candidiasis, peristomal folliculitis, mucosal transplantation, hyperplasia (pseudoverrucous lesions), peristomal pyoderma gangrenosum, peristomal suture granulomas, peristomal contact dermatitis (both irritant and allergic), and peristomal trauma (mechanical injury) (Wound, Ostomy and Continence Nurses Society, 2007b).

A. Peristomal Irritant Contact Dermatitis

Chemical injury of the skin from contact with an irritant such as stomal drainage, soaps, solvents or adhesives (Wound, Ostomy and Continence Nurses Society, 2007b).

1. Definition - damage resulting from skin exposure to fecal, urinary drainage or chemical preparation (Colwell & Beitz, 2007)
2. Incidence - the most frequent peristomal skin problem
3. Risk factors - inadequate pouch seal, leaking pouching system, excessive wear time, and poor stoma construction or location
4. Assessment - skin damage limited to areas exposed to stool, or chemicals. Patient may complain of burning. Initially, area is erythematous and may progress to a macular rash and denudement.
5. Interventions – choose a barrier product that ensures a good seal around the ostomy. Denuded skin may be treated with a pectin-based powder and a no-sting barrier spray.
   a. Medical Management – assessment and examination of pouching system fit and appropriateness.
   b. Local Care – investigate improper product use, ensure adequate seal to eliminate skin contact with irritant, and astringent solutions.

B. Peristomal Candidiasis

1. Definition – an overgrowth of fungal organisms (Candida) sufficient to cause inflammation, infection or skin disease in the peristomal area (Colwell & Beitz, 2007).
2. Incidence – Ratliff & Donovan (2001) reported a 1% incidence in small study.
3. Risk factors – long-term antibiotic administration, diabetes, immunosuppressive drugs, and prolonged exposure to moisture

4. Assessment – a pustule appears that can be abraded during pouch system change. Erythema, maceration, itching, and burning may also be present.

5. Interventions - topical or systemic antifungal powders and/or oral or intravenous antifungal medications may be used.
   a. Medical Management – topical and systemic antifungal treatments
   b. Local Care – identify and correct the moist environment, antifungal powder and skin sealant if needed before applying skin barrier wafer (Alvey & Beck, 2008).

C. Peristomal Allergic Contact Dermatitis (rare)

There is a very low level of allergy to stoma products. Smith, Lyon, and Hart (2002) found that of 65 patients patch tested for allergy, only one was found to react (to a perfumed deodorant).

1. Definition - an inflammatory skin response resulting from hypersensitivity to chemical elements in contact with peristomal skin (Colwell & Beitz, 2007).
2. Incidence - very rare
3. Risk factors - immunologic response to allergen
4. Assessment - peristomal skin irritation that is size and shape of irritant
5. Interventions - patch testing to determine cause of irritation. Choose a secure pouching system that will not cause the irritation.
   b. Local Care – anti-inflammatory products to the involved area. Discontinue use of the offending product.

D. Peristomal Trauma

1. Definitions
   a. Loss of peristomal epidermis or dermis secondary to skin trauma (Colwell & Beitz, 2007)
   b. Mechanical destruction due to pressure, shear or from improper technique or fitting of the pouching system or accessory products (Erwin-Toth, 2000).
2. Incidence – not reported in literature
3. Assessment – denuded skin in injury area
4. Interventions – dependent on causative factor
   b. Local Care – determine source of trauma and eliminate, investigate improper product use, ensure adequate seal to eliminate skin contact with irritant.
E. Peristomal Varices

1. Definition – varices (also known as caput medusa) are large, portosystemic venous collaterals (PSC) that occur at the site of a stoma in patients with portal hypertension (Colwell, 2004).
2. Incidence is difficult to determine but Norton (1998) has reported that in a review of 169 cases of bleeding ectopic varices, 27% bled from peristomal varices.
3. Risk factors – those with esophageal varices, advanced histological stage of PSC, splenomegaly, hepatomegaly, increased bilirubin decreased serum albumin and decreased platelet count (Farquharson, Bannister, & Yates, 2006).
4. Assessment - purplish skin color with dilated, tortuous veins proximal to stoma. Mucosa may be red and engorged. Confirmed by Doppler ultrasound or angiographic imaging (Spier et al., 2008).
5. Interventions
   a. Medical Management – Propranolol therapy titrated against resting pulse has shown a demonstrated response, direct endoluminal cyanoacrylate embolization (Konate et al., 2008), and balloon occluded retrograde transvenous obliteration (BRTO) (Minami et al., 2007). A transjugular intrahepatic portosystemic shunt (TIPS) may lower portal hypertension (Ryu et al., 2000).
   b. Local Care - hemostasis is most immediate concern. Direct pressure, cautery, silver nitrate, gel foam, epinephrine soaked gauze (Norton, Andrews, & Kamath, 1998; Colwell, 2004; Farquharson et al., 2006). An ostomy pouching system should be used that avoids pressure, trauma, constriction or friction in or around the stoma. Injection sclerotherapy and ligation of the portosystemic channels has been utilized. Implement measures to prevent bleeding during removal of the skin barrier wafer.
   c. Patient should be taught to apply pressure, ice and use a hemostatic dressing if bleeding occurs (Rolstad & Erwin-Toth, 2004). Instruct in gentle technique when applying and removing ostomy products.

