



HealthPartners®

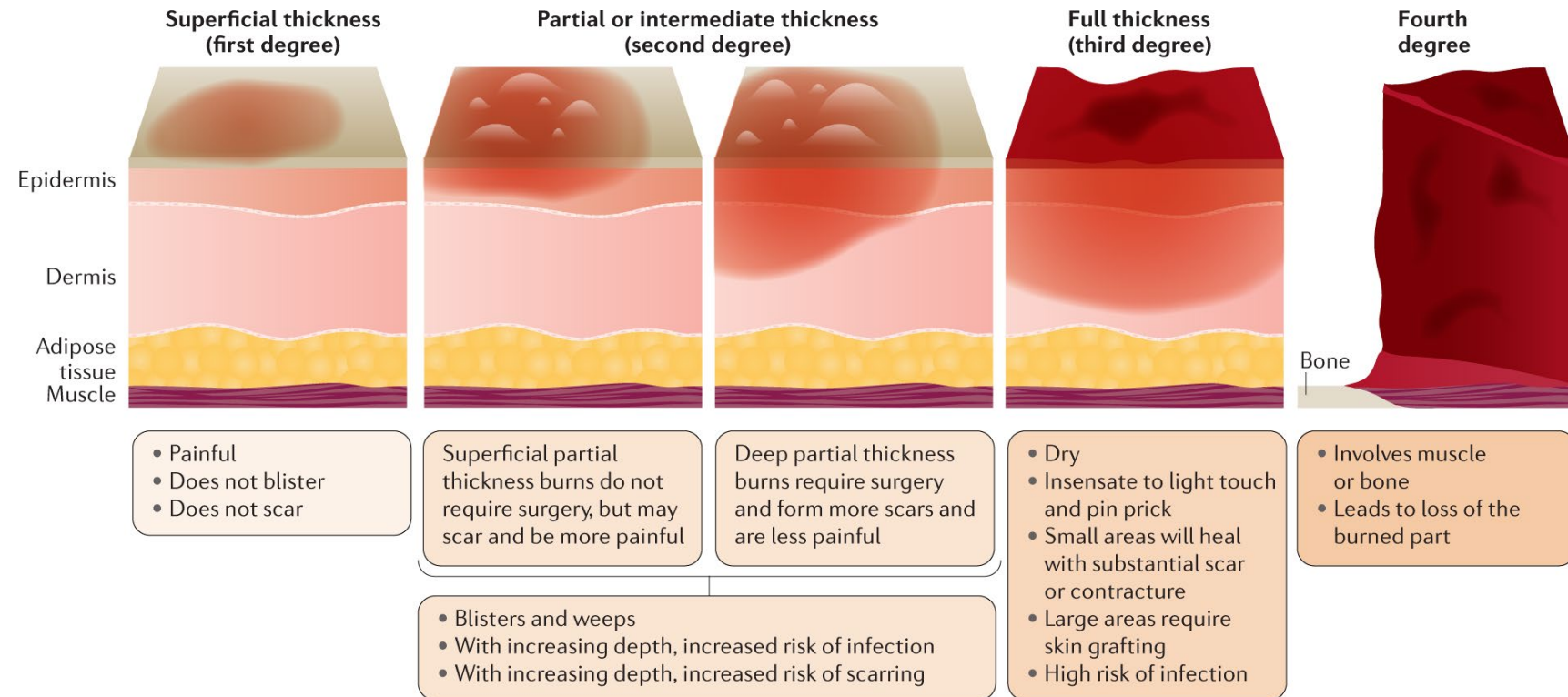
Regions Hospital®

10 Things to Know about Burns

Mark Johnston, RN

#1 Burn Depth

- 1st degree
