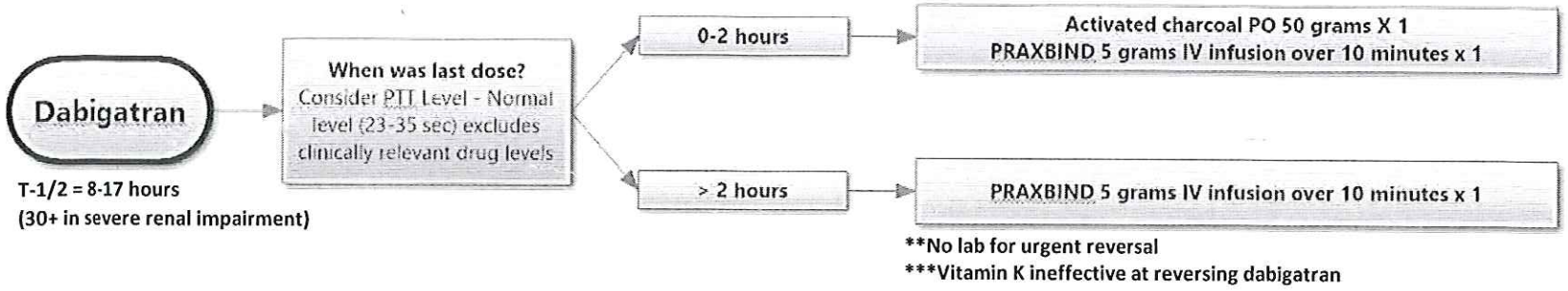
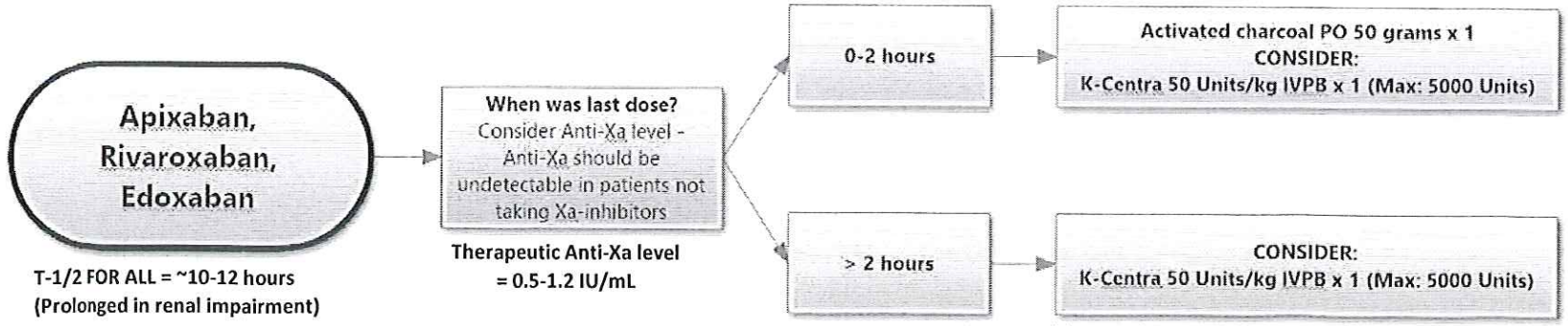
Anticoagulation Reversal

Dabigatran and Factor Xa Inhibitors –
Unlikely to cause clinically relevant anticoagulant effects if last dose was > 48 hours ago



T-1/2 = 8-17 hours
(30+ in severe renal impairment)

****No lab for urgent reversal**
*****Vitamin K ineffective at reversing dabigatran**



T-1/2 FOR ALL = ~10-12 hours
(Prolonged in renal impairment)

Therapeutic Anti-Xa level
= 0.5-1.2 IU/mL

****No lab for urgent reversal**
*****Vitamin K ineffective at reversing Factor Xa inhibitors: Apixaban, Rivaroxaban, Edoxaban**

