

Evidence to Decision Frameworks: Heel Pressure Injuries

Clinical question What are accurate and effective methods for assessing heel skin and tissue?

Recommendation 6.1 **Assess the vascular/perfusion status of the lower limbs, heels and feet when performing a skin and tissue assessment, and as part of a risk assessment.**

Option: Assessing vascular function
Comparison: No vascular assessment

Background: : Due to vascular disease and tissue thinning associated with aging, and the presence of avascular fat in the heel, the heel is at risk of pressure injuries. Vascular status is particularly significant to the prevention and treatment of pressure injuries of the heel.¹

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE PRACTICE	What is the overall certainty of the evidence?	N/A <input checked="" type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/>	<ul style="list-style-type: none"> In individuals in a community hospital (n=15), peripheral arterial disease was a significant factor for heel pressure injuries in a multivariable analysis (odds ratio [OR] 11. 95% confidence interval [CI] 1.99-60.57).² (Level 3, moderate quality) In people with heel pressure injuries (n=140 with 183 pressure injuries), presence of peripheral arterial disease was a significant factor for healing (HR = 0.40, 95% CI 0.20-0.81,p=0.010).³ (Level 3 prognostic, low quality) In individuals in acute care with hospital and community acquired pressure injuries (n=337),¹ diabetes mellitus, vascular disease, immobility, and an admission Braden Scale score of 18 or less were significant risk factors for heel pressure injuries in a univariate analysis. (Level 3 prognostic, moderate quality)
	Is there important uncertainty about how much people value the main outcomes?	Important uncertainty or variability <input type="checkbox"/> Possibly important uncertainty or variability <input type="checkbox"/> Probably no important uncertainty or variability <input type="checkbox"/> No important uncertainty or variability <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
	How substantial are the desirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>	
	How substantial are the undesirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>	
	Do the desirable effects outweigh the undesirable effects?	No <input type="checkbox"/> Probably No <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably Yes <input type="checkbox"/> Yes <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
			Strength of Evidence: B2 - Level 3 or 4 studies (regardless of quality) providing direct evidence, most studies have consistent outcomes and inconsistencies can be explained

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS												
RESOURCE USE	How substantial are the resource requirements?	<table border="0"> <tr> <td><i>Not clear</i></td> <td><i>Not substantial</i></td> <td><i>Probably not substantial</i></td> <td><i>Probably substantial</i></td> <td><i>Substantial</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No evidence available
<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>										
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No evidence available
	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>									
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
	Is the option a priority for key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No evidence available
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<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> A health professional requires appropriate training to conduct a vascular assessment, and skills and training in this area varies across geographic and clinical settings. (<i>Expert opinion</i>).
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>										
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Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings	The balance between desirable and undesirable consequences <i>is closely balanced or uncertain</i>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Justification	Evidence from one moderate quality Level 3 study ² indicated that having peripheral arterial disease increases the risk of heel pressure injuries, possibly due to decreased blood flow to the heel. Evidence from a low quality Level 3 prognostic study ³ showed that heel pressure injuries were less likely to heal when the individual had peripheral vascular disease.				

Clinical question What heel repositioning interventions are effective in preventing heel pressure injuries?
 What support surfaces and devices are effective in preventing heel pressure injuries?

Recommendation 6.2 For individuals at risk of heel pressure injuries and/or with Category/Stage I or II pressure injuries, elevate the heels using a specifically designed heel suspension device or a pillow/foam cushion. Offload the heel completely in such a way as to distribute the weight of the leg along the calf without placing pressure on the Achilles tendon and the popliteal vein.

