



# **BURNS SERVICE WA**

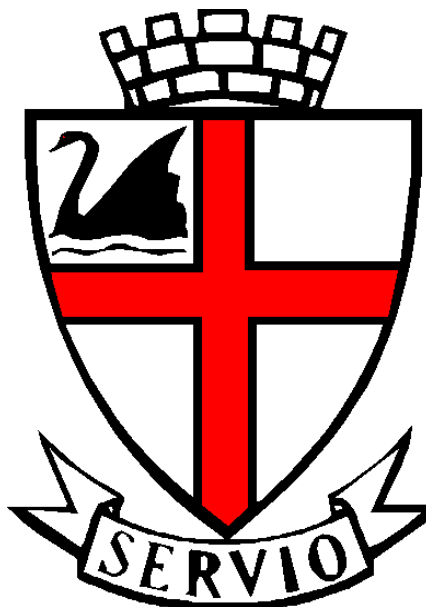
## **BURN EDUCATION BOOKLET**

**ROYAL PERTH HOSPITAL, WELLINGTON ST. PERTH**

**PRINCESS MARGARET HOSPITAL FOR CHILDREN, ROBERTS  
RD. SUBIACO**



## ROYAL PERTH HOSPITAL



### Guidelines for the Initial Management of Adult Burns

#### (PRE-TRANSFER GUIDELINES)

**Burns Service WA aims to support all adult burn care in WA, do not hesitate to call or email to discuss any burn injury of any size.**

**Phone 0424155613 if you need assistance with any burn enquiry.** Alternatively phone 92242244, page the Plastic Surgery Registrar on call (after hours). Your enquiry will be handled and if necessary you will be referred to the Burns Specialist.

Email: [RPHBurnsTelehealth@health.wa.gov.au](mailto:RPHBurnsTelehealth@health.wa.gov.au) or [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au) with/without digital images to discuss the case.

Please refer to the contact details at the back of the document if you need further contact information

### **REFERRAL CRITERIA FOR ADMISSION TO THE STATE ADULT BURN UNIT**

- Burns greater than 5 per cent total body surface area
- Circumferential partial thickness or full thickness burns of any %TBSA
- Inhalational burns
- Chemical burns
- Electrical burns
- Special area burns i.e. face, neck, hands, feet, perineum, joint or inhalation burns
- Burns with concurrent injuries or co-morbidities

### **INITIAL MANAGEMENT OF ADULTS WITH MAJOR BURNS (>15%TBSA)**

**BURN FIRST AID** - preferably give immediately after burn injury or within the first 3 hours of burns. Conduct routine ABCs of first aid initially.

- **Stop** the burning process.
- **Cool** the burn with cool clean running water for a minimum of 20 minutes
- **Ice** is not to be used on the burn wound
- **Remove clothing**, cut around adhered clothing if required
- **Remove jewellery** only if constricting circulation

### **PRIMARY SURVEY**

- **AIRWAY**- check airway patency. There may be heat damage to the respiratory tract in people with face, neck or upper torso burns. Check if the incident happened in a confined space, or if an explosion was involved at the time of the incident.
- **BREATHING** – Assess breathing patterns, if the patient is in respiratory distress, intubation is considered early. Check arterial blood gases when possible. If facial burns is sustained, humidified oxygen should be commenced as soon as possible. Nurse the patient in the upright position if it is not contra-indicated e.g.suspected cervical or other spinal injury
- **CIRCULATION** - Check capillary refill time (should be < 3 seconds). Areas of circumferential burns may cause constriction to the circulation and underlying structures which may lead to **compartment syndrome**. If you suspect there is compartment syndrome developing, **escharotomies** may be required.  
Elevate affected area and perform 1/2 hourly neurovascular observations ie colour, warmth, movement and sensation of extremity/ies.

**Contact the Burns Unit at RPH to speak with a Burns Specialist or  
Phone number 0424155613**

### **SECONDARY SURVEY**

- Perform a head-to-toe assessment - check for concurrent injuries.
- Obtain patient history eg. allergies, medications, past medical history, last meal

### **PATIENT DEMOGRAPHICS**

- Age, name, address and best phone contact( patient and carer)
- Occupation

### **BURN HISTORY/CIRCUMSTANCE**

- **Significant information** - obtain from the patient or significant other, information on how, when and where the injury occurred and the type of first aid given at the scene and the duration and time first aid was given.
- **Burning agent** - cause of the burn ie. flame, scald, contact with hot surface, chemical or electrical
- **Duration of the burning process** – how long the person was in contact with the burning agent
- **Time of the burn** -the 36 hour burn resuscitation period is commenced from the time of the burn injury
- **How did the burn happen** - did the burn occur in a confined space? Was there an explosion? If so there is more risk of inhalation of heat, smoke or poisonous gases

### **MEDICAL HISTORY**

- Pre existing diseases or co-morbidities
- Past medical history
- Check the patient for drug or other allergies, tetanus status, medications, alcohol and any use of recreational drugs.

### **MEDICATIONS**

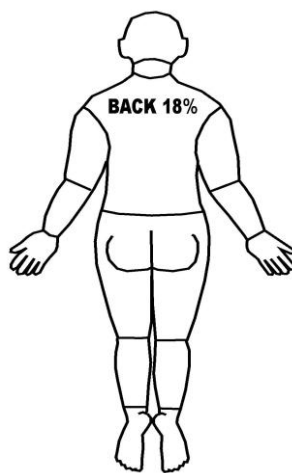
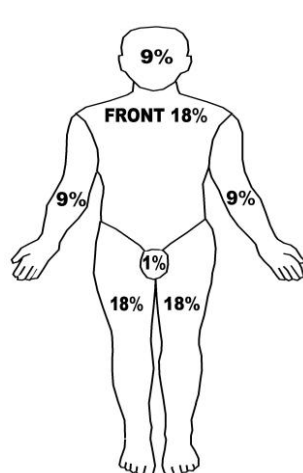
- Tetanus immunisation status – tetanus toxoid should be given if patient has not had a booster injection in 10years or status unknown ( as per tetanus protocol).
- Analgesics should be given as boluses via infusion. Opioids or opioid -like analgesics should be commenced as soon as possible.
- No medications should be given orally, subcutaneously, or intra muscularly at this stage

### **OEDEMA**

- Elevate the burn area. If the face, neck or airway are burnt, sit the patient upright (if no contra-indications) and elevate burnt limbs above the level of the heart where possible

### **BURN SIZE- PERCENTAGE**

- Use the Rule of Nine to calculate the percentage of burn injury for adult patients
- Do not include areas of erythema



Head- 9%  
Each arm -9%  
Leg (whole leg)-18 %  
Front of the trunk- 18 %  
Back of the trunk- 18%  
Perineum-1%  
Hand/palm and fingers-1 %

### **DEPTH OF BURN**

Burns are classified as:

- **Superficial** - involves the epithelium - pink, red, painful.
- **Partial thickness** – involves the epithelium and portions of the dermis – blistered, mottled pink, painful, cool, hairs intact.
- **Deep partial thickness**- involves the epithelium and the deeper portions of the dermis- blistered, pale pink, painful, cool ,hairs may not be intact
- **Full thickness burn** - may extend through the skin to underlying structures - may be cold to touch, typically white, brown or black, leathery, insensate, may have thrombosed blood vessels, no hairs present or hairs fall out when rubbed.

### **FLUID RESUSCITATION**

- Insert two large bore cannulae and commence fluid resuscitation, may have to insert through burnt tissue if necessary
- Insert urethral catheter and monitor urine output hourly
- Insert a nasogastric tube and commence gradual enteral feeding over 24 hours
- Document all fluid administration and urinary output and ensure all relevant documentation accompanies the patient for transfer to the Burn Unit.

**RPH Fluid Resuscitation Formula** - *this is the fluid that will be lost from the circulatory system in the first 24 hours post burn injury. To prevent the onset of circulatory shock, RPH Burns Service recommends resuscitation starts immediately with Hartmanns Solution (Normal Saline if no Hartmanns solution is available)*

**Example for a 60kg patient with 60% TBSA**

- $2 \times \% \text{ TBSA} \times \text{pre-burn body weight (in kg)} = \text{Volume in mls.}$   
 $2 \times 60\% \times 60\text{kg} = 7200\text{mls}$
- Give 50 per cent of quantity in the first **8 hours**. *ie. 3600mls*
- Give 25 per cent of quantity in the second **8 hours**. *ie. 1800mls*
- Give 25 per cent of quantity in the third **8 hours**. *ie. 1800mls*
- The normal daily fluid intake of the patient i.e. *2000 mls* must be given with the above volume in the same time period eg 2000mls over 24 hours = 83 ml/hr.

**Contact 0424155613 (Burn CNC) or 92242244 page Plastic Registrar on-call or the Burn Unit 0892242154 for advice on fluid resuscitation**

**Urine Output-**

- Fluid therapy regime is titrated to the amount of urine measured hourly in order to maintain the urine output at 0.5 -1 ml per kg body weight per hour with a specific gravity 1020.  
(**NB** 1-2 ml per kg body weight per hour for electrical burns to flush out the myoglobin. People who have an inhalation burn are dehydrated or intoxicated may also have greater Intravenous fluid requirement).

**WOUND MANAGEMENT**

- Keep the patient warm at all times, heat the resuscitation room if necessary- keep the patient's core temperature above 36.5°C
- Wash the burns and remove any blisters or devitalised skin- use Chlorhexidine 4% liquid soap and tap water
- If anticipated transportation time is **2 hours or less**, wrap the **burnt area with saline soaked dressings or towels and cover the patient with a warm blanket (i.e. cool the burn and warm the patient).**
- If anticipated transportation time is **more than 2 hours** cover the wound surface with **antimicrobial dressings (Acticoat™ is the preferred dressing, apply Acticoat dressings moistened with sterile water followed with sterile water compresses and dry gauze).** If Acticoat is not available apply Flamazine™ and gauze dressings
- **Do not use plastic or 'Gladwrap' alone.** This retains heat and may increase the risk of infection.