References –

1. CHEST 2012; 141(2)(Suppl):7S-47S
2. University of Washington Medicine Anticoagulation Reversal Guidelines

7-01-16

ANTICOAGULATION REVERSAL ALGORITHM –MERCY MEDICAL CENTER-DSM

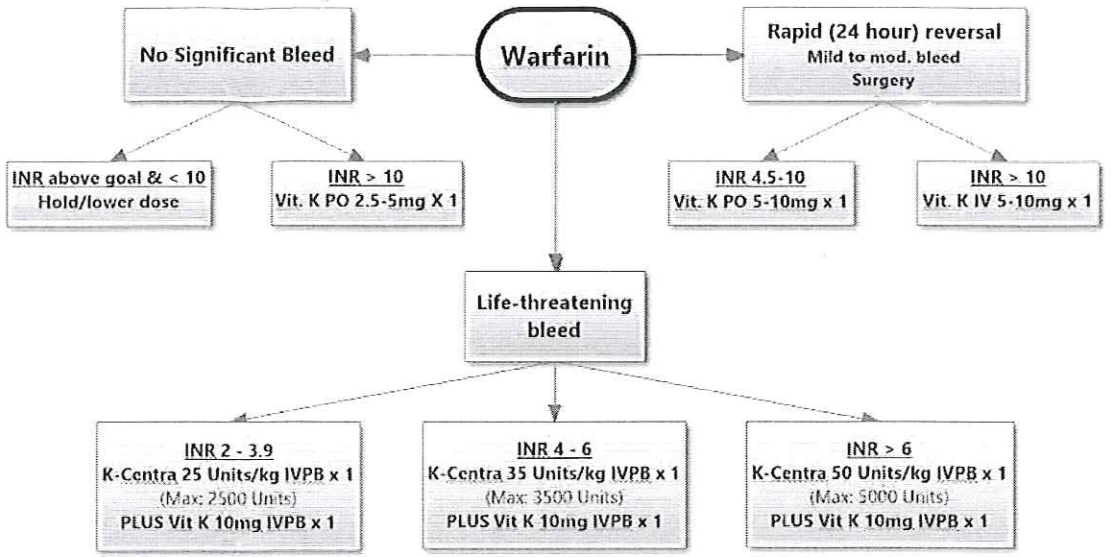
Anticoagulation Reversal

Things to consider –

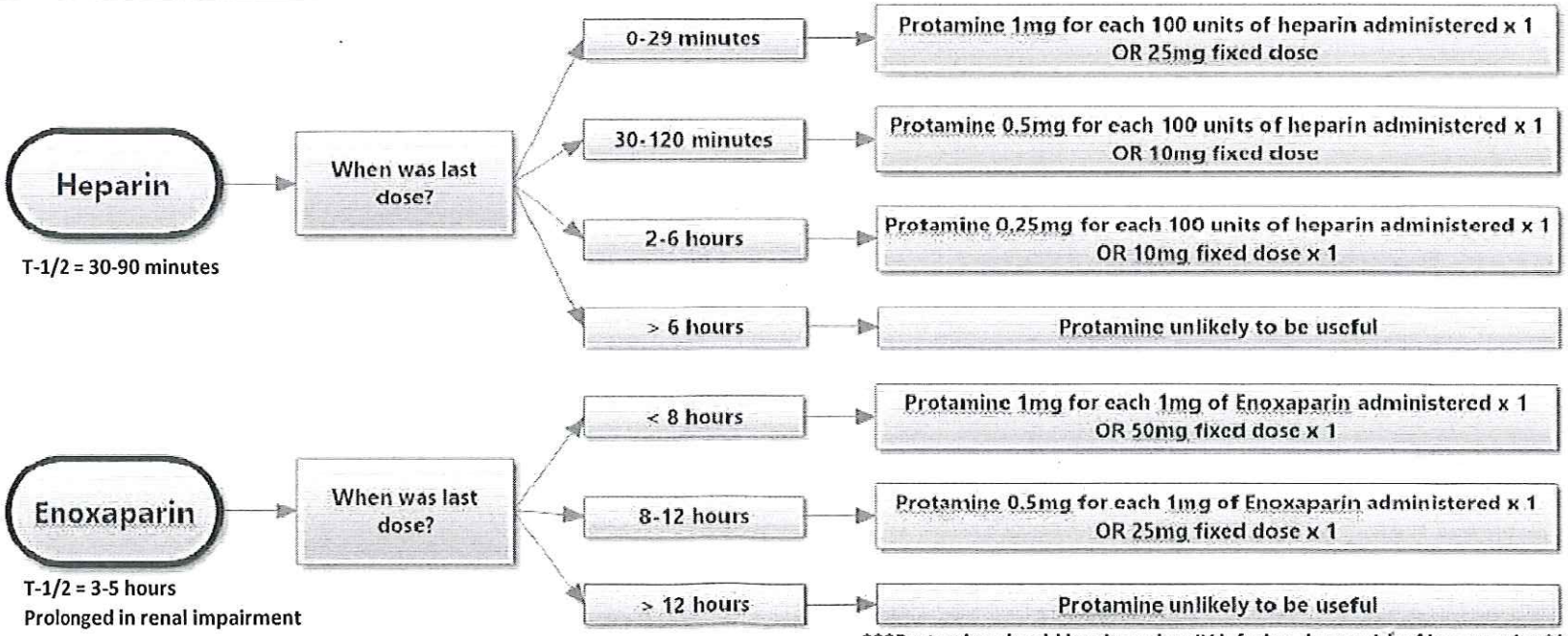
1. What anticoagulant is involved?
2. When was the last dose taken?
3. Are any labs available?
4. Site of bleeding?
5. Is reversal necessary?