Option: Elevating the heels with a specially designed device or a pillow
Comparison: No heel elevation or a different method for heel suspension

Background: The posterior prominence of the heel sustains intense pressure, even when a pressure redistribution surface is used. Because the heel is covered with a small volume of subcutaneous tissue, mechanical loads are transmitted directly angular to the bone. Ideally, heels should be free of all pressure.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE PRACTICE	What is the overall certainty of the evidence?	No included studies <input type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> High <input type="checkbox"/>	<p>Evidence for elevation versus no elevation</p> <ul style="list-style-type: none"> In individuals with a hip fracture, heel elevation with a foam heel suspension boot was associated with statistically significantly fewer pressure injuries than using a pressure redistribution support surfaces without elevating the heels (0% vs 24.4%, p<0.01).⁴ (Level 1, moderate quality) In individuals transferred to hospital via ambulance, heel elevation with a foam heel suspension boot applied in the ambulance, was associated with statistically significantly fewer heel pressure injuries compared to normal care (14.6% versus 30%, p=0.017).⁵ (Level 1, moderate quality) In critically ill individuals, there were fewer heel pressure injuries associated with elevating heels with a foam cushion compared with no heel intervention (8.5% versus 54.2%).⁶ (Level 1, low quality) <p>Evidence for foam heel suspension boots</p> <ul style="list-style-type: none"> In critically ill individuals (n=54), heel elevation with a foam heel suspension boot was associated with statistically significantly fewer pressure injuries than using regular pillows (0% vs 41%, p<0.001).⁷ (Level 1, high quality) In individuals with a hip fracture, heel elevation with a foam heel suspension boot was associated with statistically significantly fewer pressure injuries than using a pressure redistribution support surface without elevating the heels (0% vs 24.4%, p<0.01).⁴ (Level 1, moderate quality) In individuals transferred to hospital via ambulance, there were statistically significantly fewer heel pressure injuries compared to normal care (14.6% versus 30%, p=0.017).⁵ (Level 1, moderate quality) In individuals in orthopedic care (n=30), a foam heel suspension boot was associated with statistically significantly fewer pressure injuries than heel elevation using intravenous fluid bags (0% versus 40%, p=0.006).⁸ (Level 2, low quality) In critically ill individuals with redenned heels (n=50), using a laminated foam boot was associated with more reddened heels improving in condition compared with gauze pads, ABD dressing and tape (92.85% vs 0%).⁹ (Level 2, low quality) In critically ill individuals (n=53), no new pressure injuries occurred during admissions (5 days or longer) with a heel suspension boot.¹⁰ (Level 4, low quality)
	Is there important uncertainty about how much people value the main outcomes?	Important uncertainty or variability <input type="checkbox"/> Possibly important uncertainty or variability <input type="checkbox"/> Probably no important uncertainty or variability <input type="checkbox"/> No important uncertainty or variability <input type="checkbox"/> No known undesirable outcomes <input checked="" type="checkbox"/>	
	How substantial are the desirable anticipated effects?	Unclear <input type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input checked="" type="checkbox"/>	
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CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS	
		<ul style="list-style-type: none"> In immobile individuals, heel elevation with a foam heel suspension boot was associated with a 43.8% reduction in heel pressure injuries in one hospital and a 67% reduction in Category/Stage III or IV heel pressure injuries in a second hospital over 12 months.¹¹ (<i>Level 4, low quality</i>) <p>Evidence for air inflation heel suspension boots</p> <ul style="list-style-type: none"> In individuals in rehabilitation care (n=17), no heel pressure injuries occurred in up to 14 days follow-up when using a four celled air-filled heel suspension boot.¹² (<i>Level 4, low quality</i>) <p>Evidence for air low friction fabric heel suspension boots</p> <ul style="list-style-type: none"> In hospitalized individuals, incidence of avoidable heel pressure injuries decreased from 32% to 27.3% over 4 years.¹³ (<i>Level 4, low quality</i>) <p>Evidence for foam cushions</p> <ul style="list-style-type: none"> In critically ill individuals, there were fewer heel pressure injuries associated with elevating heels with a foam cushion compared with no heel intervention (8.5% versus 54.2%).⁶ (<i>Level 1, low quality</i>) <p>Adverse events None reported</p> <p>Strength of Evidence: B1 – Level 1 studies of moderate or low quality providing direct evidence</p>	

