

Pressure management – Innovation and service delivery in Wales

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Pressure Ulcer Prevention and Intervention Service

Rehabilitation Engineering, Medical Physics & Clinical Engineering,
Swansea Bay University Health Board, NHS Wales



Introduction

A poster for the 36th International Seating Symposium. The top left features the logo for Sunny Hill Health Centre for Children. The central text reads "the 36th INTERNATIONAL SEATING SYMPOSIUM Across the Lifespan". Below this is a photograph of an elderly man in a wheelchair being assisted by a young boy on a golf course. The dates "MARCH 3 - 6, 2020" and the location "THE WESTIN BAYSHORE VANCOUVER, BC, CANADA" are listed. At the bottom, it says "PRESENTED BY Interprofessional Continuing Education" with the Sunny Hill logo. The website "www.seatingsymposium.com" is at the bottom left.

SUNNY HILL
HEALTH CENTRE
FOR CHILDREN

the 36th
**INTERNATIONAL
SEATING
SYMPOSIUM**
Across the Lifespan

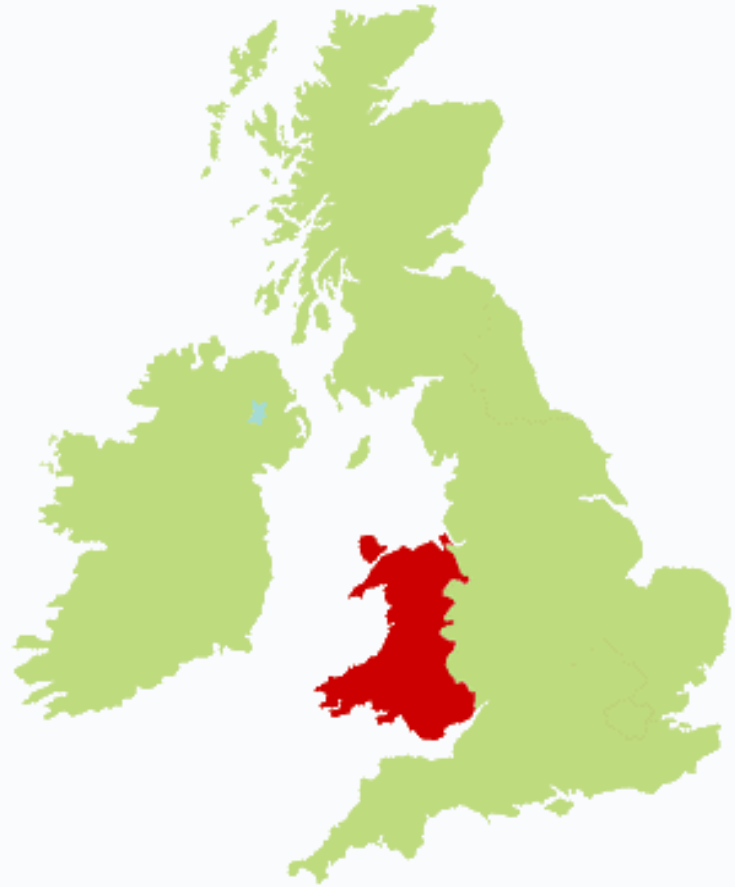
MARCH 3 - 6, 2020

THE WESTIN BAYSHORE
VANCOUVER, BC, CANADA

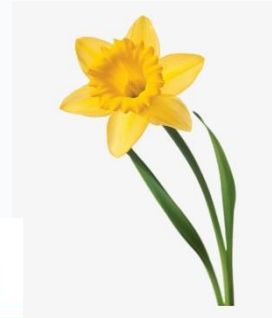
PRESENTED BY
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Introduction



Wales



Introduction



Swansea



Introduction

Swansea



PUPIS (Pressure Ulcer Prevention & Intervention Service)

Clinical Nurse Specialists

+

Rehabilitation Engineers / Healthcare Scientists



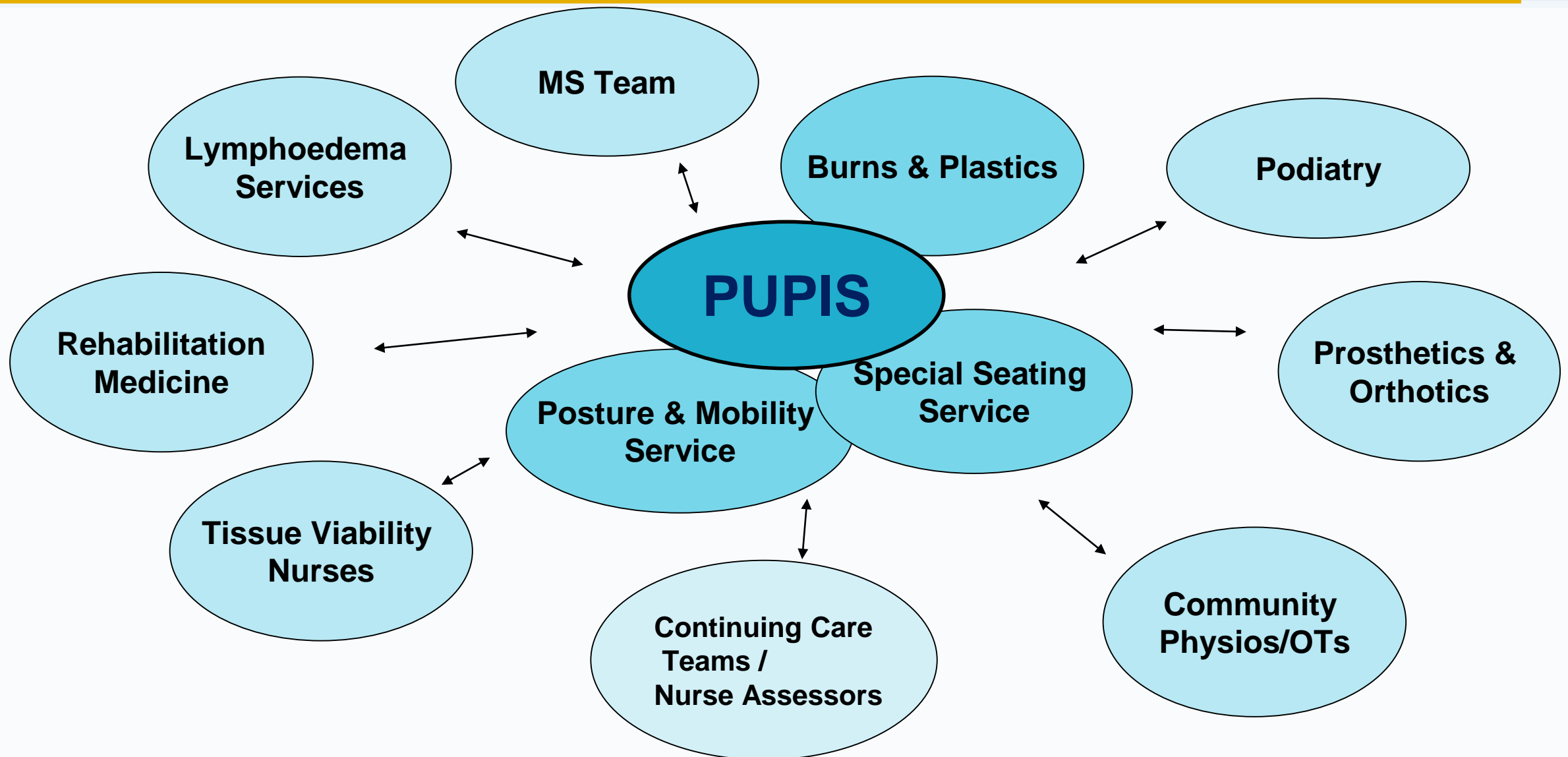
- Holistic / person-specific
- Multi-disciplinary
- Practical



