Protection of a Surgical Flap During the Healing Process and the First Year

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What is Kinesiotherapy?

- Kinesiotherapy (KT) is an allied health profession that has been in existence since 1946. Developed during World War II, KT originally helped wounded or sick soldiers return to their units quickly and at full function
- Kinesiotherapy enhances the strength, endurance and mobility of individuals with functional limitations or those requiring extended physical conditioning
- We provide sub-acute and post-acute rehabilitative therapy focusing on therapeutic exercise, reconditioning and education. We also emphasize the psychological as well as physical value of therapeutic exercises

The Reality of Pressure Injuries

- Prevention is key!
- 2.5 million individuals develop pressure injuries every year
- In 2016, more than 60,000 patients died as a direct result of pressure injuries

- Costs to our health care system average $9-11 billion a year
- Approximately, $70-150 thousand, per patient for Stage 3-4 pressure injury
- Second most common hospital billing claim

National Pressure Ulcer Advisory Panel (NPUAP) defines a pressure injury as a localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of a pressure or a friction.

COMMON PRESSURE POINTS:

- 66% OF PRESSURE INJURIES DEVELOP IN THE PELVIC REGION
- 15% DEVELOP ON THE HEELS AND ANKLES
- THE REMAINDER OCCUR ON ELBOWS, BACK OF THE HEAD AND TROCHANTERS.

Risk Factors for Pressure Injuries

- Age can result in the reduction in muscle mass, skin firmness and integrity
- Smoking
- Poor nutrition
- Skin moisture, sweating, issues with bladder and bowel causing skin integrity issues
- Psychological issues (depression, anxiety, lack of self esteem)
- Adherence to following directions and recommendations
- Illegal drug and alcohol use
- Inappropriate, worn-out or inadequate equipment

What do Pressure Injuries Look Like?

- Stage 1 Pressure Injury
  - This type of injury may be overlooked as many aren't familiar with a Stage 1 Pressure Injury
  - Skin is warmer or cooler to the touch
  - Tissue feels firmer or "boggy" or "mushy" due to fluid underneath
  - Skin is pink or red in light skin: red, blue or purple in dark skin
  - This area may hurt or itch

Stage 2 Pressure Injury

- Partial thickness loss of skin- the epidermis, the dermis or both.
- Wound bed can be viable, pink or red, moist
- It can look like a scrape, blister or a shallow crater.

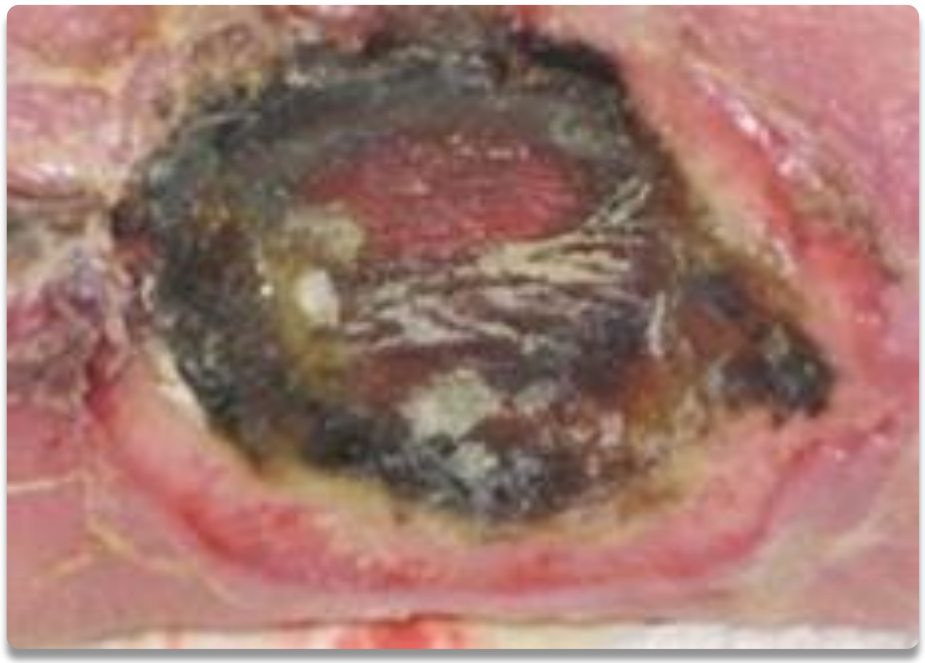
Stage 3 Pressure Injury

- Full thickness loss of skin. Slough and/or eschar may be present
- Injury extends through both layers of the skin and subcutaneous tissue but not completely through to the deep fascia
- Undermining and tunneling may occur

