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PII: S2772-9737(23)00907-4
DOI: https://doi.org/10.1016/j.cont.2023.101049
Reference: CONT 101049

To appear in: *Continence*

Please cite this article as: C. Murphy, M. Fader, D.Z. Bliss et al., Management using continence products: Report of the 7th International Consultation on Incontinence, *Continence* (2023), doi: https://doi.org/10.1016/j.cont.2023.101049.

Management using continence products: Report of the 7th International Consultation on Incontinence

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1. Introduction

1.1 background

Many millions of people live with the day-to-day challenge of managing bladder or bowel leakage as either a temporary and treatable symptom, or as an ongoing chronic condition [1]. Failure to contain leakage (or the inability to empty the bladder normally) can negatively impact health, relationships and social and professional opportunities [2-4]. Most people living with long-term incontinence use continence products even while practicing other management therapies to minimize the impact on quality of life. We define these products as those that are used to contain bladder or bowel leakage (either inside or outside the body) or to drain the bladder.

This paper provides a brief synopsis of Chapter 19 'Management Using Continence Products' in the 7th edition of 'Incontinence' [5]. As part of the 7th International Consultation on Incontinence, an international expert group searched available evidence on continence products published since the previous review (2016) [6]. We present an overview of each product category, key new evidence to guide usage, key product use recommendations (based on the new evidence summarised in this paper together with the full overview provided in the current chapter) and research priorities. For detailed information on each category, including illustrations and an overview of the evidence, please refer to the chapter [5].

1.2 Selecting continence products

Product categories include absorbent pads, urinary catheters, toileting aids and mechanical devices. Different people have different product needs which will vary due to factors including their incontinence (type and level), sex, mobility, functional limitations (e.g., cognition, dexterity, eyesight), circumstances and preferences. Many people benefit from using a range of products to meet their varying needs, for example different products for day and night, or for at home and out of the home. Clinicians, product users and other decision-makers often lack the skills or information to make optimal product choices. Furthermore, the range of accessible products varies considerably between countries, depending on healthcare systems, available funds and other limiting factors such as a reliable source of water required for washable products. Therefore, individual circumstances, personal preference and local availability will play a substantial role in product decision-making. User-friendly guidance on the advantages and disadvantages of product designs can be found at www.continenceproductadvisor.org.

1.3 Evidence challenges

Many continence product categories have a limited or non-existent body of evidence. Measuring the performance of continence products in clinical trials is challenging. Manufacturers modify their products regularly, which limits the long-term validity of results. There are additional complexities regarding study design including challenges with randomising across differing designs and blinding participants to products, difficulties with reliable outcome measurement and lack of standard control products. The recent development of quality-of-life tools for continence products and catheter users might go some way to helping, but undertaking trials that give clinically useful results remains difficult.

1.4 Search strategy

The breadth of products included in the chapter necessitated multiple searches using relevant key words to identify material published since the 6th Edition [6]. Medline and CINAHL databases were searched from 2016 to the end of 2020 for English language publications. Detailed search strategies were developed giving consideration to variation in terms used for products in different countries. Relevant abstracts were examined and pertinent articles retrieved and reviewed. Reference lists were reviewed for further studies. Given the limited body of evidence, studies with a wide range of research designs were included.

2. Results

Each section of the results provides 1) a brief description of the product category, 2) key new evidence and 3) key recommendations for the use of the products (with Grade of Recommendation based on Oxford Centre for Evidence-Based Medicine criteria [7]). Table 1 presents a summary of the key priorities for research for all product categories.

2.1 Handheld urinals

Handheld urinals are portable devices designed to allow individuals to empty their bladder in circumstances where gaining access to a toilet is difficult. To function effectively, the product should enable the user to empty their bladder without spillage and contain the urine prior to disposal [8-10].

There is little published evidence available on handheld urinals and the recommendations are largely based on expert opinion. One new study reported qualitative data collected on a disposable urinal for women from healthy volunteers (n=11), palliative care in-patients (n=9) and healthcare professionals (n=7). The urinal was found to be acceptable, safe and effective, and was generally preferred to a bedpan [11].

