Pressure Ulcers: Avoidable or Unavoidable? Results of the National Pressure Ulcer Advisory Panel Consensus Conference

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Abstract

Although pressure ulcer (PrU) development is now generally considered an indicator for quality of care, questions and concerns about situations in which they are unavoidable remain. Considering the importance of this issue and the lack of available research data, in 2010 the National Pressure Ulcer Advisory Panel (NPUAP) hosted a multidisciplinary conference to establish consensus on whether there are individuals in whom pressure ulcer development may be unavoidable and whether a difference exists between end-of-life skin changes and pressure ulcers. Thirty-four stakeholder organizations from various disciplines were identified and invited to send a voting representative. Of those, 24 accepted the invitation. Before the conference, existing literature was identified and shared via a webinar. A NPUAP task force developed standardized consensus questions for items with none or limited evidence and an interactive protocol was used to develop consensus among conference delegates and attendees. Consensus was established to be 80% agreement among conference delegates. Unanimous consensus was achieved for the following statements: most PrUs are avoidable; not all PrUs are avoidable; there are situations that render PrU development unavoidable, including hemodynamic instability that is worsened with physical movement and inability to maintain nutrition and hydration status and the presence of an advanced directive prohibiting artificial nutrition/hydration; pressure redistribution surfaces cannot replace turning and repositioning; and if enough pressure was removed from the external body the skin cannot always survive. Consensus was not obtained on the practicality or standard of turning patients every 2 hours nor on concerns surrounding the use of medical devices vis-à-vis their potential to cause skin damage. Research is needed to examine these issues, refine preventive practices in challenging situations, and identify the limits of prevention.

Key Words: consensus conference, pressure ulcer, prevention, preventability

Index: *Ostomy Wound Management* 2011;57(2):24–37

Potential Conflicts of Interest: Hill-Rom provided an unrestricted educational grant to hold the conference; company representatives did not serve on the development committee, interpret findings, or write/edit the manuscript. The authors have nothing to disclose.

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Ostomy Wound Management 2011;57(2):24–37

Key Points

- Clinical practice, expert opinions, and published literature indicates that most, but not all, pressure ulcers can be prevented.
- In 2010, the National Pressure Ulcer Advisory Panel organized a consensus conference to further elucidate the issue of avoidable and unavoidable pressure ulcers.
- The results confirmed that pressure ulcers are unavoidable in certain situations.
- Research to help clinicians optimize preventive practices is overdue.

Many groups and organizations look at pressure ulcers as a quality indicator. One of the more controversial aspects of pressure ulcers is that of avoidability. The United States Centers for Medicaid and Medicare Services (CMS) took the view that pressure ulcers should be prevented in residents in long-term care settings — the 2004 CMS regulatory language specifically reads, *Based on the comprehensive assessment of an individual, the facility must ensure that an individual who enters the facility without pressure sores does not develop pressure sores unless the individual's clinical condition demonstrates that they were unavoidable.*[1] Civil money penalties can be assessed of long-term care settings when pressure ulcers occur, although such regulation does not exist in acute care or home care facilities. In 2007, the classification by the CMS of full-thickness pressure ulcers (Stage III and Stage IV) as "never events" — that is, ulcers should never occur or are reasonably preventable — again raised the issues of which patients and what conditions make unavoidable pressure ulcer development likely.

In order to provide clarity to the issue of unavoidable pressure ulcer development, on February 25, 2010, the National Pressure Ulcer Advisory Panel (NPUAP) organized and hosted a conference, *An International Multidisciplinary Consensus Panel on the Issues of Avoidable and Unavoidable Pressure Ulcers in All Care Settings* at Johns Hopkins University in Baltimore, Maryland. The purpose of the conference was to establish consensus on whether there are individuals in whom pressure ulcer development may be unavoidable and whether a difference exists between end-of-life skin changes and pressure ulcers.

Developmental Methodology for the Conference

Pre-conference process. At the 2009 NPUAP biennial conference, the highest ranked public policy issue identified by approximately 60 attendees surveyed during the consensus portion of the meeting was avoidable/unavoidable pressure ulcers. At that point in time, no method was available to appeal nonpayment for pressure ulcers in acute care settings when the ulcer development was unavoidable. A plan to discuss the problem in a consensus format was proposed by the NPUAP Public Policy Mission Committee — a consensus conference format would facilitate discussion of differing views on the topic. A task force of NPUAP directors then was created to plan and organize the conference. Preliminary discussions focused on conference goals and major issues surrounding the topics of avoidable and unavoidable pressure ulcers. Main goals included use of a transparent process to facilitate conference replication by future groups and inclusion of a broad spectrum of clinical stakeholders.

