60.5 C. perfringens food poisoning

Feature	C. perfringens food poisoning	B. cereus emetic syndrome
Food clue	Meat, gravy, poultry, large-batch food held warm	Reheated rice/fried rice
Incubation	Usually 6-24 h	Usually 1-6 h
Main symptom	Watery diarrhea and abdominal cramps; vomiting/fever uncommon	Vomiting predominates
Management	Supportive fluids; antibiotics not needed for simple food poisoning	Supportive care

60.6 Antibiotic-associated diarrhea and Clostridioides difficile infection

Antibiotic-associated diarrhea (AAD) is common, but most cases are not Clostridioides difficile infection (CDI). CDI is the high-stakes subgroup because it combines antibiotic-driven microbiota disruption, environmental spore transmission, toxin-mediated colitis, recurrence, and healthcare infection-control risk.

Textbook principle

AAD explains diarrhea after antibiotics; CDI explains toxin-mediated colitis after loss of colonization resistance.

Do not diagnose CDI by a positive PCR alone. Diagnose a compatible clinical syndrome supported by appropriate stool testing.

60.6.1 Antibiotic-associated diarrhea: definition and mechanisms

AAD is **new-onset diarrhea**, commonly defined clinically as three or more loose stools per day, **during antibiotic therapy or within days to weeks after completion.** It results from alteration of the gut microbiota, direct drug effects, osmotic effects, bile-acid changes, or overgrowth of pathogens other than C. difficile.

Point	Practical meaning
Frequency	Occurs in about 2-25% of antibiotic courses; risk varies by antibiotic, host, and healthcare exposure.
CDI proportion	CDI accounts for a minority of AAD, roughly 10-25% in many clinical settings, but is the dinically dangerous subgroup.
Negative CDI test	Does not exclude antibiotic-related diarrhea due to osmotic, motility, bile-acid, or non-CDI infectious mechanisms.

Mechanism	High-yield explanation
Osmotic diarrhea	Reduced microbial fermentation and altered carbohydrate/bile salt handling create an osmotic load.
Secretory diarrhea	Altered bile-acid metabolism can stimulate colonic secretion.
Motility effect	Macrolides, especially erythromycin, can accelerate motility through motilin-like activity.
Non-CDI overgrowth/ infection	C. perfringens, S. aureus, Klebsiella oxytoca, Salmonella, Candida overgrowth, and other pathogens may contribute in selected cases.
Loss of colonization resistance	The central bridge from simple AAD to CDI; protective microbiota are reduced, allowing C. difficile germination and toxin production.

Red flags in AAD: evaluate for CDI or severe colitis

- Fever, significant abdominal pain, bloody stool, dehydration, ileus, or toxic appearance.
- **Marked leukocytosis**, **acute kidney injury**, hypoalbuminemia, lactic acidosis, or **shock**.
- Severe comorbidity, immunosuppression, IBD, advanced age, recent hospitalization, or long-term care exposure.
- Diarrhea that persists, worsens, or recurs after stopping the suspected antibiotic.

60.6.2 Simple AAD versus CDI

Feature	Simple AAD	CDI
Definition	New diarrhea during/after antibiotics; no evidence of CDI or severe colitis.	At least 3 unformed stools in 24 h plus toxigenic C. difficile/toxin detection, or pseudomembranous colitis on endoscopy/histology.
Clinical severity	Mild watery diarrhea, self-limited, minimal systemic features.	Watery diarrhea, cramps, fever/leukocytosis; severe disease may cause AKI, ileus, toxic megacolon, perforation, shock, and death.
Pseudomembranes	Absent.	May be present in severe disease but absence does not exclude CDI.
Course after stopping antibiotic	Often improves with withdrawal/ switch and supportive care.	May persist or worsen; requires CDI-directed therapy when suspected/confirmed.
Treatment	Stop/switch culprit if feasible, fluids/electrolytes, reassess.	Contact precautions, stop unnecessary antibiotics/ PPI, treat by severity, prevent recurrence and transmission.

60.6.3 CDI: organism, transmission, and definition

Clostridioides difficile is **a Gram-positive, anaerobic, spore-forming bacillus** transmitted mainly by the **fecal-oral route**. Spores persist on hands, equipment, toilets, bed rails, and environmental surfaces; alcohol-based hand rubs are less active against spores than mechanical washing with soap and water when CDI is suspected or confirmed.

- CDI requires **compatible symptoms**, usually acute unexplained diarrhea, **plus supportive evidence** of toxigenic C. difficile or toxin production.
- A positive toxin-gene NAAT/PCR alone can represent colonization; clinical selection of the stool specimen is therefore essential.
- Pseudomembranous colitis on endoscopy or histology strongly supports CDI, but other causes of pseudomembranes exist and laboratory confirmation should still be sought when feasible.