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS
RESOURCE USE	How substantial are the resource requirements?	<p>Not clear Not substantial Probably not substantial Probably substantial Substantial Varies</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<ul style="list-style-type: none"> In hospitalized individuals, cost savings associated with heel pressure injuries was £149,912 (2015) four years after introducing a four celled air-filled heel suspension boot¹³ (Level 4, low quality) One UK hospital reported cost savings of £68,716 over 12 months and the second hospital reported projected cost savings of £294,964 over 5 years.¹¹ (Level 4, low quality)
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	<p>No Probably No Uncertain Probably Yes Yes Varies</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Evidence from individuals at risk of pressure injuries</p> <ul style="list-style-type: none"> 76% (13/17) of individuals in rehabilitation care reported a four celled air-filled heel suspension boot was comfortable, but 12% (2/17) reported the boot was too hot.¹² (Level 4, low quality) In individuals transferred to hospital via ambulance, 48% rated a foam heel suspension boot as comfortable in supine position and 25% rated it as comfortable in side-lying position. 71% described the boot as warm or sweaty and 30% rated it as itchy.⁵ (Level 1, moderate quality) In individuals transferred to hospital via ambulance, pain rating were lower with a foam heel suspension boot (range 0 to 4) compared to normal care (0 to 7).⁵ (Level 1, moderate quality) <p>Evidence from health professionals</p> <ul style="list-style-type: none"> 100% of health professionals (n= not reported) reported a four celled air-filled heel suspension boot was easy to apply and remove.¹² (Level 4, low quality)
	Is the option a priority for key stakeholders?	<p>No Probably No Uncertain Probably Yes Yes Varies</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	No evidence available
FEASIBILITY	Is the option feasible to implement?	<p>No Probably No Uncertain Probably Yes Yes Varies</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/></p>	<ul style="list-style-type: none"> Commercial heel suspension devices may not be available in all clinical settings and geographic settings; however, a regular pillow is accessible on most settings (Expert opinion). Elevating the heels may not be feasible for more mobile individuals, people with dementia or people with agitation, muscle spasms or other conditions that increase leg movement. (Expert opinion).

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="checkbox"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="checkbox"/>	The balance between desirable and undesirable consequences <i>is closely balanced or uncertain</i> <input type="checkbox"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input type="checkbox"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input checked="" type="checkbox"/>
Strength of recommendation	Strong negative recommendation: Definitely don't it <input type="checkbox"/>	Weak negative recommendation: Probably don't do it <input type="checkbox"/>	No specific recommendation <input type="checkbox"/>	Weak positive recommendation: Probably do it <input type="checkbox"/>	Strong positive recommendation: Definitely do it <input checked="" type="checkbox"/>
Justification	Evidence from moderate ^{4,5} and low ⁶ quality Level 1 studies demonstrates that elevating the heels reduces the risk of pressure injuries. Incidence of pressure injuries were lower using both a regular foam cushion ⁶ and using a foam heel suspension boot ^{4,5} than when heels were not elevated. As well as being more effective than normal care with no heel elevation, ^{4,5} a foam heel suspension boot was also shown to be more effective in reducing pressure injuries in one high quality Level 1 study, ⁷ and more effective for improving condition of reddened heels in a low quality Level 2 study. ⁹ One low quality Level 4 study showed reductions in any heel pressure injuries of 43.8% and a 67% reduction in Category/Stage III or IV heel pressure injuries. ¹¹ Two low quality Level 4 studies ^{12,13} provided evidence supporting air filled heel elevation boots ¹² and low friction fabric heel elevation boots. ¹³				

Clinical question What heel repositioning interventions are effective in treating heel pressure injuries?

Good Practice Statement 6.3 **For individuals with a Category/Stage III or greater heel pressure injury, elevate the heels using a device specifically designed for heel suspension, offloading the heel completely in such a way as to distribute the weight of the leg along the calf without placing pressure on the Achilles tendon and the popliteal vein.**

Background: The posterior prominence of the heel sustains intense pressure, even when a pressure redistribution surface is used. Because the heel is covered with a small volume of subcutaneous tissue, mechanical loads are transmitted directly angular to the bone. Ideally, heels should be free of all pressure.

SUPPORTING EVIDENCE, WHEN AVAILABLE

Evidence to support the opinion (when available) N/A

Justification Pressure on Category/Stage III, IV, and unstageable heel pressure injuries should be completely offloaded as much as possible. Elevation of the heel on a pillow is usually inadequate.

Clinical question

What are effective local management strategies (e.g. skin care, prophylactic dressings) in preventing heel pressure injuries?

