

# A consensus on stomal, parastomal and peristomal complications

## ABSTRACT

**Aim** To establish a consensus on terminology used to define stomal, parastomal and peristomal complications in Australia.

**Methods** A list of stomal, parastomal and peristomal complications was generated through group dialogue which was informed by the clinical and academic knowledge of the researchers. An extensive literature review was undertaken to identify any additional terms and to create a database of definitions/descriptions. A library of images related to the identified conditions was generated. An online Delphi process was conducted amongst a representative, purposive sample of Australia expert wound, ostomy, continence nurses (WOCNs) and colorectal surgeons. Ten terms were presented to the panel with descriptive photographs of each complication. Up to three Delphi rounds, and if necessary a priority voting round, were conducted.

**Results** Seven of the ten terms reached agreement in the first round. One term (allergic dermatitis) was refined (allergic contact dermatitis) and reached agreement in the second round. Two terms (mucocutaneous granuloma and mucosal granuloma) were considered by the panel to be the same condition in different anatomical locations and were combined as one term (granuloma). Two terms (skin stripping and tension blisters) were combined as one term – medical adhesive related skin injury (MARS) – and reached agreement in round two.

**Conclusion** A consensus in terminology used to describe stomal, para/peristomal complications will enhance communication amongst patients and health professionals, and advance opportunities for education and benchmarking of stomal, para and peristomal complications nationally.

**Keywords** stomal, parastomal, peristomal

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## INTRODUCTION

Surgery that results in an enteric or urinary stoma is usually performed following a diagnosis of malignancy, inflammatory bowel disease, neurogenic disorders, congenital abnormality, trauma or to rest a distal surgical anastomosis<sup>1</sup>. There are approximately 47,000 persons living with a stoma in Australia<sup>2</sup> and this number swells to 100,000 in the United Kingdom<sup>3</sup> and 1,000,000 in the United States of America (USA) where 130,000 related surgical procedures are performed annually<sup>4</sup>.

Regardless of the type of stoma and its method of management, the postoperative recovery and rehabilitation of a person who has undergone faecal or urinary diversion surgery is very much dependent upon their ability to avoid stomal, parastomal or peristomal skin complications<sup>5</sup>. Peristomal refers to the skin circumferential to the stoma and

parastomal refers to the skin at the side of the stoma, but in both instances it relates to skin covered by the ostomy appliance skin barrier<sup>1,3</sup>.

The prevalence of stomal, parastomal and peristomal skin complications following stoma surgery varies widely due to study designs, heterogeneous populations, sample sizes, types of stomas studied (that is enteric or urinary), types of complications under review and differences in definitions and terminologies used to describe them<sup>4-8</sup>. However, the extent of this disparity is evident in the literature which reports stomal and peristomal complications range between 6%<sup>9</sup> to 80%<sup>4</sup>. Moreover, these complications differ clinically and are subject to the type of stoma created and whether the surgery was elective or emergent, the latter being responsible for a greater number of complications<sup>10-12</sup>.

It appears that there are higher complication rates amongst patients with enteric stomas such as ileostomies, particularly loop ileostomies, which were found by Park et al.<sup>9</sup> to be up to 75% as compared to 6% amongst patients with end colostomies. However, Wood et al.<sup>13</sup> found 34.4% of patients who had an ileal conduit created experienced stomal complications and 25% of this cohort required surgery for treatment of herniation or stomal retraction. Park et al.<sup>9</sup> conducted a 19-year retrospective medical chart audit on 1,616 patients and determined the reasons for the stomal complications in their cohort were: patient age; surgical discipline performing the procedure, that is colorectal surgeon versus general surgeon; surgical procedure performed; and that no preoperative siting of the stoma by a wound, ostomy, continence nurse (WOCN) occurred<sup>9</sup>. Kann<sup>14</sup> reported patient obesity and inflammatory bowel disease to be independent predictors of stoma-related complications in his review.

