



Pediatric Gastroenterology Pharmacology of Constipation

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Constipation

Osmotic

The diagram consists of three horizontal rows. Each row has a colored rounded rectangle on the left and a white rectangle on the right, connected by a thin line. The first row is blue, the second is green, and the third is olive green. The text 'Osmotic', 'Stimulant', and 'Other' are written in white inside the colored rectangles.

Stimulant

Other

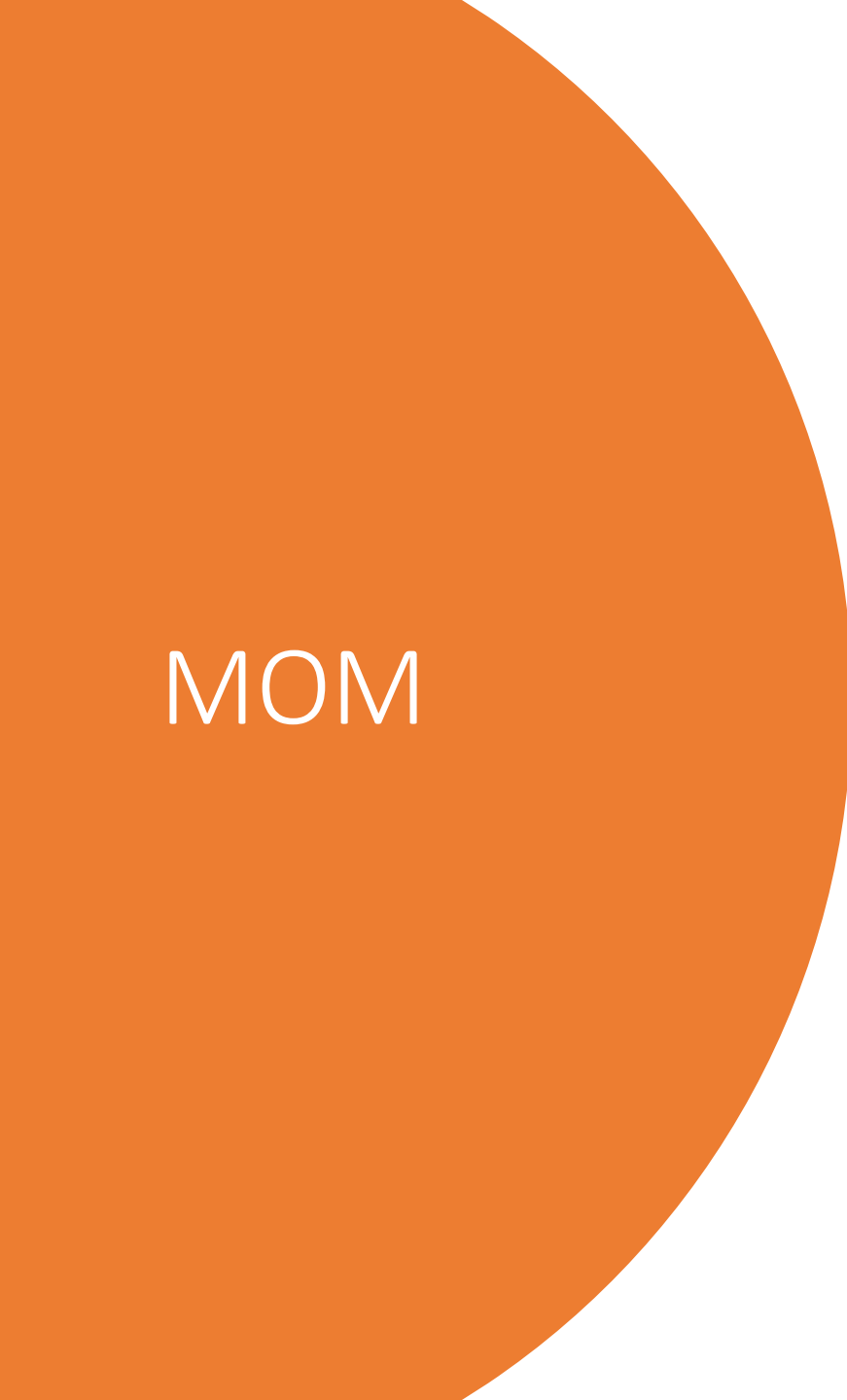
Osmotic

MOM

Mineral Oil

Polyethylene Glycol/PEG

Lactulose

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MOM

- Milk of Magnesia
 - Convert magnesium chloride in stomach
 - Osmotic
 - Magnesium draws water into the intestine, causing an increase in intraluminal pressure
 - This increased pressure exerts a mechanical stimulus that increases motility



MOM

- 6-11 yo – 15-30ml po q24, PRN – Max dose 30ml in 24hr
- >12yo – 30-60ml po q24, PRN, - Max dose 60ml in 24hrs
- In younger kids, we will use 0.5-1ml/kg/dose



Mineral Oil

- Onset of action is usually within several hours
- Retards colonic absorption of fecal water and softens the stool



Mineral Oil

- Use only in children >1 year of age because of issues with aspiration
 - Chemical Pneumonitis
- Side Effects
 - Interfere with fat soluble vitamins (? Unfounded)
 - Anal leakage
 - Diarrhea
 - Nausea/vomiting
 - Cramps
 - Perianal irritation

Mineral Oil

- Dosing
 - 5-11yo – 5-15ml/day div. q8-24hr
 - >12yo – 15-45 ml/day div 8-24hr



Lactulose

- Synthetic Derivative of lactose = it is a disaccharide sugar containing one molecule of galactose and one molecule of fructose
 - Lactose = Glucose + Galactose
- Cannot be hydrolyzed by any GI enzyme until it reaches the colon