Recommendation 6.4

Use a prophylactic dressing as an adjunct to heel offloading and other strategies to prevent heel pressure injuries.

Option: A prophylactic dressing applied to the heel to prevent pressure injuries

Background: Prophylactic dressings appear to have a role in reducing friction and shear.

Comparison: A different type of prophylactic dressing or standard preventive care.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS										
BENEFITS & HARMS OF THE RECOMMENDED PRACTICE	What is the overall certainty of the evidence of effectiveness?	<table border="0"> <tr> <td>No included studies</td> <td>Very low</td> <td>Low</td> <td>Moderate</td> <td>High</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	No included studies	Very low	Low	Moderate	High	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Silicone foam dressings <i>Evidence for pressure injury incidence</i></p> <ul style="list-style-type: none"> In critically ill individuals (n=440), multi-layer soft silicone foam dressing plus a tubular bandage was associated with statistically significantly fewer heel pressure injuries compared to standard care (3.1% vs 12.5%, p=0.02) after a mean follow up of approximately 3.5 days.¹⁴ (Level 1, moderate quality) In trauma and critically ill individuals (n=302), a multi-layer soft silicone foam dressing plus a tubular bandage was associated with a statistically significantly lower incidence of heel pressure injuries compared with standard care only (0% vs 9.2%, p<0.001).¹⁵ (Level 3, high quality) <p><i>Other outcome measures</i></p> <ul style="list-style-type: none"> In healthy volunteers (n=50) there was a statistically significantly lower interface pressure associated with a silicone border foam dressing compared with no heel dressing (p<0.001).¹⁶ (Indirect evidence) <p>Polyurethane foam dressings <i>Evidence for pressure injury incidence</i></p> <ul style="list-style-type: none"> In older adults (n=111), a polyurethane foam hydrocellular dressing was associated with statistically significantly fewer heel pressure injuries compared to a protective bandage after 8 weeks (3.3% versus 44%, p<0.001).¹⁷ (Level 1, low quality) In individuals with orthopedic conditions requiring casting (n=156), use of a sterile polyurethane foam dressing in contact with the skin on the heel, under the cast, was associated with a reduction in Category/Stage I pressure injury incidence compared with no sterile polyurethane foam dressing in contact with the skin under the cast (relative risk [RR] 0.08, 95% confidence interval [CI] 0.02-0.33, number need to treat 3, 95% CI 3-4).¹⁸ (Level 3, moderate quality) <p>Polyurethane film <i>Evidence for pressure injury incidence</i></p> <p>In critical ill individuals (n=100), a transparent polyurethane film was associated with a statistically significantly lower incidence of heel pressure injuries compared with standard care only (6% vs 18%, p<0.001)¹⁹ (Level 2, low quality)</p> <p>Heel silicone pads <i>Other outcome measures</i></p> <p>In older adults (n=14), a silicone heel pad was associated with reduction in water content (edema) detected by a high definition ultrasound of the heel compared with non-silicone heel pad or no heel pad.²⁰ (Level 2, low quality)</p> <p>Potential adverse effects None reported</p> <p>Strength of Evidence: B1 – Level 1 studies of moderate or low quality providing direct evidence</p>
	No included studies	Very low	Low	Moderate	High								
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	Is there important uncertainty about how much people value the main outcomes?	<table border="0"> <tr> <td>Important uncertainty or variability</td> <td>Possibly important uncertainty or variability</td> <td>Probably no important uncertainty or variability</td> <td>No important uncertainty or variability</td> <td>No known undesirable outcomes</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability	No known undesirable outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>											
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No evidence available	
	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>										
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
	Is the option a priority for key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	72.1% (276/383) of respondents to a patient/ informal caregiver survey who identified as having experienced a pressure injury or being at risk of a pressure injury believed that knowing more about dressings is important or very important in caring for themselves. In the same survey, 67.2% (572/850) of informal caregivers believed that knowing more about dressings is important or very important in caring for their family member/friend with or at risk of a pressure injury ^{21,22} (<i>Level 5</i>).	
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Health professionals reported difficulty opening five layer foam dressings edges to perform skin inspections, particularly when wearing gloves¹⁵ (<i>Level 3, high quality</i>). Health professionals reported requiring a tubular bandage to maintain five layer foam dressings on the heel when the individual was agitated¹⁵ (<i>Level 3, high quality</i>). Prophylactic dressing may not be available in all clinical settings and geographic settings (<i>Expert opinion</i>). 	
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="checkbox"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="checkbox"/>	The balance between desirable and undesirable consequences <i>is closely balanced or uncertain</i> <input type="checkbox"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input type="checkbox"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input checked="" type="checkbox"/>
Strength of recommendation	Strong negative recommendation: Definitely don't it <input type="checkbox"/>	Weak negative recommendation: Probably don't do it <input type="checkbox"/>	No specific recommendation <input type="checkbox"/>	Weak positive recommendation: Probably do it <input type="checkbox"/>	Strong positive recommendation: Definitely do it <input type="checkbox"/>
Justification	The recommendation is supported by moderate ¹⁴ and low ¹⁷ quality Level 1 studies, and high ¹⁵ and moderate ¹⁸ quality Level 3 studies providing evidence on two different foam dressings designed for application to the heels and one low quality Level 2 study ¹⁹ providing evidence for a transparent polyurethane film. The different types of prophylactic foam dressings, a multi-layered soft silicone foam dressing ^{14,15} and a polyurethane foam dressing ^{17,18} were both associated with statistically significantly fewer heel pressure injuries than standard care that included either no prophylactic dressing ^{14,15,18} or gauze padding and bandage. ¹⁷ In both the Level 1 studies, the heel pressure injury incidence rate was around 3% when using either type of prophylactic foam dressing, ^{14,17} while the rate of pressure injuries using the polyurethane film was around 6%. ¹⁹				

