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Development of a Toileting and Containment Decision Support Tool

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ABSTRACT

A multidisciplinary international expert panel was convened to provide input for a proposed decision support tool. This tool will assist health care professionals who are not specialized in incontinence care to assess individuals with urinary and/or fecal incontinence and recommend appropriate person-centered management options for the home care and ambulatory community settings. A targeted literature review was complemented by a series of interviews with experts in continence management, followed by a practitioner survey and rounds of expert opinion. A set of factors for assessment were defined, along with questions created to identify and quantify the factors. In addition, a range of lifestyle intervention, toileting and containment strategies were identified that were appropriate for the decision support tool. Future steps required to progress this work to a functioning tool are described.

KEY WORDS: Anal incontinence, Assessment, Body-worn absorbent products, Containment products, Decision support tool, Fecal incontinence, Lifestyle intervention strategies, Person-centered care, Product selection, Toileting strategies, Urinary incontinence.

INTRODUCTION

It is not possible to cure all individuals with incontinence,[1] and even individuals who are successfully treated may have to live with the condition while undergoing treatment.[2] As a result, a high proportion of community-dwelling individuals with incontinence use containment products. According to Uchil and colleagues,[3] 75.7% of community-dwelling individuals with urinary or fecal incontinence reported use of pads on a daily basis. Residents living in long-term care settings are also likely to manage their incontinence with pads. Omli and colleagues[4] report that 77% of residents in a study of 6 Norwegian nursing homes use body-worn absorbent products.

A person-centered approach to the management of incontinence seeks to support the individual's independence and dignity.[5,6] Lifestyle interventions such as fluid management, dietary adjustments, maintaining bowel regularity, weight loss, and reducing smoking can improve incontinence and related lower urinary tract symptoms, and these can be complemented by measures to improve toileting and other conservative approaches such as bladder (habit) training and pelvic floor muscle training where appropriate.[7] Containment of urine and feces may be needed while these conservative approaches are tried.[8,9]

The primary care practitioner is typically first consulted by an individual with incontinence, but this person is likely to have little training in management of patients with incontinence.[10] As a consequence, assessment of the individual's incontinence, including typing as urinary, fecal, or both, may be incomplete and ignore the person's circumstances, goals, and preferences. Without an accurate assessment of these elements, the recommendations for management are likely to be suboptimal and are unlikely to be fully adapted to the individual.

A number of resources exist to support the specialist health care practitioner, including academic publications,[11] professional society training content[8,11] and guidelines, both international[12] and national.[13,14] However, these resources primarily focus on medical and surgical treatment of incontinence with minimal guidance on the assessment of incontinence for management with toileting and containment strategies. The Web-based International Continence Society/International Consultation on Incontinence-supported "Continence Product Advisor"[15] is comprehensive and allows open access but only addresses containment products, while its depth of

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material makes it more suited to the continence specialist. Some national Internet resources also exist, for example, the Web site of the Swedish Nikola network.[16] In addition, manufacturers make available selection tools to guide use of their own products.[17,18]

Recognizing that evidence on the use of absorbent products for the management of urinary or fecal incontinence remains sparse and that there are few up-to-date resources available that provide guidelines for the use of absorbent products, a WOCN Task Force has recently published consensus statements on the appropriate use of body-worn absorbent products.[19] However, these recommendations do not address the full range of person-centered strategies appropriate for consideration when assessing incontinence and making recommendations for management. Such strategies may involve a combination of lifestyle interventions, toileting programs, and nonabsorbent containment products in addition to the body-worn absorbent products considered by the WOCN Task Force. Furthermore, there are relatively few resources adapted to the nonspecialist that can support a targeted and person-centered continence assessment leading to tailored recommendations for initial management of incontinence.

A person-centered approach to continence care aims to maintain the dignity and independence of the individual through supporting successful toileting aided only to the extent necessary by containment products that meet the individual's needs in terms of type, size, and (for body-worn absorbent products) absorbency. This project brought together an interdisciplinary and multinational group of experts to inform development of a decision support tool (DST) whose purpose is to guide the nonspecialist health care professional in carrying out a rapid and focused incontinence assessment resulting in a person-centered management strategy tailored to individual characteristics and circumstances. We used the term "fecal incontinence" here rather than the alternative "anal incontinence," according to the definition of the WHO's International Classification of Diseases, edition 11: anal incontinence is defined as "failure of voluntary control of the anal sphincters, with involuntary passage of feces and flatus."[20]

METHODS

The project was carried out following the sequence summarized in the Figure. A multidisciplinary international expert panel consisting of all of the coauthors of this article established face validity for this project. The panel comprised professionals representing a broad spectrum of clinical and research expertise: a specialist in elderly care and medical director of a group of