A lack of consensus in definitions and terminology has long been a hindrance to communication between health professionals, patients and formal and informal carers. Furthermore, disparities in definitions and terminology potentially leads to less than optimal care and lost opportunities for benchmarking care outcomes. In an attempt to investigate this anomaly, Colwell and Beitz<sup>7</sup> undertook a survey amongst 686 WOCNs in the USA to establish content validity of published stomal and peristomal complication definitions and related interventions. Although they found a strong level of content validity for definitions of stomal and peristomal complications, they failed to do so for the related management interventions. Moreover, the respondents identified a considerable number of omitted stomal and peristomal complications, especially amongst neonatal and paediatric populations, which indicates a greater diversity in definitions and terminology used across clinical settings<sup>7</sup>.

Walls conducted a survey in 2017 in Australia to determine the use and agreement on definitions and terminology for peristomal skin conditions and clinical presentations amongst 191 stomal therapy nurses (STNs) who are synonymous with WOCNs. She also found great disparity in definitions and

terminology used<sup>15</sup>. Wall's study, like that of Colwell and Beitz, alerted WOCNs to the need for a national consensus on stomal and para/peristomal complications; however, until now there has been little endeavour to facilitate this initiative<sup>7,14</sup>. This is particularly relevant when one considers the significant burden associated with stomal and peristomal skin conditions. Taneja et al.<sup>16</sup> found that patients with peristomal skin complications had increased readmission rates and a mean increased healthcare cost of US\$7400 which equates to A\$11,654 as compared to those without complications.

Therefore, the aim of this study was to establish an Australian consensus on terminology used to define stomal, parastomal and peristomal complications.

## METHODS

The study comprised the scoping and prioritising of terminology used by Australian WOCNs to describe stomal, parastomal and peristomal complications. A literature review was undertaken to define these terms, and an online Delphi process was conducted amongst expert Australian WOCNs and colorectal surgeons to gain a consensus of the related definitions and terminology used. Ethics approval was granted by Curtin University Human Research Ethics Committee (HRE2020-0441) and the University of Notre Dame Australia Human Research Ethics Committee and all institutional guidelines were followed.

First, the research team generated a list of potential stomal, parastomal and peristomal complications of interest through group dialogue informed by clinical and academic knowledge of the researchers (Appendix 1). After generating the list of complications, an extensive literature review was undertaken to identify any additional terms found to be associated with stomal, para/peristomal complications and to create a database of definitions/descriptions for each of those identified. Next, indicative clinical photographs were collected from participating researchers and health services, with the consent of the individuals involved. Finally, the research team reviewed the list of complications to select those for which there was sufficient variation in terminology and/or understanding either clinically and/or in the literature.

To achieve national agreement on the most acceptable term and definition/description for each complication, a Delphi process involving WOCN experts and colorectal surgeons was undertaken using a project-specific online platform. Recruitment was via an open invitation and was disseminated by the Association of Stomal Therapy Nurses (AASTN) Inc. and to networks of the researchers. Respondents to the invitation were evaluated as expert in the field using Benner's Novice to Expert Theoretical explanation of expertise<sup>17</sup>, with duration of clinical experience, professional appointment within the domain, publication/presentations and peer acknowledgement used to define expertise. From the pool of respondents, 20 participants from Australian States and Territories were selected and sent an email participant information sheet that

included information on the anonymous nature of participant responses in the consensus process. All invited respondents agreed to participate and confirmed consent on accessing the online Delphi process platform.

The process to achieve consensus definitions consisted of four rounds – three Delphi rounds and a priority voting round. The Delphi consensus rounds were conducted using the RAND Appropriateness Method, a methodology designed to assist a panel to reach agreement<sup>18</sup>. Validity, reliability and application of the method is previously reported<sup>18-21</sup>. The online platform was designed to apply the RAND/UCLA method to calculate voting results. In the first round, each complication was presented with:

- Photographs of the complication.
- A range of terms commonly used to describe that complication, with one term identified as used most often in the Australian context presented as the nominal term for the complication.
- A definition/description derived from the literature.