### PATIENT ASSESSMENT

Name \_\_\_\_\_ DOB \_\_\_\_\_  
 Date of Burn \_\_\_\_\_ Time of burn \_\_\_\_\_  
 Place of Burn injury Occurrence \_\_\_\_\_  
 Date of assessment \_\_\_\_\_ Time of assessment \_\_\_\_\_

### PRIMARY SURVEY

Airway Patent YES \_\_\_ NO \_\_\_  
 Breathing Normal YES \_\_\_ NO \_\_\_  
 Circulation Normal YES \_\_\_ NO \_\_\_  
 Airway burn suspect YES \_\_\_ NO \_\_\_  
Oxygen  
 Dry O<sub>2</sub> YES \_\_\_ NO \_\_\_  
 Humidified O<sub>2</sub> YES \_\_\_ NO \_\_\_

### SECONDARY SURVEY

Cervical Injury YES \_\_\_ NO \_\_\_  
 Spinal injury YES \_\_\_ NO \_\_\_  
 Concurrent injuries YES \_\_\_ NO \_\_\_  
 Specify \_\_\_\_\_

### FIRST AID

Burns cooled with cool running water for 20 minutes? YES \_\_\_ NO \_\_\_  
 Burns cooled with damp towels/compresses YES \_\_\_ NO \_\_\_  
 Clothing removed? YES \_\_\_ NO \_\_\_  
 Jewellery removed YES \_\_\_ NO \_\_\_

### BURN AGENT

Flame YES \_\_\_ NO \_\_\_  
 Scald YES \_\_\_ NO \_\_\_  
 Contact YES \_\_\_ NO \_\_\_  
 Electrical YES \_\_\_ NO \_\_\_  
 Chemical YES \_\_\_ NO \_\_\_  
 State type and concentration \_\_\_\_\_  
 Other- \_\_\_\_\_

### INHALATIONAL BURNS

Did the burn occur in a confined space YES \_\_\_ NO \_\_\_  
 Explosion involved YES \_\_\_ NO \_\_\_  
 Face, neck and chest burns? YES \_\_\_ NO \_\_\_  
 Signs and symptoms of inhalational burns? YES \_\_\_ NO \_\_\_  
**IF YES-**  
 Patient nursed in upright position (if no contraindications) YES \_\_\_ NO \_\_\_  
 Monitor oxygen saturation YES \_\_\_ NO \_\_\_

### CIRCULATION

Compartment syndrome YES \_\_\_ NO \_\_\_



Neurovascular observations within normal limits YES\_\_\_NO\_\_\_  
Limbs elevated YES\_\_\_NO\_\_\_

### ESCHAROTOMIES

YES\_\_\_NO\_\_\_

Sites \_\_\_\_\_  
\_\_\_\_\_

### TETANUS IMMUNISATION

Tetanus immunisation current? YES\_\_\_NO\_\_\_  
Tetanus toxoid given YES\_\_\_NO\_\_\_

### ANALGESIC COVER

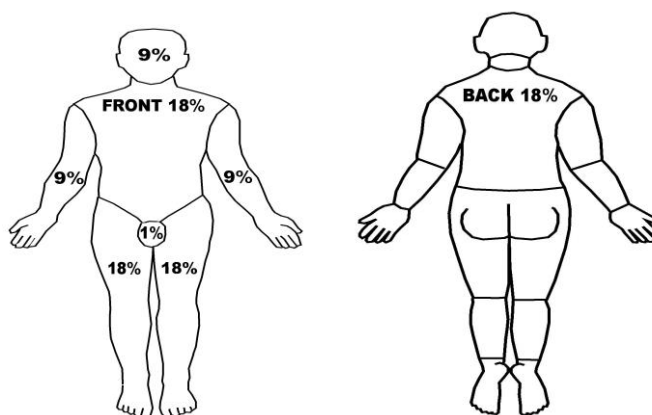
Opioid Boluses YES\_\_\_NO\_\_\_  
Opioid infusion YES\_\_\_NO\_\_\_  
OTHER-specify YES\_\_\_NO\_\_\_

### WALLACE RULE OF NINES

Shade in areas of partial and deep burns and estimate percentage burns, adults only

Head 9%  
Arms each 9%  
Leg (whole) 18% each  
Front trunk 18%  
Back trunk/buttocks 18%  
Perineal/genitals 1%

Total %TBSA\_\_\_\_\_



### FLUID FORMULA

**Weight**\_\_\_\_\_

$2 \times \%TBSA \times \text{body weight (kg)} = \text{quantity of Hartmanns or Saline required in 1st 24 hrs (in mls)}$

First 8 hours 50% of quantity =

Second 8 hours 25% of quantity =

Third 8 hours 25% of quantity =

Normal daily maintenance fluid requirement must be titrated into the 24 hours fluid replacement

### URINE OUTPUT –

Regulate the I.V. fluids to maintain the urine output at 0.5 -1 ml per kilo body weight per hour with a specific gravity 1020

(NB 1-2 ml per kg body weight per hour for electrical burns to flush out myoglobin. People who have an inhalational injury or are dehydrated or intoxicated may also have greater Intravenous fluid requirement).

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012

<b>TRANSFER CHECKLIST</b>
---------------------------

Contact made with Royal Perth Burns Unit	YES___NO___
I.V Fluids	YES___NO___
Fluid Balance Chart	YES___NO___
Analgesia	YES___NO___
Tetanus Toxoid	YES___NO___
Urethral Catheter	YES___NO___
NGT	YES___NO___.
Oxygen	YES___NO___
Humidified oxygen	YES___NO___
Urinalysis	YES___NO___
Escharotomies	YES___NO___
Head, limbs elevated	YES___NO___
Base Line Data Attached e.g. Urea and Electrolytes,	
Full Blood Picture, CarboxyHaemoglobin,	YES___NO___
X Rays, Arterial Blood Gases	YES___NO___

**Please include this documentation with the patient's notes on transfer.**

**REFERRING CLINICIAN**

Hospital\_\_\_\_\_

Name\_\_\_\_\_

Address\_\_\_\_\_

Telephone \_\_\_\_\_

**RPH Burns Service Contact:**

State Adult Burn Unit, Royal Perth Hospital	08-92242154
Joy Fong, Clinical Nurse Consultant, Burns RPH	08-92242244 pager 2908/ Mobile 0424155613
Burn Outpatient Clinic	08-92243566/ fax-0892243577

**Acknowledgements to be given to the Burns Service WA Education Team members in the compiling of this document:**

Clinical Professor Fiona Wood, Burns Director  
Associate Professor Suzanne Rea, Burns Consultant  
Joy Fong, Clinical Nurse Consultant, Burns Service, RPH  
Tania McWilliams, Clinical Nurse Consultant, Burns Service, PMH  
Dr. Dale Edgar, Senior Physiotherapist, Burns Service, RPH  
Sharon Rowe, Clinical Nurse, Burns Service, RPH  
Alwena Willis, Staff Development Nurse, Burns Service RPH.

**Disclaimer:**

*Thank you for requesting copies of RPH nursing documentation. While we encourage the mutual appreciation and sharing of information that assists colleagues with promoting evidence-based nursing and standardised practice, we would ask that you respect our ownership rights.*

*We are happy to provide the information you require on the proviso that you:*

- *do not amend/revise/modify the original documents - we send them in Portable Document Format (PDF) for this reason;*
- *make reference to RPH and acknowledge the document author(s) if information from these documents is used to produce new material;*
- *recognise that the document(s) requested may be superseded in the future - it is the requestors' responsibility to ensure that any material used to inform/guide practice is current.*

*Some information are taken from a previous document "Assessment and Treatment form for Adult Burn Patients" first compiled 1994, reviewed last 2008. This document was used by the Royal Perth Hospital, Burn Management Programme as resource material for burn education.*

# **PRINCESS MARGARET HOSPITAL FOR CHILDREN**

## **WA BURN SERVICE**

# **Guidelines for the Initial Management of Paediatric Burns**

## **(PRE-TRANSFER GUIDELINES)**

**WA Burn Service aims to support all paediatric burn care in WA, do not hesitate to call to discuss any burn injury of any size.**

Phone PMH (08) 9340 8222 and page the on call Burns Registrar or on-call Burns Consultant.  
Alternatively contact the Burns Unit at (08) 9340 8257 and ask for the Shift Co-ordinator.

### **REFERRAL CRITERIA TO PMH BURNS UNIT**

- Burns greater than 5 per cent total body surface area
- Circumferential partial thickness or full thickness burns
- Inhalational burns
- Chemical burns
- Electrical burns
- Special Area burns i.e. face, neck, hands, feet, perineum, joint or inhalation burns
- Burns with concurrent injuries or comorbidities
- Suspicion on non-accidental injury
- Infected burns

### **INITIAL MANAGEMENT OF CHILDREN WITH MAJOR BURNS (>10%TBSA)**

**BURN FIRST AID** - preferably give immediately after burn injury or within the first 3 hours of burns. Conduct routine ABCs of first aid initially then:

- **Stop** the burning process.
- **Cool** the Burn with cool clean running water, for 20 minutes
- **Ice** is not to be used on the burn wound
- **Remove clothing** taking care not to rip any adhered skin. Cut around adhered clothing if required
- **Remove jewellery** only if they are constricting
- **Keep the patient warm**

### **PRIMARY SURVEY**

- **AIRWAY**- Check airway patency. There may be heat damage to the respiratory tract with burns to the face, neck or upper torso, the burn took place in a confined space, or if there was an explosion.
- **BREATHING** - If the patient has respiratory distress, intubation is considered early. Arterial Blood Gases will need to be checked when possible. Humidified oxygen should be commenced. Nurse the patient in the upright position if there are no contra-indications e.g. suspected cervical or other spinal injury
- **CIRCULATION** - Check for capillary filling time (< 3 seconds). Areas of circumferential burns may cause constriction to circulation and underlying tissues which may progress to **compartment syndrome**.

If you suspect there is compartment syndrome developing, **escharotomies** may be required.

Elevate affected area, ensure dressings are not tight, and perform half hourly perfusion checks.

**Contact PMH to speak with the on-call Burns Consultant via switch on 9340 8222.**

## **SECONDARY SURVEY**

- Do a head-to-toe assessment check for concurrent injuries.
- Obtain patient history eg. Allergies, medications, past medical history, last meal

## **PATIENT DEMOGRAPHICS**

- Age, name, best phone contact (carer) and address

## **BURN HISTORY/CIRCUMSTANCE**

- **Significant information:** Obtain from the patient or significant other information on how, when and where the injury occurred. Type of first aid at the scene – water, chemical antidote, etc.
- **Burning agent:** cause of the burn ie. Flames, scald, contact with hot surface, chemical or electrical
- **Duration of the burning process:** How long the person was in contact with the chemical or burning agent
- **Time of the burn:** the 36 hour burn resuscitation period is commenced from the time of the burn injury
- **How did the burn happen:** Did the burn occur in a confined space? Was there an explosion? If so there is more risk of inhalation of heat, smoke or poisonous gases

## **MEDICAL HISTORY**

- Pre existing diseases or comorbidities
- Past medical history
- Check the with the family and patient for drug or other allergies, tetanus status, medications, alcohol and any use of recreational drugs.

