The Toronto Symptom Assessment System for Wounds: A New Clinical and Research Tool

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ABSTRACT

OBJECTIVE: To formulate a patient-rated assessment tool that facilitates the measurement of pain and polysymptom distress directly related to all classes of wounds.

DESIGN: A prospective observational study derived from a sequential case series of patients with advanced illness was carried out to determine the most common symptoms associated with wounds from 9 distinct classes (malignant, pressure ulcers, iatrogenic, traumatic, diabetic foot ulcers, venous ulcers, arterial ulcers, infections/inflammatory lesions, and ostomies). Ten wound-related symptoms were identified and used to create a patient-scored assessment tool. The Toronto Symptom Assessment System for Wounds (TSAS-W) was then developed and used in a pilot trial during which patients completed TSAS-W at baseline and 7 days later.

PARTICIPANTS: Five hundred thirty-one patients either presented with wounds at baseline or developed them during the 24-month follow-up period. Patients affected by any type of wound were asked to report on the top 3 symptoms directly attributable to their wounds. The pilot trial of TSAS-W involved 103 wounds afflicting 83 sequential patients.

MAIN RESULTS: The most prevalent wound-related symptoms included pain, exudation, odor, itching, bleeding, aesthetic concern, swelling, and mass and bulk effects from the wound and associated dressings; 78.6% of the TSAS-W assessments were carried out by the patient alone, 14.6% were carried out by the patient assisted by a caregiver, and 6.8% were carried out entirely by a caregiver. The summation of all 10 TSAS-W parameters, the global wound symptom distress score (GWSDS), resulted in a mean for all wounds of 34.47 at baseline and decreased to a mean of 28.40 at 7 days later. Cosmetic or aesthetic concern and/or distress was associated with the highest mean scores of all symptoms. Malignant wounds and wounds involving the perineum and genitalia were associated with the highest GWSDSs.

CONCLUSION: The TSAS-W is a new tool for systematically assessing the degree of pain and polysymptom distress associated with all classes of wounds. It is modeled after the Edmonton Symptom Assessment System that is widely used and validated in the palliative care arena. TSAS-W is composed of 10 symptom parameters that are individually assessed on 11-point numeric rating scales (0–10). The summation of all of the element symptom scores equates to a GWSDS. It may be used in the clinical setting to guide wound-related pain and polysymptom management. In addition, TSAS-W may be useful as a tool in facilitating clinical audit and future wound care research.

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INTRODUCTION

Wounds are being increasingly recognized as a hidden epidemic in healthcare. Although many reports have focused on their economic impact, they have not fully considered the human costs of wounds. Most wounds tend to affect the sickest patients, namely, those with advanced illness and multiple comorbid factors. A recent study described at least 43 different types of wounds grouped into 9 distinct classes.[1] The overall poor global medical status and failing performance status of patients with advanced illness preclude healing in most cases. Wound palliation care is a discipline in its early stages of evolution. Its principal themes include wound-related pain and symptom management.[2] Wounds are capable of creating significant pain and symptom burden and suffering, along with compromised quality of life for the patient and family members.[3] Moreover, wounds may be associated with reduced life expectancy.[4–6]

The detailed assessment of symptoms and symptom-related distress is a core aspect of clinical care, particularly in the setting of advanced and incurable illnesses for which the primary goals of care relate to comfort, dignity, and quality of life.[7] The optimal management of symptoms should be guided by a comprehensive assessment that incorporates an understanding

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of the complex and multidimensional nature of symptoms and quality of life.[7] Symptom measurement is a fundamental component of symptom assessment.[7] Given that symptoms are indicators of pathological disorders, perceptible to the patient, and usually conveyed by language, they are inherently subjective.[7] Systematic and serial measurement of symptoms allows for optimal clinical outcomes with respect to pain and symptom management with resultant improvements in quality of life. Furthermore, such measurements are integral to the development of high-quality research that will culminate in advancing the evidence-based approach that is presently lacking in wound care.[8] The Toronto Symptom Assessment System for Wounds (TSAS-W) (Figure 1) is presented as a new tool that has the potential to enable and facilitate the measurement of pain and polysymptom distress associated with all types of wounds.