 - Colonic bacteria can break down lactulose
 - When broken down, it increases intraluminal pressure by drawing in more water = distention of colon = ? Increased peristalsis

Lactulose

- Side Effects
 - Gas/Bloating
 - ABD pain
 - Diarrhea
 - Nausea/Vomiting
 - ? Electrolyte imbalance
 - Hypokalemia
 - Metabolic Acidosis



Lactulose

- Dosing
 - 1ml/kg po q12-24, max usually 60ml per day



PEG

- Oligomer or polymer of ethylene oxide
- Binds water and causes water to be retained within the stool
 - Does not change Motility



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PEG

- Side Effects
 - ABD Pain/Cramping
 - Diarrhea
 - Fecal Urgency
 - Flatulence



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PEG

- Dosing
 - 0.4gm/kg/day
 - One Capful = 17gm = approx. 5 tsp
 - 1 tsp = 3.4 gm (ish)



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PEG

- This is not Antifreeze!!!



Stimulants

- Senna
- Glycerine
- Bisacodyl



Senna

- Causes changes in fluid balance and electrolyte absorption
- It alters permeability of cell walls in the colon because it increases Cyclic AMP, which regulates active ion secretion = increased fluid accumulation in the colon

Senna

- Better for Constipation which requires increased motility
- Side Effects
 - Cramping/ABD Pain
 - Nausea/vomiting
 - Melanosis Coli



Senna

- Dosage Forms
 - Tab – 8.6mg
 - Chocolate Chew = 15mg
 - Liquid – 8.8mg/5ml
- Dosing
 - 2-5yo – ½ to 1 tab q12-24; Max 1 po q12
 - 6-11 – 1-2 tabs q12-24; Max 2 tab po q12
 - >12yo – 2-4 tab q12-24; Max 4 tab po q12

Glycerine

- Local irritant effect on rectal mucosa and hyperosmotic action



Glycerine

- Side Effects
 - Diarrhea
 - Rectal bleeding
 - Nausea/vomiting
 - Perianal irritation
 - ? Weakness/dizziness/syncope