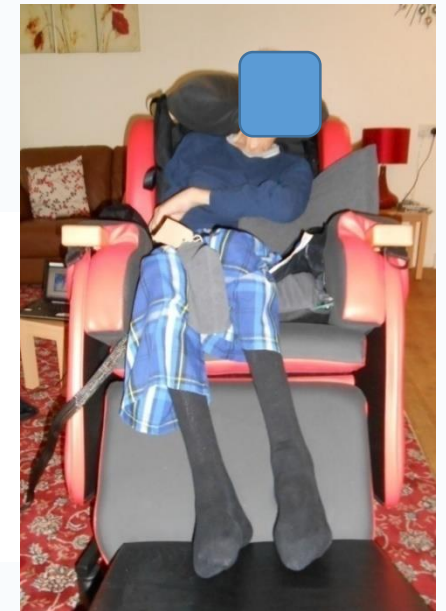
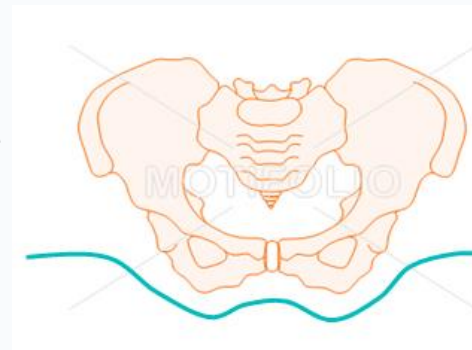
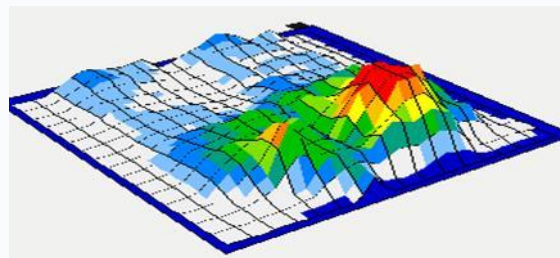
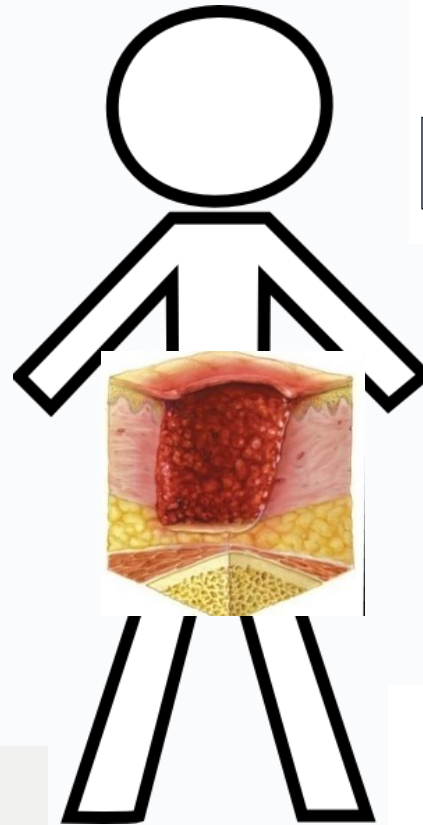
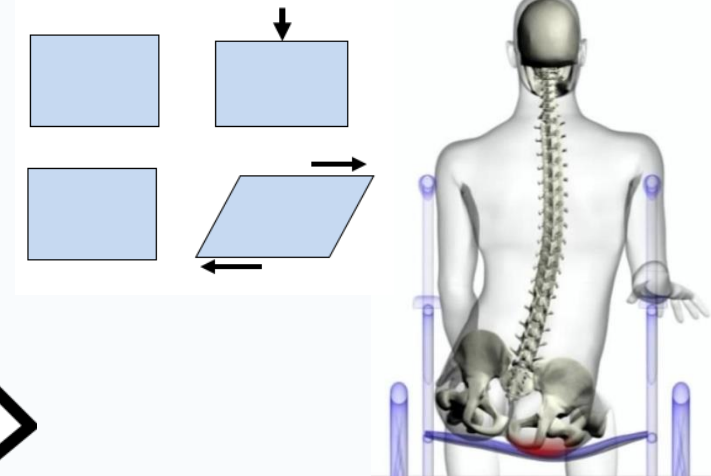
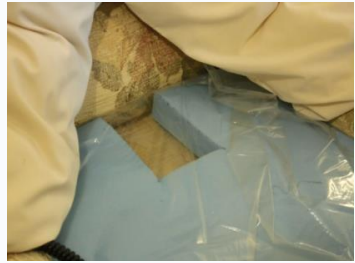
- Community referrals for persistent pressure ulcers / complex patients

- Facilitate timely healing
- Reduce hospital admission
- Prevent re-occurrence

Co-working / streamlining care



Physical problem, physical solutions



Who's role is pressure ulcer prevention?

Nurse?

Carer?

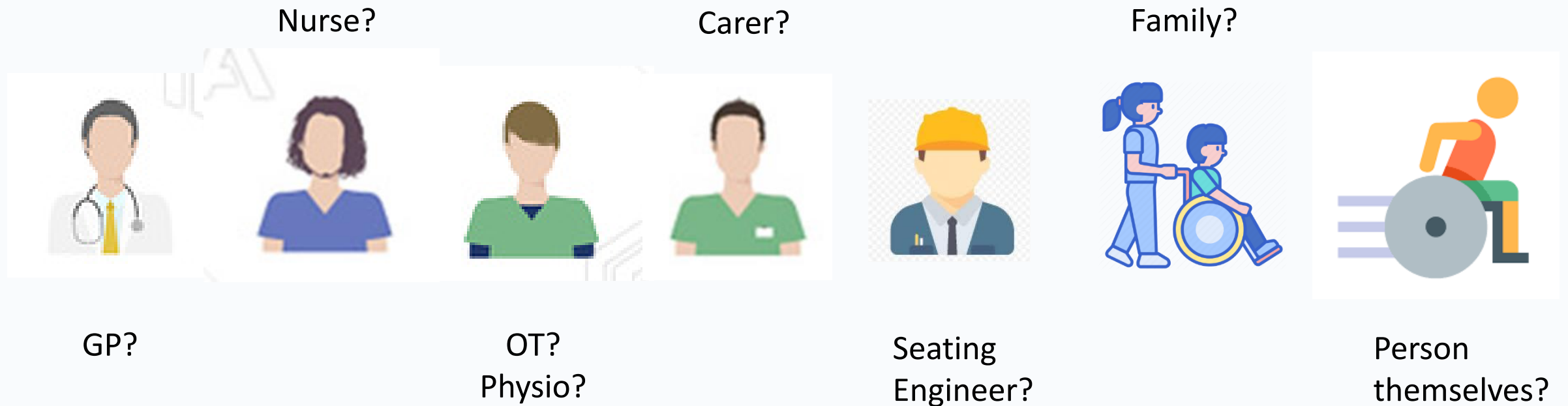
Family?

GP?

OT?
Physio?

Seating
Engineer?

Person
themselves?

A horizontal row of seven icons, each representing a different professional or role. From left to right: 1. A General Practitioner (GP) wearing a white coat and a stethoscope. 2. A Nurse in blue scrubs. 3. An Occupational Therapist (OT) or Physiotherapist in green scrubs. 4. A Carer in green scrubs. 5. A Seating Engineer wearing a yellow hard hat and a dark suit. 6. A Family caregiver, shown as a woman in blue scrubs pushing a person in a wheelchair. 7. A person in a wheelchair, shown as a person in an orange shirt sitting in a wheelchair.

Pressure ulcer care

↓ Pressure

Support surfaces

Equipment set-up

Surface area

(Friction / Shear)

NON-MEDICAL

↓ Time

Little and often movements

Mobility when possible

Routine change of surface/set-up

(Active equipment)

↑ Tissue tolerance

Diet

Moisture

Circulation

Medication

Infection

MEDICAL

↑ Wound management

Wound dressing

Ointments

Negative pressure therapy

(Surgical closure)

What do we mean by 'complex' patients?