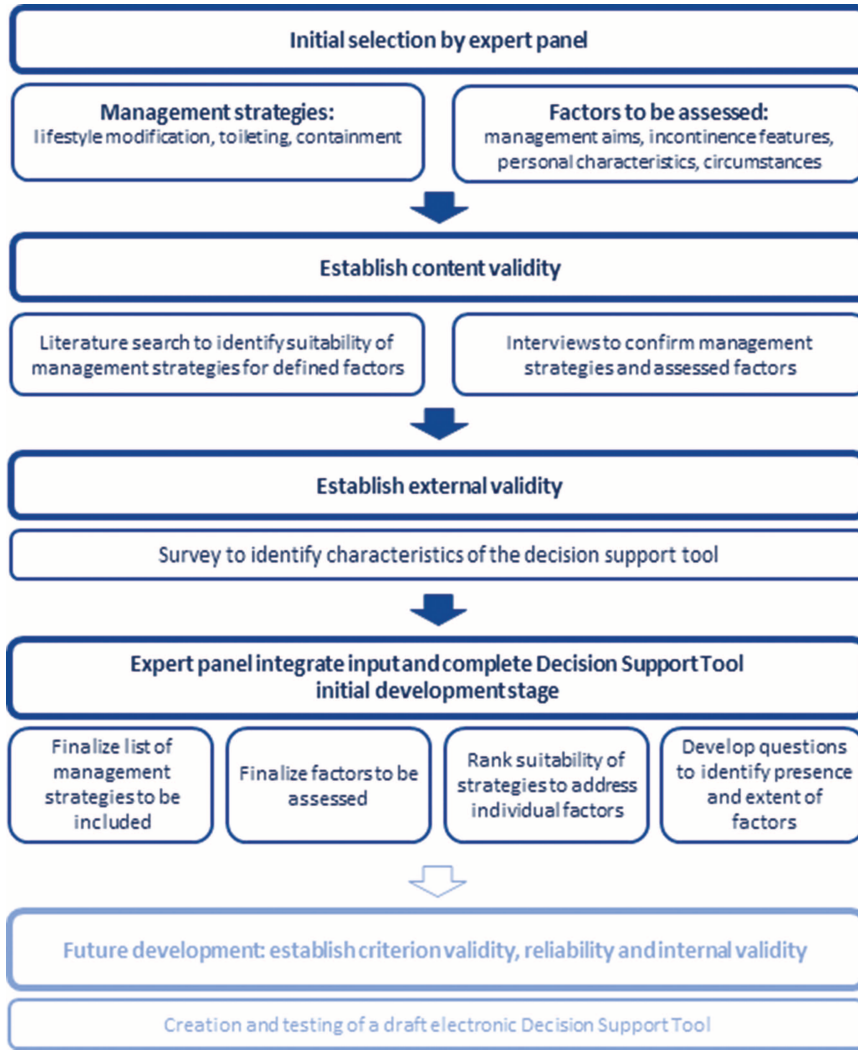

Figure. Initial and planned future development phases of the decision support tool.

nursing homes and home care services in the Netherlands, and continence expert with Vilans, the Dutch quality institute for long-term care (Paul van Houten, Medical Director, Zonnehuisgroep Amstelland); a highly experienced continence nurse practitioner in the United States (Diane Newman, Adjunct Professor of Urology in Surgery, Perelman School of Medicine, University of Pennsylvania, Philadelphia); a physiotherapist specializing in continence, based in Switzerland (Barbara Koehler, researcher at Zurich University of Applied Sciences and independent specialist practitioner); a person-centered care nurse academic from Sweden (Helle Wijk, Professor in Health and Care Science at the Gothenburg University Center for Person-Centered Care); and an academic specializing in clinical epidemiology and ageing from Canada (Andrew Costa, Assistant Professor and Schlegel Research Chair at McMaster University and interRAI Fellow). The expert panel was coordinated by a UK-based physician with research experience in the field of incontinence (Edward Hutt).

The panel identified the range of lifestyle interventions, toileting, and containment management strategies considered appropriate for the target user to recommend as a result of the initial continence assessment. They subsequently identified a range of factors important to assess when a person first presents with symptoms indicative of urinary and/or fecal incontinence, emphasizing those factors that would make an individual or his or her circumstances particularly suitable for one of the defined management strategies.

