



OSTOMIES AND MEDICATIONS

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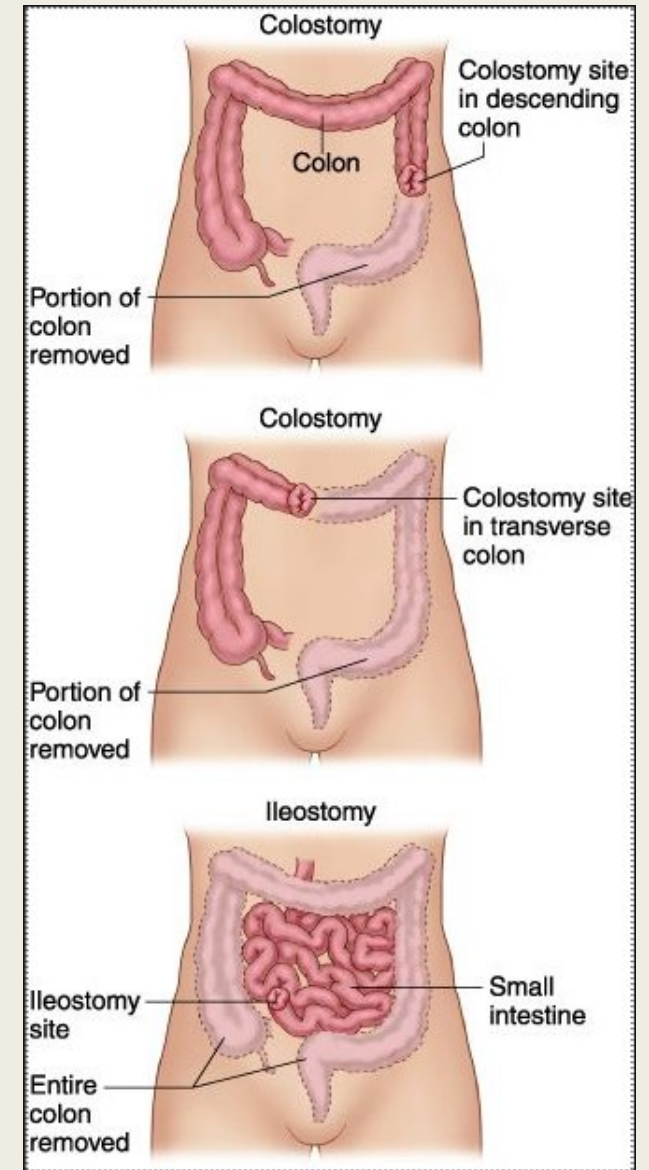
Clinical Nutrition Support Pharmacist

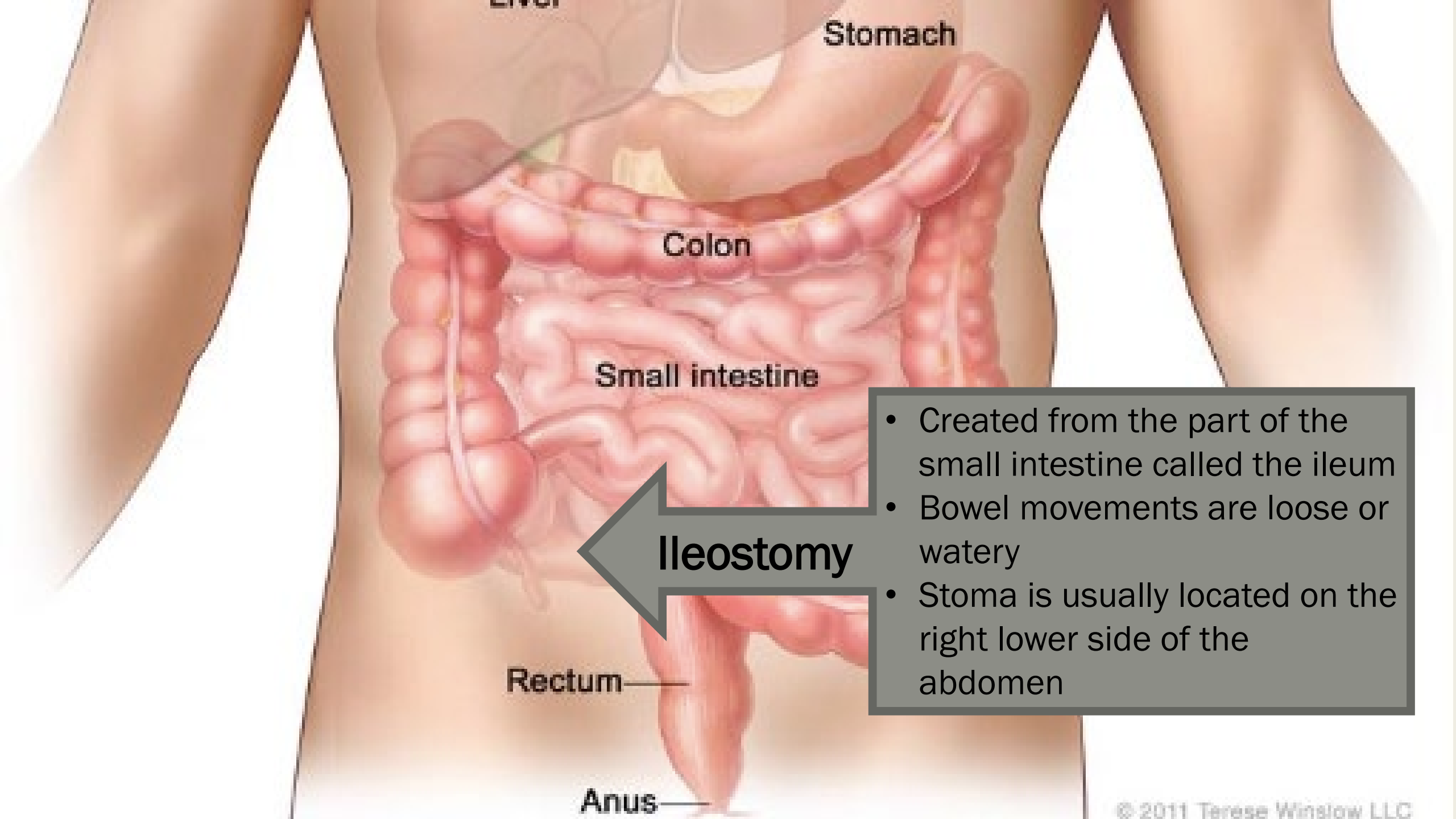
University of Miami Hospital

Objectives

- Identify different types of ostomies
- Review potential medication concerns with ostomies
- Manage routine ostomy problems with and without medications
- Review common nutritional supplements and vitamins recommended for ostomy patients