REVIEW OF LITERATURE

A literature search was conducted on MEDLINE (1950 to April 2008), Cochrane (second quarter of 2008), CINAHL (Cumulative Index to Nursing and Allied Health Literature [1982 to April 2008]), and HealthSTAR (1966 to April 2008) databases for the purposes of identifying published reports of assessment systems, or scales, capable of measuring wound-related symptoms that resemble TSAS-W. The medical subject headings (MeSH) and keywords used were *wounds*, *pain*, *pain measurement*, *symptoms*, *symptom measurement*, *symptom assessment scales*, *exudation*, *odor*, *pruritus*, *bleeding*, *aesthetic*, *edema*, *bulk and mass effect*, *bandages and dressings*, *assessment tools*, and *numeric rating scales*. There were no studies that fulfilled all of the listed search criteria.

A second literature search was conducted on MEDLINE (1950 to April 2008), Cochrane (second quarter of 2008), CINAHL (1982 to April 2008), and HealthSTAR (1966 to April 2008) databases for the purpose of identifying published reports of wound-related assessment tools, instruments, or questionnaires. MeSH and keywords used were *wounds*, *pain*, *pain measurement*, *symptoms*, *symptom measurement*, *symptom assessment scales*, *exudation*, *odor*, *pruritus*, *bleeding*, *aesthetic*, *body image*, *personal appearance*, *edema*, *mass effect*, *assessment tools*, *wound assessment*, *clinical assessment tools*, *instruments*, *instrument validation*, *research instruments*, *instrument construction*, *instrument scaling*, *instrument validation*, *questionnaires*, *theoretical models*, *self-assessment*, *self-disclosure*, *disclosure*, *self-report*, and *visual analog scaling*. This yielded 27 publications on the Treatment Evaluation by LeRoux's[9] (TELER) method system and 1 publication on the Hopkins Wound Assessment Tool (HWAT).[10] No journal publications were cited for the Schulz Malignant Wound Assessment Tool (SMWAT).

TELER method is based on the theory that effectiveness of treatment should be routinely assessed as part of the treatment process.[9] A TELER indicator is an ordinal measuring scale for tracking change and has 6 reference points that are coded 0 to 5.[9] Code 0 indicates a deficit to be overcome, avoided, or delayed, whereas codes 4 and 5 are the targeted goals.[9] The TELER system was used to create a tool for assessing malignant fungating wounds.[11] The initial rendering of the TELER method–based malignant wound assessment tool was used in assessing the effectiveness of dressings used in affected patients. It assessed outcomes for the principal variables of dressing performance and the impact of the fungating wound on the patient's daily life by tracing change or lack of change.[11] In 2001, this tool was updated and focuses on the control of symptoms, as well as dressing performance. It is composed of the following 8 parameters: (1) discomfort indicator, (2) erythematous maceration from exudate, (3) skin stripping from dressing and fixation materials, (4) periwound irritation indicator, (5) necrotic tissue indicator, (6) indicator of sustained dressing fit to contain exudate, (7) exudate leakage indicator, and (8) odor indicator.[12] The updated tool has been evaluated and has demonstrated validity (content, concurrent, and construct) and reliability.[12] The TELER system has also demonstrated compatibility with Donabedian's[13] framework, which allows clinicians and managers to obtain information necessary for clinical audit.