Participants. A list of stakeholders was developed by the planning task force comprised of professional organizations that worked with patients at risk or treated for pressure ulcers. Representatives from a wide variety of settings and specialities were solicited to ensure representation of all relevant healthcare disciplines, practice settings, and international, professional wound organizations. A list of 34 organizations was identified and electronic invitations were sent to the President or Chairman of each group, explaining the purpose of the meeting and requesting that a member of their organization be selected to represent the organization and be a voting member on the position statements developed at the conference. In instances where a response was not received, a follow-up phone call was made. The selection of one representative by the respective organizations facilitated a stakeholder-driven process representing diverse viewpoints. Organizations were invited to have additional members attend as audience participants without voting power. This plan would facilitate wide representation and input but only one vote per group/organization for equal weighting of voting.

Background information for participants. A pre-conference presentation was developed by then NPUAP President Laura Edsberg, PhD, based on a thorough review of the literature on the state of the science in pressure ulcer formation, coupled with the issues on which the planning group hoped to achieve consensus (see Table 1). The literature review encompassed a search of articles published in English and contained in the PUBMED and CINAHL databases; search terms included *pressure ulcer*, *etiology*, *deformation*, *tissue damage*, *microstructure*, and *histological*. Members of the NPUAP Research Committee also searched key themes such as *pain*, *nutrition*, and *microclimate* relative to pressure ulcers. Study types included guidelines, randomized controlled trials (RCTs), case studies, laboratory findings, animal studies, and clinical studies. Findings from national and international conferences, as well as government websites, were included. Approximately 150 articles were reviewed. Dr. Edsberg culled the literature results from all groups for inclusion in the webinar. All references used were provided with the webinar.

The goal of the webinar was to provide background information on the science of pressure ulcer formation to facilitate addressing clinical questions within the broad perspectives of

Table 1. Topics for the web-based presentation preceding the conference

1. Where, when, and how do pressure ulcers start?
- What criteria are relevant for avoidable and unavoidable pressure ulcers?

2. What is skin failure?
- Does it differ from a pressure ulcer?
- Are pressure ulcers part of end-of-life skin failure?
- What about SCALE (Skin Changes at Life's End)?
- Are the Kennedy Terminal Ulcer and deep tissue injury similar? Different?

3. What is an unavoidable pressure ulcer?
- Does the definition exist currently?
- What is the patient condition leading to an unavoidable pressure ulcer?
- What about different care settings?
  - Acute care: never event
  - Home care: what is the quality measure?
  - Long-term care: *Unavoidable* means that the individual developed a pressure ulcer even though the facility had evaluated the individual's clinical condition and pressure ulcer risk factors; defined and implemented interventions that are consistent with individual needs, goals, and recognized standards of practice; monitored and evaluated the impact of the interventions; and revised the approaches as appropriate

4. What training do healthcare providers need to adequately assess skin?
- To assess risk for skin breakdown?
- What prevention strategies are relevant?

5. What documentation would be adequate evidence that the pressure ulcer was unavoidable?
- Does it vary by setting and, if so, how?
- How does it vary by the type of patient?

avoidability and skin failure. The presentation also introduced the topic areas and statements to be discussed at the conference for which consensus would be sought.

An interactive webinar was considered, but due to the wide range of time zones and schedules involved a narrated slide presentation was created and made available online for participants and panelists to view and provide comments. The presentation was posted for approximately 1 month before the conference and the link was shared with registered voting members and the NPUAP Board of Directors. The comments received following the presentation were collated and discussed by the task force and the items for voting were refined based on the feedback.

Summary of pre-conference activities. Preconference strategies accomplished several objectives — most importantly, panelists and stakeholders were presented with information on the state of the science to provide a solid foundation for exploring the more perplexing clinical questions surrounding avoidability and unavoidability.

