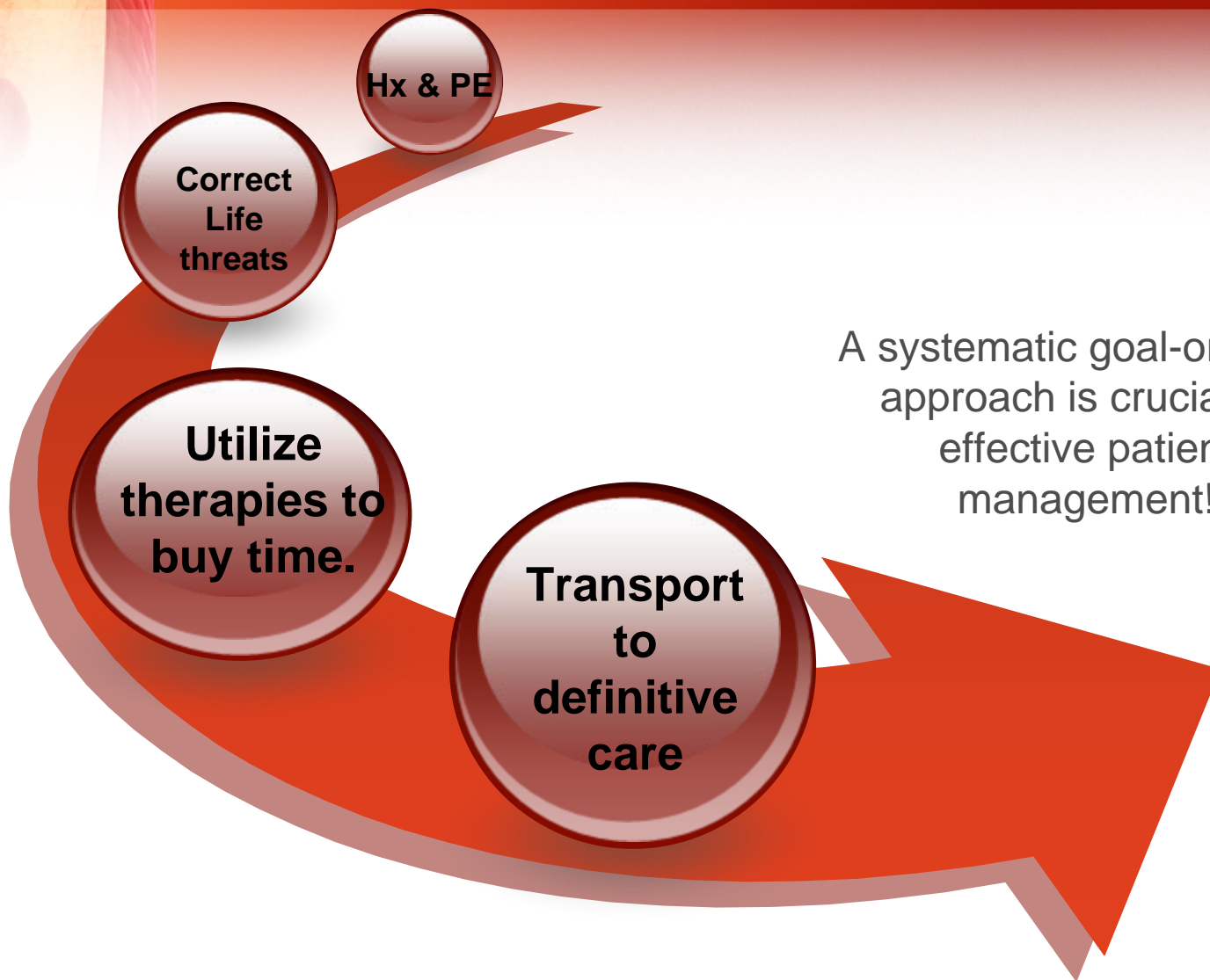


# ACS and MI Management

*Presented By: Ronel Sizer*





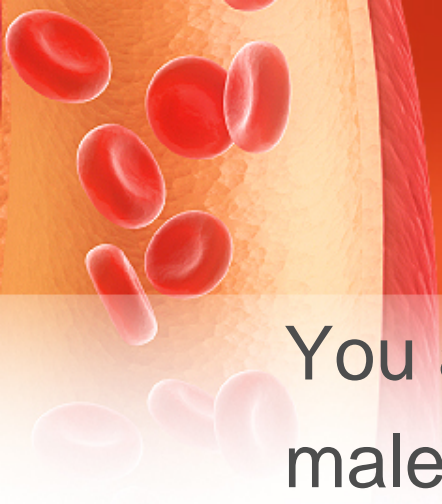
A systematic goal-oriented approach is crucial for effective patient management!

An illustration on the left side of the slide shows several red blood cells, depicted as red biconcave discs, flowing through a cross-section of a blood vessel. The vessel wall is shown in a light orange/tan color, and a portion of a red muscle fiber is visible on the far left edge.

# Six Goals of ACS and MI Management

- Relieve distress
- Reverse ischemia
- Reduced cardiac workload
- Interrupt thrombosis
- Limit infarct size
- Limit complications





You arrive at the bedside of a 57-year-old male C/O sub-sternal 8/10 chest pain with S.O.B.. He also appears pale & diaphoretic. No interventions have been performed.