- **Ostomy:** surgically created intestinal or urinary tract diversion done for waste elimination.
- **Colostomy:** abdominal opening from any part of the large intestine (colon) because part of the colon has been removed or bypassed.
- **Ileostomy:** abdominal opening from the last part of the small intestine (ileum) because the entire colon has been removed or bypassed.
- **Urostomy:** abdominal opening made to redirect urine away from the bladder and out of the body.





Stomach

Colon

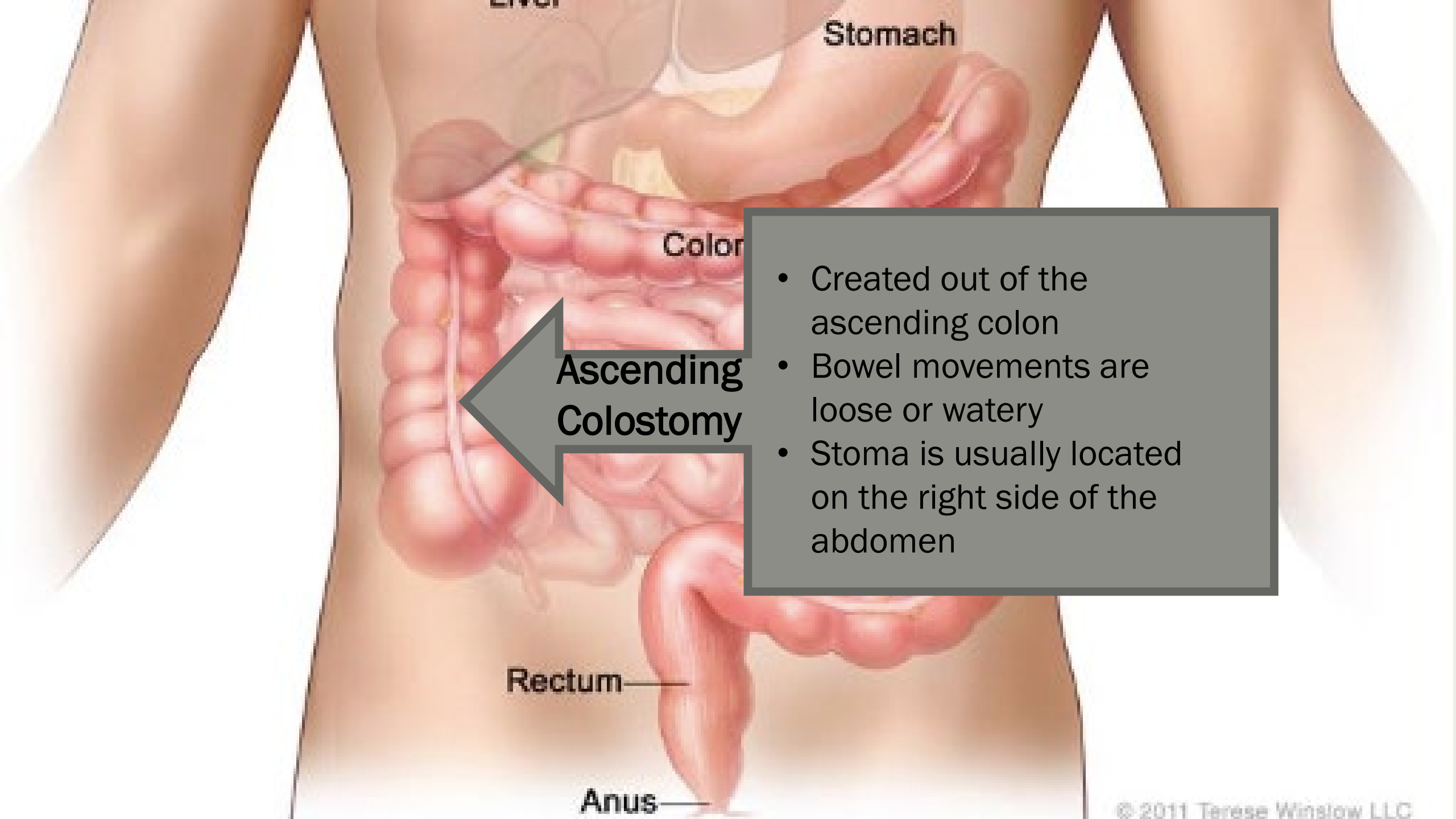
Small intestine

Ileostomy

Rectum

Anus

- Created from the part of the small intestine called the ileum
- Bowel movements are loose or watery
- Stoma is usually located on the right lower side of the abdomen