Clinical question What are effective local management strategies (e.g. skin care, prophylactic dressings) in preventing heel pressure injuries?

1. *Vascular status*

Option: N/A **Background:** The posterior prominence of the heel sustains intense pressure, even when a pressure redistribution surface is used. It is unclear if there are specific factors related to the time it takes for healing to be achieved.
Comparison: N/A

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE PRACTICE	What is the overall certainty of the evidence?	N/A <input checked="" type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/>	<p>Factors prognostic for healing</p> <ul style="list-style-type: none"> In people with heel pressure injuries (n=140 with 183 pressure injuries), presence of a severe (full thickness) versus less severe (partial thickness) pressure injury was a significant factor for healing (hazard ratio [HR] 0.48, 95% CI 0.3-0.75 ,p=0.001).³ (Level 3 prognostic, low quality) In people with heel pressure injuries (n=140 with 183 pressure injuries), presence of peripheral arterial disease was a significant factor for healing (HR = 0.40, 95% CI 0.20-0.81,p=0.010).³ (Level 3 prognostic, low quality) <p>Strength of Evidence: B2 - Level 3 or 4 studies (regardless of quality) providing direct evidence</p>	
	Is there important uncertainty about how much people value the main outcomes?	Important uncertainty or variability <input type="checkbox"/> Possibly important uncertainty or variability <input type="checkbox"/> Probably no important uncertainty or variability <input type="checkbox"/> No important uncertainty or variability <input type="checkbox"/> N/A <input checked="" type="checkbox"/>		
	How substantial are the desirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>		
	How substantial are the undesirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>		
	Do the desirable effects outweigh the undesirable effects?	No <input type="checkbox"/> Probably No <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably Yes <input type="checkbox"/> Yes <input type="checkbox"/> N/A <input checked="" type="checkbox"/>		

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS												
RESOURCE USE	How substantial are the resource requirements?	<table border="0"> <tr> <td><i>Not clear</i></td> <td><i>Not substantial</i></td> <td><i>Probably not substantial</i></td> <td><i>Probably substantial</i></td> <td><i>Substantial</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>	<input type="checkbox"/>	N/A						
<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	N/A						
	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
	Is the option a priority for key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	N/A						
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	N/A						
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="checkbox"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="checkbox"/>	The balance between desirable and undesirable consequences <i>is closely balanced or uncertain</i> <input checked="" type="checkbox"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input type="checkbox"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="checkbox"/>
Strength of recommendation	We recommend against offering this option <input type="checkbox"/>	We suggest not offering this option <input type="checkbox"/>	We make no suggestion on offering this option <input type="checkbox"/>	We suggest offering this option <input type="checkbox"/>	We recommend offering this option <input type="checkbox"/>
Recommendation (text)	No recommendation				
Justification	Evidence from a low quality Level 3 prognostic study ³ showed that heel pressure injuries were less likely to heal when the individual had peripheral vascular disease, and when the pressure injury was a Category/Stage III or greater pressure injury.				

