Acute Gastroenteritis
Inpatient

Nationwide Children's — When your child needs a hospital, everything matters.

Center for Clinical Excellence

Inclusion Criteria:
- Age ≥ 3 months
- Diarrhea of recent onset and not due to chronic disease, with or without nausea, vomiting, fever or abdominal pain

Exclusion Criteria:
- Age < 3 months
- Toxic appearance
- Bilious emesis
- Acute surgical abdomen

Diagnostic Timeout

Definition & Diagnosis

Differential Diagnoses & Red Flags

Testing
- GI film array and stool studies are ***NOT recommended*** in previously healthy children with uncomplicated gastroenteritis
- In patient with moderate or severe dehydration, consider Point of care (POCT) Blood Glucose at initial assessment and Basic metabolic panel (BMP) at the time of IV placement

Recommended Treatments

Treatments NOT Recommended

Probiotics

Need for IV fluids due to dehydration, inability to tolerate PO secondary to emesis, or significant ongoing losses?

Yes → IV fluid management (initiation and discontinuation) per IV Fluid Therapy Clinical Pathway

No

Admission RN:
- Provides Helping Hands
- Provides and documents patients Oral Fluid Intake Plan in collaboration with caregiver

- RN assesses ability to take fluids at minimum every 4 hours and provide oral fluids per patient's plan
- Ondansetron PRN if recurrent or persistent nausea/emesis

Patient tolerates oral fluid without recurrent emesis?

No → Continued emesis ≥ 48 hours?

No → return to RN assessment

Yes → Off Pathway
- Individualized management
- Consider other diagnoses

Yes

Signs of Deterioration:
- Vital sign instability
- AMS/somnolence/lethargy
- Severe abdominal pain
- Bilious emesis
- Bloody diarrhea
- Hypoglycemia
- Fluid overload

Discharge home when meeting criteria:
- Sufficient rehydration based on clinical signs
- Tolerating Oral Rehydration Therapy (ORT) or regular diet
- AGE and ORT education has been completed
- Follow-up plan in place (may include PRN follow-up if ongoing symptoms); Dehydration Helping Hands

Diagnostic Timeout

Definition & Diagnosis

- Acute gastroenteritis is a **diarrheal disease** of rapid onset, with or without accompanying symptoms and signs, such as nausea, vomiting, fever, or abdominal pain.
- Acute gastroenteritis is a clinical diagnosis based on history and exam.

Differential Diagnoses

- Inflammatory bowel disease
- Increased intracranial pressure (especially with vomiting only)
- Bowel obstruction
- Intussusception
- Extra-intestinal infection
- Appendicitis
- Food-borne illness
- Urinary tract infection
- Ingestion
- Allergic reaction

Red Flags

- Recurrent oral ulcers
- Bloody diarrhea
  - Red currant jelly stools
- Frequent urination
- Urine discoloration
- Constipation
- Abdominal distention
- Sudden pain in lower right side of abdomen
- Blurred vision
- Headache (and/or confusion)
- Petechial rash

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Testing

- **Point of care blood glucose level** is recommended during initial assessment and if patient with moderate dehydration. *Evidence Quality: Moderate; Recommendation strength: Weak*
- **Basic metabolic panel** is recommended at the time of IV placement, if moderate dehydration by clinical assessment. *Evidence Quality: Moderate; Recommendation strength: Weak*
- **EKG or laboratory testing** is not recommended prior to administration of a single dose of ondansetron in a previously healthy patient with mild to moderate dehydration due to gastroenteritis. *Evidence Quality: Moderate; Recommendation Strength: Strong*
- **GI film array and stool studies** are not recommended in previously healthy children with uncomplicated gastroenteritis. *Based on Consensus decision. Agree with ESPGHAN/ESID Guidelines.*

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Recommended Treatments

Triage dose of Ondansetron
Ondansetron can be considered to be given in triage to a patient with active vomiting who meets the inclusion criteria* and based on discussion with nurse and provider.
Evidence Quality: Weak; Recommendation Strength: Weak

Ondansetron
Oral or IV Ondansetron, on a weight-based regimen of 0.1-0.15 mg/kg/dose (up to a max of 8mg) is recommended for management of vomiting associated with gastroenteritis in previously healthy patients with no underlying medical problem. Ondansetron can be given in patients ≥6 months or ≥8 kg.
Evidence Quality: Moderate; Recommendation Strength: Strong

Oral Rehydration Therapy
Oral rehydration therapy (ORT) should be attempted for all patients with mild to moderate dehydration due to acute gastroenteritis. An individualized **Oral Fluid Intake Plan** should be used to promote timely and effective oral rehydration. Hypo-osmolar ORT solution achieves a quicker resolution of dehydration than iso-osmolar solution. Palatability needs to be taken into consideration when fluid is given PO.
Evidence Quality: Moderate; Recommendation Strength: Strong

Intravenous fluid
Intravenous (IV) fluid is recommended for patients with acute gastroenteritis who do not tolerate oral rehydration challenge.