General measures for all bleeds –

1. Hold anticoagulant
2. Fluid resuscitation
3. Blood products-PCC's, FFP, PRBC's
4. Local/surgical hemostatic measures



INR – 10+ minutes after infusion of K-Centra



Protamine should be given slow IV infusion due to risk of hypotension
Protamine neutralizes ~60% of enoxaparin and 100% of heparin

7-01-16

Bleeding Reversal - Refer to Anticoagulation Reversal Protocol for additional information

WARFARIN

LIFE THREATENING BLEEDING OR EMERGENT INVASIVE PROCEDURE:

- Hold Warfarin
- Vitamin K 10mg IVPB over 30 minutes 1-Time
- Prothrombin Complex Concentrate (Kcentra) based on INR; infuse over 15 minutes
  - 2 to <4: 25 units/kg (max: 2500 units) rounded to nearest vial size IVPB
  - 4 to 6: 35 units/kg (max: 3500 units) rounded to nearest vial size IVPB
  - >6: 50 units/kg (max: 5000 units) rounded to nearest vial size IVPB

SIGNIFICANT BLEEDING RISK OR RAPID REVERSAL FOR SURGERY:

- Hold Warfarin
- Vitamin K based on INR and/or urgency of reversal
  - INR 4.5-10: 5-10mg PO 1-Time
  - INR >10: 10mg IVPB 1-Time; recheck INR in 4 hrs
  - Urgent Procedure (<6hrs): 10mg IVPB 1-Time; recheck INR in 6 hrs

ELEVATED INR WITHOUT SIGNIFICANT BLEEDING RISK:

- INR >therapeutic range, <4.5:
  - Lower or omit Warfarin dose
  - May consider Vitamin K 2.5mg PO 1-Time (Vitamin K 2mg IVPB 1-Time if NPO)
- INR 4.5-10:
  - Omit next 1-2 doses of Warfarin
  - May consider Vitamin K 2.5mg PO 1-Time (IVPB if NPO)
- INR >10:
  - Hold Warfarin
  - Vitamin K 2.5-5mg PO 1-Time (IVPB if NPO); may repeat dose based on INR

DIRECT ORAL ANTICOAGULANTS (DOAC)

DABIGATRAN (Pradaxa):

- Hold Dabigatran
- Activated Charcoal 50gm PO 1-Time, if ingested within last 2 hours
- Idarucizumab (Praxbind) 5gm (100mL total) slow IV push over at least 5 minutes

APIXABAN (Eliquis), EDOXABAN (Savaysa), RIVAROXABAN (Xarelto):

- Hold Apixaban/Edoxaban/Rivaroxaban
- Activated Charcoal 50gm PO 1-Time, if ingested within last 2 hours
- PCC (Kcentra) 50 units/kg (max: 5000 units) rounded to nearest vial size IVPB over 15 min

INJECTABLE ANTICOAGULANTS

HEPARIN: Protamine dose based on total heparin dose in past 2 hours (includes any bolus doses)

Time since last dose heparin	Dose of Protamine for each 100 Units heparin	
Immediate	1mg (or 25mg fixed dose)	Max dose 50mg at rate not to exceed 5mg/min
30-90 minutes	0.5mg (or 10mg fixed dose)	
>2 hours	0.25mg (or 10mg fixed dose)	

ENOXAPARIN (Lovenox):

Time since last dose LMWH	Dose of Protamine for each 1mg of Enoxaparin
<8 hours	1mg (or 50mg fixed dose)
8-12 hours	0.5mg (or 25mg fixed dose)
>12 hours	Unlikely to be useful

BIVALIRUDIN (Angiomax): Turn off infusion

FONDAPARINUX (Arixtra): Consider rFVIIa (NovoSeven) 90 mcg/kg IV push