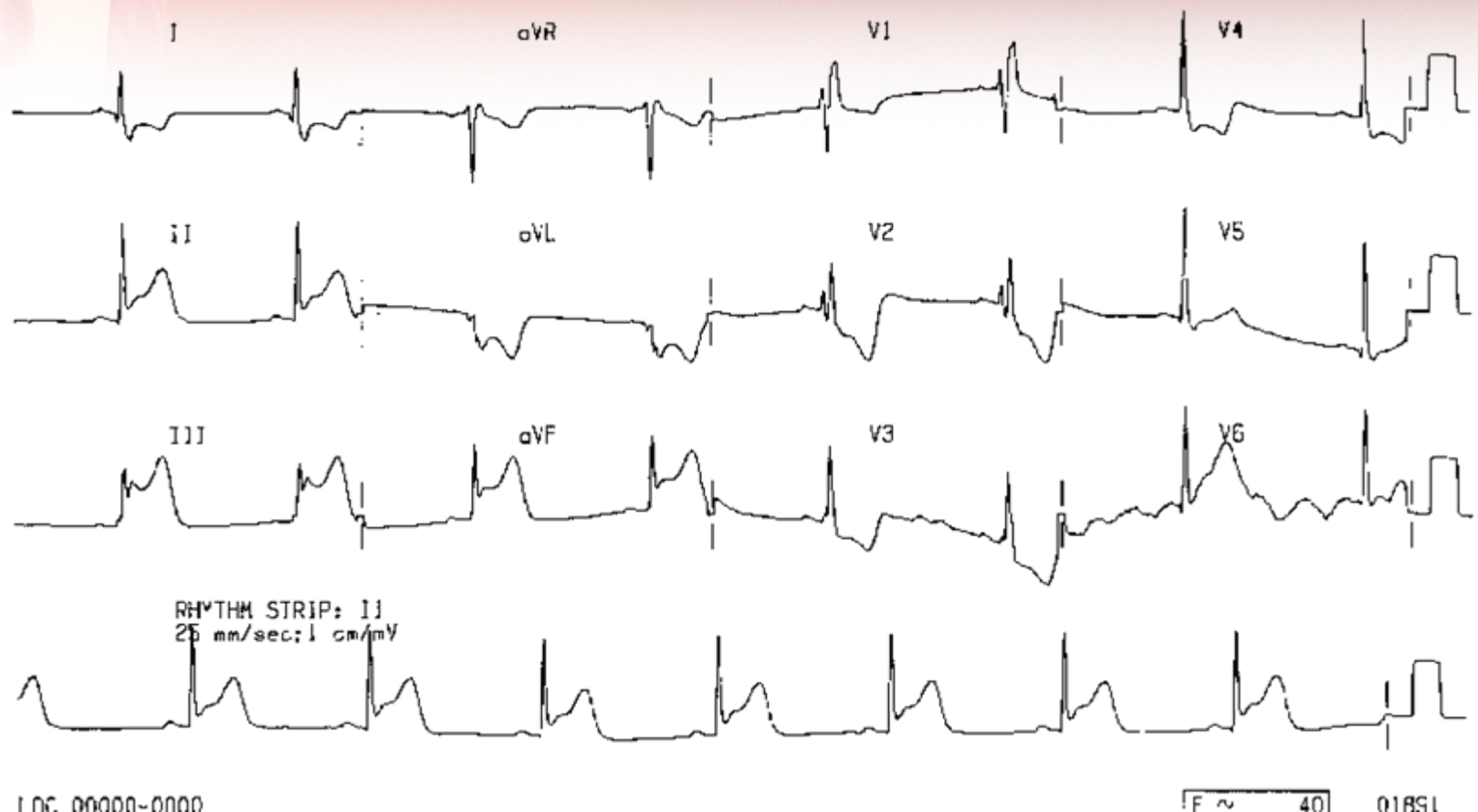
BP: 132/68

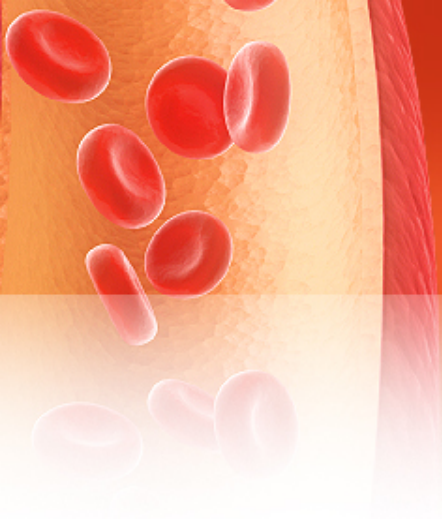
Pulse: 88

Resp: 16

SPO2: 97%

# His 12 lead shows...

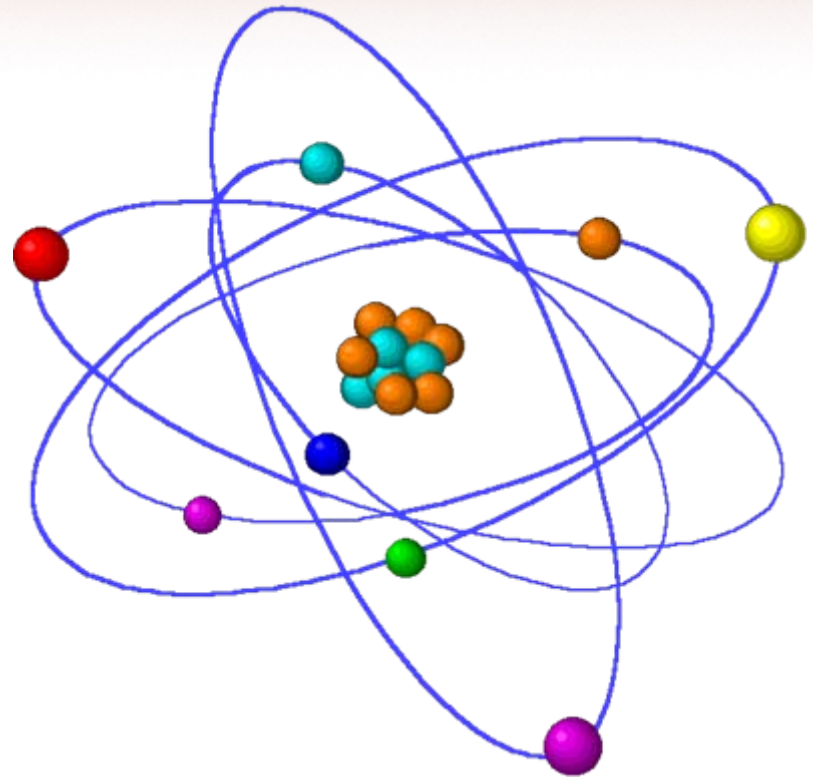




- What is your interpretation of the 12 lead?
- Where do we go from here?

A cluster of red blood cells is visible in the top-left corner of the image, partially overlapping the red gradient background.

oxygen





# Questions to consider...

- How much?
- How long?