Stomach

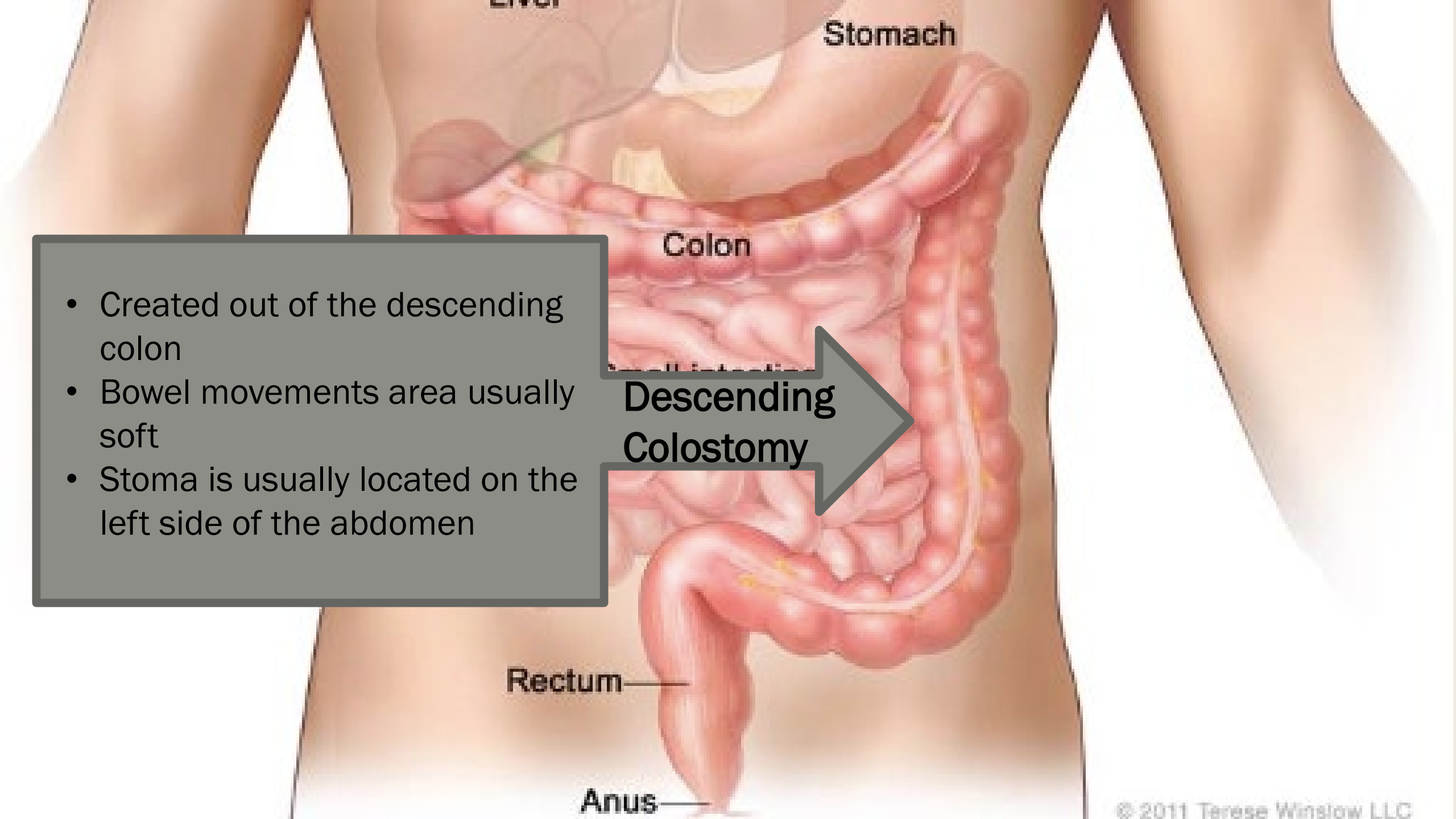
Colon

Ascending Colostomy

Rectum

Anus

- Created out of the ascending colon
- Bowel movements are loose or watery
- Stoma is usually located on the right side of the abdomen