- In the ED: A bolus of 20 ml/kg (max 1000 mL) of isotonic fluid should be administered for patients who do not tolerate rehydration challenge. An additional bolus may be given if no clinical improvement with first bolus.
- In the Hospital: After initial clinical assessment on admission, an additional isotonic fluid bolus may be administered if indicated. If bolus is not indicated, give IV fluids in accordance with IVF therapy clinical pathway, at maintenance rate. Once patient is ready for oral challenge reduce fluids to KVO (keep vein open) @ 5mL/hour.

Evidence Quality: Weak; Recommendation Strength: Moderate

Choice of Nasogastric (NG) Route for Rehydration
NG rehydration is a safe and effective way to provide hydration to patients who do not tolerate oral challenge. Evidence shows that NG placement is less labor intensive and associated with less complications compared to IV fluids. Parents and patients should be involved in the decision making of how to rehydrate their child. If decision is made to move forward with NG placement, placement should be confirmed per hospital policy.

- In the Hospital: After initial clinical assessment on admission, an additional Pedialyte fluid bolus may be administered if indicated. If bolus is not indicated, give Pedialyte at maintenance rate.

Evidence Quality: Strong; Recommendation Strength: Strong

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Treatments Not Recommended

- **Use of anti-motility agents** is not recommended for routine management of acute diarrhea. They do not appreciably decrease stool volume in young children and may cause paralytic ileus and prolong infection by delaying elimination of the causative organisms. *Agree with ESPGHAN/ESID Guidelines.*
- **Antibiotics** are not recommended for children with acute gastroenteritis. The cases for which antimicrobials should be considered include serious bacterial infection or evidence of infection with Giardia lamblia or Cryptosporidium. *Agree with ESPGHAN/ESID Guidelines.*
- **Change in diet** such as restrictive or progressive diets (example: BRAT diet), a clear liquid diet, or a lactose-free formula (unless previously-known lactose intolerance) is not recommended. *Agree with ESPGHAN/ESID Guidelines.*

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Probiotics

- Limited data to support the use of probiotics in AGE.
- **Lactobacillus** is not routinely recommended in acute gastroenteritis as current evidence is inconclusive. Two large randomized control trials failed to demonstrate benefit or harm compared to placebo.
  - *Evidence Quality: Moderate; Recommendation: Weak*
- We recognize that some families have a strong preference for an intervention. In such circumstances, providers may consider recommending Lacticaseibasillus rhamnosus (L rhamnosus) GG, dose ≥ 10^{10} CFU/day, for 5-7 days based on ESPGHAN recommendations that it may reduce the duration of diarrhea. However, this is most clearly shown in European and Asian countries.
- Large RCT conducted in Canada and US failed to show benefit.

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Helping Hands

- Dehydration
- Diarrhea
- Vomiting

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Metrics

Pathway Goal

To promote early and effective oral rehydration in children with acute gastroenteritis and dehydration and reduce hospital length of stay through timely, family-centered care.

Quality Measures

Outcome Metrics

- Primary Outcome metric:
  - Average IP LOS
- Specialty Metrics:
  - % of patients that don't receive GI Film Array

Process Metrics

- Order set utilization

Balancing Metrics

- Percentage of Encounters with a Readmission within 7 Days (all cause)
- Percentage of Encounters with a Return Visit to the ED/UC within 7 Days (all cause)

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Origination Date: *Dec, 2019*

Last Revision Date: *July, 2026*

Next Revision Date: *July, 2031*

Clinical Pathway Development

This clinical pathway was developed using the process described in the NCH Clinical Pathway Development Manual Version 6, 2022. Clinical Pathways at Nationwide Children's Hospital (NCH) are standards which provide general guidance to clinicians. Patient choice, clinician judgment, and other relevant factors in diagnosing and treating patients remain central to the selection of diagnostic tests and therapy. The ordering provider assumes all risks associates with care decisions. NCH assumes no responsibility for any adverse consequences, errors, or omissions that may arise from the use or reliance on these guidelines. NCH's clinical pathways are reviewed periodically for consistency with new evidence; however, new developments may not be represented, and NCH makes no guarantees, representations, or warranties with respect to the information provided in this clinical pathway.

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