Algorithm for Filtering Drug-Drug Interaction Alerts for

Epinephrine and Beta-blockers

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1. Select epinephrine products (RxNorm CUI):
   1. Epinephrine (3992)

\*Need to note dose to determine DDI possible.

2. Go to RxNORM CPCS and use the following query to find the clinical drugs for your drug ingredient concept set:

SELECT RXCUI,STR FROM rxnorm\_cpcs.RXNCONSO

WHERE TTY = 'SCD' and RXCUI in

(SELECT RXCUI2 FROM rxnorm\_cpcs.RXNREL

WHERE RELA = 'consists\_of' and RXCUI1 in

(SELECT RXCUI2 FROM rxnorm\_cpcs.RXNREL

WHERE RELA = 'has\_ingredient' and RXCUI1 in (**COMMA-DELIMITED LIST GOES HERE**)))

ORDER BY STR

;

1. Restrict to medications for human consumption
2. Remove ophthalmic and inhaled epinephrine dosage forms
3. Is dose is more than 60 mcg during 1 particular procedure (time frame (administered within 2 hours) – then do not filter alert.

\*Note: Non-selective beta blockers not included but they should always generate an alert.

1. Identify beta-blockers via RxNorm:
   1. Sotalol (9947)
   2. Timolol (10600)
   3. Atenolol (1202)
   4. Bisoprolol (19484)
   5. Esmolol (49737)
   6. Metoprolol (6918)
   7. Nebivolol (31555)
   8. Betaxolol (1520)
   9. Labetolol (6185)
   10. Carvedilol (20352)
   11. Identify clinical drug components
   12. Remove products not available in US
   13. Identify clinical drug or pack
2. If beta-blocker is timolol (10600)
   1. No alert if ophthalmic gel formulation (313407)
3. If beta-blocker atenolol (1202)
   1. Creatinine clearance is > 40 ml/min then no alert
   2. No alert if dose < 100mg / day
4. If beta-blocker bisoprolol (19484)
   1. Creatinine clearance is > 40 ml/min then no alert
   2. No alert if dose < 20mg/day
5. If beta-blocker is esmolol (49737)
   1. No alert if dose < 300 mcg/kg/min
6. If beta-blocker is metoprolol (6918)
   1. No alert if dose < 100mg/day
   2. If patient is deficient in CYP450 2D6 (PM) then alert (<https://www.pharmgkb.org/gene/PA128?tabType=tabVip#tabview=tab4&subtab>=)
   3. Alert if patient is taking CYP 2D6 potent inhibitors
      1. Abiraterone (1100072) (weak according to FDA)
      2. Amiodarone (703) (weak according to FDA)
      3. Bupropion (42347)
      4. Diphenhydramine (3498)
      5. Duloxetine (72625)
      6. Fluoxetine (4493)
      7. Mirabegron (1300786)
      8. Paroxetine (32937)
      9. Propafenone (8754)
      10. Quinidine (9068)
      11. Terbinafine (37801)
      12. Thioridazine (10502) ??
7. If beta-blocker is nebivolol (31555)
   1. No alert if dose < 10mg/day
   2. If patient is deficient in CYP450 2D6 (PM) then alert
   3. Alert if patient is taking CYP 2D6 potent inhibitors
      1. Abiraterone (1100072) (weak according to FDA)
      2. Amiodarone (703) (weak according to FDA)
      3. Bupropion (42347)
      4. Diphenhydramine (3498)
      5. Duloxetine (72625)
      6. Fluoxetine (4493)
      7. Mirabegron (1300786)
      8. Paroxetine (32937)
      9. Propafenone (8754)
      10. Quinidine (9068)
      11. Terbinafine (37801)
      12. Thioridazine (10502) ??
8. If beta-blocker is betaxolol (1520)
   1. Dose is less than 20mg/day