F. Peristomal Folliculitis

1. Definition - inflammation of hair follicles on the peristomal skin. Most commonly caused by staphylococcus aureus, streptococci, or pseudomonas aeruginosa (Colwell & Beitz, 2007; Wound, Ostomy and Continence Nurses Society, 2007b).
2. Incidence – no reports are available on incidence (Colwell, 2004).
4. Assessment – pustules, papule or erythema appear around a hair follicle; progresses from pustules to papules to crusted areas. May result in pain or puritis (Wound, Ostomy and Continence Nurses Society, 2007b).
5. Interventions
   a. Medical Management- antibacterial wash with a pH balanced soap or skin cleanser to peristomal area; antibiotic powder for severe cases (Wound, Ostomy and Continence Nurses Society, 2007b).
   b. Local Care – Gentle skin barrier wafer removal, less frequent shaving and use of electric razor or hair clipper.
G. Mucosal Transplantation

1. Definition – seeding of viable intestinal mucosal tissue along the suture line onto the peristomal skin (Colwell & Beitz, 2007).
2. Incidence – no published data located
3. Risk factors – may be related to surgical technique, although none are known
4. Assessment – intestinal mucosa are in and around the peristomal area flush to the epidermis. The mucosal tissue remains moist and may interfere with the pouching system seal.
5. Intervention
   a. Medical Management – excision is the only effective treatment. Stoma re-marking may be necessary and silver nitrate has been used to flatten area to allow skin to cover.

H. Peristomal Pyoderma Gangrenosum

1. Definition – an idiopathic, inflammatory ulcerative condition of the peristomal skin (Yeo, Abir, & Longo, 2006).
2. Incidence - difficult to ascertain as it is not always recognized or reported; occurs in approximately 2% of patients with inflammatory bowel disease (Hughes, Jackson, & Callen, 2000)
3. Risk factors – Autoimmune disease
4. Assessment – early recognition is vital to institute treatment before significant skin damage occurs (Smith et al., 2002). Skin lesions of unknown etiology, appear as pustules, break open and form full-thickness ulcers with purple painful edges (Colwell et al., 2001).
5. Interventions – treatment of underlying disease process
   a. Medical Management – refer to dermatologist for diagnosis and treatment. Topical and systemic treatments have had mixed results. Topical tacrolimus was effective in a few cases (Lyon, Smith, Beck, Wong, & Griffiths, 2000). Smith et al. (2002) describes intralesional steroid injections as effective in some cases.
   b. Local Care – may present a challenge in achieving an effective pouching system seal. Goals are management of pain and absorption of moisture to promote pouch adhesion (Alvey & Beck, 2008). Fill defect with absorbent product such as alginate or hydrofiber to help allow adherence of the skin barrier wafer and pouch.

I. Peristomal Suture Granulomas

1. Definition – excessive tissue occurring at skin/stoma base in areas of retained or reactive suture material (Colwell & Beitz, 2007)
2. Incidence- rarely reported
3. Risk Factors
4. Assessment – red, friable tissue, usually small and round shape at the mucocutaneous junction. Patient may complain of pain.
5. Interventions – proper fitting pouching system
   a. Medical Management - examination of granuloma, excision of suture material, silver nitrate, and cauterization.
b. Local Care - overall, the majority of stomal complications require local care and attention and management of the underlying cause of the problem (Yeo et al., 2006).