## **MEDICATIONS**

- Tetanus Immunisation Status -Tetanus toxoid should be given if the patient is not currently covered, or status unknown.
- Check with the patient and family for any allergies to medications
- Check if the patient is taking any regular medications or if the patient/ family/ GP/ transferring hospital has administered any medications following the burn injury
- Analgesics should be given as boluses via infusion. Opioids or opioid - like analgesics should be commenced as soon as possible. Patient should be monitored closely for possible side effects of medications.
- No medications should be given orally, subcutaneously, or intra muscularly at this stage

## **OEDEMA**

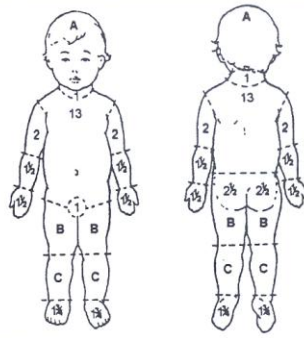
- Elevate the burn area. If the face, neck or airway are burnt, sit the patient upright (if no contra-indications) and elevate burnt limbs above the level of the heart where possible

## **BURN SIZE - PERCENTAGE**

- The Modified Lund and Browder Chart should be used to estimate the burn size (% total body surface area burn is often referred to as %TBSA)
- Do not include areas of simple erythema

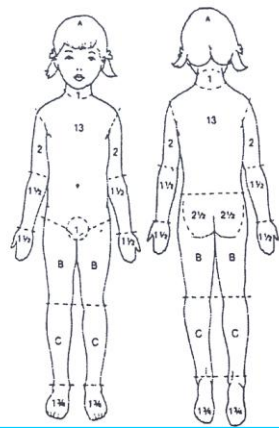
**INSTRUCTIONS**

1. Choose the figure most accurately resembling the child.
2. Shade the areas corresponding to the burn. DO NOT INCLUDE ERYTHEMA.
3. Use the charts to calculate the body surface area (BSA).
4. GUIDE: The patient's palm is equal to approx. 1% BSA.
5. See over for alternative charts.



**RELATIVE PERCENTAGE OF BODY SURFACE AREA AFFECTED BY GROWTH**

AREA / AGE	0 yr	1 yr	5 yrs	10 yrs	15 yrs	ADULT
A = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2	3 1/2
B = 1/2 of one thigh	2 3/4	3 1/4	4	4 1/2	4 1/2	4 3/4
C = 1/2 of one leg	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2



REGION	%
HEAD	
NECK	
ANT. TRUNK	
POST. TRUNK	
RIGHT ARM	
LEFT ARM	
BUTTOCKS	
GENITALIA	
RIGHT LEG	
LEFT LEG	
TOTAL BURN	

Name:.....

Signature:.....

## DEPTH OF THE BURN

Burns are classified as:

- **Superficial:** involves the epithelium - pink, red, painful.
- **Partial thickness:** involves the epithelium and portions of the dermis – blistered, mottled pink, painful, cool, hairs intact.
- **Full thickness burn:** may extend through the skin to underlying structures - may be cold to touch, typically white, brown or black, leathery, insensate, may have thrombosed blood vessels, no hairs present or hairs fall out when rubbed.

## FLUID RESUSCITATION

- Insert two large bore cannulae and commence fluid resuscitation
- Insert urethral catheter and monitor urine output hourly
- Insert nasogastric tube and commence gradual enteral feeding over 24 hours
- Document all fluid administration and urinary output and ensure all documentation accompanies the patient on transfer to the Burn Unit.

**PMH Burns Fluid Resuscitation Formula:** *this is the fluid that will be lost from the circulatory system in the first 24 hours post burn injury. To prevent the onset of circulatory shock, PMH Burns Service recommends resuscitation starts immediately with Hartmanns Solution (if none available Normal Saline)*

**2 x % TBSA x pre-burn body weight (in kg) = Volume in mls.**

- Give 50 per cent of quantity in the first **8 hours from the time of burn injury**
- Give 25 per cent of quantity in the second **8 hours**.
- Give 25 per cent of quantity in the third **8 hours**.
- The child's normal maintenance fluid based on age and weight should be added to this as an hourly amount
- **Contact the Burns Unit for advice on fluid resuscitation**

#### **Urine Output-**

- Fluid therapy regime is adjusted upon hourly measures to maintain the urine output at 0.5 -1 ml per kg body weight per hour with a specific gravity 1020 - 1025.  
(NB 1-2 ml per kg body weight per hour for electrical burns to flush out the myoglobin).

**Patients receiving fluid resuscitation require very close monitoring and observation.**  
**The above formula is a guide only and must be adjusted according to patient condition and urine output.**

#### **WOUND MANAGEMENT**

- Keep the patient warm at all times, heat the resuscitation room if necessary-keep the patient's core temperature above 36.5°C
- Wash the burns and remove any blisters or devitalised skin- use Chlorhexidine 4% liquid soap and tap water
- If anticipated transportation time is **2 hours or less**, wrap the patient in **saline soaked dressings or towels**.
- If transportation time is **more than 2 hours** cover the wound surface with **antimicrobial dressings (Acticoat™ is the preferred dressing, apply Acticoat dressings moistened with sterile water followed with sterile water compresses and dry gauze)**. If Acticoat is not available apply Flamazine™ cream and gauze dressings
- **Do not use plastic or 'Gladwrap'**. This retains heat and may increase the risk of infection.



### PATIENT ASSESSMENT

Name \_\_\_\_\_ DOB \_\_\_\_\_  
 Date of Burn \_\_\_\_\_ Time of burn \_\_\_\_\_  
 Place of Burn injury Occurrence \_\_\_\_\_  
 Date of Assessment \_\_\_\_\_ Time of Assessment \_\_\_\_\_

### PRIMARY SURVEY

Airway Patent YES \_\_\_ NO \_\_\_  
 Cervical Injury YES \_\_\_ NO \_\_\_  
 Breathing Normal YES \_\_\_ NO \_\_\_  
 Circulation Normal YES \_\_\_ NO \_\_\_  
 Airway burn suspect YES \_\_\_ NO \_\_\_  
Oxygen  
 Dry O2 YES \_\_\_ NO \_\_\_  
 Humidified O2 YES \_\_\_ NO \_\_\_

### SECONDARY SURVEY

Concurrent injuries YES \_\_\_ NO \_\_\_  
 Specify \_\_\_\_\_  
 Allergies YES \_\_\_ NO \_\_\_  
 Specify \_\_\_\_\_  
 Past medical history \_\_\_\_\_  
 \_\_\_\_\_

### FIRST AID

Burns cooled with cool running water for 20 minutes? YES \_\_\_ NO \_\_\_  
 Burns cooled with damp towels/compresses YES \_\_\_ NO \_\_\_  
 Clothing removed? YES \_\_\_ NO \_\_\_  
 Jewellery removed? YES \_\_\_ NO \_\_\_

### BURN AGENT

Flame YES \_\_\_ NO \_\_\_  
 Scald YES \_\_\_ NO \_\_\_  
 Contact YES \_\_\_ NO \_\_\_  
 Electrical YES \_\_\_ NO \_\_\_  
 Chemical YES \_\_\_ NO \_\_\_  
 state type and concentration \_\_\_\_\_  
 Other- \_\_\_\_\_

### INHALATIONAL BURNS

Did the burn occur in a confined space YES \_\_\_ NO \_\_\_  
 Explosion? YES \_\_\_ NO \_\_\_  
 Face, neck and chest burns? YES \_\_\_ NO \_\_\_  
 Signs and symptoms of inhalational burns? YES \_\_\_ NO \_\_\_  
**IF YES-**  
 Patient nursed in upright position(if no contraindications) YES \_\_\_ NO \_\_\_  
 Monitor of oxygen saturation YES \_\_\_ NO \_\_\_

### CIRCULATION

Compartment syndrome YES\_\_\_NO\_\_\_  
 Neurovascular observations normal YES\_\_\_NO\_\_\_  
 Limbs elevated YES\_\_\_NO\_\_\_

### ESCHAROTOMIES

Sites performed \_\_\_\_\_  
 \_\_\_\_\_

### TETANUS

Tetanus immunisation current? YES\_\_\_NO\_\_\_  
 Tetanus toxoid given YES\_\_\_NO\_\_\_

### ANALGESIC COVER

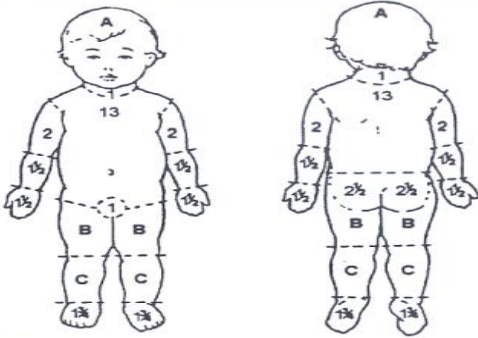
Opioid Boluses YES\_\_\_NO\_\_\_  
 Opioid infusion YES\_\_\_NO\_\_\_  
 OTHER-specify YES\_\_\_NO\_\_\_

### ESTIMATION OF BURN SIZE (%TOTAL BODY SURFACE AREA BURN) MODIFIED LUND & BROWDER TO ESTIMATE %TBSA

Shade in areas of partial and deep burns and estimate percentage burn

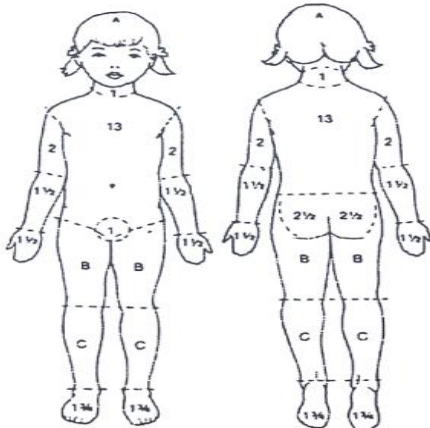
**INSTRUCTIONS**

- Choose the figure most accurately resembling the child.
- Shade the areas corresponding to the burn. DO NOT INCLUDE ERYTHEMA.
- Use the charts to calculate the body surface area (BSA).
- GUIDE: The patient's palm is equal to approx. 1% BSA.
- See over for alternative charts.



**RELATIVE PERCENTAGE OF BODY SURFACE AREA AFFECTED BY GROWTH**

AREA / AGE	0 yr	1 yr	5 yrs	10 yrs	15 yrs	ADULT
A = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2	3 1/2
B = 1/2 of one thigh	2 3/4	3 1/4	4	4 1/2	4 1/2	4 3/4
C = 1/2 of one leg	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2



REGION	%
HEAD	
NECK	
ANT. TRUNK	
POST. TRUNK	
RIGHT ARM	
LEFT ARM	
BUTTOCKS	
GENITALIA	
RIGHT LEG	
LEFT LEG	
TOTAL BURN	

Name:.....

Signature:.....

