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Content Validation of Terms and Definitions in a Wound Glossary

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Abstract

OBJECTIVE: A common language and lexicon provide the easiest means of mutual understanding. Inconsistency in terminology makes effective information exchange difficult. Previous studies identified the need to determine standard, accepted definitions for the vocabulary frequently used in wound care. The objective of this study was to establish content validation for these terms and develop an evidence-based glossary for this specialty.

METHODS: Members of the Association for the Advancement of Wound Care Quality of Care Task Force reviewed literature to determine glossary content generation and the associated literature-based definitions. Thirty-nine wound care professionals from wound care stakeholder professional organizations in the United States and Canada participated in the content validation process. Participants were asked to quantify the degree of validity using a 367-item, 4-point Likert-type scale.

RESULTS: On a scale of 1 to 4, the mean score of the entire instrument was 3.84. The instrument's overall scale content validity index was 0.96. Terms with an item content validity index of less than 0.70 were removed from the glossary, leaving 365 items with established content validity. Qualitative data analysis revealed themes suggesting that enhanced communication between providers improves patient outcomes. The need for ongoing updates of the glossary was also identified.

CONCLUSION: The wound care glossary in its finalized form proved valid. An evidence-based glossary bridges the chasm of miscommunication and nonstandardization so that wound care, as an emerging specialized medical science field, can move forward to optimize both process and clinical outcomes.

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You must learn to talk clearly. The jargon of scientific terminology which rolls off your tongue is mental garbage.

—Martin H. Fischer

One of the greatest impediments to skillful and accurate documentation in health care is confusion over seemingly

common terminology. Wound care practitioners are a diverse population. Practicing across the continuum of care, nurses, therapists, podiatrists, medical doctors, surgeons, and nutritionists provide direct care to our collective patient population. Those more indirectly involved include scientists, educators, attorneys, administrators, industry representatives, coders, payers, and those with oversight responsibilities. Implementation of evidence-based practice is increasingly aligned with health care reimbursement, and evidence-based practice is also used to measure health care quality and patient safety. Additionally, documentation is

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used when identifying health care waste, in an effort to make health care more affordable for individuals and the health care system.¹ To improve patient care, safety, and communication between practitioners and practice settings, and to maximize reimbursement, we must speak the same language, and the language must be evidence based.

In a recent commentary, Michel Hermans discusses the changing terminology of skin lesions and the need for evidenced-based nomenclature.² Confusion over what term is appropriate for which type of condition or etiology is seen not only in literature but also in coding descriptors and regulatory guidelines. The word “decubitus” is still used in the *International Classification of Diseases, Ninth Revision*, codes, but wound care clinical literature refers to the same lesions as pressure ulcers. The use of archaic and multiple terms is confusing, not only to the clinician, but to the patient, coder, and regulator as well.

In 2002, the Association for Advancement of Wound Care (AAWC) formed the Quality of Care Task Force. This multidisciplinary group was established to help outline ways in which the quality of wound care services could be improved among all clinicians throughout the entire health care system. In 2006, The AAWC Conceptual Framework of Quality Systems for Wound Care was published, helping to define quality as it relates specifically to wound care.³ There are 6 separate components of this conceptual framework: the patient, the pillars of quality, the microsystem, the macrosystem, the regulators, and outcomes. Within each of these components, the need for a common wound care language is evident. Under the pillars of quality, the need for effectiveness and efficiency is emphasized. Effective care must be based on scientific knowledge, and efficient communication avoids waste of all types, including time, equipment, supplies, ideas, and energy.

The macrosystem that includes health care organizations, facilities, and agencies must use the same terminology as the microsystem (patients, clients, and providers) and the regulators, in order to ensure equitable care and reimbursement. Even more important, under the pillars of quality, maintaining patient safety requires consistently clear communication. A common language and lexicon provide the easiest means of mutual understanding. Inconsistency in terminology makes effective information exchange difficult.³ As we move toward electronic health records, this consistency is even more imperative as all players involved must speak the same understandable language.