## oxygen

### How it helps

- Increases  $\text{DlO}_2$
- limits ischemia
- May reduce infarct size

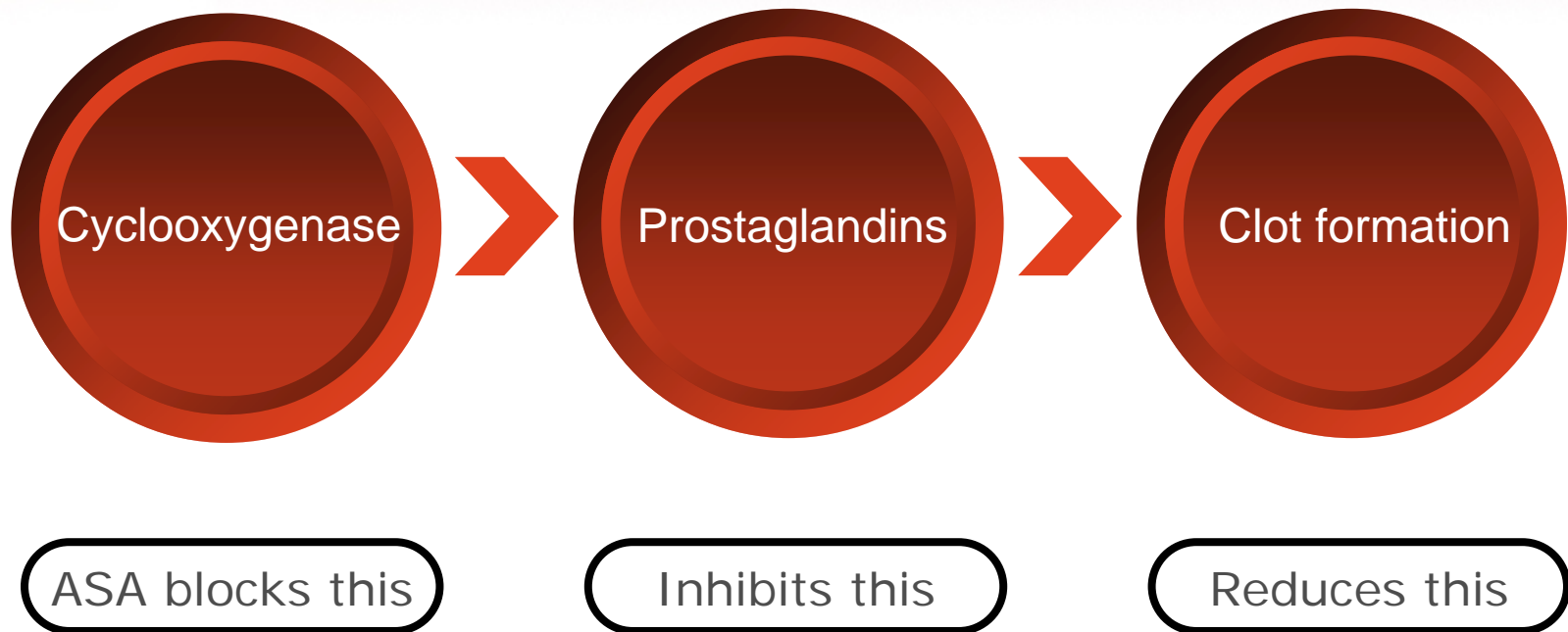
### How it may hurt (high $\text{FIO}_2$ s)

- May blunt hypoxic drive
- May cause lung damage at high pressures
- May promote ventilator dependency

# Aspirin



# How aspirin works...





# Just the facts...

- Aspirin alone reduces mortality by as much as 20 %.
- Class: anti-platelet agent
- Chewed aspirin versus aspirin swallowed intact increases absorption rates by more than half. (5 mins vs. 12mins)
- Dosage 180-324mgs (may be given via suppository)





# Aspirin Contraindications

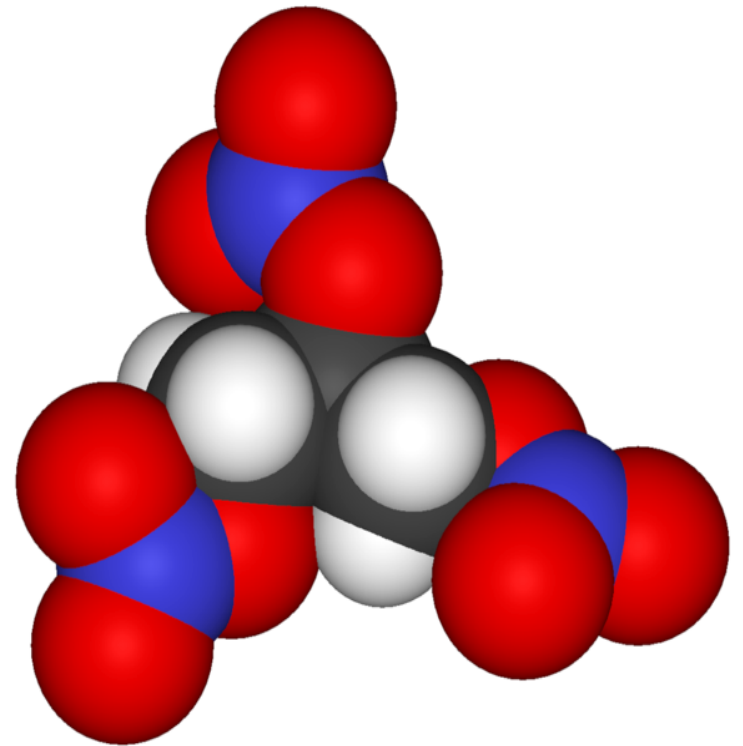
- Sensitivity

## *PO contraindications*

- Recent GI bleed
- Active Peptic Ulcer disease
- Known other upper GI disease

\*Aspirin may be given via suppository in these cases.

# Nitrates





# Nitroglycerin

- Works by dilating vessels (which ones is dose dependant)
- 3 commonly used preparations  
Sublingual  
Transdermal  
Intravenous



Question???

Is there a maximum dose for  
nitroglycerin???





# NTG and MI with RVI

- Inferior MI's with RVI occur in approximately 1/3-1/2 of inferior wall MIs.
- Remember, preload is key to achieving adequate perfusion.

No preload= No BP

- Also remember that RVI is not an absolute contra-indication to NTG. (fluids, fluids and more fluids!)

# Analgesics



“Don’t worry this won’t hurt a bit!”



# Morphine

“Currently” the analgesic of choice in the treatment of ACS.



## Morphine

### How it helps

- Reduces pain.
- Reduces preload
- General protective Effect over the heart.