Key recommendations:

- Handheld urinals can form one of a range of options available to men and women to manage toileting needs, potentially enhancing quality of life of both the user and (where relevant) carer(s) (Grade of Recommendation C).
- Experimentation to select the most appropriate urinal to meet individual needs, circumstances and situations might be beneficial (Grade of Recommendation C).

2.2 Commodes, mobile shower-chairs and bedpans

Accessing and safely utilising toileting facilities can represent a significant challenge for people with impaired mobility and/or other disabilities. Commodes, shower chairs, toilets seat raisers, grab rails and bedpans can facilitate ease of access, independence in toileting and continence, and privacy and dignity.

Six new studies were found for this review. Four focused on toilet grab rail design and reported 1) vertical rather than horizontal bars decreased the risk of falls, 2) a hinged U-shaped bar has been designed to prevent users from falling off the toilet and 3) grab bars that down/swing away on both

sides of the toilet (as opposed to standard grab bar configurations) were preferred for nursing home residents [12-15]. One study reported on signs to identify the location of public toilets [16] and another on the design of an i-toilet [17].

Key recommendations:

• Privacy and dignity should be considered during toileting, including the management of associated noise and odours (Grade of Recommendation C).
• Full and careful assessment of individual needs, including mobility, transfers, postural stability, skin integrity, access to the perianal area, and safety must be undertaken before equipment is prescribed or used, and should be followed by regular reviews to assess ongoing suitability (Grade of Recommendation C).

2.3 Absorbent products

Most people living with long-term continence problems will, at some point, use either disposable (single-use) or washable absorbent products. They are available in a wide range of designs and absorbencies to suit different levels and types of incontinence and in some cases are sex specific. No one design will meet everyone's needs.

Since the 6th consultation [6], there have been new publications reporting on absorbent products. Three new studies report on the effective use of disposable bodyworn absorbent products for moderate-heavy incontinence. They concluded respectively that there is often no recorded reason for the use of absorbent products in hospitalised adults [18], that hospitalised patients consider longer times to wait for a soiled pad to be changed to be unacceptable compared with care providers [19] and that using absorbent products improves independent performance of activities of daily living and health related quality of life for people with incontinence [20]. One study compared washable pull-on pads with disposable pads for managing mild to moderate urinary incontinence and found no difference in leakage [21]. Additionally, reports of work to develop a new international standard to measure leakage performance [22], a new patient-reported outcome measure for absorbent product users [23], a new International Continence Society standard providing recommended nomenclature for disposable bodyworn absorbent products [24], a novel method designed to measure the usability of absorbent products from caregiver's perspectives [25], a study on the environmental impact of disposable absorbent incontinence products [26] and outcomes of a

project to create evidence-based recommendations for assessing, selecting, using, and evaluating body-worn absorbent products for adults were published [27].

Key recommendations:

- No one product works best for everyone. Users should be advised to try a variety of products and that they may find combinations of designs preferable and cost-effective (Grade of Recommendation B).
- Individual product brands within a design group often exhibit a wide range of performance and acceptability for individuals, and it cannot be assumed that products of different brands, but broadly similar design will be equally effective (Grade of Recommendation B).
- If it is a priority for a product to successfully contain a person's most severe leakage, it may need to be substantially bulkier and more expensive than is needed most of the time. (Grade of Recommendation C).
- In general, products containing superabsorber materials should be selected in preference to those without (Grade of Recommendation B). Shaped pads should usually be selected in preference to unshaped (Grade of Recommendation C).
- Pads should be used with stretch (e.g. cotton/lycra) underwear or mesh pants (Grade of Recommendation B).
- The ability of a user to change his/her own product should be considered (Grade of Recommendation C)

2.4 External urine collection devices

External urine collection devices are available primarily for men. Close-fitting penile sheaths (sometimes called condom catheters or external catheters) fit over the penis (much like a contraceptive condom) and are connected to a drainage bag that collects urine as it leaves the body. To work effectively, urinary sheaths must fit well, avoid skin/tissue damage or leaks and be comfortable.

