MMC Burn Resuscitation Guideline

For adults age > 16 years with > 20%TBSA and without concomitant trauma.

Formal resuscitation will begin on arrival to the tank room, this is **'hour zero',** and ends after 24 - 48 hours.

If *difficult resuscitation* is identified, then **provider driven strategies** will commence; utilizing strategies listed on page 2.

RESUSCITATION GOALS: Urine Output of 30 ml/hr and Mean Arterial Pressure of 60

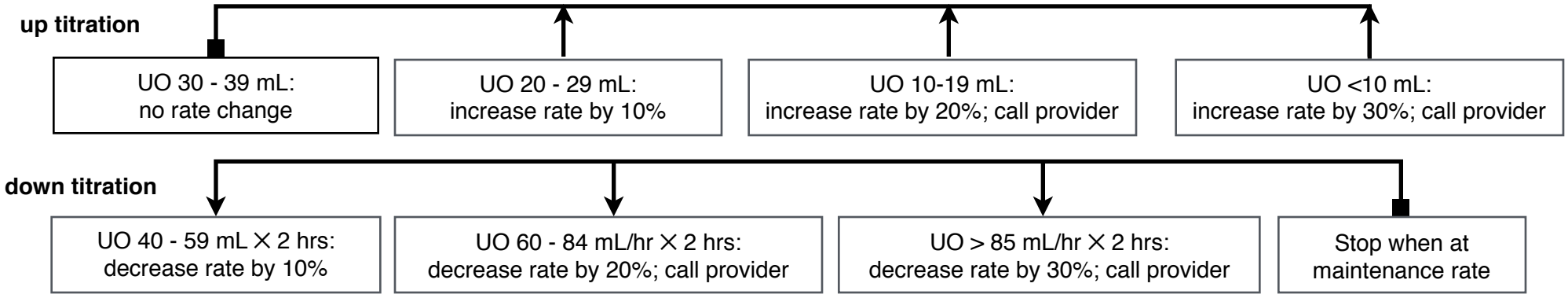
Complete the following at 'hour zero':

- ☐ Calculate the 24 hour *estimated* fluid volume and *initial* fluid rate. Confirm initial rate with attending physician.
- ☐ Start initial fluid rate at 'hour zero' and titrate fluids hourly according to the **nurse driven protocol**.
- ☐ Empty the foley bag.
- ☐ Place NG/OG and start Vital AF at 85 mL/hr (no advancement schedule) until formal recommendations from dietician are obtained.

Calculate estimated 24 hr fluid volume: _____% TBSA × _____ kg × 3 = _____ mL

Calculate initial fluid rate: (estimated 24 hr volume ÷ 2) ÷ 8 hrs = _____ mL/hr LR

Nurse Driven Protocol



Maintenance Rate = (4 - 2 - 1 rule)

To continue after resuscitation is complete or as otherwise indicated by the team.

If tube feeds are not at goal, then maintenance rate may need to be increased.

4 mL/kg for first 10 kg + 2 mL/kg for second 10 kg + 1 mL/kg per kg thereafter= _____ mL/hr LR

Identify Difficult Resuscitation

The below findings indicate standard resuscitation is not sufficient. Call provider to initiate adjunct strategies listed on page 2.

Rate increased 2 or more times in hours 6-12	Total crystalloid volume to exceed 150% of estimated 8 hr volume	12 hrs post injury: fluid rate exceeds 80% of the initial rate	Persistent oliguria: UO <15 mL for 2 or more hours	Unable to maintain MAP > 60

Strategies for Difficult Resuscitation

Provider Driven Strategies

Utilize these adjuncts when standard resuscitation is not successful and difficult resuscitation has been identified.

Resuscitation Adjuncts

High Dose Vitamin C Infusion

- Weight based continuous infusion x 24 hrs
- Use as part of total resuscitation rate.
  - Vit C Rate + LR Rate = total resuscitation rate as calculated on page 1
- Titrate down LR per above algorithm until weight based infusion of Vitamin C is reached
  - Continue Vitamin C at weight based rate until 24 hr infusion is complete, then switch to maintenance rate of LR.

Colloid Rescue

Increase rate per Nurse Driven Protocol
AND
give 250 mL (12.5 gm) 5% albumin over 1 hour

↓

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↓

If still not meeting goals after albumin bolus x 2 then transition to:
Colloid Only Resuscitation

Colloid Only Resuscitation

Start infusion of only albumin or FFP at half the rate of crystalloid infusion. Titrate colloid per Nurse Driven Protocol.

Refractory Shock/End Organ Failure

Hypotension

- Indication: unable to maintain MAP > 60, despite above fluid resuscitation strategies
  - Give 500 mL (25 gm) 5% albumin bolus
  - If ineffective, then start vasopressin, avoid other pressors.

Continuous Veno-Venous Hemofiltration (CVVH)

- Indication: persistent shock and/or oliguria (<15 cc/hr x 3 hrs)
- Consult: Nephrology to initiate
- Vascular access: Burn/SCU team to establish
- IVF (crystalloid/colloid): titrate to maintenance rate
- CVVH Goal: remove 50-100 mL/hr

Plasma Exchange

- Indication: burn shock despite early excision
- Contact: Nephrology to initiate
- Vascular access: Burn/SCU team to establish

Extracorpeal Membrane Oxygenation (ECMO)

- Indication: Refractory acidosis, Refractory hypoxemia
- Consult: Cardiothoracic surgery to initiate

Burn Excision

- Goal to excise burn within 72 hours from admission
- Excise earlier for cases of refractory shock

Please refer to the MMC Burn Manual for further details of the above strategies.