- Erythematous, painful; no blisters

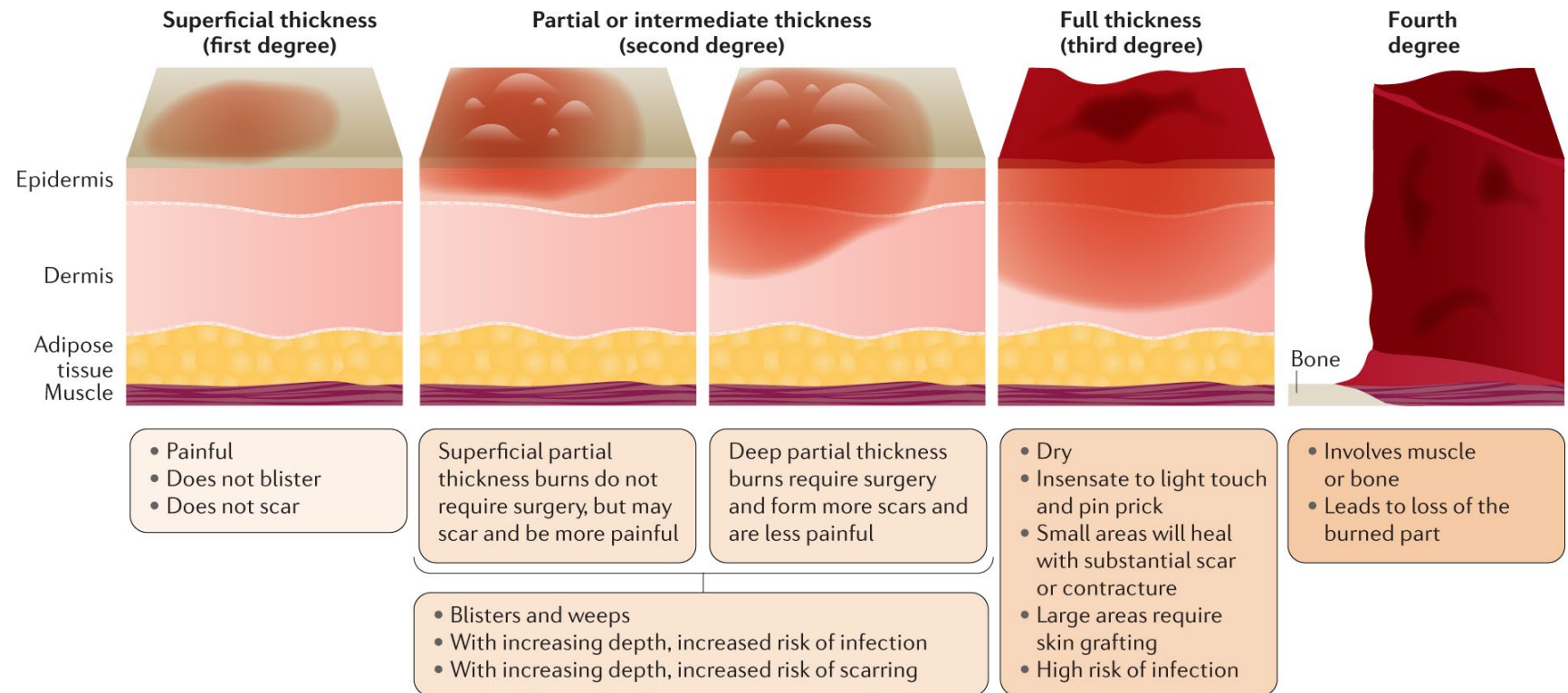


#1 Burn Depth



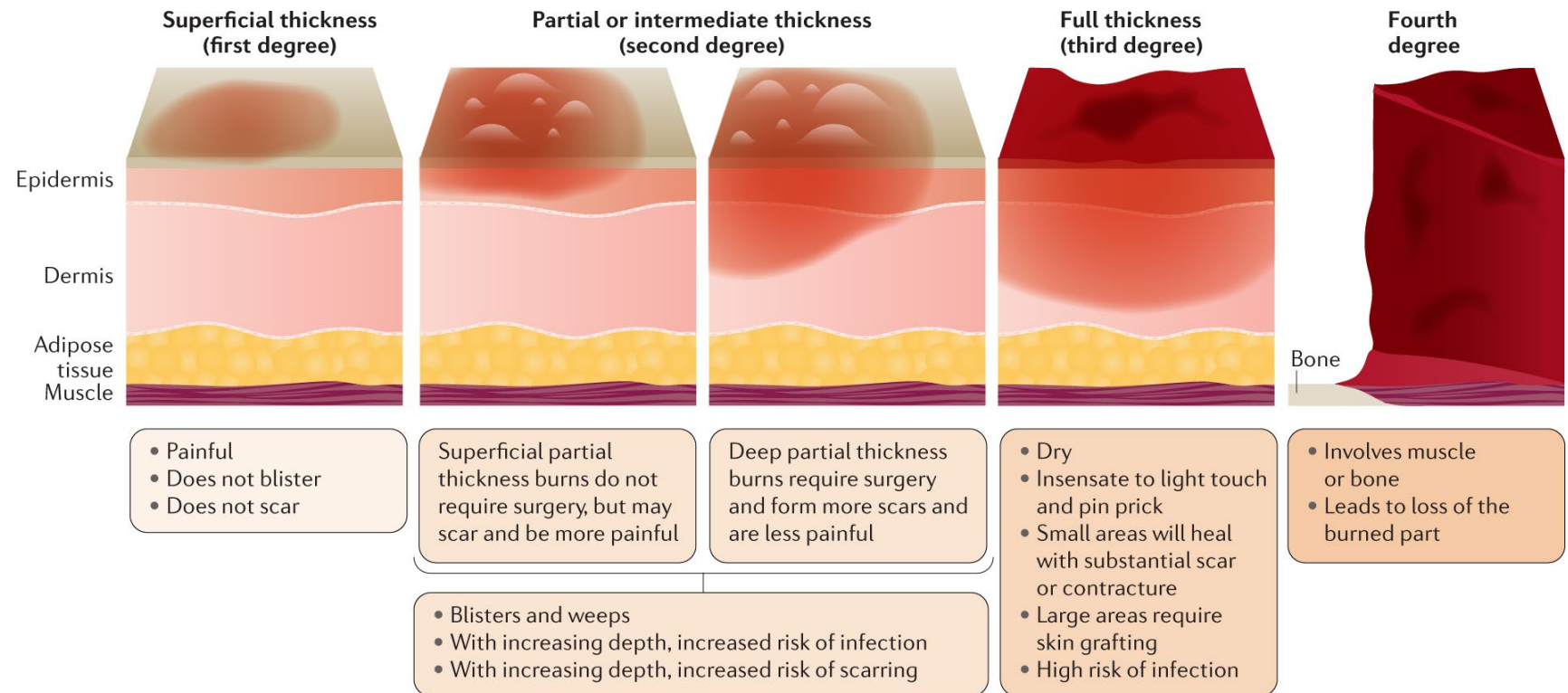
#1 Burn Depth