A targeted literature search was conducted in August to September 2017 in the following databases: PubMed, Cochrane, DARE, and UK NHS Evidence. English-language guidance documents were consulted on the UK National Institute for Health and Care Excellence (NICE) and Scottish Intercollegiate Guidelines Network (SIGN) Web sites. Additional authoritative published sources were consulted including the International Consultation on Incontinence publication "Incontinence" sixth edition,[21] "Clinical Application of Urologic Catheters, Devices and Products,"[9] and the sources referenced by the Continence Product Advisor Web site.[15]

The literature search included a broad range of documents: primary research, review articles, current practice, and guidance documents. An experienced medical writer extracted the sections of the publications relating to suitability of the strategies and recorded an assessment as to the extent to which the publication supported the use of the strategy for the factor of interest. A 5-point Likert scale was used to indicate degree of support. The corresponding author made a separate assessment. Differences between the 2 judgments were discussed, and remaining discrepancies were resolved by the expert panel.

To further inform content validity, interviews were carried out with a minimum of 2 experienced continence nurses from each of 7 countries (Australia, Canada, the Netherlands, Singapore, Sweden, United Kingdom, and United States) from October to November 2017 to validate the panel's list of management strategies and the factors to be taken into account in selecting them, as well as to identify any formal assessment methods used.

To inform external validity, a cross-national survey was carried out from November 2017 to January 2018 of nurses and physiotherapists with a range of continence experience and training, and practicing in primary care or the community setting, ambulatory practice, hospitals, and long-term residential care settings. The survey was designed by E.H. with guidance from A.C. A detailed document was constructed containing the survey purpose and research questions, setting out the hypotheses to be tested and the text of the questions to be asked. The draft survey contained an introduction and 16 questions with supplementary questions asking for information on the respondents' training, experience, and practice setting. The questions were designed to allow easy completion, with predefined answers for selection by respondents where possible, supplemented by open-ended questions allowing for responses as free text.

All coauthors provided comments and the draft survey questions were uploaded into the QuestBack Internet survey platform for testing by continence nurses who had not been involved in the survey development. Once the survey questions were finalized in English, they were translated into German, Dutch, and Swedish. The coauthors sent the survey to continence nurse specialists in their network and to members of relevant professional associations where the association leadership was prepared to support the request. The target respondents were those health care professionals who make the initial continence assessment. Survey request e-mails were sent to potential participants in Austria, Canada, Germany, the Netherlands, Sweden, Switzerland, United Kingdom, and United States.

The purpose of the survey was to identify characteristics of the proposed DST such as: how long it should take to administer; how detailed the recommendations should be and whether a choice of management strategies should be offered; and the medium by which the assessment should be carried out. Information was also collected on which health care professional is primarily responsible for making an initial continence assessment and what incontinence training these professionals have undergone. Participants were asked how important they believed it was to ask the questions proposed for the tool and what factors they would formally assess in their initial consultation. They were also asked what reference materials they used to aid the assessment.

After reviewing the results of the literature search, the interviews and the survey, and drawing on their professional experience, the expert panel finalized the list of factors to be assessed and the range of management strategies to be included in the DST. They then ranked the suitability of the identified management strategies to address each of the factors.

Based on clinical experience and the literature review, we decided that lifestyle interventions were potentially of general benefit for a broad range of individuals with incontinence and they would not be ranked for suitability. Toileting interventions were ranked on a binary scale indicating a strategy that was either inappropriate or very suitable for the defined circumstances. Containment products were judged to have a broader range of applicability in different circumstances and were ranked according to a scale with gradations from 0 ("avoid using") through 1 ("can be used but not recommended"), 2 ("not a good choice"), 3 ("acceptable"), 4 ("good"), and 5 ("very suitable").

The initial phase of work described in this article stopped at the stage of (1) identifying factors for assessment; (2) developing questions to identify and quantify the relevant factors; (3) creating an appropriate set of lifestyle intervention, toileting, and containment strategies; and (4) ranking suitability of the incontinence management strategies to address each factor. The next phase will establish criterion validity, reliability, and internal validity through the creation and testing of the draft DST.

RESULTS

The authors agreed on categories of lifestyle intervention strategy advice that could usefully be given to any person being assessed to help prevent incontinence episodes: type of food and liquid intake; volume of food and liquid intake; timing of food and liquid intake; good voiding practices; appropriate clothing; and adaptations to the physical environment.

Toileting Strategies and Containment Products

Based on the data collection and the expert panel's experience, a number of toileting strategies were identified for inclusion in the DST; they are summarized in Table 1. Containment products to be included in the DST and their most common alternate names are listed in Table 2. All products can be obtained without a medical prescription and none requires specific instruction in its use in order to be used safely.

