Pressure Redistribution, Repositioning, and Support Surfaces
Objectives

1. Understand the concepts of pressure redistribution, repositioning, and offloading.
2. Know the mechanical forces involved in the development of pressure wounds.
3. Identify various categories of support surfaces.
4. Learn to correctly choose support surfaces based on the patient’s needs.
Pressure Ulcer Factors

- Skin integrity
- Moisture control
- Tissue perfusion
- Repositioning
- Mechanical load
- Friction and shear forces
Choosing Support Surfaces

- Pressure redistribution
- Moisture control
- Temperature control
- Friction control
- Life expectancy of patient
Choosing Support Surfaces

- Infection control
- Flammability
- Life expectancy of product
- Safety
- Product reputation
Pressure Ulcer Formation

- Tissue compression against bone
- Age-related skin changes
- Increases with degree and duration of pressure
- Dehydration, Decreased tissue elasticity and metabolism

Elderly Skin

- Flattening of epidermal/dermal junction
- Wrinkling of skin
- Reduced vascular tissue
- Disorganization and loss of collagen fibers
Pressure, Magnitude, and Duration

Presence of pressure ulcers

Magnitude

no pressure ulcers

Duration (time)
Support Surface Characteristics

Pressure redistribution

Decreases magnitude and shear on bony prominences

Non conforming surface

Pressure centered in a certain area

conforming surface

Pressure centered over a larger area
Support Surface Characteristics

**Immersion**

Degree with which an object embeds itself into a substance
Support Surface Characteristics

Envelopment

Degree to which a surface conforms to accommodate irregularities in an object

Well enveloped

Minimally enveloped
Support Surface Characteristics

Objects move from an area of high pressure to low pressure

Pressure Gradient

dissipating forces

pressure gradient

dissipating forces
Support Surface Characteristics

**Friction** is the resistance to motion of one object sliding against another.

Gravity pulls a body down a bed.

Sliding tendency due to gravity.

Forces resisting the sliding tendency.
Significance

\[ 30 \text{ lbs} \div 1 \text{ sq inch} = 30 \text{ lbs/sq inch} \]

\[ 30 \text{ lbs} \div 24 \text{ sq inch} = 1.25 \text{ lbs/sq inch} \]

Distributing force across a larger area reduces forces in any one area.
Temperature and Moisture

Increase in temperature increases metabolism and oxygen use

Increase of 1.0°C (1.8°F) = 10% increase in metabolism

Maceration

- Perspiration
- Urine
- Feces
- Fistula
- Wound drainage
Multiple unresolved stage II pressure ulcers on trunk or pelvis with one month

Recent flap or skin graft for a pressure ulcer on trunk or pelvis and was on a group 2 or 3 surface prior to discharge from hospital or nursing facility

pressure ulcer on trunk or pelvis
Key Points

- Pressure redistribution
- Repositioning
- Eliminate cause of wound

Pressure ulcer wound
Bed Surfaces

Regular bed

Foam mattress
- Reduces pressure

Low air loss
- Increased air flow manages heat

Air fluidized
- Lost air replaced by a pump
- Air forced through silicon beads
Bed Surfaces Features

- Alternating pressure
- Lateral rotation
- Elevation of head and feet

Lateral rotation bed
Head and feet elevation

Elevation of head and feet
Sitting Cushions

Guidelines for sitting available from national institutions

Foam cushion
- Can be contoured to aid

Gel cushion
- Viscoelastic substance that

Roho cushion
- Individual air filled cells
- Pressures shift depending on load
Lower Extremity Devices

Factors affecting risk

Ambulation

Risk area location

Multipodus boot

EZ boot

Foam Block

Air boot

Foam boot (egg crate)
Lower Extremity Devices

- Multiple factors affect the development and treatment of pressure ulcers
- A patient’s individual needs dictate which support surface to use
- Reevaluate support surfaces as needed
End of module, thank you for your participation