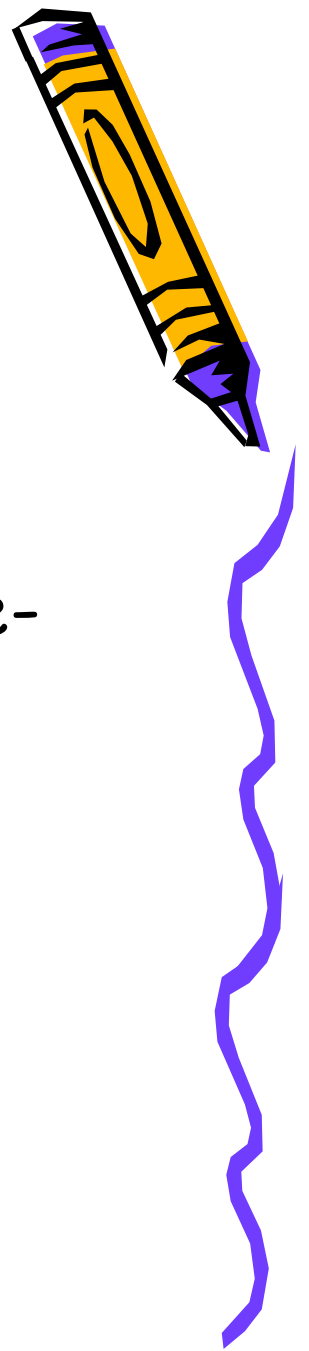




Pediatric Oncology Patients in the ED: Fever & Neutropenia

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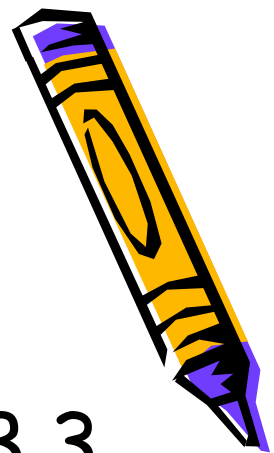


Neutrophils: A Refresher

- Body's first line of defense against invading bacteria
- Stem from the granulocyte macrophage-colony stimulating factor (GM-CSF) progenitor cell
- Normal BM produce $60-400 \times 10^7$ neutrophils/day
- Typical life span: 7-12 hours



Fever & Neutropenia: Definitions

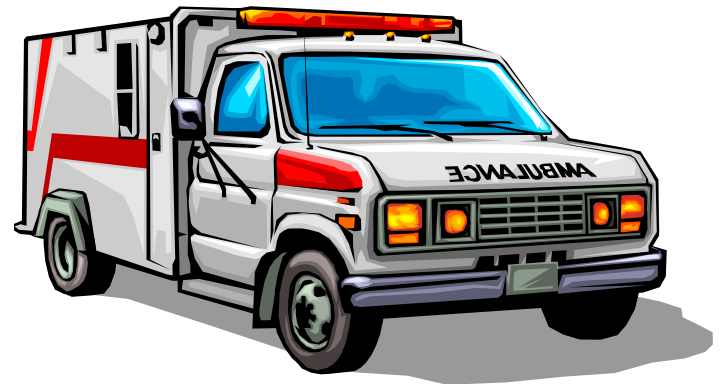
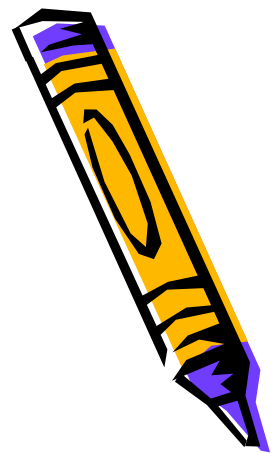


- Fever: single oral temperature > 38.3 (101) or > 38.0 lasting greater than one hour
- Neutropenia: ANC $< 500-1000$



Fever & Neutropenia = Medical Emergency!