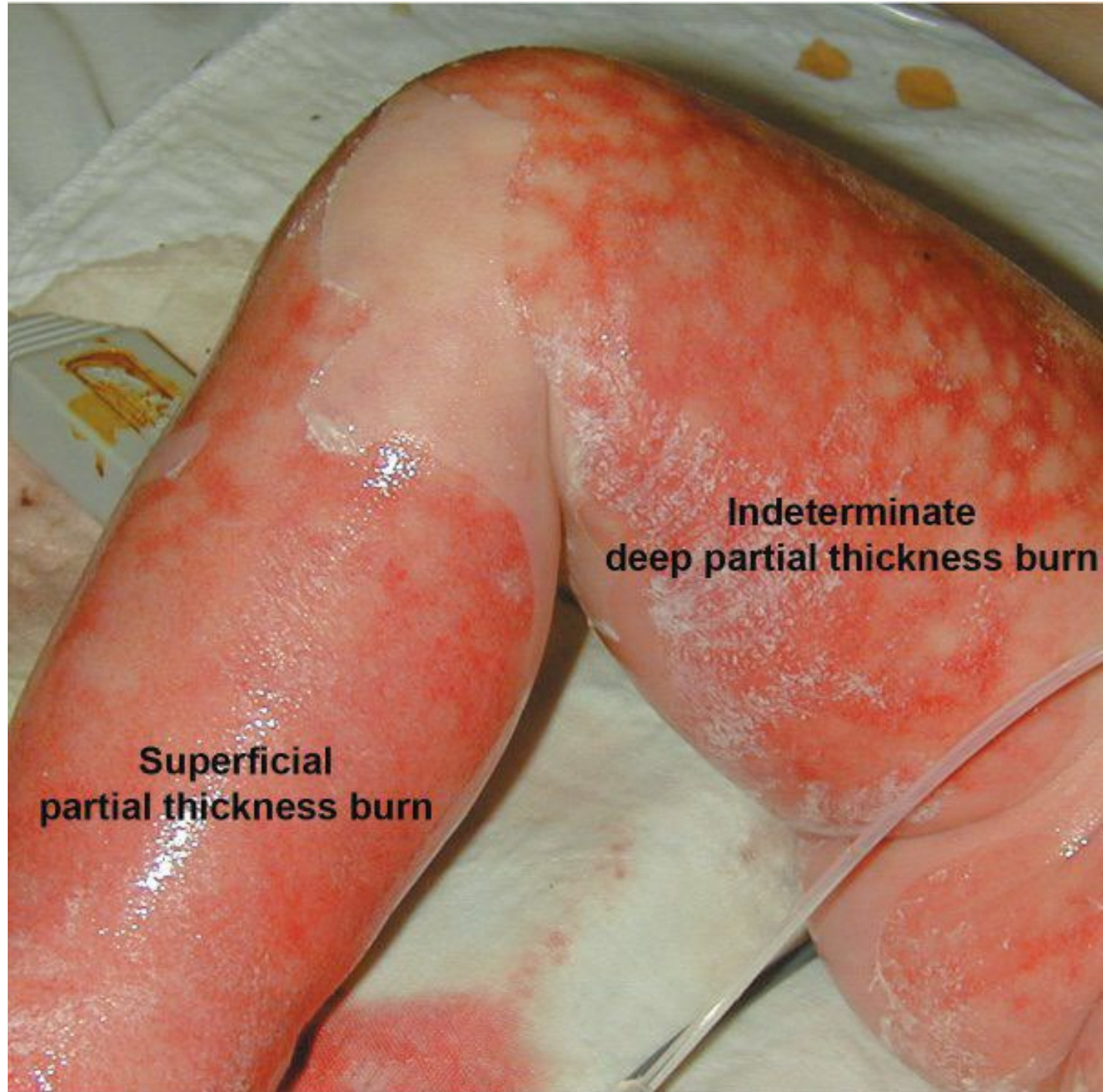
- 2nd degree
– Superficial
- Into papillary dermis
- Blisters (can be delayed)
- Pink, moist, blanching wound bed