Participants were asked to nominate their level of agreement with using the nominated term and their level of agreement with the definition using a 9-point Likert scale. Participants also provided a written justification indicating the reasoning behind their level of agreement, as well as suggested improvements for the definition.

The RAND/UCLA Appropriateness Method<sup>18</sup> uses a 9-point Likert scale with tertiles representing agreement, uncertainty or disagreement. The scale included descriptors (tertile one: strongly agree, agree, weakly agree; tertile two: uncertain leaning toward agree, uncertain, uncertain leaning toward disagree; tertile three: weakly disagree, disagree and strongly disagree) to indicate the direction and strength of participant's opinion. The vote outcome was calculated by transferring the Likert scale points to a corresponding numerical value, with the median Likert scale agreement score taken as the result. The RAND Appropriateness Method was used to determine if consensus was reached<sup>18</sup>. The 30% to 70% interpercentile range (IPR) was calculated, along with the IPR adjustment for symmetry (IPRAS). The IPAS is a linear function of the distance of the IPR centre-point (IPRCP) from the centre-point of the Likert scale (5.0). If the IPAS was higher than, or equal to, the magnitude of the IPR, then agreement was reached. However, an IPAS value lower than the IPR magnitude indicated no panel agreement<sup>18</sup>. When the panel reached agreement, and the comments indicated that no improvements could be made to the definition/description, it was accepted as the consensus description.

If consensus was not reached, or if comments suggested that improvements to the definition could be made, a summary of the panel's reasoning statements was compiled by grouping commentary in dis/agreement or neutral to the definition. The research team then adjusted the definition to incorporate improvements suggested by the panel. For the next consensus round, participants were presented with the refined definition,

together with the outcome and summary of comments from the previous round. A maximum of three consensus rounds was considered a feasible number of votes over which to maintain participant engagement<sup>20,21</sup>.

For some terms, multiple definitions reached consensus agreement. Where the voting results indicated a group preference, that definition was selected. Where no clear group preference was evident, a final priority ranking round was undertaken. In this round, participants were presented with all definitions reaching agreement plus a final definition/description derived from the last round of comments. Participants ranked the definitions/descriptions from most to least preferred. The preferred definition was calculated using a nominal group multi-voting method using weighted ranking scores. The method, which was based on a review of nominal voting methods, is previously reported<sup>21</sup>.

## RESULTS

Following a nationally disseminated invitation to participate, 20 applicants were invited and accepted. The participants had backgrounds in wound, ostomy, continence nursing or colorectal surgery, with 18 participants having more than 10 years' experience in their respective disciplines. Participation in individual rounds ranged from 13 to 20 panel members.

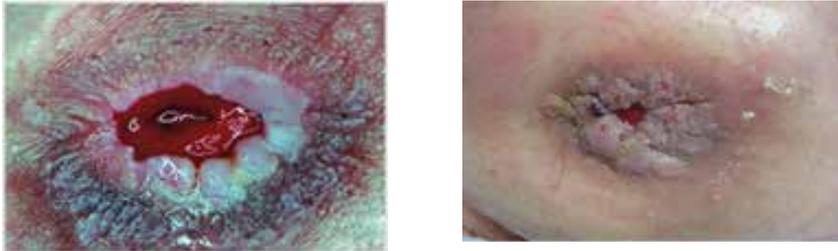
Ten terms were presented to the panel, seven of which reached agreement in the first round. One term (allergic dermatitis) was refined (allergic contact dermatitis) and reached agreement in the second round. Two terms (mucocutaneous granuloma and mucosal granuloma) were considered by the panel to be the same condition in different anatomical locations and were combined as one term (granuloma). Two terms (skin stripping and tension blisters) were combined as one term – medical adhesive related skin injury (MARS) – that reached agreement in round two. The final glossary (Figure 1) includes eight terms for which definitions were agreed.

Most vote outcomes achieved consensus in agreement with the presented definition. Agreement ranged from 55.56% to 98.95% in the first consensus round (ten terms), 56.25% to 81.25% in the second round (seven terms) and 55.0% to 80.0% in the third round (four terms). For all terms, consensus in agreement with the presented definitions/descriptions was achieved in every round, although respondents' comments frequently indicated that improvements on the definition could be made. No clear preference for definitions/descriptions was evident for three terms (irritant dermatitis, granuloma, excoriation), leading to their inclusion in the priority ranking round.