In 2006, the AAWC Quality of Care Task Force began the work of researching and validating terms specifically used in the practice of wound management and integumentary repair. References from every medical specialty were reviewed, and a glossary was assembled for content validation. Health care providers from across North America, with current wound care certification, were solicited and asked to review the glossary. The glossary of 367 words was content validated on the basis of recent evidenced-

based literature.⁴⁻⁶ The glossary, in the form of a survey, was sent only to certified practitioners because of the need for reliable definitions by those who are most familiar with them.⁴

Methods

Content validity is defined as the measurement to which the major components pertinent to the subject are present. Most definitions or words typically used in wound care lack an evidence base to support their efficacy. A determination of content validity is required to substantiate the evidence base and support its domain of content for inclusion in this specialty.¹

Content validity is a 2-tiered process. The first tier requires identification of content, content generation, and construction of a tool to test validation. This stage depends on content experts. All members of the AAWC Quality of Care Task Force who participated in this project had at least 10 years of wound care experience and hold specialty certification. Preliminary face validity, a crucial step in the development process, identified content to be validated. Through bimonthly meetings, the Task Force developed an initial list of 391 words commonly used in the wound care specialty. The initial literature evaluation revealed that as many as 7 definitions existed for each wound term. This ended the preliminary face validity process.

Content generation was determined by reviewing all definitions for each word. All commonalities among the definitions were incorporated into one final definition. Where no commonalities were identified, the group used a medical dictionary,⁷ coupled with clinical expertise. Group consensus finalized this stage, with the word list pared to 367 words with literature-based definitions.

The instrument included terms associated with wound assessment, diagnosis, monitoring, procedures, the wound healing process, dressings, therapeutics, and disease states commonly encountered in this specialty. The tool to test content validation listed all words in alphabetical order. A 4-point Likert-type scale was developed for this evaluation: 1 = *not relevant*; 2 = *confusing/unable to assess relevance without more information*; 3 = *relevant but needs minor improvements*; and 4 = *very relevant and succinct*. A sample portion of the instrument is shown in Table 1.

The second tier of the content validity process involves judgment quantification. This phase requires a large number of experts to assess the validity of each word and definition. Two methods described in the literature^{8,9} considered the number of content reviewers as the number of participants impacts the results. Both the methods stand out in the literature for mathematically factoring in chance agreement with increasing participant numbers. Polit⁹ was selected as it is more often used in health care studies. The item content validity index (I-CVI) was used to determine statistical validity for each item, and a CVI was also

Table 1 Item Samples: Wound Glossary Content Validity Instrument

AAWC Wound Care Glossary Validation Initiative Content Validation Survey						
Directions—Rate the definition under the word, using the following rating scale:						
1 = Not relevant						
2 = Confusing/unable to assess relevance without more information						
3 = Relevant but needs minor improvements						
4 = Very relevant and succinct						
Term and Definition	Participant Number and Corresponding Rating					
	3	4	5	6	7	8
Abscess	4	3	3	4	4	3
A circumscribed collection of pus that forms in tissue as a result of acute or chronic localized infection. It is associated with tissue destruction and surrounded by inflamed tissue and frequent swelling.						
If rating a 3, please reword the item above by writing in changes or typing here:						
Respondent 4: "It is surrounded by inflamed tissue and frequent swelling."						
Respondent 5: "...with tissue destruction and maybe surrounded, etc."						
Respondent 8: "A defined collection of purulent fluid which forms in tissue as a result of acute or chronic localized infection. It is frequently associated with tissue destruction, surrounded by inflamed tissue, and by swelling."						
Support surfaces—air	4	4	3	3	4	1
A low density fluid with minimal resistance to flow.						
If rating a 3, please reword the item above by writing in changes or typing here:						
Respondent 5: "Air is this really the definition of "air"?"						
Respondent 6: "Need to clarify different types of air support surfaces but in terms of a general classification, it is relevant"						
Respondent 8: "Air is not a fluid"						
Wound contraction	4	4	NR	4	3	4
The process whereby a full-thickness wound decreases in size by the centripetal movement of the whole thickness of surrounding skin.						
If rating a 3, please reword the item above by writing in changes or typing here:						
Respondent 7: "Not familiar with the term centripetal (I have a master's degree)"						
NR, no response.						

computed for the entire instrument. This approach determines how crucial an element is to the subject matter in the opinion of the expert panel members, as well as the validity of the instrument as a whole. A mathematical formula is applied to the responses to determine the I-CVI. The I-CVI can range from 0 to 1.0, with 1.0 representing unanimous agreement. As the number of panel members increases, the I-CVI result for chance agreement decreases. An acceptable I-CVI is 0.71 to 0.74, and 0.75 or above is considered excellent. The score for the entire instrument is called the scale content validity index (S-CVI). An S-CVI greater than 0.80 is considered acceptable for an instrument.

A convenience sample of multidisciplinary wound care professionals was recruited from the Symposium on Advanced Wound Care to participate in the content validation

process. Demographic information of participants and their informed consent were obtained. Participants had to have had at least 2 years of clinical wound care experience; certification or known expertise in the specialty; and the ability to read English. Participants were given the opportunity to decline.

