ACI Statewide Burn Injury Service
Transfer Guidelines

ACI Statewide Burn Injury Service
The ACI works with clinicians, consumers, and managers to design and promote better healthcare for NSW.
Our Networks

Our 38 Clinical Networks, Taskforces and Institutes engage more than 6000 healthcare professionals, consumers and researchers.

2,268 people are actively involved in our Committees or Working Groups.

Meetings are attended in person, by teleconference, video conference or by webex.
Burn Units & Rehab

- Children’s Hospital at Westmead
- Graythwaite Rehabilitation Centre
- Royal North Shore Hospital
- Concord Hospital
Statewide Burn Service

Three tertiary referral burn units

- Adults
  - Royal North Shore Hospital 9 beds + ICU
  - Concord Repatriation General Hospital 10 beds + ICU
- Paediatrics
  - The Children’s Hospital at Westmead 8 beds
Burn Unit activity

2015

- 3082 burn cases treated at the 3 units
- 999 acute admissions
- 2976 treated in OP (includes post and pre admissions)
- Average 73 per year >20% Total Body Surface Area burned
ACI Statewide Burn Injury Service

- Guidelines, Models of Care
- Education
- Data
- Clinical Support
- Prevention
- Disaster planning
- Clinical practice review
- Partnerships
- Trauma App with burn calculators
Resources online

- Transfer Guidelines
- Allied Health
  - Physio/Occ Therapy
  - Speech Path
  - Nutrition
  - Play therapy
  - Social Work
- Burn Management
- Minor burn management
- Escharotomy
Clinical Practice Review Committee

Reviews:
- Submissions from clinicians across the Severe Burn Units
- All deaths
- Clinical issues leading to adverse outcomes
- Clinical trends
- Transfers to the Service
Transfer Feedback Form

The ACI Statewide Burn Injury Service endeavours to continually improve the clinical care and service to our burn patients and to optimise patient health outcomes.

The patient transfer process has been identified as a focus for improvement activities. To this end, the NSW Statewide Burn Injury Service Clinical Practice Committee has developed a two-way feedback form in order to provide feedback to the referring hospital/facility following a patient transfer to one of our constituent burn units i.e. Royal North Shore Hospital, Concord Repatriation General Hospital and the Children’s Hospital at Westmead.


The Patient Emergency Assessment and Management Chart should be used when assessing, managing and transferring a patient to the burn units and can be found also at the above link as an appendix to the Transfer Guidelines.

The [NSW Trauma App](http://appstore.com) is now available for both android and iOS platforms. This app includes interactive Burn assessment calculators for paediatrics and adults as well as guidelines, checklists and useful links to burn specific resources.

The NSW Trauma App is now available for both android and iOS platforms.

Each patient transfer will have a form, based on the transfer guidelines, returned to the referring hospital/facility in a timely manner.

Please discuss this feedback with all relevant staff from your facility.

**Please give us your feedback on this form** about the transfer process for this patient from your perspective. Could we improve the process? Could communication be improved? Could your hospital/facility benefit from further education regarding the transfer process or other burns related issues?

Fax no: 9463 2006

Email Consult is available at the three burn units and digital photos can be attached to the email. CHW: kidsburns@chw.edu.au RNSH: NSLHD-BurnsConsult@health.nsw.gov.au CRGH: CRGH.BurnsUnit@sewahs.nsw.gov.au

The NSW Statewide Burn Injury Service can arrange for staff education. We can be contacted at the Severe Burns Unit, Level 6 Clinical Services Building, Royal North Shore Hospital Reserve Rd St Leonards NSW 2065 Tel: 02 9463 2105 or email the Network Manager Anne Darton anne.darton@health.nsw.gov.au. Web address: [www.aci.health.nsw.gov.au](http://www.aci.health.nsw.gov.au) the website now has burn care presentations on the ‘Education’ and ‘Resources’ tabs.