Stage 4 Pressure Injury

- Full thickness skin and tissue loss
- Injury extends all the way from the surface of the skin through the fascia to involve muscle and bone. Tendons and joints may be involved
- Undermining and/or tunneling often occur

Unstageable Pressure Injury



- Full thickness skin and tissue loss with tissue damage where the extent of the injury cannot be confirmed due to the obscured slough or eschar
- If removed, a stage 3 or 4 pressure injury will be revealed

Deep Tissue Pressure Injury

- Intact or non-intact skin with persistent non-blanchable deep red, maroon, purple discoloration
- Pain and temperature changes often precede skin color changes
- Injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface
- The injury may evolve rapidly, with or without tissue loss

So you have a Pressure Injury, now what?

- If the pressure injury is stage 3 or 4, a Plastic Surgeon will examine the injury and determine the best course of action. Antibiotics may be prescribed
- Proper nutrition is key. Prealbumin levels will need to get at or greater than 20mg/dL prior to having a surgical flap to ensure that a flap will maintain its integrity for healing. Protein supplements may be ordered
- Bowel management/regimen
- Bladder management/regimen
- Spasms need to be under control to avoid compromising the wound bed, incision and/or flap
- Smoking: if trying to quit, nicotine patches may not be used before surgery. Surgeons require one to avoid nicotine for 6 weeks prior to a surgical flap

Support Surfaces are Essential

- Support surfaces are any bed, mattress, mattress overlay or seat cushion
- They are used to reduce pressure, especially in areas vulnerable to pressure injury development
- They only reduce the risk for pressure injuries, they don't heal them!
- Financial coverage/reimbursement for support surfaces for bed and wheelchair cushions differs among insurance companies and Medicare. It's important to verify coverage prior to ordering a support surface for the patient

Specialty Beds

Low Air Loss Mattress

- Designed to prevent and assist with treating pressure injures
- Composed of multiple inflatable air tubes that alternately inflate and deflate
- Some mattresses can shift or rotate the patient
- Relieves pressure especially under bony prominences and helps ensures proper air circulation

Air Fluidized Bed

- Developed to manage shear, friction and increased moisture
- Used for patients with stage 3 and 4 pressure injuries or after a surgical flap
- Minimizes pressures over bony prominences through body “floatation” on fine beads that are set in motion by warm, pressurized air to simulate the movement of a fluid.

Wheelchair Cushions

Foam Cushions

- Lightweight
- Low end/low cost
- Wear out very quickly
- Retain heat
- Hard to clean

Fluid Filled Cushions

- Effective for many users
- May reduce shear
- May be better shock absorbers
- May be expensive
- Cushions may be heavy

Air Cushions

- Lightweight
- Easy to clean
- Reduce shear
- Tendency to puncture
- Must be checked frequently for proper air pressure
- Can be hard to repair
- May cause balance and posture issues

So your patient had a surgical flap. Now what?

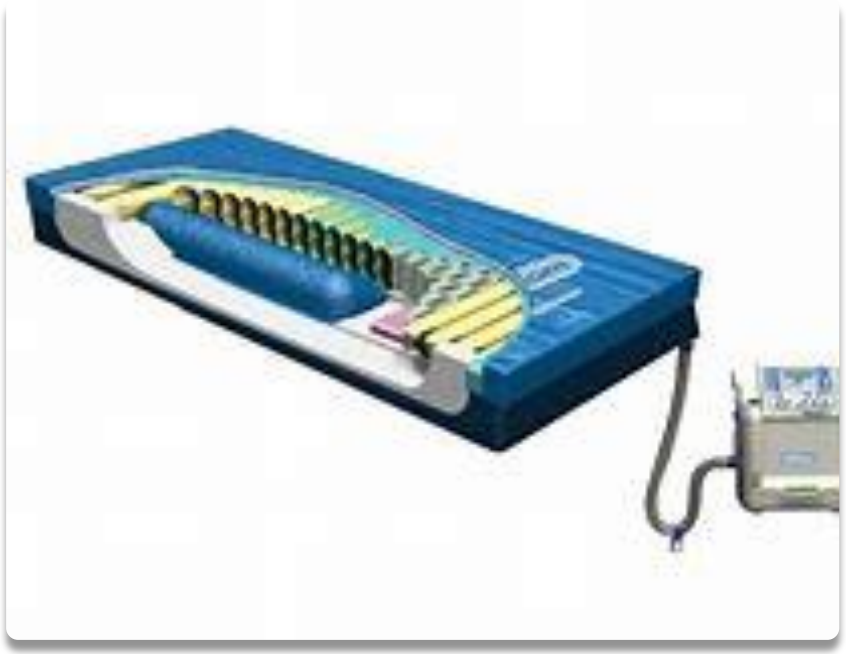
- Bed rest on an air fluidized bed for three to six weeks
- Maintain proper nutritional levels
- Control spasms to prevent issues with surgical flap and incision
- Daily inspection of surgical flap
- Head of bed (HOB) must remain flat at all times except when eating, then may raise it to 15 degrees
- Bowel care must be done in bed and laying on the opposite side of their flap
- Must be log rolled only using a turning sheet
- No use of an overhead the bed trapeze
- May not lay on their side of their surgical flap during their healing process