Physical

- Muscle atrophy
- Contractures
- Spinal asymmetry
- Immobility
- (Mobility?!)

Personal

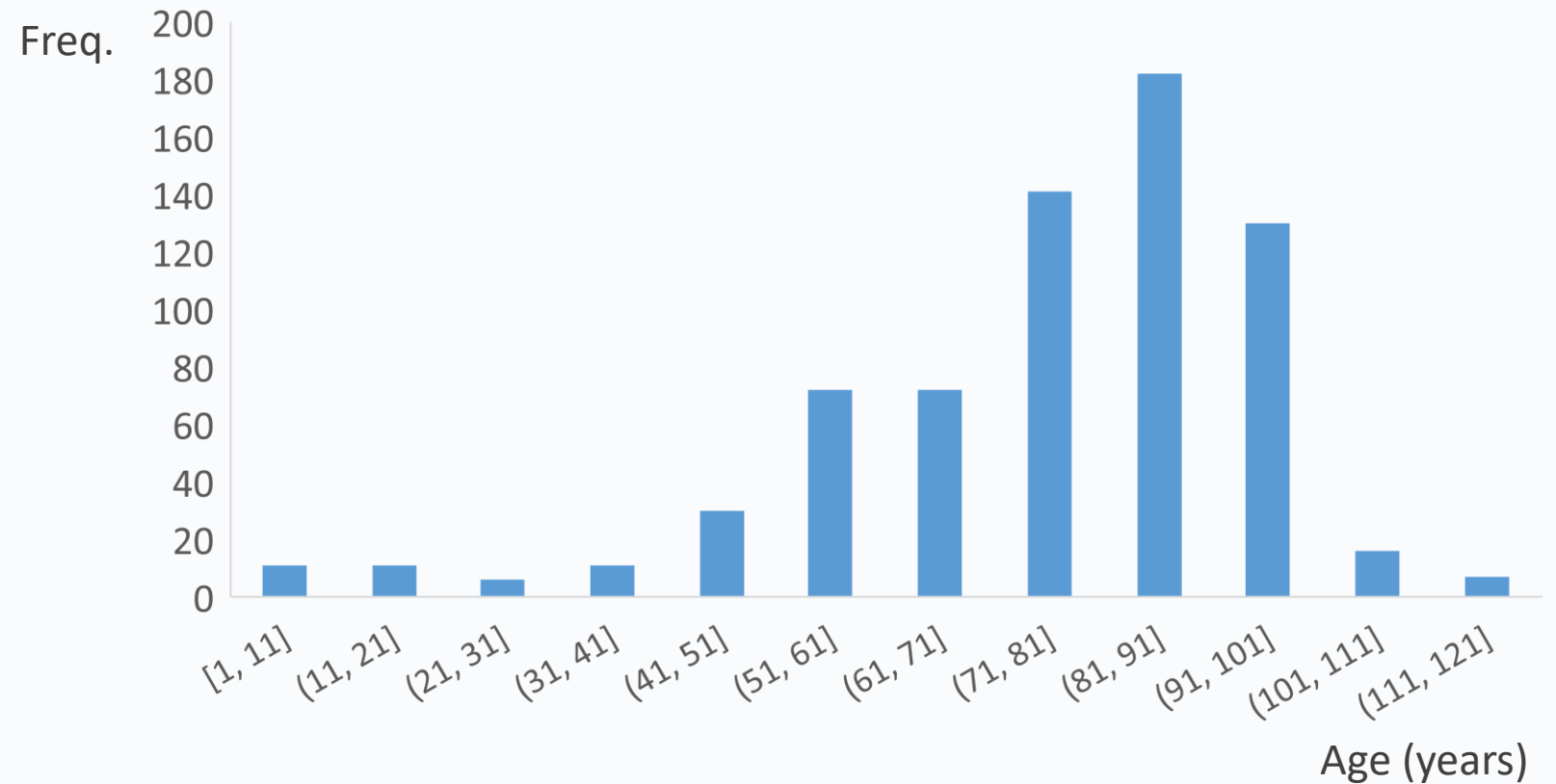
- Frail/elderly
- Mental health barriers
- Dementia
- Lifestyle priorities

Situational

- Live alone
- Care home
- Funding

Elderly

- Age (n=696) 2015-2019 PUPIS assessments
 - 68% over 70 years



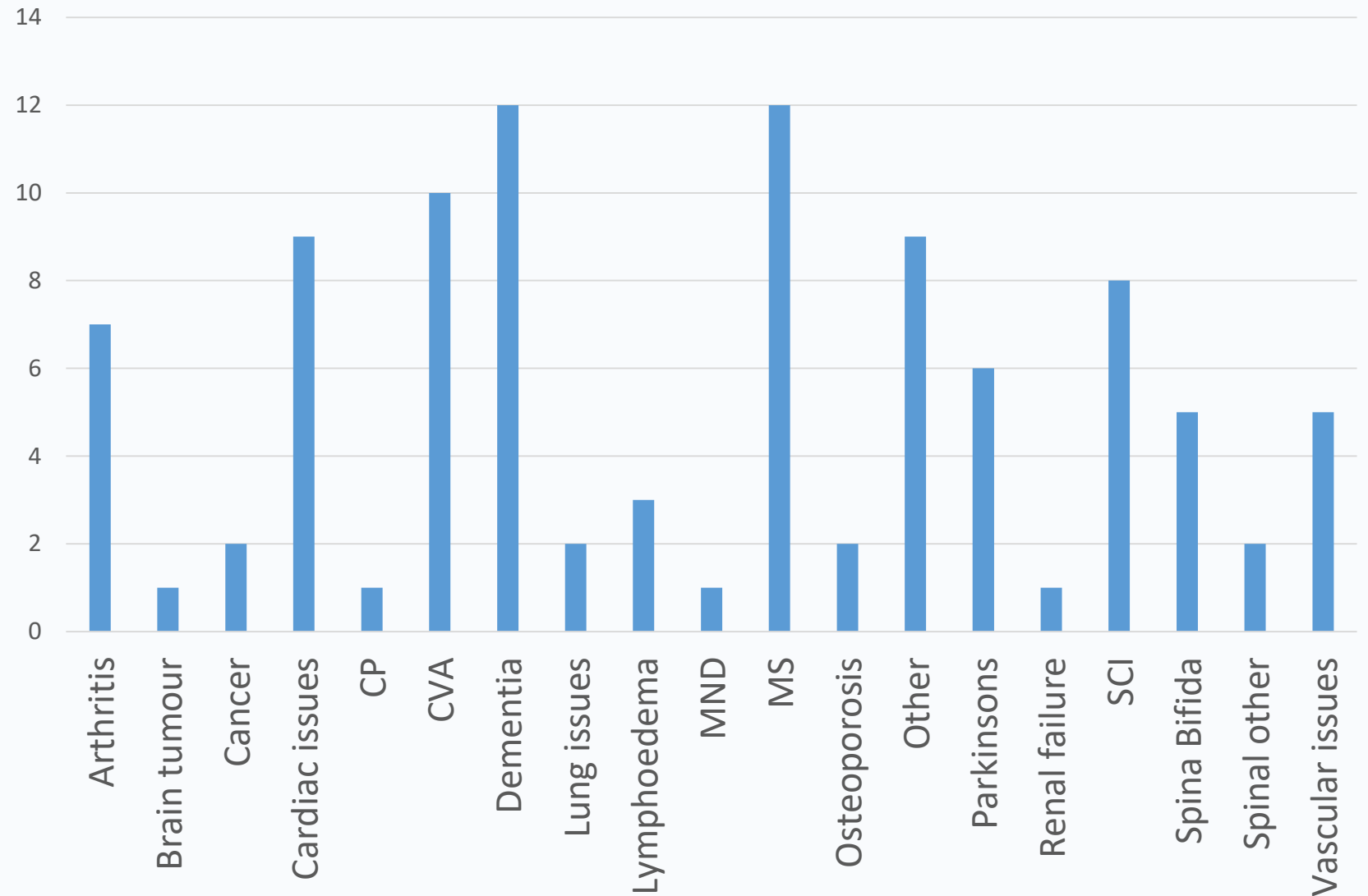
Primary diagnosis (n=98) PUPIS assessments 2019