Definition of CDI

- At least 3 unformed stools in 24 hours, unexplained by laxatives, tube feeds, bowel preparation, or another obvious cause; PLUS
- Positive stool test for toxigenic C. difficile or toxin detection; OR
- Endoscopic or histologic evidence of pseudomembranous colitis.

60.6.4 Pathogenesis: from antibiotic trigger to pseudomembranes

CDI is a toxin-mediated colitis that follows failure of colonization resistance. The organism may be acquired from the environment or may already colonize the gut; disease develops when dysbiosis allows germination, vegetative growth, and toxin production.

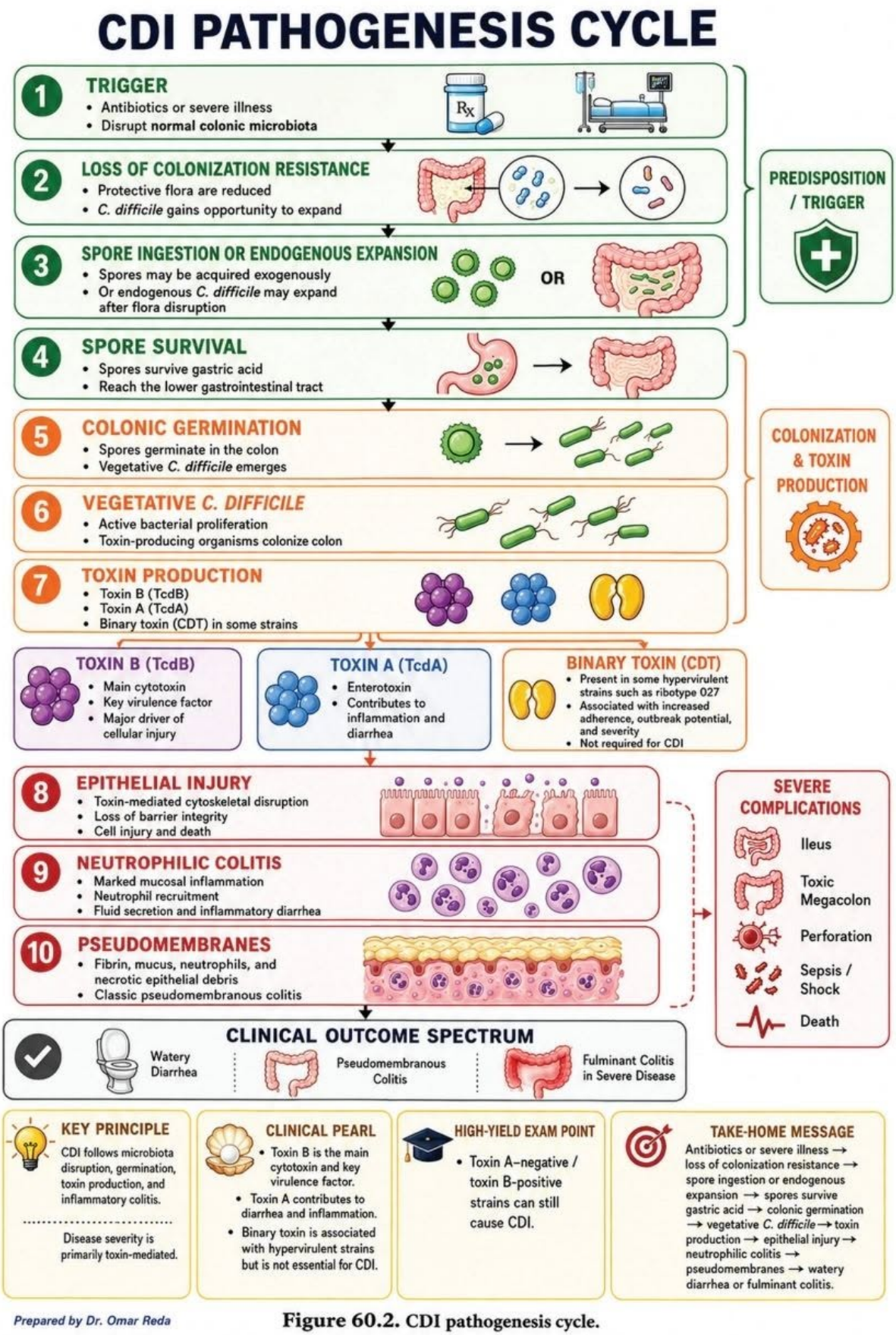

Figure 60.2. CDI pathogenesis cycle.

Step	Clinical meaning
Loss of microbiota defense	Reduced protective flora permits C. difficile germination and overgrowth.
Rho GTPase inactivation	TcdA/TcdB glucosylate/inactivate Rho-family GTPases, disrupting cytoskeleton and tight junctions.
Barrier injury	Epithelial death and permeability cause fluid secretion, cytokine release, and mucosal ulceration.
Neutrophilic colitis	Inflammatory exudate creates diarrhea, pain, fever, leukocytosis, and sometimes systemic toxicity.
Pseudomembranes	Plaques composed of fibrin, mucus, neutrophils, and necrotic epithelial cells.