Since the last consultation, two studies have been published. One compared sheaths with indwelling catheters for short-term urinary management during hospitalisation (n=80) and found that the two device types were similar in terms of the proportions of men experiencing UTIs and other non-infectious complications, but pain, discomfort, bleeding, or other trauma were experienced by significantly fewer men using the sheath [28]. The other reported that amongst thirty hospitalised men using sheaths, poor fitting of the devices by nurses was common, skin damage occurred in one third, and that the majority of patients received no guidance on sheath use [29].

Key Recommendations:

- Product differences mean that men should try different products before making a final selection (Grade of Recommendation B).
- Men might benefit from a combination of continence products (e.g., sheaths and pads), depending on their activity (Grade of Recommendation B).
- Sheaths with integral adhesive (one-piece systems) should be offered over (two-piece systems) (Grade of Recommendation C).
- Sheath users should be monitored for latex or adhesive allergies, skin health, tissue damage and UTI (Grade of Recommendation C).
- When possible, the external sheath rather than the indwelling urethral catheter should be the urinary collection device of choice for men. (Grade of recommendation B).

2.5 Urine drainage bags and accessories

There are two main categories of urine drainage bags; lower capacity (usually up to 500ml) bodyworn bags that are worn under clothing using straps or support devices and higher capacity bags (frequently called night bags) that are positioned away from the body often on a stand. Best practice guidance recommends that bags should be held off the floor.

Since the last consultation, there have been no clinical trials addressing this topic. However, one study used computational models to examine the influence of tubing design on urodynamics and explored its potential to influence biofilm formation. Results indicated that tubing diameters could be reduced by 40%-50% and still meet flow rate standards for leg bags [30].

Key recommendations:

- Practitioners should recommend taps that are easy to open (Grade of Recommendation B).
- Care should be taken to avoid chafing between bag and skin (Grade of Recommendation B).
- Individual needs and personal preferences should determine the use of leg/suspension / attachments and the position of where the bag is worn (Grade of Recommendation C).
- A closed urinary drainage bag system where the system is only broken to change the sterile bag according to the manufacturer's directions should be considered. This may reduce the onset of bacteriuria (Grade of Recommendation A).
- Drainage systems for night bags should be positioned off the floor to reduce the risk of cross-infection (Grade of Recommendation C).
- Dependent catheter loops should be minimised to allow optimum urine drainage (Grade of Recommendation C).

2.6 Male bodyworn urinals and dribble containers

Products such as bodyworn urinals (BWU) and dribble containers (penile pouches) are an alternative to a sheath system. They usually comprise a ring-shaped opening or cone-shaped component

which is worn around the penis (and held firmly against the pubis by means of a belt and straps) and channels urine to an integral collection bag. There are two main designs: one-piece with the cone and flange as a single combined unit, or two-piece, where the cone and flange are separate and connect when in use. BWUs are more substantial collection devices than sheaths and are designed to be washed and reused. Dribble containers (penile pouches) involve holding a drainage bag or other container over the penis using a much lighter structure than the flanges used in bodyworn urinals. They are often disposable. No new studies have been published since the last consultation.

Key recommendations:

- Expert fitting and careful user selection should be ensured to ensure the effective and appropriate use of bodyworn urinals (Grade of Recommendation B).

2.7 Mechanical devices for women with urinary incontinence

Mechanical devices for women are designed (primarily or in part) to prevent urinary leakage. There are three main categories:

- External urethral devices: products that are applied over the urethra at the opening.
- Internal urethral devices: products that are placed inside the urethra.
- Internal vaginal devices: products that are inserted into the vagina.

Of these, the most commonly used are internal vaginal devices for urinary stress incontinence, such as pessaries, which can be self-fitted or fitted by a healthcare professional.