The HWAT is a data collection form that records descriptors pertaining to malignant wounds exclusively.[10] It includes the following parameters: dressing saturation (with drainage), degree of tissue hydration, characterization of drainage tissue color, wound odor, extent of undermining or tunneling, and wound size (length, width, and depth). Data are collected by the wound care professional and are intended to be carried out serially, given the dynamic nature of malignant wounds. The patient is not directly involved in assessing or scoring the various parameters. HWAT has been used in conjunction with digital analysis of photographs of malignant wounds and forms the basis for a staging system for malignant cutaneous wounds (MCW).[10] There are no studies published on the validation of HWAT or the MCW staging system.

The SMWAT, similar to HWAT, is a data collection form that records descriptors pertaining to malignant wounds exclusively.[14] SMWAT requires the recording of assessment date, chart number, patient's name, birth date, cancer diagnosis, wound onset date, rate of change/month, medical history, medications, and allergies. In addition, SMWAT prompts the healthcare professional to record the following qualitative data pertaining to the malignant wound: pain location with or between dressing changes, description of odor and cause, amount of exudates and

Figure 1.

Toronto Symptom Assessment System for Wounds (TSAS-W)

Patient's Name: _____ **Date:** ___ ___ _____ (dd mm yyyy) **Time:** _____

Study ID: _____ **Wound ID:** _____ **Wound assessment number:** _____

Wound Location:

1☐ **Face/Head/Neck**
2☐ **Chest/Breast**
3☐ **Abdomen/Flank**
4☐ **Upper/Lower Back**
5☐ **Upper Extremity**
6☐ **Lower Extremity**
7☐ **Pelvis/Hips**
8☐ **Perineum/Genitalia**
9☐ **Sacrum/Coccyx**
10☐ **Foot (excluding heel)**
11☐ **Heel**

Side: 1☐**Left** 2☐**Right** 3☐**Center** Describe location further if needed: _____

Wound Class:

1☐ **Malignant**
2☐ **Pressure Ulcer**
3☐ **Traumatic**
4☐ **Diabetic Foot ulcer**
5☐ **Venous ulcer**
6☐ **Arterial ulcer**
7☐ **Iatrogenic**
8☐ **Infection/Inflammatory**
9☐ **Ostomy**
10☐ **Other**

Stage: _____ Size: _____ (cm^2)

Please circle the number that best describes your **wound-related symptoms over the past 24 hours:*

No Pain **with** dressings and/or debridement	0 1 2 3 4 5 6 7 8 9 10	Most severe Pain **with** dressings and/or debridement
No Pain **between** dressings and/or debridement	0 1 2 3 4 5 6 7 8 9 10	Most severe Pain **between** dressings and/or debridement
No Drainage or Exudation	0 1 2 3 4 5 6 7 8 9 10	Most severe and/or continuous Drainage or Exudation
No Odor	0 1 2 3 4 5 6 7 8 9 10	Most severe Odor
No Itching	0 1 2 3 4 5 6 7 8 9 10	Most severe Itching
No Bleeding	0 1 2 3 4 5 6 7 8 9 10	Most severe and/or continuous Bleeding
No Cosmetic or Aesthetic concern and/or distress	0 1 2 3 4 5 6 7 8 9 10	Most severe Cosmetic or Aesthetic concern and/or distress
No Swelling or Edema **around** wound	0 1 2 3 4 5 6 7 8 9 10	Most severe Swelling or Edema **around** wound
No Bulk or Mass effect from **wound**	0 1 2 3 4 5 6 7 8 9 10	Most severe Bulk or Mass effect from **wound**
No Bulk or Mass effect from **dressings**	0 1 2 3 4 5 6 7 8 9 10	Most severe Bulk or Mass effect from **dressings**

Completed by: 1☐**Patient** 2☐**Patient assisted by caregiver** 3☐**Caregiver**

appearance, bleeding location and quantity, location of edema, wound bed appearance (the percentage of pink and necrotic tissue), wound location, wound dimensions, wound classification (subcutaneous, fungating, nodules, ulcers, or zosteriform), appearance of periwound skin, and wound management (previous and suggested). Unlike HWAT, SMWAT does elicit the accounts of a patient's perception on pain, odor, exudates, bleeding, function change, and effects on social and emotional domains. The patient is asked open-ended questions, such as ''How severe?'' or ''Pain feels like?'', ''How much drainage?'', ''Do dressings work?'', ''Does it affect social activities?'', and ''How does the wound make you feel?'' The patient is also asked the following closed questions that seek a yes or no answer: ''Does it smell?'' or ''Any swelling?'' However, there is no systematic approach to measuring or quantifying those symptoms. There are no published studies on the validation of SMWAT.