Total TBSA\_\_\_\_\_

### FLUID RESUSCITATION FORMULA

Weight\_\_\_\_\_

$2 \times \%TBSA \times \text{body weight (kg)} = \text{quantity of Hartmanns required in 1st 24 hrs (in mls)}$

First **8** hours 50% of quantity =

Second **8** hours 25% of quantity =

Third **8** hours 25% of quantity =

***Normal daily maintenance fluid requirement based on age and weight must be added as an hourly amount***

### URINE OUTPUT

Regulate the I.V. fluids to maintain the urine output at 0.5 -1 ml per kilogram body weight per hour with a specific gravity 1020 - 1025

(NB 1-2 ml per kg body weight per hour for electrical burns to flush out the myoglobin)

### TRANSFER CHECKLIST

Contact made with Princess Margaret Hospital Burns Unit	YES___NO___
I.V Fluids	YES___NO___
Fluid Balance Chart	YES___NO___
Analgesia	YES___NO___
Tetanus Toxoid	YES___NO___
Urethral Catheter	YES___NO___
NGT	YES___NO___.
Oxygen	YES___NO___
Humidified oxygen	YES___NO___
Urinalysis	YES___NO___
Escharotomies	YES___NO___

Head, limbs elevated	YES___NO___
Base Line Data Attached e.g. Urea and Electrolytes, Full Blood Picture, CarboxyHaemoglobin,	YES___NO___
X Rays, Arterial Blood Gases	YES___NO___
Silver dressing applied (Acticoat or Flamazine)	YES___NO___

**REFERRING PHYSICIAN HOSPITAL**

Hospital\_\_\_\_\_

Name\_\_\_\_\_

Address\_\_\_\_\_

Telephone \_\_\_\_\_

# Cool, Assess, Dress. Telehealth.

## Cool



Remove clothing and constrictive jewellery

Cool for the burn for 20 minutes with running water

Cover loosely with a wet towel

Keep patient warm

### Quicker healing; less scarring

Healing within 10 days of injury is best; if there are few signs of healing or you have other concerns email a photo so we can help. Surgery at 5-7 days post burn is optimal.

Initial presentation

Meets assessment for immediate referral?

Yes –  
Refer and  
transfer

No–  
Telehealth

Debride, clean, photo,  
dress wound.  
Admit to your facility or  
send home

Email photos and clinical  
information.

Receive specialist advice within 24  
hours

## Assess

### Immediate Referral Criteria

>5% total body surface  
area in children

>10% total body surface  
area in adults

Any full thickness burn

Circumferential partial or full thickness burns

Possible non-accidental injury

Infected burns

Pain control issues

Inhalation burn

Chemical burns

Electrical burns

Special area burns; i.e. face, neck, hands, feet, genitals,  
perineum, joint, airway

Burns with concurrent injuries or co-morbidities

Patients who meet the referral criteria are not suitable for Telehealth.  
Please refer immediately

Adults: Call RPH switch on 9224 2244 for the on-call Plastic Surgical  
Registrar/Burns Consultant.

Children: Call PMH switch on 9340 8222 for the on-call Burns  
Consultant or Registrar.

## Don't delay — Debride & Dress

Silver dressings are recommended for the first 48 hours:  
first choice Acticoat™

After 48 hours switch to calcium alginate dressing and  
Fixomull if wound looks clean

Do not use Fixomull alone

Review and change dressing at 2 days and 5 days post burn

Give appropriate simple analgesia

If patient has a fever or is systemically unwell please call

## Telehealth

For specialist burn care advice within 24 hours send  
photos and brief clinical history

For adults: [RPHBurnsTelehealth@health.wa.gov.au](mailto:RPHBurnsTelehealth@health.wa.gov.au)

For children:

[PMHBurnsTelehealth@health.wa.gov.au](mailto:PMHBurnsTelehealth@health.wa.gov.au)

## Lecture Notes from Burn Management Programme

A burn may be defined as any 'extrinsic physical process causing tissue damage and destruction'.

Burns are a common form of trauma. It is estimated that 1% of the Australian/New Zealand population per year will sustain a burn each year, of this 10% will require hospitalisation. A further 10% of this group will have life threatening burns.

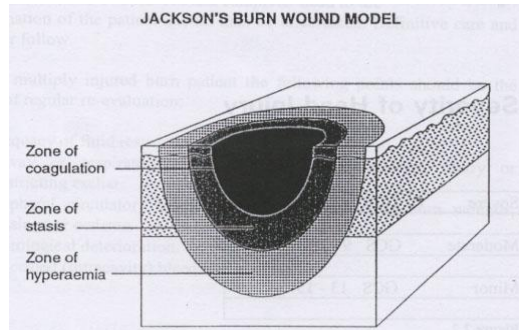
### Overview

- Impact of Education and Prevention
  - Prevalence of burn injury
  - Epidemiology of burn injury
  - Clinical Indicators
- WA Model of Burn Care
  - Access statewide
  - Telehealth

### Interventions at your facility

- Immediate post-injury
- Stabilisation and preparation for transfer to RPH / PMH
- Minor burn management
- Post-discharge rehabilitation and return to work / participation
- 

### Burn Pathophysiology-Local Response to Burn injury



Zone of stasis is salvageable. Immediate and early management prevents burn conversion

### Systemic Response

Burn 20-30% TBSA

- Systemic Inflammatory Response Syndrome (SIRS)
- Marked increase in capillary permeability
- Rapid, high volume swelling
- Hypovolaemia or shock will result without fluid resuscitation

### Assessment

- Burning agent
- Burn circumstances
- Duration of burning

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012

- Clothing alight
- Inhalation injury

### **Agents of Burn Injury**

Explosion and flame

Scald

Contact

Electrical

Chemical

Friction

Sunburn

Cold injury (frostbite)

In 1985- flame burns was 35% per 100,000 population and scalds was 17% per 100,000 population

In 2009- flame burns was 12% per 100,000 population and scalds was 18% per 100,000 population

Other agents stable between 2-5% across the years.

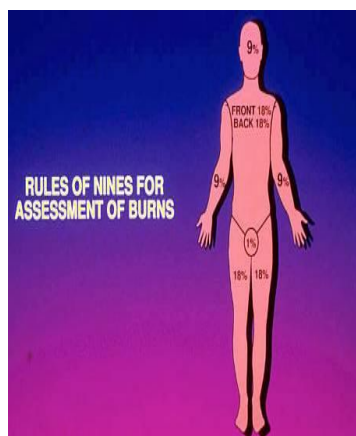
### **Non Accidental burn injuries**

- Occur mostly in the elderly and paediatric population

### **Factors determining the Burn Severity**

- Immediate treatment given
- First aid
- Total Body Surface Area
- Depth
- Resuscitation
- Location
- Agent
- Age
- Past Medical History

### **Assess the burn size using the Rule of Nines**



### **Estimation of the Depth of the Burn**

Superficial - involves the epidermis (pink, red, painful)

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012

Partial thickness - involves the epidermis and some dermis (mottled pink, painful hairs intact)

Full thickness -may extend through skin to deeper structures (black or white, leathery, no response to pain, no hairs, thrombosed blood vessels)

**Inhalational injury** increase the mortality ~1.7x

**Classification**

- Airway injury above larynx
- Airway injury below larynx
- Systemic Intoxication Injuries

**Signs and Symptoms of Inhalational injury**

- Burns to mouth, nose and pharynx
- Soot in sputum
- Change of voice
- Hoarse, brassy cough
- Inspiratory stridor
- Tracheal tug
- Indrawing of supraclavicular fossa
- Rib retraction
- Flaring of Alar nasae
- Singed nasal hairs
- Productive cough
- Croup-like breathing
- Respiratory difficulty



Type of Inhalation	Timing	Signs/Symptoms
1. Above the Larynx	4 to 24 hours	Increasing Stridor
		Hoarseness or Weak Voice
		Brassy Cough
		Restlessness
		Respiratory Difficulty
		Respiratory Obstruction
		DEATH
2. Below the Larynx	(i) Immediate	Restlessness
		Life Threatening Anoxia
		DEATH
	(ii) Gradual Onset	Increasing Hypoxia
		Pulmonary Oedema/ARDS
		Respiratory Failure
3. Intoxication	Death At Scene	
	Worse Initially	Obtundation/Unconsciousness
		Stupor
	Improves with Time	Confusion
		Drowsiness
		Poor Mentation
		Visual Disturbances
		Headache

After the initial assessment the subsequent clinical course can be altered by the onset of the known complications of inhalation injury. These include, airway obstruction, deteriorating consciousness, retained secretions, deteriorating oxygenation and respiratory failure.

**“Patients with an altered state of consciousness after burns have carbon monoxide intoxication unless proven otherwise”**

#### **Carbon Monoxide Intoxication**

Carboxyhaemoglobin %	Symptoms
0 - 15	None - (Smokers, long distance lorry drivers)
15 - 20	Headache, Confusion
20 - 40	Nausea, Fatigue, Disorientation, Irritability
40 - 60	Hallucination, Ataxia, Syncope, Convulsions, Coma
> 60	Death

### **Burn First Aid**

- raise alarm
- remove burning agent
- cool burn – 20 mins cool running water → wet towels
- remove clothing / jewellery
- maintain airway
- relieve anxiety
- check for concurrent injuries
- seek medical attention ASAP
- NO ICE!!!

### **Emergency Management and Treatment**

#### Rapid assessment and treatment

Assess for co-existing injuries in the cases of:

- Car accident
- Blast or explosion
- Electrocution
- Jump or fall while escaping

Non-communicative patients should be screened for multiple injuries

### **Primary Survey**

Airway management with C spine control

Breathing and ventilation

Circulation with haemorrhage control

Disability -neurological status

Exposure + environmental control

Fluid resuscitation proportional to burn size

### **Primary survey A.B.C.**

Airway - check patency, especially in burns to face or neck, or if burnt in confined place or explosion

Breathing - if patient in respiratory distress, then intubate (avoid tracheostomy where possible). Check arterial blood gases, give O<sub>2</sub> and nurse in sitting position

Circulation- check for pulses. Circumferential full thickness burns may need escharotomies. Elevate affected area

Oedema - elevate part, sit patient upright if burns to face, neck or upper torso

Contact Burns Unit

### **Secondary Survey**

History

A Allergies

M Medications

P Past illnesses

L Last meal

E Events/Environment related to injury

#### Examination

Head to toe assessment

### **Considerations for transfer to Burn Unit**

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012

- Primary and secondary survey with burn specific considerations -A,B,C

- Essential in Adults >15%TBSA and children >10%TBSA

Management in the immediate 24 hours

- ICU support if required
- Fluid resuscitation (based on TBSA)
- Hourly obs + urine output and SG
- NG feeds
- Wound - antimicrobial dressings
- Analgesia - IV morphine
- Oedema management and physiotherapy

#### **Pre transfer Fluid resus**

- Two large bore cannulae (ideally through non burnt skin)
- Insert IDC and monitor urinary output aiming for 0.5-1ml/kg/hour (>30mls with specific gravity 1020)

Fluid resus calculation

- RPH:  $2 \times \%TBSA \times \text{body weight(Kg)} = \text{vol of Hartmann's solution}$
- 50% volume : first 8 hours after injury
- Remaining 50% volume : next 16 hours
- + Maintenance fluid
- Children's formula – seek assistance PMH.