## DISCUSSION

The skin, which is comprised of the epidermis, dermis and hypodermis, is a dynamic and responsive organ to external stimuli or wounding. The skin sustains homeostasis, structural integrity and cosmesis, whilst the stratum corneum or outer layer of the epidermis optimises the skin barrier function

Figure 1. Australian consensus glossary terms for stomal complications.  
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<p><b>Para/peristomal contact allergic dermatitis</b></p>	<p>Para/peristomal contact allergic dermatitis is an inflammatory and typically demarcated skin reaction due to hypersensitivity or allergy resulting from contact with a product.</p> 
<p><b>Para/peristomal irritant dermatitis</b></p>	<p>Para/peristomal irritant dermatitis is inflammation, erosion or ulceration due to sustained contact with stomal effluent.</p> 
<p><b>Pseudoverrucous lesions</b></p>	<p>Pseudoverrucous lesions are moist or dry hyperkeratosis occurring due to sustained exposure to urine (usually alkaline).</p> 
<p><b>Granuloma</b></p> <ul style="list-style-type: none"> <li>• <b>Mucocutaneous granuloma</b></li> <li>• <b>Mucosal granuloma</b></li> </ul>	<p>A granuloma is friable, papular hypergranulation due to an inflammatory response to localised and often prolonged irritation.</p> <p>A granuloma may be located on the stoma (mucosal granuloma) or at the junction between the mucosa and skin (mucocutaneous granuloma).</p> <p><b>Mucocutaneous</b></p>  <p><b>Mucosal</b></p> 

to protect against external environmental stressors such as exposure to maceration or desiccation and chemical and mechanical trauma<sup>22</sup>. Furthermore, the skin fulfils a pivotal role as an immunological barrier due to its innate and adaptive immune responses to pathogens. This response is significantly

aided by the pH of the skin which ranges between 4.1–5.8 and is referred to as the acid mantle<sup>23</sup>. The acidic pH of the skin not only discourages bacterial colonisation and reduces the risk of opportunistic infection, but plays a role in the regulation of skin barrier function, lipid synthesis and aggregation,

<p><b>Para/peristomal erosion</b></p>	<p>Para/peristomal erosion is partial or total loss of epidermis due to moisture, trauma or allergic response.</p> 
<p><b>Para/peristomal excoriation</b></p>	<p>Para/peristomal excoriation is epidermal or partial dermal loss with a linear or punctate appearance that occurs due to scratching or injury.</p> 
<p><b>Peristomal mucosal cell implants</b></p>	<p>Peristomal mucosal cell implants are the transplantation of mucosal cells to peristomal skin during suturing when constructing the stoma.</p> 
<p><b>Para/peristomal medical adhesive related skin injury (MARS)</b></p>	<p>Para/peristomal medical adhesive related skin injury (MARS) is persistent erythema, vesicle, bulla, erosion, ulceration or tear that occurs as a result of application or removal of adhesive products. The term refers to conditions that are related to application and/or removal of medical adhesive products such as tension blisters and skin stripping.</p> 
<p><b>Skin stripping / tension blister</b></p>	<p>These terms were removed from the terminology. The experts considered that the umbrella term MARS was more appropriate and should replace tension blister and skin stripping. One rationale was that it was unclear whether the injury to the skin occurred due to the process of applying or removing the medical adhesive product.</p>

epidermal differentiation and desquamation<sup>24</sup>. Dysfunction of the skin barrier function impairs skin protection against mechanical trauma such as removal of adhesive agents, chemical trauma from irritants found in body effluent, and invasion of microorganisms. Resultant loss of skin integrity causes pain, impaired quality of life and challenges to one's perception of bodily cosmesis.