Four studies reported on the efficacy of pessaries for women with organ prolapse and stress urinary incontinence indicating that the devices have the potential to improve quality of life and the impact of urinary incontinence [31-34]. A systematic review of pessary use also concluded that the devices can be effective for urinary incontinence but noted the lack of long-term studies [35]. Since the last consultation, three randomised sham-controlled trials reported on the treatment effects of a novel intravesical attenuation device for women (not currently commercially available) and found,

although there was some evidence of effectiveness, there were tolerability issues and a high level of adverse events [36-38].

Key recommendations:

- Internal vaginal support devices may be option when treating women with stress urinary incontinence, dependent upon the availability of the product, ease of insertion/removal, acceptance and cost (Grade of Recommendation C).
- Internal urethral devices are invasive, costly and have had a limited evaluation. However, they may be considered for intermittent and occasional use (such as during vigorous exercise) (Grade of Recommendation C).

2.8 Mechanical devices for men with urinary incontinence

Male mechanical devices are primarily external (i.e., penile clamps or penile compression devices) are designed to prevent urine leakage by compressing the penile urethra using a clamp design or a peri-penile strap. These devices can provide a convenient option for some men. However, there is the potential for tissue damage and ischaemia and they should be used with caution and released at least every two hours [39]. Careful assessment is necessary and use should be re-evaluated regularly.

Since the 6th consultation [6], two relevant studies were published. A computational model identified design characteristics that provide the safest mechanical conditions in the penis as envelopment, adaptability and durability [40]. Another evaluated tissue response to applied loading with four different designs of clamp, all of which indicated tissue and blood flow compromise during device application but recovery within 40 minutes of removal indicating that the application of a clamp for one hour is likely to be safe [41].

Key recommendations:

- Male mechanical devices should be considered for men with stress urinary incontinence who are cognitively intact and aware of bladder filling, have normal genital sensation, intact penile skin and sufficient manual dexterity to open and close the device (Grade of Recommendation B)
- Devices should be fitted by a trained health professional and reviewed regularly (Grade of Recommendation C).

- Mechanical devices can be considered as an option for short term use when undertaking sport or other activities and as an adjunct to management with other continence products (Grade of Recommendation C).

2.9 Indwelling catheters

Indwelling urinary catheters are inserted either urethrally or suprapubically to drain the bladder. Indications for long-term use of an indwelling urinary catheter include problematic chronic retention and continence care where all other options have been considered [42].

Since the last consultation, most new studies have been small scale. Two new Cochrane reviews (Policies for replacing long-term indwelling urinary catheters in adults [43] and Washout policies in long-term urinary catheterisation in adults [44]] both indicate the lack of evidence from which to draw robust conclusions. One large stepped wedge RCT [45]and a recent systematic review concluded [46] that chlorhexidine solution for meatal cleansing could be more effective than normal saline at preventing CAUTI for short-term catheter users.

Key recommendations:

- To avoid catheter associated harms (including infection) Indwelling catheters should only be used after alternative management strategies have been considered and rejected as unsatisfactory and the duration of use should be minimal (Grade of Recommendation A).
- A closed drainage system should be maintained to reduce the risk of catheter-associated infection (Grade of Recommendation A).
- Meatal cleansing with plain soap and water (not with antimicrobial agents) is recommended for everyday washing for long-term users (Grade of Recommendation A).
- Silver-alloy catheters are not recommended for use in acute or long-term care as they do not significantly reduce the incidence of infection (Grade of Recommendation A).
- Routine washout solutions to reduce encrustation or debris are NOT recommended (Grade of Recommendation B).
- Effective handwashing before and after handling catheters and drainage equipment should be performed to reduce the incidence of CAUTI (Grade of Recommendation C).

2.10 Intermittent catheters

Intermittent catheterisation (IC) is the act of passing a catheter into the bladder to drain urine or maintain stricture patency via the urethra or a channel such as a Mitrofanoff diversion. IC avoids many problems associated with indwelling catheters, but urinary tract infections (UTI) remain an issue for many IC users [47] .