60.6.5 Colonization: the central diagnostic pitfall

Asymptomatic carriage is common, especially in healthcare settings, long-term care, infants, young children, and some immunocompromised or IBD populations. Testing asymptomatic patients risks treating colonization rather than disease.

Exam pearl

CDI is a syndrome, not a laboratory result.

Positive NAAT/PCR = toxigenic organism detected. It does not prove active toxin-mediated colitis unless symptoms and pretest probability fit.

60.6.6 Risk factors

Category	Examples / interpretation
Antibiotics	Clindamycin, cephalosporins, fluoroquinolones, broad-spectrum penicillins, carbapenems; any antibiotic can trigger CDI. Risk increases with multiple antibiotics and longer duration.
Timing	Risk is greatest during antibiotic therapy and in the first month after stopping, but CDI may occur weeks later.
Healthcare exposure	Hospitalization, long-term care, recent procedures, shared equipment, prior room exposure, and environmental contamination.
Host factors	Age >65, frailty, severe comorbidity, CKD/ESRD, cirrhosis, malignancy, malnutrition, low albumin.
Immune factors	Steroids, chemotherapy, transplant drugs, biologics/small molecules, advanced HIV, hematopoietic stem-cell transplant.
GI factors	IBD, GI surgery, enteral feeding, altered gut anatomy, ileostomy/pouch, prior CDI.
Acid suppression	Association exists but is modest and confounded; reassess indication rather than reflexively stopping a clearly indicated PPI.

Textbook principle

The strongest modifiable trigger is antibiotic-driven disruption of colonization resistance. Prevention begins with antimicrobial stewardship.

60.6.7 Clinical manifestations

Pattern	Clinical clues
Typical CDI	Watery diarrhea, lower abdominal cramps, fever, nausea/anorexia, leukocytosis, lower abdominal tenderness. Mucus or occult blood may occur; frank hematochezia is less typical.
Severe CDI	Marked pain, dehydration, AKI, hypoalbuminemia, high WBC, fever, systemic toxicity, colitis on imaging.
Fulminant CDI	Hypotension, shock, ileus, toxic megacolon, perforation, lactic acidosis, organ failure; diarrhea may be minimal if ileus is present.
Pseudomembranous colitis	Raised yellow-white plaques on inflamed mucosa; highly suggestive of CDI but not universally present.
Recurrent CDI	Return of diarrhea with supportive test after symptom resolution, usually within 8 weeks of completing therapy.
Unusual presentations	Ileus without diarrhea, small-bowel enteritis after colectomy/ileostomy, protein-losing enteropathy, reactive arthritis, and rare extracolonic disease.

Clinical warning
Fulminant CDI may present with abdominal distension, ileus, shock, and little diarrhea. Do not exclude CDI just because stool output is low in a toxic patient.

60.6.8 Diagnostic stewardship: who should be tested?

Testing should be restricted to patients with compatible symptoms and an appropriate stool specimen. Over-testing identifies colonization and drives unnecessary treatment and isolation.

Rule	Practical implication
Test only	Unexplained >=3 unformed stools in 24 h, not clearly due to laxatives, tube feeds, bowel preparation, or another cause.
Do not test	Formed stool, asymptomatic patients, or patients whose diarrhea is clearly explained by laxatives or bowel prep.
Laxatives	If clinically safe, stop laxatives and reassess for about 48 h before testing.
Repeat testing	Do not repeat routinely and do not perform a test of cure; tests may remain positive after clinical recovery.
High suspicion	If fulminant colitis is suspected, begin treatment while diagnostic confirmation is pending; do not wait for a complete algorithm.

60.6.9 Stool tests and interpretation

Test	What it detects	Strength	Pitfall
NAAT / PCR	Detects toxin genes, especially tcdB.	Very sensitive and rapid.	Cannot distinguish active toxin disease from colonization.
GDH antigen	Detects C. difficile organism antigen.	Very sensitive screening test.	Does not distinguish toxigenic from nontoxigenic strains.
Toxin A/B EIA	Detects free toxin protein in stool.	More specific for active toxin production.	Lower sensitivity; toxin may degrade if sample handling is delayed.
Toxigenic culture / cytotoxicity assay	Reference methods in selected settings.	Useful for research/outbreaks.	Slow and not practical for routine bedside decisions.

