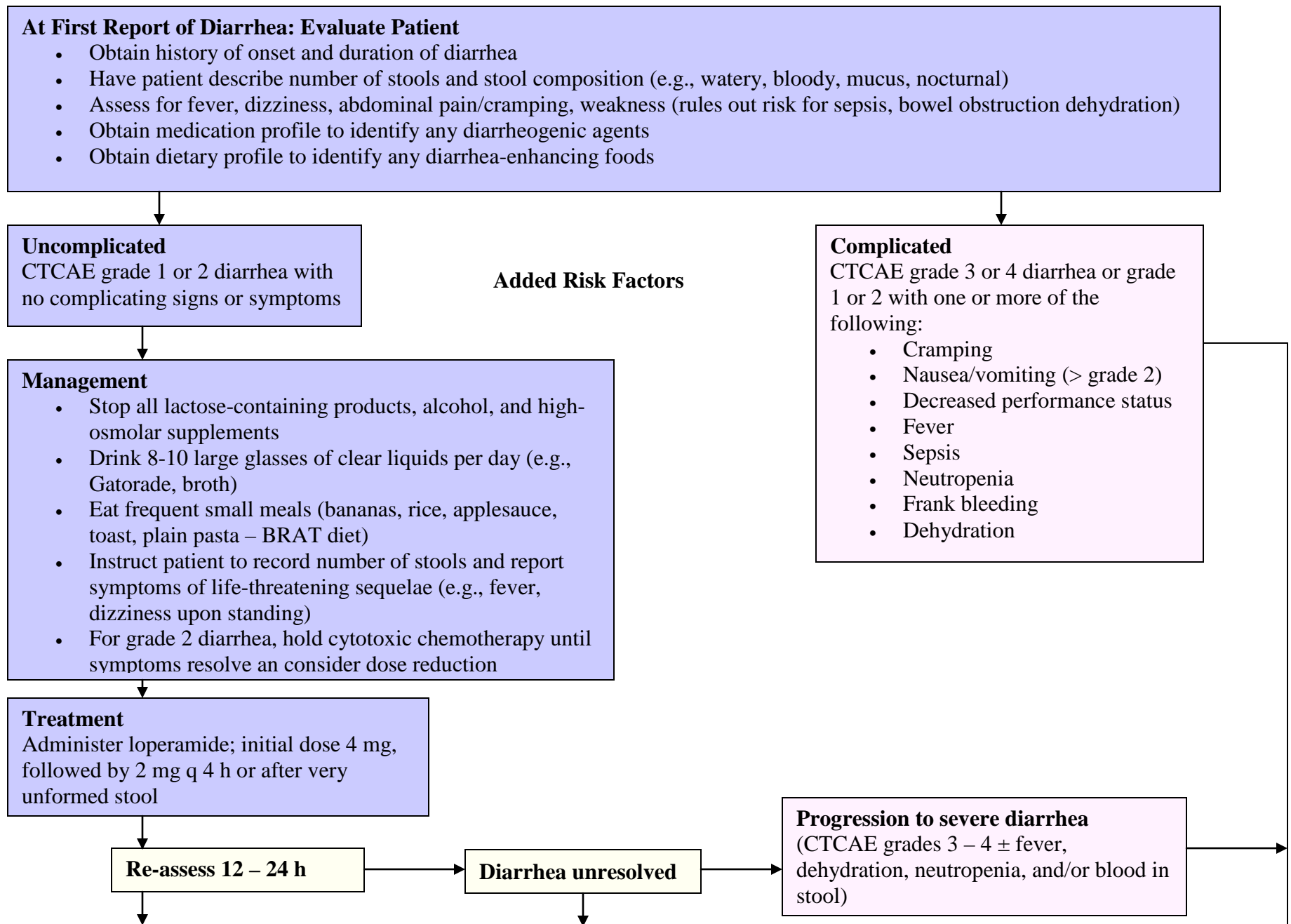