Primary diagnosis:

- 15% Spinal issues
- 12% MS
- 10% Stroke / TIA

Mentioned at assessment:

- 22% Dementia
- 10% Mental Health issues

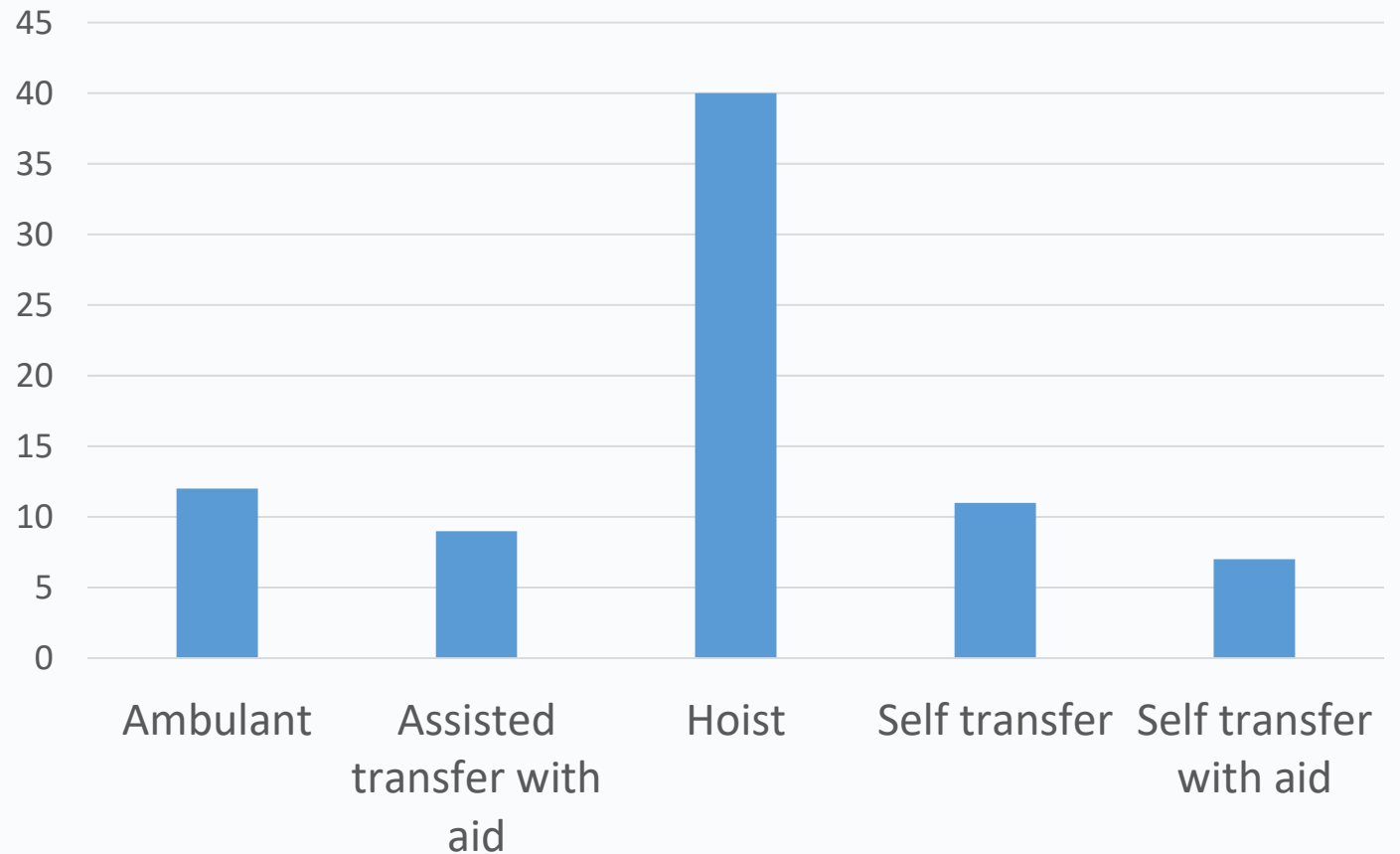


Transfer method

- Transfer method (n=98) PUPIS assessments 2019

- 41% Hoisted

- 50% Require assistance



Immobility

- Sitting time (n=115) 2019 PUPIS assessments
 - ❑ 43% not sitting out of bed at all
 - ❑ 53% sitting out for 2 hours or less
- Why is sitting out important?
 - Quality of life – social interaction, routine
 - Mental health
 - Circulation
 - Respiration
 - Eating and digestion
 - Infection – pneumonia, UTI
 - Prevent muscle atrophy & contractures
 - Pressure distribution?

CASE STUDY – Mr RP



CASE STUDY – Mr RP



2 weeks post botulinum toxin
(hip adductors and hamstrings)



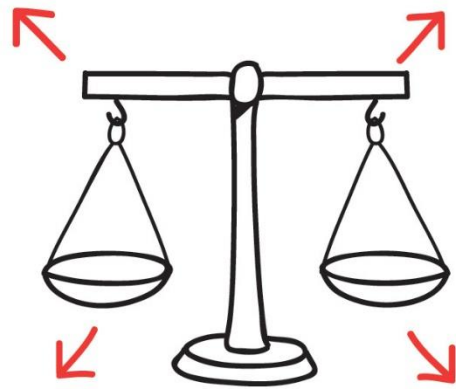
4 weeks post botulinum toxin
- with bespoke foam supports

Lifestyle

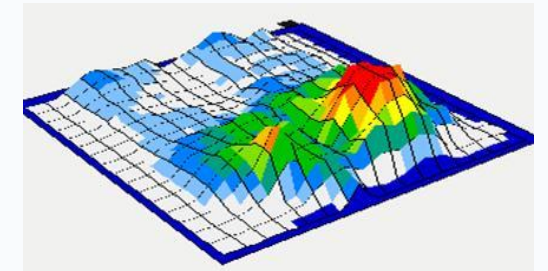
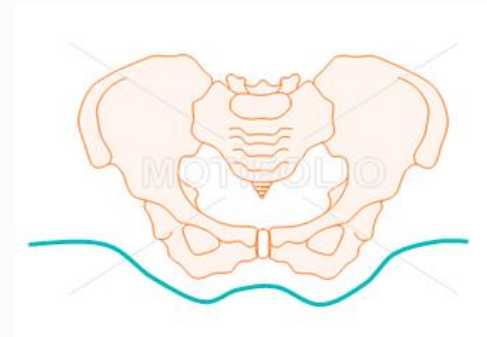
- Active wheelchair users



Lifestyle
Mobility
Activity
Wellbeing



Pressure
ulcer risk



Where's the pressure?



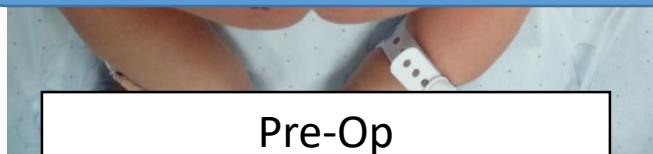
...

