A. Actions

1. Inhibits the influx of Ca\(^{++}\) during membrane depolarization of cardiac and vascular smooth muscle.
   - Calcium Channel Blocker

   Thus,
   a. Negative chronotrope
      1) slows AV nodal conduction time
      2) prolongs AV nodal refractoriness
      3) decreases sinus node automaticity
   b. Negative inotrope
      -less than Verapamil
   c. Coronary and peripheral vasodilation

B. Indications

1. Control ventricular rate in acute atrial flutter, atrial fibrillation
   -rarely converts to NSR, simply changes to lesser rate
2. Narrow QRS reentry supraventricular tachycardia (refractory to Adenosine)

C. Side Effects

1. Hypotension (asymptomatic & symptomatic)
   -initial decrease in BP/& or flushing occurs most often immediately after the end of the bolus injection
2. Injection site reactions - itching, burning, red
3. Flushing (vasodilation)
4. Dysrhythmias-
   -AV Block
   -PVCs at time of conversion
     transient, typically benign, no clinical significance
   -Junctional rhythms
5. CHF
   -fewer hemodynamic effects than Verapamil, less myocardial depression
   than Verapamil in pts with L vent dysfunction

D. Precautions

1. Elderly
   -may use lower doses

2. Impaired renal or liver function
   -metabolized by liver, excreted by kidneys

3. CHF
   -negative inotrope

4. Monitor closely when on other drugs that decrease BP, heart rate, and/or
   contractility ex. Digoxin (po or IV), other Calcium Channel Blockers

5. Use in pregnant women only if the potential benefit justifies the potential risk to
   the fetus

E. Contraindications

1. Sick sinus syndrome
   -sinus node not dependable

2. Second or third degree block

3. Severe hypotension or shock
   -treat the shock

4. Cardiogenic shock
   -treat the shock

5. Concurrent IV Beta Blocker therapy
   -Oral Beta-Blockers (AHA 2010 “avoid”)

6. WPW with Atrial fibrillation/Atrial Flutter
   -selectively blocks the AV node without also blocking the coexisting
   accessory conduction pathways

7. Ventricular Tachycardia or any wide QRS Tachycardia of unknown origin

8. Poison/drug induced tachycardias
E. Dosage

1. Initial IV bolus - 0.25 mg/kg over 2 minutes
   - **15-20 mg** is a reasonable dose for the average patient

2. In 15 minutes, repeat dose - 0.35/mg/kg IV bolus over 2 minutes
   - **20-25 mg** is a reasonable dose for the average patient

F. Administration

1. IV boluses must be given over 2 minutes

2. Monitor blood pressure and EKG closely

3. **FYI Infusion may be given for up to 24 hours at 5-15 mg/hr (250 mg/250cc)**

G. Miscellaneous

1. May try vagal maneuvers prior to Diltiazem administration

2. Onset of heart rate control usually within 3 minutes
   - Maximal heart rate reduction generally occurs in 2-7 minutes

3. Heart rate reduction may last for 1-3 hours
   - If hypotension occurs it is usually short-lived but may last for 1-3 hours
   - Half life 3-4 hours

4. Do not give other drugs in the same line

5. Available oral, used for the treatment of hypertension and/or angina

6. Synchronized cardioversion should be used when patient is deteriorating/unstable