SASKATCHEWAN REGISTERED NURSES' ASSOCIATION

RNs WITH ADDITIONAL AUTHORIZED PRACTICE
CLINICAL DECISION TOOL
DECEMBER 1, 2016

DIARRHEA ADULT

DEFINITION

Diarrhea is a change in normal bowel movement characterized by passage of unusually soft or liquid stools ≥ 3 times in 24 hours.

- Duration of diarrhea ≤ 14 days
- Most cases of acute diarrhea in adults are mild, with no signs of blood or mucus, and are typically caused by enteric pathogens.
- Persistent diarrhea: duration lasting > 14 days
- Chronic diarrhea: duration lasting > 30 days
- Dysentery (also called acute bloody diarrhea) infection of intestinal tract resulting in diarrhea containing blood or mucus (does not include occult blood or streaks of blood on surface of formed stool)
- Gastroenteritis: usually refers to a self-limited, enteric infectious disorder resulting in acute watery diarrhea or vomiting.

IMMEDIATE CONSULTATION REQUIRED IN THE FOLLOWING SITUATIONS

- Significant weight loss
- Fever
- Blood or pus in stool
- Severe pain
- Abdominal distention
- Altered mental status
- Severe dehydration
- Severe vomiting

Refer to SRNA CDTs Gastroenteritis Adult and Dehydration Adult as a follow-up to this CDT.

CAUSES

Diarrhea is a symptom, not a diagnosis. A careful, in-depth, accurate history and physical examination are mandatory to establish the underlying cause. Acute diarrhea is usually caused by viral, bacterial, or parasitic infection and is self-limited. Symptoms that persist beyond 14 days require further investigation for other causative factors.

Gastrointestinal (GI) infection

- GI infection is a common cause of acute diarrhea in adults

- Some causes of acute diarrhea typically present without bloody stools
- Rotavirus gastroenteritis
- Norovirus infection
- *Enterotoxigenic Escherichia coli* (*E. coli*): associated with travellers' diarrhea
- *Clostridium difficile (C. diff)*: mucoid stool, no nausea/vomiting
- *Enteropathogenic E. coli*
- Cholera
- *Vibrio parahaemolyticus* diarrhea
- Staphylococcal food poisoning
- Giardiasis
- Cyclosporiasis
- Aeromonas: typically, watery and self-limited but some clients may have bloody diarrhea
- Cryptosporidiosis: bloody stool; relatively rare
- Balantidiasis: may be watery or bloody
- *Dientamoeba fragilis* may be an overlooked cause of diarrhea and some causes of acute diarrhea with bloody stools
- Salmonella ileocolitis
- Shigellosis
- Campylobacter enterocolitis
- Yersinia enterocolitis
- *Enterohemorrhagic E. coli*, including O157:H7 Shiga toxin-producing *E. coli*
- *Enteroinvasive E. coli*: mainly watery but small proportion of clients may present with bloody diarrhea
- *Enteroaggregative E. coli*: typically, watery but some clients may present with bloody diarrhea
- Amebiasis
- Schistosomiasis (*Schistosoma haematobium*, *Schistosoma japonicum*, *Schistosoma mansoni*)
- Cytomegalovirus (CMV) colitis
- Hemorrhagic fevers like dengue, Crimean-Congo hemorrhagic fever, Lassa fever, Venezuelan hemorrhagic fever (see also travellers' diarrhea)

Extraintestinal infection
Diarrhea may be one manifestation of certain extraintestinal infections including:

- Meningitis
- Pneumonia
- Urinary tract infection
- Adnexitis

Endocrine disease

- Hyperthyroidism
- Adrenocortical insufficiency
- Carcinoid tumours (rare)
- Medullary thyroid carcinoma (rare)

Drug-associated enteritis

- Antibiotics
- Laxative abuse
- Magnesium or calcium antacids
- Lactulose
- Colchicine
- Alcohol intoxication
- Drug withdrawal (mostly from opioid)
- Mannitol
- Nonsteroidal anti-inflammatory drugs (NSAIDs) may be associated with acute diarrhea
- Angiotensin-converting enzyme (ACE) inhibitors
- Misoprostil (Cytotec)

Other Causes

- Systemic lupus erythematosus, related to Salmonella bacteremia or protein-losing enteropathy, also called lupus protein-losing enteropathy
- Acute panautonomic neuropathy
- Rarely graft versus host disease (GVHD) or post-transplant lymphoproliferative disorder estuary-associated syndrome, related to toxin-forming dinoflagellates

During "spring break-up" and in the late summer, community outbreaks of *E. coli* diarrhea are common if water quality is poor. *E. coli* and parasites may also be involved

if there has been recent travel. Botulism is a rare form of clostridial infection that releases botulinum toxin causing neurologic symptoms.