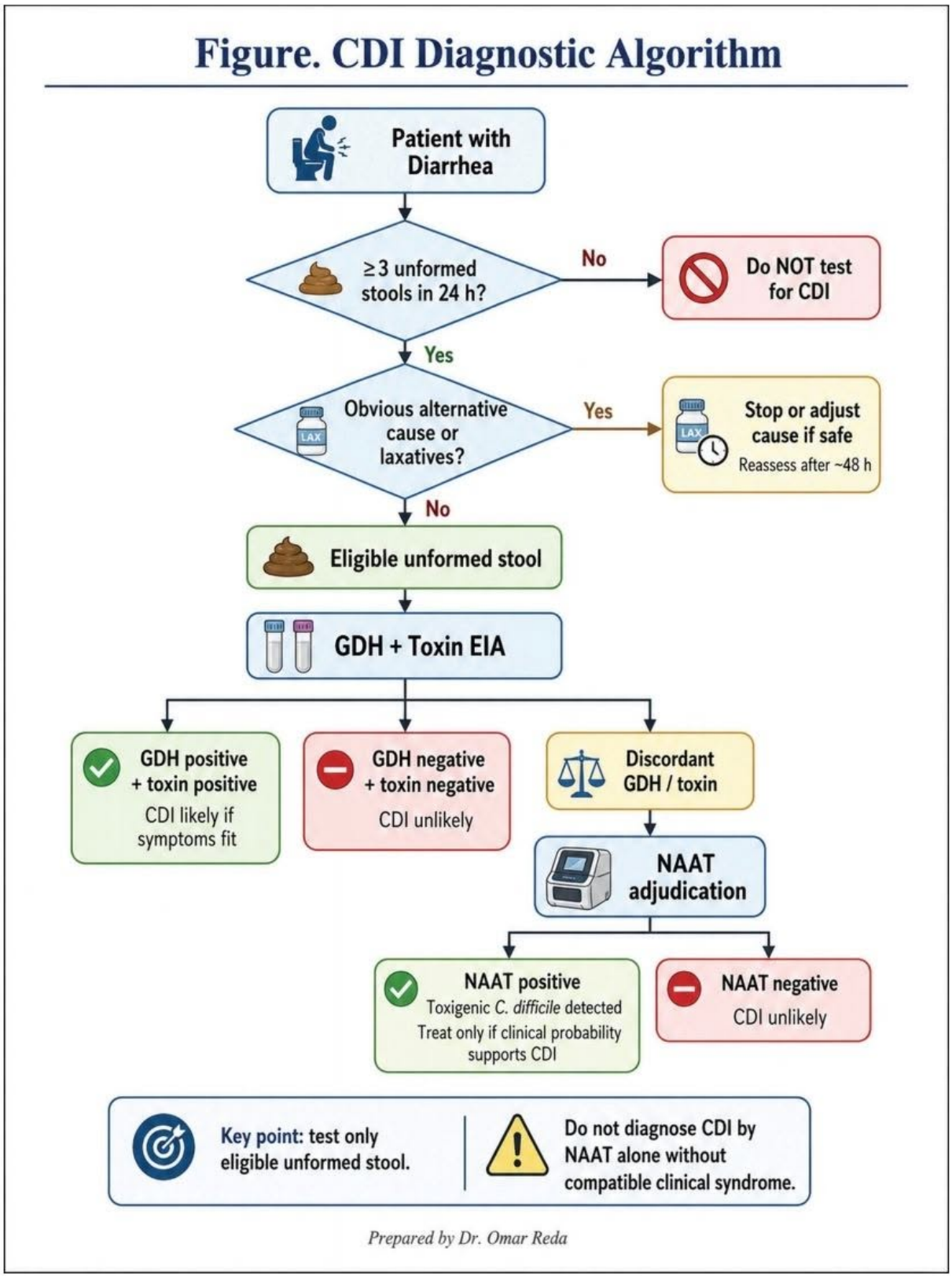

Figure 60.3. CDI diagnostic algorithm

Result pattern	Interpretation
GDH+ / toxin+	CDI likely if compatible symptoms are present.
GDH- / toxin-	CDI unlikely.
GDH+ / toxin- / NAAT+	Colonization or CDI with low/undetected toxin; interpret clinically, especially in IBD and hospitalized patients.
NAAT alone positive	Toxigenic organism detected; active CDI requires compatible symptoms and no better explanation.
NAAT negative	CDI unlikely in most cases; reassess diagnosis if symptoms continue.

What not to do in CDI diagnosis

- Do not test formed stool.
- Do not test asymptomatic patients.
- Do not diagnose CDI by NAAT/PCR alone without symptoms.
- Do not repeat testing routinely.
- Do not perform a test of cure.
- Do not ignore ileus: severe CDI may have little diarrhea.

60.6.10 Endoscopy and imaging

Tool	When useful	Caution / clue
Flexible sigmoidoscopy / colonoscopy	High suspicion with negative stool assays, urgent diagnosis needed, failure to respond, or alternative diagnosis such as IBD flare, CMV, ischemic colitis, or malignancy.	Avoid or minimize in unstable fulminant colitis because perforation risk is high.
Abdominal X-ray	Suspected ileus or toxic megacolon.	Colonic dilatation supports toxic megacolon; also look for free air.
CT abdomen/ pelvis	Severe pain, sepsis, peritonitis, suspected perforation, megacolon, severe colitis, or unclear diagnosis.	May show wall thickening, pericolonic stranding, ascites, target/double-halo sign, or accordion sign; findings are not specific.