CASE STUDY – Miss SLW

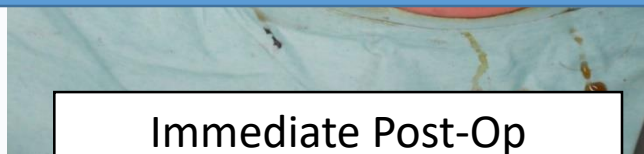
- Double Rhomboid Flap Skin Closure (ref Nick Wilson-Jones)



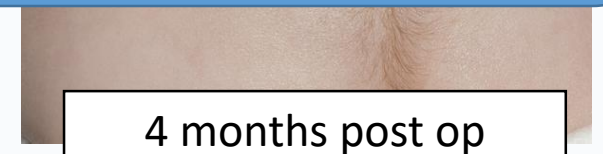
Warning – surgical images



Pre-Op



Immediate Post-Op



4 months post op

CASE STUDY – Miss SLW

- Surfaces...



CASE STUDY – Miss SLW

- Surfaces...

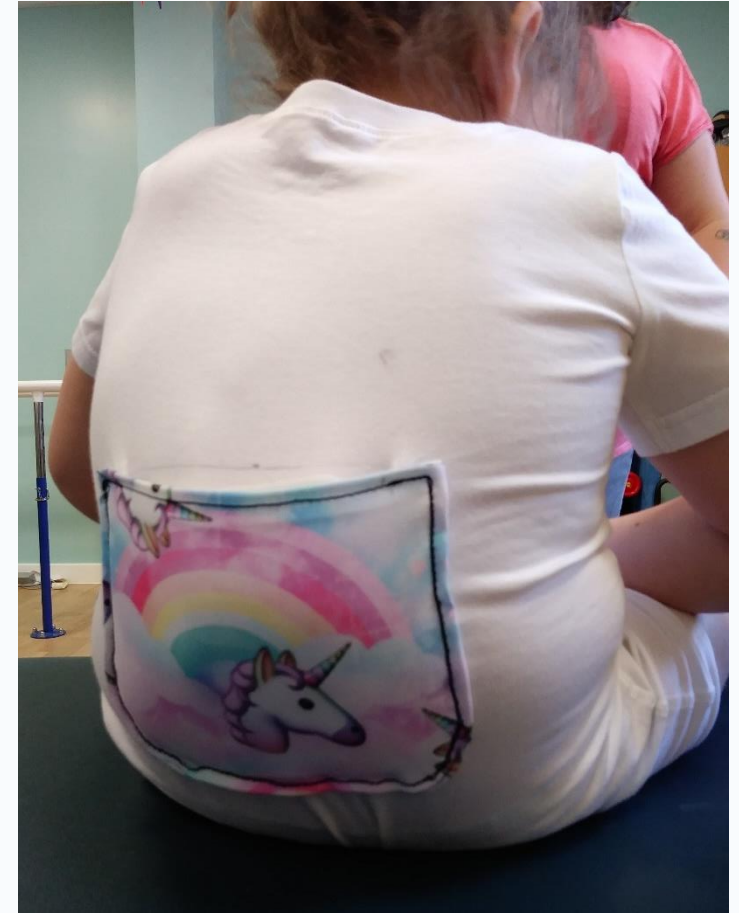


CASE STUDY – Miss SLW

- Surfaces...

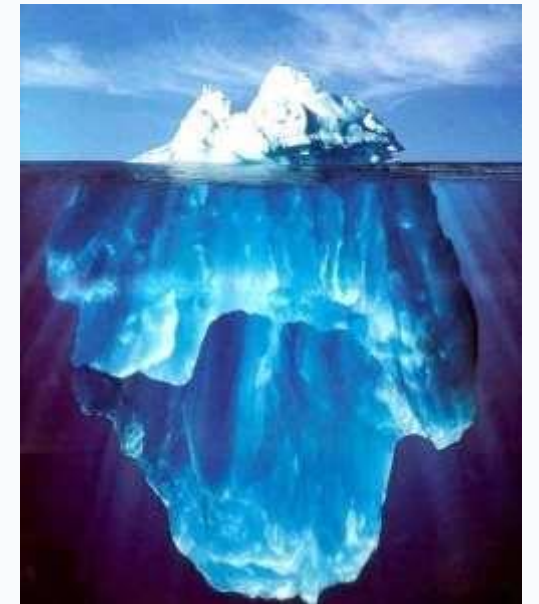
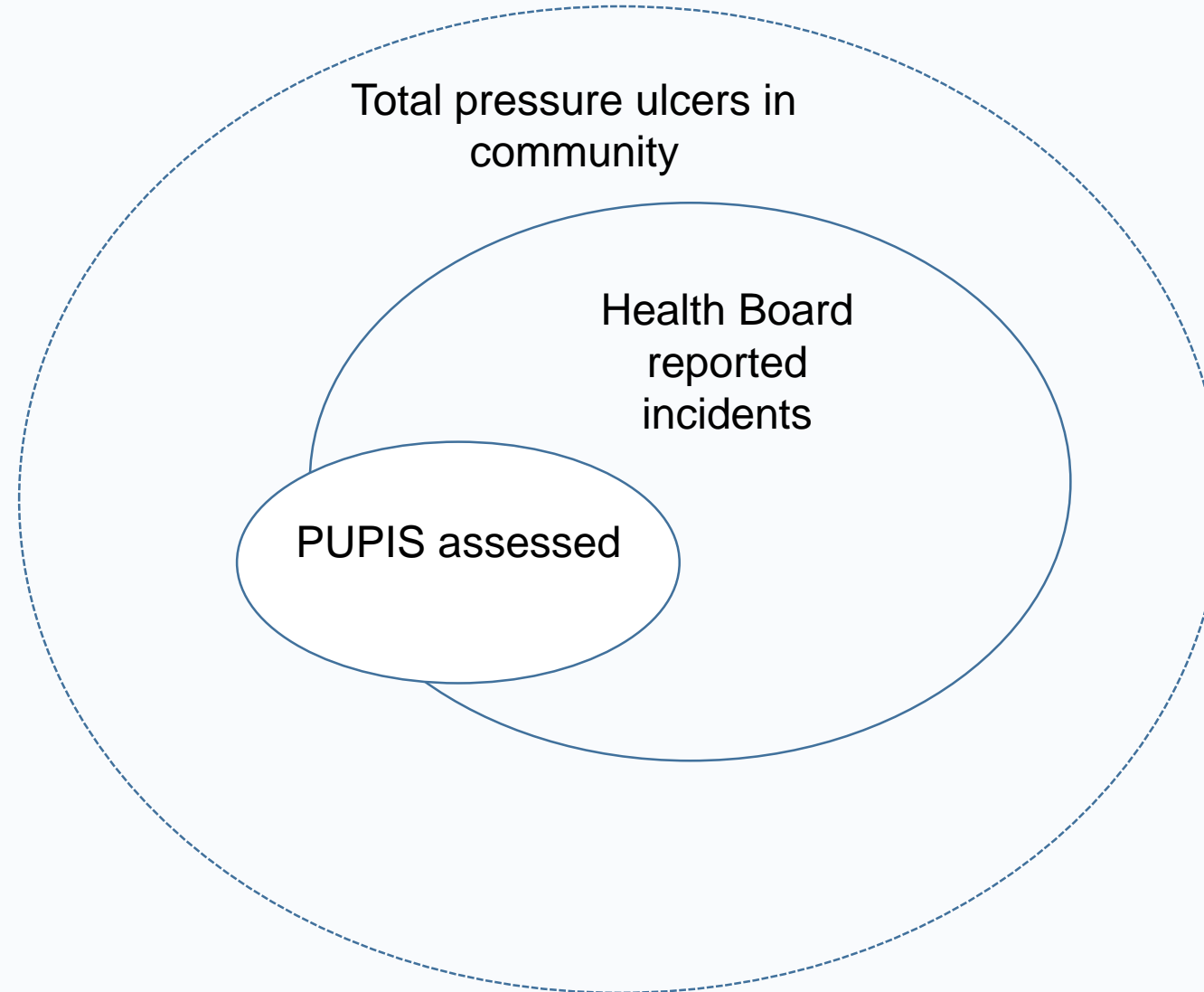