PREDISPOSING AND RISK FACTORS

- Overcrowded housing
- Travel to other countries
- Lack of running water
- Polypharmacy
- Recent antibiotic use
- Institutionalized living (e.g., care home)
- > 65 years of age
- GI surgery

GI disease

- Inflammatory bowel disease
- Ulcerative colitis
- Crohn's disease
- Collagenous colitis (rare)
- Microscopic colitis (rare)
- Irritable bowel syndrome (IBS)
- Celiac disease
- Lactose intolerance
- Ischemic colitis (rare)
- Colorectal cancer
- Short bowel syndrome
- Malabsorption
- Gastrinoma (Zollinger-Ellison syndrome)
- VIPoma (pancreatic cholera)
- Bowel obstruction
- Radiation proctitis (radiation enteritis)
- McKittrick-Wheelock syndrome is rare disorder of volume and electrolyte depletion from diarrhea caused by colonic neoplasm

DIARRHEA ADULT

HISTORY

A thorough history is critical for clients with significant diarrheal illness (profuse, dehydrating, febrile, or bloody diarrhea) and immune compromised clients. The important clinical features are:

- Onset (abrupt or gradual) and duration of diarrhea
- Severity of diarrhea: may be assessed by disturbance in daily activities
- Stool characteristics (watery, bloody, mucus, purulent, greasy, or bilious)
- Frequency of bowel movements and relative quantity of stool produced
- Dysenteric symptoms including:
  - Fever (including duration and severity)
  - Tenesmus
  - Blood or pus in stool
- Symptoms of dehydration including:
  - Thirst
  - Nausea or vomiting
  - Headache
  - Muscle cramps
  - Dizziness
  - Altered mental status
- Other associated symptoms including:
  - Abdominal pain
  - Myalgias
- Dietary factors including:
  - Pre-illness diet
  - Change in diet or relationship to meals
  - Recent oral intake
  - Possible exposure to tainted food (e.g., raw or undercooked meats, eggs or shellfish, unpasteurized milk or juices)

Enquire about important epidemiological factors:

- Exposure to day care or senior care centres
- Exposure to other ill persons
- Consumption of untreated fresh surface water (e.g., while swimming or by drinking lake or stream water)

- Exposure to animals (e.g., reptiles which may harbour Salmonella, pets with diarrhea, or a recent visit to a farm or petting zoo)
- Recent travel including to developing areas
- Current or recent hospitalization
- Recent or regular medication use
- Underlying medical conditions associated with acute and chronic diarrheal illness including:
  - GI disease
  - HIV infection
  - Carcinoid tumours
  - Immunosuppressive medication use
  - Prior gastrectomy
  - Extremes of age
  - Sexual activity including receptive anal intercourse or oral-anal sexual contact
  - Occupation as caregiver or food handler
  - History of radiation therapy to abdomen or pelvis

PHYSICAL FINDINGS

Consider abnormal vital signs:

- Fever
- Orthostatic pulse and blood pressure changes
- Respiratory rate
- Tachycardia (may indicate moderate to severe dehydration)
- Dry mucous membranes
- Sunken appearing eyes
- Increased capillary refill time
- Decreased skin turgor
- Hypotension
- Orthostatic changes: decrease in blood pressure and/or increase in heart rate
- Tachycardia
- Weak and thready peripheral pulses
- Flat neck veins in supine position
- Oliguria
- Functional signs of dehydration (change in mental status or falls)
- Weight loss (if dehydration or chronic)

- Client appears mildly to severely ill (depending on cause and severity)
- Skin may feel dry, turgor may be poor
- Jaundice of sclera, skin (hepatitis A)
- Abdomen may be slightly distended with gas
- Bowel sounds hyperactive
- Abdomen hyperresonant if excess gas is present
- Abdomen may be mildly tender in all areas
- Abdominal mass may be present (depending on underlying cause, e.g., Crohn's disease)
- Rectal exam (gentle) for tenderness (proctitis), masses, fecal impaction (causing overflow diarrhea); identify stool character and possible presence of blood
- Perianal area may be inflamed or excoriated
- Neurologic symptoms of blurred vision, paresthesia, motor weakness (botulism)