#### **Example of fluid calculation**

82 kg man sustains 50%TBSA flame burn at 2am, admitted today to your hospital 8am.

- $2 \times 50 \times 82 = 8200\text{mls}$  of Hartmann solution
- Give 4,100 mls by ~10am ('in theory' ie by 8 hrs post-injury)
- Monitor urine output (and respiratory status) closely
- Give 4,100 mls by ~ 2am tomorrow
- In addition usual fluid maintenance of 2-3 litres per 24 hours will also be required

#### **Early Wound Management for Full thickness circumferential burns**

- Timing of escharotomy:
  - ?Pre-transfer – in consultation with BU
  - Strategies to prevent swelling eg elevation of limbs, sit pt. upright if spinal cleared

#### **Pain Management**

- Early - 1st 48 hours -Scene of injury / ED / Burns Unit –acute pain –IV opioids/fentanyl
- Intermediate - Burns Unit / Ward
  - Acute/ background / procedural pain(resource manual)
- Late - Outpatient management
- Itch Management – Phenergan (anti-histamine) 10mg- 8 hourly

#### **Other adjunct therapies**

- Re-assurance
- Explanations / Information (? Interpreter)
- Calm environment

- Touch
- Distraction e.g. music
- Relaxation / Visualisation techniques
- Anxiolytics

### **Criteria for transfer**

- TBSA > 10%(adult) >5%(paeds)
- special areas burns
- respiratory /inhalation burns
- full thickness/circumferential
- electrical / chemical
- burns with concurrent injuries/co-morbidities

### **Preparation for transfer**

Good Communication: Contact the Burn Unit 92242154/0424155613

Airway: Consider intubation **before journey** if suspect for inhalation burns

Breathing: Give O2

Circulation: 2 x IV's, fluid resus commenced, IDC / monitor

Burn Wound: Acticoat dressings (if journey >2 hours)

Pain relief: IV Narcotic

GI system: Insert NG tube

Other: ADT

### **Dressing choice**

- Wound dressing selection
- About wound products
- aim of care
- availability of resources
- patient compliance
- preference

### **Alginate**

- Moist granulating tissue.
- Moderately to highly exudative sloughy wounds.
- A moist wound environment.
- Becomes a gel on contact with wound exudate
- Reduces pain.
- Low allergenic.
- Haemostatic action
- Not appropriate for dry or low exudating.

### **Hydrogels**

- Moist wound environment for cell migration.
- Aids autolytic debridement.
- Rehydrates dry slough or eschar.
- No harm to granulation tissue or epithelialisation.
- Reduces pain.
- May cause maceration.
- Conformable gels can adhere if they dry out.

### **Hydrocolloids**

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012

- Low/moderate exudating wounds.
- Slough or eschar must be moist.
- Appropriate for all burn depths.
- Moist wound environment.
- Water repellent and conformable.
- May be left intact for 3 to 5 days.
- Promotes debridement by autolysis, granulation and epithelialisation.
- Cannot be used for infected or fungal burns and diabetic patients.
- Thin hydrocolloids for scar management only.
- Promotes hypergranulation.
- Gel may be mistaken for infection.
- Friction may dislodge.

#### **Acticoat**

- Nanocrystalline impregnated silver mesh, sustained released
- For partial depth to full thickness burns
- First 3 days post burn or longer (inpatient)
- Apply acticoat moistened with sterile water followed by a layer of water compresses, jelonet and dry gauze and bandage-daily dressings
- If necessary- for outpatients- strips of acticoat over burn-not to cover burn completely, followed with hydrocolloid dressings- last 3 days

#### **Flamazine**

- Not used so much nowadays unless no access to acticoat
- causes pseudo eschar making it hard for wound assessment
- is pro inflammatory- masks burn wound cellulitis
- Not sustained released, dumps large amounts of silver on application  
half life is 16 hours
- More pain as compared to Acticoat dressings

*Notes taken from Burn Management Programme presentation 2011. Compiled by: S.Rea, D.Edgar, J.Fong*

For more detailed information please refer to the Burn Module in WoundsWest website:  
<https://www.health.wa.gov.au/WoundsWest/education/index.cfm>

## **ROYAL PERTH HOSPITAL Pain Management in Burns**

Pain is a significant issue when treating any patient with a burn. Provision of pain relief is of extreme importance to the patient, but can be a major challenge to the multidisciplinary team. There are a number of specific issues of burns pain, which can make its management difficult:

- Changing physiological & psychological reactions to pain over time
- High variability in pain intensity, in particular with movement and dressing changes
- Titration of analgesic doses to effect and adverse effects
- Challenges in patients with pre-existing pain and/or opioid tolerance due to medical or recreational opioid use
- Mixed nociceptive and neuropathic pain
- Acute pain, which can then last for weeks or months – or even become chronic
- Influence of psychological factors such as anxiety and anticipation – repeated dressings, debridements, physio, grafting

### 3 Major Components of Pain

#### Background Pain

- at rest in burned sites and/or donor sites

#### Breakthrough Pain

- during ADL's and movement

#### Procedural Pain

- during dressings

### Consequences of Unrelieved Pain

Increase in sympathetic tone as a stress response

Potential risk of cardiovascular complications including decreased peripheral perfusion

Katabolism leading to poor wound healing

Immunosuppression leading to infection

Impairment of breathing with risk of atelectasis, hypoxaemia and pneumonia

Psychological effects including sleep disturbance, Post-Traumatic Stress Disorder

Chronic pain states by central sensitisation

## **Management of Burns Pain in Adults**

### **Background Non-Opioid Analgesia**

All patients with pain due to burns injury should have regular non-opioid analgesia prescribed:

- Paracetamol 1 g QID
  - Can be prescribed for all patients, but reduce dose to 500 mg QID in patients with body weight below 45 kg or with significant liver impairment or alcoholism
  - Preferred route of administration is oral; if patients are NBM, switch to IV administration.
- COX-2 Inhibitors
  - Should be used with care in patients at risk of renal failure (past history of renal impairment, hypovolaemia, hypotension, other medications with renal toxicity (ACE inhibitors, aminoglycoside antibiotics))
  - Celebrex 100-200 mg BD if oral intake possible
  - Parecoxib 40 mg BD if oral intake impossible (max. 5 doses)

### **Anti-Neuropathic Medication**

As most burns pain has a neuropathic component, use of medication targeted at neuropathic pain is recommended. Here pregabalin is the first choice, as it has also effects on itch and may prevent central sensitisation and thereby chronic pain. Treatment should be initiated by the Pain Medicine Service; a common dose would be 150 mg BD, but this needs to be adjusted to pain relief and sedation.

### **Break-Through Opioid Analgesia**

For initial titration of analgesic requirements, opioids should be used.

- In severe pain or in patients kept NBM, this should ideally been done by using IV PCA fentanyl or, if patient is unable to use PCA, fentanyl by IV infusions.
  - PCA or IV infusions should be initiated by calling the Pain Medicine Service.
  - There might be the additional need for a ketamine infusion to improve opioid efficacy, again initiated by Pain Medicine Service.
- In less severe pain and patient tolerating oral intake, the following should be prescribed:
  - Tramadol IR 50-100 mg PRN 1hrly (max 1000 mg/24 hrs)
    - Tramadol is preferable in patients with previous problems with opioids (respiratory depression, sedation, constipation, abuse).
  - Oxycodone 10-20 mg PRN 1hrly
    - Oxycodone might be needed in more severe pain, but one has to be careful to avoid constipation.

### **Background Opioid Analgesia**

If patients are requiring breakthrough analgesia regularly or have continuous pain, then background analgesia by slow-release opioids should be provided. It is useful initially, to replace 50% of the daily breakthrough requirements by a slow-release version of the opioid used for breakthrough pain:

- Tramadol SR BD or
- Oxycontin SR BD or
- Methadone BD-TDS (by Pain Medicine Service only)
- Transdermal fentanyl or buprenorphine (by Pain Medicine Service only)

Dose adjustments should be made in a way that immediate release opioids are only required a few times a day or only for dressing changes/mobilization.

If no immediate release opioids are requested by the patient for a few days, it is likely, that the dose of background opioids is too high and this should lead to a dose reduction!

### **Analgesia for Dressing Changes**

Pain caused by dressing changes is often severe and requires aggressive management using opioids, Entonox and/or ketamine.

- For severe pain from more complex dressing changes, parenteral opioids via PCA or ketamine/midazolam via PCA should be used. These modalities as well as the use of Entonox should be initiated by the Pain Medicine Service.
- For minor dressing changes or in later stages, often appropriately high oral doses of immediate release opioids are sufficient, if given at least 30-40 minutes prior to the procedure.

Compiled by: Professor Stephan Schug  
Head of Pain Medicine  
RPH

Date: 2012



## PHYSIOTHERAPY FOR BURN PATIENTS

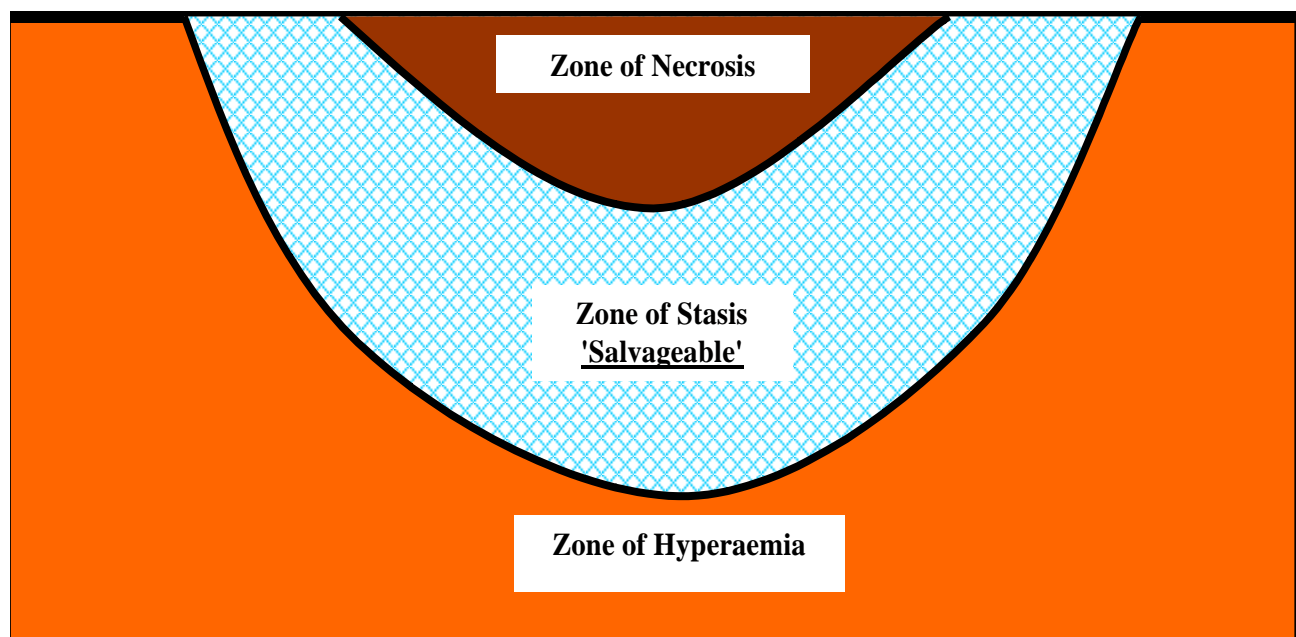
You are a member of the Burn team -You can make a difference **to the final scar and functional outcomes.**