CASE STUDY – Miss SLW

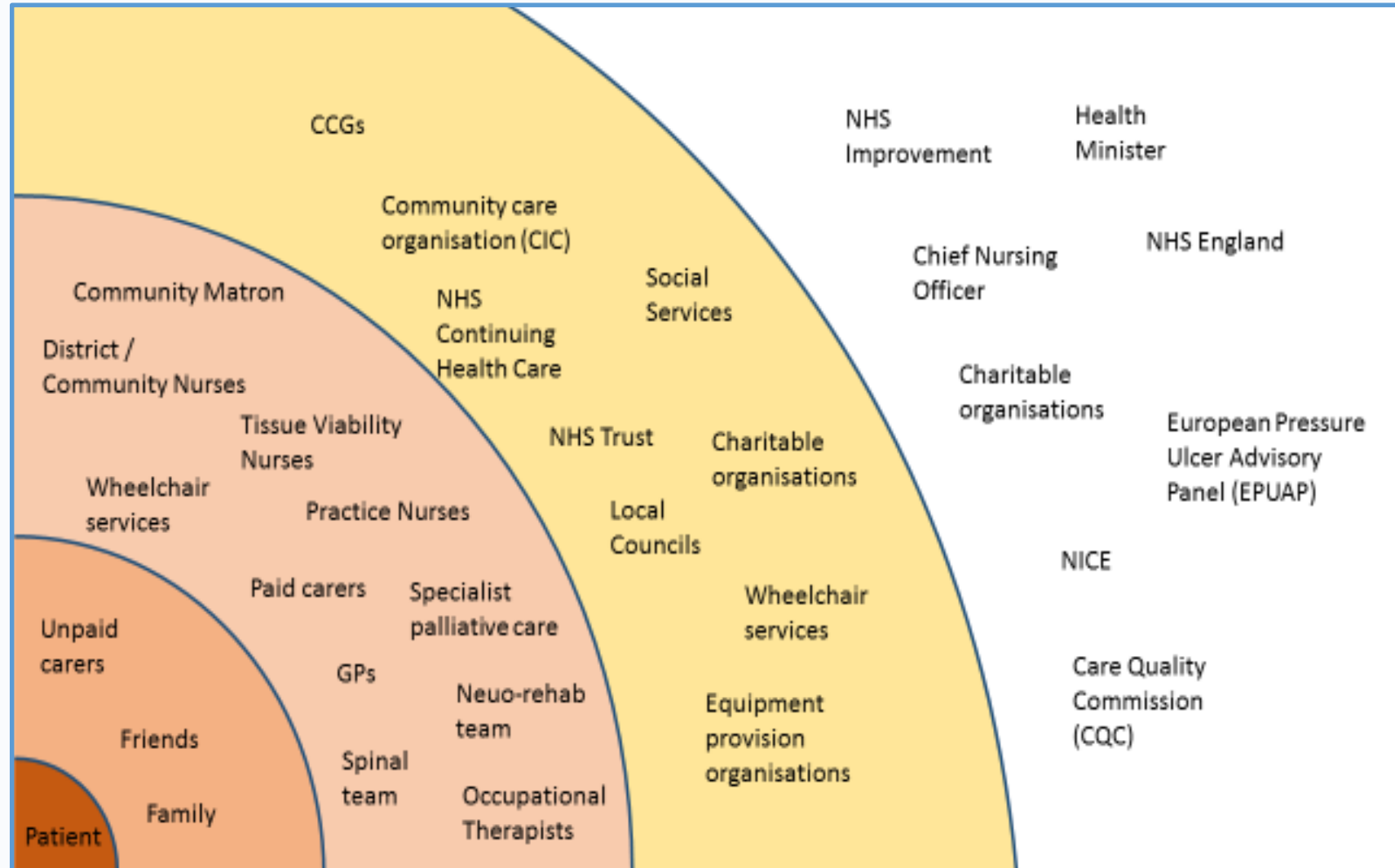


→ Pressure Protection for Children with Vulnerable Spines

The unseen pressure ulcers



Spheres of influence



Engaging, Empowering, Equipping

- Training
- Equipment contracts
- Leaflets
- Videos
- Online / mobile resources
- Best Practice Guidelines



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Engaging, Empowering, Equipping

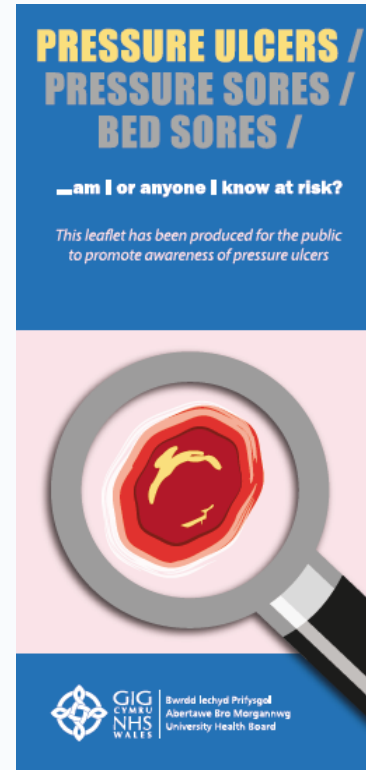
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Category	Product / Photo	Type	Weight limit	Thickness	Default size	Considerations	Pressure risk / Patients
Replacement; foam cushion	Invacare - Propad Revolve V	Foam with viscofoam insert	25 st (159 kg)	3" (7.6cm)	17x17" (43x43cm)	General purpose + Easy use – any way round + Different sizes by special order - Thick (beware of increased height)	Low risk • Good mobility / short sitting time • Good sensation / ability to relieve pressure
Overlay; non-dynamic air cushion	Frontier - Repose	Air columns; requires inflating	22 st (139 kg)	1.7" (4.5cm)	18x18" (45x45cm)	- Requires confidence/support in maintenance; Needs checking (can deflate) - Risk of deflation (smokers, pets...) + Good for shear/friction Cover may reduce moisture risk	High risk • Poor mobility / long sitting time Existing pressure ulcer
Overlay; non-dynamic air cushion	EHOB - EHOB	Air membrane with holes	21 st (136 kg)	1.5" (4cm)	17x17" (43x43cm)	- Requires confidence/support in maintenance; Needs checking (can deflate) - Risk of deflation (smokers, pets...) - May require review after ~6-12 months as may deflate + No pump required + Bariatric option available as special order (50 st) Strap must be included in order + Holes may allow heat/moisture flow	Low/medium risk • Good sensation Consider for those with moisture risk Avoid for frail skin, bony prominences, or existing pressure ulcer

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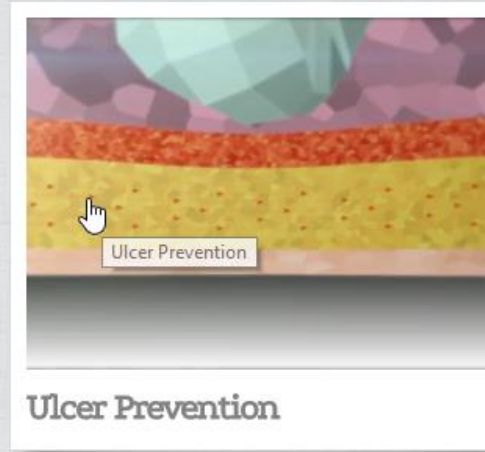