Glycerine

- Dosage Forms
 - Ped – 1.2 or 1.3gm suppository
 - Liquid – enema 7.5ml
 - Adult – 2 or 2.1 gm Suppository
- Dosing
 - <2yo – ½ supp q24 PRN
 - 2-5yo – 1 supp q24 PRN
 - >6yo – 1 adult supp q 24 PRN

Bisacodyl (Dulcolax)

- Directly stimulates peristalsis in the intestines via local mucosal irritation
 - Also, thought to alter intestinal fluid and electrolyte absorption and thus promoting peristalsis
 - Stimulates enteric nerves to cause colonic mass movement



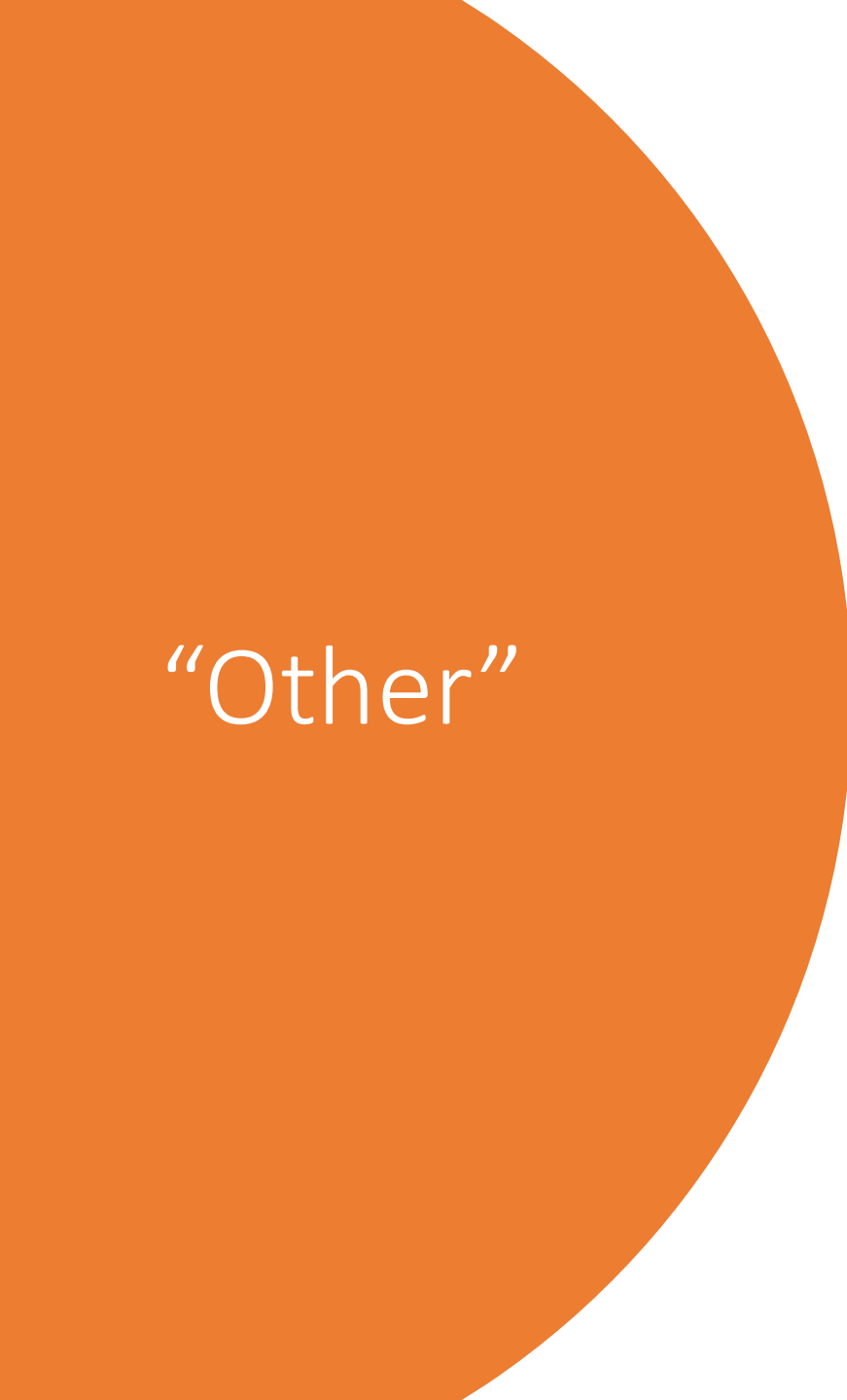
Bisacodyl (Dulcolax)