DIFFERENTIAL DIAGNOSIS

- Viral infection
- Bacterial infection
- Parasitic infection
- Diet induced (e.g., excess consumption of alcohol or fruit)
- Medication induced (e.g., current or recent antibiotic use, laxatives, supplements)
- Irritable bowel syndrome (IBS)
- Inflammatory bowel disease (Crohn's colitis, ulcerative colitis, ischemic colitis)
- Fecal impaction with overflow diarrhea
- HIV or AIDS
- Malabsorption syndrome (e.g., lactase deficiency)
- Acute psychosocial stress/anxiety

COMPLICATIONS

- Dehydration
- Malabsorption (wasting, anemia)
- Fissure, fistula
- Rectal prolapse
- Hemorrhoids
- Systemic infection (sepsis)
- Hemolytic uremic syndrome

INVESTIGATIONS AND DIAGNOSTIC TESTS

The following test may be considered if diarrhea is persistent and/or recurrent:

- Test stool for fecal immunochemical test
- Test stool for culture and sensitivity, ova and parasites for severe disease, diarrheal symptoms for several days, history of inflammatory bowel disease, bloody diarrhea
- Stool for *C. difficile* if recent antibiotic therapy or hospitalization
- Test for HIV (in chronic diarrhea or if risk behaviours present)
- Blood cultures if suspected sepsis

MAKING THE DIAGNOSIS

- Systematically ruling out all differential diagnoses through history, physical, and diagnostic testing, leads to a definitive diagnosis. Separate diarrhea into categories: watery, bloody or pus, inflammatory.

MANAGEMENT AND INTERVENTIONS

Goals of Treatment

- Relieve symptoms
- Establish normal bowel function
- Prevent complications (e.g., dehydration)
- Avoid complications of antidiarrheal medications (e.g., constipation, toxic megacolon)

Appropriate Consultation

- Consult a physician/RN(NP) if the client is moderately or severely dehydrated or has bloody diarrhea.

Non-Pharmacological Interventions

- Dietary adjustments
- Client may need to stop solid foods for a brief period (6 hours) if stool is frequent and watery or if vomiting occurs in association with diarrhea.
- A combination of clear broths, oral rehydration solutions, and a modest amount of hypotonic fluids (water, juices, soft drinks, etc.) may be the best strategy for managing acute diarrhea.

- There is evidence that a lactose-free general diet will decrease the duration and severity of diarrhea (secondary lactose malabsorption is common following infectious enteritis).
- A normal diet should be resumed as soon as the client can tolerate it. The BRAT diet (that is, bananas, rice, applesauce, toast) is no longer recommended as it does not provide adequate protein and caloric intake.
- Client may consider avoiding coffee, alcohol, most high fiber fruits and vegetables, red meats, and heavily seasoned foods initially.
- For persistent or chronic diarrhea, a therapeutic trial of a lactose-restricted diet for 2 weeks may confirm lactose intolerance as a cause.

Fluid Therapy

- Fluid therapy involves two components: maintenance (for ongoing fluid losses) and replacement (to correct water and electrolyte deficits).
- Oral rehydration fluid therapy is effective in treating acute diarrheal illness and should be used for clients with adequate blood pressure who are able to take fluids orally.
- Elderly and debilitated clients in particular are at risk for dehydration, early use of oral rehydration fluids is recommended.
- Water, juices, and soft drinks do not replace electrolytes because they are low in sodium. Too much of these hypotonic fluids can lead to hyponatremia.
- Oral rehydration fluids should contain sodium, potassium, and sugar to maximize absorption of these components.
- Use of commercial oral rehydration solutions are preferred (e.g., Gastrolyte).

Maintenance

- The requirement for maintenance fluids varies with the weight of the adult. Various medical conditions will also affect these requirements. Increase daily maintenance fluids by 10% for every degree Celsius body temperature above 37.5°C rectal. Maintenance fluids can be given intravenously or by mouth.

Replacement

- Therapy is dependent on the amount of fluid lost. No formula accurately estimates fluid deficit unless the amount of weight lost is known. Clinical indicators like blood pressure, skin turgor, mental status, and urine output are

used to estimate the volume lost. Replacement therapy depends on the extent of dehydration.

Mild to Moderate Dehydration

- Administer 50-100 mL per hour orally, if possible, in addition to any continued losses (e.g., emesis, urine output, diarrhea).
- Give fluid frequently and in small amounts.
- Re-evaluate the client frequently for responses to therapy.
- Fluid intake in the first 24-48 hours should be enough to replace the initial deficit plus any ongoing loss of fluid through the GI and genitourinary tracts and the skin.