Consensus statement development. Before the conference, a set of statements was developed that would elicit opinions from both the panel and the audience.[2] No patient or family member of a patient with a pressure ulcer participated on this panel; however, an attempt was made to include the perspective of the patient in the development of the items by including all settings and addressing the issues of patient adherence to the plan. Questions for discussion began with existing CMS definitions of avoidable and unavoidable pressure ulcers. The first clinical round of questions focused on blood supply necessary to perfuse the skin. Settings commonly implicated in pressure ulcer development, such as the operating room and intensive care, then were addressed. Finally, at-risk patients in long-term care were discussed. A wide array of situations implicated in pressure ulcer development were identified and discussed. Related topics were grouped together — eg, skin perfusion, hypotension, hypoxemia.

Moderator. Mikel Gray, PhD, NP, CWOCN, from the University of Virginia, was appointed by the NPUAP to serve as the consensus moderator for the conference. Dr. Gray has expertise in moderating consensus conferences and is knowledgeable about, but not directly vested in, the issue of avoidable versus unavoidable pressure ulcers.

Agenda modifications. During pre-conference discussions with the moderator and the audience response technicians, several issues arose. The agenda was too aggressive for a 1-day conference and not all items were amenable to a dichotomous yes/no audience response system. Therefore, the NPUAP Consensus Conference Task Force prioritized topics

Table 2. Stakeholder organizations

American Association of Homes and Services for the Aging (AAHSA)
American Association of Long Term Care Nursing
American Dietetic Association (ADA)
Association for the Advancement of Wound Care (AAWC)
American Health Care Association (AHCA)
American Medical Directors Association (AMDA)
American Physical Therapy Association (APTA)
American Professional Wound Care Association (APWCA)
American Society of Plastic Surgeons (ASPS)
Association of Operating Room Nurses (AORN)
Australian Wound Management Association (AWMA)
Canadian Association of Enterostomal Therapy (CAET)
Canadian Association of Wound Care (CAWC)
Hong Kong Enterostomal Therapy Association
National Alliance of Wound Care (NAWC)
National Association for Home Care and Hospice
National Pressure Ulcer Advisory Panel (NPUAP)
Ontario Wound Care Interest Group
Rehabilitative Engineering and Assistive Technology Society (RESNA)
The Joint Commission (TJC)
Veterans Health Administration, US Department of Veterans' Affairs (VA)
World Council of Enterostomal Therapists
Wound Healing Society (WHS)
Wound Ostomy and Continence Nurses Society (WOCN)

for discussion, focusing on those with broader audience appeal and applicability.

Consensus Conference Format

Setting. The meeting was held at Johns Hopkins Medical Center. The site was chosen due to the ease of transportation and the physical space to host the event. An independent contractor was used for the electronic voting system and a clinician was present with the technicians to assist with rewriting questions. The voting panelists were seated on a stage in an open square format to ensure that all panelists were facing the audience. A monitor was visible to the panelists and projected overhead for the audience to read. The moderator read each question aloud and participants voted electronically. The open discussion facilitated maximum participation and input by stakeholders, a broad range of perspectives, and refinement and clarification of the most salient questions. Response data were analyzed by the NPUAP task force.

Consensus criteria. Statements were shown on the monitors and then an initial vote was cast by the panelists. An 80% agreement was set as a criterion for determining consensus on any given question because this amount was deemed to be "significantly" greater than the level of agreement that could be obtained by chance alone. This level of agreement also was based on the size of the group from which consensus is needed and a prediction of a reasonable level of agreement needed to obtain consensus. Thus, when 80% consensus was achieved the next question was posed.

When 80% consensus was not reached, the question was opened for discussion by the panelists and nonvoting audience. Discussion enabled participants to explore different perspectives on the question. Additional evidence in the form of practice perspectives, published papers, and guideline statements provided additional evidence to inform the panelist's decisions as well as to clarify and refine their concerns. The moderator's skill at moving the process along was crucial at this step. Statements were reworded and voted on until consensus status was determined.

Consensus Conference Results

Participants. The voting panel consisted of 24 professionals with expertise in pressure ulcer prevention and treatment primarily from North America and the Pan Pacific region. Specialties included geriatric medicine, surgery, specialty nursing, physical therapy, and nutrition. The panel represented professional wound organizations, accrediting bodies, hospitals, rehabilitation agencies, long-term care, hospice, and home care, all stakeholders in the issue of pressure ulcers (see Table 2).