- Look good vs. look bad

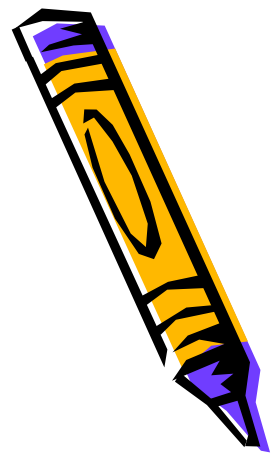


Nursing Interventions

- Blood cultures (from all CVC lumens, always BEFORE ABX!)
- Antibiotics (within 60 minutes)
- Fluids (bolus(es) & maintenance IVF)
- UA/culture
- Stool culture (if diarrhea present)
- Possible CXR



Potential Complications

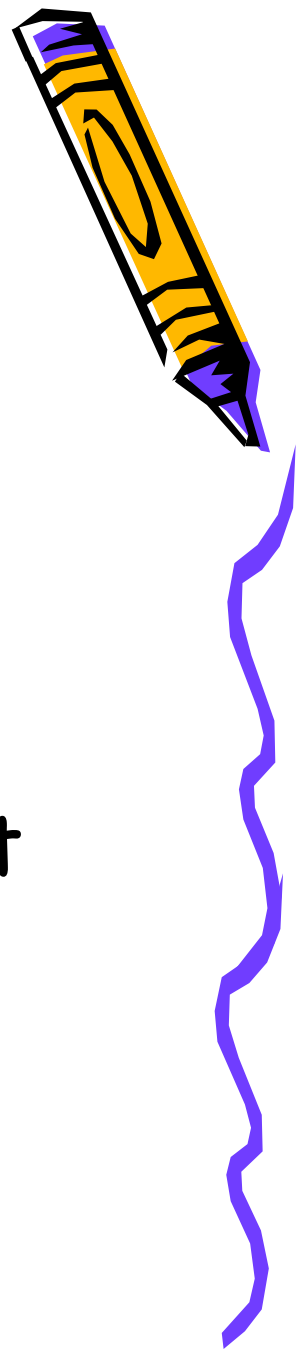


- Septic shock
 - First dose of antibiotic can precipitate septic shock
- DIC (disseminated intravascular coagulation)
 - alteration in blood clotting mechanisms with \uparrow amounts of thrombin and plasmin in the circulation
 - \downarrow platelets
 - \uparrow prothrombin
 - \downarrow fibrinogen

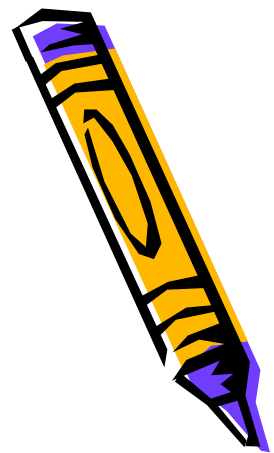


Case Study

- Jose, a 10 year old with AML, who has a double lumen CVC
- He is on day 9 of induction chemotherapy
- He presents with c/o a sore throat and fever of 101.3° F
- What do you do first?



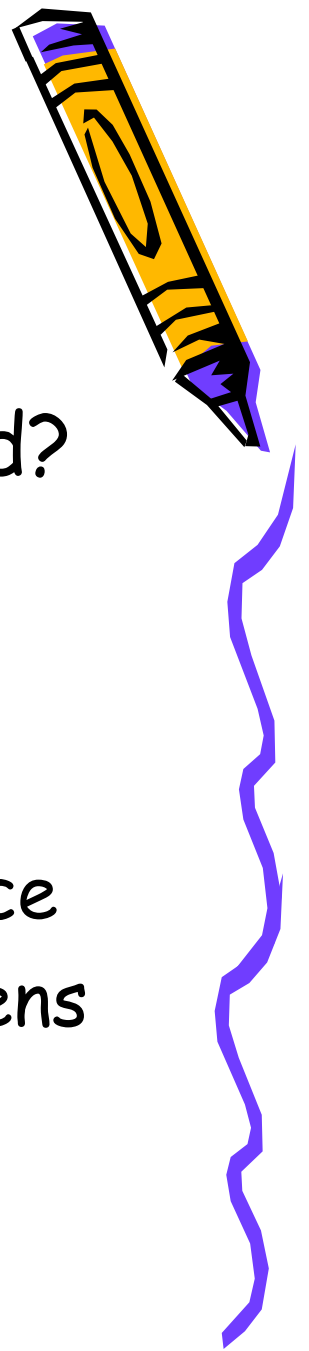
Case Study



- What do you do first?
 - VS: BP 80/46, HR 124, RR 28
 - Labs: WBC 0.2, HGB 7.4, PLTS 54K
- What other labs might be obtained?
- What would you expect to be done next?