Swelling is our enemy: increasing burn depth. In the early stages after a burn, the inflammatory process makes the blood vessels supplying the injured area leaky. This results in swelling. Fluid, protein and debris pour into the tissues and effectively becomes a diffusion barrier to the nutrient, oxygen and waste products otherwise being supplied to and from the blood vessels and the healing wound. Swelling is a necessary part of the wound healing process, however for every unit of distance across the fluid / debris barrier, the time taken for diffusion of nutrients is squared. As swelling builds, there is a rapidly increasing chance that the tissue in the zone of stasis will also die and increase the depth of burn (long after the burning agent has been removed).

**How do you reduce swelling efficiently?**

- First Aid - cool the burn
- Muscle pump activity and function
- Elevation of limbs at rest
- Light compression / bandaging of limbs
- Optimisation of lymphatic drainage

### Wound Model - Zones of Injury



## **Zone of Stasis**

There is an area within all wounds which has the potential to live or die. If all factors are in the patient's favour then the zone of stasis will be converted to healed tissue. This will prevent the depth of burn (and the chance of surgery and scarring) from increasing.

Zone of Hyperaemia

Zone of Necrosis

Zone of Stasis

Oedema Reservoir

'Salvageable'

Muscles Waste Rapidly -Bedrest is a NO NO!!

Healthy people lose muscle power at a rate of 3 -5 % per day simply when confined to bed (with the respiratory muscles relatively more effected than others). In a burn situation, muscles are likely to be used as a substrate to fuel the wound healing process.

How do you reduce the risk of chest infection and the loss of muscle strength? Assist burns survivors to ambulate and sit out of bed encourage independence with activities of daily living eg feeding, showering and shaving

Bedrest in a burn survivor (particularly if their injury is larger than 25%TBSA) may be life threatening. Further, habits formed in the early stages after a burn injury are difficult to change as time goes by. Muscles are ultimately the only internal force the body has to combat the tightening of scar and we must stimulate them to prevent their loss.

## **Pain Relief**

To allow a patient to achieve good movement at any time, they must have a good baseline of adjunctive pain relief. The use of bolus pain relief alone is rarely effective at controlling pain. It also leads to reduced movement and poor quality movement when the pain relief wears off. Refer to the adjunctive pain control suggestions in this manual for best results.

As a team we must aim to make the cosmetic and functional outcome after a burn worth the pain of survival.

## **Scar Management Occupational Therapy in Burn Care**

Occupational Therapists working within the Burns Specialty have two primary roles – to return a patient to their pre-admission level of function, independence and occupation, and to manage the maturation of scarring.

### ***Return to Pre-admission Level of Function***

Burn injury frequently effects mobility, self-care and potentially the likelihood of return to work so it requires the professional input of all the team. Occupational Therapists have an essential role within the team with their focus on activities of daily living and its inherent components of self-care, leisure and work, and their profession's holistic approach. The extent of a burn injury will determine the extent of Occupational Therapy involvement in these aspects of treatment and preparation for discharge.

Scarring can have a significant impact on a person's ability to engage in different activities, and so therapy needs to have a clear functional focus. The skills that an Occupational Therapist applies in these instances are not necessarily burns-specific but rather are the essential skills of an Occupational Therapist such as activity-based therapy programmes, hand therapy and splinting, ADL retraining (incorporating the full range of self care tasks), graduated return to activities, and ultimately return to work.

### ***Hand Therapy and Splinting***

Hand function and adequate prehension is an essential part of return to independence so Occupational Therapists are heavily involved in hand therapy. Again, the focus is on attaining independence and return to pre-admission function where possible. A range of modalities are used to attain these goals – desensitisation, activity-based therapy, 'E-link' computer based programmes, splinting\* and scar management.

\* Splinting is used for a variety of purposes – positioning, prevention and/or reduction of contractures, functional support and again, scar management.

### ***Scar Management***

Hypertrophic scarring is a phenomenon unique only to human beings, caused by the build up of excess collagen fibres during wound healing. As collagen is produced in excess during this time, it often deposits in non-uniform and disorganised patterns. This can lead to a burn scar that is thickened, raised, rigid, inflexible and nodular/banded in appearance. These are the characteristics of *hypertrophic* scarring as distinct from *keloid* scarring which is characterised by growth well the original boundaries of a wound.

Scarring is influenced by many factors which include the mechanism of injury, the quality of first aid received, patient positioning in hospital, the type of surgical intervention required, the length of time taken to heal and the choice of

dressings used for wound management. Other factors, which can have an influence on scarring, include age, ethnicity, skin pigmentation and pregnancy. A range of scar management techniques are considered -

*a) Application of mechanical pressure*

The most commonly used modality is the application of mechanical pressure which is achieved through the wearing of pressure garments. This pressure encourages the collagen fibres to re-orientate themselves into ordered, parallel patterns (as opposed to whorled patterns that lead to thickened and raised scar tissue).

Occupational Therapists use, as a guideline, a 'rule of thumb' to guide the decision-making in relation to the application of pressure, which relates to the time that a wound takes to heal.

- < 2 weeks – likely to have a good scar outcome, ie no scarring without intervention
- 2 – 3 weeks – possibility of scarring
- > 3 weeks – high likelihood of scarring.

With this framework, an Occupational Therapist is most likely to prescribe, measure for and fit custom-made pressure garments for burn injuries that take > 3 weeks to heal, but for those that take 2-3 weeks to heal, must assess whether custom-made garments are recommended or whether the shorter-term wear of 'ready-to-wear' garments will suffice. This assessment will also be affected by any surgical intervention required. Skin grafts and 'Re-cell' two common surgical interventions used following burns. Skin grafts will require pressure, most commonly for an extended period of time, whereas 'cell-spray' usually requires pressure only for a short time, if at all, and therefore 'ready-to-wear' garments will generally suffice.

Current practice encourages the early application of pressure and so for patients that require custom-made garments, measurements are taken at the first 'take-down' ie when the dressings are changed for the first time post-op which is generally Day 2 after surgery. This may need to be delayed if the affected area is significantly oedematous or if other body sites are also injured which will delay the application of pressure. These garments are then fitted as soon as the wounds require low-profile dressings only or as directed by the treating surgeon.

Garments usually last for around three months but alterations may be required during that time as the skin becomes more resilient, oedema resolves or if other issues arise that affect the fit of the garment.

*Facial burns* require a slightly different approach as the application of pressure is more complex particularly as the wearing of garments on the face and head can adversely affect a patient's psychological state. All patients with facial burns are given a regime of facial exercises that must be done at least three times a day. Those who have moderate to severe burns are also fitted with a

custom-made acrylic face mask which provides a more effective contour over areas of scarring without the 'masking effect' of a fabric mask. Patients are also provided with a fabric mask which most find more comfortable for sleeping or just to wear at home.

*b) Massage & Moisturising*

Massage assists in softening thickened areas of scar tissue caused by a build up of collagen fibres and helps to improve the scars pliability. Massage therapy is also useful for hypertrophic scarring that has become hypersensitive and is used frequently as part of a desensitisation program. The use of vibration using a hand-held mini-massager can also assist.

The ability for skin to hydrate itself is impaired following a burn injury. Patients need to be aware of this and maintain good moisture in their skin to prevent burned skin from drying out, cracking and breaking down. It is recommended that patients initially moisturise twice daily following the healing of a burn using a simple water-based cream such as sorbolene.

*c) The Application of Contact Media*

Contact Media is a collective term used to describe a group of silicone based and wound dressing (hydrocolloids) products used for scar management either alone or in conjunction with pressure garments. There are many products available, however, the most frequently used include:

Silicon Gel Sheets: effective in softening particularly thickened areas of scarring and limiting its contractile components. Silicon gel sheets can be worn in conjunction with garments or alone and patients are usually encouraged to wear at night only. Prolonged use can irritate the skin and cause breakdown so careful monitoring is required.

Silicone Gel 'Cream': works in the same way as silicone gel sheets but is in an ointment form. This is particularly helpful for applying in more visible areas eg the face, areas that are difficult to apply sheets when wearing garments, avoiding increased pressure under garments and also in large areas where sheets are either cost-prohibitive or practically difficult. One product, StrataMED also has the significant benefit in that it can be applied over open wounds so if breakdowns occur, the contact media regime need not be interrupted.

Elastomer Putty moulds: used underneath garments to provide additional pressure to soften and flatten out areas of moderate to severe scarring. Elastomer moulds are useful in areas where it is difficult to contour silicone gel sheets eg. ankle joint, toes and web spaces.

Thin hydrocolloids (eg. 'DuoDerm Thin'): act in a similar way to elastomer moulds, but have the added advantage of being able to remain in place for longer periods of time (up to 7 days) and allow for good conformity.

*d) Sun Protection*

Compiled by: Burns Service Education Committee, RPH, November 2009  
Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA  
Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell  
Date: June 2012

Patients need to protect themselves from the sun for a period of up to two years following a burn injury as the skin will be very sensitive, and sunburn to a burned area may result in drying out of the skin, breakdown and a permanent 'birthmark-like' change to the pigmentation of the skin,

If working or playing outside, even if wearing pressure garments, SPF 30+ sunscreen must be applied and protective clothing worn. Pressure garments alone will not block out the sun.

Rosemary Kendell  
Senior Occupational Therapist  
Burns Service Royal Perth Hospital  
April 2012

**ROYAL PERTH HOSPITAL BURNS SERVICE  
PATIENT INFORMATION**

**MASSAGE – REDUCING THE EFFECTS OF SCARRING**

Scarring will tend to become red and raised during the final stages of healing following surgery such as skin grafting or injury such as burns.