After completion of this phase, the AAWC Quality of Care Task Force calculated the I-CVI for each word and its definition. Words with an I-CVI of less than 0.7 were eliminated. Words with an I-CVI of 0.71 to 0.74 and those with any comments regarding need for improvement were evaluated individually. Task force members came to a consensus, and changes to the definition or wording were made as necessary. The final instrument was then sent for final content validity to members of wound care organizations other than the AAWC and subjected to additional I-CVI

and S-CVI analysis. The definitions and their corresponding I-CVIs were determined, and the S-CVI was calculated.

Results

Sample

The total number of participants in the study was 39. Thirty-five were from the United States, and 4 were from Canada. Geographically, for those from the United States, 8 were from the North or Midwest, 7 from the South, 13 from the East or Northeast, 6 from the West, and the region of 1 was unidentified. From Canada, 2 were from British Columbia and 1 each from Ontario and Saskatchewan. Professionally, the largest group, 23, was from nursing, encompassing 6 advanced practice nurses; 10 wound, ostomy, and continence nurses; and 7 registered nurses. The participants also included 3 with doctorates, 4 medical doctors, 2 podiatrists, and 7 physical therapists. Twenty-six of the 39 held wound care specialization. Twenty-eight were women, 10 were men, and 1 respondent did not state gender. Thirty of the participants indicated having 6 or more years of experience in wound care, with 15 having more than 16 years. The majority of participants, 35, indicated spending 50% or more of their time treating wound care patients in a variety of settings. The remaining 4 participants were primarily involved in education or research (Table 2).

Quantitative Analysis

Three hundred sixty-seven terms were identified and defined by the Quality of Care Task Force. The I-CVI was calculated for each term. The acceptance of terms with 39 participants using a I-CVI table adjusted for the number of panel members⁹ was determined to be >0.70, with 0.70 being chosen as the cutoff point. Of the original 367 terms, only 2 items failed to meet this required score. The S-CVI for the final 367 terms was 0.96. A selected sampling from the entire instrument is shown in Table 3. The entire instrument and I-CVIs can be found at aawconline.org.

Qualitative Analysis

Qualitative data were collected for each item and for the entire glossary. Data relating to each item were considered, incorporated, or discarded on the basis of consensus among the AAWC Quality of Care Task Force members. Participant input frequently related to word choice or definition but also included opinion regarding the glossary as a common, shared vocabulary. There was feedback regarding the need for the glossary, and the benefits of clear terms and definitions were also given. Participant comments for the glossary were positive and expressed interest in the benefits of a standardized wound care glossary, both educationally and professionally.

Table 2 Respondent Demographics (n = 39)

Characteristic	n
Gender	
Men	10
Women	28
No response	1
Profession	
MD	4
PhD	3
DPM	2
PT	7
Nursing	23
APN	6
CWOCN	10
RN	7
Wound care certification	
Yes	26
No	13
Years of experience	
<6 years	8
6-10 years	9
11-15 years	6
>15 years	15
No response	1
Practice setting (50% or more of the work day in one of these settings)	
Acute care	13
Outpatient	6
Long term acute care	2
Skilled nursing facility	2
Home care	2
Wound care clinic	2
Medical school	1
VA hospital	1
Education	2
Government agency	1
Mixed settings	7
Geographic location	
United States	35
North, Midwest	8
South	7
East, Northeast	13
West	6
No response	1
Canada	4
British Columbia	2
Ontario	1
Saskatchewan	1

APN, advanced practice nurse; CWOCN, certified wound, ostomy and continence nurse; DPM, doctor of podiatric medicine; PT, physical therapist; VA, veterans affairs.

One participant suggested the need for periodic revision and updating of the glossary to ensure applicability because the science of wound care changes and progresses. Qualitative feedback also referred to terms familiar to one discipline but not to another, and the challenge of