Clinical question What factors put individuals at risk for heel pressure injury development?

1. Heel anatomy

Option: N/A
Comparison: N/A

Background: The posterior prominence of the heel sustains intense pressure, even when a pressure redistribution surface is used. It is unclear if there are specific clinical factors that increase risk of heel pressure injuries.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE RECOMMENDED PRACTICE	What is the overall certainty of the evidence of effectiveness?	N/A <input checked="" type="checkbox"/> Very low <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/>	<p>Evidence for heel anatomy as a factor associated with pressure injuries</p> <ul style="list-style-type: none"> Finite element modeling provided evidence that the shape of the individual's calcanei influences the strain on muscles and tissue at the heel.²³ (<i>Indirect evidence</i>) <p>Potential adverse effects N/A</p> <p>Strength of evidence C</p>	
	Is there important uncertainty about how much people value the main outcomes?	Important uncertainty or variability <input type="checkbox"/> Possibly important uncertainty or variability <input type="checkbox"/> Probably no important uncertainty or variability <input type="checkbox"/> No important uncertainty or variability <input type="checkbox"/> N/A <input checked="" type="checkbox"/>		
	How substantial are the desirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>		
	How substantial are the undesirable anticipated effects?	N/A <input checked="" type="checkbox"/> Not substantial <input type="checkbox"/> Probably not substantial <input type="checkbox"/> Probably substantial <input type="checkbox"/> Substantial <input type="checkbox"/>		
	Do the desirable effects outweigh the undesirable effects?	No <input type="checkbox"/> Probably No <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably Yes <input type="checkbox"/> Yes <input type="checkbox"/> N/A <input checked="" type="checkbox"/>		

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS												
RESOURCE USE	How substantial are the resource requirements?	<table border="0"> <tr> <td><i>Not clear</i></td> <td><i>Not substantial</i></td> <td><i>Probably not substantial</i></td> <td><i>Probably substantial</i></td> <td><i>Substantial</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>											
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
PRIORITY AND ACCEPTABILITY	Is the option acceptable to key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>										
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
	Is the option a priority for key stakeholders?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
FEASIBILITY	Is the option feasible to implement?	<table border="0"> <tr> <td><i>No</i></td> <td><i>Probably No</i></td> <td><i>Uncertain</i></td> <td><i>Probably Yes</i></td> <td><i>Yes</i></td> <td><i>Varies</i></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
<i>No</i>	<i>Probably No</i>	<i>Uncertain</i>	<i>Probably Yes</i>	<i>Yes</i>	<i>Varies</i>											
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											

Balance of consequences	Undesirable consequences <i>clearly outweigh</i> desirable consequences in most settings <input type="checkbox"/>	Undesirable consequences <i>probably outweigh</i> desirable consequences in most settings <input type="checkbox"/>	The balance between desirable and undesirable consequences <i>is closely balanced or uncertain</i> <input checked="" type="checkbox"/>	Desirable consequences <i>probably outweigh</i> undesirable consequences in most settings <input type="checkbox"/>	Desirable consequences <i>clearly outweigh</i> undesirable consequences in most settings <input type="checkbox"/>
Strength of recommendation	Strong negative recommendation: Definitely don't it <input type="checkbox"/>	Weak negative recommendation: Probably don't do it <input type="checkbox"/>	No specific recommendation <input type="checkbox"/>	Weak positive recommendation: Probably do it <input type="checkbox"/>	Strong positive recommendation: Definitely do it <input type="checkbox"/>
Recommendation (text)	No recommendation				
Justification	Indirect evidence from laboratory modeling ²³ suggested that the shape of the individual's calcanei influences strain on muscle and tissue and therefore influences the risk of heel pressure injuries, but there is no clinical evidence to support this modeling.				

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