#1 Burn Depth

- 2nd degree
 - Deep
- Reticular dermis
- Blisters
- Mottled pink/white wound bed
- May blanch slowly or not at all





**Superficial
partial thickness burn**

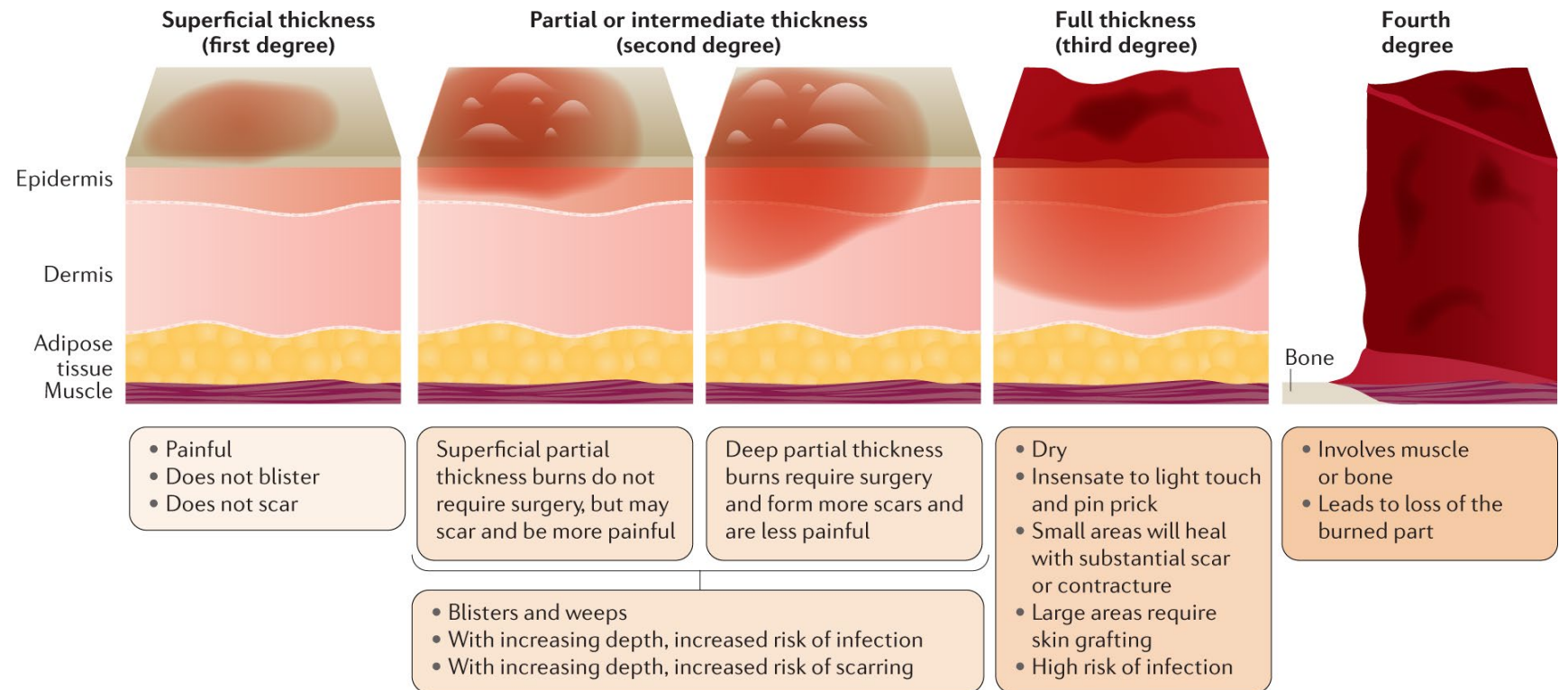
**Indeterminate
deep partial thickness burn**