External urethral occlusive devices for women were not included because this class of product is no longer commercially available. We agreed to exclude products requiring insertion into a body cavity and penile compression devices such as anal plugs and penile compression devices, due to potential risks of adverse effects if not used according to the manufacturer's instructions. The DST will mention their existence and explain why they are not included, along with a recommendation to seek specialist advice should the individual wish to use them. We also agreed not to include soaker pads, because these are not within the scope of the personal strategies to be recommended by the DST.

Initial Identification of Factors to be Assessed

The survey of existing incontinence questionnaires and checklists resulted in an initial set of factors judged by the expert panel to be important when determining an appropriate containment strategy, as set out in Table 3. These factors are classified under 1 of 3 headings set out in the International Standard setting out guidelines on evaluating urine-absorbing aids: user-related factors, product-related factors, and usage-related factors.[22]

TABLE 1.
Toileting Strategies for Inclusion in the Decision Support Tool

Adaptations to the physical environment	Lighting, contrast, clean and safe access to the toilet, support structures
Toileting programs	Scheduled/prompted toileting assistance Help with getting to, and using, the toilet (on demand)
Bladder retraining programs	Urge suppression strategies to delay voiding
Toileting aids	Hand held • Urinal • Urine director/collector Other • Commode • Bedpan • Toilet seat raiser
Personal hygiene aids	Wiping aids Advanced water-based toileting systems Cleaning, moisturizing, and moisture barrier skin products as part of an effective skin care regime

TABLE 2.
Containment Products for Inclusion in the Decision Support Tool

Class of Product	Type of Product	Alternate Name(s)
Urinary incontinence		
Absorbent products: Disposable	Belted product	T-shaped product Belt-type product Belted undergarment Belted pad
	Undergarment	
	Pants	Protective underwear Disposable underwear Secure pants
	All-in-one with/without stretchable side panels	Adult brief Tape-type product Slip Wrap-around pad
	Pad with fixation underwear	Net pants Fixation pants Mesh pants
	Pad for underwear (women)	Light "inco" (incontinence) pad Bladder control pad Liner Shield
	Pad for underwear (men)	Guard Liner Shield
Absorbent products: Washable	Undergarment Undergarment with integrated pad All-in-one	Washable incontinence garment
Others	External catheter collection systems • Condom-type catheters (men) • External pouch (men and women)	Sheaths
Fecal incontinence		
Disposable	Fecal pad	Liner

Literature Search

Evidence was assessed for suitability of the initial wider set of management strategies originally identified by the expert panel for addressing the initial set of factors in 2 stages. Behavioral changes, caregiver management, and toileting aids elicited a total of 51 publications. Containment products included absorbent products comprising all-in-ones, T-shaped/belted pads, pull-on briefs, pads for urine plus fixation pants, pads for urinary incontinence for use in normal underwear, pads for feces only plus fixation pants, and washable briefs. Nonabsorbent containment products included female body-worn urinals, male external sheath urinals, and male body-worn urinals. Thirty-one publications were identified for this group of containment products. Due to some overlap, we ultimately identified 77 publications.

Interviews

The interviewees were health care professionals experienced in managing incontinence. Interviews took place after having

TABLE 3.
Initial Factors to Be Taken Into Account in the Determination of a Containment Strategy Extracted From Identified Incontinence Questionnaires and Checklists

Category	Factor to Be Assessed
User-related factors	
Nature and timing of incontinence	Urinary or fecal incontinence, or mixed Pattern of incontinence Amount of incontinence
End user characteristics	Mobility and weight bearing Body size and flexibility Hand dexterity Eyesight Cognition
Social inclusion	Current/desired level of activity (work/education/social/sexual life)
Product-related factors	
Medical	Ability to protect skin Protect from UTIs Protect from falls Protect from depression
Personal well-being	Lack of leakage and odor Comfort and fit Feeling of dryness Support self-image Choice
Social inclusion	Allows continued work/education/social/sexual life
Usage-related factors	
Carer characteristics	Carer support Ability to support toileting Hand dexterity Eyesight
Product characteristics	Ease of use Potential negative effects Disposal Laundry

Abbreviation: UTIs, urinary tract infections.

shared a description of the proposed DST, a list of proposed factors to be identified and a set of management strategies to be included. The interviewees all saw value in the tool. One interviewee believed that the initial continence assessment should not be carried out separately from a full medical assessment to ensure that any underlying condition is addressed as early as possible, while all other interviewees felt it appropriate for an initial assessment to be carried out to support the immediate management of incontinence while the medical assessment was scheduled in parallel. Interviewees supported the lists of factors and management interventions proposed for the DST.