Air Fluidized Beds Post Surgical Flap

- Both beds can be used during the initial healing phase post surgical flap (week 1-6)
- Top bed is a Clinitron bed
- Bottom bed is an Envella bed. Major advantage to this bed is that you can weigh your patient while they are on this bed

Low Air Loss Mattress

- After the first week of the sitting protocol and the incision and flap endured Passive Range of Motion (PROM), the patient transitions from the air fluidized bed to a low air loss mattress
- Patient must be turned every two hours to offload the incision Use a gel positioning pillow or a wedge to help maintain the sidelining position
- Patient may never lay on the incisional side
- Head of bed must remain at thirty degrees or less at all times to avoid shearing and bottoming out



Sitting Protocol with Therapist

- Progressive four week program to include lower extremity passive range of motion, in bed sitting and a progressive sitting program
- Patient must perform some form of pressure relief every 30 minutes while in their wheelchair. Pressure relief technique must be maintained for two minutes
- After the fourth day of sitting up in the wheelchair, the wheelchair cushion is pressure mapped. Pressure mapping is used to ensure that the cushion is providing them with the most appropriate support
- Patient is allowed to take a shower after able to sit up in wheelchair for ninety minutes with no adverse reaction to surgical flap. Time in shower counts towards time up in wheelchair that day
- Once patient is able to tolerate sitting up in wheelchair for four hours, they are able to be discharged home
- Sitting protocol can be stopped or modified at any given time if there is any issue(s) with the surgical flap