Stomach

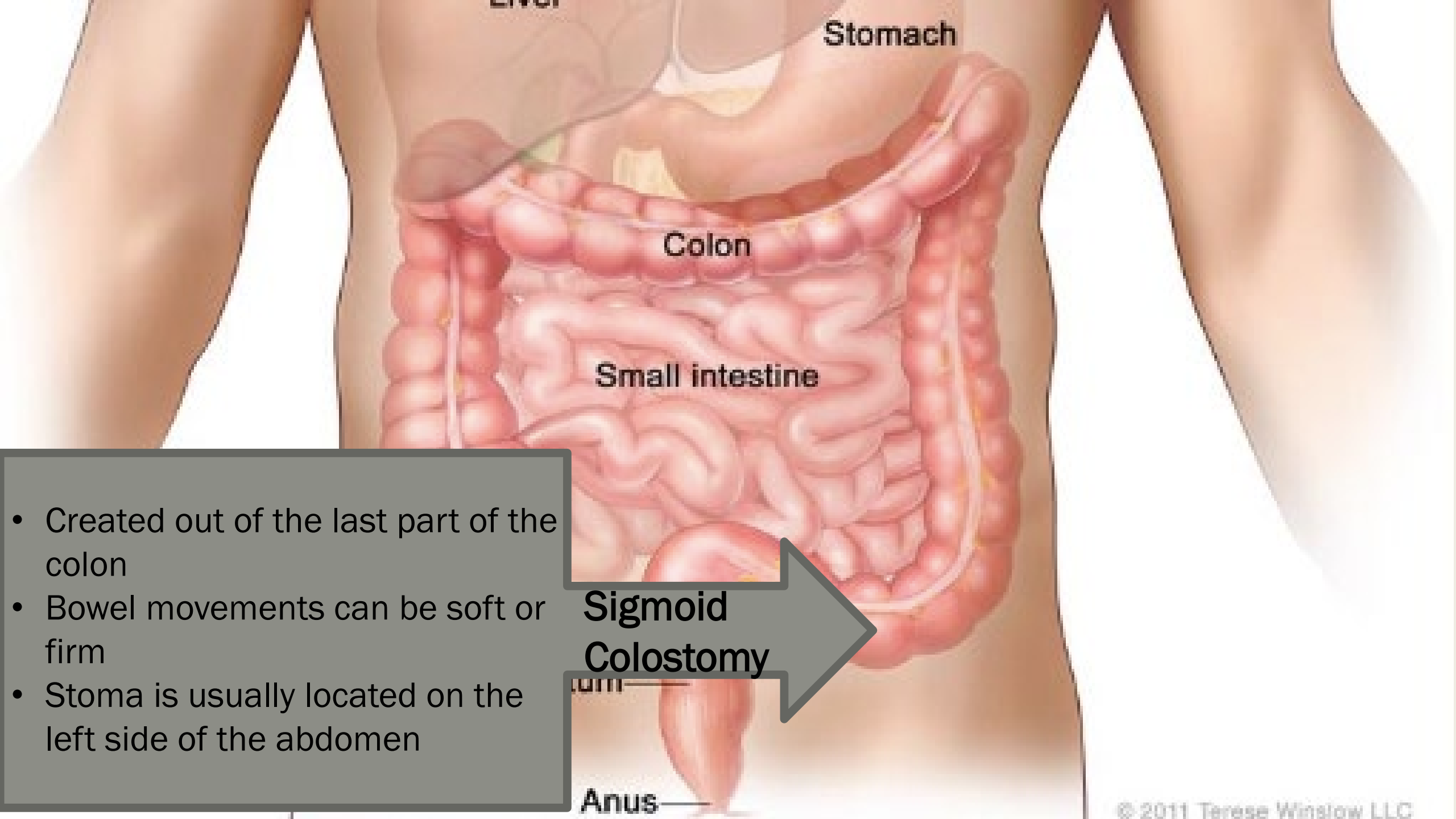
Colon

Descending Colostomy

Rectum

Anus

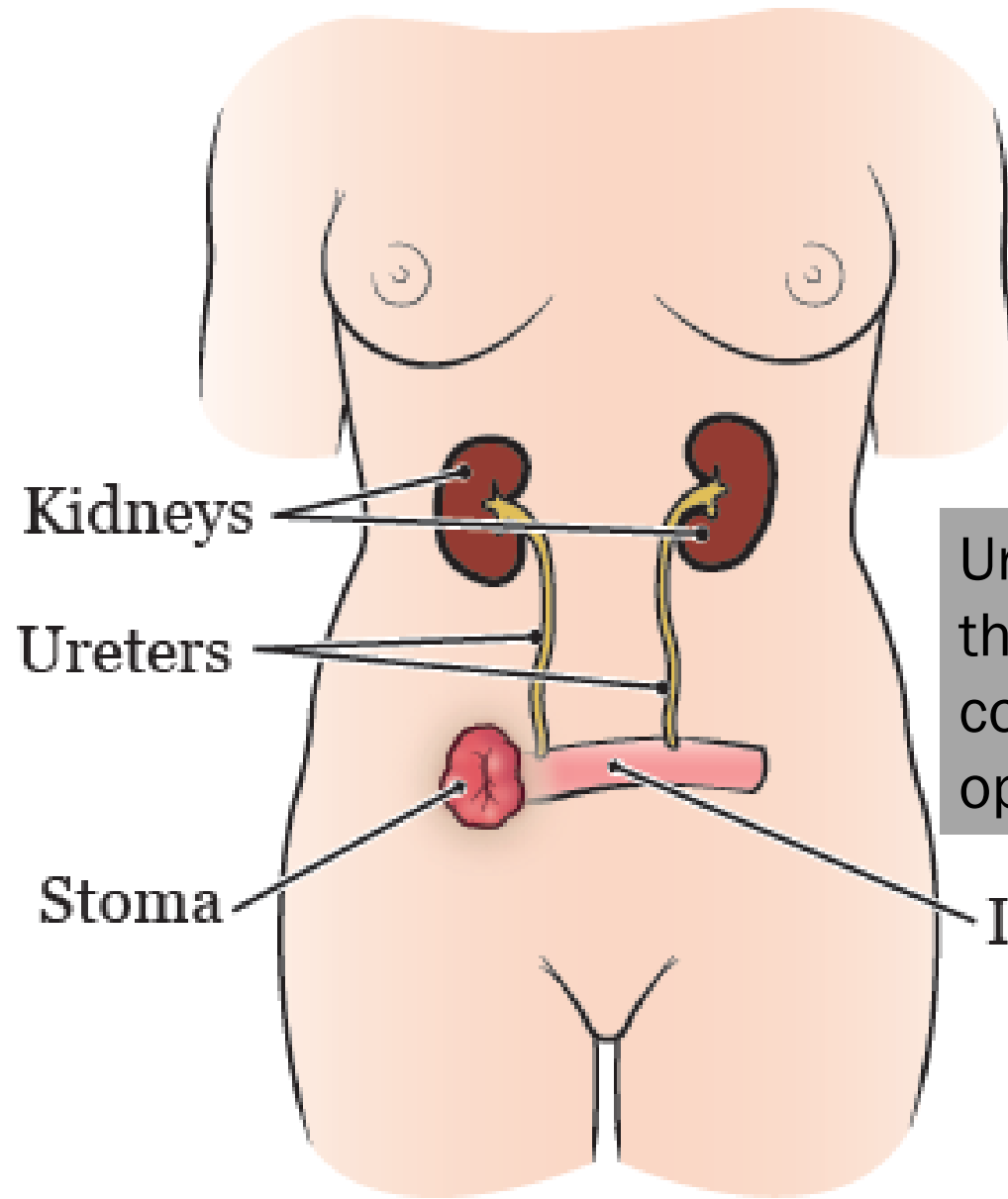
- Created out of the descending colon
- Bowel movements area usually soft
- Stoma is usually located on the left side of the abdomen



- Created out of the last part of the colon
- Bowel movements can be soft or firm
- Stoma is usually located on the left side of the abdomen

Sigmoid Colostomy

Anus



Kidneys

Ureters

Stoma

Urostomy
Urine will flow from the kidneys, through the ureters and ileal conduit, and out of a small opening in the abdomen (stoma)

Ileal conduit

Potential Medication Concerns



Medications that directly affect stoma output (color, quantity, pH)



Inactive ingredients



Absorption issues



Side effects

Medications vs. Stoma Output

Common Medications that may Discolor Feces

Black	Gray	Green	Orange/Red	Red/Pink
Alcohols Corticosteroids Clindamycin Digoxin Iron NSAIDs Pepto-Bismol Potassium	Cocoa Colchicine Some antibiotics	Indomethacin (NSAID) Medroxy-progesterone Pancrelipase Senna	Phenazopyridine Rifampin	Anticoagulants NSAIDs Senna Tetracycline

Medications vs. Stoma Output

Common Medications that may Discolor Urine

Dark-Brown	Blue/Green	Orange/Yellow	Red/Pink
Iron Levodopa Metronidazole Nitrofurantoin	Amitriptylline Cimetidine Metoclopramide Propofol Triamterene	Heparin Isoniazid Niacin Phenazopyridine Rifampin Riboflavin Vitamin A Warfarin	Aspirin Doxorubicin Ibuprofen Phenytoin