Survey Outcomes

Survey participants originated from 8 countries: Austria, Canada, Germany, the Netherlands, Sweden, Switzerland, United Kingdom, and United States. The survey was sent to 282 recipients and 96 completed at least 1 question, giving a response rate of 34%. The majority worked in ambulatory practice (26 out of 46 respondents: 57%), 9 (20%) indicated working in acute care, 13 (28%) in long-term residential care, and 8 (17%) in the primary care setting. Some respondents indicated working in more than 1 care setting. The median length of experience in carrying out continence assessments and making recommendations on continence strategies was 10 years. Participants differed in their recommendations for how long it should take to use the DST, with the greatest support being for a duration between 5 and 10 minutes (41 of 94 respondents: 44%). There was a high level of support for the questions proposed for the DST. Between 89% and 100% of the 64 respondents believed that it was either "very important" or "important" to ask each of 5 proposed questions on the nature of the incontinence (89% of respondents believing it either "very important" or "important" to ask about the volume of the loss, with 100% support for establishing whether the incontinence is urinary, fecal, or both). Of the 11 proposed questions on the individual's characteristics and capabilities, the lowest support was for taking hip and waist measurements (41% of 64 respondents believed that it was very important or important) and the highest support was for assessing mobility (92%). Questions on carers elicited a similar range of responses, with 57% of 63 respondents believing it "very important" or "important" to establish the number of carers, with a figure of 95% support for asking about the ability and preparedness of family or informal carers to assist with the individual's continence management. Respondents were consistently in favor of asking about the individual's work and social life, as well as his or her living environment (89% believing it "very important" or "important" to ask about intimacy and sexuality, with 97% support for asking about physical activity, including participation in sports). Assessment of a range of product characteristics was considered either "very important" or "important" by a high proportion of respondents, with the lowest support being for including laundry requirements in the considerations (69% of 62 respondents) and the highest support (98%) being for lack of leakage and odor.

As output from the DST, a majority of respondents (84% of 91 respondents) favored offering a choice from a shortlist of management recommendations ranked in order of the most appropriate, with explanations for the choices given. Seventy-six of the 92 respondents (83%) felt that it was either "very important" or "important" to provide a summary that could be kept in the patient's medical records, and 90% (83 of 92) believed that it was either "very important" or "important" to provide a recommendation that can be given to the patient and/or the caregiver.

Finalization of Factors Included in the DST

The expert panel reviewed the initial list of factors to be taken into account in an assessment of an individual with incontinence that were set out in the survey and identified elements that play an independent role in influencing the choice of management strategy. Factors that did not have an impact on the choice of management were removed, resulting in a final set to be included in the DST as set out in Table 4.

Although cost clearly influences the choice of containment products and was mentioned by several survey respondents, it was decided that the DST should recommend strategies on the basis of individual needs rather than on economic considerations. The tool will suggest a shortlist of potential management strategies that can be discussed in relation to the individual's preferences as well as considerations of geographic and economic availability.

TABLE 4.
Final Set of Factors to Be Included in the Decision Support Tool

Nature of incontinence	
Urinary	
Volume	Drops, low volume, medium volume, high volume
Duration of protection	Need for containment if unable to change often
Fecal	Soiling, loose stool
Timing	Day, night
Social factors	Work, educational, social activity Travel Physical activity Intimacy and sexuality Self-image
Individual's characteristics and capabilities	
Gender	Male Female
Mobility	Fully mobile—independent: does not need a carer but may need a walking aid Walking with assistance from a carer—and a carer is available Immobile—fully carer dependent: can use the toilet but with help from carer
Wheelchair	Wheelchair—self-managing: does not need help pushing[a] Wheelchair—care dependent: needs help pushing
Transferring	Self Needs assistance
Maintaining hygiene	Requires assistance to wipe and dry him/herself
Family/informal carer(s)	Needs, and has access to, 1 carer Needs, and has access to, 2 carers
Ability to feel urge	Cannot feel urge to void
Ability to communicate	Cannot communicate about the urge—verbal or nonverbal
Cognition	Slightly disoriented; occasional/mild confusion Confused/nonresponsive to verbal stimuli Agitated and resisting use or change of product Apraxia—cannot use toilet Apathy—need prompt to use the toilet
Individual's physical characteristics	Obese Stiffness/contractions/ability to abduct legs
Capabilities	Low hand dexterity Bad eyesight
Susceptibilities	Presence of sensitive or damaged perineal skin History of falls
Product characteristics	Preparedness to use only washable products Preparedness to use only disposable products Ease of use/putting into practice in the targeted circumstances (change situation, who is doing the change)
Suitability of product for application in defined patient positions	Suitable for applying while standing Suitable for applying while lying Suitable for applying while sitting, for example, on the toilet

[a]Transferring aspect is dealt with separately.