To reduce the long term effects of scarring you are advised to:

1. Protect the scar from the sun. Wear protective clothing and hat. Apply SPF 30+ sunscreen for at least two summers following injury.
2. Massage the scar three times a day, 15 - 20 minutes each time.
3. Clean your skin thoroughly, washing over the area when you shower with simple, non-perfumed soap and water. Be sure to remove any moisturiser from your skin. Do not allow the moisturiser to build up on the surface of your skin.
4. Thoroughly pat dry.
5. Apply a small amount of moisturising cream to the area.
6. Rub the moisturiser in completely and evenly.
7. Use the massage technique as instructed by the medical team.

The best type of massage for your wound is:

**Circular Massage:** Using your thumb or pads of the fingers working in a circular motion moving over the scar. You need to press firmly enough so the scar blanches (turns white) under the pressure. Concentrate on particularly thickened areas of scarring.

**Pinch and Roll:**

FOR MATURE SCARS ONLY WHEN DIRECTED BY THE MEDICAL TEAM  
Pinch up the scar between your thumb and index finger and roll.

**SUGGESTED MOISTURISER:**

Paraffin/petroleum based ointments – for new, fragile skin grafts.

Lanoline based creams – for dry, flaky skin.

Water based creams – for long term use to keep the skin supple (eg. sorbolene cream).

**AVOID HIGHLY PERFUMED OINTMENTS, CREAMS or LOTIONS** as these may irritate and dry out the skin.



Burn Reconstruction and Rehabilitation Unit  
Royal Perth Hospital  
Patient Information

**CARING FOR YOUR MINOR FACIAL BURN**

Burns to the face can cause swelling in the first few days. It is very important for you to keep your face clean and well moisturised. This will prevent drying and cracking which will make you more uncomfortable. You may need to take pain medication prior to starting your face care.

- Wash your face carefully as directed. This may be more than once a day for the first 1-2 days after your burn injury. You should gently wash off all the ointment that is on your skin. This will help remove the dry skin and crusts that may have formed. Use a simple non-perfumed soap. Gently pat dry with a clean towel.
- Men should shave every day to remove dead skin and crusts that will collect in the beard. This will help reduce the risk of infection to your burn.
- Apply a smear of lanolin or emollient ointment to all burn areas.
- Pay attention to the eye area, applying eye ointment if prescribed, to the eyes or eyelids.
- Take special care of the ears and nose.
- After eating or drinking, apply an oily cream such as lanolin to the lips to prevent them from cracking. This helps to reduce the risk of infection and make you feel more comfortable.
- If your face is swollen, sleeping with more than 1 pillow can help reduce this.
- Avoid using makeup on your face burn or newly healed face burn as it may irritate the area.

Compiled by: Sharon Rowe, CN; Joy Fong, CNC, Aug 2006

Authorised by: Winthrop Professor Fiona Wood, Burns Director; Donn John, Nurse Director Surgical Division, July 2011

Endorsed by: Surgical Division Nursing Practice Committee, July 2011

Reviewed by: Sharon Rowe, CN; Joy Fong, CNC; Rosemary Kendell, Occupational Therapist, June 2011.

Compiled by: Burns Service Education Committee, RPH, November 2009

Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA

Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell

Date: June 2012





Burn Reconstruction and Rehabilitation Unit  
Royal Perth Hospital  
Patient Information

**CARING FOR YOUR HEALED BURN**

- Your recently healed burn will be fragile and need care and protection.
- Your burn can dry out and crack causing an open wound. This can become infected. To avoid drying and cracking, moisturise twice a day using a non-perfumed water based cream (eg Sorbolene).
- Your burn may result in a thickened or raised scar. To reduce the chances of a raised scar, massage the area twice a day using a non-perfumed water based cream. When you massage, you should apply sufficient pressure for the skin to blanch (go white).
- Your burn may become discoloured if it gets sunburnt or exposed to the sun repeatedly. Use sunscreen (SPF 30+) on exposed areas and cover the burn with clothing when going outside for at least 2 years after your injury.
- In the first 2 weeks after your burn has healed, the new skin is softer than on the rest of your body. Protect the area from knocking or scratching as a new wound may develop.
- It is important to move normally to allow your new skin to stretch. Make sure you have full range of movement and are able to do all your normal activities.

Winthrop Professor Fiona Wood, Burns Director; Donn John, Nurse Director Surgical Division, July 2011  
Endorsed by: Surgical Division Nursing Practice Committee, July 2011  
Reviewed by: Sharon Rowe, CN; Joy Fong, CNC; Rosemary Kendell, Occupational Therapist, June 2011.

Compiled by: Burns Service Education Committee, RPH, November 2009  
Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA  
Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell  
Date: June 2012



Burn Reconstruction and Rehabilitation Unit  
Royal Perth Hospital  
Patient Information

**CARING FOR YOUR HYDROCOLLOID DRESSING**

When this dressing is applied to your burn, a soft fluid/gel forms underneath. This fluid/gel keeps the burn moist and allows healing to occur.

- This dressing holds onto the wound fluid. You can expect the fluid underneath to be a tan colour and have a smell. This is normal.
- If the fluid is leaking from under the dressing it needs to be changed.
- The dressing is waterproof so you can shower with it on. You do not need to cover it in a plastic bag for the shower.
- The nurse will look for signs of infection when changing the dressing.
- This dressing can stay on for a number of days. If the nurse wants you to change the dressing, you will be given instructions on how to do this.

At all times if you are concerned about your burn or you pain increases you should contact the Burns clinic or seek medical advice.

Telstra Burn Reconstruction and Rehabilitation Unit (08) 92243566

Burns Unit (08) 92242153

Compiled by: Sharon Rowe, CN; Rhonda Harris, EN; Joy Fong, CNC, Aug 2006  
Authorised by: Winthrop Professor Fiona Wood, Burns Director; Donn John, Nurse Director Surgical Division, July 2011  
Endorsed by: Surgical Division Nursing Practice Committee, July 2011  
Reviewed by: Sharon Rowe, CN; Joy Fong, CNC, June 2011

Compiled by: Burns Service Education Committee, RPH, November 2009  
Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA  
Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell  
Date: June 2012



## Telstra Burn Reconstruction and Rehabilitation Unit

Royal Perth Hospital

Patient information

### **Oiling your dressing for removal**

Please complete the following instructions at least 2 hours prior to clinic appointment. You may choose to do this the night before.

These instructions will help the nurse remove the Fixomull ® (white tape) from your wound. It also helps remove the Surfsoft ® that may have been put over your skin graft or ReCell® during your operation.

#### INSTRUCTIONS:

- Mix Lanolin and Emollient cream together and apply a thick layer over the Fixomull tape dressing that has been applied over the Surfsoft dressing
- Saturate gauze in oil (if instructed to use gauze)
- Lay the oil saturated gauze over white tape, or wrap it around your arm or leg.
- Wrap the dressing area with Glad wrap® then a bandage
- Leave all this on until your clinic appointment. The nurse will remove the dressing in the clinic.

Compiled by: Sharon Rowe, CN; Rhonda Harris, EN; Joy Fong, CNC, Aug 2006  
Authorised by: Winthrop Professor Fiona Wood, Burns Director; Donn John, Nurse Director Surgical Division, July 2011  
Endorsed by: Surgical Division Nursing Practice Committee, July 2011  
Reviewed by: Sharon Rowe, CN; Joy Fong, CNC, June 2011

Compiled by: Burns Service Education Committee, RPH, November 2009  
Authorised by: Winthrop Professor Fiona Wood, Director, Burns Service WA  
Revised by: J.Fong, D.Edgar, S.Rowe, T. McWilliams, D. Edgar; R.Kendell  
Date: June 2012

**Royal Perth Hospital  
Surgical Division**

**MANAGEMENT of MINOR BURN INJURIES**

**Minor burn injuries are burns to less than 10% TBSA.**

**Any burns may be referred to Burns Service WA**

**1 Superficial burns:**

- ® Skin loss to epithelial layer.
- ® Should heal in 7 - 10 days with no scars.
- ® Pink, red, painful, erythema, sometimes with blistering.

**First Aid**

- ® Cooling for at least 20-30mins with water immediately.

**Dressings**

- ® May be nursed with no dressing if erythematous and pink. Emollient cream to moisturise burn wound
- ® If blisters appear, debride blisters if red wound bed apply either Alginate and retention tape and re-dress in 2-3 days

**OR**

Apply a hydrocolloid dressing eg duoderm cgf and re-dress in 2-3 days.

- ® Refer to Telstra Burns Clinic or Burn Telehealth for dressing advice on email:  
[RPHBurnsTelehealth@health.wa.gov.au](mailto:RPHBurnsTelehealth@health.wa.gov.au)
- ® Or [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au)

**2 Partial burns:**

- ® Skin loss to epithelium and part of dermis. Will heal if superficial partial. But if deep partial skin loss, will need surgery and grafting.
- ® Mottled pink, painful and blistering, intact hairs.

**First aid:**

- ® as for superficial burns.

**Dressings:**

- ® Wash with chlorhexidine soap and water. Debride any blisters. You may apply a strip of Acticoat™ followed by water moistened gauze, jelonet, dry gauze and bandage (if the patient is being seen again or referred to us in the next day).
- ® OR  
apply a hydrocolloid eg. duoderm cgf. Place a small piece of acticoat under the hydrocolloid dressing ( acticoat does not need to cover the whole burn area as you need the hydrocolloid to react with the wound). Check in 2-3 days.
- Refer to Telstra Burns Clinic or Burn Telehealth for dressing advice on email:  
[RPHBurnsTelehealth@health.wa.gov.au](mailto:RPHBurnsTelehealth@health.wa.gov.au)

### ANTIMICROBIALS

Antimicrobial is required if the burn wound is of partial or full thickness depth.

- a) Acticoat strips may be placed under a hydrocolloid dressing
- b) Acticoat over burn followed by a water compress and jelonet and gauze-dress daily
- c) Flamazine cream or Silvercel (Silver alginate) if no Acticoat available-daily dressings

Refer to Telstra Burns Clinic or Burn Telehealth for dressing advice on email: [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au) or [RPHBurnsTelehealth@health.wa.gov.au](mailto:RPHBurnsTelehealth@health.wa.gov.au)

### **3 Full thickness burns:**

- ® Skin loss to all of skin layers may be down to fascia or muscle or bone.
- ® Will need surgery for debridement and skin grafting.
- ® White appearance or may present as black and leathery eschars, no pain, no intact hairs.