Stoma Output: Quantity

- Average stoma daily output = 400 – 800 mL
 - *Ideally should not exceed 1000 mL*
- Controlling volume of stoma may require medication intervention
- Avoid laxatives and prokinetics
 - Examples of laxatives: bisacodyl, senna
 - Examples of prokinetics: Metoclopramide, Erythromycin (Rx only)
- Medications to help decrease stoma output: antimotility drugs
 - *Loperamide (Imodium A-D®) (Available over the counter)*
 - *Codeine (Rx only)*
 - *Tincture of opium (Rx only)*

Stoma Output: Fluid Replacement

- **Excessive intake of hypotonic fluids** (water, tea, coffee) to replenish the stoma losses can lead to **sodium depletion and dehydration**
- **Recommendation:** if you have high stoma output, limit intake of hypotonic fluids to 500 mL per day and take the rest of fluids (1,500 mL) with oral rehydration solution
- Oral Rehydration Solution:
 - *Gatorade*
 - *PowerAde*
 - *Pedialyte*



1 cup = 237 mL



Urostomy Output: Acidic vs. Alkaline

- Unless advised by the doctor otherwise, urostomy patients should keep their urine in an acid state
- Acidic urine helps prevent urinary tract infections
- Alkaline or “basic” urine can lead to urinary crystal formation on the stoma
- Cranberry juice helps acidify urine
- Avoid orange juice or other citrus juices

Urostomy Output: Acidic vs. Alkaline



Medications that make urine acidic

Vitamin C
Methenamine



Medications that can make urine alkaline

Acetazolamide
Sodium bicarbonate
Thiazide diuretics
(Hydrochlorothiazide, metolazone)
Potassium or Sodium Citrate

Potential Medication Concerns



Medications that directly affect stoma output (quantity, color, etc)



Inactive ingredients



Absorption issues



Side effects



Inactive Ingredients

- 55% of oral medications contain at least one FODMAP
 - *Fermentable Oligo, Di, Mono-saccharides And Polyols*
 - Carbs and other chemicals found in foods associated with digestive issues
- Some common inactive ingredients can be harmful to ostomates, especially patients with ileostomies
- Polyols: some have osmotic laxative properties (can cause diarrhea)
 - Sorbitol
 - Mannitol
 - Maltitol
 - Xylitol
- Common over the counter medications that may contain sorbitol
 - Tylenol Suspension, Robitussin, Delsym, Nyquil, and other cough products

Reading Medication Labels

<p>Drug Facts</p> <p>Active ingredient (in each liquid-filled capsule) Dextromethorphan HBr, USP 15 mg.....Cough suppressant</p> <p>Purpose Cough suppressant</p> <p>Use temporarily relieves cough due to minor throat and bronchial irritation as may occur with a cold.</p> <p>Warnings Do not use if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric, or emotional conditions, or Parkinson's disease), or for 2 weeks after stopping the MAOI drug. If you do not know if your prescription drug contains an MAOI, ask a doctor or pharmacist before taking this product.</p> <p>Ask a doctor before use if you have</p> <ul style="list-style-type: none"> ■ a cough that occurs with too much phlegm (mucus) ■ a cough that lasts or is chronic as occurs with smoking, asthma, or emphysema <p>Stop use and ask a doctor if cough lasts for more than 7 days, comes back, or is accompanied by fever, rash, or persistent headache. These could be signs of a serious condition.</p> <p>If pregnant or breast-feeding, ask a health professional before use.</p> <p>Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away.</p>	<p>Drug Facts (continued)</p> <p>Directions</p> <ul style="list-style-type: none"> ■ do not take more than 8 capsules in any 24-hour period ■ this adult product is not intended for use in children under 12 years of age <table border="1"> <thead> <tr> <th>age</th> <th>dose</th> </tr> </thead> <tbody> <tr> <td>adults and children 12 years and over</td> <td>take 2 capsules every 6 to 8 hours, as needed</td> </tr> <tr> <td>children under 12 years</td> <td>do not use</td> </tr> </tbody> </table> <p>Other information</p> <ul style="list-style-type: none"> ■ store at 20-25°C (68-77°F) ■ avoid excessive heat above 40°C (104°F) ■ protect from light <p>Inactive ingredients FD&C blue no. 1, FD&C red no. 40, fractionated coconut oil, gelatin, glycerin, mannitol, pharmaceutical ink, polyethylene glycol, povidone, propyl gallate, propylene glycol, purified water, sorbitol, sorbitol anhydrides</p> <p>Questions or comments? Call weekdays from 9 AM-5 PM EST at 1-800-762-4675</p>	age	dose	adults and children 12 years and over	take 2 capsules every 6 to 8 hours, as needed	children under 12 years	do not use
age	dose						
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children under 12 years	do not use						