Severe Dehydration

- Consult a physician/RN(NP) as soon possible and provide recommended care which may include initiation of IV therapy with normal saline.

Pharmacological Interventions

- Control nausea and vomiting if significant
- DimenHYDRINATE(Gravol) 25-50 mg IM/IV as a single dose, then 50 mg orally q4-6h prn
- Antidiarrheals may help to relieve symptoms but their routine use is discouraged particularly when there is a suspicion of an infective cause.
- Loperamide hydrochloride (Imodium) 4 mg orally to start, then 2 mg after each loose bowel movement to a maximum of 16 mg/day. Do not use in clients with high fever or bloody diarrhea. Adverse effects include abdominal distention, abdominal discomfort, and constipation.
- Antispasmotics may help relieve abdominal cramping: hyoscine butylbromide (Buscopan) 20 mg IM/IV, then 10 mg orally tid-qid.

Medications not recommended:

- Cardiac stimulants
- Blood or plasma, unless hypovolemic due to septic shock
- Purgatives

Client and Caregiver Education

- Inform client/caregiver that proper handwashing prevents the spread of infection.
- Teach client/caregiver how to prevent recurrent diarrhea (by boiling drinking water for at least 20 minutes).
- Teach client to recognize symptoms and signs of dehydration and advise client to return to clinic if they occur.
- If possible, temporarily discontinue any medications associated with diarrhea.
- Witch hazel cotton pads (Tucks) may provide relief to the raw perianal area.
- Counsel client/caregiver about the appropriate use of medications (dose, frequency, side effects, compliance, etc.).

Monitoring and Follow-Up

- Monitor hydration, general condition, and vital signs frequently until stable.
- Follow-up in 24 hours (sooner if oral intake is not keeping up with losses). Encourage fluid intake after rehydration.
- Ensure adequate follow-up of hydration and nutritional status, especially in elderly clients.

Referral

Persistent diarrhea should be referred to a physician/RN(NP) for further evaluation. Consider evacuation to a hospital for any client who:

- is moderately dehydrated (6-10% weight loss), if his or her heart rate and/or blood pressure does not stabilize in the normal range within 1 hour of initiating rehydration therapy.
- is severely dehydrated (≥ 10% weight loss).
- is elderly and has multiple medical problems.
- is unable to tolerate fluids by mouth.
- in whom bowel sounds are absent.
- has abdominal tenderness or rebound tenderness.
- has high fever and appears acutely ill.

DOCUMENTATION

- As per employer policy

REFERENCES

Acute diarrhea. (2011, February 15). Retrieved from http://clinicalevidence.bmj.com

Acute diarrhea. (2012, October 06). Retrieved from http://www.essentialevidenceplus.com

Acute diarrhea. (2012 November, 30). Retrieved from http://www.mdconsult.com

Acute diarrhea. (2013, March 06). Retrieved from https://dynamed.ebscohost.com/

Barr, W., & Smith, A. (2014). Acute diarrhea. *American Family Physician*, *89*(3), 180–189.

Blush, R. R., & Matzo, M. (2012). Acute infectious diarrhea: *AJN, American Journal of Nursing*, *112*(8), 65–68. http://doi.org/10.1097/01.NAJ.0000418105.99929

Farthing, M., Salam, M. A., Lindberg, G., . . . LeMair, A. (2013). Acute diarrhea in adults and children: A global perspective. *Journal of Clinical Gastroenterology, 47*(1), 12-20. doi: 10.1097/MCG.0b013e31826df662

Health Canada. (2011). *First Nations & Inuit health: Clinical practice guidelines for nurses in primary care.* Ottawa, ON: Author. Retrieved from http://www.hc-sc.gc.ca

Kostranec, J. M. & Kolin, D. L. (Eds.). (2012). *Toronto notes: Comprehensive medical reference & review for MCCQE l & USMLE ll* (28th ed.). Toronto, ON: Toronto Notes for Medical Students.

Papadakis, A., McPhee, S. J., & Rabow, M. W. (2013). *Current medical diagnosis and treatment* (52nd ed.). New York, NY: McGraw Hill Medical.

Rx Files Academic Detailing Program. (2014). *Rx Files: Drug comparison charts.* Saskatoon, SK: Saskatoon Health Region

Sidani, M. A., & Zoorob, R. J. (2011, October 28). *Urinary tract infection*. Retrieved from http://www.essentialevidenceplus.com