

# Use of convexity in ostomy care

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## Introduction

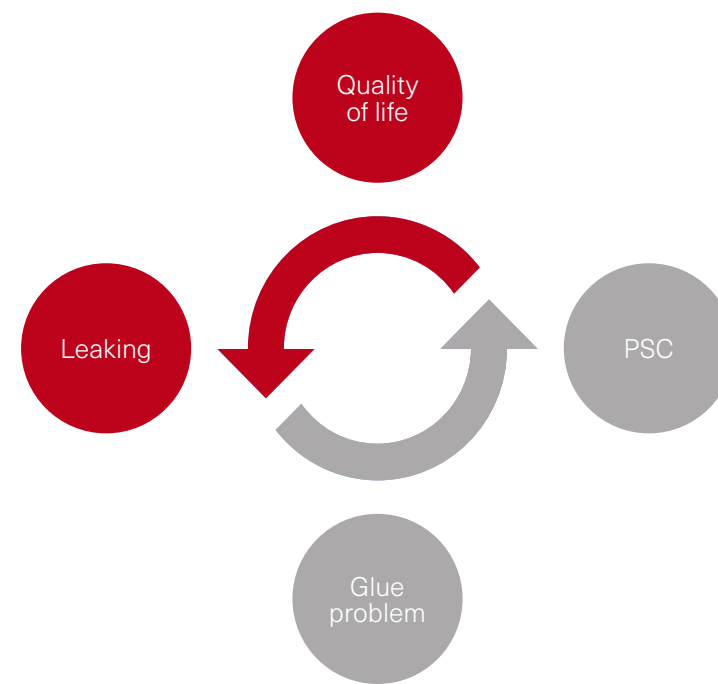
One of the guiding principles of ostomy care is to establish and maintain a secure and predictable seal.<sup>1</sup> It has been shown that 75% of cases of peristomal skin irritation are caused by stomal leakage. It is very concerning that around 40% of stoma patients may not recognise when they have a problem with peristomal skin irritation, and more than 80% of those diagnosed with skin problems do not seek professional help. The downward spiral of leakage and peristomal skin complications may lead to further problems with the fit and security of the ostomy appliance, resulting in major challenges for health professionals and significantly increasing the cost of care.<sup>2</sup>

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<sup>1</sup> Colwell J.

<sup>2</sup> Herlufsen P, Olsen AG, Carlsen B, Nybaek H, Jemec GB, Karlsmark T, Laursen TN

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### Spiral of leaking and peristomal skin complication

Choosing the correct ostomy appliance is key to halting this downward spiral. However, this can be challenging as body shapes differ among stoma patients, as do the contours of the stoma and peristomal skin.<sup>3</sup> Poorly constructed stomas or irregular body contours were historically addressed by creative use of pastes, hydrocolloid sheets, belts, rings, and medical adhesives.<sup>4 5</sup>

The introduction of ostomy appliances using a convex base plate has been shown to be effective in preventing leakage by increasing the protrusion of the stoma and thus facilitating efficient drainage of the effluent away from the skin and into the bag.<sup>6</sup>

<sup>3</sup> Rolstad BS, Erwin-Toth PL.

<sup>4</sup> Hoeflok J, Salvadalena G, Pridham S, Droste W, McNichol L, Gray M.

<sup>5</sup> Hoeflok J, Kittscha J, Purnell P.

<sup>6</sup> Rat P, Robert N, Fernandes I, Edmond D, Mauvais F

## Assessment for convexity

In scientific literature there is no unified tool to assess which patients will benefit from convex ostomy products. Numerous clinicians emphasize a variety of points that contribute to determining the need for convexity, but most are based on clinical experience rather than on a well-developed and accepted strategy.<sup>7</sup> The decision to incorporate convexity into a pouching system is based on the assessment of the stoma, peristomal skin conditions, effluent characteristics, leakage, and wear time.<sup>8</sup> [4,5]