J. Hyperplasia (Pseudo Verrucous Lesions)

1. Definition - an increase in the number of cells resulting from an increased rate of cellular division when skin is chronically exposed to drainage
2. Incidence
3. Risk factors - skin chronically exposed to drainage
4. Assessment - wart-like papules, nodules, or both, with a white gray or reddish-brown discoloration are present. Lesions develop at the mucocutaneous border and conform to the base of the stoma and stomal opening in the pouching system. May be partial or circumferential. May be painful or hypersensitive. Bleeding from lesions may occur.
5. Interventions
   b. Local Care – modify the pouching system (Wound, Ostomy and Continence Nurses Society, 2007b)
X. Recommendations

A. Ostomy Education

Ostomy education should include a preoperative and a post-operative component provided by a specialized nurse such as a Wound, Ostomy and Continence (WOC) nurse.
Level of evidence = B

1. Preoperative Education - A consensus of expert opinion among task force members defined the following information that should be considered in preoperative education strategies:
   a. Brief discussion of anatomy and physiology of the GI tract
   b. Procedure
   c. Demonstration of one and two-piece ostomy appliances
   d. Describe lifestyle adjustment briefly
   e. Focus on psychological preparation

2. Postoperative Education - Ostomy education should address key components related to the specific type of ostomy surgery: physiological aspects (i.e., anatomy and function), technical aspects of ostomy management (pouching system procedure), nutrition, clothing, medications, body image, psychological issues (e.g., depression, anxiety, grief), social/recreation issues (work and play), interpersonal relationships (e.g., marriage, dating), sexual and intimacy issues, common complications (e.g., irritant dermatitis, leakage, stoma changes), and resources available (e.g., WOC nurse, support group, internet UOAA).
Level of evidence = B

A consensus of expert opinion among task force members defined the following key education components that should be considered in postoperative ostomy education strategies:

1. In-depth discussion of anatomy and physiology of the GI tract
2. Technical aspects of ostomy management (demonstration and return demonstration recommended)
3. Pouching system removal and application
4. Pouch emptying and closure (demonstration and return demonstration recommended)
5. Skin care
6. Ostomy accessories
7. Nutrition/medications
8. Clothing
9. Body image perception
10. Psychological aspects
11. Social/recreation
12. Interpersonal relationships
   a. Sexual issues
   b. Intimacy issues
13. Common complications/troubleshooting
B. Stoma Site Marking

1. Stoma site marking performed preoperatively will reduce the incidence of complications and improve self-care. Level of evidence = B
2. Expert opinion by clinical experts managing patients with fecal diversions recommend that all patients scheduled for ostomy surgery have preoperative stoma site marking. This is supported by the Joint Position Statements authored by American Society of Colon & Rectal Surgeons and the Wound, Ostomy and Continence Nurses Society (2007).
3. A consensus of expert opinion among task force members is that they have observed in their clinical practice that patients who have stoma site marking preoperatively have less stoma complications and pouching problems as the result of an appropriately placed stoma. A research study is needed to support these observations.

C. Pouching Options and Basic Ostomy Management

1. An ostomy pouching system should provide predictable, reliable wear time. It should be comfortable, odor proof, and protect the peristomal skin. Wear time should be at least three days and it is not recommended to exceed seven days (Wound, Ostomy and Continence Nurses Society, 2008). In a study of 34 persons with ostomies, the average wear time was 4 days (Richbourg, et al., 2007). In another study of 551 persons with ostomies, the average wear time was 4.8 days (Richbourg, Fellows, & Arroyo, 2008). Level of evidence = C
2. A consensus of expert opinion among task force members is that an effective and desirable pouching system improves the quality of life of the person with an ostomy.

D. Health-Related Quality of Life (HRQOL) after Ostomy Surgery

1. A consensus of expert opinion among task force members is that HRQOL is affected by having an ostomy in many ways. However, the negative or positive impact is patient specific.
2. A consensus of expert opinion among task force members is that in their practices they see many patients who, after a period of recovery and adjustment, manage to overcome many of the negative affects of living with an ostomy.

E. Complications that Accompany an Ostomy

1. The person who is well prepared for the challenges that ostomy surgery will bring to all areas of their lives may have a less protracted period of adjustment. Level of evidence = C
2. Early identification of stomal and peristomal problems, along with timely interventions will affect the quality of life of the individual with an ostomy. Level of evidence = C
3. A consensus of expert opinion among task force members is that monitoring for early and late ostomy complications, providing appropriate local care, and managing the underlying cause of the complication will help improve the quality of life of the person with an ostomy.

F. Research Recommendations

Some experts have suggested the following research recommendations for the management of a patient with an ostomy:

1. Call for prospective studies measuring the incidence of stoma and peristomal complications (Salvadalena, 2008) and efficacy of interventions for the complications
2. Preoperative stoma marking as a method for preventing complications (Rolstad & Erwin-Toth, 2004)
3. Teaching routine peristomal skin care as a method for preventing complications (Rolstad & Erwin-Toth, 2004)
4. Measurement of the quality of life of the person with a stoma one to two years after surgery (M. Goldberg, personal communication, 2009)
5. Use of a tool to classify peristomal skin disorders for standardization of terminology, incidence and prevalence (Bosio, 2007; Herlufsen, 2006; Salvadalena, 2008)