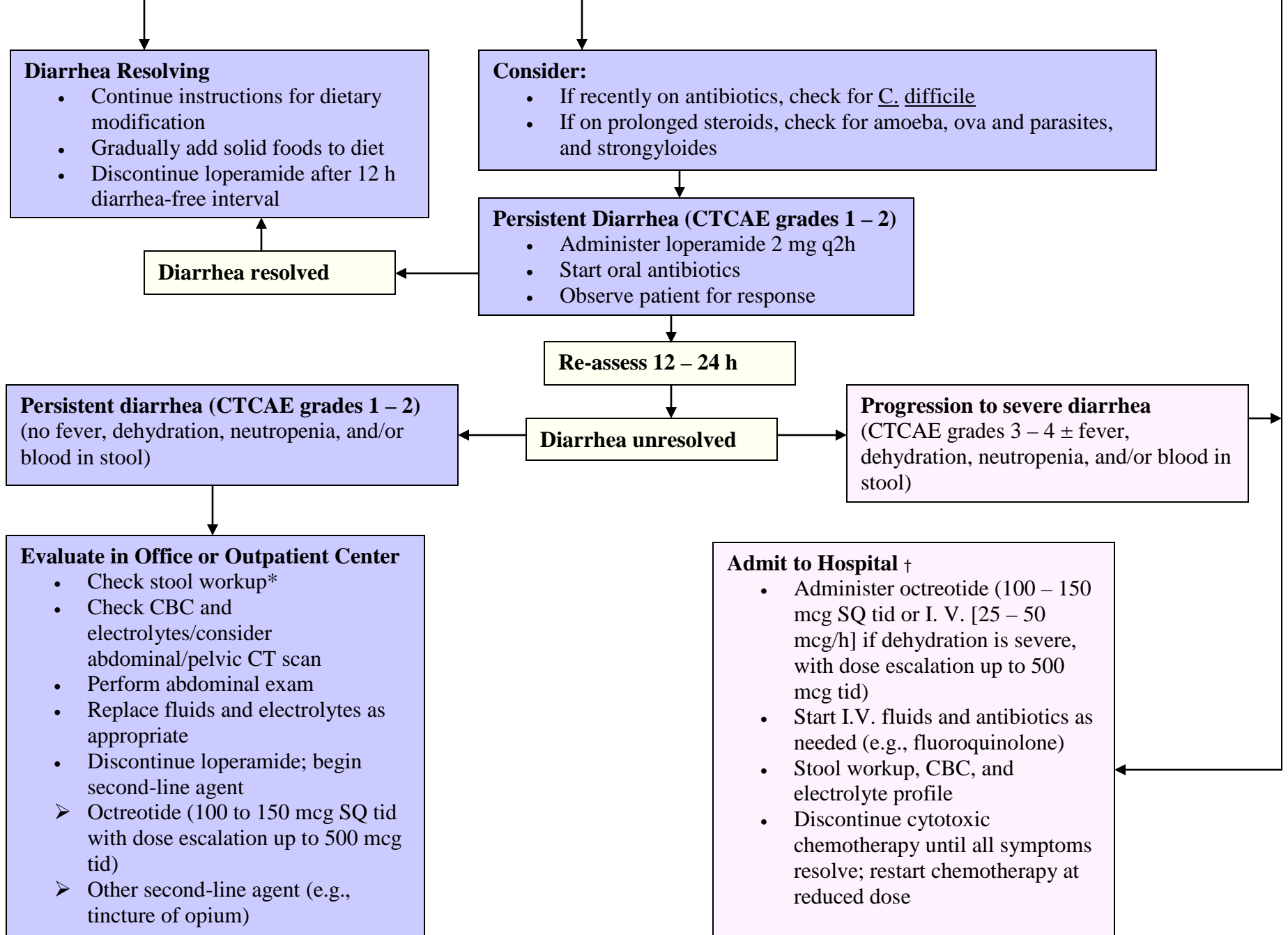