### How it may hurt

- Central venous Relaxation.
- Profound histamine release.
- Nausea
- May mask pain





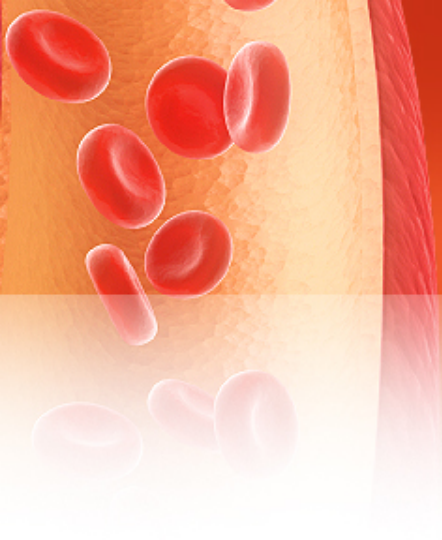
## Fentanyl

### How it helps

- Reduces pain.
- Minimal effects on hemodynamics.
- No remarkable histamine release.

### How it may hurt

- May mask pain.
- Possible QTC elongation.



# Beta Blockers



## Metropolol

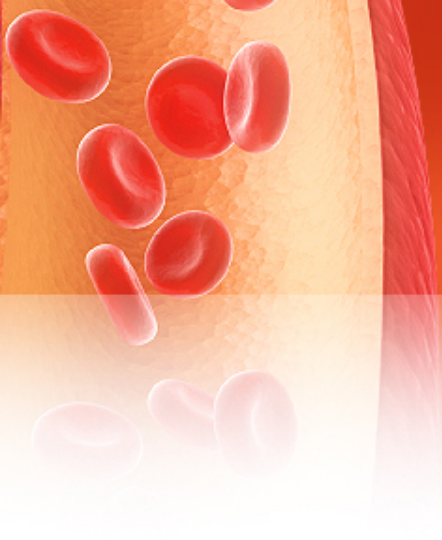
And other Iols

### How it helps

- Reduces preload
- Reduces VF pressure
- Increases diastolic fill times
- Reduces HR.
- Increases coronary artery perfusion.

### How it may hurt

- May insight profound bradycardia.
- May negatively effect preload in RVI.



# Anticoagulants



An illustration on the left side of the slide shows several red blood cells, depicted as red biconcave discs, flowing within a yellowish-orange blood vessel. A red, fibrous structure, possibly a blood vessel wall or a clot, is visible on the right side of the vessel.

# Heparin

- Heparin is a medication that is used to stop the formation of additional clotting.
- This medication is particularly useful when used in conjunction with thrombolytics or PTCA (angioplasty).



# Heparin

- Administer 5000 units followed by 1000u/hr.
- Also use weight based dosing.
- Adjust to maintain PTT 1.5 to 2 X's normal.  
(24-28)



## Heparin

### How it helps

- Inhibits platelet aggregation.

### How it may hurt

- May promote uncontrollable hemorrhage.
- May cause HIT or HAT. (48-72hrs)



# LMW Heparin





# Enoxaparin (Lovenox)

- In comparison to UFH, LMW heparin is composed of short rather than long-chain Polysaccharides.





## Enoxaparin

### How it helps

- Prevents clot formation.
- Instantly therapeutic
- Reduced risk of thrombocytopenia

### How it may hurt

- May promote uncontrolled hemorrhage.



# LMW Heparin (enoxaparin)

**Dosage:** 1mg/kg SQ

**Alternative dosing:** 30-40mgs IV bolus followed by 1mg/kg SQ.

A few notes:

- LMWH is preferred to UFH for patient's with unstable angina and non-STEMI MI
- UFH is still recommended for patients who undergo reperfusion therapy with fibrinolytics.
- LMWH and UFH considered are equivalent for patient's who don't undergo reperfusion therapy.



# Glycoprotein IIB/IIIA Inhibitors

- They prevent the binding of fibrinogen and thus block platelet aggregation.

There are 3 approved for use in the US.

- ReoPro
- Integrillin
- Aggrastat



# Abciximab (Reopro)

a.k.a Chimeric human-murine monoclonal antibody.

- It bonds with a high affinity to receptors on platelets .
- It reduces platelet aggregation by 80%

NO platelet aggregation= No clot formation.



# Reopro dosing

- 0.25 mgs/kg IV bolus
- Followed by an infusion of 0.125 mcg/kg/min
- Max. dose is 10 mcg/min for 12 hours





# Reopro Contraindications

Too Many TO LIST ON A USER FRIENDLY SLIDE!!

- Just remember any condition that may cause promotes hemorrhage or uncontrolled hypertension or CVA is bad!!



# Eptifbatide (Integrillin) dosing

**Unstable Angina:** 180 mcg/kg IV bolus followed by a continuous infusion of 2mcg/kg/min until D/C or surgery.

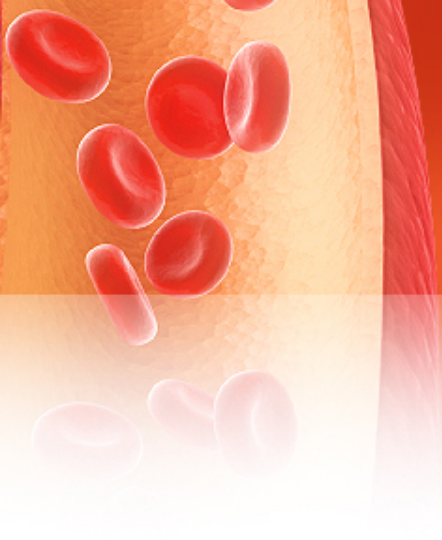
**In case of pts undergoing PCI:**

135mcg mcg/kg IV bolus before procedure followed by 0.5 mcg/kg/min.



# Tirofiban (Aggrastat)

- Probably the most common in this area
- Inhibits >90% of platelet aggregation.
- Dosing: 0.4 mcg/kg/min IV for 30mins; continue at 0.1 mcg/kg/min.
- Remember half dosing applied in pts with renal insufficiency.