The role of guidelines. Participants recognized that guidelines should not set a standard of care. The standard of care is a broad professional statement, while guidelines provide recommendations that can be judiciously applied to specific patient situations. This consensus conference occurred shortly after the completion of a comprehensive review of the literature and development of evidence-based guidelines on pressure ulcer prevention and treatment.[3] The guideline development process provided an understanding of best practices for pressure ulcer prevention as well as an analysis of the limits of practice and gaps in research. The consensus process picked up where the evidence-based guidelines left off by asking knowledgeable stakeholders to develop consensus around some of the unanswered questions about pressure ulcer prevention and whether all pressure ulcers can be prevented. The best judgment of this consensus panel is intended to be tested by future research.

Definition of avoidable and unavoidable pressure ulcers. Panelists reviewed the only existing definition of avoidable and unavoidable pressure ulcers.[1] Because the definition was specific to long-term care, this panel wanted to expand the definition to include all care settings. Per the CMS regulations[1] and from expert experience, factors in cases of unavoidable

Table 3. Consensus Statements and the Percentage of Agreement by Consensus Panel

Question	Yes %	No %	Unable to reach consensus
Are all pressure ulcers avoidable?	0	100	
Are most pressure ulcers avoidable?	100	0	
If enough pressure was removed from the external body could the skin always survive?	4	96	
Are there patient situations that render the pressure ulcer unavoidable?	100	0	
Does prevention require adequate pressure redistribution through turning and/or repositioning?	96	4	
Are there situations or conditions that limit preventive interventions?	91	9	
Should turning every 2 hours be the standard of care?	26	74	*
Should turning/repositioning every 2 hours, as clinically appropriate, be the guideline for care?	88	12	
Is turning every 2 hours a feasible schedule?	71	29	*
When deciding on turning frequency is it acceptable to let a Stage I ulcer develop first?	4	96	
Can pressure redistribution surfaces replace turning and repositioning?	0	100	
Can pressure redistribution surfaces potentially influence turning intervals?	88	12	
Can hemodynamic instability that is worsened with physical movement make a pressure ulcer unavoidable?	100	0	
Are there situations where local tissue perfusion is so poor that any amount of pressure is sufficient to cause an ulcer?	82	18	
Does the condition called "skin failure" exist?	83	17	
Is skin failure the same as a pressure ulcer?	0	100	
Can voluntary refusal to eat lead to unavoidable pressure ulcers?	96	4	
If an individual was unable to maintain nutrition and hydration status and had an advanced directive prohibiting artificial nutrition/hydration could it contribute to unavoidable pressure ulcers?	100	0	
In a morbidly obese individual, can the weight of the pannus or other skin folds contribute to unavoidable pressure ulcers?	96	4	
If the individual and family are advised that the individual's current nonadherence to the plan of care may lead to pressure ulcer development and all other proper preventive care is being offered, can that make a pressure ulcer unavoidable?	91	9	
Does the proper and safe use of medical equipment override saving the skin?	58	42	*
Are all medical device-related pressure ulcers avoidable?	8	92	
Is a solution to medical device-related pressure ulcers to test and develop "skin safe" products?	67	33	*
Are all pressure ulcers avoidable?[a]	0	100	
Are most pressure ulcers avoidable?[a]	82	18	
If enough pressure was removed from the external body could the skin always survive?[a]	0	100	

[a] Question asked at the conclusion of the consensus panel

pressure ulcers included nonadherence by the individual, conflicting goals of care, and documentation of care provided. These influencing factors were acknowledged and discussed; however, the panel voted not to include them in the definition of avoidable or unavoidable pressure ulcers. Although the intent of the CMS definitions[1] was supported, the clear reference to long-term care settings was revised into the following definitions.

Avoidable pressure ulcer. An avoidable pressure ulcer can develop when the provider did not do one or more of the following: evaluate the individual's clinical condition and pressure ulcer risk factors; define and implement interventions consistent with individual needs, individual goals, and recognized standards of practice; monitor and evaluate the impact of the interventions; or revise the interventions as appropriate.

Unavoidable pressure ulcer. An unavoidable pressure ulcer can develop even though the provider evaluated the individual's clinical condition and pressure ulcer risk factors; defined and implemented interventions consistent with individual needs, goals, and recognized standards of practice; monitored and evaluated the impact of the interventions; and revised the approaches as appropriate.

The panelists unanimously voted that not all pressure ulcers are avoidable because there are patient situations where pressure cannot be relieved and perfusion cannot be improved.

However, the decision about avoidability is made after the fact, when the processes of care can be evaluated. It cannot be predetermined that an unavoidable ulcer will develop.

Patient scenarios. The majority of the consensus conference was focused on patient situations that change the ability of the body to reperfuse tissue. The right to refuse care and to be nonadherent with the plan of care also were discussed.

