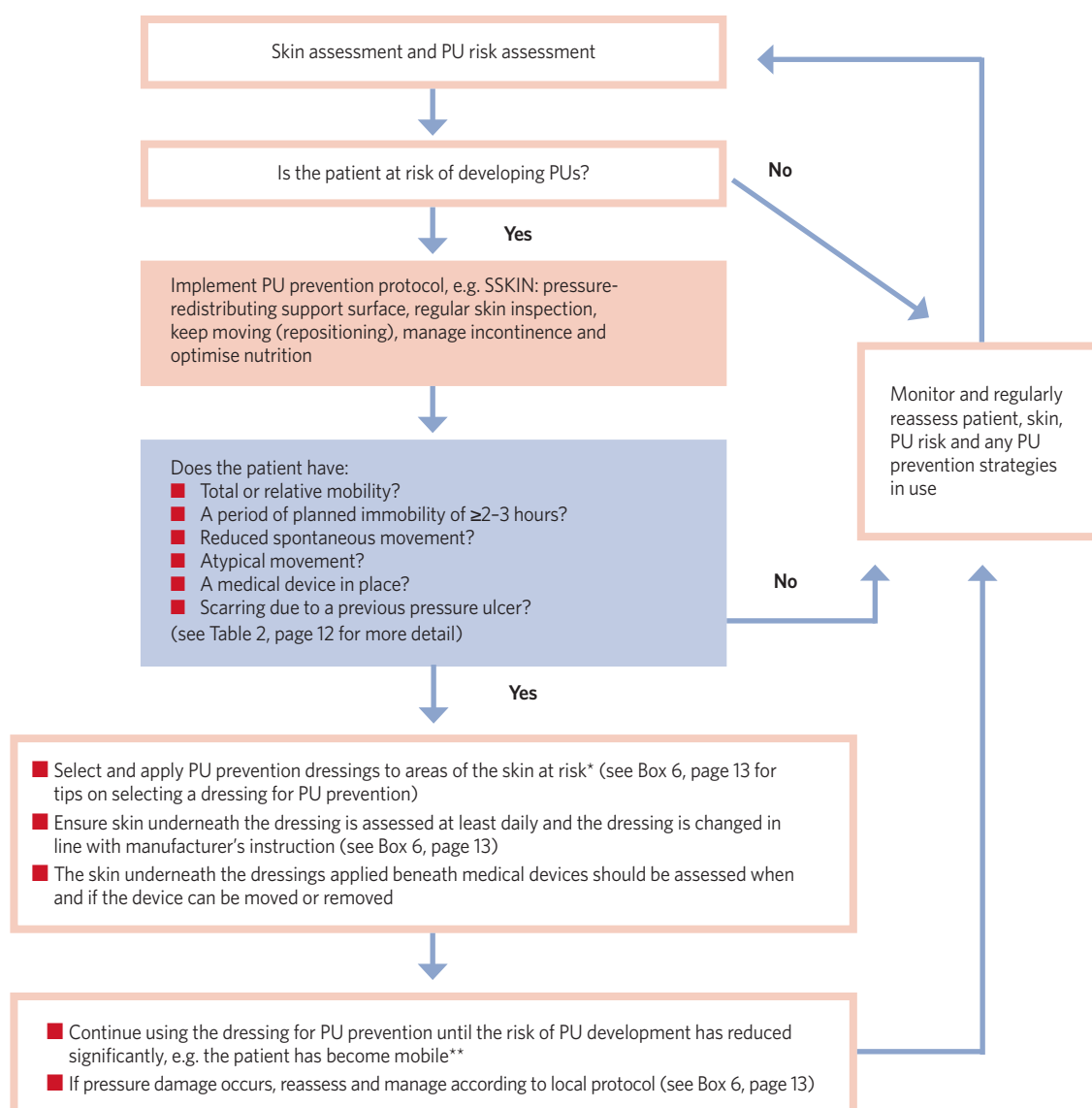


device and increasing pressure on the skin below. Film dressings may be useful when friction is a particular problem<sup>[68]</sup>; foam dressings may reduce pressure and absorb moisture<sup>[14]</sup>.

