

/ CVL

**Clinical question** What are accurate and effective strategies for evaluating/assessing pressure injuries?

## Good Practice Statement 10.1 Conduct a comprehensive initial assessment of the individual with a pressure injury.

*Background:* An assessment of the individual includes identification and assessment of comorbidities and other intrinsic factors that could contribute to the individual's ability to heal. This should include medications, nutritional status, vascular status, mobility and activity, posture, continence status and psychosocial status.

	SUPPORTING EVIDENCE, WHEN AVAILABLE
Evidence to support the opinion (when available)	None
Justification	An assessment of the individual includes identification and assessment of comorbidities and other intrinsic factors that could contribute to the individual's ability to heal.
Clinical question Non	2
Good Practice Statemen	t 10.2 Set treatment goals consistent with the value and goals of the individual, with input from the individual's informal caregivers, and develop a treatment plan that supports these values and goals
	ith the individual's wishes, healing the pressure injury can be a care goal, particularly in the palliative care stages. If the pressure injury cannot be healed or closure/healing, focus on goals to enhance quality of life.
	SUPPORTING EVIDENCE, WHEN AVAILABLE
Evidence to support the opinion (when available)	None
Justification	Determining the wishes, goals and concerns of the individual and their informal caregiver is an important part of the patient assessment. <sup>1-9</sup>

**Clinical question** What are accurate and effective strategies for monitoring healing over time?

Recommendation 10.3 Conduct a comprehensive reassessment of the individual if the pressure injury does not show some signs of healing within two weeks despite appropriate local wound care, pressure redistribution, and nutrition.

Option:Using two weeks as a time frame to achieve improvement with<br/>appropriate treatmentBackground:General signs of healing include decreased length, width, and depth of the pressure injury;<br/>progressively less exudate; and changes in tissue type from less devitalized tissues (e.g., eschar and slough) to<br/>healthy regenerative tissues (e.g., granulation tissue and epithelialization).

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Ш	What is the overall certainty of the evidence of effectiveness?	Not applicable Very low Low Moderate High 🛛 🗌 🔲 🔲	<ul> <li>Evidence on time to healing</li> <li>In individuals in with Category/Stage III and IV pressure injuries (n=119 with 152 proinjuries without 45% healing at two weeks were less likely to heal completely within prognostic, low quality).</li> </ul>	n 15 months <sup>10</sup> ( <i>Level 3</i>
MENDED PRACTICE	Is there important uncertainty about how much people value the main outcomes?	Possibly No Important important Probably no important uncertainty uncertainty important uncertainty or or uncertainty or Not variability variability or variability variability applicable	<ul> <li>In individuals with Category/Stage III and IV pressure injuries (n = 48 individuals wit percent reduction in pressure injury surface area at two weeks of treatment was sta associated with likelihood of reaching complete healing (hazard ration [HR] = 7.67, 0.01)<sup>11</sup> (Level 3 prognositc, low quality).</li> <li>Possible adverse effects</li> <li>N/A</li> </ul>	atistically significantly
OF THE RECOMMEN	How substantial are the desirable anticipated effects?	Not Not Probably not Probably Substantial applicable substantial substantial I I I I I I I I I I I I I I I I I I I		
ENEFITS & HARMS	How substantial are the undesirable anticipated effects?	Not Not Probably not Probably Substanital applicable substantial substantial I	Strength of Evidence: B2 —Level 3 and 4 studies of any quality providing direct evide consistent outcomes and inconsistencies can be explained	nce , most studies have
BE	Do the desirable effects outweigh the undesirable effects?	No Probably Uncertain Probably Yes Not No Yes applicable		

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
RESOURCE USE	How substantial are the resource requirements?	Not Not sub- Probably Probably Sub- clear stantial not sub- sub- stanital stantial stantial X	No evidence available.	'
<b>VCCEPTABILITY</b>	Is the option acceptable to key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes D I I I D	No evidence available.	
PRIORITY AND ACCEPTABILITY	Is the option a priority for key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes I I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	No evidence available.	
FEASIBILITY	Is the option feasible to implement?	No Probably Uncertain Probably Yes Varies No Yes D D D IX D	• Re-evaluating the care plan after two weeks is feasible in most clinical settings	(Expert opinion).
videnc	• e to Decision Framework. ©EPUAP/			