Evaluating firmness of the abdomen and stoma assessment in conjunction with the body's contours should be implemented.<sup>9</sup> Clinical experts recommend an examination of the patient while supine, standing, and bending forwards to locate hidden creases. With changes in intra-abdominal pressure the stoma and peristomal surrounding can change size and surface. A prolapsed stoma and peristomal hernia can increase in the standing position and decrease in lying down.<sup>10</sup> <sup>11</sup> The area around the stoma demonstrates different creases or folds in the sitting or standing position. [4]

Conversely, a convex base plate may also come off if it is too rigid for the patient's abdominal tone. If the patient's abdomen is firm, the application of an opposing force from a convex base plate may result in a higher pressure affecting the peristomal skin and resulting in pressure injuries. [5]

7 Drolshagen C, Hoeflok J, Kittscha J, Fulham J, Diallo S, Ruiz M

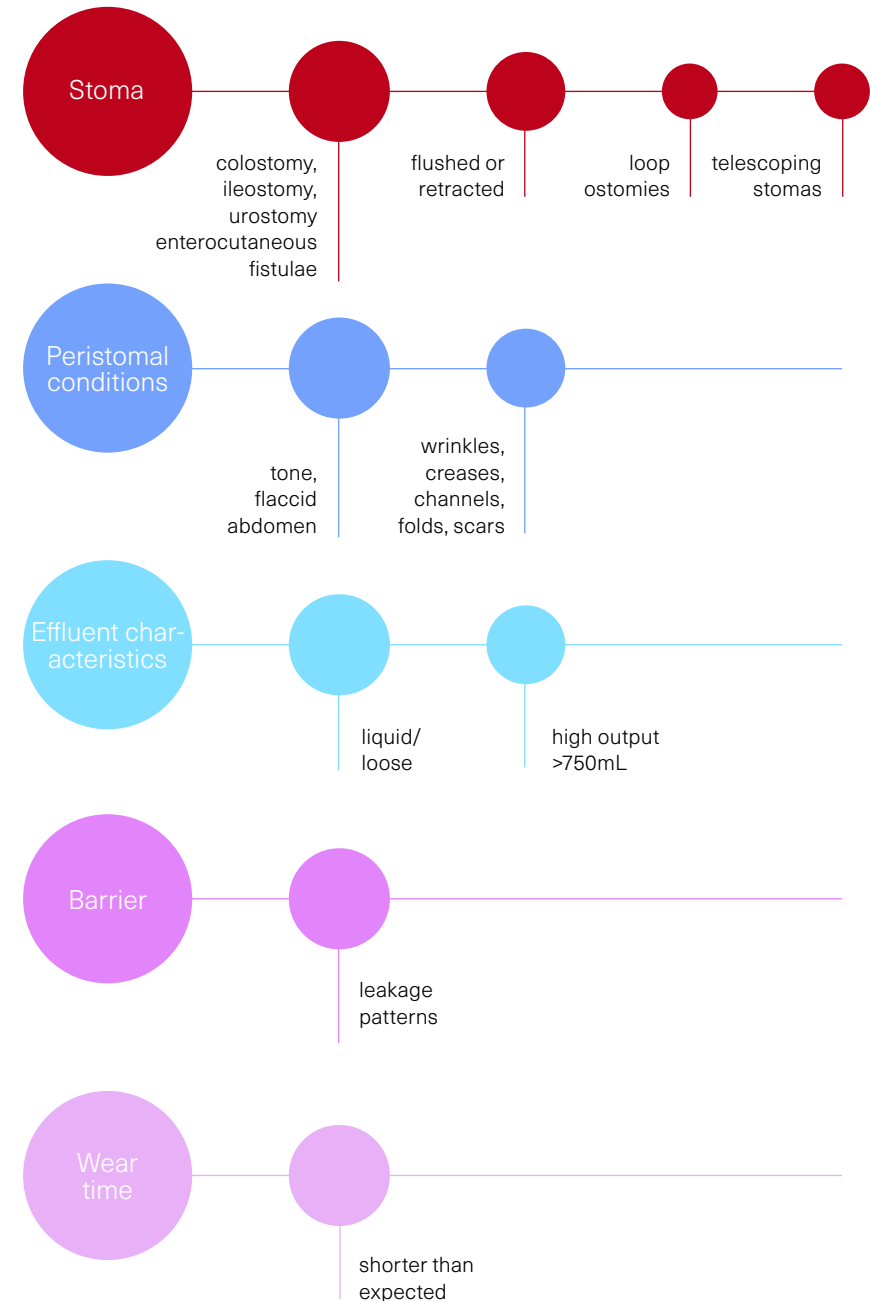
8 Boyd K, Thompson MJ, Boyd-Carson W, Trainor B