- Side Effects
 - ABD pain/Cramping
 - Diarrhea
 - Nausea/Vomiting
 - ? Hypokalemia
 - Melanosis Coli



Bisacodyl (Dulcolax)

- Dosage Forms
 - 5mg Tab
- Dosing
 - 3-12yo – 5-10mg po q24 (max 30mg)
 - >12yo – 5-15mg po q24 (max 30mg)
 - Alt: 0.3mg/kg/day (Max 30mg)



“Other”

- Mag Citrate
- Docusate Sodium (Colace)



Mag Citrate

- Primarily works in small bowel
- Hyperosmotic Effect from Magnesium, and stimulation of stretch receptors and peristalsis through retention of water



Mag Citrate

- Side Effects
 - Abdominal Cramps
 - Diarrhea
 - Flatulence
 - Hypermagnesemia
 - Electrolyte disorders (if over-use/dose)

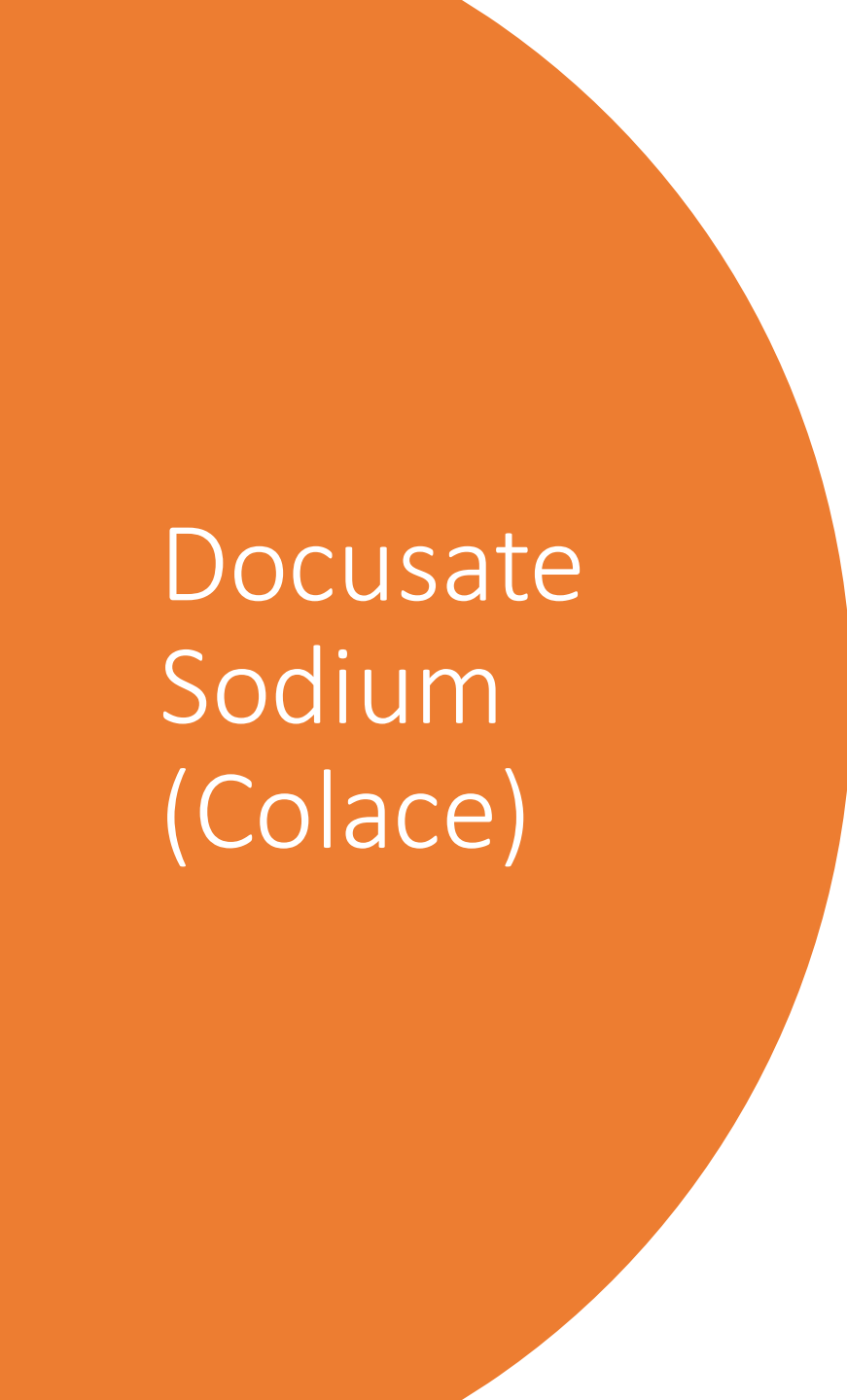
Mag Citrate

- Dosage Forms
 - 1.745g per 30ml
 - Comes in 10oz bottle
- Dosing
 - 2-5yo – 2-4ml/kg/day (? Max 2-3oz)
 - 6-11yo – 100-150ml Divided q12-q24 (? Max 5oz)
 - Bowel Prep: >6yo – 4-6ml/kg x1 (Max 300ml)
 - >12yo – 150-300ml Divided q12-q24 (Max 300ml)

Docusate Sodium (Colace)

- ? More helpful for Opiate related constipation
- Facilitates Mixture of stool fat and water
 - Also, thought to alter intestinal fluid and electrolyte absorption, and ? Then promoting peristalsis