## Care Guide: Chemotherapy-Induced Diarrhea (CID)





\* Check for blood, fecal leukocytes, Clostridium difficile, Salmonella, Escherichia coli, Campylobacter, infectious colitis.

† For RT-induced cases and select patients with chemotherapy-induced diarrhea, consider intensive outpatient management, unless the patient has sepsis, fever, or neutropenia.

CTCAE, common terminology criteria for adverse events; CBC, complete blood count; SQ, subcutaneous; RT, radiotherapy

## Risk Factors for Chemotherapy-Induced Diarrhea (CID)

1. Medicare age
2. Female gender
3. Poor performance status (Eastern Cooperative Oncology Group (ECOG) level 2 or higher)
4. Associated bowel pathology (e.g., inflammatory bowel disease, tumor in bowel, etc.)
5. Change in emotional state (e.g., anxiety, stress)
6. Prior history of CID
7. Concomitant abdominal-pelvic radiation and chemotherapy
8. Chemotherapy agents with significant incidence of causing diarrhea: capecitabine (Xeloda), cisplatin (Platinol), cyclophosphamide (Cytoxan), docetaxel (Taxotere), paclitaxel (Taxol), 5-fluorouracil (5-FU, Adrucil), irinotecan (Camptosar), leucovorin, oxaliplatin (eloxatin), erlotinib (Tarceva)
9. Travel
10. Irritable Bowel Syndrome
11. Surgery related:
  - Gallbladder, gastrectomy, esophogastrectomy, pancreaticoduodenectomy (Whipple procedure) intestinal resection

## ECOG Performance Status

Version	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
ECOG	Fully active, able to carry out all pre-disease performance without restriction.	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature e.g., light housework, office work.	Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours.	Capable of only limited self-care; confined to bed or chair more than 50% of waking hours.	Completely disabled. Cannot carry out any self-care. Totally confined to bed or chair.	Dead

ECOG = Eastern Cooperative Oncology Group As published in Am. J. Clin. Oncol.: Oken, M.M., Creech, R.H., Tormey, D.C., Horton, J., Davis, T.E., McFadden, E.T., Carbone, P.P.: Toxicity And Response Criteria Of The Eastern Cooperative Oncology Group. Am J Clin Oncol 5:649-655, 1982.

CTCAE V 4.0*					
Adverse Event	Grade				
	1	2	3	4	5
Diarrhea	Increase of <4 stools per day over baseline; mild increase in ostomy output compared to baseline	Increase of 4 - 6 stools per day over baseline; moderate increase in ostomy output compared to baseline Not interfering with ADLs	Increase of $\geq 7$ stools per day over baseline; incontinence; hospitalization indicated; severe increase in ostomy output compared to baseline; limiting self care ADLs	Life-threatening consequences; urgent intervention indicated	Death
Definition: A disorder characterized by frequent and watery bowel movements.					

\*U.S. Department of Health and Human Services. National Institutes of Health. National Cancer Institute. Common Terminology Criteria for Adverse Events (CTCAE) Version 4.0

## Non-Chemotherapy Drugs that Can Cause Diarrhea

1. Antacids with Magnesium
2. Antibiotics, e.g., ampicillin, erythromycin, amoxicillin
3. Bile salts, lactulose
4. Colchicine
5. Potassium chloride
6. Prokinetic agents, e.g., Reglan
7. Non Steroidal Anti Inflammatory Drugs (NSAIDs)
8. Theophylline
9. H-2 blockers, proton pump inhibitors

## Confounding Factors in Cancer Patients with Diarrhea

### Diet

- High-fiber diet
- High-osmolar dietary supplements
- Laxative abuse
- Milk or milk products
- Lactose products

### Endocrine Factors

- Hyperthyroidism
- Neuroendocrine tumors

### Infection

### Inflammatory bowel conditions

### Malabsorption

## Goals of treatment of CID\*

1. Avoid associated mortality and morbidity
2. Reduce patient discomfort and inconvenience
3. Enhance recovery of the intestinal mucosa from the effects of chemotherapy
4. Reduce hospitalization and use of other health care resources
5. Enhance treatment outcomes