Since the last consultation, there have been numerous studies and reviews on IC; full details are provided in the chapter, with key findings given here. A Cochrane review concluded that it is unclear whether the incidence of UTI is affected by any catheterisation technique, coated or uncoated catheter or single or multiple-use 'clean' catheters [48]. It is unclear whether the use of antiseptics for meatal cleansing is effective at reducing the incidence of UTI [46]. A trial comparing low dose antibiotic prophylaxis with no prophylaxis found it to be effective in reducing UTI, but authors expressed concern about increased antimicrobial resistance with this strategy [49].

Key recommendations:

- IC should be routinely offered for those with ongoing bladder emptying problems and residual urine > 100ml who are able to manage the technique (Grade of Recommendation A).
- IC technique can be taught to all ages of people with appropriate motivation and manual dexterity (or to a carer where this is acceptable to both parties). Appropriate education and ongoing support should be offered for optimum IC use and maintenance (Grade of Recommendation C).
- An external lubricant or lubricant-coated catheter should be offered to minimise urethral trauma (Grade of Recommendation C).

2.11 Products and devices for preventing and managing faecal incontinence and its sequelae

Various products and devices are available to manage faecal incontinence (FI) and its complications of skin damage and odour. Anal plugs, anal inserts, and vaginal inserts aim to prevent faecal leakage and are suitable for use by community-living, mobile individuals. Rectal catheters, long and short rectal tubes, and a non-balloon-based intra-rectal sheath redirect faeces from the rectum, collecting

it in an external drainage bag can be used for patients confined to bed in hospital or long-term care settings. Peri-anal pouches and various types of absorbent pads can collect or absorb faecal leakage.

Several small-scale studies have reported on products and devices for FI since the last consultation. Studies were either one-group, non-randomised/no control group or retrospective/secondary analysis [50-62]. The largest of these studies was a one-group study (n=73) of a vaginal insert, where 73% of users were found to have a 50% or more decrease in FI episodes, but 38% experienced device related adverse events [53].

Key recommendations:

- Anal plugs may be offered to reduce FI, but some patients are likely to use them on a limited basis or reject them due to discomfort (Grade of Recommendation B)
- An anal insert should be considered for decreasing FI. Its tolerability to adults seems to be better than the anal plug, but it is also associated with unpleasant symptoms such as minor irritation and defecation urgency, and expulsion may occur. (Grade of Recommendation B)
- A vaginal insert that compresses/occludes the rectum should be considered be a treatment option for women to prevent FI. Discomfort, minor vaginal bleeding, and urinary urgency may occur. (Grade of Recommendation B)
- A rectal catheter should be considered for diverting faeces in acutely and critically ill patients unable to control bowel movements and at risk for skin damage or needing to heal wounds. Close monitoring for faecal seepage and integrity of perianal skin is recommended. (Grade of Recommendation C)

2.12 Skin health

Skin repeatedly exposed to urine and/or stool is at high risk to develop incontinence-associated dermatitis (IAD). IAD is characterised by cutaneous inflammation, often accompanied by secondary infection. Early clinical signs include erythema, oedema and pain. Later stages are associated with maceration, erosions and excoriations [63, 64]. IAD prevention and treatment includes promotion of continence, the use of absorbent, diversionary and containment products, and topical skin-care procedures and products [65].

Since the 6th consultation, a number of relevant studies have been reported with key findings given here. Three RCTs compared different absorbent products with regard to preventing and treating IAD

[66-68]. None found any statistically significant difference between product designs. One systematic review investigating the effects of faecal collection devices on IAD in critically ill patients indicated that anal pouch and anal catheter/tube collection devices reduce the occurrence of IAD in this group [69]. Three systematic reviews [70-72] and several additional studies [73-77] reported on skincare designed to prevent and/or treat IAD. Overall findings indicate that the implementation of a structured IAD prevention and treatment strategy including mild skin cleansing and skin and/or IAD lesion protection using films or barrier products prevents IAD and promotes healing.