The Edmonton Symptom Assessment System (ESAS) is a 10-item, patient-rated symptom numeric rating system developed for the purpose of symptom assessment within the care of patients with advanced illness.[15] The initial rendering of ESAS was published in 1991 and was designed to assess the most common symptoms encountered during the management of advanced-cancer patients referred for palliative medical management. The original 8 symptoms assessed included pain, activity, nausea, depression, anxiety, drowsiness, appetite, and well-being. Measurement was achieved through 0- to 100-mm visual analog scales (VASs) that were scored by the patient alone, by the patient with nurse's assistance, or by the nurses or relatives. The scales are anchored by the words ''no,'' corresponding to the lowest possible score, and ''worst possible,'' corresponding to the highest possible score. In a subsequent version, a ninth symptom (shortness of breath) was added, as well as the option of rating a 10th symptom.[16] In 2000, VAS was replaced with 11-point numeric rating scales (NRSs), with higher scores representing worse symptom intensity.[17] Thirteen validation studies have been published demonstrating validity (concurrent and content) and reliability of the ESAS.[18] However, none of the studies involved the patient's perspective as a source of validity evidence.[18]

The review of the literature clearly affirms the lack of a symptom assessment tool with the capability to measure the polysymptom burden directly related to wounds. Therefore, the development of an instrument such as the TSAS-W (Figure 1) is certainly needed and justified. In designing an assessment tool, one must account for practicality, ease of applicability, and acceptability in particular patient populations.[7] Furthermore, the TSAS-W possesses the versatility of being applicable to all wound classes.

METHODS

The study protocol was approved by the research ethics board at the William Osler Health Centre in Toronto, Ontario, Canada. The first phase of this study involved determining the most common symptoms associated with all commonly encountered wound classes and subsequent development of the TSAS-W. The data source for this phase comprised all new referrals to a regional consultative palliative care program from May 1, 2005, to June 30, 2006. Referrals included both cancer patients and patients with advanced noncancer disorders. All patients were examined within 24 hours of the initial referral. The palliative program comprises a community consultative service with linkage to a palliative care inpatient unit and associated hospital-based palliative consultative service, including a consultative wound outpatient clinic. Collectively, the combined community and hospital-based components serve an estimated population of 750,000 within the northwest quadrant of metropolitan Toronto, Ontario, Canada. All patients or their substitute decision makers provided consent to have their clinical data registered in a research database. The data collected were entered on a customized and anonymous Microsoft Access database on an accrual basis. The first phase and observational period spanned 24 months. All patients presenting with wounds at baseline and those developing wounds during the follow-up period were given a list of 9 symptoms and were asked to rank their 3 most severe symptoms at baseline and with each subsequent assessment. During the follow-up period, assessments were carried out weekly. All wounds were managed by a specialist wound management team consisting of a specialist wound physician and advanced practice nurse. After the baseline assessment, all wounds were managed in accordance with available practice protocols.[19–22]

TSAS-W was modeled after the ESAS.[15–18] TSAS-W was created by applying 11-point NRSs to the most common wound-related symptoms reported by patients in the initial phase of the study.