#1 Burn Depth



#1 Burn Depth

- 3rd degree
- Through Dermis
- Leathery, charred, insensate



#1 Burn Depth



#1 Burn Depth

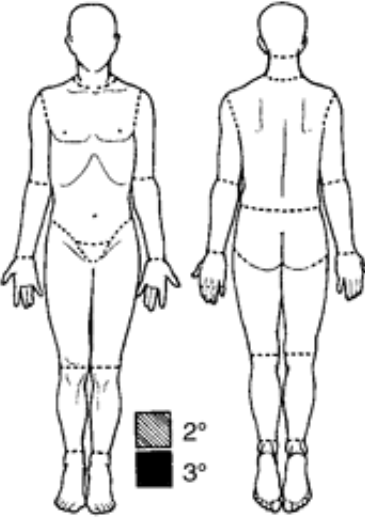


#2 Burn Size

- Goal = Percentage of the body that is burned
- Only 2nd and 3rd degree burns "count"
- Expressed as Percentage of Total Body Surface Area
 - %TBSA

Lund Browder

- #2b
- Kids and adults have proportions



2°
3°

Date: _____

Height: _____ Weight: _____

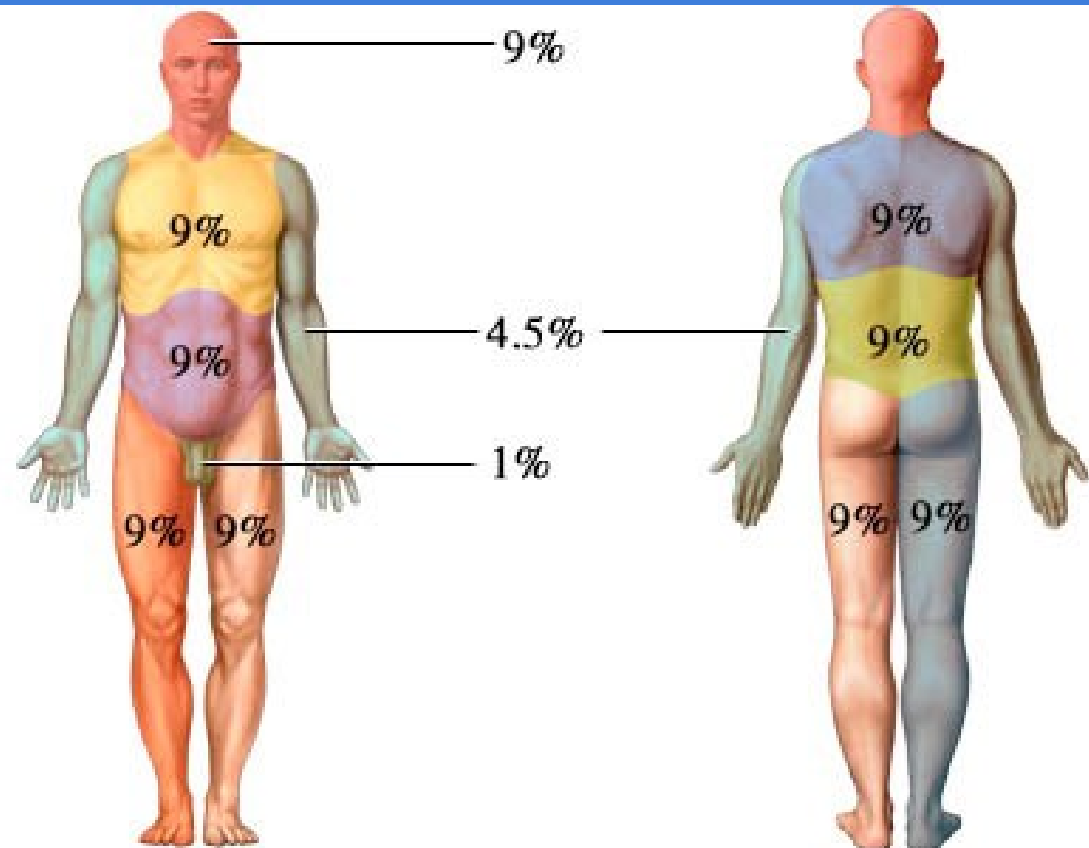
2° _____ + 3° _____ = _____ %

Percent surface area burned
(Berkow formula)

AREA	0-1 YEAR	1-4 YEARS	5-9 YEARS	10-14 YEARS	15 YEARS	ADULT	2°	3°
Head	19	17	13	11	9	7		
Neck	2	2	2	2	2	2		
Ant. Trunk	13	13	13	13	13	13		
Post. Trunk	13	13	13	13	13	13		
R. Buttock	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw		
L. Buttock	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw		
Genitalia	1	1	1	1	1	1		
R. U. Arm	4	4	4	4	4	4		
L. U. Arm	4	4	4	4	4	4		
R. L. Arm	3	3	3	3	3	3		
L. L. Arm	3	3	3	3	3	3		
R. Hand	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw		
L. Hand	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw	2 Qw		
R. Thigh	5 Qw	6 Qw	8	8 Qw	9	9 Qw		
L. Thigh	5 Qw	6 Qw	8	8 Qw	9	9 Qw		
R. Leg	5	5	5 Qw	6	6 Qw	7		
L. Leg	5	5	5 Qw	6	6 Qw	7		
R. Foot	3 Qw	3 Qw	3 Qw	3 Qw	3 Qw	3 Qw		
L. Foot	3 Qw	3 Qw	3 Qw	3 Qw	3 Qw	3 Qw		
TOTAL								