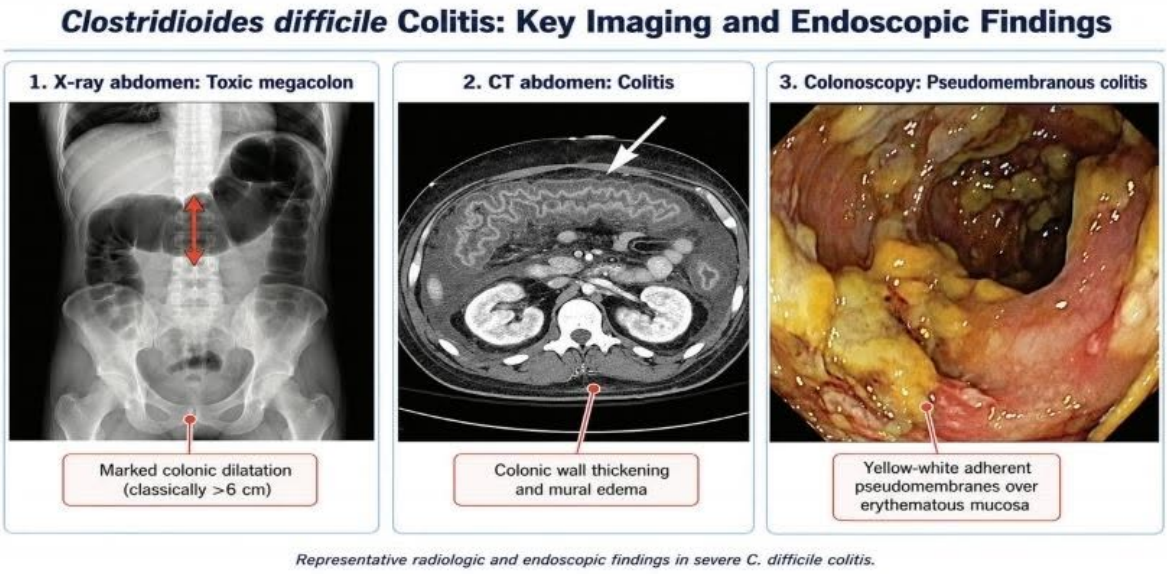

Figure 60.4. Representative radiologic and endoscopic findings in sever C. difficile colitis.

Important

Do not scope unstable fulminant colitis unless the diagnostic or therapeutic benefit clearly outweighs perforation risk.

60.6.11 Immediate management once CDI is suspected

1. **Stop the inciting antibiotic** if feasible; if ongoing antibiotics are essential, narrow spectrum and shorten duration where possible.
2. **Start contact precautions immediately**; do not wait for final testing in a highly suspicious case.
3. **Give oral or IV fluids**, correct electrolytes, treat AKI, and monitor urine output.
4. **Review PPI indication**; continue only if clearly indicated.
5. **Review** laxatives, prokinetics, NSAIDs, ACE inhibitors/ARBs, diuretics, and other drugs that worsen dehydration or diarrhea.
6. **Avoid** antimotility agents in fulminant CDI, ileus, megacolon, or before CDI therapy has started.
7. **Assess severity** at diagnosis and reassess daily if hospitalized.

Practical note on antidiarrheals
Traditional teaching is to avoid loperamide in CDI. A more nuanced bedside rule is: avoid antimotility drugs in fulminant disease, ileus, megacolon, severe colitis, or before CDI therapy is started. In selected non-fulminant patients who are improving on appropriate therapy but still have difficult fluid losses, cautious use may be considered by senior clinicians.

60.6.12 Severity classification

Category	Definition / clues	Action
Nonsevere CDI	Compatible diarrhea without severe markers.	Usually outpatient or ward depending hydration, age, comorbidity, and social support.
Severe CDI	Common adult markers: **WBC** >15,000/microL and/or **creatinine** >1.5 mg/dL, or >=1.5x baseline. Other concern: fever, severe pain, hypoalbuminemia, rising CRP/lactate, colitis on imaging.	Assess for admission, complications, and early escalation if worsening.
Fulminant CDI	Hypotension, shock, ileus, toxic megacolon, perforation, rising lactate, organ failure, or rapid deterioration.	ICU-level care, high-dose oral/enteral vancomycin + IV metronidazole, rectal vancomycin if ileus, early surgery/ID/GI.
Refractory CDI	No response after about 3-5 days of appropriate therapy, or clinical worsening at any time.	Reassess diagnosis, complications, drug delivery, ongoing antibiotics, and surgical indications.

Severity pearl
Severity is not based on stool frequency alone. Ileus may reduce diarrhea in the sickest patients.