A range of questionnaires and other support materials were identified through the literature search, interviews, survey, and expert panel input. These were reviewed to determine appropriate questions that will be used to identify presence or absence of the appropriate factor. When a relevant factor requires assessment that cannot be evaluated via response to 1 or more questions, the DST will describe appropriate assessment methods.

Appropriateness of questions and assessment methods was judged on the basis of validation for the intended purpose and ability to be carried out within the timing available for a continence assessment. In addition, we deemed it important that assessment methods were appropriate for the targeted user's likely training and experience and feasibility in the defined assessment setting. We considered using relevant sections from existing comprehensive questionnaires such as the interRAI Home Care 08 suite of questions,[23] or the US Centers for Medicare & Medicaid Services Long-Term Care Minimum Data Set.[24] Although we found these resources comprehensive, we did not use any of these general questionnaires because they do not answer the more specific questions needed for incontinence management assessment.

The incontinence questionnaires identified during the data collection phase were reviewed and their questions assessed to determine whether they would be appropriate for the DST. However, in many cases, we found necessary to create a new question that had not been included in any published questionnaires. Table 5 lists the questions proposed for the tool and identifies the source from which they were taken.

Future Development

This process resulted in a finalized set of factors to be taken into account in the initial assessment of a person with incontinence, as well as a range of management strategies that can be proposed to help prevent or contain episodes of incontinence. A draft set of suitability rankings for each strategy was provisionally agreed with respect to each factor. However, the criterion validity, reliability, and internal validity need to be established, and the coauthors intend to carry out these steps before publishing these elements.

Finalization will require building the proposed DST to allow rankings to be combined in response to the different factors present in the individual. We plan to carry out an initial validation of the tool against a range of typical patient profiles prior to a subsequent validation by an independent group of experienced continence specialists. During this process, the suitability rankings will be adjusted, and consideration will be given to the weighting of the different factors.

DISCUSSION

The literature search and supplementary data collection confirmed our initial understanding of the limited resources available to support less experienced health care providers in their initial assessment of a person with incontinence. A number of Web sites provide good information on the advantages and disadvantages of different products, but these are intended primarily to provide detailed guidance on available containment products and are not designed to guide a busy health care professional during the course of a short consultation. Guidance is often product-oriented and does not specifically address toileting interventions and their use in combination with containment products. Lifestyle intervention and toileting strategies to avoid episodes of incontinence are likewise not included alongside guidance on containment products.

Our targeted literature search confirmed findings of others that there exists little evidence of the effectiveness of containment products and their suitability in different circumstances.

TABLE 5.
Questions to Identify the Presence or Absence and Extent of Relevant Factors to Be Asked of the Individual With Incontinence or, if the Patient Is Unable to Answer Them, to Be Asked of His or Her Caregiver

Factor to Be Identified	Question Text	Comments	Source
Nature of incontinence			
Urinary—experiences leakage	"Do you experience urine leakage?"	If the individual answers "Yes," then proceed to ask questions in the Urinary Incontinence section. If "'No," move to the Fecal Incontinence section. Note that the individual may have both urinary and fecal incontinence.	Adapted from: Urogenital Distress Inventory UDI-6
Volume	"How much urine do you lose each time?"	If the individual with incontinence cannot answer the question, then the carer answers. The questionnaire is completed by the health care professional, who enters information into the tool. The questionnaire will be constructed to identify who is providing information entered into the tool: • exclusively the person with incontinence; • exclusively the carer (and enter the carer's name and relationship to the person with incontinence); or • both.	New text
Drops	"Do you just lose drops, and your underwear only gets damp?"		New text
Low volume	"Do you lose the equivalent of splashes that makes your underwear fairly wet?"		New text
Medium volume	"Do you lose the equivalent of half a cup or so, but without emptying your whole bladder, making your underwear very wet and requiring you to change?"		New text
High volume	"Do you lose the equivalent of a cup or more of urine, emptying more than half your bladder?"	Usually occurs after bladder urgency while trying to reach the toilet.	New text
Duration of protection			
Need for containment if unable to change often	If volume typically lost with each episode is "Drops" or "Low Volume":	The containment strategy needs to address the total volume likely to be lost over the relevant time frame, rather than just the volume of each episode of incontinence.	
	"Are you able to change your containment product as often as you would normally go to the toilet?"	If answer is "No," go to next question.	New text
	"How long do you need to go before you can change your product? Up to half a day?"	If "Yes," tool to adjust volume response to "Medium volume" If "No," go to next question	New text
	"Up to a whole day?"	Tool to adjust volume response to "High volume"	New text
Fecal	"Do you experience leakage of stool?"	In customizing the tool to different regions, terminology will be adjusted to reflect local use.	New text
Soiling	"Is the leakage of stool a large or a small amount, for example it just stains your underclothes?"		New text
Loose stool	"How would you classify your stool in the stool chart?"	Health care professional shows individual the Bristol Stool Chart. The consistency of stool affects the suitability of different containment strategies. Hard stool indicative of constipation can be a risk for urinary incontinence.	Bristol Stool Chart