**EVIDENCE** Several types of dressing for PU prevention have been evaluated in a range of different types of clinical studies (Table 3, page 15). Studies have evaluated the impact of dressings on the occurrence of PUs at a range of anatomical sites, and others have examined the impact on medical device-related PUs.

Many of the studies have been conducted in critically ill patients in emergency departments or intensive care units (ICUs). Dressing types that have been evaluated include foams, hydrocolloids and polyurethane films<sup>[1,2]</sup>. The sacrum and heels have been the sites most commonly investigated.

**Figure 4 | Algorithm for the use of dressings for PU prevention**



\*Body sites on which dressings for PU prevention have been investigated include sacrum, heels and trochanters. However, application of a suitable dressing to another anatomical site at risk of pressure damage may be considered

\*\*N.B According to patient risk and local protocol, other PU prevention strategies should be continued when the dressing is discontinued

**Table 3 | Clinical studies of dressings in PU prevention**

Healthcare setting	Dressing(s)	Anatomical site	Reference	Study design	Key outcomes
<b>Randomised controlled trials</b>					
ED/ICU	Soft silicone foam*	Sacrum Heels	Santamaria et al, 2015 <sup>[15]</sup>	RCT (n=440): dressing to sacrum and heels plus standard PU prevention vs standard PU prevention	Overall, fewer patients developed a PU in the dressing group: 3.1% vs 13.1%; (p=0.001) Number needed to treat =10 Fewer heel (3.1% vs 12.5%; p=0.002) and sacral (1.2% vs 5.2%; p=0.05) PUs developed in the foam dressing group
ICU, CCU, medical ward	Hydrocolloid or polyurethane film	Sacrum and trochanters	Dutra et al, 2015 <sup>[77]</sup>	RCT (n=160): hydrocolloid vs film	Incidence of PUs was significantly lower in the film group (8.7%) than in the hydrocolloid group (15%) (p=0.038)
ICU	Soft silicone foam*	Sacrum	Kalowes et al, 2012 <sup>[76]</sup>	RCT (n=367): dressing plus standard PU prevention vs standard PU prevention	PU incidence was significantly lower in the group that received the dressing: 1/184 vs 7/183; p=0.001
Surgical ICU	Soft silicone foam or hydrocolloid	Sacroccygeal area	Tsao et al, 2013 <sup>[78]</sup>	RCT (n=90): hydrocolloid vs foam vs standard care	Incidence of PUs was lowest in the foam group (0%): hydrocolloid group 13.3%; standard care 23.3%
OR	Composite polyurethane film/foam	Areas at risk during posterior spinal surgery	Han et al, 2011 <sup>[79]</sup>	RCT (n=100): dressing versus standard care	At endpoint (72 hours) significantly fewer patients in the dressing group had developed a PU vs the standard care group (p=0.05)
Acute care	Soft silicone foam with or without border*	Sacrum, hip and heels	Qiuli & Qiongyu, 2010 <sup>[80]</sup>	RCT (n=52): dressing plus standard PU prevention vs standard PU prevention	Incidence of PUs was lower in dressing group: 0% (0/26) vs 11.5% (3/26)
Nursing homes and primary care	Hydrocellular or gauze dressing	Heels	Torra i Bou et al, 2009 <sup>[81]</sup>	RCT (n=130): dressing was applied randomly to one trochanter; the other was the control	Incidence of PUs was lower in the hydrocellular group (3% vs 44%; p<0.001)
Geriatric hospital	Composite hydrocolloid/ film/ nylon fibre	Trochanter	Nakagami et al, 2007 <sup>[82]</sup>	RCT (n=37): dressing was applied randomly to one trochanter; the other trochanter was the control	Incidence of persistent erythema was significantly lower on the dressing side (p=0.007); no PUs occurred on either side
<b>Non-randomised trials</b>					
ICU	Soft silicone foam*	Heels	Santamaria et al, 2015 <sup>[83]</sup>	Non-randomised (n=191): dressing vs historical control of standard PU preventive care	Incidence of PUs was significantly lower in the dressing group: 0% vs 9.2% (p<0.001)