<table>
<thead>
<tr>
<th>Date of Transfer:</th>
<th>Date form completed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Name:</td>
<td>Referring hospital/healthcare facility:</td>
</tr>
<tr>
<td>Referring Doctor:</td>
<td>Receiving hospital:</td>
</tr>
<tr>
<td>MRN:</td>
<td>Assessment:</td>
</tr>
<tr>
<td></td>
<td>Referring Burn Unit</td>
</tr>
<tr>
<td></td>
<td>Percentage TBSA</td>
</tr>
<tr>
<td></td>
<td>Other Injuries</td>
</tr>
<tr>
<td>Referral Criteria met</td>
<td>Contacts made as per guidelines?</td>
</tr>
<tr>
<td></td>
<td>Mode of transfer appropriate?</td>
</tr>
</tbody>
</table>

**Stabilisation**

- First aid/ cooling the burn
- Prevention of hypothermia
- Respiratory care
- Circulatory care
- Gastrointestinal care
- Pain management
- Wound management
- Tetanus prophylaxis

**Fluid resuscitation**

- Modified Parkland formula
- Appropriate solution used
- Paediatric, maintenance fluids

**Documentation**

- Burn Patient Emergency Assessment & Management Chart from T/F Guidelines used.

**Completed By:**

**General Comments/ Recommendations/Clinical Update:**

Print Name & Designation: ____________________________ Signature: ____________________________
Top issues with transfers

- **Other issues included:** temp control, circ care, analgesia, dressing choice, tetanus prophylaxis, resp care, escharotomy, transfer mode
Recognising Burn Depths

**Epidermal Burn (Erythema)**
- Skin intact, blanch to pressure
- Faint erythema not included in % TBSA
- Heal spontaneously within 3-7 days with moisturiser or protective dressing

**Superficial Dermal Burn**
- Blisters present or denuded
- Blanch to pressure
- Should heal within 7-10 days with minimal dressing requirements

**Mid Dermal Burn**
- Heterogeneous, variable depths
- Should heal within 14 days
- Deeper areas may need surgical intervention

**Deep Dermal Burn**
- Heterogeneous, variable depths
- Generally need surgical intervention
- Refer to specialist unit

**Full Thickness Burn**
- Outer skin, and some underlying tissue dead
- Present as white, brown, black
- Surgical intervention and long-term scar management required
- Refer to specialist unit

For transfer criteria to a Severe Burn Unit and further information see NSW Burn Transfer Guidelines

Contacts for NSW Burn Units:

<table>
<thead>
<tr>
<th>CHW</th>
<th>9845 1114</th>
<th><a href="mailto:kidburns@chw.edu.au">kidburns@chw.edu.au</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>RNSH</td>
<td>9463 2111</td>
<td><a href="mailto:burnsconsult@rvcahs.health.nsw.gov.au">burnsconsult@rvcahs.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>CRGH</td>
<td>9767 7776</td>
<td><a href="mailto:crghburns@email.cs.nsw.gov.au">crghburns@email.cs.nsw.gov.au</a></td>
</tr>
</tbody>
</table>

ACI Statewide Burn Injury Service Website
Prevention

- Use the data to drive activities
- School programs
- Media campaigns
- Prevention first aid info on website
- Promotional stalls
- Dept of Fair Trading & ACCC
- Partnerships
Rehabilitation

- Improving links with Graythwaite Rehabilitation Centre and other rehab facilities
- Burn Rehabilitation Course run every year
Appendix 3: Burn Transfer Flow chart

**Medical Retrieval**
- Intubated patient
- Inhalation injuries
- Head and neck burns
- >10% in children
- >20% in adults
- Burns with significant comorbidities
- Associated trauma
- Significant pre-existing medical disorder
- Circumferential burn to limbs or chest that compromises circulation or respiration
- Electrical conduction injury
- Significant chemical e.g. hydrofluoric acid
- Contact
  - AMRS adults: 1800 85 0004
  - NETS children: 1300 38 2500
  - Set up conference call with receiving Burn Unit and ICU (if required), facilitate communication with primary referral site
  - CHW ICU: 9845 1171
  - CRGH ICU: 9787 6404
  - RNSH ICU: 9463 2800
- AMRS/NETS will coordinate transfer between primary hospital and the receiving hospital