The second phase of the study involved a pilot trial of TSAS-W administered to a prospective and sequential cohort of patients referred for consultative wound management between April 21, 2008, and May 9, 2008. All patients or their substitute decision makers provided consent. Six patients were excluded as they lacked English-language fluency. Administration of the TSAS-W questionnaire began with an explanation of the purpose of such an assessment. Although the demographic, wound location, class, stage, and size sections were completed by the wound clinician, the 10 NRSs were completed by the patient and/or caregiver. The terms of each scale were read to the patient and/or caregiver to ensure that they comprehended the contents. They were also counseled that the numeric values

were proportionate to the severity of a given symptom. A zero score indicated absence of the symptom, whereas a score of 10 indicated the most severe symptom experience. Moreover, it was emphasized that they circle the number that best described their wound-related symptoms over the past 24 hours. One questionnaire was completed for each wound at each weekly assessment date.

Statistical Analysis

The wound class for each wound reported in phase 1 was tabulated. The percentage of patients who reported each symptom at least once at any assessment, during referral or follow-up, was also tabulated. In the pilot study, the TSAS-W global wound symptom distress score (GWSDS) for a wound at a particular assessment was calculated by summing the 10 individual wound symptom scores for that patient and that assessment. There were no missing scores in the pilot study data; if a symptom was absent, zero was recorded. Further research will more clearly establish methods of dealing with missing symptom scores.

At this early stage, it is recommended that the GWSDS not be calculated at an assessment if more than 2 symptom scores are missing. If 1 or 2 symptoms are missing, it is suggested that the sum of the remaining scores be multiplied by 10/9 and 10/8, respectively, to increase the totals proportionally. The mean scores for all wounds in the pilot study were tabulated for each symptom and for the GWSDS at baseline and a week later. The wounds were also classified by wound class and anatomical site, providing the number of wounds and the mean GWSDS in each category.

RESULTS

Phase 1: TSAS-W Development

A total of 672 patients were registered and followed up during the study period: 398 patients manifested 1131 wounds at baseline, and 315 patients developed 971 wounds during the follow-up period. Of the 315 patients that developed wounds during the follow-up period, 182 patients had wounds at baseline while 133 patients had no wounds at baseline. Overall, 531 patients manifested 2102 wounds that were classified into 9 distinct classes (Table 1).

Table 2 shows the wound-related symptoms as indicated by the 531 patients who presented with wounds during phase 1. The 7 most common symptoms discovered in the initial phase of the study were used as basis of the symptoms listed on the TSAS-W. The remaining 2 symptoms, crusting and restricted movement, occurred less frequently and were excluded from the TSAS-W. During this phase, it became apparent that the categories of *pain* and *mass effect* were too general as many patients began qualifying their answers by differentiating pain associated with wound-care maneuvers from pain that occurred away from wound care. In addition, many patients differentiated swelling and edema around wounds, from bulkiness from wounds (callus, eschar, and exophytic tumor), and bulkiness from wound-dressing materials. As a result, 2 symptoms were replaced by more specific versions: pain was replaced by the 2 symptoms *pain with dressings and/or debridement* and *pain between dressings and/or debridement*; mass effect was replaced by the 3 symptoms *swelling or edema around wound*, *bulk or mass effect from wound*, and *bulk or mass effect from dressings*. Thus, a total of 10 wound symptoms are presented in the TSAS-W.

The TSAS-W was formalized by applying 11-point NRSs (0–10) to the 10 symptoms. The 10 scores can be added to obtain a GWSDS. Figure 1 represents the final version of the TSAS-W.

Table 1.

NINE DISTINCT WOUND CLASSES ENCOUNTERED BY PATIENTS DURING PHASE 1

Wound Class	No. Wounds	%
Pressure ulcers[a]	1273	60.56
Traumatic wounds[b]	270	12.87
Malignant wounds[c]	154	7.31
Ostomies[d]	151	7.17
Venous ulcers	65	3.06
Diabetic foot ulcers[e]	63	3.00
Iatrogenic wounds[f]	56	2.70
Infections/inflammatory wounds[g]	49	2.33
Arterial ulcers[h]	21	1.00
Total	2102	100

[a]National Pressure Ulcer Advisory Panel stages I, II, III, IV, and unstageable.

