

Evidence to Decision Frameworks: Health Professional Education

Clinical question What valid and reliable assessment methods are available to evaluate health professional knowledge of pressure injury prevention and treatment?

Recommendation 21.1 **At the organizational level, assess the knowledge health professionals have about pressure injuries to facilitate implementation of education and quality improvement programs.**

Option: Assessing knowledge

Background: Evaluation of health professional education before and after education delivery provides an indication as to whether the intervention is successful. The pre-evaluation identifies quality improvement needs.

Comparison: No knowledge assessment

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS										
BENEFITS & HARMS OF THE PRACTICE	What is the overall certainty of the evidence?	<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 checked="" type="checkbox"/></td> <td><input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Evidence for reduction in pressure injury incidence/prevalence</p> <ul style="list-style-type: none"> In Belgian nursing home wards (n=11), a multi-faceted quality improvement program associated with a reduction in Category/Stage I to IV pressure injuries compared to standard care (7.1% versus 14.6%) included baseline and assessment of staff knowledge of pressure injuries.¹ (<i>Level 1, high quality</i>) In Australian acute and aged care (n=648 beds), a multi-faceted quality improvement program associated with a reduction in pressure injury point prevalence compared to standard care (7.1% versus 14.6%) included a baseline knowledge assessment.² (<i>Level 2, low quality</i>) In a US hospital, a multi-faceted quality improvement program associated with a reduction in pressure injury incidence and prevalence compared to standard care included baseline evaluation of staff understanding of pressure injury prevalence rates.³ (<i>Level 2, low quality</i>) In an aged care setting, a multi-faceted education program the content of which was based on a baseline evaluation of knowledge levels of health professionals was associated with a reduction in pressure injury incidence over 12 months (12.5% vs 6.8%, p=0.01).⁴ (<i>Level 2, low quality</i>). <p>Strength of Evidence: B1 - Level 1 studies of moderate or low quality providing direct evidence, Most studies have consistent outcomes and inconsistencies can be explained</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 checked="" type="checkbox"/></td> <td><input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
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How substantial are the desirable anticipated effects?	<table border="0"> <tr> <td>Unclear</td> <td>Not substantial</td> <td>Probably not substantial</td> <td>Probably substantial</td> <td>Substantial</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> </tr> </table>	Unclear	Not substantial	Probably not substantial	Probably substantial	Substantial	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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Do the desirable effects outweigh the undesirable effects?	<table border="0"> <tr> <td>No</td> <td>Probably No</td> <td>Uncertain</td> <td>Probably Yes</td> <td>Yes</td> <td>Varies</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> <td><input type="checkbox"/></td> </tr> </table>	No	Probably No	Uncertain	Probably Yes	Yes	Varies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	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"/>	There is no evidence available on the cost of this specific component of a quality improvement initiative. See previous recommendation for broad costs associated with quality improvement initiatives.	
<i>Not clear</i>	<i>Not substantial</i>	<i>Probably not substantial</i>	<i>Probably substantial</i>	<i>Substantial</i>	<i>Varies</i>											
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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>										
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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"/>	Assessment of health professional knowledge is feasible in most 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>											
<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 checked="" 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 checked="" type="checkbox"/>
Justification	The recommendation to assess staff knowledge to facilitate education and quality improvement programs is supported by three studies providing high quality Level 1 evidence ¹ and low quality Level 2 evidence. ^{2,3} In all three studies, ¹⁻³ knowledge survey results were used to develop organization-specific education interventions as a component of multi-faceted quality improvement programs that achieved reductions in pressure injury incidence. Additionally, one low quality Level 2 study ⁴ that demonstrated significant reduction in pressure injury incidence implemented a multi-faceted health professional education program that was based on the results of a knowledge assessment.				

Clinical question What interventions/programs are effective in attaining sustained improvements in health professional knowledge of pressure injury prevention and treatment?
 What interventions/programs are effective in attaining sustained improvements in health professional competency in pressure injury prevention and treatment?

Recommendation 21.2 At an organizational level, develop and implement a multi-faceted education program for pressure injury prevention and treatment.

Option: A multi-faceted education program

Comparison: No education program or another type of education

Background: A multi-faceted education program includes a range of educational components to reinforce education and meet the needs of health professionals with different levels of knowledge and different learning styles.