Most Popular Pressure Relieving Wheelchair Cushions

Gel Cushions

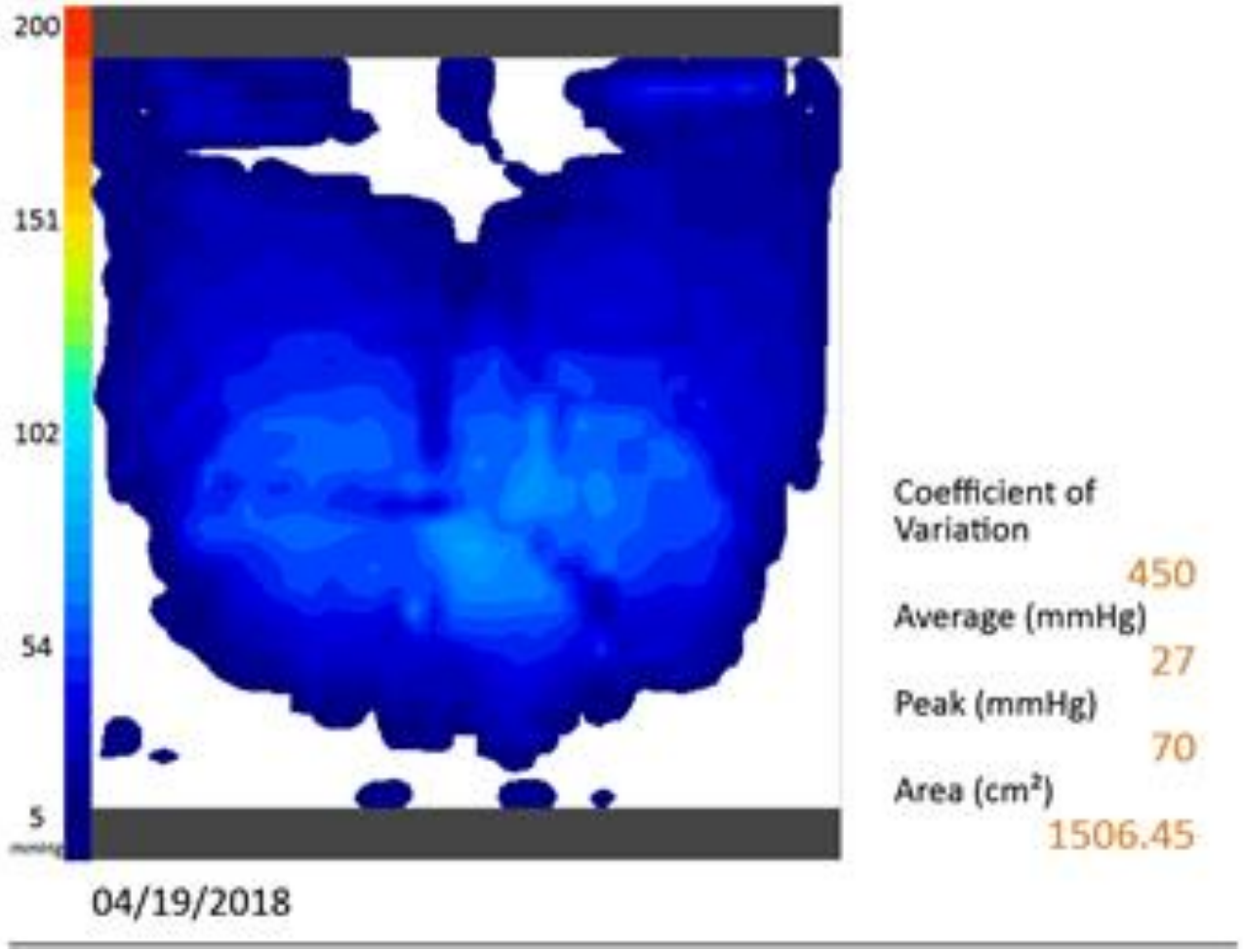
- Provides stability and pressure distribution for an individual at high risk for a pressure injury
- Cushions are half contoured molded foam base and half gel insert. Gel insert protects the skin from breakdown in the bony prominences region

Air Cell Cushions

- Best pressure relieving cushion that are off the shelf
- Lets the cushion move as you do, preventing pressure injures and ensuring comfort and safety
- Needs to be checked every day to ensure that it's inflated properly