\*Wadler Scott. Treatment Guidelines for Chemotherapy – Induced Diarrhea 2005. Oncology Special Edition 8:105 – 110, 2005

## Agents Utilized in the Treatment of Chemotherapy-Induced Diarrhea

### Absorbents

- Charcoal
- Kaolin + pectin (generic or Kaopectate)

### Anticholinergics

- Atropine
- Belladonna
- Scopolamine

### Antisecretory Agents

- Bismuth subsalicylate (Pepto-Bismol)
- Octreotide (Sandostatin LAR Depot)
- Sulfasalazine (Azulfidine)

### Opioids

- Diphenoxylate (Lomotil)
- Loperamide (Imodium)
- Tincture of Opium (Paregoric)

### Probiotic Agents

- Lactobacillus
- Bifidobacteria

## Preventive measures against Chemotherapy-Induced Diarrhea

WHAT TO AVOID	WHAT TO DO
<ul style="list-style-type: none"> <li>• Caffeine products</li> </ul>	<ul style="list-style-type: none"> <li>• Drink 8-10 glasses of clear liquids daily (water, Gatorade, broth, clear juices)</li> </ul>
<ul style="list-style-type: none"> <li>• Alcohol</li> </ul>	<ul style="list-style-type: none"> <li>• Eat small frequent meals</li> </ul>
<ul style="list-style-type: none"> <li>• Raw fruits/vegetables, raw eggs</li> </ul>	<ul style="list-style-type: none"> <li>• Diet should be low residue</li> </ul>
<ul style="list-style-type: none"> <li>• Spicy, fatty or greasy foods</li> </ul>	<ul style="list-style-type: none"> <li>• Diet should be high in protein and calories</li> </ul>
<ul style="list-style-type: none"> <li>• Milk and dairy products</li> </ul>	<ul style="list-style-type: none"> <li>• BRAT diet                             <ul style="list-style-type: none"> <li>-Bananas</li> <li>-Rice</li> <li>-Applesauce</li> <li>-Toast</li> <li>-Plain pasta</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Un-refrigerated foods</li> </ul>	
<ul style="list-style-type: none"> <li>• Lactose-containing foods</li> </ul>	
<ul style="list-style-type: none"> <li>• High-fiber foods</li> </ul>	
<ul style="list-style-type: none"> <li>• Sugar-free gum and other sorbitol containing products</li> </ul>	
<ul style="list-style-type: none"> <li>• Foods containing olestra</li> </ul>	<ul style="list-style-type: none"> <li>• Decaffeinated tea and soft drinks</li> </ul>

## Key Points: Management of Chemotherapy-Induced Diarrhea (CID)

1. CID is a common, often dose limiting toxicity associated with cancer chemotherapy treatment. Patients who experience CID undergo changes in their planned chemotherapy including dose reductions, delays in treatments, reduction in dose density and discontinuation of therapy. CID impacts Quality Of Life and can inhibit activities such as, work, travel and recreation.
2. CID occurs in 10% of all patients with advanced cancer. However, as many as 80% of those treated with 5-FU or irinotecan (Camptosar), alone or in combination, experience diarrhea, and of those 30% or more have grade 3-5 diarrhea. There is a small but significant mortality associated with CID, especially when it occurs concomitantly with mucositis and neutropenia.
3. Patients with uncomplicated CTCAE Grade 1-2 CID (see chart) should be placed on the BRAT diet (bananas, rice, applesauce, toast, plain pasta) and drink 8-10 large glasses of clear liquids such as Gatorade, broth, and water. They should eat small frequent meals.
4. A severe complication of CID that is difficult to treat is pseudomembranous colitis caused by Clostridium difficile<sup>2</sup>

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2. NCI Gastrointestinal complications (PDQ). Health professional version. Diarrhea. 2010
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