**Referral**
- >5% children, >10% adults
- Burns to the hands, feet, genitalia, perineum, and major joints
- Chemical burns
- Electrical burns including lightning injuries
- Burns in patients with pre-existing medical conditions
- Suspected non-accidental injury including children, assault or self-inflicted
- Pregnancy with cutaneous burns (RNSH 2nd & 3rd trimester)
- Extremes of age
- Contact Burn Ambulatory Care
  - CHW: 0845 1850 (b/h)
  - CRGH: 0845 1114 (a/h)
  - kidsburns@chw.edu.au
  - CRGH: 0787 7775 (b/h)
  - 0787 7776 (a/h)
  - cchs bureaucracy@cmh.health.nsw.gov.au
  - RNSH: 9463 2108 (b/h)
  - 9463 2111 (a/h)
  - burnsconsult@health.nsw.gov.au
- The on call registrar will offer advice and arrange a bed in liaison with Bed Management and the Burns Unit. They are responsible for receiving the patient. The referrer will make the ambulance booking.

**Minor Burns**
- Minor burns are treated in consultation with the referring doctor as an outpatient; either locally (at original place of care) or on referral to an ambulatory care burns clinic for assessment

**Not referred to Service**
Referral Criteria: Medical Retrieval

- Any intubated patient
- Inhalation injuries with cutaneous burns
- Head and neck burns
- Dermal or full thickness burns >10% in children
- Dermal or full thickness burns >20% in adults
- Burns with significant co-morbidities
- Associated trauma
- Circumferential burn to limb or chest that compromises circulation or respiration
- Electrical conduction injury with cutaneous burns
- Chemical injury with cutaneous burns
Criteria for Retrieval - Intubated
Criteria for Retrieval – Head, face, neck
Criteria for Retrieval – Co-morbidities
Referral criteria: Transfer

- Dermal or full thickness burns in adults >10% TBSA
- Dermal or full thickness burns in children >5% TBSA
- Burns to the face, hands, feet, genitalia, perineum, and major joints
- Chemical burns
- Electrical burns including lightning injuries
- Burns with concomitant trauma
- Burns with associated inhalation injury
- Circumferential burns of the limbs or chest
- Burns with pre-existing medical conditions that could adversely affect care and outcome
- Suspected non-accidental injury including children, assault or self inflicted
- Pregnancy with cutaneous burns
- Burns at the extremes of age – infants and frail elderly
Referral criteria - specialised areas

Hands, feet, genitalia, perineum, joints
Process

- **Medical Retrieval**
  - AMRS /NETS set up conference call with receiving ICU & Burn Unit, facilitates communications with primary referral site & coordinate transfer

- **Transfer referral**
  - Burns Registrar/fellow or Surgical Registrar (CHW) on call
  - (first registrar contacted is responsible to find a bed at the other burns unit if unavailable at theirs)
# Appendix 1: Burn Patient Emergency Assessment & Management Chart

