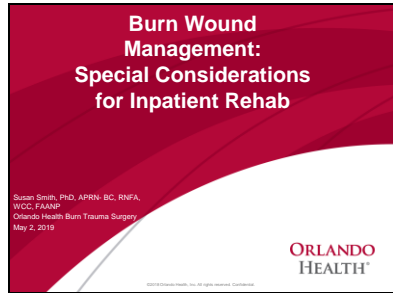


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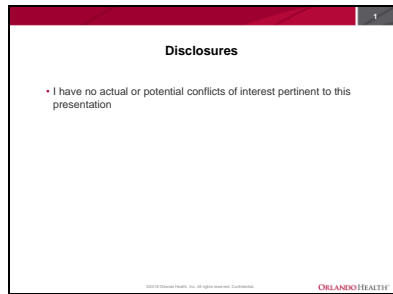
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Slide 2



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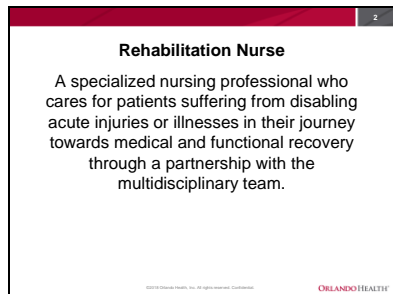
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Slide 3



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Slide 4

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### Learning Objectives

- Classify burns according to total body surface area and depth of burn
- Discuss appropriate wound care approach based on individual burn presentation
- Identify and discuss the types and appearance of skin grafts
- Review post operative management of skin grafts
- Describe care considerations unique to the burn-injured patient
- Discuss rehabilitative goals for burn patients
- List a variety of therapy approaches to promote healing and return of independent function

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Slide 5

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Slide 6

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http://www.clinmed.co.uk/images/Derm\_Figure1.jpg  
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Slide 7

**A burn injury is the result of energy transfer from a heat source to the skin**

- **Thermal** [ scald, steam, fire, flash flame ]
- **Chemicals** [ alkalis and acids ]
- **Electrical** [ AC, DC, lightning ]
- **Radiation** [ sun, industrial radiation leak ]
- **Cold Induce** [ frostnip, frostbite ]

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Slide 8

**Functions of the Skin**

- Thermoregulation
- Barrier to evaporative water loss
- Metabolic activity (Vitamin D Production)
- Immunologic Protection
- Protection against environment
- Cosmetic
- Sensation

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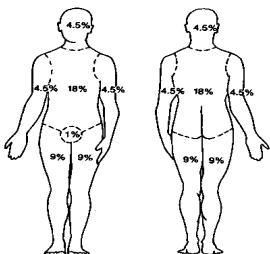
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Slide 9



The diagram shows two human figures with percentages indicating the surface area of different body regions. The percentages are as follows:

Region	Percentage
Head	4.5%
Neck	1%
Front Torso	18%
Back Torso	18%
Front Arm	4.5%
Back Arm	4.5%
Front Leg	9%
Back Leg	9%

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Slide 10

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Factors in Burn Depth

- ◆ **Temperature**
- ◆ **Duration of contact**
- ◆ **Dermal thickness**
- ◆ **Blood supply**
- ◆ **Age**

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Slide 11

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First Degree (Superficial)

- Pink
- Painful
- Skin intact
- Dehydration
- Moisturize
- Educate

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Slide 12

First Degree



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Slide 13

**Second Degree**

- Epidermal layer totally destroyed
- Dermal layer damaged
- Thick walled blisters
- Painful, sensitive to pressure
- Wet in appearance
- Possible skin grafts

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Slide 14



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Slide 15

**Third Degree – Full thickness**



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**THIRD DEGREE**

- Epidermis and dermis destroyed
- Beefy red, white, tan or black in color
- Dry or leathery skin
- Painless\*
- Will require skin grafting\*

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Slide 17



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Slide 18

**What is deeper than third degree?  
Deep Full Thickness Burns**

- Fourth degree burns penetrate entirely through the skin and cause burn injury to the underlying muscle and ligaments
- Fifth degree burns penetrate the muscle and may burn the superficial layer of the bone
- Sixth degree burns are the most severe burns which have charred bone
- Insensate
- Depending upon size, may require muscle flap for closure
- Amputation sometimes required

