JTS BURN RESUSCITATION WORK SHEET

Initiate AFTER *completion of trauma assessment and interventions*
Adults only: *Refer to Burn CPG for pediatric specific recommendations*

1. Contact USAISR Burn Center (DSN 312-429-2876) or email: burntrauma.consult.army@mail.mil
Date/Time contact: _____POC:_____ by:_____

2. Estimated Pre-burn Weight (wt): _____kg (Average Service Members are 82 ± 15 kg)

3. Estimate Total Burn Surface Area (TBSA) using Rule of Nines (refine with Lund-Browder after wounds are cleansed)

Partial thickness (2nd)_____% + Full thickness (3rd)_____% = **TBSA_____%**

IF TBSA >40%: intubate (use ETT ≥ 7.5 fr to facilitate bronchoscopy)

IF TBSA <15%: formal resuscitation may not be required, provide maintenance and/or oral fluids

4. Standard Burn Resuscitation Fluid: Lactated Ringers (LR) or Plasmalyte

5. Calculate INITIAL Fluid Rate using Rule of 10 (adults):

- IF wt < 40kg: 2ml x %TBSA_____ x wt(kg)_____ ÷ 16 = _____ml/hr
- IF wt ≥ 40kg: %TBSA_____ x 10 = _____ml/hr
  - IF wt > 80kg: add 100ml/hr to initial rate for every 10 kg>80: adjusted initial fluid rate = _____ml/hr
  - (Example: 100kg patient with 50% TBSA burn = 50% x 10 = 500 ml + 200 ml = 700 ml for first hour)

6. If Inhalation Injury Present: administer aerosolized heparin in albuterol (5,000 units Q4 hours)

7. Titrate Resuscitation Fluid: maintain target **UOP 30-50ml/hr** (Q 1 hour)

- If rhabdomyolysis present: use target UOP 75-100 ml/hr (Contact USAISR Burn Center DSN 312-429-2876)
- Goals: UOP >30 but <50ml/hr; adequate tissue perfusion (normalized lactate/base deficit), MAP >55 mmHg
- Minimum fluid rate 125mL/hr LR
- * Avoid fluid boluses
- ** Too much fluid as dangerous as too little

High risk for over resuscitation/abdominal compartment syndrome:

- If hourly rate >1500mL/hr x 2 hrs OR
- If total 24 hr volume exceeds: wt(kg) x 250ml= _____ml (includes all infused fluids)
  - Contact USAISR Burn Center (DSN 312-429-2876)
  - Consider adjuncts (below)
  - Check bladder pressures Q4hrs (>20 mmHg notify physician)
  - Avoid surgical decompression (significant mortality risk in burns)

Adjuncts:

1. Colloids: 5% albumin/FFP (hextend only if others unavailable)
   - * Colloids not preferred until hour 8-12; can consider earlier in difficult resuscitation
   - Infuse at ml/hr according to chart below based on adult patient weight and burn size
2. Vasopressors: Contact USAISR Burn Center (DSN 312-429-2876)

5% Albumin Infusion (ml/hr)	30-49%TBSA	50-69% TBSA	70-100% TBSA
<70 kg	30	70	110
70-90 kg	40	80	140
>90 kg	50	90	160

Ensure adequate volume (CVP trend 6-8 cm H_2O); **maintain MAP > 55 mmHg**

- Maintain ionized Ca >1.1 mmol/L

- Start with vasopressin 0.04mg/min. **DO NOT TITRATE**
- Second line pressor: norepinepherine 2-20mcg/min
- Refractory shock: consider epinephrine or phenylephrine infusion
- Refractory shock: consider adrenal insufficiency, give hydrocortisone 100mg IV Q8 hrs
- Manage acidemia (pH<7.2): use ventilator interventions first, then bicarbonate or THAM infusion
- Renal replacement therapy if available (Contact USAISR Burn Center DSN 312-429-2876)

Assessment/Interventions:

- Complete full secondary trauma exam
- Ensure thermoregulation; administer warmed fluids; cover with space blanket; elevate burned extremities
- Superficial burn (1st degree): Sunburn, no blister, blanch readily; NOT included in TBSA
- Partial thickness (2nd degree): Blanch, moist, blisters, sensate
- Full thickness (3rd degree): Leathery, white, non-blanching, dry, insensate, thrombosed vessels
- Protect eyes with moisture shields if corneas exposed or blink reflex slow; apply ophthalmic erythromycin ointment at least Q2hrs.
- **Prompt intubation for facial burns, suspected inhalation injury, TBSA >40%**
    - Anticipate induction-associated hypotension
    - Secure ETT with cloth tie, not adhesive tape
    - Reassess ETT position at teeth Q1 hr as edema develops and resolves
    - Intubated patients require oro/naso-gastric tube for decompression
    - Administer IV proton-pump inhibitor
- Monitor bladder pressure at least Q4hrs for large burns or high volume resuscitations
    - Abdominal compartment syndrome: decreased UOP, increased pulmonary pressures, difficulty ventilating, bladder pressure remains > 20 mmHg
    - Avoid decompressive laparotomy; consider percutaneous peritoneal drainage
    - Reduce crystalloid volume using colloid or vasopressors
- Monitor pulses hourly: palmar arch, dorsalis pedis, posterior tibial with Doppler
    - Consider escharotomy if signal diminished; refer to Burn CPG for technique (Call USAISR Burn Center DSN 312-429-2876)
- Monitor extremity compartment pressures as clinically indicated
    - Elevate burned extremities at all times
    - Extremity compartment syndrome: pain, paresthesia, pallor, paralysis, pulselessness (late sign)
    - Fasciotomy may be required
- Wound care
    - Thoroughly cleanse burn wounds, preferably in Operating Room
    - Select topical antimicrobial in consultation with Burn Surgeon (Call USAISR Burn Center DSN 312-429-2876) based on product availability, expected transport time, etc
    - Acceptable to cover burns with dry sheets or clean dressings for first 48 hours
- All definitive burn surgery done at USAISR Burn Center for US Service Members (DSN 312-429-2876)

JTS BURN RESUSCITATION FLOW SHEET (1 of 3)

Date		Initial Treatment Facility				
Name		SSN	Pre-burn estimated weight (kg)	%TBSA (Do not include superficial 1st degree burn)	Calculate Rule of Tens (if >40<80kg, %TBSA x 10 = starting rate for LR	Calculate max 24hr volume (250ml x kg) Avoid over-resuscitation, use adjuncts if necessary
Date &Time of Injury				BAMC/ISR Burn Team DSN 312-429-2876: Yes No		

Tx Site/ Team	HR from burn	Local Time	Crystalloid* (LR) / Colloid	Total	UOP (Target 30-50ml/hr)	Base Deficit/ Lactate	Heart Rate	MAP (>55) / CVP (6-8 mmHg)	Pressors (Vasopressin 0.04 u/min) Bladder Pressure (Q4)
	1st								
	2nd								
	3rd								
	4th								
	5th								
	6th								
	7th								
	8th								
	9th								
	10th								
	11th								
	12th								
	13th								
	14th								
	15th								
	16th								
	17th								
	18th								
	19th								
	20th								
	21st								
	22nd								
	23rd								
	24th								
Total Fluids:									

JTS BURN RESUSCITATION FLOW SHEET (2 of 3)

Date		Initial Treatment Facility				
Name		SSN	Pre-burn estimated weight (kg)	%TBSA (Do not include superficial 1st degree burn)	Calculate Rule of Tens (if >40<80kg, %TBSA x 10 = starting rate for LR	Calculate max 24hr volume (250ml x kg) Avoid over-resuscitation, use adjuncts if necessary
Date &Time of Injury				BAMC/ISR Burn Team DSN 312-429-2876: Yes No		

Tx Site/ Team	HR from burn	Local Time	Crystalloid* (LR) / Colloid	Total	UOP (Target 30-50ml/hr)	Base Deficit/ Lactate	Heart Rate	MAP (>55) / CVP (6-8 mmHg)	Pressors (Vasopressin 0.04 u/min) Bladder Pressure (Q4)
	25th								
	26th								
	27th								
	28th								
	29th								
	30th								
	31st								
	32nd								
	33rd								
	34th								
	35th								
	36th								
	37th								
	38th								
	39th								
	40th								
	41st								
	42nd								
	43rd								
	44th								
	45th								
	46th								
	47th								
	48th								
Total Fluids:					*Titrate LR hourly to maintain adequate UOP (30-50ml/hr) and perfusion				

JTS BURN RESUSCITATION FLOW SHEET (3 of 3)

Date		Initial Treatment Facility				
Name		SSN	Pre-burn estimated weight (kg)	%TBSA (Do not include superficial 1st degree burn)	Calculate Rule of Tens (if >40<80kg, %TBSA x 10 = starting rate for LR	Calculate max 24hr volume (250ml x kg) Avoid over-resuscitation, use adjuncts if necessary
Date &Time of Injury				BAMC/ISR Burn Team DSN 312-429-2876: Yes No		

Tx Site/ Team	HR from burn	Local Time	Crystalloid* (LR) / Colloid	Total	UOP (Target 30-50ml/hr)	Base Deficit/ Lactate	Heart Rate	MAP (>55) / CVP (6-8 mmHg)	Pressors (Vasopressin 0.04 u/min) Bladder Pressure (Q4)
	49th								
	50th								
	51st								
	52nd								
	53rd								
	54th								
	55th								
	56th								
	57th								
	58th								
	59th								
	60th								
	61st								
	62nd								
	63rd								
	64th								
	65th								
	66th								
	67th								
	68th								
	69th								
	70th								
	71st								
	72nd								
Total Fluids:					*Titrate LR hourly to maintain adequate UOP (30-50ml/hr) and perfusion				