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings	Undesirable consequences probably outweigh desirable consequences in most settings	The balance between desirable and undesirable consequences is closely balanced or uncertain	Desirable consequences probably outweigh undesirable consequences in most settings	Desirable consequences clearly outweigh undesirable consequences in most settings
					X
Strength of recommendation	Strong negative recommendation: Definitely don't it	Weak negative recommendation: Probably don't do it	No specific recommendation	Weak positive recommendation: Probably do it	Strong positive recommendation: Definitely do it
Justification	There is evidence from two	Level 3 studies <sup>10,11</sup> that press	ure injuries receiving appropriate	care will demonstrate signs of heali	ng within two weeks. One study <sup>10</sup>

There is evidence from two Level 3 studies<sup>10,11</sup> that pressure injuries receiving appropriate care will demonstrate signs of healing within two weeks. One study <sup>10</sup> indicated that Category III and IV pressure injuries demonstrate as much as 45% reduction in size within the first two weeks of treatment.



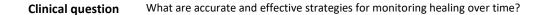
Clinical question

What are accurate and effective strategies for evaluating/assessing pressure injuries?

Good Practice Statement 10.4 Assess the pressure injury initially and re-assess at least weekly to monitor progress toward healing.

*Background:* If consistent with the individual's wishes, healing the pressure injury can be a care goal, particularly in the palliative care stages. If the pressure injury cannot be healed or treatment does not lead to closure/healing, focus on goals to enhance quality of life.

	SUPPORTING EVIDENCE, WHEN AVAILABLE
Evidence to support the opinion (when available)	None
Justification	A two-week period is recommended for evaluating progress toward healing. However, weekly assessments or more frequently if clinically indicated, provide an opportunity for the health professional to assess the pressure injury more regularly, detect complications as early as possible, and adjust the treatment plan accordingly.



# Recommendation 10.5 Select a uniform, consistent method for measuring pressure injury size and surface area to facilitate meaningful comparisons of wound measurements across time.

**Option:** Different measuement methods **Comparison:** N/A

**Background:** Commonly used pressure injury measurement techniques include manually measuring the length and width of the wound (ruler method), tracing the circumference of the wound onto transparent acetate film, taking a digital photograph of the wound and tracing the wound circumference.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
ш	What is the overall certainty of the evidence of effectiveness?	Not applicable Very low Low Moderate High 🛛 🗌 🔲 🔲	<ul> <li>Evidence for ruler method</li> <li>In individuals with pressure injuries of different shapes and sizes (n=80), there was the the ruler method and two different wound tracing methods when measuring = 0.95) than when comparing the irrelgarly shaped wounds (ICC = 0.75)<sup>12</sup> (Level 3, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10</li></ul>	the regularly shape wounds (ICC <i>moderate quality</i> ).
MENDED PRACTICE	Is there important uncertainty about how much people value the main outcomes?	Possibly No Important important Probably no important uncertainty uncertainty important uncertainty or or uncertainty or Not variability variability or variability variability applicable	<ul> <li>In individuals with pressure injuries of different shapes and sizes, measuring the loginjury (regardless of orientation) and a perpendicular width was the most sensitive wound surface area<sup>13</sup> (<i>Level 4, moderate quality</i>).</li> <li>In Cateogry/Stage III and IV pressure injuries, there was a strong correlation (correction) between the ruler method and two different wound tracing methods for dearea (mean difference 1.5cm<sup>2</sup>)<sup>14</sup> (<i>Level 4, low quality</i>).</li> </ul>	e strategy for determining elation co-efficient > 0.94, p =
OF THE RECOMMEND	How substantial are the desirable anticipated effects?	Not Not Probably not Probably Substantial applicable substantial substantial I	<ul> <li>Evidence for wound circumference tracing methods</li> <li>In Category/Stage II or greater pressure injuries (n = 20), two different wound tracing acetate transparent film to digitized wound tracings) achieved significant differen both methods wre equally effective in monitoring change over time (p = 0.9429)<sup>15</sup></li> </ul>	ces in wound surface area, but
BENEFITS & HARMS (	How substantial are the undesirable anticipated effects?	Not Probably not Probably Substanital applicable substantial substantial I	Possible adverse effects N/A	
BE	Do the desirable effects outweigh the undesirable effects?	No Probably Uncertain Probably Yes Not No Yes applicable	Strength of Evidence: B2 —Level 3 and 4 studies of any quality providing direct evide consistent outcomes and inconsistencies can be explained	nce , most studies have