Mobility and activity. Mobility and activity limitations are strong independent predictors of pressure ulcers. The recent NPUAP-EPUAP guideline[3] states that if the individual is bedfast or chairfast and immobile, he/she is considered to be risk for pressure ulcers. Other factors (eg, nutrition, moisture) may have an impact on risk status, but activity and mobility limitations are the primary considerations.

Turning or repositioning the immobile individual helps reperfuse ischemic skin, temporarily removing pressure from vulnerable tissues.[4] Repositioning may include partial turns or small body movements that do not always remove pressure from the sacrum or heels rather than full turns of 30˚ or more that lift the sacrum from the bed. The group concurred that the terms are not interchangeable; however, no consensus vote was taken on this topic.

The panelists supported the need for clinical decision-making based on the individual's needs and clinical situation when establishing a turning schedule. They did not support routine every-2-hour turning as a standard, but rather to continue it as a guideline. The panelists did not support allowing a Stage I pressure ulcer to develop in order to establish a turning schedule. This process has been recommended to "determine tissue tolerance for pressure."[5] This panel supported the duty to prevent Stage I pressure ulcers as well as the pain that accompanies them.[6]

Common clinical concerns arise regarding speciality bed use. Unanimous consensus was reached that pressure redistribution support surfaces do not replace turning or repositioning and that turning and repositioning intervals can probably be lengthened on more advanced support surfaces. To date, no definitive literature guides the determination of turning intervals.

Perfusion/hemodynamic stability. Hemodynamic instability has been classically defined as *a state requiring pharmacologic or mechanical support to maintain a normal blood pressure or adequate cardiac output.*[7] Vasoactive medications may be required to maintain blood pressure and some of these medications constrict peripheral blood vessels, diminishing perfusion to the skin and other tissues under pressure. At this conference, hemodynamic instability was more broadly defined by the panel as *global or regional perfusion that is not adequate to support normal organ function, including the skin*. Some patients develop hypotension, bradycardia, or hypoxemia in relation to movement, thereby limiting the frequency of turning.[8-11] However, none of the participants was a critical care clinician or represented a professional organization relevant to this concern, limiting discussion on this definition.

The panelists all agreed that when hemodynamic instability is exacerbated by movement, unavoidable pressure ulcers can develop. However, this decision does not endorse allowing pressure ulcers to develop in these situations — all possible preventive interventions (eg, support surfaces with better pressure redistribution/microclimate control or slow gradual turns when possible) must be provided. Even when blood pressure can be maintained at a relatively stable level, 82% of the panel agreed that local tissue perfusion can be so impaired that any amount of pressure is sufficient to cause an ulcer.

Critical illness. The identification of unavoidable situations in critically ill patients could not be fully explored. No clinical data are available to guide preventive action with regard to how much offloading or shear management is needed and for what periods of time in order to ascertain which specific situations support a claim that a pressure ulcer was unavoidable.

Skin failure. The term *skin failure* was first used in 1991 by La Puma[12] when referring to underlying skin and tissue damage that occurs at the end stages of life. The skin is the largest organ in the body; hypoperfusion of skin leads to skin failure. Skin failure occurs with concomitant severe dysfunction or failure of vital organs.[13] However, views differ regarding where on the body skin failure would develop. Langemo and Brown[13] stated that severe hypoperfusion of tissue under pressure would result in pressure ulceration of stressed skin. However, it has been suggested that skin damage occurring solely as a result of severe hypoperfusion would not be limited to areas of tissue loading[14] — eg, what occurs on necrotic fingers and toes.[15,16]

Due to their physical condition, illness, psychological issues, and at times social-cultural aspects, terminally ill individuals are at increased risk of pressure ulcer development.[17-21] Some dying individuals develop what have been called *Kennedy terminal ulcers*,[22] described as pressure ulcers that present as pear-shaped purple areas of skin, often on the sacrum, seen 2 to 3 days before death. These ulcers have been described as rapidly appearing sacrococcygeal ulcers in the shape of a butterfly or pear with irregular borders. The Kennedy Terminal Ulcer has had little formal study. Although called a terminal ulcer, patients with these wounds sometimes die in a matter of hours and sometimes live for more than 6 weeks.[23] The varied length of life makes the diagnosis difficult and the role of heroic medical care changing the length of life has not been described.