# AD Receptor Antagonist

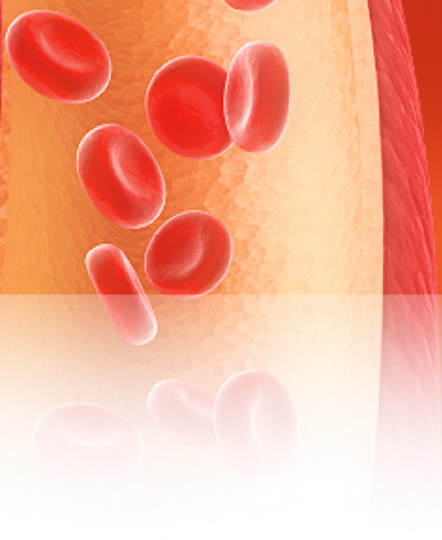


# Plavix

Well tested and has an well established patient safety profile.

Dose: 300mg, followed by 75mg (PO) per day





# Fibrinolytics

An illustration on the left side of the slide shows several red blood cells, depicted as red biconcave discs, flowing within a yellowish-orange blood vessel. The vessel is shown in cross-section, with a red, fibrous-looking wall. The background of the slide is a gradient of red and orange.

# Fibrinolytics

- Fibrinolytics are used to dissolve the thrombus that is obstructing the coronary artery.
- There are three kinds that we will be discussing. (Activase, Retavase, TNKase)

An illustration on the left side of the slide shows several red blood cells, depicted as red biconcave discs, flowing within a blood vessel. The vessel is shown as a red tube with a textured interior. The background of the slide is a gradient of red and orange.

# Fibrinolytics

- When a patient is having an AMI there is a waveform of damage with 90% being done within the first six hours.
- The majority of the damage will occur within the first hour.
- This is why rapid administration of fibrinolytics are important.



# Qualifications for Therapy

Angioplasty is not immediately available **AND**  
**ALL** of the following conditions exists:

- Onset of chest pain = or > 30mins but < 12hrs.
- 12-lead shows ST-segment elevation of 0.1mv (1mm) in 2 or more contiguous leads or a new LBBB.



# Qualifications for Therapy

- Absence of hypotension or heart failure.
- No contraindications to the agents.





# Activase (tPA)

- Indications are AMI, CVA, PE, other clots at low doses.
- MITI trial
- Complicated dosing (15mg/kg, 0.75, 0.5)



# Retavase (reteplase)

- Similar effectiveness as tPA.
- Cost equivalent.
- Easily administered.
- Administer 10U over 2 min. Repeat in 30n min.



# Tenecteplase (TNKase)

- As effective as tPA with extreme ease of administration.
- Administer 30 – 50 mg.
- Weight based medication.



# Fibrinolytic Contraindications

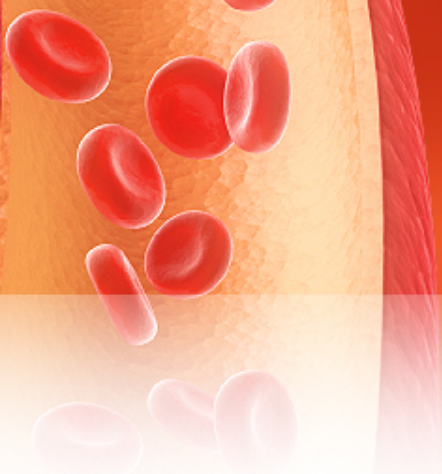
- Uncontrolled HTN ( $\geq 180/100$ )
- Hx. CVA or TIA
- Known bleeding disorder.
- Internal bleeding within past 4 weeks.
- Surgery or trauma in past 3 weeks.
- Terminal Illness
- Jaundice, hepatitis, or kidney failure



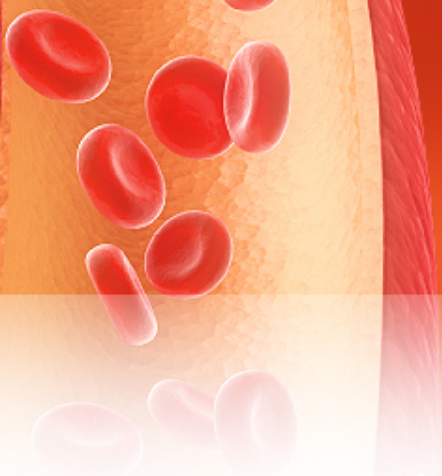


Thank You!