(*continues*)

TABLE 5.
Questions to Identify the Presence or Absence and Extent of Relevant Factors to Be Asked of the Individual With Incontinence or, if the Patient Is Unable to Answer Them, to Be Asked of His or Her Caregiver (*Continued*)

Factor to Be Identified	Question Text	Comments	Source
Timing (day/night/relation to meals or activities)	"		
Day	Do you experience leakage during the day?"	Applies to both urine and fecal leakage	New text
Night	"Do you experience leakage when you are asleep?"	Applies to both urine and fecal leakage	New text
Social factors			
Work/educational/social activity	"Does your bladder or bowel problem occur while you are at your job, or carrying out normal daily activities outside the home?"		New text
Ability to travel	"Does your bladder or bowel problem occur when you are travelling?"		New text
Physical activity, whether at work or social activity including sports, dancing, etc	"Is your bladder or bowel problem brought on by physical activities whether at work or leisure, for example going for a walk, running, sport, gym etc.?"		New text
Intimacy and sexuality	"Does your bladder or bowel problem affect your sex life?"		The Kings Health Questionnaire
Self-image	"Does wearing a containment product make you feel uncomfortable about yourself or embarrassed?"		New text
Individual's characteristics and capabilities			
Gender		Gender assessed by observation	
Male			
Female			
Mobility			
Fully mobile—independent (does not need a carer but may need a walking aid)	"Are you able to walk to the toilet, with a cane or walking aid if necessary, but without assistance from anyone else?"		New text
Walking with assistance from a carer—and a carer is available	"Do you need assistance from someone to walk to the toilet?"		New text
Immobile: fully carer dependent (can use the toilet but with the help from carer)	"Are you unable to reach the toilet, either on your own or in a wheelchair?"		New text
Wheelchair	"Do you need to use a wheelchair to reach the toilet?"	If "Yes," then answer the following questions, if "No," then proceed to "Transferring"	New text
Wheelchair: self-managing (does not need help pushing)	"Are you able to reach the toilet in your wheelchair without help from anyone else?"	This category is specifically for wheelchairs, due to the difficulty of using certain products when seated. Other assistive devices do not have this problem.	New text
Wheelchair: care dependent (needs help pushing)	"Do you need help from someone to reach the toilet in your wheelchair?"	Note: transferring is dealt with separately	New text
Transferring			New text
Self	"Are you able to safely get on and off the toilet on your own?"	If "no," go to question "Needs assistance"	New text
Needs assistance	"Do you need help to safely get on and off the toilet?"	If "yes," go to question "Number of carers required"	New text
Maintaining hygiene			
Requires assistance to wipe and dry himself/herself	"Do you need help to wipe or dry yourself after using the toilet?"	If "yes," go to question "Number of carers required"	New text
Number of carers required	"How many people do you need to help you?"		New text

(*continues*)

TABLE 5.
Questions to Identify the Presence or Absence and Extent of Relevant Factors to Be Asked of the Individual With Incontinence or, if the Patient Is Unable to Answer Them, to Be Asked of His or Her Caregiver (*Continued*)