For many, perceptions of cosmesis and alterations in body image are further challenged by the creation of a stoma. Increased morbidity in the form of stomal, para/peristomal complications is frequently associated with the creation of a urinary or faecal stoma<sup>12,25,26</sup>. The rate of para/peristomal and stomal complications varies significantly and is reported to be 20–80%<sup>4-6,26</sup>.

Interestingly, the type of stomal complication differs with occurrences within the first 30 days postoperative (referred to as early complications) or after 30 days (referred to as late complications)<sup>10–12,27–29</sup>. Early stomal complications described in the literature include stomal ischaemia/necrosis, retraction, mucocutaneous dehiscence, and parastomal abscess, which are primarily related to impaired perfusion, surgical technique or infection<sup>10–12,14</sup>. Late stomal complications are more commonly parastomal hernia, stomal prolapse, retraction and stenosis<sup>12,28–30</sup>.

However, the most significant peristomal skin complication in both the early and late postoperative periods is contact irritant dermatitis due to peristomal skin exposure to body effluent<sup>3,9,12,31</sup>. Contact irritant dermatitis was found by 91% (n=919) of international surveyed nurses as the most common peristomal skin complication in their practice<sup>32</sup>. Synonymous terms such as skin irritation<sup>9,32</sup>, chemical irritant dermatitis<sup>11</sup>, irritant dermatitis<sup>10,11</sup>, peristomal dermatitis<sup>3</sup>, moisture-associated skin damage (MASD)<sup>4</sup> and peristomal moisture-associated skin damage (PSMASD)<sup>33,34</sup> are used by some authors to define this condition. Regardless of terminology, the skin erosion and ulceration that results from repeated contact with bodily effluent due to ineffectual appliances leads to pain, negative body image, decreased health related quality of life and health utility and increased care costs<sup>35,36</sup>. Peristomal skin complications are reported to account for 40% of patient contact visits with a WOCN<sup>35</sup>.

Other peristomal skin conditions found to be problematic in the literature include contact allergic dermatitis, atypical pathological conditions such as varices and pyoderma gangrenosum and mechanical skin trauma<sup>7,12,30,32,33</sup>. Again, the literature reveals inconsistency in terminology as several synonymous terms are used by health professionals to describe mechanical skin trauma, including skin stripping<sup>4</sup>, skin tear<sup>4</sup>, medical adhesive related skin injury (MARS)<sup>37</sup>, peristomal MARS (pMARS)<sup>4,33</sup> and tension injuries or blisters<sup>4,33</sup>.

It was the lack of consensus in terminology/definitions for stomal and para/peristomal complications that were to be found in clinical practice and the literature that led to the researchers undertaking this study, which built upon the study conducted by Walls<sup>15</sup> and which sought to achieve a consensus in stomal and para/peristomal terminology amongst Australian health professionals. The need for such a consensus was even more apparent following the researchers' literature search which identified eight different definitions for 'contact irritant dermatitis'<sup>3,4,26,38–42</sup> and another three for 'chemical irritation'<sup>3,41,43</sup> and six more for 'moisture-associated skin damage/peristomal moisture-associated skin damage'<sup>44–49</sup>. In effect, there were 17 definitions/descriptors for what could be considered synonymous terms for para/peristomal loss of skin integrity due to exposure to moisture/effluent.

Similar confusion in terminology was found for para/peristomal clinical presentations related to mechanical trauma such as medical adhesive related skin injury (pMARS)

(eight definitions)<sup>1,4,15,25,38,39,43,50</sup> and tension blisters (three definitions)<sup>4,37,38</sup> and infective skin conditions such as folliculitis (seven definitions)<sup>3,4,26,37,40,42,51</sup>. Pseudoverrucous lesions, also referred to as pseudoepitheliomatous hyperplasia and chronic papillomatous dermatitis, scored eight definitions<sup>1,3,11,40–42,52,53</sup>. In fact, the literature search revealed on average three to five definitions/descriptors for each para/peristomal skin complication terms searched.