	CRITERIA	JUDGEMENTS	RESEARCH EVIDENCE AND ADDITIONAL CONSIDERATIONS
BENEFITS & HARMS OF THE RECOMMENDED PRACTICE	What is the overall certainty of the evidence of effectiveness?	No included studies <input type="checkbox"/> Very low <input type="checkbox"/> Low <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/>	<p>Evidence for reducing pressure injuries</p> <ul style="list-style-type: none"> In an aged care setting, a multi-faceted education program was associated with a reduction in pressure injury incidence over 12 months (12.5% vs 6.8%, p=0.01).⁴ (Level 2, low quality) In surgical and emergency room settings in China, a multi-faceted education program was associated with a reduction in pressure injury incidence over 2 years (0.07% vs 0.03%).⁵ (Level 2, low quality) In an aged care setting in Hong Kong, a multi-faceted education program was associated with a reduction in pressure injury incidence over 3 months (2.5% versus 0.8%).⁶ (Level 2, low quality) <p>Evidence for improvement in knowledge</p> <ul style="list-style-type: none"> In an aged care setting, a multi-faceted education program was associated with sustained improvement in health professional knowledge over 12 months, as indicated by mean increase in knowledge scores for enrolled nurse and registered nurses (both p<0.01).⁴ (Level 2, low quality) In surgical and emergency room settings in China, a multi-faceted education program was associated with sustained improvement in health professional knowledge over 2 years as indicated by score on a questionnaire (47% versus 81%, p<0.001).⁵ (Level 2, low quality) In an aged care setting in Hong Kong, a multi-faceted education program was associated with a short term improvement in health professional knowledge over 3 months as measured on modified Pieper and Mott's Knowledge Test (p<0.001).⁶ (Level 2, low quality) In acute care hospitals in Nigeria, a multi-faceted education program was associated with a short term improvement in health professional knowledge over 3 months as indicated by score on the Pressure Ulcer Knowledge Test (mean 32.5±42 versus mean 40.7±3.4, p<0.001).⁷ (Indirect evidence) <p>Evidence for improvement in competency</p> <ul style="list-style-type: none"> In an aged care setting, a multi-faceted education program was associated with an increase in competency over 12 months as demonstrated by: <ul style="list-style-type: none"> Increased time spent on wound prevention and care (p<0.001 for care workers, p<0.05 for enrolled nurses). Increased time spent repositioning (1.7mins/shift to 46mins/shift. p<0.01). Increased risk assessments conducted (p=0.03)⁴ (Level 2, low quality). In surgical and emergency room settings in China, a multi-faceted education program was associated with an increase in competency over 2 years as demonstrated by improved use of the Braden scale (60.02±22.9 versus
	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 checked="" type="checkbox"/> No important uncertainty or variability <input type="checkbox"/> No known undesirable outcomes <input type="checkbox"/>	
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	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 checked="" type="checkbox"/> Varies <input type="checkbox"/>	

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			<p>88.02±9.0, p<0.001).⁵ (<i>Level 2, low quality</i>)</p> <ul style="list-style-type: none"> In an aged care setting in Hong Kong, a multi-faceted education program was associated with an increase in competency at three months as demonstrated by higher score in observed pressure injury prevention skills (p=0.001).⁶ (<i>Level 2</i>) <p>Strength of Evidence: B2 - Level 2 studies of low quality providing direct evidence, Most studies have consistent outcomes and inconsistencies can be explained</p>	

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RESOURCE USE	How substantial are the resource requirements?	<table border="0"> <tr> <td>Not clear</td> <td>Not substantial</td> <td>Probably not substantial</td> <td>Probably substantial</td> <td>Substantial</td> <td>Varies</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>	Not clear	Not substantial	Probably not substantial	Probably substantial	Substantial	Varies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No evidence available	
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	No	Probably No	Uncertain	Probably Yes	Yes	Varies										
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No	Probably No	Uncertain	Probably Yes	Yes	Varies											
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No	Probably No	Uncertain	Probably Yes	Yes	Varies											
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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 checked="" 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 checked="" type="checkbox"/>
Justification	Three low quality Level 2 studies ⁴⁻⁶ demonstrated that a multi-faceted education program delivered to health professionals in a range of clinical and geographic settings was associated with a reduction in pressure injury incidence for 3 months, ⁶ 12 months ⁴ and 24 months. ⁵ Two of the low quality Level 2 studies ^{4,5} demonstrated sustained improvement in health professional knowledge about pressure injuries for 12 months or longer, and the fourth low quality study reported improvement in knowledge after three months. ⁶ A Level 5 study also demonstrated that a multi-faceted pressure injury education program improves knowledge level in the short term. ⁷ Additionally, all three low quality Level 2 studies ⁴⁻⁶ reported improvements in a measure of health professional competency was associated with the education programs, including increased time spent performing pressure injury prevention skills ^{4,6} and increased performance of risk assessment. ^{4,5} Indirect evidence also showed that the more recently an education session has been attended by the health professional, the more positive their attitudes are toward pressure injury prevention and treatment. ⁸ Patient individuals and their informal caregivers have identified the knowledge levels of their professional caregivers as being of high priority. ⁹				

References

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3. Baldelli P, Paciella M. Creation and implementation of a pressure ulcer prevention bundle improves patient outcomes. *Am J Med Qual*, 2008; 23(2): 136-142.
4. Price K, Kennedy KJ, Rando TL, Dyer AR, Boylan J. Education and process change to improve skin health in a residential aged care facility. *International Wound Journal*, 2017.
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6. Kwong E, Lau A, Lee R, Kwan R. A pressure ulcer prevention programme specially designed for nursing homes: does it work? *J Clin Nurs*, 2011; 20(19/20): 2777-2786.
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