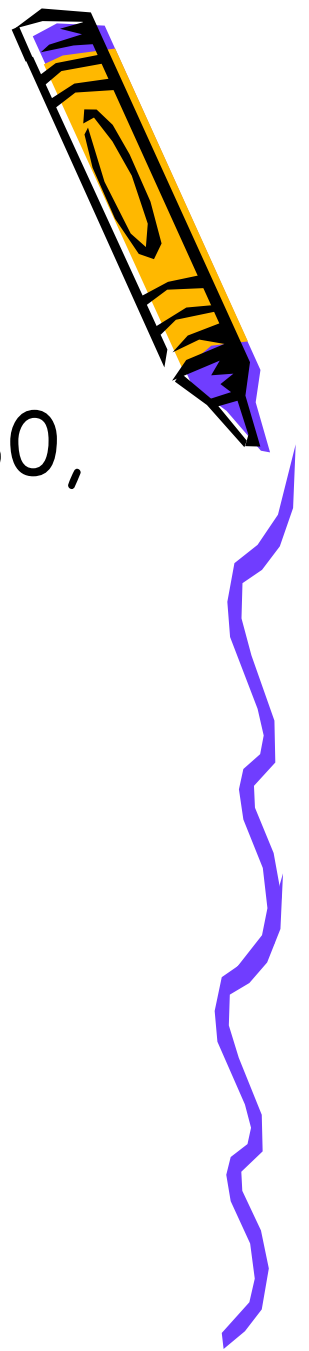
Case Study



- What other labs might be obtained?
 - Chem panel, possibly DIC screen
- What would you expect to be done next?
 - Begin IVF's @ 1.5-2 times maintenance
 - Initiate ABX, always alternating lumens



Case Study

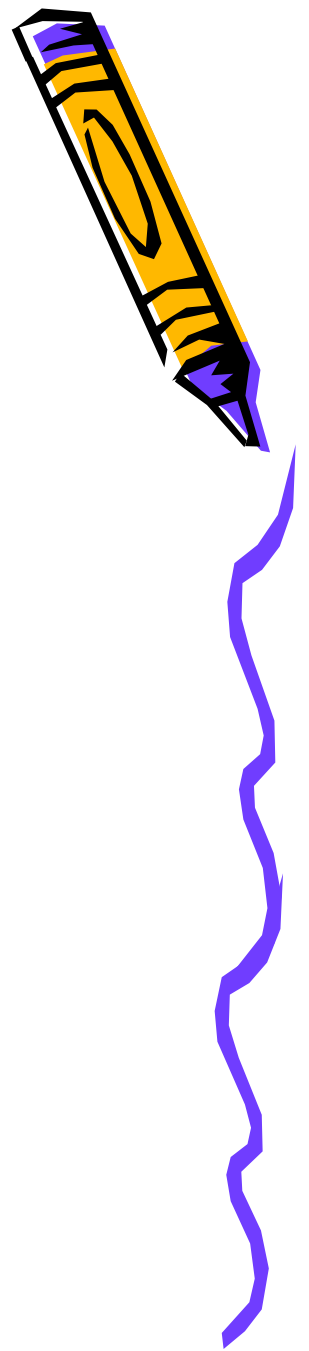


- After ABX begun BP 60/34, HR 130, RR 26
- Skin cool, cap refill > 5 seconds
- What do you suspect?

- What might be next step?



Case Study



- What do you suspect?
 - Septic shock/release of endotoxins
- What might be next step?
 - Rapid infusion (s) NS at 20 ml/kg
- What other fluids might be given?
 - +/- albumin
 - pRBC 10-15 ml/kg when available
 - Pheresis pack of platelets



Case Study

- BP now 90/68, HR 110, RR 22
- Skin warm, pink, cap refill < 3 seconds
- What is most likely organism?