To be used for patients requiring transfer to a burn unit

<table>
<thead>
<tr>
<th>Place patient label here on:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MRN:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Name:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>D.O.B:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sex:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AMO:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ward:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Date:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Burn Time:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Trauma Call:</strong></td>
<td><strong>YES</strong></td>
</tr>
<tr>
<td><strong>Triage Category:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight (Kg):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Doctor:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Burn Mechanism:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Aid given:</th>
<th><strong>NO</strong></th>
<th><strong>YES</strong></th>
<th>Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airway</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intubation required</td>
<td><strong>Y</strong></td>
<td><strong>N</strong></td>
<td></td>
</tr>
<tr>
<td>size of tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cervical Spine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn circumferential around chest / neck?</td>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
<td></td>
</tr>
<tr>
<td><strong>At Risk</strong></td>
<td><strong>Immobilised</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Circulation – 2 x IV lines | | |
|-----------------------------|---|
| **HR** | | |
| **BP** | | |
| **Size and location cannulae** | | |
| Cap refill centrally | **3-2 seconds** | **> 2 seconds** | **Absent** |
| Cap refill peripherally | **3-2 seconds** | **> 2 seconds** | **Absent** |

| Disability | | |
|-------------|---|
| **Level of consciousness (AVPU):** | | |
| AVPU = A – Alert, V – Response to Vocal stimulus, P – Responds to Painful stimulus, U – Unresponsive | | |
| Pupils: (L) | **mm** | (R) | **mm** | |
| **Environment** | | |
| Patient Temp. | **°C** | | |
| (time/date) | | |
| Temp route | | |
| **Remove clothing and jewellery** | | |
| Keep unburnt areas warm | | |
| Warm IV fluids | **No** | **Yes** | **N/A** |
| Warm blankets | **No** | **Yes** | **N/A** |

| Assess % Total Body Surface Area (TBSA) burnt using Rule of Nines (see page 2) | | |
|---------------------------------|---|
| **TBSE body chart completed?** | **No** | **Yes** | By whom? | |

| Fluid Resuscitation (see page 5 for specific fluid calculations) | | |
|---------------------------------|---|
| **Not required** | | |
| Large bore IVs (2 for >20%, 1 for >10%) or CVL inserted? | **Yes** | **No** | |
| Bloods taken: | **FBC** | **ECU** | **ESL** | **Coag** | **CoHb** | **Drug screen** |
| IDC Inserted? | | |
| (if > 10% TBSA or perium) | **Yes** | **No** | |
| Nasogastric tube inserted? (if > 15% TBSA) | **Yes** | **No** | |
| **Co-existing injuries?** | **Yes** | **Possible** (e.g. blast / electrical injury) | **No** | |

| Pain Management | | |
|-----------------|---|
| **Morphine (alt if allergic)** | | |
| Adults Stat IV 2mg, repeat every 5mins as required | Max. 0.2mg/Kg | |
| Children Stat IV 0.1mg/Kg, repeat every 15mins as required | Max. 0.3mg/Kg | |
| Minor burn Oral analgesia (e.g. paracetamol +/- codeine / oxycodeone, etc.) may be adequate | |

| Immunisation | | |
|--------------|---|
| **Immunisations up to date?** | **No** | **Yes** | Specify |
| Tetanus status | **Primary course given** | |
| **Last dose of booster** | | |
| **Glue Immunoglobulin if < 3 doses** | | |
| **Glue booster if last booster > 5yrs ago** | | |

### RESUSCITATION FLUIDS
(if > 10% TBSA for children, >15% for adults)

<table>
<thead>
<tr>
<th>Weight (Kg)</th>
<th>Total resuscitation fluids in 24 hrs</th>
<th>50% replacement in 1st 8 hrs following injury</th>
<th>Total Fluid given prior to admission</th>
<th>Subtract fluid already given + fluid to be given to complete 1st 8 hrs</th>
<th>Hourly rate for replacement (within 1st 8 hrs)</th>
<th>Remaining 50% of replacement in next 16 hrs</th>
<th>Hourly rate for replacement (in subsequent 16 hrs)</th>
<th>Maintenance fluids (for children &lt; 30 Kg only)</th>
</tr>
</thead>
</table>

* NB This is a guide only - Titrate fluids to urine output

### MAINTENANCE FLUIDS (Not applicable for adults)
Children < 30 Kg require maintenance fluids (0.45% sodium chloride and 5% glucose) in addition to resuscitation fluids