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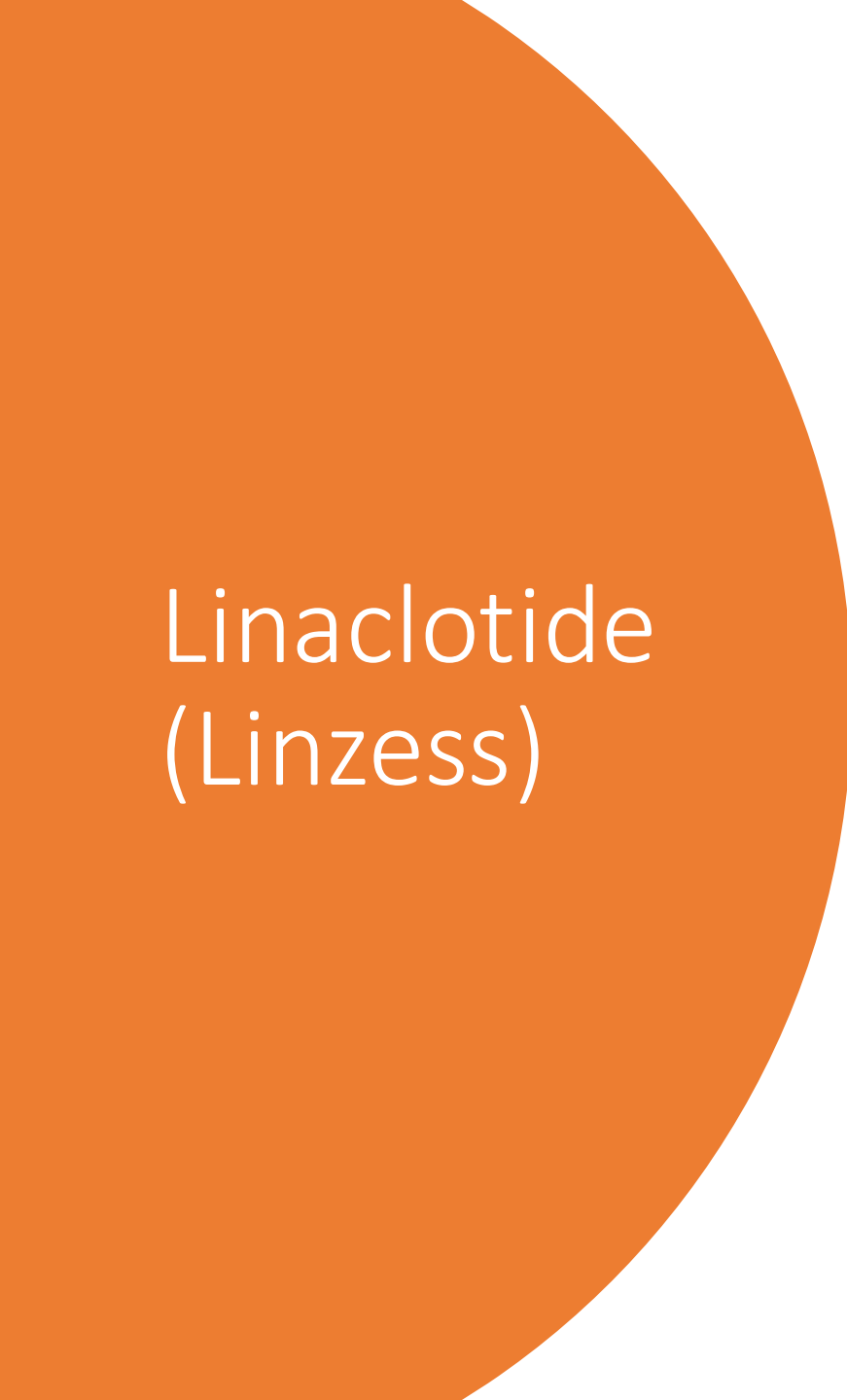
Docusate Sodium (Colace)

- Side Effects
 - ABD pain/Cramping
 - Diarrhea
 - Nausea/Vomiting
 - ? Hypokalemia



Docusate Sodium (Colace)

- Dosing Forms
 - Capsules – 50 or 100mg
 - Liquid – 50mg/5ml (tastes awful; very bitter)
- Dosage
 - 2-11yo – 50-150mg po q12-24 hr
 - >12yo – 50-300mg po q12-24 hr

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Linaclotide (Linzess)

- Activates Guanylate Cyclase-C
- Stimulates cGMP production
- Increases intestinal fluid secretion and motility



Linaclotide (Linzess)

- Indications
 - IBS-C
 - CIC



Linaclotide (Linzess)

- Contraindications
 - Do not use in patients <2yo
 - GI obstruction
 - Hypersensitivity to similar meds
- Adverse Effects
 - Diarrhea



Linaclotide (Linzess)

- Dosing Forms
 - Capsules – 72mcg, 145mcg, 290mcg
- Dosage
- >6yrs to 18yo = 72mcg/day
 - CIC – Can increase to 145mcg
 - Adults – up to 290mcg

Plecanatide (Trulance)