The panelists recognized that no formal diagnostic criteria exist for skin failure. They supported that skin failure is a documentable condition and that skin failure is not the same as a pressure ulcer. There was no vote taken on Kennedy Terminal Ulcers.

Malnourished patients. Severe protein-energy malnutrition alters tissue tolerance, the inflammatory response, and immune function, making individuals more vulnerable to pressure ulcer development; protein-energy malnutrition is the most common form of nutritional deficiency among hospitalized individuals and common in institutionalized elderly in

the US.[24] A component of protein-energy malnutrition is the choice not to eat or the presence of advanced directives limiting the use of artificial nutrition and hydration. Obesity and extreme obesity (body mass index [BMI] >40) are also forms of malnutrition. In the panelists' experience, obese folds of skin create unique tissue and skin pressure situations, such as when the skin fold or pannus causes pressure on the skin.

The panelists voted unanimously that when advanced directives prohibit the use of artificial nutrition and hydration,[25] unavoidable pressure ulcers could develop. However, this statement should not be interpreted in isolation. All preventive interventions consistent with individual and family goals should be in place (see earlier definition of avoidable pressure ulcers).

Pressure ulcer prevention in individuals with extreme obesity is a complex clinical situation and studies are needed to evaluate effective offloading techniques for heavy skin folds.

Nonadherence. In most situations, individuals participate in their own care, including turning or repositioning,[26] but confused and cognitively compromised patients sometimes resist their caregivers' attempts to move them. In the panelists' experiences, some individuals situate themselves back onto the ulcer or onto tissue at high risk for ulceration because they are "more comfortable" in that position. Some cognitively intact patients refuse to self-reposition although they have the physical and mental capability to do so.

The panelists discussed issues related to nonadherence to the plan of care and refusal of care offered. The panelists supported the right to refuse care[27]; however, it was understood that the individual must be cognitively intact and lucid to be considered nonadherent — ie, confused individuals cannot be nonadherent because they may not have the capacity to understand the potential outcome of their behaviors. It was agreed that issues of nonadherence occur can have an impact on the ability of the staff to offload tissue or improve nutrition. The panel concurred that the individual's support system (eg, family) needs to be aware of the nonadherence and the effect these behaviors could have on pressure ulcer formation. Again, this statement does not exist in isolation. Preventive care must be offered and provided as often as possible.

Medical device-related pressure ulcers. Patients often are provided many medical devices for oxygen and nutrient delivery, stabilization (back boards, neck collars, endotracheal tubes), monitoring (blood oxygen levels or blood pressure), venous thromboembolism prevention, and treatment. These devices and their securement products cause pressure on the skin, especially if applied before edema development.[28] One skin assessment study in pediatric patients estimated that 50% of pressure ulcers were due to medical devices.[29]

Panelists were more divided on this topic than on other concerns, in part because it has not been discussed in the literature or tracked on most quality measures. Most (92%) of the panelists believed medical device-related pressure ulcers are not always avoidable.

Staffing. Adequate staff numbers and training are crucial components of pressure ulcer prevention programs.[30,31] No matter how thorough the care plan or how sophisticated the speciality bed, insufficient staff to carry out the care plan or reposition the individual are factors in pressure ulcer development. The panelists were almost unanimous (91%) that avoidable pressure ulcers can develop when staff are insufficient to formulate and implement a pressure ulcer prevention plan of care. Specific staff-patient ratios or training programs/credentials were not addressed by the panelists.

Concluding statements. At the conclusion of the program, the panelists again were queried about their general belief on pressure ulcer avoidability. Belief that not all pressure ulcers are avoidable was unchanged, except that fewer panelists believed most pressure ulcers are avoidable.

All consensus data are compiled in Table 3.

Discussion

This consensus conference was the first of its kind to address the issue of pressure ulcer avoidability. The panelists unanimously agreed that not all pressure ulcers are avoidable. Over the course of the day, the consensus on whether most ulcers are avoidable fell from 100% at the beginning of the meeting to 82% at the close. Because the 82% was still considered a majority, no discussion was held on why opinions changed.

Turning and repositioning are some of the oldest interventions for pressure ulcer prevention. This group supported their continued use, recognizing that the term *turning* is not the same as *repositioning*; the latter often means smaller shifts in body weight. Turning and/or repositioning every 2 hours has been common practice and often considered the standard of care. This panel did not reach consensus on whether turning every 2 hours continues to be the standard of care, but supported that such a schedule should continue to be the guideline for care. Turning every 2 hours was not seen as a feasible schedule for turning according to this group due to individual patient differences and tolerance for pressure. However, in determining a turning schedule, this panel did not support allowing a Stage I to develop in order to determine the ideal time frame for turning. Pressure redistribution surfaces can influence the time between turns but do not replace turning or repositioning.