[b]Abrasions, lacerations, hematomas, and/or severe ecchymosis.

[c]Nodules, induration, fungating, malignant ulcers, zosteriform, and mixed.

[d]Colostomies, ileostomies, nephrostomies, ileal conduit, percutaneous gastrostomies (feeding + venting), percutaneous biliary drains, drainage catheters (chest + abdomen), suprapubic catheters, and tracheostomies.

[e]Wagner grades 0, 1, 2, 3, 4, and 5.

[f]Radiotherapy burns, surgical wound dehiscence, surgical wound infection, chemotherapy-induced skin necrosis, Foley catheter-induced hypospadias.

[g]Abscesses, bacterial (cellulitis) or viral (zoster), pemphigus (bullous), vasculitis, pyoderma gangrenosum, and pilonidal sinus.

[h]Arterial ulcers involving lower legs and feet and gangrene.

Phase 2: TSAS-W Pilot Trial

During the TSAS-W pilot trial, 103 sequential wounds derived from 83 patients were assessed using the TSAS-W questionnaire. For each wound, TSAS-W scores were assessed at referral and 1 week later: 78.6% of the TSAS-W assessments were completed by the patient alone, 14.6% were completed by the patient assisted by a caregiver, and 6.8% were completed entirely by a caregiver. There were no complaints about

Table 2.

SYMPTOM PREVALENCE DURING PHASE 1 (531 PATIENTS WITH 2102 WOUNDS)

Symptom	Percentage of Patients Who Experienced Symptom at Least Once at Baseline and during Observation Period
Pain[a]	31.6
Exudation	28.6
Cosmetic[b]	17.9
Odor	9.8
Itchiness	5.1
Bleeding	4.9
Mass effect[c]	4.7
Crusting	1.9
Restricted movement[d]	1.3

[a]Includes pain associated with wound care (dressing changes and/or debridement) and pain between wound care.

[b]Includes cosmetic- or aesthetic-induced concern or distress.

[c]Includes swelling (edema) around wound and/or bulkiness or mass effect from wound (exophytic tumour, callus, eschar) or resulting from wound dressings.

[d]Restricted movement of limbs or spine.

the complexity of the questionnaire, and it was generally completed in less than 6 minutes, including 2 to 3 minutes to review the scales and scoring system with the patient.

During the pilot trial, 3 patients were enrolled who presented with nondiabetic neurotrophic foot ulcers. They had central or peripheral sensory neuropathies (Charcot-Marie-Tooth disease, sarcoidosis, and alcoholic polyneuropathy). In response to this finding, a 10th wound class, termed ''other,'' was added to the TSAS-W questionnaire.

Mean scores encompassing all wounds are shown in Table 3. Cosmetic or aesthetic concern and/or distress resulted in the highest scores both at baseline and 7 days later (5.20 and 4.95), whereas bleeding registered the lowest scores (2.48 and 1.72).

Table 3.

PILOT TRIAL TSAS-W SCORES AT BASELINE AND 7 DAYS LATER (83 PATIENTS WITH 103 WOUNDS)

TSAS-W Parameter	Mean Baseline Score	Mean Score 7 Days Later
Pain with dressing and/or debridement	3.88	3.00
Pain between dressing and/or debridement	3.44	2.78
Drainage or exudation	3.45	2.37
Odor	2.88	2.01
Itching	2.75	2.22
Bleeding	2.48	1.72
Cosmetic or aesthetic concern	5.20	4.95
Swelling or edema around wound	3.89	3.40
Bulk or mass effect from wound	2.44	2.50
Bulk or mass effect from dressing	4.06	3.46
Global Wound Symptom Distress Score	34.47	28.40

Mean GWSDSs over 10 wound classes are displayed in Table 4. Malignant wounds resulted in the highest scores both at baseline and 7 days later (46.38 and 43.0), whereas ''others'' registered the lowest scores (23.67 and 19.67).