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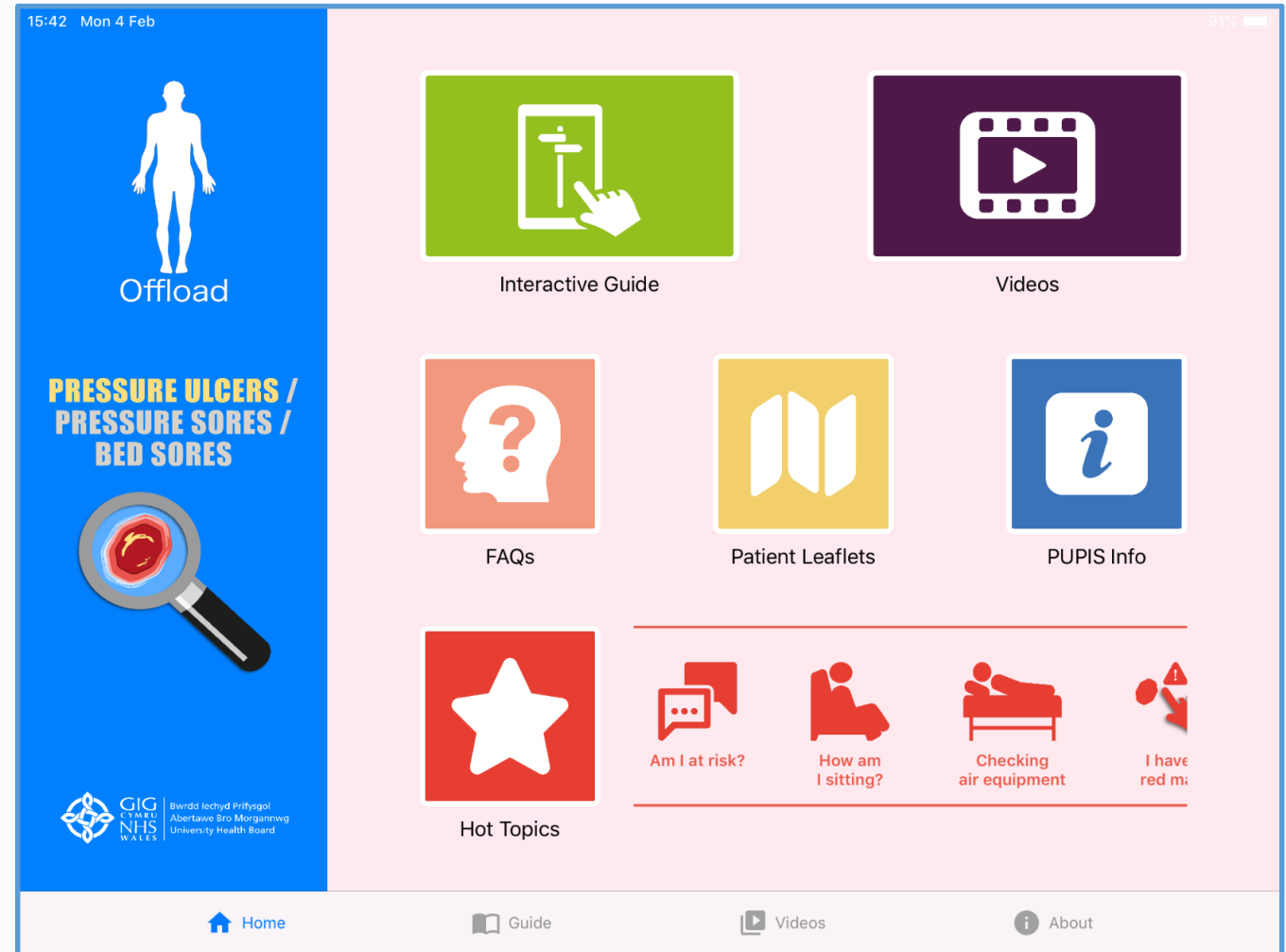
Public engagement videos

<http://www.medic.video/a14-press>



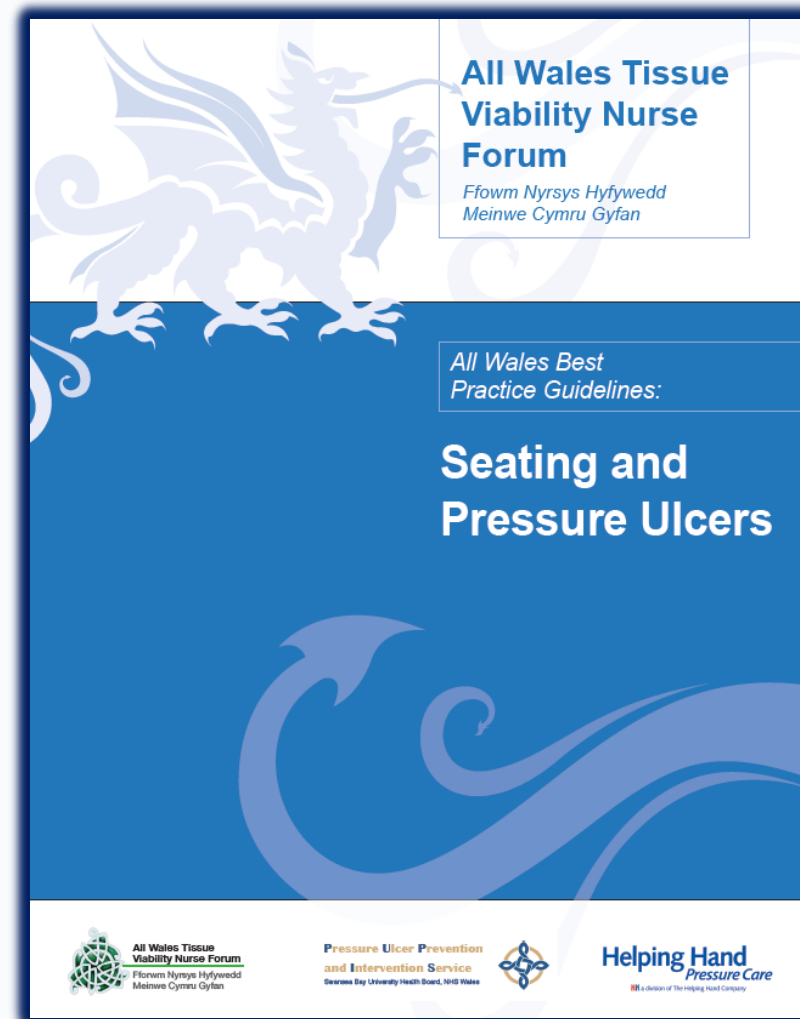
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Engaging, Empowering, Equipping

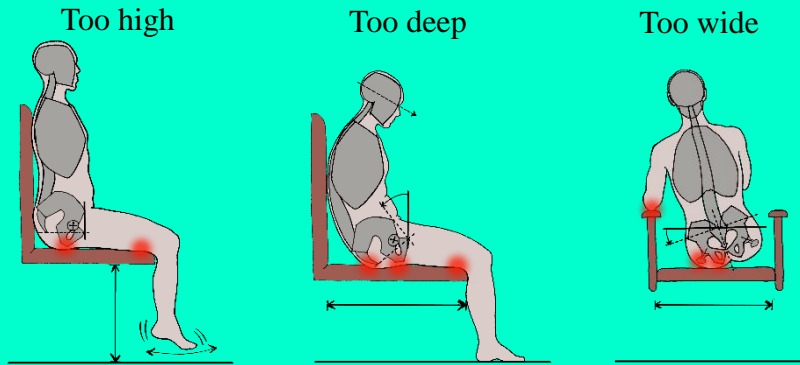
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The 4 'S's - Seating principles to reduce pressure risk

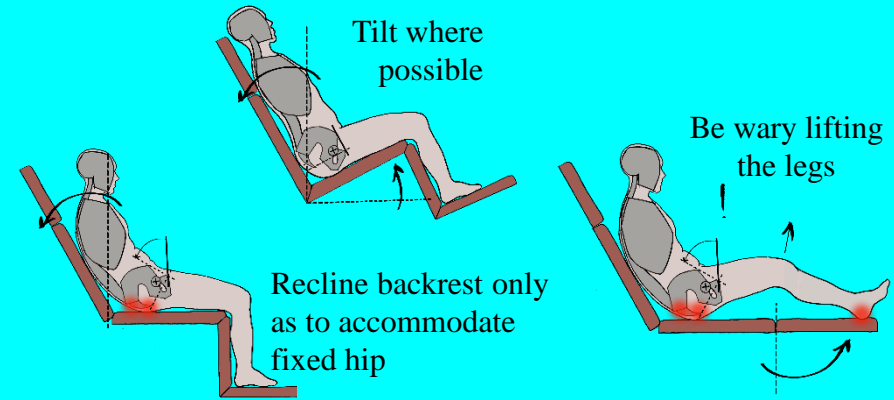
SIZE

- Is each part of the body doing it's role in taking pressure?
- Is the seat promoting even loading?