ROBITUSSIN LONG-ACTING COUGH LIQUID GELS

<p>Drug Facts</p> <p>Active ingredients (in each 15 mL tablespoon)</p> <p>Acetaminophen 325 mg..... Pain reliever/Fever reducer Dextromethorphan HBr 10 mg..... Cough suppressant Phenylephrine HCl 5 mg..... Nasal decongestant</p> <p>Uses temporarily relieves common cold/flu symptoms:</p> <ul style="list-style-type: none"> • nasal congestion • cough due to minor throat & bronchial irritation • sore throat • headache • minor aches & pains • fever <p>Warnings Liver warning: This product contains acetaminophen. Severe liver damage may occur if</p> <ul style="list-style-type: none"> • adult takes more than 4 doses (30 mL each) in 24 hrs, which is the maximum daily amount for this product • child takes more than 4 doses (15 mL each) in 24 hrs, which is the maximum daily amount for this product • taken with other drugs containing acetaminophen • adult has 3 or more alcoholic drinks every day while using this product <p>Sore throat warning: If sore throat is severe, persists for more than 2 days, is accompanied or followed by fever, headache, rash, nausea, or vomiting, consult a doctor promptly.</p> <p>Do not use</p> <ul style="list-style-type: none"> • with any other drug containing acetaminophen (prescription or nonprescription). If you are not sure whether a drug contains acetaminophen, ask a doctor or pharmacist. • if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric or emotional conditions, or Parkinson's disease), or for 2 weeks after stopping the MAOI drug. If you do not know if your prescription drug contains an MAOI, ask a doctor or pharmacist before taking this product. <p>Ask a doctor before use if you have</p> <ul style="list-style-type: none"> • liver disease • heart disease • high blood pressure • thyroid disease • diabetes • trouble urinating due to enlarged prostate gland 	<p>Purpose</p> <ul style="list-style-type: none"> • cough that occurs with too much phlegm (mucus) • persistent or chronic cough such as occurs with smoking, asthma, or emphysema • a sodium-restricted diet <p>Ask a doctor or pharmacist before use if you are taking the blood thinning drug warfarin.</p> <p>When using this product, do not use more than directed.</p> <p>Stop use and ask a doctor if</p> <ul style="list-style-type: none"> • you get nervous, dizzy or sleepless • pain, nasal congestion or cough get worse or last more than 5 days (children) or 7 days (adults) • fever gets worse or lasts more than 3 days • redness or swelling is present • new symptoms occur • cough comes back, or occurs with rash or headache that lasts. These could be signs of a serious condition. <p>If pregnant or breast-feeding, ask a health professional before use.</p> <p>Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away. Quick medical attention is critical for adults as well as for children even if you do not notice any signs or symptoms.</p> <p>Directions</p> <ul style="list-style-type: none"> • take only as directed • use dose cup or tablespoon (TBSP) <table border="1"> <tbody> <tr> <td>do not exceed 4 doses per 24 hrs</td> <td></td> </tr> <tr> <td>adults & children 12 yrs & over</td> <td>30 mL (2 TBSP) every 4 hrs</td> </tr> <tr> <td>children 6 to under 12 yrs</td> <td>15 mL (1 TBSP) every 4 hrs</td> </tr> <tr> <td>children 4 to under 6 yrs</td> <td>ask a doctor</td> </tr> <tr> <td>children under 4 yrs</td> <td>do not use</td> </tr> </tbody> </table> <p>Other information</p> <ul style="list-style-type: none"> • each 15 mL tablespoon contains: sodium 46 mg • store at room temperature <p>Inactive ingredients citric acid, FD&C Yellow No. 6, flavor, glycerin, propylene glycol, purified water, saccharin sodium, sodium benzoate, sodium chloride, sodium citrate, sorbitol, sucralose, xanthan gum</p> <p>Questions? 1-800-251-3374 www.vicks.com</p>	do not exceed 4 doses per 24 hrs		adults & children 12 yrs & over	30 mL (2 TBSP) every 4 hrs	children 6 to under 12 yrs	15 mL (1 TBSP) every 4 hrs	children 4 to under 6 yrs	ask a doctor	children under 4 yrs	do not use
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Dayquil™ Cold & Flu Relief Liquid

Potential Medication Concerns



Medications that directly affect stoma output (quantity, color, etc)



Inactive ingredients



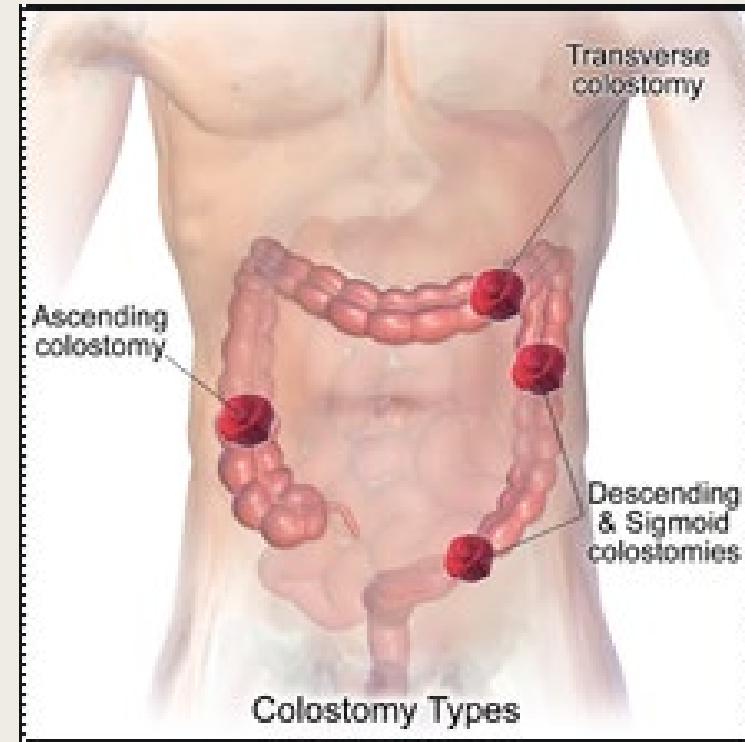
Absorption issues



Side effects

Absorption Concern

- Location of stoma
 - *Greater reduction in absorption if more ileum is resected/bypassed*
 - *Quality of small bowel tissue remaining*
 - *Descending/sigmoid colostomies have the same medication absorption as patients without stomas.*



Medication Concern: Absorption



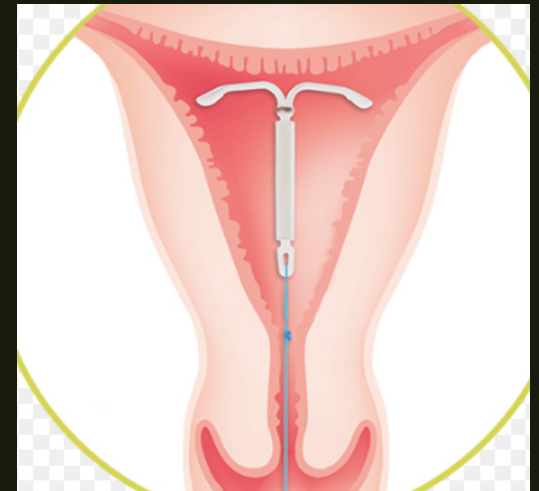
- Controlled-release medications
 - *Extended Release, Delayed Release, Sustained Release*

Common Medical Abbreviations for Controlled Release Medications		
ER	XR	XL
DR	LA	SR

