

# Stop the Bleeding!!!

Anticoagulant and Antiplatelet Reversal in the ED  
Grand Rounds, October 13, 2016  
Stu Douglas



## Anticoagulants



### Coumadin

**Mechanism** vitamin K Antagonist - decrease VII, IX, X, prothrombin production  
**Half Life** 20-60hrs  
**Reversal** PCC > FFP > vitamin K >>> factor VII (consider only for Jehovah Witness)



### Xa Inhibitors

**Mechanism** prevent prothrombin → thrombin conversion  
**Half Life** variable 5hrs - 14 hrs  
**Reversal** Annexa (studies ongoing) > PCC (not great but all we have)



### Dabigatran

**Mechanism** directly inhibits thrombin  
**Half Life** 12hr, renal function dependent  
**Reversal** Idaracuzimab \$3700, HD, PCC

## Antiplatelets



### ASA

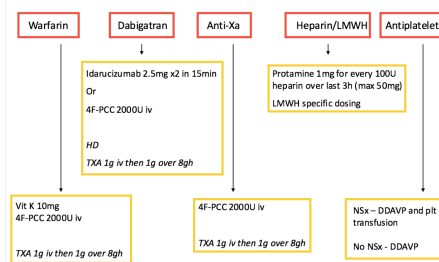
**Mechanism** irreversible Cox 1 inhibitor  
**Half Life** 6hr but effective platelet function permanently impaired, some new platelets at 4 days  
**Reversal** Platelets (selectively), DDAVP



### Clopidogrel, ticagrelor

**Mechanism** P2Y12 inhibitors  
**Half Life** 1-7 hrs but effective platelet function impaired up to 10 days  
**Reversal** Platelets (selectively), DDAVP

## Reversal Strategies



## The StuDoug Approach™



01

### 01 Supportive Care

Treat like any patient with hemorrhage including local hemostasis measures

**\*\*STOP THE BLEEDING\*\***

Don't forget to measure INR (for warfarin), PTT, NOAC specific tests



02



03

### 03 Ask Questions

About the drug: which one, last dose, interacting meds

About the patient: renal function, hepatic function, thrombotic risk

About your location: site of practice



04

### 02 Consider Need for Reversal

Severe bleeds: ICH, critical site, hemorrhagic shock, overt bleed >20pt drop in hemoglobin or >2 units PRBC needed

Projected course: emergent surgical procedures (<12 hours), tamponade, LP

### 04 Reversal

Go ahead...stop the bleeding!



"Remember...life's not an algorithm, you're a doctor" - StuDoug

Warfarin. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Reversal of PCC. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Clopidogrel. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Ticagrelor. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Idaracuzimab. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
4F-PCC. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
TXA. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Protamine. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
NSx. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
DDAVP. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Platelet transfusion. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Vitamin K. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
INR. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
PTT. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
NOAC. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
ICH. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Hemorrhagic shock. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Overt bleed. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Drop in hemoglobin. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
PRBC. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Surgical procedures. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
Tamponade. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
LP. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.  
StuDoug. StatPearls Publishing. URL: https://www.ncbi.nlm.nih.gov/books/NBK492122/. Accessed 2016 Oct 13.