Conversely, the literature revealed a more succinct agreement in regard to terms used to describe the majority of potential stomal complications such as retraction, stenosis, prolapse or metaplastic conditions. Similar agreement was found for para/peristomal pathological alterations in skin integrity such as pyoderma gangrenosum, mucosal implants, caput medusa/varices, eczema, psoriasis. Therefore, the ten terms ultimately included in the Delphi process were those found to have a higher number of definitions/descriptors used to describe stomal, para/peristomal complications as used by WOCNs. Amongst these there were three terms – para/peristomal irritant dermatitis, granuloma and excoriation – that required three voting rounds and a priority ranking voting round to reach consensus in definitions.

Para/peristomal irritant dermatitis was ultimately defined as "inflammation, erosion or ulceration due to sustained contact with stomal effluent". However, the participants' responses that ultimately led to this consensus were initially varied and led to significant discussion during the voting rounds.

A similar journey to consensus was found during the early voting rounds for granulomas which was defined as "friable, papular, hypergranulation occurring on the mucocutaneous junction/on the stoma, due to an inflammatory response to localised and often prolonged irritation".

Para/peristomal excoriation was perhaps the most contentious term and the journey to this consensus was peppered with many comments, including the following:

*I do agree with the definition of excoriation being linear, superficial loss of epidermis to the peristomal (skin) from scratching. However, I thought moisture was also involved with the presentation of excoriation.*

*I think the most important part in this definition is using the word 'linear' which depicts a scratch line.*

*I see no difference between 'erosion' and 'excoriation' – they have the same causative factors and there is nothing about 'excoriation' that implies a linear morphology or artefactual cause.*

*[The final definition is] easy to understand for the general nurse who often confuses this term with moisture associated skin damage or IAD [incontinence associated dermatitis].*

*I like the addition of linear/ punctate and scratching / injury. People can associate with these descriptors.*

Excoriation was ultimately defined as "epidermal or partial dermal loss with a linear or punctate appearance that occurs due to scratching or injury".

Although two terms (skin stripping and tension blisters) were ultimately conceded to be MARSIs and agreement was reached on the definition in round two, there was initial debate as to confusion or lack of awareness regarding this term, as evidenced by the following responses:

*The term 'skin stripping' is the cause, not an assessment of the peristomal skin itself. The cause of the skin loss is due to the skin been torn or stripped. If this section is meaning to describe MARSIs then this should probably be reflected in the name.*

*When the term MARSIs was introduced, I didn't know what it meant – I find the term skin stripping much clearer without extra information needed. The term 'skin stripping' also differentiates from skin tears.*

*Tension blister is the same as skin stripping because these are blisters related to tension forces caused by medical adhesive surfaces... As there is a blister present, I think it should be classified as a blister only; it may be from tension, but it may not be, for example, following removal of appliance and assessment there may be another reason identified as cause of blister.*

*The term describes the mechanism in the term and suggests the treatment strategy. Technically it could also be classified under MARSIs. I've never heard the phrase, but it reflects well how the blister occurred thus leading to effective management/prevention early.*

Ultimately, skin stripping and tension blisters were seen to be synonymous with MARSIs and the latter definition reached consensus.

## CONCLUSION

A literature review and discussion with expert WOCNs identified lack of consensus in definitions/descriptors used to define common stomal, para and peristomal skin complications in Australia. A Delphi process was undertaken and ten terms were presented to 20 panel members who participated in voting rounds. The resultant consensus for definitions was achieved for eight terms. Mucocutaneous granuloma and mucosal granuloma were considered to be synonymous, as was skin stripping, tension blisters and MARSIs. The results of this study are now being disseminated nationally and it is the researchers' hope that WOCNs in other countries will take up the challenge and replicate the study methodology to enable a wider international consensus on terminology. Such a consensus will afford opportunities for communication amongst health professionals and patients, education and benchmarking of stomal, para and peristomal complications internationally.

