

Hospital mattresses lifespan and comfort

Ida Marie Bredeesen

RN, PhD

Division of Orthopedic Surgery, Oslo
University Hospital

Dep. of Nursing and Health Sciences,
University of South-Eastern Norway



Conflict of interest

- No conflict of interest
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Background

- Patients at risk of pressure ulcers should have a better mattress than a standard hospital mattress (EPUAP/NPIAP/PPPIA, 2019; McInnes et al., 2015, 2018)
- No evidence to conclude type of mattress (McInnes et al., 2015, 2018)
- Wear and tear of mattresses

Purpose

- Investigate a sample of one hospital's standard and pressure redistribution mattresses
 - Interface pressure
 - Comfort and mobility level



Methods

- Descriptive comparative study
- One hospital
 - Approved by the hospital's privacy protection officer
- 20 healthy volunteers, written informed consent
- 10 minutes in flat supine position on five different mattresses in random order (three standard and two viscoelastic with a variety of years in use)



- Variables/measures
 - Participants characteristics (age, sex, height/weight, temp, blood pressure, oxygen sat)
 - Room temp
 - Interface pressure (mmHg)
 - Sensing area (cm²)
 - Comfort and mobility level

Results

- Age range 25-64
- Weight range 55-113 kg
- Height range 161-187 cm
- BMI range 19.1 to 36.2

Variable	Mattress	Mean	SD	Min	Max	Sign
Mean interface pressure (cmHg)	Standard 2011	35.76	7.22	24.42	49.95	2011
	Standard 2014	38.37	7.43	27.95	52.89	
	Standard 2018	39.13	7.82	28.55	47.89	
	Viscoelastic old	30.28	7.95	20.19	46.48	
	Viscoelastic new	31.50	7.36	27.95	52.89	
Number of cells of 100 mm ²	Standard 2011	129.30	78.96	42	385	2011
	Standard 2014	141.25	57.54	68	257	
	Standard 2018	128.20	62.43	56	253	
	Viscoelastic old	100.20	67.64	12	231	
	Viscoelastic new	94.25	69.21	10	255	

Bredesen, 2020, Part of Table 2, page 7

- Comfort
 - 75 % good/very good for both viscoelastic mattresses
 - Lowest for the standard mattress from 2011
- Ability to move with ease
 - Greatest for all standard mattresses
- Function of mattresses differed according to weight alone and BMI

Limitations

- One hospital
- Small sample, healthy volunteers
- One mattress from each year
- Supine position only
- No measure for bottoming out, hand compression, envelopment/immersion or microclimate
- Other body morphology measurements could have been included

Conclusion

- Older compact foam mattresses were less comfortable and had higher interface pressure compared to a new type of standard mattress and viscoelastic foam mattresses

Take home message

- Risikovurdering
 - Type madrass
 - Obs vekt
- Sjøkk kvalitet
 - Rifter, hull
 - Antall år i bruk
- Stillingsendring uansett type madrass
 - Individuelt regime



Referanser

- EPUAP/NPIAP/PPPIA, 2019. Prevention and treatment of pressure ulcers/injuries. Clinical practice guideline. EPUAP/NPIAP/PPPIA
- McInnes et al., 2015. Support surfaces for pressure ulcer prevention. Cochrane Database Syst Rev.
- McInnes et al., 2018. Support surfaces for treating pressure ulcers. Cochrane Database Syst Rev.
- Bredeken, IM, 2020. Interface pressures of new and worn standard and viscoelastic hospital mattresses: a comparative study. Wound Management & Prevention, 66(8), p. 26-31.