60.6.13 Treatment: adult regimen logic

Treatment depends on severity, episode number, recurrence risk, drug availability, and local guideline policy. Oral/enteral drug delivery matters because CDI is a colonic infection; IV vancomycin does not treat colonic CDI.

Clinical situation	Main regimen	Comments
Initial non-fulminant CDI: nonsevere or severe	**Fidaxomicin 200 mg PO BID for 10 days**, preferred where available/feasible; OR **vancomycin 125 mg PO QID for 10 days** as an acceptable alternative.	Metronidazole 500 mg PO TID for 10 days only if fidaxomicin and vancomycin are unavailable and **disease is low-risk nonsevere.** Avoid metronidazole in frail age >=65, IBD-associated CDI, pregnancy/lactation unless specialist decision, or severe disease.
Fulminant CDI	**Vancomycin 500 mg PO/NG QID PLUS metronidazole 500 mg IV q8h.**	If ileus or poor gut delivery**: add rectal vancomycin 500 mg** in 100 mL normal saline PR q6h as retention enema if feasible. ICU, ID/GI, and early surgery.
First recurrence	**Fidaxomicin** 200 mg PO BID for 10 days, or extended-pulsed fidaxomicin where protocol supports it.	Vancomycin standard 125 mg PO QID x10 days or vancomycin taper/pulse are acceptable alternatives, especially if fidaxomicin unavailable. Metronidazole is not recommended for recurrence.
Second or later recurrence	Fidaxomicin regimen OR vancomycin taper/pulse OR vancomycin followed by rifaximin chaser in selected protocols.	**Evaluate microbiota-based therapy/FMT** where available and regulated after antibiotic course. Consider ID/GI input.
Persistent systemic antibiotics needed	Prefer narrowest effective non-CDI antibiotic; reassess duration daily.	Recurrence risk is higher. Specialist-guided secondary prophylaxis may be considered in selected high-risk patients, but is not routine.