Factor to Be Identified	Question Text	Comments	Source
Family/informal carer(s)			
Needs, and has access to, 1/2 carer(s)	"How many carers do you need to help you to go to the toilet and change the product, and how many are available?"	Asked when the individual says he or she needs help from someone to get to or use the toilet, or to change the containment product. Note: the individual may not have access to the number of carers that they need.	New text
Ability to feel urge			
Cannot feel urge to void	"Can you feel the urge to urinate/defecate?"	In customizing the tool to different regions, terminology will be adjusted to reflect local use.	New text
Ability to communicate			
Cannot communicate about the urge—verbal or nonverbal	"Can X let you know—whether in words or by his/her actions that he/she needs to use the toilet?"	Question asked of the individual's carer, if the individual with incontinence is unable to communicate during the consultation.	New text
Cognition		History from carer—assumes the individual's lack of insight into his or her own cognitive state	
Slightly disoriented; occasional/mild confusion	"Is X slightly confused sometimes or doesn't know where he or she is?"		New text
Confused/nonresponsive	"Is X often or always confused or doesn't know where he or she is?"		New text
Agitated and resisting toileting or use or change of product	"Is X mostly resisting toileting, or resists the use of products for protection, or resists when you attempt to change a product?"		New text
Apraxia—cannot use toilet	"Does X have difficulty understanding how to use the toilet or manage their clothing?"		New text
Apathy—need prompt to use the toilet	"Does X take no initiative to use the toilet and needs you to prompt him/her?"		New text
Individual's physical characteristics			
Obese	Is the individual obese?	Health care professional makes assessment on observation. If uncertain, ask clothing size: XXXL constitutes "obese" for the purpose of this questionnaire. Individual's size makes certain products more or less suitable for use. Their weight, if dependent on carers, also constitutes a factor.	Current practice
Stiffness/contractions/ability to move legs apart	"Does X have problems with stiffness or lack of movement in the legs or hips that would make it difficult to put on a containment product?"	Observation and history from carer. Positioning of certain products requires a greater range of movement of the legs in relation to the body.	New text
Capabilities			
Low hand dexterity	"Can you easily unbutton and button your clothing and use a zip?"		New text
Bad eyesight	"Do you see well enough to find and use the toilet and to remove clothing?"		New text
Susceptibilities			
Presence of sensitive or damaged perineal skin	Does the patient have Incontinence Associated Dermatitis (IAD)?	Health care practitioner to assess using the GLOBIAD tool.	University of Ghent, Belgium[25]
History of falls	"Have you had any falls in the last year?"		New text

(*continues*)

TABLE 5.
Questions to Identify the Presence or Absence and Extent of Relevant Factors to Be Asked of the Individual With Incontinence or, if the Patient Is Unable to Answer Them, to Be Asked of His or Her Caregiver (*Continued*)

Factor to Be Identified	Question Text	Comments	Source
Product characteristics			
Preparedness to use only washable products	Do you have a strong preference for washable absorbent products?		New text
Preparedness to use only disposable products	Do you have a strong preference for disposable absorbent products?		New text
Ease of use/putting into practice in the targeted circumstances (change situation, who is doing the change, etc)		*(Product characteristic—question not needed)*	
Change position			
Suitable for applying while standing		*(Product characteristic—question not needed)*	
Suitable for applying while lying		*(Product characteristic—question not needed)*	
Suitable for applying while sitting, for example, on the toilet		*(Product characteristic—question not needed)*	

We concluded that toileting strategies also had little published literature to support their use. Given the paucity of published evidence, we drew on the experience of an expert panel to refine the factors that make a management strategy particularly appropriate or inappropriate for a specific circumstance and to give rankings of suitability in each case. The expert interviews and subsequent survey supported the project's premise that a DST will be a helpful addition to the resources available to those health care professionals such as the first-line nurse who is less experienced in the management of incontinence. The interviews also confirmed the appropriateness of the factors identified to be assessed and the range of toileting and containment product strategies to be included in the tool.

Although the DST for which the preparatory work is described in this article is not complete, we believe that it is valuable to share with the wider community the recommended list of factors to be addressed in an initial continence assessment along with the questions created to identify the presence and extent of these factors. We also wished to share a proposed range of management strategies from which appropriate options will be selected with support from the DST. Any tool developed to support continence should be oriented toward the person's holistic needs and promote his or her ability to remain continent. A person-centered approach that offers lifestyle intervention and targeted toileting strategies alongside containment products chosen to address the nature of the incontinence experienced and the specific circumstances and preferences of the individual provides an opportunity for the individual to retain self-management for as long as possible, maximizing his or her dignity and saving the resources of both professional caregivers and care-giving relatives. We believe it particularly appropriate to share this approach with the wider community in light of the Wound, Ostomy and Continence Nurses (WOCN) Society's commitment to develop an evidence- and consensus-based algorithm for selection, use, and evaluation of body-worn absorbent products for the management of individuals with urinary and/or fecal incontinence.[19]

CONCLUSIONS

A targeted literature search supplemented by expert interviews and a survey identified limited resources available to support health care professionals less experienced in incontinence in their management of people with incontinence. The interviews and survey gave support for the creation of a DST that includes lifestyle intervention advice aimed at preventing incontinence episodes in addition to toileting strategies and containment products targeted at an individual's specific circumstances. We developed fundamental components of the proposed DST, including relevant factors that will influence the choice of a management strategy and questions and assessment methods to identify the presence of the relevant factor and its extent as described in this article. The DST will also contain lifestyle interventions and toileting strategies as well as containment products that constitute the range of management strategies from which recommendations will be made.

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