ICU	Soft silicone foam*	Sacrum	Park, 2014 <sup>[84]</sup>	Non-randomised (n=102): dressing plus standard care vs standard care	Incidence of PUs was significantly lower in dressing group: 6% vs 46% (p<0.001)
ED/ICU	Soft silicone foam*	Sacrum	Brindle & Wegelin, 2012 <sup>[85]</sup>	Non-randomised (n=100): dressing plus standard PU prevention vs standard PU prevention	Fewer PUs developed in the dressing group than did in the control group: 2% vs 11.4% (p=0.058)
ICU	Soft silicone foam*	Sacrum	Chaiken, 2012 <sup>[86]</sup>	Non-randomised (n=273): dressing vs historical control of previous care (n=291)	Sacral PU prevalence before study: 12.3% PU incidence during study: 1.8%
ICU	Soft silicone foam*	Sacrum	Walsh et al, 2012 <sup>[87]</sup>	Non-randomised (n=62): dressing vs historical control of previous care	PU incidence was lower after introduction of the dressing: 12.5% vs 4.8%
ED/medical ward	Soft silicone foam*	Sacrum	Cubit et al, 2012 <sup>[88]</sup>	Non-randomised (n=109): dressing vs historical control of previous care	PU incidence was lower in dressing group (1/51 vs 6/58); the historical controls were 5.4 times more likely to develop a PU than the dressing group
Medical and surgical ICUs/other units	Soft silicone foam*	Sacroccygeal region	Koerner et al, 2011 <sup>[89]</sup>	Non-randomised prospective (n=not stated): phase I in ICUs; phase II following patients in rest of hospital	Phase I 0% incidence of PUs; previously 20% surgical ICU and 40% medical ICU
Cardiovascular ICU/ Critical Care unit	Soft silicone foam*	Sacrum	Cano et al, 2011 <sup>[90]</sup>	Non-randomised (n=166)	Only one patient developed a sacral PU. This was reduction compared with PU rates prior to the study
ICU	Soft silicone foam*	Sacrum	Brindle, 2009 <sup>[91]</sup>	Non-randomised (n=93): dressing plus standard PU prevention vs standard PU prevention	PU incidence was lower in dressing group (0% vs 6%)
*Mepilex Border Sacrum (5 layer) or Mepilex Heel (3 layer) as appropriate for anatomical site					
<b>Medical devices</b>					
Paediatric hospital	Foam dressing (Mepilex Ag)	Tracheostomy sites	Kuo et al, 2013 <sup>[92]</sup>	Retrospective study (n=134): dressing vs no dressing	No skin breakdown occurred in the dressing group (0/41) vs 11/93 (11.8%) in the control group (p=0.02)
Paediatric ICU	Thin foam dressing (Mepilex Lite)	Tracheostomy sites	Boesch et al, 2012 <sup>[93]</sup>	Non-randomised with historical controls (n=834)	PU incidence was lower after introduction of a PU prevention bundle that included the foam dressing: 0.3% vs 8.1%
Respiratory ward	Soft silicone foam dressing (Mepilex) or hydrocolloid	Face	Hsu et al, 2011 <sup>[94]</sup>	Non-randomised (n=30): standard care plus foam or hydrocolloid vs standard care alone	PU incidence was lowest in the foam dressing group: 0/13 foam dressing; 2/11 control group; 4/6 hydrocolloid group
Not stated	Soft silicone foam (Mepilex) plus standard PU preventive measures	Face under non-invasive positive pressure ventilator masks	Hsu et al, 2010 <sup>[95]</sup>	Non-randomised (n= not stated): foam vs previous care (hydrocolloid)	PU incidence was lower in foam group vs historical group: 0.9% vs 5.9%
OR	Soft liner with hydrocolloid	Nose – nasotracheal intubation	Huang et al, 2009 <sup>[96]</sup>	Non-randomised (n=18): dressings vs no dressings	40% of patients in the dressing group did not develop a PU; all of the patients in the control group developed a PU
Medical and cardiac ICUs	Hydrocolloid or polyurethane film	Face – non-invasive positive pressure ventilation masks	Weng, 2008 <sup>[97]</sup>	Non-randomised (n=90): hydrocolloid vs film vs standard care	PU incidence was significantly lower in the hydrocolloid and film groups than in the control group (p<0.01)
Abbreviations ED: emergency department; CCU: coronary care unit; ICU: intensive care unit; OR: operating room; RCT: randomised controlled trial					