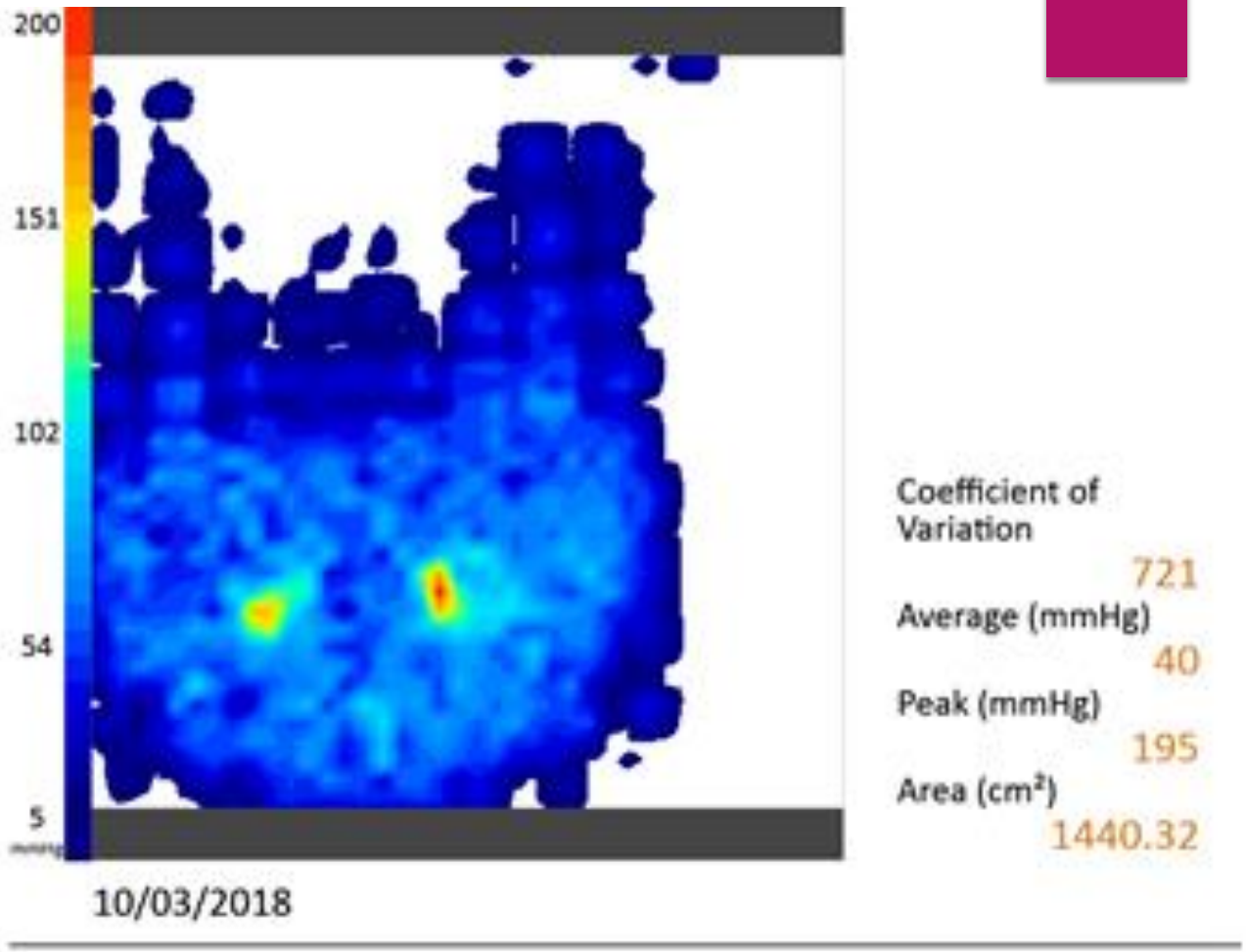
Pressure Mapping

All wheelchair cushions are pressure mapped after four days of sitting back in their wheelchair. Modifications to the cushion may need to be done given findings on the pressure mapping sensor.



Pressure Mapping continuation

- When a cushion isn't providing the most appropriate support, modifications to the cushion need to be made
- Sometimes a different cushion needs to be prescribed for the patient if the current cushion isn't able to be modified



Ways to Protect the Incision

- During the healing process as an inpatient, patient must be turned every two hours to offload the incision
- Use a gel positioning pillow or a wedge to assist with keeping the patient on their side
- Bowel care needs to be done in bed until they are able to sit up in their wheelchair for four hours. Then bowel care time counts towards their actual sitting time for the day
- Showers are permitted when they are able to sit up for two hours. Shower time counts towards their time up for that day
- Maintain proper nutritional levels
- Maintain bladder regimen
- Transfers are performed by an overhead ceiling lift.

Protecting a Flap for the First Year

- All transfers need to continue be performed via an overhead ceiling lift, Hoyer lift, Serra Lift or a lateral transfer. No transfer boards for the first year.
- All surfaces that they sit on MUST be padded
- Bowel care chairs needs to be padded. Limit the amount of time they sit on the chair. They must perform pressure relief while on the bowel care chair
- Shower chairs must also be padded
- Must continue to be turned every two to three hours while in bed to offload the incision

Ways to Protect a Surgical Flap

- Adhere to only sitting up in wheelchair for four hours at a time, two times a day for the first 6 months. Then they can slowly progress to eight hours a day
- When performing a lateral transfer, pad the wheelchair tire to avoid bumping, hitting or shearing over the tire with the surgical flap
- When sitting on the regular car seat, have the therapist order a low profile air filled cushion for the seat. This cushion will provide better skin protection than just sitting on the standard seat upholstery.
- If the patient has issues with adhering to performing their pressure relief every 30 minutes, then have them use a kitchen timer or the timer on their Smart Phone.
- Good patient resource tool is the VA Pressure Ulcer app found on Android and Apple phones. This tool allows them to set reminders to perform pressure relief, has a journal entry section and can look up symptoms and causes of pressure injuries

Final Reminders

- Prevention is key to pressure injuries!
- Pressure relief needs to be done every 30 minutes for two to three minutes while a patient is in their wheelchair
- Every surface that a patient sits on must be padded
- The external incision of a flap takes approximately a year to heal and the internal incision almost two years. Adherence to sitting times is critical to ensure flap success
- Proper nutrition
- No smoking
- Pressure relief, pressure relief, pressure relief!

Thank you!


HEY, I JUST MET YOU &
THIS IS CRAZY
BUT PLEASE BEND OVER SO I CAN
SEE YOUR BOOTY (NOPE, NO
PRESSURE ULCER!)

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