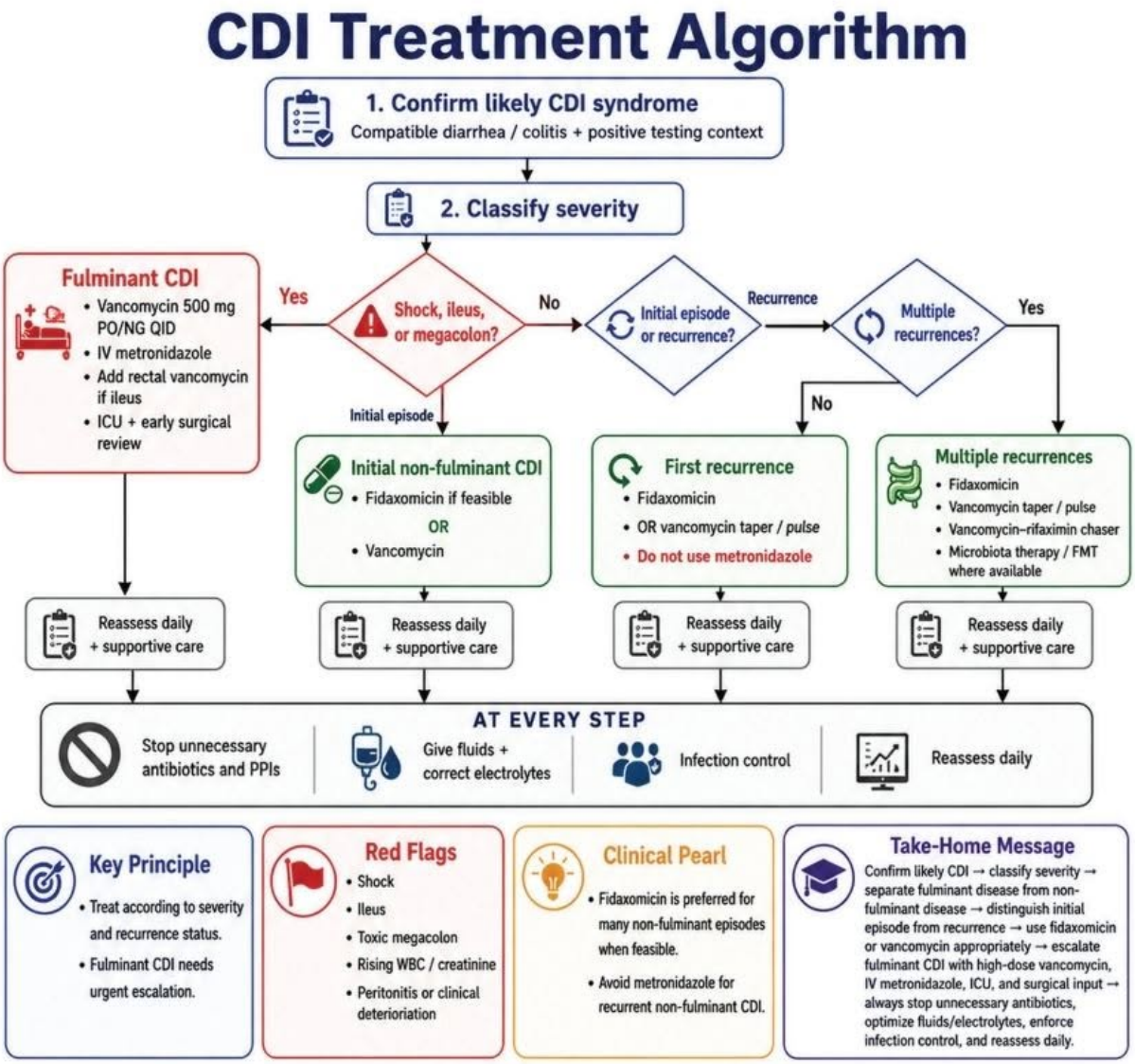

Figure 60.5. CDI treatment algorithm

Prepared by Dr. Omar Reda

60.6.14 Example recurrence regimens

Strategy	Example	Use / caution
Vancomycin taper / pulse example	125 mg PO QID for 10–14 days → 125 mg PO BID for 7 days → 125 mg PO daily for 7 days → 125 mg every 2–3 days for 2–8 weeks.	Common board/exam regimen; exact schedule may vary by local protocol.
Fidaxomicin extended-pulsed example	200 mg PO BID for 5 days, then 200 mg every other day on days 7–25.	Option in selected recurrent/ high-recurrence-risk cases where available.
Vancomycin–rifaximin chaser	Vancomycin 125 mg PO QID for 10 days, then rifaximin 400 mg PO TID for 20 days.	Used in selected protocols for multiple recurrence; check local availability/resistance policy.
Suppressive oral vancomycin	125 mg PO daily is used by some specialists in very selected patients with multiple recurrences who are not candidates for microbiota therapy or require repeated systemic antibiotics.	Not routine; risk includes microbiome disruption, cost, and theoretical VRE selection.

60.6.15 Guideline variation: how to write without contradiction

Guideline source / logic	Practical interpretation
IDSA/SHEA 2021 focused update	Suggests fidaxomicin over vancomycin for initial CDI when feasible; vancomycin remains acceptable. For recurrent CDI, fidaxomicin is suggested, with vancomycin taper/pulse and other options acceptable.
AGA 2026 adult practice update	Favors fidaxomicin for non-fulminant CDI because of lower recurrence; vancomycin acceptable. Metronidazole should not be used outside fulminant disease.
NICE NG199 antimicrobial prescribing	In its prescribing framework, oral vancomycin remains first-line for first mild/ moderate/severe CDI in many UK-style systems, with fidaxomicin used for failure/ relapse depending scenario.
Local hospital pathway	May prioritize fidaxomicin for high recurrence risk, older age, immunocompromise, severe CDI, IBD, or prior CDI, and vancomycin where fidaxomicin is inaccessible.

Textbook wording to use

Fidaxomicin is preferred where available and feasible because it reduces recurrence; oral vancomycin remains an acceptable and widely used alternative. Always follow local formulary and stewardship policy.

60.6.16 Microbiota-based therapy, FMT, and bezlotoxumab

Recurrent CDI is driven by persistent dysbiosis, spores, impaired antitoxin immune response, ongoing antibiotics, older age, comorbidity, and repeated healthcare exposure. Treatment should therefore combine antibiotics with recurrence-prevention logic.

Option	Role	Limitations
Traditional FMT	Consider for multiple recurrences where regulated, screened, and available; also considered by specialists in refractory severe/ fulminant CDI when surgery is high risk.	Requires donor screening; safety alerts and local regulation matter.
Fecal microbiota, live-jslm (Rebyota)	Rectal microbiota product used after completion of antibiotics to prevent recurrent CDI in adults.	Not for acute treatment of severe/fulminant CDI. Local availability/logistics vary.
Fecal microbiota spores, live-brpk (Vowst)	Oral microbiota-spore product used after antibacterial treatment to prevent recurrence in adults.	Not for acute severe/fulminant treatment; avoid/individualize in severe immunocompromise due to limited safety data.
Bezlotoxumab	Anti-toxin B monoclonal antibody, previously 10 mg/kg IV once during CDI antibiotic therapy for selected high-risk recurrence prevention.	Use is now highly availability-dependent: Zinplava/ bezlotoxumab was discontinued in the United States by its sole supplier in Jan 2025. Use caution/avoid in significant heart failure if available elsewhere.

Recurrence-risk profile

- Age >=65 years.
- Immunocompromise or immunosuppressive therapy.
- Severe CDI at presentation.
- Prior CDI episode, especially within the last 6 months.
- Need for ongoing systemic antibiotics.
- IBD, malignancy, CKD/ESRD, cirrhosis, frailty, nursing-home exposure.