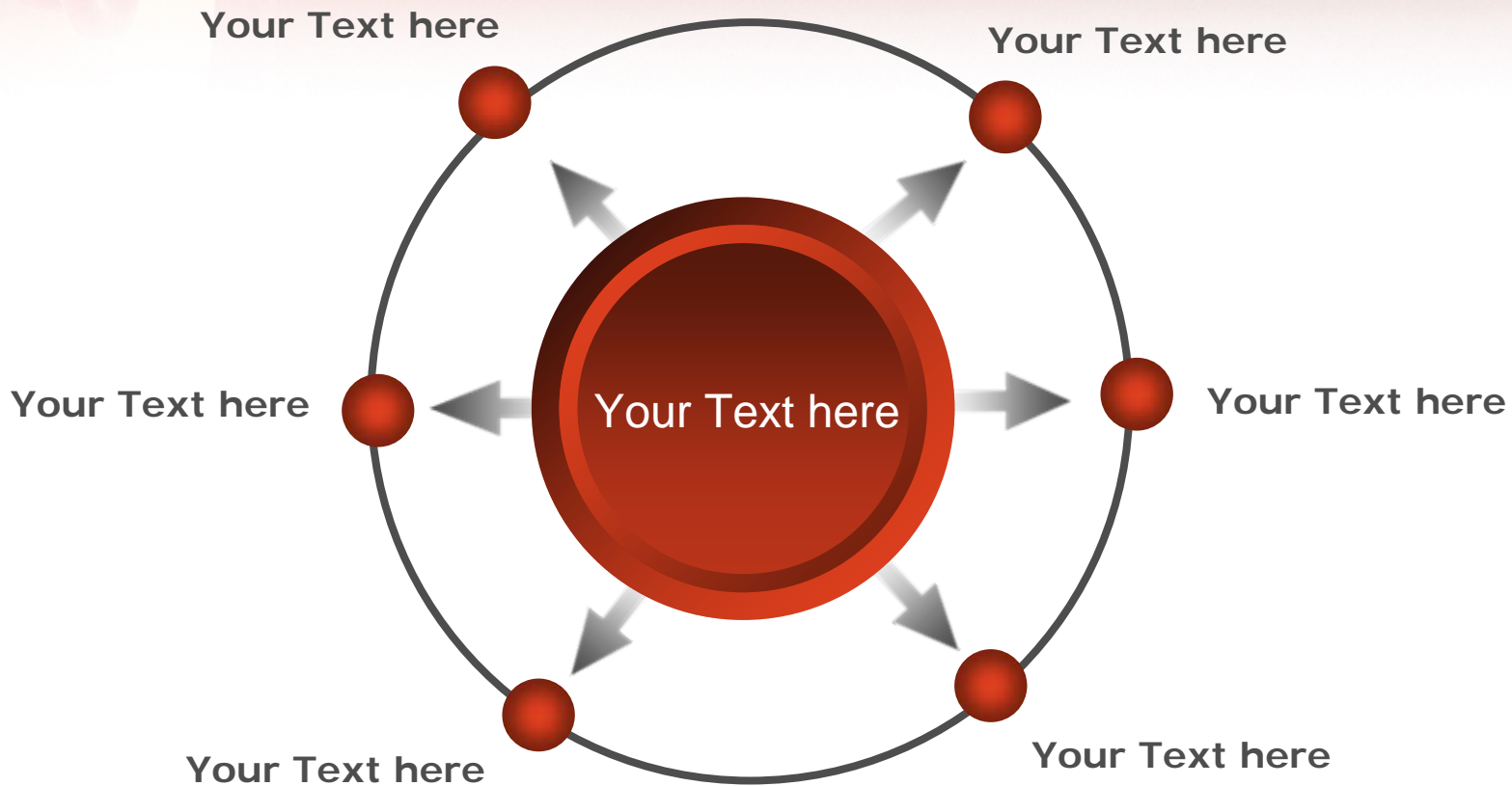


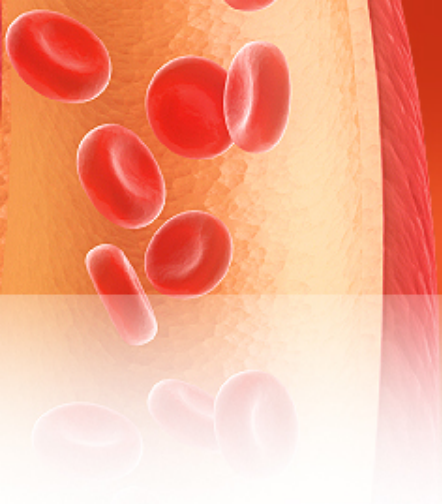


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- 1 Introduction
- 2 Strategy
- 3 Challenges Forward
- 4 History





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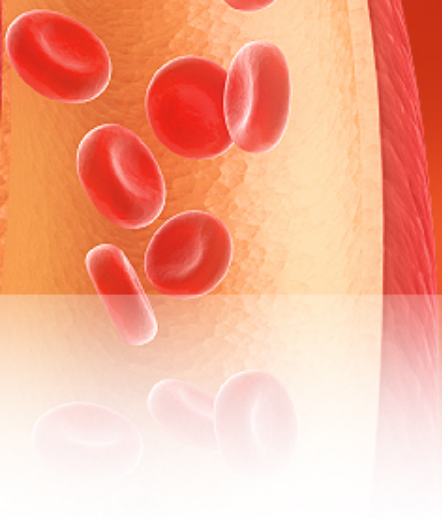


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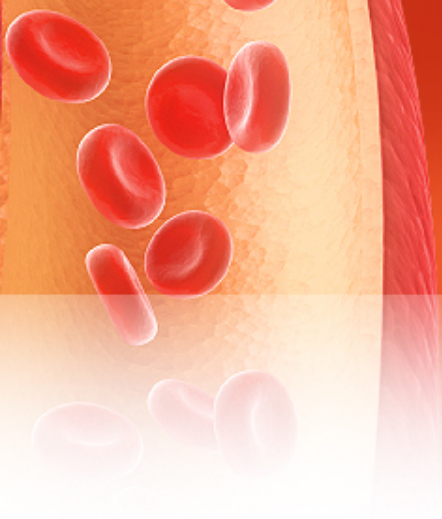
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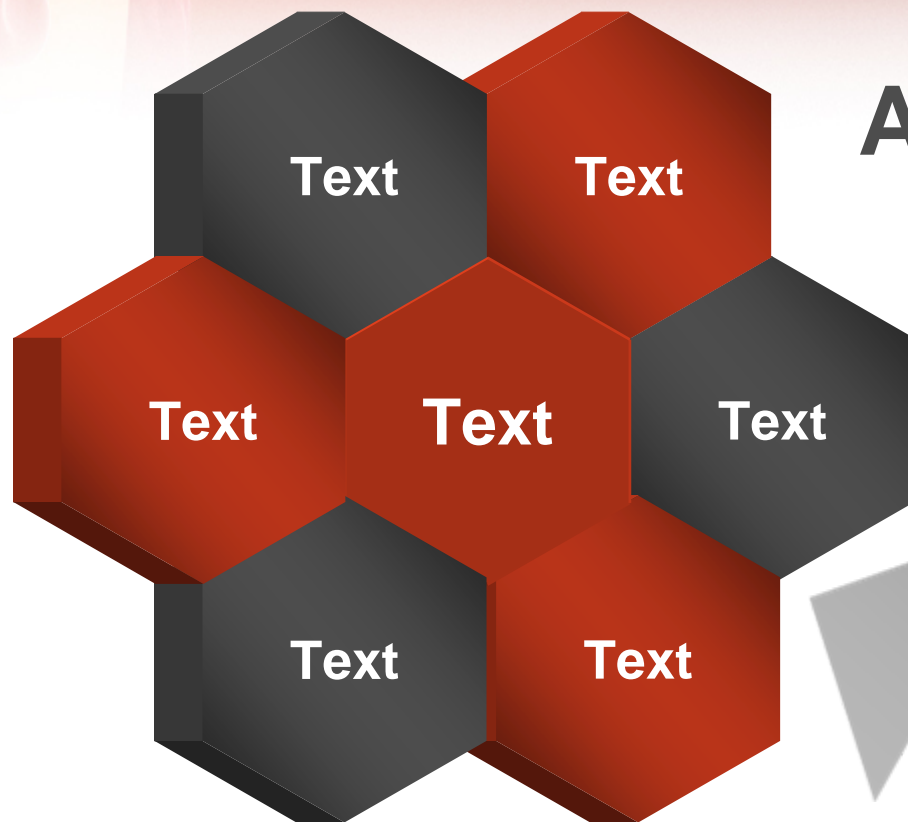
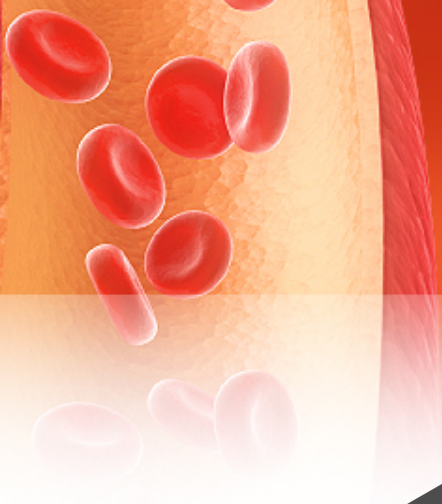