Mean GWSDSs over 10 anatomical regions are displayed in Table 5. Wounds involving the perineum and genitalia resulted in the highest scores both at baseline and 7 days later (54.0 and 52.0). Wounds involving the upper extremity registered the lowest scores at baseline (22.0), whereas wounds involving the heel had the lowest score at the 7-day follow-up assessment (18.0).

DISCUSSION

Wounds are being increasingly recognized as one of the dominant issues that afflict patients with advanced illness. Wounds are commonly associated with multiple symptoms that compromise a patient's comfort, dignity, and quality of life. Moreover, they may be nonhealable in a significant proportion of cases. Therefore, there is a need to address and advance wound palliation that embodies wound-related pain and symptom management. There is a paucity of research regarding wound-related pain and symptom management. In addition, there is a significant need for assessment tools that measure wound-related pain and symptom issues as reflected by their paucity in the peer-reviewed literature. The availability of these tools, instruments, or questionnaires may serve to promote improvements in clinical assessment and result in improved outcomes, especially when they are completed by the patient. Furthermore, symptom measurement must be carried out regularly and serially. In addition, such tools will also facilitate clinical audit, as well as research into wound-related pain and symptom management.

Table 4.

WOUND CLASSES ENCOUNTERED DURING PILOT TRIAL OF TSAS-W

Wound Class	n (n = 103)	Mean Baseline GWSDS	Mean GWSDS 7 Days Later
Diabetic foot ulcers	33	27.27	20.85
Pressure ulcers	21	33.10	25.24
Venous ulcers	10	42.70	32.30
Malignant wounds	8	46.38	43.00
Ostomies	7	27.14	32.43
Iatrogenic wounds	6	47.50	42.50
Arterial ulcers	6	35.00	25.67
Infection/inflammatory wounds	4	46.20	38.40
Traumatic wounds	3	42.50	38.25
Others[a]	4	23.67	19.67

Abbreviation: GWSDS = global wound symptom distress score.

[a]Nondiabetic patients with peripheral sensory neuropathy.

Table 5.

ANATOMIC SITES OF WOUNDS ENCOUNTERED DURING PILOT TRIAL OF TSAS-W

Anatomic Site	n (n = 103)	Mean Baseline GWSDS	Mean GWSDS 7 Days Later
Feet (excluding heel)	45	31.89	25.62
Sacrum + coccyx	16	34.06	25.06
Lower extremity (including ankle)	15	43.73	34.13
Abdominal wall + flank	10	34.90	35.10
Face + head + neck	5	39.20	33.40
Heel	4	25.00	18.00
Perineum + genitalia	2	54.00	52.00
Upper extremity	2	22.00	21.50
Upper + lower back	2	35.00	33.50
Chest + breast	2	23.50	27.50

Abbreviation: GWSDS = global wound symptom distress score.

The TSAS-W is presented as a novel tool for use in clinical and research settings. Its creation is based on principles that were used to create the ESAS, a widely used and validated tool in the care of palliative care patients. TSAS-W is composed of 10 symptom parameters that are individually assessed on 11-point NRSs (0–10). The summation of all of the element symptom scores equates to a global wound-related polysymptom distress score (GWSDS). TSAS-W is concise and is easy to administer and complete. It is also highly versatile, as it is designed for use in all wound classes and types.

Limitations of this study are that TSAS-W development and pilot testing took place in a single setting, and the pilot testing was of limited duration to obtain initial perceptions of the tool. TSAS-W needs to be validated in a number of clinical settings like ambulatory outpatient clinics, nursing homes, and acute care hospitals. Further studies are needed to establish its reliability and validity with repeated administration, assess its utility as an outcome measure in clinical trials, and confirm its value in various disease scenarios.