#2 Burn Size

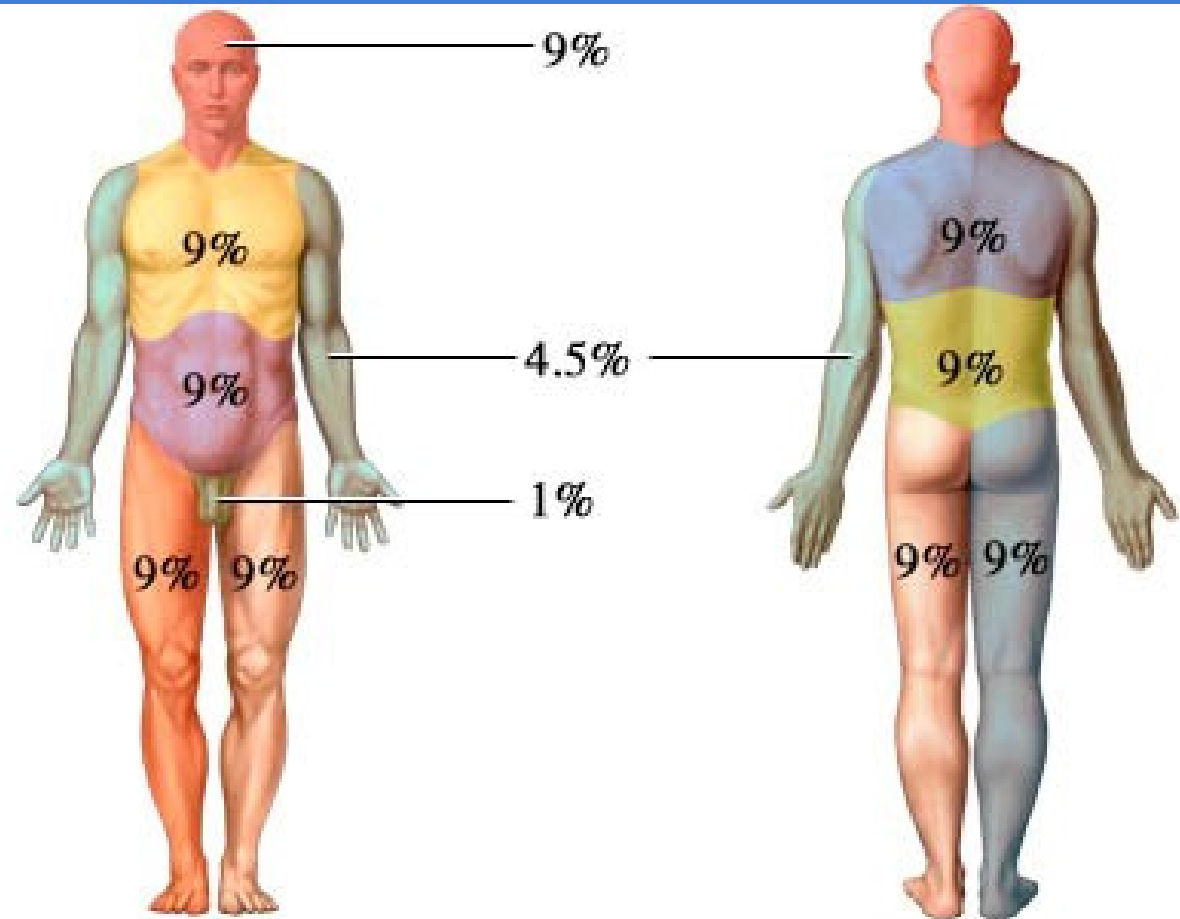
- Rule of 9s
- Often misused



- Palm of the PATIENT'S hand = 1%

#2 Burn Size

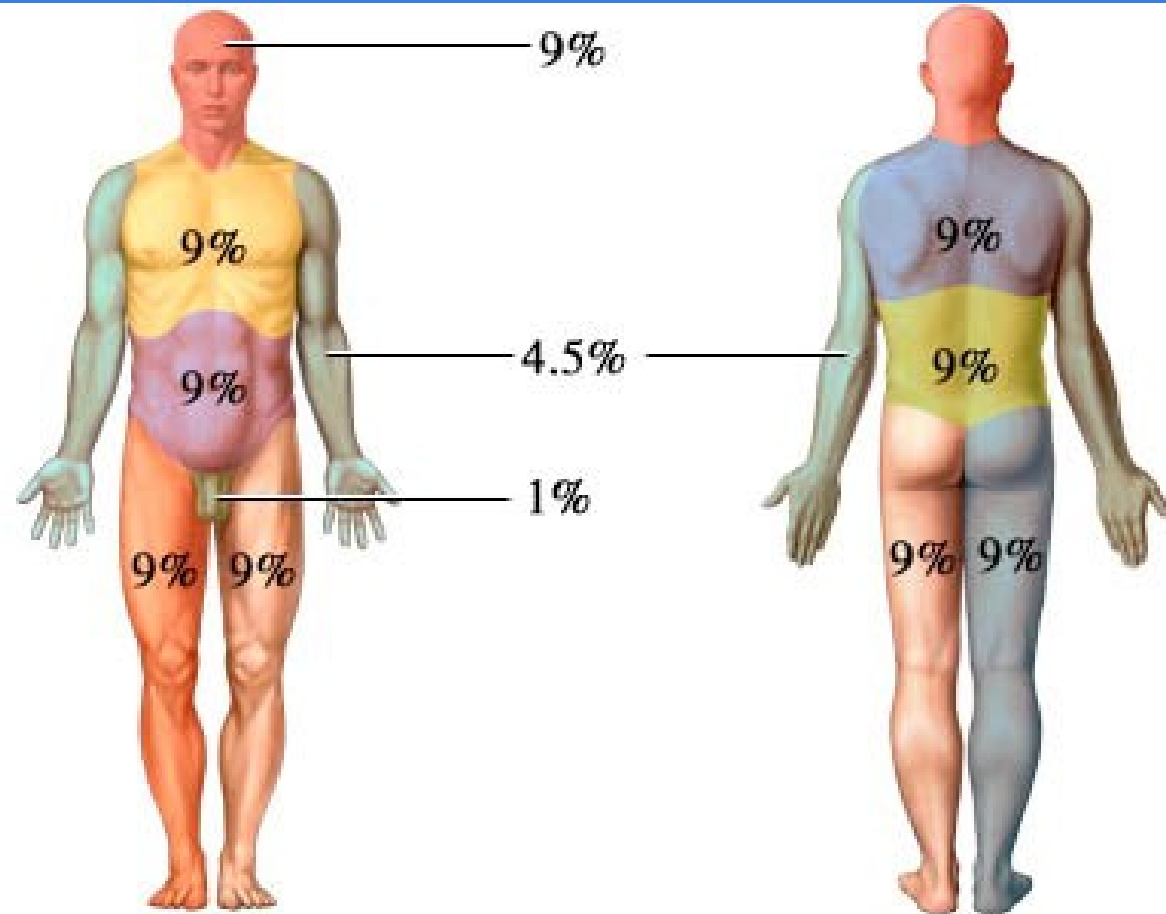
- Rule of 9s
- ~~Often misused~~



- Palm of the PATIENT'S hand = 1%

#2 Burn Size

- Rule of 9s
- Nearly always misused



- Palm of the PATIENT'S hand = 1%

#3 What is a "large" burn?

- Adults
 - 20% TBSA
- Kids
 - 15% TBSA

#4 What to do with "small" burns

- Local wound care
 - Clean
 - Moist
 - Antimicrobial
 - Bacitracin
 - Silvadene
 - Silver-based longwear dressing? -> Burn Center
- Pain control
 - Tylenol, NSAIDs, narcotics
 - Gabapentin, hydroxyzine
 - If IV medications required -> Burn Center
- Tetanus status

#4 What to do with "small" burns

- Safe disposition
 - Can this patient get necessary wound cares at "home"?
 - Can this patient tolerate wound cares with oral medications?
 - Can this patient eat and drink?
 - If "no" -> Burn Center
- Appropriate follow-up
 - PRN vs PCP vs Burn Center

#5 Downsides of Silvadene

- Gram positive
- Pseudoeschar
- Prefer bacitracin at first

#6 What to do with "large" burns

- Airway
- Breathing
- Circulation
- Disability
- Exposure
 - Should be done in a warm environment

#6b What do to with burns + trauma

- Overall mortality = 13-17%
 - = 2% Isolated burns
 - = 23% Inhalation injury
 - = 41-55% Burn + trauma + inhalation
- »
- Avg BT-Combo = 20% TBSA
 - Isolated burns = 10% TBSA

#6b What do to with burns + trauma

- Trauma = “Golden hour”
 - Takes priority
- “Routine” priorities for surgical management is the same
- Burn care can be flexible

#6b What do to with burns + trauma

little burn & BIG TRAUMA

- Treat as trauma alone

BIG BURN & little trauma

- Treat as a major burn
- Early transfer best

BIG BURN & BIG TRAUMA

- Big problem

#7 Fluid Resuscitation

- Small burn injury leads to local tissue edema
- Large burn injury results in massive capillary leak
 - Distributive shock