The panel unanimously agreed that individuals with hemodynamic instability worsened by movement are at risk for unavoidable pressure ulcers. The consensus panel stated that even though these patients represent very high risk, the development of the ulcer cannot be seen as inevitable. The original definition of avoidable pressure ulcers still applies in this situation, in that preventive care must be provided before such an ulcer can be deemed "unavoidable." The critical care sector had no representation on this panel so this area of consensus statement development had to be abbreviated, with the hope of revisiting it in the future.

The panel recognized the phenomenon *skin failure* despite scant mention in the literature. The panel was unanimous that pressure ulcers were not the same as skin failure. Palliative medicine had no representation on this panel, apart from experience by the panelists; the topic should be revisited to enhance understanding of the differences between the two conditions.

Pressure ulcer development related to medical devices was not always avoidable according to panel members, who did not reach consensus on whether the use of medical devices precludes maintaining intactness of skin. However, a suggested initiative to develop new devices that prevent skin injury was not endorsed by the panelists. The measurement of pressure ulcers beneath medical devices in adults is just beginning to appear in the literature. Further work in device-related pressure ulcers is recommended, especially in pediatrics.

Refusal to eat and/or to be fed artificially were both seen as conditions that can lead to unavoidable pressure ulcers. The need to confirm patient mental competency was seen as an important aspect of this issue.

The purposes of this conference were 1) to establish consensus on whether pressure ulcer development may be unavoidable in certain individuals and 2) to determine whether a difference exists between end-of-life skin changes and pressure ulcers. The purposes of the conference were realized in that consensus was reached regarding the following clinical issues:

1. There are some individuals in which pressure ulcer development is unavoidable.
   a. Conditions were identified that may lead to unavoidable pressure ulcers (eg, hemodynamic instability and impaired perfusion); however, these conditions do not make pressure ulcers inevitable. The duty to provide preventive care remains.
   b. There are situations and conditions that limit preventive interventions.
2. Skin failure at end-of-life is not the same as pressure ulcers.

For each of the content areas explored at this conference, the NPUAP does not espouse that a pressure ulcer will develop simply because a patient is at high risk. Panelists also supported that pressure ulcers are not inevitable; some high-risk patients will develop them and some will not. The development of a pressure ulcer is a combination of individual patient and environmental factors. The NPUAP supports the position that pressure ulcer avoidability usually is determined when the outcome is known and preventive interventions are evaluated. Pressure ulcer care remains a continuous process of assessment, planning, intervention, and evaluation.

Limitations

Limitations of this conference include time constraints that prevented in-depth analysis of each condition or situation. A full examination of each of the clinical scenarios would be beneficial to fully explore the topics. Not all specialities were represented — for example, nurses and physicians from critical care and emergency departments would have provided valuable insight into patient care in these hospital areas. Patients and/or family members of patients with pressure ulcers also could provide important insight.

Also, although no standard exists for the number of persons on a consensus panel,[2] this group may have been too large. However, the NPUAP opted to err on the side of inclusion for this panel, with revisions in the composition of future panels.

Conclusion

An NPUAP consensus conference on the topic of pressure ulcer avoidability was held in an effort to define clinical situations in different settings that create situations of pressure ulcer unavoidability. It is hoped that with the input of the leaders in the field of pressure ulcers avoidable and unavoidable pressure ulcers can be defined more clearly and understanding of the settings and patient populations impacted, as well as situations contributing to unavoidability, can be enhanced.

The group redefined what are generally considered avoidable and unavoidable pressure ulcers in all care settings. The panelists reached consensus that unavoidable pressure ulcers may develop in patients who are hemodynamically unstable, terminally ill, have certain medical devices in place, and are nonadherent with artificial nutrition or repositioning. Although participants agreed that high-risk clinical situations can lead to unavoidable pressure ulcers, pressure ulcer prevention should be provided and no predetermination of pressure ulcer development should preclude prevention, regardless of setting. Undoubtedly, as research continues and more information on the topic becomes available, the NPUAP, as part of its mission, will revisit its determinations to perpetuate the ever evolving dynamic of pressure ulcer care. ■

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