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS		
RESOURCE USE	How substantial are the resource requirements?	Not Not sub- Probably Probably Sub- clear stantial not sub- sub- stanital stantial stantial X	No evidence available.			
VCCEPTABILITY	Is the option acceptable to key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes D I I I D	No evidence available.			
PRIORITY AND ACCEPTABILITY	Is the option a priority for key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes I I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	No evidence available.			
FEASIBILITY	Is the option feasible to implement?	No Probably Uncertain Probably Yes Varies No Yes D D D I II II	<ul> <li>Selecting the same wound measurement method for repeated measures is feas (<i>Expert opinion</i>).</li> </ul>	sible in most clinical settings		

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings	Undesirable consequences probably outweigh desirable consequences in most settings	The balance between desirable and undesirable consequences is closely balanced or uncertain	Desirable consequences probably outweigh undesirable consequences in most settings	Desirable consequences clearly outweigh undesirable consequences in most settings
					X
Strength of recommendation	Strong negative recommendation: Definitely don't it	Weak negative recommendation: Probably don't do it	No specific recommendation	Weak positive recommendation: Probably do it	Strong positive recommendation: Definitely do it
					X

Evidence from two Level 4 studies of moderate<sup>13</sup> and low<sup>14</sup> quality indicated that wound tracing methods achieve similar results to ruler methods for calculating a pressure injury size. Evidence from a low quality Level 4 study<sup>15</sup> showed that two different methods of tracing the wound circumference and calculating the wound surface area achieved significantly different results for the wound surface area; however, both methods were equally effective in monitoring change in wound size over time. These studies suggest that various wound measurement methods are acceptable but using the same technique for repeated measures is important.

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**Clinical question** What are accurate and effective strategies for evaluating/assessing pressure injuries?

Good Practice Assess the physical characteristics of the wound bed and the surrounding skin and soft tissue at each pressure injury assessment.

Background: The assessment of the physical characteristics of the pressure injury can identify signs of wound deterioration (e.g., due to infection) that requires re-evaluation of the treatment plan or signs of progress toward healing.

	SUPPORTING EVIDENCE, WHEN AVAILABLE
Evidence to support the opinion (when available)	None
Justification	Clinical judgment is used to assess physical characteristics of the pressure injury. These characteristics provide an indication of the pressure injury condition and its progress towards healing.
	all
Clinical question	What are accurate and effective strategies for monitoring healing over time?
Good Practice Statement 10.7	Monitor the pressure injury healing progress.
Background: Pressure	e injury assessment tools/scales have been designed to aid in assessing the progress of pressure injury healing.
	SUPPORTING EVIDENCE, WHEN AVAILABLE
Evidence to support the opinion (when available)	None
Justification	Monitoring a wound provides an indication of the pressure injury condition and its progress towards healing.

Clinical question What are the most commonly recognized and used pressure injury assessment/monitoring tools/scales and how do they relate to one another? Which pressure injury monitoring tools are most responsive to change over time and most accurately describe the healing trajectory of the wound (i.e., healing, deteriorating, and stalled)?

