**Step 1: Categorise Risk of Tumour Lysis Syndrome (TLS)**

<table>
<thead>
<tr>
<th>Categorise Risk of TLS</th>
<th>Low Risk Category</th>
<th>Intermediate Risk Category</th>
<th>High Risk Category</th>
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</table>
| Low Risk Category      | Leukaemia with WCC < 20 × 10⁹/l in the absence of large tumour bulk  
AND Normal urine output/renal function  
AND No evidence of TLS  

**Low Risk protocol** |
| Intermediate Risk Category | Leukaemia with WCC 20 - 100 × 10⁹/L in the absence of large tumour bulk  
Non-bulky NHL/LPD/PTLD  
AND Normal urine output/renal function  
AND No evidence of TLS  

**Intermediate Risk protocol** |
| High Risk Category | Bulky chemosensitive disease:  
Leukaemia with WCC > 100 × 10⁹/L  
Non-Hodgkin’s lymphoma - B or T cell  
(e.g. large anterior superior mediastinal mass)  
Large tumour bulk  
(e.g. large organomegaly)  
OR abnormal renal function/low urine output  
OR evidence of TLS  

**High Risk protocol** |

N.B. unusual to develop TLS in other solid malignancies/HLH (no treatment required)

NHL = Non-Hodgkins Lymphoma  
LPD = Lymphoproliferative Disease  
PTLD = Post-transplant Lymphoproliferative Disease
Recognition & Management of Tumour Lysis

Tumour lysis (TLS)

- **Low risk for TLS**
  - Normal U&E & urine output (UO)
  - No bulky disease
  - WCC <20x10^9/L

At diagnosis
- Maintenance fluids (oral/NG/IV)
- Start Allopurinol 100mg/m²/dose TDS orally
- Daily bloods (TLS & FBC)

12-24 hours prior to commencing treatment
- Start hyperhydration 0.9% Sodium Chloride +5% Dex 2.5-3L/m²/day, can be increased to 4L/m²/day if needed and there is no evidence of fluid overload.
- Maintain urine output >2ml/kg/hr
- Furosemide PRN

After commencing treatment
- Monitor: 8 - 12 hrly TLS bloods, FBC daily
- Strict fluid balance/UO
- Maintain urine output > 2ml/kg/hr
- Furosemide PRN

Any evidence of Tumour lysis
- Wean off hyperhydration & frequency of blood after 48-72hrs
- Switch to Allopurinol if on Rasburicase, after 2-3 days
- Complete 5 - 7 days in total of allopurinol (+/- rasburicase)

- **Intermediate risk for TLS**
  - Normal U&E & urine output (UO)
  - No bulky disease
  - WCC 20-100x10^9/L

At diagnosis
- Consider hyperhydration 0.9% NaCl + 5% Dex 2.5-3L/m²/day. No potassium added to fluids.
- Discuss with PTC
- Start Allopurinol 100mg/m²/dose TDS orally
- Daily bloods (TLS & FBC)

12-24 hours prior to commencing treatment
- If not already started, start hyperhydration 2.5-3L/m²/day, can be increased to 4L/m²/day if needed and there is no evidence of fluid overload.
- Maintain urine output >2ml/kg/hr
- Furosemide PRN

After commencing treatment
- Monitor: 6 - 8 hrly TLS bloods, FBC daily
- Strict fluid balance/UO
- Maintain urine output > 2ml/kg/hr
- Furosemide PRN

Follow High Risk flowchart

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**Recognition & Management of Tumour Lysis**

**High risk for TLS**
- High cell count leukaemia (>100x10⁹/L)
- Burkitt’s type lymphoma (BNHL)
- Large tumour bulk
- Bulky T Cell lymphoma (mediastinal mass)
- Bulky LPD/PTLD
- Evidence of renal infiltration with tumour
- Renal impairment with abnormal U&E

**At diagnosis**
- Hyperhydrate with 0.9% Sodium Chloride +5% Dex -3L/m²/day, can be increased to 4L/m²/day if there is no evidence of fluid overload.
- Maintain urine output >2-3ml/kg/hr. Furosemide PRN.
- Start IV Rasburicase 200mcg/kg OD (ideally document G6PD status) If Rasburicase is unavailable at POSCU, start Allopurinol 100mg/m²/dose TDS orally then switch to Rasburicase on arrival at PTC.
- If TLS bloods normal: repeat 8 hrly with FBC

**After commencing treatment**
- 4 - 6 hrly TLS & FBC
- Ensure urine output >2-3ml/kg/hr
- Furosemide PRN.

- If urate remains high or rising despite 24 hours of Rasburicase, consider administering additional doses of Rasburicase at 200mcg/kg/dose minimum time interval 12 hrly (Discuss with PTC).
- If no evidence of fluid overload consider increasing hyperhydration to 4L/m²/day

**Caution at diagnosis**
- **Hyperhydration**
  - In children with very low Hb & high WCC count (Risk of haemodilution and dropping Hb further).
  - Discuss with PTC for plan or hyperhydration
- **Furosemide**
  - For patients at risk of leukostasis, discuss with PTC before giving furosemide. Dehydration may worsen leukostasis
- **Rasburicase**
  - Rasburicase can trigger haemolysis in G6PD deficiency

**DETERIORATION**
If concerns with deteriorating TLS bloods +/- UO +/- fluid overload despite furosemide, contact PTC consultant/renal team/PICU to consider haemofiltration or dialysis