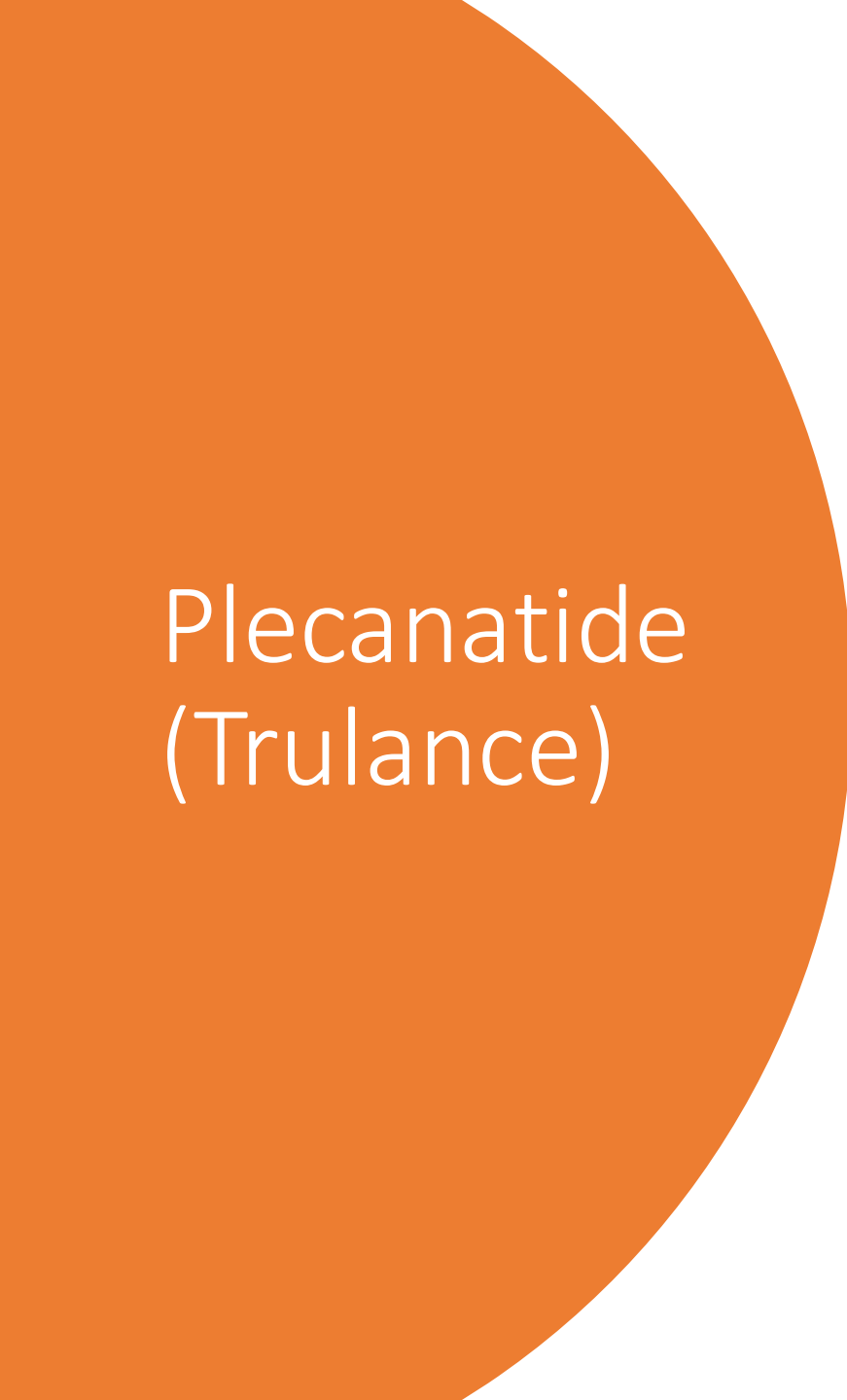
- Activates Guanylate Cyclase-C
- Stimulates cGMP production
- Increases intestinal fluid secretion and motility



Plecanatide (Trulance)

- Indications
 - IBS-C
 - CIC



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Plecanatide (Trulance)

- Contraindications
 - Do not use in patients <18yo (really <6yo)
 - GI obstruction
 - Hypersensitivity to similar meds
- Adverse Effects
 - Diarrhea



Plecanatide (Trulance)

- Dosing Forms
 - Capsules – 3mg
- Dosage
 - >18yo – 3mg per day