Key recommendations:

- Use absorbent products with high absorptive capacity and breathable material in subjects at risk for IAD or with IAD (Grade of Recommendation B)
- Use faecal containment devices in critically ill patients with FI (Grade of Recommendation B)
- Use non-irritating skin cleansing products/procedures to remove stool and/or urine after incontinence episodes (Grade of Recommendation B)
- Use skin-protecting topical products at skin areas exposed to stool and/or urine (Grade of Recommendation B)
- Use topical products (e.g., barrier products, film-forming products) to protect IAD lesions and promote healing (Grade of Recommendation B)

2.13 Odour control products

Odour control products play a key role in helping people with incontinence retain their identity, independence, and engagement in social life and in supporting their caregivers. Some patients with incontinence place a high value on products that mask, control, reduce, or eliminate odour.

Since the last consultation, 14 new publications were identified. Most were small-scale or non-clinical. One trial randomised 60 gastric bypass patients to one of three groups (Probiotics group A: 1g *Clostridium butyricum MIYAIRI,* Probiotics group B: 300 mg *Bifidobacterium longum BB536* or Digestive enzymes group: Aczym containing 100 mg takadiastase N, 20 mg cellulose AP, 50 mg lipase MY, and 100 mg pancreatin) and found that the score for foul smelling flatus improved in all groups

[78]. A randomised cross-over placebo-controlled trial of 36 participants found that bismuth subgallate improved a smelly gas score [79].

Key Recommendations:

- Inform patients that odoriferous rectal gas may be better absorbed with bodyworn briefs containing activated charcoal rather than with separate pads (Grade of Recommendation C).
- Offer patients who have smaller amounts of gas the opportunity to compare pads and briefs for themselves. (Grade of Recommendation C).
- Patients with irritable bowel syndrome should consider a trial of the probiotic Lactobacillus plantarum to reduce flatulence (Grade of Recommendation C)
- For those persons experiencing stool leakage due to flatus, over the-counter α-galactosidase containing products, which reduce the production of malodorous gas can be tried (Grade of Recommendation B).
- Patients with malodorous flatus after bariatric surgery may be offered a trial of probiotics (1 g Clostridium butyricum MIYAIRI or 300 mg Bifi dobacterium longum BB536) or digestive enzymes (Aczym) (Grade of Recommendation B).

Product Category	**Summary of key research priorities**
Handheld urinals	• Evaluation of currently available male and female urinals to • guide users, caregivers, and healthcare professionals. • Development of the range of female urinals, particularly to meet the needs of those who are less physically able, unable to move to the edge of a bed/chair/wheelchair, and/or need to use a urinal while supine.
Commodes, mobile shower chairs and bedpans	• Evaluative studies of toilet seat raisers, toilet frames/surrounds, padded toilet seats, grab and support rails, bidets or personal cleansing/drying systems, bottom wipers, etc., for ease of use, the effectiveness of promoting continence, and safety. • Development and testing of information and communication technology enhanced toileting assistive devices.

Absorbent products	• Comparison of washable and disposable products • Development of more effective and acceptable disposable designs specifically for men. • Development of more effective and aesthetically acceptable washable products, particularly for night-time use and for women. • Development of better washable products.
External urine collection devices	• Evaluation of products designed to be suitable for men with a retracted penis. • Studies to generate and validate procedures to help identify the type of sheath most likely to suit an individual.
Urine drainage bags & accessories	• Evaluation of a linked system with night bag/leg bag and the onset of bacteriuria compared to changing from day to night bag. • Most effective and acceptable cleaning methods for non-sterile urinary drainage systems. • Development of catheter tubing that prevents the formation of dependent loops.
Male bodyworn urinals (BWUs) & dribble containers	• Development and evaluation of leak-free, comfortable, and aesthetically acceptable BWUs for men. • Development and validation of a reliable instrument to measure the performance of different BWU designs and the impact on the quality of life of users.
Mechanical Devices for Women with UI	• New devices - particularly invasive products– need to be evaluated by randomised controlled trials, including long-term follow-up. • Evaluate the long-term effects of existing mechanical devices for urinary incontinence on the urethra and/or bladder to determine their value and safety.