Table 3 Selected I-CVIs From Validated Wound Care Glossary

Glossary Term	Tested Definition	I-CVI
Acute wound	A wound that is progressing normally through the 4 stages of healing.	0.85
Angiogenesis	Migration, proliferation, and differentiation and budding of endothelial cells to create new vasculature.	0.96
Antiphospholipid syndrome	A hypercoagulable state that is associated with recurrent arterial and/or venous thrombosis, repeated fetal loss, and/or elevated antiphospholipid.	0.79
Arterial ulcer	Wound which results from inadequate arterial blood flow located on distal extremities.	1
Decubitus	A Latin word referring to the reclining position; a misnomer and outdated term for a pressure ulcer.	0.88
Diabetic foot ulcer	Wound on the diabetic, caused by peripheral neuropathy 60-70% of the time.	0.92
Glycosaminoglycans	Complex extracellular matrix of molecules that are composed of a protein core with multiple polysaccharide side chains.	0.83
OASIS	A form for home health documentation with definitions of wound healing.	0.87
OASIS early/partial granulation	25% of the wound bed is covered with granulation tissue; there is minimal avascular tissue (ie, <25% of the wound bed is covered with avascular tissue); may have dead space; no signs or symptoms of infection; wound edges open.	0.92
OASIS fully granulating	Wound bed filled with granulation tissue to the level of the surrounding skin or new epithelium; no dead space, no avascular tissue; no signs or symptoms of infection; wound edges are open.	0.92
OASIS nonhealing	Wound with >25% avascular tissue OR signs/symptoms of infection OR clean but nongranulation wound bed OR closed/hyperkeratotic wound edges OR persistent failure to improve despite appropriate comprehensive wound management. Note: A new Stage 1 pressure.	0.92
Purulent	Purulent drainage.	0.79
Purulent discharge/drainage	A product of inflammation that is characterized by a creamy, viscous fluid primarily composed of polymorphonuclear leukocytes and liquefied necrotic debris. It is usually pale yellow to yellow green, sometimes whitish, sometimes bloody, and it is typically associated with infection.	1
Pus	Purulent drainage.	0.96
Rolled edges	See edges and epibole.	0.95
Rolled epithelium	See edges and epibole.	0.84
Epibole	Edges of top layers of epidermis have rolled down to cover lower edge of epidermis, including basement membrane, so that epithelial cells cannot migrate from wound edges; also described as closed wound edges.	0.87

I-CVI, item content validity index; OASIS, outcome and assessment information set.

understanding the definition without having the clinical background and training in a particular discipline. This point of view underscored the need for interdisciplinary understanding and a single source for definitions that any discipline may use for reference. Overall, comments emphasized the need for a common vocabulary in wound care to promote education and to facilitate communication between different medical disciplines in wound care.

Discussion

The AAWC Quality of Care Task Force is charged with improving the quality of wound care throughout the health care continuum. As the Conceptual Framework of Quality Systems for Wound Care was developed,³ it became clear that improving the ability for wound care providers to

communicate would radically improve health care quality. A major difficulty found in a specialty field is the ability to communicate effectively regardless of one another's discipline or area of practice.

Wound care communication is more difficult when individuals use archaic or imprecise terms. One example is the ongoing use of the term "decubitus ulcer" when describing a pressure ulcer or the term "eschar" when describing dried wound fluid. These examples exist even at the regulatory and educator levels, as seen in the International Classification of Diseases, *Ninth Revision*, listing of "decubitus ulcers" as an approved diagnosis, the use of the term "stasis ulcer" item M1330 on the outcome and assessment information set v. 12.2 as well as the medical provider resource Web sites such as Medscape and centers for medicare and medicaid services coverage determination pages. In this era of evidence-based practice, it is necessary to

work from a common lexicon. Evidence-based practice is about gathering the best available information from disparate sources and applying that information to meet the needs of the patient.^{10,11} As wound care clinicians, how can that be accomplished without our effectively understanding each other?

Forty-one definition sources were identified in the literature search, but not one unifying glossary was noted. To create a unifying glossary—a glossary that can be used by all disciplines involved in wound care—two components are required: first, a multidisciplinary approach to reach term and definition consensus, and, second, content validity.¹²⁻¹⁴

To the best of the authors' knowledge, no wound care glossary has been developed through consensus or has been content validated. Content validation has been performed with wound care algorithms for experts¹⁵ and with nonexpert clinicians.⁴ The latter identified the need for acceptance of a standard wound lexicon. Also, a content validation study on stomal and peristomal complications has been performed for wound ostomy and continence nurses.⁵ No wound care terminology validation studies have been performed.

This glossary was compiled by certified wound care specialists from the AAWC Quality of Care Task Force, whose members are diverse in their professional training, practice settings, and geographic locale. As such, the glossary broadly captures wound care in its current form. Adding to the scope of the glossary, consensus and content validation were obtained from a large number of wound care clinicians and experts across the United States and Canada.