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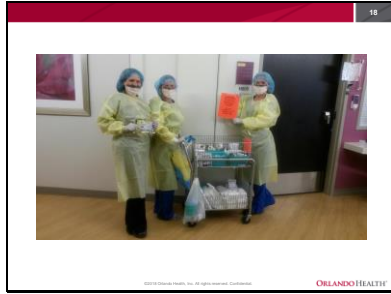
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Slide 19



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Slide 20



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Slide 21

**Wound Care**

All patients with burn injuries must have size and depth of injury calculated

Clean burn wound with initial non-excisional debridement

Apply Appropriate Topical Antimicrobials

**Serial Examination**

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Slide 22



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Slide 23

**Silver Sulfadiazine**

- Antimicrobial activity against gram negative and gram positive, to include yeast
- Eyes
- Staining
- Sulfa Allergy
- Thick build up on wounds

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Slide 24



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Slide 25

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**Bacitracin**  
Broad Spectrum Antibiotic  
Targets both Gram-positive and Gram-negative bacteria, especially those that cause skin infections, staphylococcus and streptococcus species

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**Silver Impregnated Products**  
<http://www.ck12.com/ncjw/ck12-091217/849/1x/Ag-W013.jpg>



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**Mafenide**

- Gram Positive and Gram Negative Organisms
- Pseudomonas
- Deeply penetrating

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Slide 28




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Slide 29

Topical Wound Products	Function
Alginates	Absorption
Antimicrobials	Eliminate Bacteria
Biosynthetics	Stimulate Cellular growth
Foam	Absorption and Insulation
Impregnated Gauze	Debridement, Non-adherent layer
Hydrocolloid	Occlusive, autolytic Debridement
Hydrogel	Moisture, autolytic debridement
Enzymatic Debriding Ointment	Debrides necrotic tissue

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Slide 30




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Slide 31



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Slide 32



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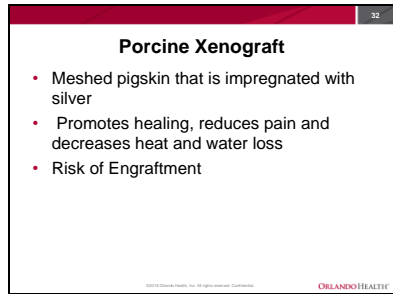
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Slide 33



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Slide 34



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Slide 35



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Slide 36



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Slide 37

**Pain Management**

- Pain Medication Administration Route
- High Metabolic Rate
- Anxiety & Post-Traumatic Stress Disorder
- Pre-Procedure Medication

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Slide 38

**Nutritional Considerations**

- Aggressive support counter balances hypermetabolism & protein hypercatabolism associated with burn injury
- High protein, high calorie diet
- Supplements, enteral tube feedings
- Curreri formula = 25 X body weight (kg) + 40 X % TBSA burned- based on ideal body weight
- Protein Needs =2 gm/kg/day

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**Psychological Support**

- Survival anxiety
- Searching for meaning
- Acceptance of losses
- Rehabilitation
- Reintegration

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### Adaptations

#### Goal of Independence



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### Early Compression

Ace wraps for pressure: Decrease pain, slow vascular engorgement, decrease edema, improve contact of dressings with mobility

- Pros – economical, widely available
- Cons – can not be certain of pressure, increase risk of wearing to tight, may cause creases/pressure areas with edge of wraps, can feel warm and uncomfortable



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### Scars and Contractures

- Can form at anytime during healing process
- Lack of stretch
- Disabling contracture
- Surgical Release



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Slide 43

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### Scar Management

- Progression of Scar Formation
  - Burn scar contracture: 1-4 days
  - Intramuscular adhesion from bleeding: 3-5 days
  - Tendon shortening: 5-21 days
  - Muscle adaptive shortening without trauma: 14-21 days
  - Ligaments and Joint capsule: 30-90 days

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### Compression

- Helps to decrease inflammation, re-align connective tissue in organized manner
- Custom Pressure garments – 20 mm hg
  - Pros: custom for equal pressure on surfaces, comes in multiple colors, helps edema.
  - Cons: \$\$



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### Summary

- Initial burn care depends on size and depth of burn and the individual patient's needs
- Wound care needs change over time based on healing
- Pain management, Nutritional and Psychosocial needs of the burn-injured patient and their families can be unique to this population
- Rehabilitative Nursing can play a pivotal role in returning a burn patient to functional independence

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