- Enteric Coated tablets
 - *Example: Aspirin EC, Pantoprazole EC*
- Oral Contraceptives or hormone-replacement therapy
 - *May need alternative routes*

Non-oral Hormonal Contraceptives

- Injectable: Depo-Provera (medroxyprogesterone)
- Patch: Xulane (norelgestromin/ethinyl estradiol)
- Vaginal ring: NuvaRing (etonogestrel/ethinyl estradiol)
- Intrauterine devices (IUD)
- Transdermal Implant: Nexplanon



Medication Concern: Absorption

- Other medications well documented to have reduced absorption in ostomates
 - Levothyroxine (Synthroid)
 - Mesalamine
 - Digoxin
- Preferred medication dosage forms for ostomy patients
 - *Immediate Release tablets/capsules*
 - *Quick dissolution formulations: chewables, gummies, liquids, or lozenges*
 - *Non-oral route of administration: injection, nasal spray, topical application*
 - Example: Vitamin B-12



Potential Medication Concerns



Medications that directly affect stoma output (quantity, color, etc)



Inactive ingredients



Absorption issues



Side effects

Side effects

Antibiotics: diarrhea, gas, dehydration, secondary fungal infections

Sulfa antibiotics: urine crystallization in the urostomy patients

Certain over the counter analgesics: gastric bleeding, irritation, dark ostomy output

Narcotic Pain Medications: constipation

Antacids: constipation or diarrhea depending on the agent used

Diuretics: dehydration and electrolyte abnormalities



Preventing Side Effects: Antibiotics

- Diarrhea
 - *Probiotic supplementation*
 - *Eat yogurt or buttermilk*
- Secondary fungal infections
 - *Closely monitor area around and behind the faceplate of stoma.*
 - *If a rash develops, antifungal powder or cream is usually enough*
 - *If rash is severe or fever is also present, contact physician immediately*
- Sulfa antibiotics:
 - *Should be avoided in urostomy patients*
 - *If used, patient should drink plenty of fluids to dilute the urine*

Probiotics

- Microorganisms that function like good bacteria in the gut
- Help repopulate the beneficial bacteria, overwhelming the bad bacteria in the gut
- Probiotics are found in: yogurt, cheddar cheese, cottage cheese, and pickled vegetables



Cheese



Pickled
Vegetables



Yogurt

Prebiotics

- Carbohydrates that act as food for the good bacteria in the gut
- These carbs travel undigested to the colon, where they ferment and produce small chain fatty acids that feed the gut flora.
- Prebiotics are found in: onions, honey, garlic, bananas



Onion



Honey



Banana

Probiotics: Selecting the Right One

- High CFU (Colony Forming Unit) count
 - *Formulas with greater than 40 billion CFUs are preferred*
- Multiple bacterial strains
 - *Formulas with at least 9 bacterial strains*
 - *Common Names: lactobacillus, Bifidobacterium, saccharymyces boulardii*
- Lists the substrains
- Contains prebiotics
- Does not require refrigeration
- Watch out for inactive ingredients
- Price



Supplement Facts

Serving Size: One (1) Capsule

	Amount Per Serving	% Daily Value ages 1-3	% Daily Value 4+ years of age†
Vitamin C	3 mg	8%	5%
Lactobacillus GG	10 billion CFUs***	†	†
Inulin (Chicory root extract)	200 mg	†	†

** Percent Daily Values are based on a 2,000 calorie diet. †Daily Value not established.

Other ingredients: Gelatin, sucrose, maltodextrin, sodium ascorbate, magnesium stearate, silica, and titanium dioxide (color)

Preventing Side Effects: NSAIDs

- Avoid using over the counter Non-Steroidal Anti-inflammatory Drugs (NSAIDs)
 - *Example: ibuprofen, naproxen*
- If use approved by prescriber, ensure that these medications are used short-term
- Take with food to minimize risk of stomach irritation
- Closely monitor color of ostomy output
 - *Black tarry color indicative of bleeding*
- Acetaminophen (Tylenol[®]) recommended as alternative for pain and/or fever control
- Ask your pharmacist!

Drug Facts

Active ingredient (in each capsule) Purpose

Solubilized ibuprofen equal to
200 mg ibuprofen (NSAID)*Pain reliever/Fever reducer
(present as the free acid and potassium salt)

*nonsteroidal anti-inflammatory drug

Uses

- temporarily relieves minor aches and pains due to:
 - headache
 - toothache
 - backache
 - menstrual cramps
 - the common cold
 - muscular aches
 - minor pain of arthritis
- temporarily reduces fever



Preventing Side Effects: Opioids

- Slow contractions of the bowel and frequently lead to constipation
- Stoppage of fecal excretion or a reduced flow or volume of excretion through the stoma as well as GI discomfort
- Stool softeners may help in preventing constipation
 - *Colace*[®] (*docusate*)
- Bulk-forming laxatives and drinking plenty of fluids promote regularity and normal stool formation
 - *Metamucil*[®] (*psyllium*)
- Avoid harsh stimulant laxatives (can cause electrolyte disorders and dehydration)
 - *Dulcolax*[®] (*bisacodyl*)



Preventing Side effects: Antacids

Aluminum based antacids
cause constipation

- Mylanta, Gaviscon

Magnesium based antacids
cause diarrhea (avoid
especially in ileostomy
patients)

- Maalox, Milk of Magnesia

Calcium based antacids
(avoid in urostomy patients)

- Calcium Carbonate (Tums, Rolaids)
- Risk for kidney stones

Proton Pump Inhibitors: not
recommended to be used
long-term. Associated with
vitamin malabsorption, and
infectious diarrhea

- Omeprazole (Prilosec), esomeprazole (Nexium), lansoprazole (Prevacid)

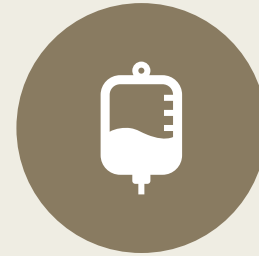
Preferred agents: H-2
Receptor antagonists

- Famotidine (Pepcid), ranitidine (Zantac)