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## CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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Appendix 1. Terms associated with peristomal, parastomal and stomal complications

Term	Type		Location			Aetiology			
	Condition/complication	Clinical appearance	Peristomal	Parastomal	Stomal	Moisture	Trauma	Infection	Pathogenesis
Medical adhesive related skin injury	✓		✓	✓			✓		
Tension injury									
Stretch blisters									
Plaster blisters									
Skin stripping									
Peristomal skin tear			✓	✓				✓	
Bacterial	✓		✓						
Moisture-associated dermatitis	✓		✓	✓		✓			
Moisture-associated skin damage									
Incontinence-associated dermatitis									
Intertriginous dermatitis									
Irritant dermatitis									
Chemical dermatitis									
Prolapse	✓	✓			✓		✓		✓
Prolapse with trauma									
Stomal intussusception									
Psoriasis	✓		✓	✓					✓
Erosion		✓	✓	✓		✓	✓	✓	✓
Denuded									
Excoriation		✓	✓	✓			✓		
Fungal			✓	✓				✓	
Candidiasis	✓								
Polyps	✓				✓		✓		✓
Inflammatory "cap" polyps									
Granuloma									
Inflammatory polyps									
Stenosis	✓				✓				✓
Eczema/dermatitis	✓		✓	✓					✓
Psoriasis									
Caput medusa	✓		✓	✓					✓
Vascular proliferation									
Ulceration		✓	✓	✓		✓	✓	✓	✓
Stomal ulceration									
Allergic contact dermatitis/sensitivity	✓		✓	✓					✓
Contact dermatitis									
Pouch-related heat rash									
Pressure injury	✓		✓	✓	✓	✓	✓		

Term	Type		Location			Aetiology			
	Condition/ complication	Clinical appearance	Peristomal	Parastomal	Stomal	Moisture	Trauma	Infection	Pathogenesis
Erythema		✓	✓	✓		✓	✓	✓	✓
Retraction	✓				✓				✓
Hypergranulation Overgranulation		✓	✓	✓		✓	✓		
Pseudo verrucous lesions Hyperplasia Alkaline encrustations Uric acid crystal deposition Pseudoepitheliomatous hyperplasia Hyperkeratosis/Cornified epithelia Chronic papillomatous dermatitis Papular irritant reactions	✓		✓	✓		✓			
Herpes Warts Viral infection	✓		✓	✓	✓			✓	
Mucosal implants	✓		✓				✓		✓
Bowel metaplasia	✓		✓		✓				✓
Necrosis Ischaemia	✓	✓			✓		✓		✓
Abscess		✓	✓		✓		✓	✓	
Folliculitis	✓		✓	✓			✓	✓	
Mucosal dehiscence	✓		✓						✓
Crohn's ulcer	✓		✓		✓				✓
Bleeding	✓		✓	✓	✓		✓		✓
Pyoderma gangrenosum	✓		✓	✓			✓		✓
Malignancy	✓		✓	✓	✓				✓
Pemphigus vulgaris	✓		✓	✓					✓
Radiation injury	✓		✓	✓			✓		✓
Herniation Peri/parastomal hernia	✓		✓	✓	✓				✓
Maceration		✓	✓	✓		✓			
Bulla Vesicle Papule Plaque		✓	✓	✓		✓	✓	✓	✓
Melanosis coli	✓				✓				✓

Term	Type		Location			Aetiology			
	Condition/ complication	Clinical appearance	Peristomal	Parastomal	Stomal	Moisture	Trauma	Infection	Pathogenesis
Enteral/colonic fistula	✓		✓	✓	✓				✓
Dusky		✓			✓		✓		✓
Lichenification		✓	✓	✓					✓
Lichen simplex chronicus									
Prurigo nodularis									
Lichen sclerosis									
Coagulum (a clot)		✓					✓		
Vertigo		✓							✓
Hyperpigmentation		✓	✓	✓					✓
Lymphoid aggregates	✓				✓				✓
Lymphoid hyperplasia									
Hidrosis	✓		✓	✓		✓			✓
Lewis triple response	✓		✓	✓					✓
Wheal effect									
Xerosis		✓	✓	✓					✓
Evisceration	✓				✓		✓		✓
Mucosal hyperkeratosis	✓				✓		✓		✓