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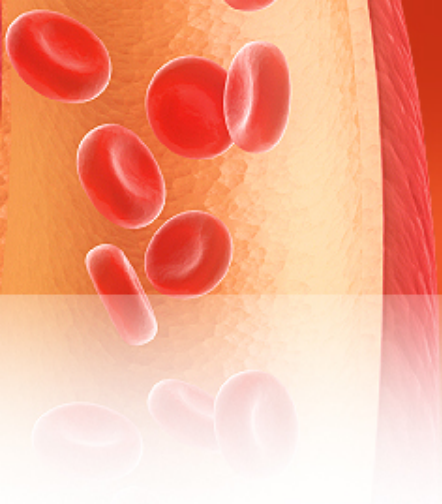
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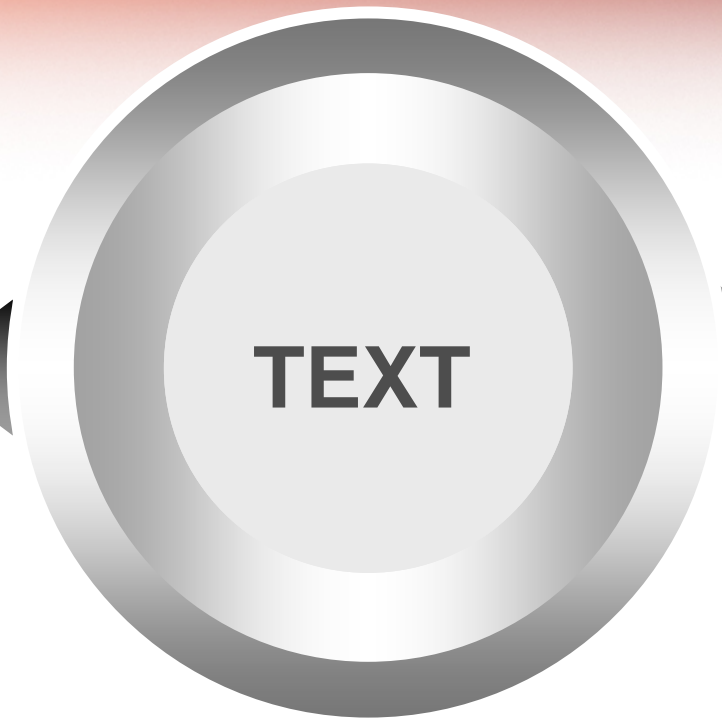




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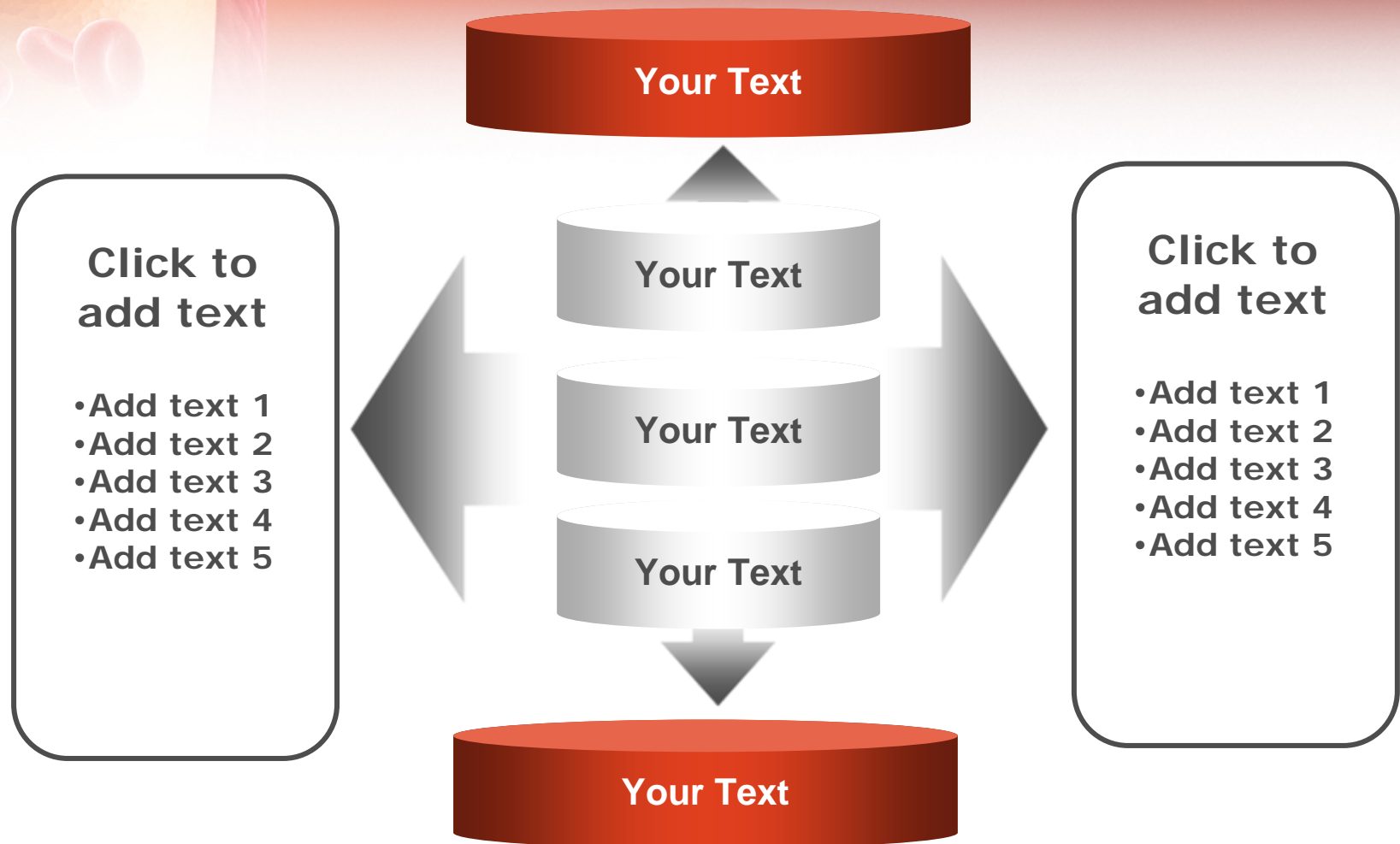
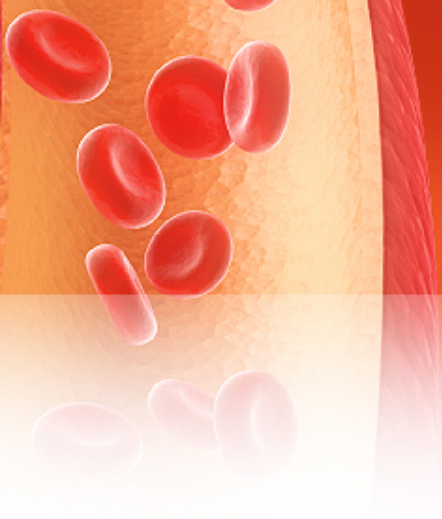