<table>
<thead>
<tr>
<th>Up to 10 Kg</th>
<th>10-20 Kg</th>
<th>20-20 Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mL/Kg/day</td>
<td>1000 mL plus 50 mL/Kg/day (for each Kg &gt; 10 Kg and &lt; 20 Kg)</td>
<td>2000 mL plus 20 mL/Kg/day (for each Kg &gt; 20 Kg)</td>
</tr>
</tbody>
</table>

### URINE OUTPUT
- Children: 1 mL/kg/hr (range 0.5 to 2 mL/kg/hr)
- Adults: 0.5 to 1 mL/kg/hr
- 2 mL/kg/hr required for pigmented urine such as myoglobinuria / haemoglobinuria

### REFERAL CRITERIA
Refer to Transfer Guidelines (*“Referral” meaning contact with not necessarily transfer to Burn Unit*)
- Mid-dermal, deep dermal or full thickness burns in children >5% TBSA, in adults >10% TBSA.
- Any priority areas are involved, i.e. face, neck, hands, feet, perineum, genitalia and major joints.
- Caused by chemical or electricity, including lightning.
- Any circumferential burn.
- Burns with concomitant trauma or pre-existing medical condition.
- Burns with associated inhalation injury.
- Suspected non-accidental injury.
- Pregnancy with cutaneous burns

### DRESSING
For transfer to specialist unit within 8 hrs apply cling film to burnt areas (Vaseline gauze/white paraffin for face). Do not wrap circumferentially. For delayed transfer > 8 hrs apply antimicrobial dressing such as Vaseline gauze or silver dressing, after discussion with burn unit.
For burns not requiring transfer to specialist unit:
- Give pre-med analgesia 30 mins prior to procedure (e.g. paracetamol +/- codeine / oxycodone, etc.)
- Clean wound with chlorhexidine 0.1%, saline or clean water.
- Apply appropriate dressing such as silver dressing or Vaseline gauze (see Minor Burn Management)
- Make follow-up appointment and advise on care and analgesia for home usage and pre-dressing.

### HISTORY OF INJURY
- When did it happen?  Time:  Date:
- How did it happen?
- Who saw it?
- Who else was there?
- What was done?
- Was the burn cooled?  ☐ No  ☐ Yes
- If YES when, with what and for how long?

### MEDICAL HISTORY
- Past Medical History
- Co-morbidities?
- Allergies?  ☐ No  ☐ Yes
- If YES specify?
- Medications?  ☐ No  ☐ Yes
- If YES specify?
- Last oral intake?
- Social History

### SOCIAL ISSUES
- Any features of concern?  E.g. non-accidental injury/self-harm/abuse?  ☐ No  ☐ Yes
- If YES specify?
- Child Protection Service notified?  ☐ No  ☐ Yes  Reference Number  __________
- Action taken: ________________________
- Signature:

### CONTACT NUMBERS
- **Retrieval** (refer to Transfer Guidelines for Retrieval Criteria)
  - AMBS (adult retrieval): 1800 050 004
  - NETS (paediatric retrieval): 1300 562 500
- **Transfer and consultations** (Burns Registrar via Hospital Switch)
  - RNSH: 02 9926 7111 (adult)
  - CRGH: 02 9767 5000 (adult)
  - CMW: 02 9850 0500 (paediatric)
  - CHW: 02 8843 1850
- **Minor Burn Management**
  - RNSH: 02 9463 2108
  - CRGH: 02 9767 7775
  - CMW: 02 9850 0500
  - CHW: 02 9843 6800

NB Digital pictures can be emailed to Burn Units only after consent and contact have been made
- RNSH: NSWHBurnsConsult@health.nsw.gov.au
- CRGH: crghburns@health.nsw.gov.au
- CMW: kidsburns@cmw.edu.au
- CHW: kidsburns@chw.edu.au
Digital Photo Referral/Advice

Children’s Hospital at Westmead
kidsburns@chw.edu.au
9845 1114

Royal North Shore Hospital
NSCCAHS-burnsconsult@health.nsw.gov.au
9463 2111

Concord Repatriation General Hospital
CRGH.BurnsUnit@sswahs.nsw.gov.au
9767 7776
Circumferential full thickness or deep dermal burn to the thorax and abdomen?