Optic	commendation 10	g using a tool B	ackground:. Pressure injury assessment tools/scales have been designed to aid in assessing the progress of pressure injury ealing and to evaluate change in the pressure injury condition over time.
	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE
	What is the overall certainty of the evidence?	N/A Very low Low Moderate High	<ul> <li>Effectiveness for monitoring pressure injury healing progress with a tool versus not monitoring healing with a tool</li> <li>In individuals with a pressure injury (n = 48), there was poor correlation between clinical judgment and PUSH<sup>©</sup> scores (κ = 0.11 to 0.32<sup>16</sup> (<i>Level 4, moderate quality</i>).</li> <li>In individuals with acute and chronic wounds (not pressure injuries, n=541), there was high correlation between clinical judgment and PUSH<sup>©</sup> scores (κ = 0.97)<sup>17</sup> (<i>Indirect evidence</i>).</li> </ul>
RECOMMENDED PRACTICE		Possibly No Important important Probably no important uncertainty uncertainty important uncertainty or or uncertainty or or variability variability variability N/A	<ul> <li>Accuracy of PUSH as a monitoring tool for pressure injuries</li> <li>In a retrospective cohort study (n = 269), PUSH variables of surface area, exudate amount and tissue type accounted for between 39% and 57% of variation in pressure injuries over time<sup>18</sup> (Level 3 prognostic, low quality)</li> <li>In a retrospective cohort study, total PUSH score accounted for 31% of variation in pressure injuries over time<sup>18</sup> (Level 3 prognostic, low quality)</li> <li>In individuals with Category/Stage II to IV pressure injuries (n=23 wounds), the baseline PUSH score was not statistically significantly (p=0.10) different between pressure injuries that closed and those that did not close over six months. However, total</li> </ul>
OF THE	desirable anticipated effects?	N/A Not Probably not Probably Substantial substantial substantial IX IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	<ul> <li>PUSH scores decreased significantly over the first five weeks of healing in pressure injuries that healed versus those that did not heal.<sup>19</sup> (Level 3, low quality)</li> <li>In individuals with Category/Stage II to IV pressure injuries (n=23 wounds), there was a significant (p&lt;0.01) good to strong correlation between PUSH and the Pressure Sore Severity Tool over five weeks (r = 0.72 to r=0.95).<sup>19</sup> (Level 3, low quality)</li> <li>In individuals with Category/Stage II to IV pressure injuries (n=23 wounds), there was a significant (p&lt;0.01) good to strong correlation between PUSH and surface area calculated by wound tracings over five weeks (r = 0.72 to r=0.83).<sup>19</sup> (Level 3, low quality)</li> </ul>
BENEFITS & HARMS	undesirable	N/A Not Probably not Probably Substantial substantial substantial	<ul> <li><i>quality</i>)</li> <li>Accuracy of DESIGN/DESIGN-R as a monitoring tool for pressure injuries</li> <li>In individuals with pressure injuries (n = 411), a positive change of at least one point in DESIGN-R score was significantly associated with complete wound healing within 30 days (hazard ration 1.16 to 1.33 for Category/Stage II pressure injuries and HR 1.21 to 1.27 for Category/Stage III and IV pressure injuries over four weeks)<sup>20</sup> (<i>Level 3, moderate quality</i>).</li> <li>In photograph assessments evaluated by eight nurses, interrater reliability for DESIGN was high (r=0.98) and interrater assessment</li> </ul>
BEN	Do the desirable effects outweigh the undesirable	No Probably Uncertain Probably Yes N/A No Yes I	<ul> <li>was also high for evaluation of real-life wounds (r=0.91)<sup>21</sup> (Level 4, moderate quality).</li> <li>photograph assessments evaluated by nurses and doctors with varying levels of experience, interrater reliability of the total DEISGN-R tool score was high (intraclass coefficient [ICC] 0.960), with each scale also having moderate to high interrater reliability (0.532 to 0.794).<sup>22</sup></li> <li>Accuracy of BWAT (PSST) as a monitoring tool for pressure injuries</li> </ul>

• When used by experienced healthcare practitioners, the interrater reliability of was 0.78 and intrarater reliability was 0.89.<sup>23</sup>

effects?

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE
			<ul> <li>(Level 4, low quality)</li> <li>When used by enterostomal nurses to assess 20 pressure injuries, interrater reliability was 0.91 and intrarrater reliability was 0.96 (p&lt;0.01).<sup>24</sup> (Level 4, low quality)</li> </ul>
			Adverse events There is no evidence for any undesirable outcomes associated with monitoring healing.
			Strength of Evidence: B2 (Level 3 and 4 studies)
RESOURCE USE	How substantial are the resource requirements?	Not Not sub- Probably Probably Sub- clear stantial not sub- sub- stanital stantial stantial X	No evidence available
Y AND ABILITY	Is the option acceptable to key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes D D X D D	No evidence available
PRIORITY AND ACCEPTABILITY	Is the option a priority for key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes D I I I I D	No evidence available
FEASI BILITY	Is the option feasible to implement?	No Probably Uncertain Probably Yes Varies No Yes D D D X D	Conducting regular pressure injury assessments to monitor healing should be feasible ( <i>Expert opinion</i> )
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Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings	Undesirable consequences probably outweigh desirable consequences in most settings	The balance between desirable and undesirable consequences is closely balanced or uncertain	Desirable consequences probably outweigh undesirable consequences in most settings	Desirable consequences clearly outweigh undesirable consequences in most settings
				<u>~~~</u>	X
Strength of recommendation	Strong negative recommendation: Definitely don't it	Weak negative recommendation: Probably don't do it	No specific recommendation	Weak positive recommendation: Probably do it	Strong positive recommendation Definitely do it
				X	

another study<sup>17</sup> provided indirect evidence showing a high correlation between the same tool and clinical judgment when assessing acute and chronic wounds. One moderate quality<sup>23</sup> and two low quality<sup>18,19</sup> Level 3 studies showed that the score on a pressure injury monitoring tool is associated with whether the pressure injury eventually heals or otherwise. Score in weeks 0 to 5 appear to be more indicative of eventual healing. Level 4 studies<sup>21-24</sup> provided evidence for the interrater and intrarater reliability of various pressure injury monitoring tools.