9 Erwin-Toth P

10 Wound, Ostomy and Continence Society

11 Part 2: Assessment and Management of Stomal Complications

## Assessment for convexity indications





Assessing peristomal skin integrity is also important when determining the need for a convex base plate. A description of the skin including peristomal skin damage should be completed. Convexity should be used with caution as the pressure exerted can exacerbate underlying conditions, such as pyoderma gangrenosum, caput medusae (perastomal varices), mucocutaneous separation, Crohn's ulceration, parastomal hernia, early postoperative phase, stomal prolapse. [8]

## Indications for convexity

Products incorporating convexity may be used in persons living with a colostomy, ileostomy, or urostomy. Pouching systems or accessory products with a convex feature may be used to manage enterocutaneous fistulas (ECFs). [4]

Most loop stomas are identified as requiring convexity. The combination of a proximal lumen that tips down with a distal lumen that is usually flush with the mucocutaneous junction exacerbates the potential for a compromised seal, possibly justifying the use of convexity. Highly mobile or telescoping stomas have been identified as possible indications for convex products because of the potential for the transient retracted state of the stoma to allow effluent to undermine the base plate. [5]

In the immediate postoperative period (first 3 days), convexity can be considered, but it might increase the risk for mucocutaneous separation (MCS) by increasing pressure and mechanical forces at the base of the newly formed stoma. [4,8]

If the stoma is flush or retracted and the abdomen is soft, a small or moderate degree of convexity may be required. A patient who has a very soft abdomen, regardless of the protrusion of the stoma, may require deep to very deep convexity to obtain a secure seal. [8,9]

Position of the stoma with respect to surrounding abdominal contours may require convexity. Convexity can stabilize the peristomal area when creases or folds are there, preventing undermining and leakage. [4,8]

The type and consistency of output from the stoma should also be considered when contemplating convexity. Liquid output can be a reason to use convexity when seeking to prevent or manage leakage. Liquid, due to its inherent higher moisture content, has the ability to dissolve a skin barrier more easily than a more formed stoma output. Convexity enables increase wear time. [4,5,8]

## Indications for use of convexity and associated definitions

Indication for use	Definition
Flushed stoma	Considered flush when level with abdominal skin.
Retracted stoma	Stoma below skin level. Retraction may be partial or complete. Early cause can be technical difficulty at time of surgery or weight gain post-operatively.
Peristomal skin creases or wrinkles	Skin creases form channels along which leakage can occur and may only be present in certain positions.
Poorly sited stomas	Stomas formed during emergency surgery while the patient is supine or with a distended abdomen can result in stomas positioned in deep skin creases.
Telescoping stoma	Most commonly causes problems at night, as the stoma slides back to skin level when the patient lies down.
High output effluent	Output >750mL creates increases potential for leakage.
Soft abdominal surface	Abdomen with poor muscle tone provides little support for stoma resulting in contours in the peristomal plane.

## Conclusion

Convexity has an essential role to play in the management of difficult stomas. When used appropriately, it can provide patients with security and promote their physical and psychological wellbeing. However, its usage should be monitored carefully, following a thorough assessment of the patient. Although this protocol provides a framework for an evidence-based approach to the use of convexity, it should be used together with expert clinical assessment. [8]

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