To ensure the validity of each definition, a minimum I-CVI score of 0.75 was chosen, and for the glossary as a whole, an S-CVI of 0.80 to 1.0 was deemed excellent.¹⁶ With any content validity construct, the chance agreement of experts is a concern.^{12,16-18} Most content validity constructs use a small number of experts, typically 3 to 5. As such, there is significant risk of chance agreement among experts.¹⁶ However, in this glossary, the number of experts used for term appraisal was 39, making chance agreement statistically improbable.

Three hundred sixty-five terms had a CVI of 0.75 or greater and were accepted for inclusion in the glossary. Two terms ("immunosuppressive" and "hyperkeratosis") failed to meet baseline criteria because of a typographical error by which the definitions were inadvertently switched. The order of the definitions was corrected, and based on unanimous author consensus and validation by wound care stakeholder groups outside the AAWC, the terms were included in the glossary. However, I-CVIs were not changed in the calculation of the final S-CVI. Overall, the S-CVI for the glossary was 0.96. The I-CVI and S-CVI scores indicate excellent content validity; therefore, the glossary is valid for experienced clinicians as well as students beginning their wound care journey.

As indicated by Beitz and van Rijswijk,⁴ "Common, valid, and reliable wound definitions are needed, especially because most wound care is provided by nonspecialty

health care professionals." The study by Zeleznik et al¹⁸ revealed that the "lack of standardization can lead to miscommunication, difficulty assessing healing, and an inability to do accurate quality assurance reviews." The need for uniformity in wound care terminology has been identified by participants as well as professional publications, emphasizing the importance of a unifying language in wound care. This glossary is an attempt to bridge the chasm of miscommunication and nonstandardization, so that wound care, as a medical science and field of specialization, can move forward in solidarity. A content validated glossary is a necessary step in this process. The glossary is available from the Association for Advancement of Wound Care website located at: www.aawconline.org.

References

1. Beitz J, Gerlach M, Ginsburg P, et al: Content validation of a standardized algorithm for ostomy care. *Ostomy Wound Manage*. 2010;56(10):22-38.
2. Hermans M: Wounds and ulcers: back to the old nomenclature. *Commentary. Wounds*. 2010;22(11):289-293.
3. Paine TG, Milne C, Barr JE, et al: The AAWC conceptual framework of quality systems for wound care. *Ostomy Wound Manage*. 2006;52(11):57-66.
4. Beitz J, van Rijswijk L: A cross-sectional study to validate wound care algorithms for use by registered nurses. *Ostomy Wound Manage*. 2010;56(4):46-59.
5. Colwell J, Beitz J: Survey of wound, ostomy and continence (WOC) nurse clinicians on stomal and peristomal complications. *JWOCN*. 2007;34(1):7-69.
6. Bolton L, Girolami S, Slayton S, et al: Assessing the need for developing a comprehensive content-validated pressure ulcer guideline. *Ostomy Wound Manage*. 2008;54(11):22-30.
7. Dox I, Melloni BJ, Eisner G, Melloni JL, editors. *Melloni's Illustrated Medical Dictionary*. 4th ed. New York, NY: Informa Health, 2001.
8. Lawshe CH: A quantitative approach to content validity. *Personnel Psychol*. 1975;28(4):563-575.
9. Polit D, Beck CT, Owen SV: Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007;30(4):459-467.
10. Guyatt GH, Rennie D: Evidence-based medicine: a new approach to teaching the practice of medicine. *JAMA*. 1992;268(17):2420-2425.
11. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS: Editorial: evidence-based medicine: what it is and what it isn't. *BMJ*. 1996;312(7023):71-72.
12. Lynn MR: Determination and quantification of content validity. *Nurs Res*. 1986;35(6):382-385.
13. Grant JS, Davis LL: Selection and use of content experts for instrument development. *Res Nurs Health*. 1997;20(3):269-274.
14. Polit DF, Beck CT: The content validity index: are you sure you know what's being reported? Critique and Recommendations. *Res Nurs Health*. 2006;29(5):489-497.
15. Beitz J, van Rijswijk L: Using wound care algorithms: a content validation study. *JWOCN*. 1999;26(5):238-249.
16. Wynd C, Schmidt B, Schaefer MA: Two quantitative approaches for estimating content validity. *West J Nurs Res*. 2003;25(5):508-518.
17. Beckstead JW: Content validity is naught. *Int J Nurs Stud*. 2009;46(9):1274-1283.
18. Zeleznik J, Agard-Henriques B, Schnebel B, Smith DL: Terminology used by different health care providers to document skin ulcers: the blind men and the elephant. *JWOCN*. 2003;30(6):324-333.