#### **First aid:**

- ® as for superficial burns

#### **Dressings:**

- ® Wash with chlorhexidine soap and water. Debride any dead or loose skin.
  - ® Apply Acticoat dressings
- Refer to Telstra Burns Clinic or Burn Telehealth for dressing advice on email: [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au)

#### **Telstra Burn Clinic Burn Telehealth**

0892243566/fax 0892243577 Mon-Friday 0800-1600hr  
Joy Fong, Clinical Nurse consultant, mobile 0424155613 or  
email images to: RPHBurns [Telehealth@health.wa.gov.au](mailto:Telehealth@health.wa.gov.au)  
or [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au)

Compiled by: Joy Fong, CNC Burns Unit, Royal Perth Hospital  
Date: Feb 2005.  
Authorised by: Winthrop Professor Fiona Wood, Burn Service Director  
Reviewed by: Joy Fong, CNC, S. Rowe, CN, Burns Service WA, RPH  
Date: April 2012

## ROYAL PERTH HOSPITAL BURNS SERVICE

### USEFUL BURN INFORMATION

#### REFERRAL CRITERIA TO STATE ADULT BURN UNIT

- Burns greater than 5 per cent total body surface area
- Circumferential partial thickness or full thickness burns
- Inhalational burns
- Chemical burns
- Electrical burns
- Special area burns i.e. face, neck, hands, feet, perineum, joint or inhalation burns
- Burns with concurrent injuries or co-morbidities
- Any minor burn may be referred to the Burn clinic or Burn Telehealth at RPH: RPHBurns [Telehealth@health.wa.gov.au](mailto:Telehealth@health.wa.gov.au) or [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au)

#### 1. FIRST AID

- Cool burn surface
- Cool clean running water (15° C). NO ICE
- Within 3 hours of injury
- Ideally 20 mins, (NB: risk of hypothermia in children and major burns)
- Clean nonadherent dressing
- Clean sheet, damp towels
- Chemical/Electrical burns – Contact Burn Service for advice

#### NB

- Beware of first aid with contaminated water-muddy water, creek, dam water. These type of first aid may harbour water borne bacteria and infect the burn wound

#### 2. INFORMATION REGARDING THE BURN WOUND THAT YOU SHOULD BE AWARE OF

- Burn wounds may convert to a deeper wound if there has been no adequate first aid or when the wound becomes infected
- A burn wound on first presentation is very different to how it will look on day 3 as the wound evolves, it may extend to a deeper burn.
- A burn wound will exudate moderate to large amounts in the first 3 days of injury
- Blisters when they occur need to be deroofed to decompress the wound pressure and to allow for accurate wound assessment
- A full thickness burn wound is dry and will need rehydration

- Full thickness burns should be admitted to Burn Unit for consideration of skin grafting
- **Chemical and electrical injuries should be referred to Burns Service , RPH for adults and PMH for children**

### **3. WHAT TO DO WHEN YOU HAVE A BURN PATIENT IN YOUR FACILITY**

- Check that adequate first aid has been given, if not, administer first aid (if still within the first 3 hours of burn injury)
- Obtain history of burn event, burn agent, how long in contact with heat source, medical history
- Assess the burn wound
- Dr. to prescribe analgesia-appropriately
- For adults-If necessary,phone the CNC Burns for advise 0424155613 or Burns unit 92242154
- Email for advice-images to [rphburnstelehealth@health.wa.gov.au](mailto:rphburnstelehealth@health.wa.gov.au) or [joy.fong@health.wa.gov.au](mailto:joy.fong@health.wa.gov.au)  
or
- Refer to RPH Burns Clinic 92243566 fax 92243577
- May arrange telehealth appointment
- Dress with appropriate dressing as advised
- For children: contact the on-call PMH burns registrar or PMH burns consultant

### **4. THE DO NOTS PLEASE**

- No antibiotics in the initial period unless burn wound cellulitis extends beyond 2 cm from the wound margin accompanied with systemic signs and symptoms
- Do not apply Burnaid dressing in replacement of burn first aid
- Do not apply Burnaid over broken skin
- Do not apply retention dressing over a burn wound on first presentation
- Do not apply retention dressing over any open wound without an alginate as interface.
- Do not apply glad wrap as a dressing

### **5. THE DOS PLEASE**

- Refer to Burn Service at RPH for adults, PMH for children, phone or fax the referral
- Dress the burn wound with appropriate dressing if the pt. is going to PMH or RPH Burns Clinic the next day
- **If for admission to the Burn Unit- if partial to full thickness burns apply acticoat, water moistened gauze if the transfer is longer than 2 hours otherwise apply simple saline soaked gauze.**

### **6. REFERRAL GUIDELINES**

- Burns greater than 5%TBSA
- Burns of Special Areas: hands, face, genitalia

- Full thickness burns
- Electrical Burns
- Chemical Burns
- Burns with Associated Inhalation Injury
- Circumferential Burns of Chest or Limbs
- Extremes of Age
- Pre-existing Medical Conditions
- Suspicion of non-accidental injury

## **7. WHO TO CONTACT**

### **ROYAL PERTH HOSPITAL:ADULTS -**

- Phone Burns Registrar- 0892242244 page or mobile
- Phone Burns CNC- 0424155613 or 0892242244 pager 2908(work hours)  
email: joy.fong@health.wa.gov.au
- Phone Burns Unit 0892242154(after hours)
- Phone 0892243566-Telstra Burns clinic (Mon –Fri working hours, if after hours leave a message)
- Fax 0892243577-Telstra Burns clinic

### **PRINCESS MARGARET HOSPITAL : CHILDREN**

- Phone PMH (08) 9340 8222 and page the on call Burns Registrar or on-call Burns Consultant.
- Alternatively contact the Burns Unit at (08) 9340 8257 and ask for the Shift Coordinator.

## **8. INFORMATION REGARDING SILVER PRODUCTS**

- Acticoat  
Ag impregnated mesh releasing large amounts of Ag ions onto wound-anti inflammatory  
**DO NOT USE SALINE TO MOISTEN ACTICOAT-USE ONLY STERILE WATER**
- Flamazine  
Combination of silver, sulphonamide and aqueous cream-not so potent as Acticoat- Flamazine may be pro-inflammatory
- Silvercel  
Alginate with low amount of silver
- Foams with silver  
Low dose silver impregnated onto the foam
- Flaminal™  
Enzymatic debriding gel with low antimicrobial action

Compiled by : Joy Fong, Burns Service RPH, Sept 2009  
Authorised by: Winthrop Professor Fiona Wood, Director Burn Service  
Reviewed: Joy Fong, CNC, April 2012



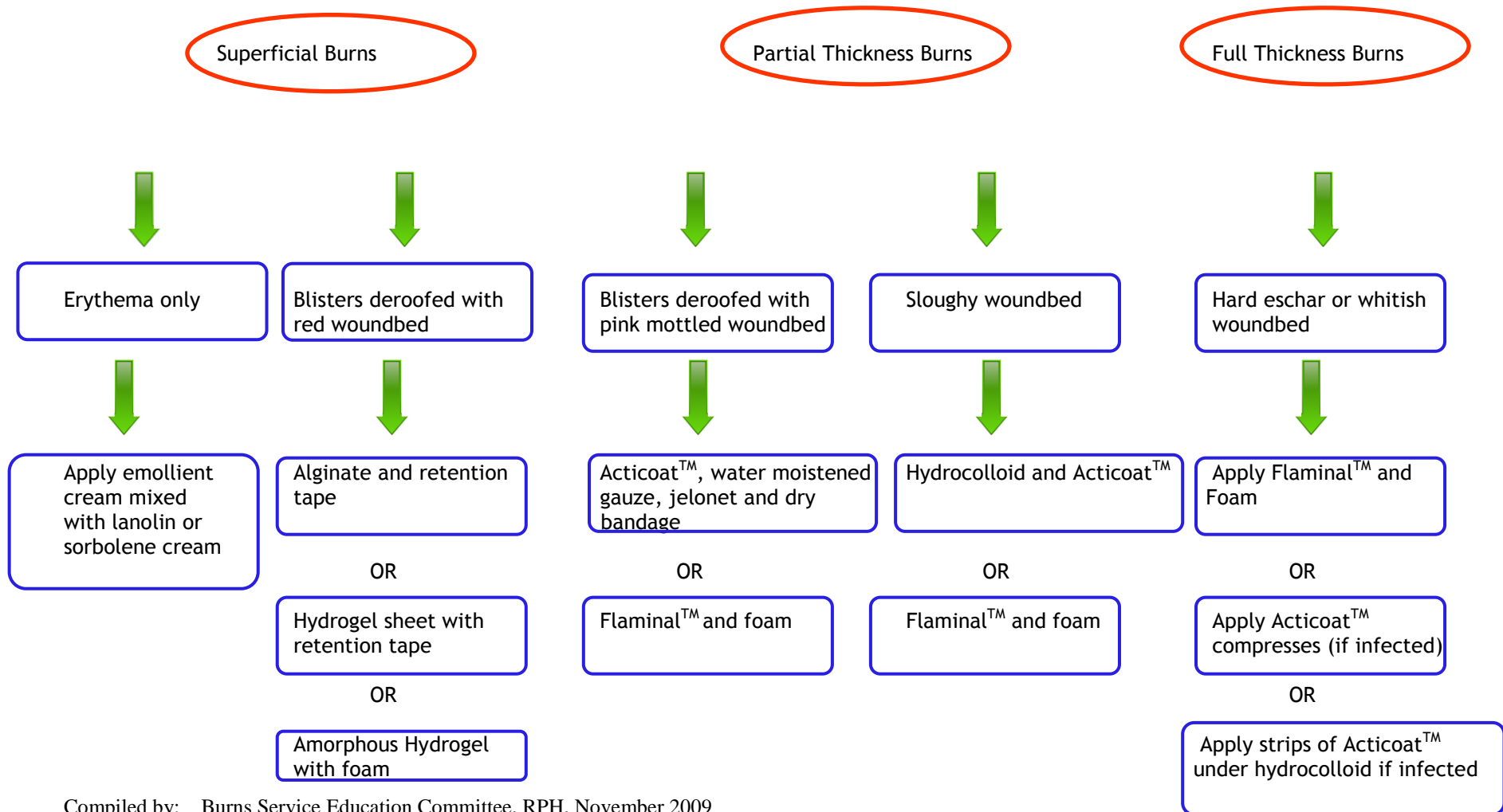
**Disclaimer:**

*Thank you for requesting copies of RPH nursing documentation. While we encourage the mutual appreciation and sharing of information that assists colleagues with promoting evidence-based nursing and standardised practice, we would ask that you respect our ownership rights.*

*We are happy to provide the information you require on the proviso that you:*

- *do not amend/revise/modify the original documents - we send them in Portable Document Format (PDF) for this reason;*
- *make reference to RPH and acknowledge the document author(s) if information from these documents is used to produce new material;*
- *recognise that the document(s) requested may be superseded in the future - it is the requestors' responsibility to ensure that any material used to inform/guide practice is current.*

**Guidelines for Dressing Selection for Burn Wounds in Burn Outpatients**  
Wound assessment performed



Guidelines for Dressing Selection for Burn Wounds  
Inpatient Burn Wound Management