Yes
- Secure the air way
- Oxygen by rebreathing mask
- Endotracheal intubation should be considered early if the airway is compromised.

No
- Return to burn management plan

Signs of respiratory compromise:
- Restricted movement of the chest wall or abdomen
- Reduced air entry bilaterally
- Shallow respiratory effort
- Tachypnoea
- Hypoxia

NB In paediatric burns to the abdomen may compromise respiratory function due to their abdominal breathing pattern.

Yes
- Contact the Burn Registrar at a specialist burn unit

No
- Continue monitoring for 24 hours post-burn

Escharotomy may be necessary to relieve pressure if respiration is compromised (see Escharotomy guideline)
Consultation with the relevant burns unit should always be made before embarking on escharotomy
<table>
<thead>
<tr>
<th>Calculators</th>
<th>Paediatric Ins and Outs (Maintenance Fluid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI and BSA</td>
<td>1600 Maintenance Fluid 24 hrs</td>
</tr>
<tr>
<td>Burns TBSA and Parkland Formula (Adult)</td>
<td>65 Maintenance Fluid mls/hr (1ml/kg/hr)</td>
</tr>
<tr>
<td>Burns TBSA and Parkland Formula (Paediatric)</td>
<td>250 10 ml/kg Fluid Bolus</td>
</tr>
<tr>
<td>Paediatric Ins and Outs (Maintenance Fluid)</td>
<td>500 20 ml/kg Fluid Bolus</td>
</tr>
<tr>
<td></td>
<td>25  Urine Output mls/hr (1ml/kg/hr)</td>
</tr>
<tr>
<td></td>
<td>50  Urine Output mls/hr (2 mg/kg/hr)</td>
</tr>
<tr>
<td></td>
<td>600 Urine Output 24 hrs</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>25</td>
</tr>
</tbody>
</table>
Confirm Weight (kg)
If less than 16 years use the Paediatric Burn Calculator.

Weight

Weight (kg) 65
Prehospital IV Fluids (mls) 1000
Time since burn 1hr

Next

1 2 3
4 5 6
7 8 9
0
33% Estimated TBSA %

316 mls/hr
Adjusted Parkland Fluid Rate (first 8 hours)
Calculated from time of burn minus fluid already given

201 mls/hr
Next 16 Hours Parkland Fluid Rate

32 mls/hr
Targeted Urine Output mls/hr
(0.5mls/kg/hr)

Answers

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehospital IV Fluids (mls)</td>
<td>1000</td>
</tr>
</tbody>
</table>
Age/Weight

Age (years) 2
Weight (kg) 18
Prehospital IV Fluids (mls) 500
Time since burn 1hr

Confirm Weight (kg) and Age (years)

If 16 years or over use the Adult Burn Calculator.

[Input fields for weight and age]

[Buttons: Cancel, Confirm]

[Grid with options 0-9]

1 2 3
4 5 6
7 8 9

[Other options: ABC, DEF, GHI, JKL, MNO, PQRS, TUV, WXYZ]
BURNS TBSA AND PARKLAND... 

Weight

TBSA %

Results

Age/Weight

TBSA %

Results

8%

Estimated TBSA %

0 mls/hr

Fluid resuscitation not required with < 10% estimated TBSA burns

0 mls/hr

Next 16 Hours Parkland Fluid Rate

18 mls/hr

Urine Output mls/hr (1 mls/kg/hr)

56 mls/hr

Maintenance Fluid mls/hr (1 mls/kg/hr)

Answers

Age (years) 2

Weight (kg) 18
ACI Statewide Burn Injury Service