SET-UP

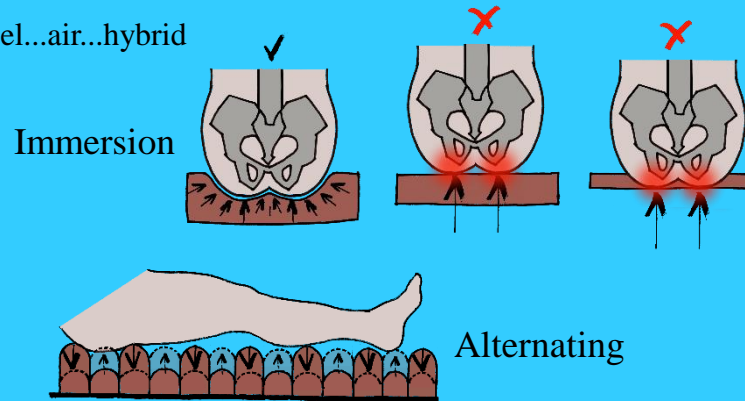
- What impact does chair movement have?
- Is the chair mechanism promoting stable, functional posture?



SURFACE

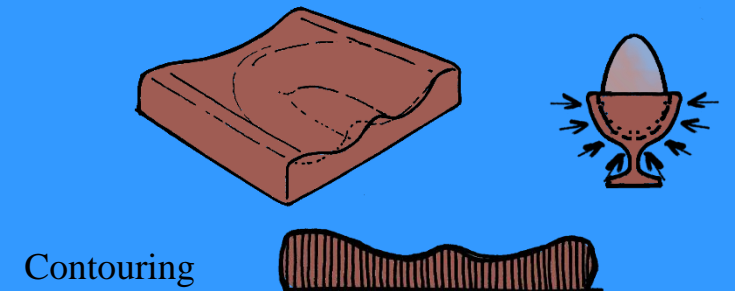
Foam...gel...air...hybrid

- Is there sufficient potential for immersion - to spread the pressure?
- Is the cover flexible?
- Is an alternating surface able to redistribute the pressure?



SHAPE

- Can a contoured surface be used for pressure and stability?
- Is custom-contoured required?



Illustrations by Helen Frost, frost-creative.co.uk

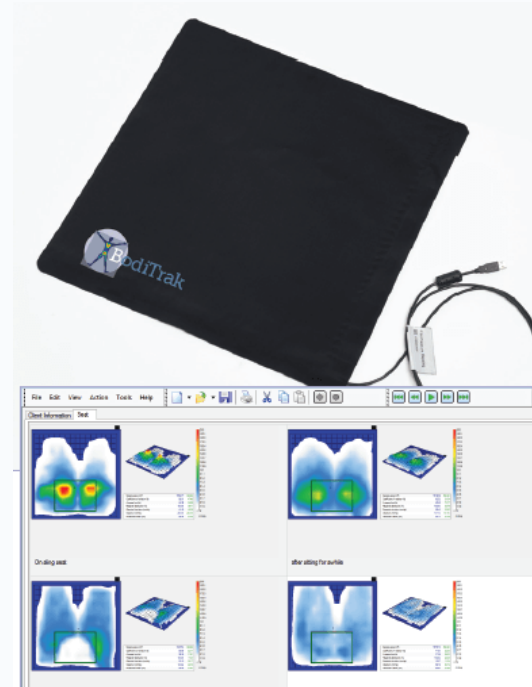
Technology in pressure ulcer care

- Interface pressure mapping
- Smart support surfaces
- Mobile technology
- Wound imaging

Technology in pressure ulcer care

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Boditrak (Vista Medical)



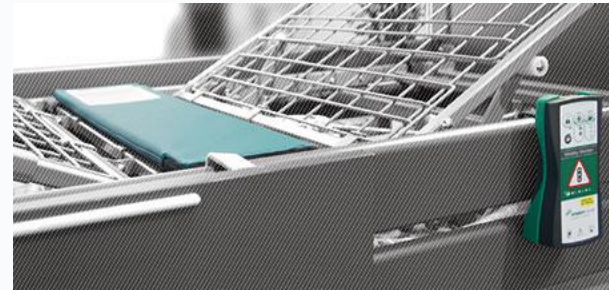
TexiMat
(TexiSense)



Technology in pressure ulcer care

- Interface pressure mapping
- Smart support surfaces
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- Wound imaging

Mobility Monitor (Compliant Concepts)



Foresite (XSensor)



MAP (Sidhil)



Technology in pressure ulcer care

- Interface pressure mapping
 - Smart support surfaces
 - Mobile technology
 - Wound imaging
- ◆ Pressure Ulcer Prevention (PUP) (Andre Clark)
 - ◆ Waterlow Score App (Mayflower Medical Supplies)
 - ◆ Pressure Ulcer Guide (Mölnlycke Health Care)
 - ◆ App to Care (Care of Sweden)
 - ◆ PU info (Bucks New University)
 - ◆ Pressure ulcer e-learning (3M)
 - ◆ Pressure Ulcers (Patient Data Science)
 - ◆ Pocket Guide to Pressure Ulcers (JM Levine)
 - ◆ Offload (PUPIS)

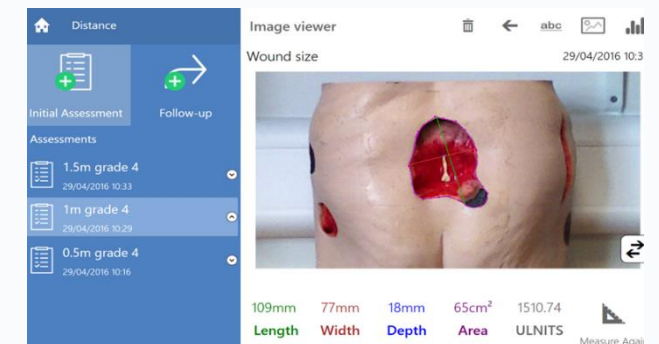
Technology in pressure ulcer care

- Interface pressure mapping
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Eykona



GPC



Technology in pressure ulcer care

TacTile © Personal Pressure Monitoring



Flexible, printable pressure sensor array utilising patented technology (Haydale Plc)

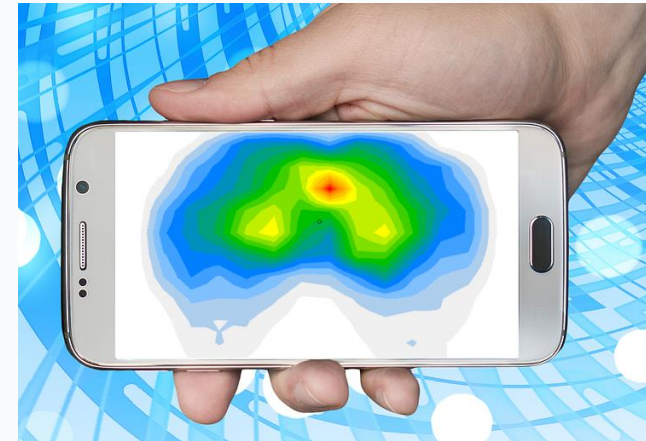


Metrics

- average/peak pressure
- sitting time
- symmetry
- dispersion

Targets

Warning alerts



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- Institute for Physics & Engineering in Medicine (Travel grant)
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