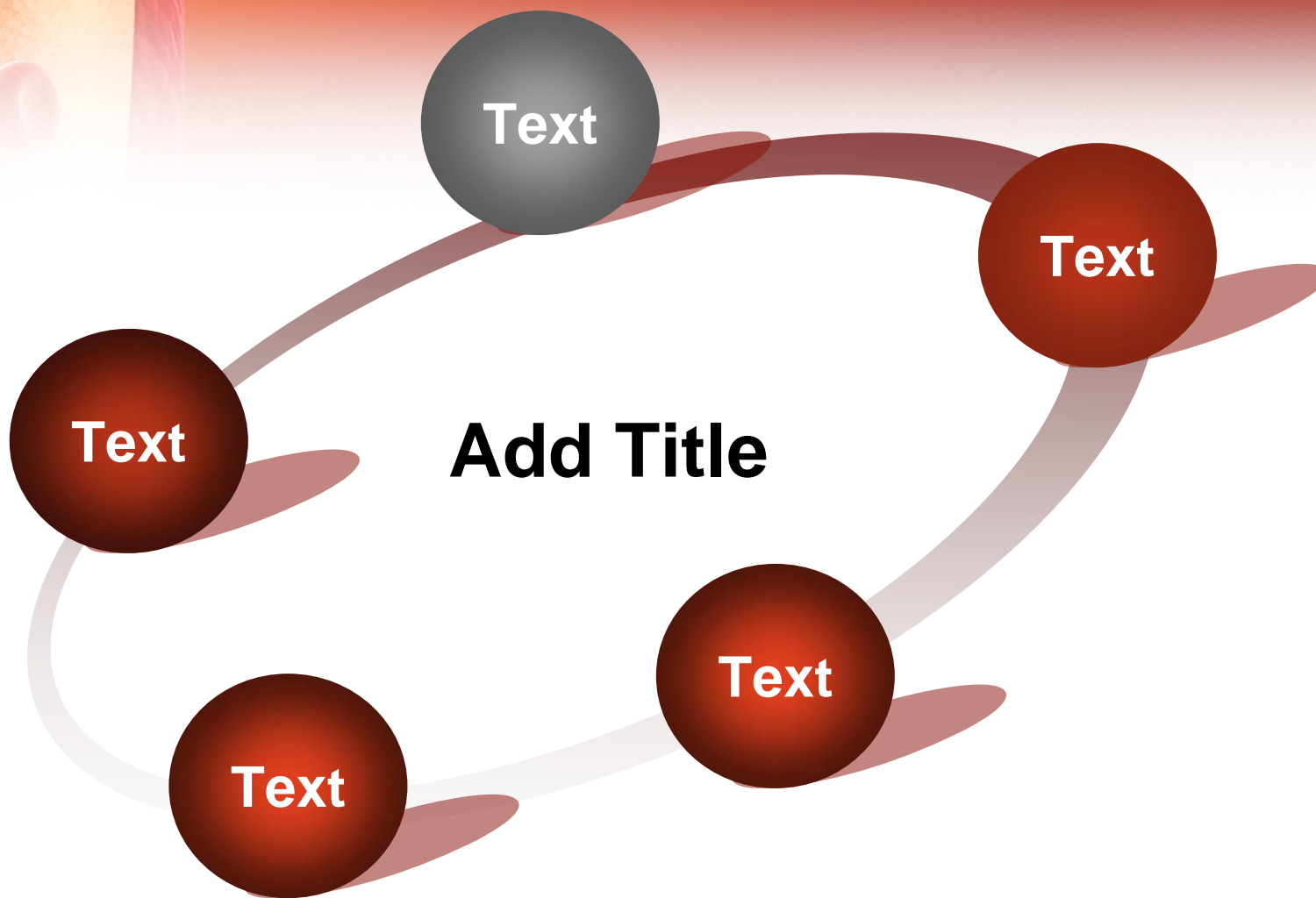
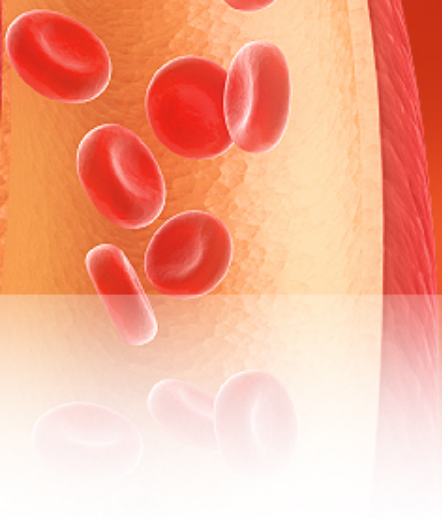
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**Add Title**





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