	• Comparison studies to other forms or like-forms of mechanical devices, conservative therapy, surgery and/or containment options are required.
Mechanical devices for men with UI	• Further research is necessary on the length of time a device can remain in place, the amount of compression that is safe for penile vessels, and the effect on skin health and comfort when using the device. • It is possible that one penile compression device will not meet the needs of all men, and further design considerations may be warranted.
Indwelling catheters	• Compare catheterisation management methods, e.g., CIC, suprapubic and urethral catheters, on CAUTI and other risks or potential benefits. • Studies demonstrating the efficacy of new designs of the catheter on reducing CAUTI, blockage and other catheter-associated harms and improving cost-effectiveness or quality of life for users. • Further development of catheter materials resistant to microbial biofilm formation, new approaches to disruption of the biofilm, or alternatives to catheterisation. • Development of further self-management research focusing on decreasing blockage and CAUTI. • Clinical investigation of the effect of catheter valves on incidence and frequency of catheter encrustation and blockage.
Intermittent catheters	• Cost-effectiveness studies should include patient acceptability/satisfaction with the procedure and or product. • Large, well-designed trials are needed to determine whether reuse of catheters is equivalent to single-use.

Products and devices for preventing or managing faecal incontinence	• Evaluation of the anal plug, anal insert, and vaginal insert using controlled designs and adequately powered samples, and valid and reliable objective measures over longer periods. • Development of alternative devices to prevent FI, perhaps utilising wireless technology, intra-rectal plugs, or pouches that inflate and deflate as needed, which have fewer safety risks, come in a variety of sizes for adults and children, and are comfortable, tolerable, and effective.
Skin health	• Development of a device and product classification system based on main constituents and/or performance characteristics using standardized terminology. • Investigate how to best measure these five core outcomes: erythema, erosion, maceration, IAD-related pain and patient satisfaction.
Odour control products	• Development of an absorbent product that can eliminate, reduce, or mask the odour of leaked urine, faeces, and flatus while protecting the skin. • Development of bodyworn undergarments and textile products (soft furnishings and bedding) for eliminating, reducing, or masking odour associated with urine, faeces, and flatus. • Investigation of whether probiotics or changes in dietary intake can eliminate or reduce the odour of flatulence or leaked faeces.

Table 1 – Summary of research priorities

3. Discussion

There continues to be a paucity of research on the effectiveness, safety, acceptability and economic impact of continence management products with little new evidence to report. Nevertheless, there

are useful expert opinion-based recommendations that can be made for each product category. Our summary of specific areas where further research is required informs future work in this area which is crucial to the health and well-being of the millions of people living with long-term incontinence.

There remains very little or no evidence or analysis of any of the three pillars of sustainability (environmental, financial and social). These issues are key concerns for product users and providers and warrant considerably more attention than they have received to date. In particular, the potential for improved reusable products, with a focus on the most commonly used devices (absorbent products, catheters and drainage bags), and the potential environmental and economic impact should be a key priority.

Our main message continues to be that continence is often best managed by a 'mix' of different products – often used at different times or for different activities (day/night/home/away/sport). One product is unlikely to be effective for all occasions. To assist this, the International Consultation on Incontinence and the International Continence Society (ICS) have collaborated to make the material more accessible via a website hosted by the ICS at http://www.continenceproductadvisor.org. This interactive website provides current evidence to healthcare professionals and users to facilitate informed choices in selecting appropriate products and accessible, evidence-based advice on how to use them to best effect.

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Declaration of interests

☐ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☒ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Alan Cottenden reports a relationship with Eakin Healthcare Group that includes: consulting or advisory.
Alan Cottenden reports a relationship with Essity Aktiebolag that includes: speaking and lecture fees.
Alan Cottenden reports a relationship with Bostik Inc that includes: speaking and lecture fees.