#7 Fluid Resuscitation

- Access
 - Okay to put line through burned tissue if necessary
- **Lactated Ringers**
- Parkland Formula
 - $4 * \%tbsa * \text{weight (kg)} = \text{expected 24h IV fluid requirement}$
 - $\frac{1}{2}$ given over first eight hours
 - Starting rate = $4 * \%tbsa * \text{weight (kg)} / 2 / 8$
- There are other formulas
 - **Brooke (uses a 2 instead of 4) – we use this for adults**
 - Modified Brooke (uses a 3 instead of 2)

Category	Age and weight	Adjusted fluid rate
Flame or scald	Adults and older children (≥14 years old)	<u>2</u> ml LR x kg x % TBSA 16
	Children (<14 years old)	<u>3</u> ml LR x kg x % TBSA 16
	Infants and young children (≤30kg)	3 ml LR x kg x % TBSA Plus D5LR at maintenance rate
Electrical injury	All ages	<u>4</u> ml LR x kg x % TBSA 16

#8 When to intubate

- Significant head and neck burns
- Large %TBSA/pain control
- Concern for inhalation injury

#9 Signs of Inhalation Injury

- History
 - Exposure to products of combustion in an enclosed space
 - Facial burns
 - Soot in oral cavity are not indicative of inhalation injury BUT mandate further assessment, i.e. examination of posterior pharynx for evidence of thermal injury including mucosal erythema, sloughing and swelling or soot in vocal cords.
 - Signs – stridor, hoarseness, carbonaceous sputum, dyspnea
 - Normal saturations, CXR do not rule out

#10 Reason(s) to refer

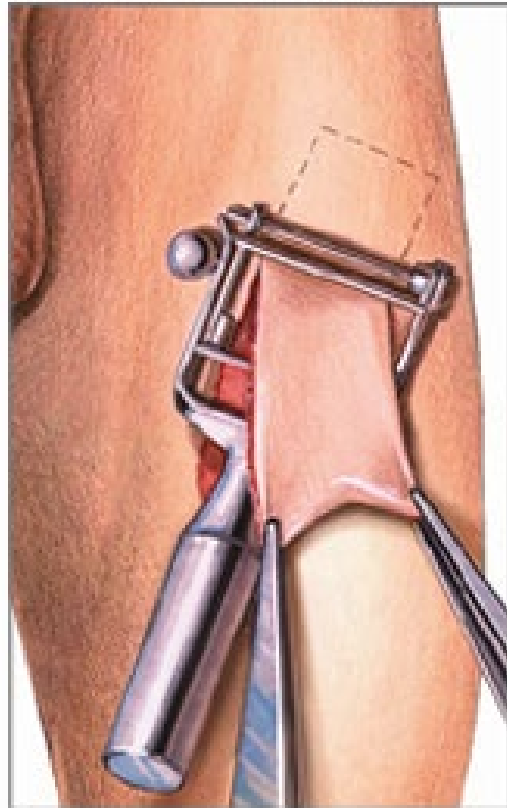
- Skin grafting is intellectually simple surgery
- Multi-disciplinary team
 - Surgeons
 - Trainees
 - Pharmacists
 - Occupational and Physical Therapists
 - Social Workers
 - Psychotherapy
 - Support Personnel
- Burn nursing is a recognized speciality

Excision

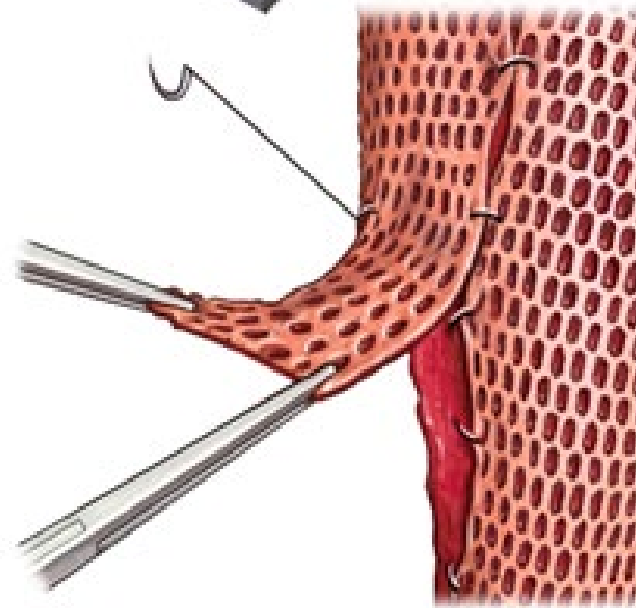


Skin grafting

Graft taken from patient's healthy skin



Skin is meshed to cover a large wound



Skin grafting



Skin grafting



Questions?