#### **Clinical question**

What are the most commonly recognized and used pressure injury assessment/monitoring tools/scales and how do they relate to one another? Which pressure injury monitoring tools are most responsive to change over time and most accurately describe the healing trajectory of the wound (i.e., healing, deteriorating, and stalled)?

# Tools for assessing deep tissue injury

**Option:** Assessing deep tissue injury using the HSDTISS **Comparison:** Assessing Deep tissue injury by other methods

**Background:** Honaker Suspected Deep Tissue Injury Scale (HSDTISS is designed to evaluate the severity and progression of the suspected deep tissue injury (SDTI). The HSDTISS is a 3-item scale ( total surface area, skin integrity and wound color/tissue assessment) that produces a cumulative score ranging from 3 – normal skin to 18 – Category/Stage IV pressure injury.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE RECOMMENDED PRACTICE	What is the overall certainty of the evidence of effectiveness?	No included studies Very low Low Moderate High	<ul> <li>Evidence for reliability of Honaker Suspected Deep Tissue Injury Scale</li> <li>When the HSDTISS was used to assess photos of suspected deep tissue injury (n=6), there was a high interrater reliability between clinical experts (n=21) (r = 0.997, p&lt;0.001).<sup>25</sup> (Indirect evidence)</li> </ul>	
	Is there important uncertainty about how much people value the main outcomes?	Possibly Important important Probably no No uncertainty uncertainty important important or or uncertainty or uncertainty variability variability variability or variability undesirable	<ul> <li>Evidence for validity of the Honaker Suspected Deep Tissue Injury Scale</li> <li>There was 100 percent agreement among staff nurses (n=15) that the instrument was clear, concise, easy to use and reflected the clinical presentations of STDI.<sup>25</sup> (Indirect evidence)</li> </ul>	
	How substantial are the desirable anticipated effects?	Unclear Not Probably not Probably Substantial substantial substantial substantial		
	How substantial are the undesirable anticipated effects?	Unclear Not Probably not Probably Substanital substantial substantial		

CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Do the desirable effects outweigh the undesirable effects?	No Probably Uncertain Probably Yes Varies No Yes	Strength of Evidence: C- Indirect evidence	
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	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS	
RESOURCE USE	How substantial are the resource requirements?	Not Not sub- Probably Probably Sub- clear stantial not sub- sub- stanital stantial stantial IXIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	There is no evidence on resource requirements to use the HSDTISS, but	HSDTISS, but they are unlikely to be substantial.	
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD			
	Is the option a priority for key stakeholders?	No Probably Uncertain Probably Yes Varies No Yes D I I I I D	In an international survey of patient consumers and their informal cares identified knowing more about strategies to check that skin is healthy a (574/850) informal caregivers identified this topic was important or ver explore using the HSDTISS.	s important or very important. 67.5%	
FEASIBILITY	Is the option feasible to implement?	No Probably Uncertain Probably Yes Varies No Yes	The time to assess and score the six photographs using the HSDTISS was evidence) It may require additional time to assess skin and tissues in clinical settin training in the use of the tool.		
		ERINA I			

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings	Undesirable consequences probably outweigh desirable consequences in most settings	The balance between desirable and undesirable consequences is closely balanced or uncertain	Desirable consequences probably outweigh undesirable consequences in most settings	Desirable consequences clearly outweigh undesirable consequences in most settings
			X		
Strength of recommendation	Strong negative recommendation: Definitely don't it	Weak negative recommendation: Probably don't do it	No specific recommendation	Weak positive recommendation: Probably do it	Strong positive recommendation: Definitely do it
Recommendation (text)	No recommendation				
Justification				Scale (HSDTISS) may be beneficia mall sample size of health profes	

number of photographs. The evidence was insufficient to make a recommendation.

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