Preventing Side effects: Diuretics



Common diuretics:
Hydrochlorothiazide (HCTZ),
furosemide, bumetanide,
torsemide, spironolactone,
triamterene, metolazone



Can cause dehydration
and electrolyte
imbalances

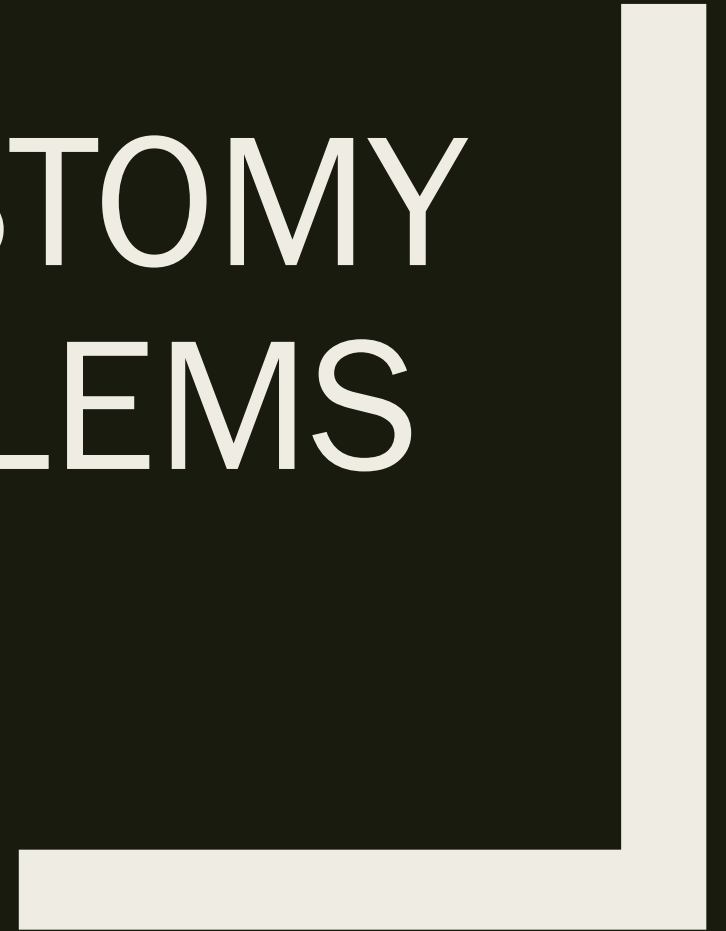


Important to drink
enough water or oral-
hydration solutions



Urostomy patients:
bags may need to be
emptied more
frequently

MANAGING COLOSTOMY PROBLEMS



Common Colostomy Problems



Gas (Flatulence)



Odor Control



Blockage (obstruction)



Diarrhea

Ostomy Care: Gas

Foods that may cause gas: eggs, cabbage, broccoli, onions, beans, fish, milk, cheese, carbonated drinks, and alcohol

- *Eating regularly will help prevent gas*
- *Eating smaller amounts of food 4 to 5 times a day*
- *Do NOT skip meals to avoid gas or output*

Medications to prevent/manage gas

- *Simethicone (Gas-X)*
- *Alpha-galactosidase (Beano)*
 - *Take four times a day (with each meal and at bedtime)*

Ostomy Care: Odor

Foods that can produce odor: eggs, cabbage, cheese, cucumbers, garlic, fish, dairy foods

Use an odor-resistant pouch

Place special deodorant liquids and/or tablets in the pouch: Hollister m9 Odor Eliminator drops

Oral medications to help neutralize odor:

- Bismuth subgallate 1-2 capsules or chewable tablets up to 4 times daily
- Chlorophyll tablets: 100-300 mg/day in divided doses (2-3 times per day)

Ostomy Care: Blockage

- Normal for ostomy to not have output for a short period of time
- If stoma is not active for 4 to 6 hours and you have cramps, pain, and/or nausea
 - *Intestinal blockage (obstruction)*
 - *Contact doctor or ostomy nurse right away*
 - *If they cannot be reached and you are having pain and cramping with no stoma output for more than 2 hours, go to emergency room.*
- **DO NOT** take a laxative
- Avoid foods high in fiber: cabbage, greens, celery, pineapple, nuts, coconut, corn



Ostomy Care: Diarrhea

- Goal ileostomy output: less than 1 L per day
- Control intake of offending foods
 - *Common foods that may cause diarrhea:*
 - Fruits, vegetables, milk, fruit juice, prune juice, unfiltered water
- Common offending medications: Antibiotics (as previously discussed)
- Partial blockage (smelly discharge, cramps, forceful liquid output, and a lot of noises from the stoma) - Contact your doctor if this happens

Ostomy Care: Diarrhea



Fiber Supplements

Guar gum - NutriSource

Wheat Dextrin - Benefiber

Pectin



Anti-motility agents:

Loperamide (Imodium®) OTC

Diphenoxylate/Atropine (Lomotil) [Rx Only]

Codeine [Rx Only]

Tincture of Opium [Rx Only]

VITAMINS AND SUPPLEMENTS



Potential Vitamin Deficiencies with Ostomy Patients

- Fat Soluble Vitamins:
 - *Vitamin A, D, E, K*
- Water Soluble Vitamins
 - *B-1, B-12, B-9 (Folic acid), C*
- Minerals and Trace Elements
 - *Calcium, Iron, Magnesium, Zinc*
- Speak with your doctor about vitamin lab panel to assess for deficiencies



Fiber Supplements

Benefiber® - wheat dextrin (100% natural prebiotic fiber)

- Dose: 2 teaspoons added to 4-8 ounces of liquid or soft food 3 times daily

NutriSource® – guar gum

- Dose: 3 grams (1 packet) added to 4-8 ounces of liquid 4 times daily (some patients may need up to 6 times a day)

Apple Pectin

- Dose: 2 capsules 1-2 times daily with 8 ounces of liquid

Other Supplements:

- Glutamine: may decrease diarrhea symptoms in ostomy and short bowel patients since it helps in the reabsorption of sodium and water
 - *Theoretical not proven in clinical trials yet*
- Common Glutamine supplements:
 - *Glutasolve, GlutaMent, GlutImmune*
 - Dose: 10 g three times a day

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Questions?