REFERENCES

1. Maida V, Corbo M, Dolzyhkov M, Ennis M, Irani S, Trozzolo L. Wounds in advanced illness: a prevalence and incidence study based on a prospective case series. Int Wound J 2008;5:305-14.
2. Ferris FD, Al Khateib AA, Fromantin I, et al. Palliative wound care: managing chronic wounds across life's continuum: a consensus statement from the International Palliative Wound Care Initiative. J Palliat Med 2007;10(1):37-9.
3. Maida V, Ennis M, Kuziemsky C, Trozzolo L. Symptoms associated with malignant wounds: a prospective case series. J Pain Symptom Manage 2009;37:206-11.
4. Landi F, Onder G, Russo A, Bernabei R. Pressure ulcer and mortality in frail elderly people living in the community. Arch Gerontol Geriatr 2007;44 Suppl 1:217-23.
5. Brown G. Long-term outcomes of full-thickness pressure ulcers: healing and mortality. Ostomy Wound Manage 2003;49(10):42-50.
6. Maida V, Ennis M, Kuziemsky C, Corban J. Wounds and survival in cancer patients. Eur J Cancer 2009 May 28 (Epub ahead of print).
7. Ingham JM, Portenoy RK. Patient evaluation and outcome measures (chapter 6). In: Doyle D, Hanks GWC, Cherny N, Calman K, eds. Oxford Textbook of Palliative Medicine. 3rd ed. Oxford, England: Oxford University Press; 2005.
8. Topical agents and dressings for fungating wounds [review]. The Cochrane Collaboration. Hoboken, NJ: John Wiley & Sons Ltd. 2007; Issue 4:1-13.
9. LeRoux AA. TELER: the concept. Physiotherapy 1993;79:755-8.
10. Haisfield-Wolfe ME, Baxendale-Cox LM. Staging of malignant cutaneous wounds: a pilot study. Oncol Nurs Forum 1999;26:1055-64.
11. Grocott P. Evaluation of a tool used to assess the management of fungating wounds. J Wound Care 1997;6(9):421-4.
12. Grocott P. Developing a tool for researching fungating wounds. http://www.worldwidewounds.com/2001/july/Grocott/Fungating-Wounds.html. Last accessed July 17, 2009.
13. Donabedian A. The quality of care. How can it be assessed? JAMA 1988;260:1743-8.
14. Schulz V. Malignant wounds and pressure ulcers. In: MacDonald N, Oneschuk D, Hagen N, Doyle D, eds. Palliative Medicine: A Case-Based Manual. 2nd ed. New York, NY: Oxford University Press; 2005:333-48.
15. Bruera E, Kuehn N, Miller MJ, Selmser P, MacMillan K. The Edmonton Symptom Assessment System (ESAS): a simple method for the assessment of palliative care patients. J Palliat Care 1991;7(2):6-9.
16. Bruera E, Pereira J. Recent developments in palliative cancer care. Acta Oncol 1998; 37:749-57.
17. Chang VT, Hwang SS, Feuerman M. Validation of the Edmonton Symptom Assessment Scale. Cancer 2000;88:2164-71.
18. Nekolaichuk C, Watanabe S, Beaumont C. The Edmonton Symptom Assessment System: a 15-year retrospective review of validation studies (1991-2006). Palliat Med 2008;22: 111-22.
19. Naylor W. Malignant wounds: aetiology and principles of management. Nurs Stand 2002;16(52):45-55.
20. Queen D, Woo K, Schulz V, et al. Chronic wound pain and palliative cancer care. Ostomy Wound Manage 2005;51(11A Suppl):9-11.
21. Hatsfield-Wolfe ME, Rund C. Malignant cutaneous wounds: a management protocol. Ostomy Wound Manage 1997;43:56-66.
22. McDonald A, Lesage P. Palliative management of pressure ulcers and malignant wounds in patients with advanced illness. J Palliat Med 2006;9:285-95.