60.6.17 CDI in inflammatory bowel disease

CDI is particularly important in IBD because symptoms overlap with flare, colonization is more common, and CDI increases hospitalization, treatment escalation, recurrence, and surgical risk.

Issue	Practical point
When to test	New or worsening diarrhea in IBD, especially colonic IBD, should prompt CDI exclusion. Also consider CDI in end ileostomy or ileal pouch patients with increased output.
Preferred test	Multistep toxin-based assay is preferred because colonization is common. Interpret NAAT-positive/toxin-negative results with clinical context.

Issue	Practical point
Initial CDI treatment	Fidaxomicin preferred when feasible; vancomycin acceptable if unavailable/cost-prohibitive. Avoid metronidazole.
IBD therapy	Do not automatically stop necessary biologics, immunomodulators, or small molecules; uncontrolled IBD can worsen outcomes. Treat CDI and active IBD concurrently.
Steroids	May be used if active moderate-severe IBD flare is strongly suspected, but monitor infection response closely.
No response after 48-72 h	Consider endoscopy to assess IBD activity and exclude CMV or another diagnosis.
Recurrence	Microbiome-based therapy may be considered earlier in IBD with recurrence; specialist GI/ID input is preferred.
Probiotics	Do not advise for primary or secondary CDI prevention in IBD.
Future systemic antibiotics	Oral vancomycin prophylaxis may be considered selectively in IBD patients with prior CDI, but evidence is limited and this is not routine for all patients.

IBD exam trap

Do not label worsening diarrhea as "IBD flare" until CDI has been considered. Conversely, do not keep treating presumed recurrent CDI forever when stool tests and clinical course suggest active IBD, CMV, bile-acid diarrhea, or post-infectious IBS.

60.6.18 Pediatric caveat

Group	Interpretation
Infants <12 months	High colonization rate; routine CDI testing is generally avoided unless severe disease and other causes have been excluded with specialist input.
Age 1-2 years	Test selectively only when other causes of diarrhea are unlikely and risk factors/ severe disease are present.
Age >2 years	Approach becomes closer to adults when there is compatible diarrhea plus risk factors or healthcare exposure.
Pediatric severe disease	Adult severity scores are not fully validated. Use clinical toxicity, hydration, abdominal signs, leukocytosis/leukopenia, age-adjusted creatinine, pseudomembranes, and complications.

60.6.19 When to call surgery in CDI

Call surgery early - do not wait for perforation

- Hypotension, shock, peritonitis, or organ failure.
- Ileus, toxic megacolon, perforation, free air, or rapidly increasing abdominal distension.
- Rising lactate, worsening acidosis, escalating vasopressor need, or severe sepsis.
- Very high WBC or rapidly worsening physiology.
- Failure to improve after about 3-5 days of maximal medical therapy, or deterioration at any time.
- IBD patient with severe colitis where colectomy risk is being considered.

Option	Comment
Subtotal colectomy with end ileostomy	Classic option for fulminant colitis, perforation, peritonitis, or toxic megacolon when colon preservation is unsafe.
Diverting loop ileostomy + colonic lavage + intraluminal vancomycin	Colon-sparing option in selected centers and selected patients; depends on surgical expertise and physiology.
Rescue FMT / multidose FMT	Specialist option for selected severe/fulminant refractory cases, particularly poor surgical candidates; not equivalent to routine microbiota products.

60.6.20 Infection control and prevention

Action	Reason / practical point
Immediate isolation	Place suspected or confirmed CDI on contact precautions while evaluation is ongoing; nurse-driven isolation protocols reduce delays.
Room/toilet	Use single room and dedicated toilet where possible; cohort confirmed CDI if single rooms unavailable.

Action	Reason / practical point
Gloves and gowns	Spores spread by hands and fomites. Use dedicated equipment such as stethoscopes and BP cuffs.
Hand hygiene	Soap and water is preferred when caring for confirmed/suspected CDI, especially after contact with stool or during outbreaks. Alcohol gel alone is less effective against spores.
Environmental cleaning	Daily and terminal cleaning with EPA-registered sporicidal agents; clean high-touch surfaces and shared equipment.
Duration	Continue precautions for at least 48 h after diarrhea resolves, or longer/up to discharge according to local policy.
Transfers	Notify receiving ward/facility of CDI status to maintain precautions.
Antimicrobial stewardship	Reduce unnecessary high-risk antibiotics, avoid treating asymptomatic bacteriuria, shorten duration, and narrow spectrum when possible.

Home prevention after discharge

- Handwashing after bathroom use and before eating.
- Clean bathroom/high-touch surfaces with appropriate sporicidal/bleach-based products if recurrent CDI or active diarrhea.
- Wash soiled linen/clothes carefully and dry thoroughly.
- Reassure: transmission to healthy household contacts is uncommon when hygiene is good and microbiota is intact.

60.6.21 Prevention of recurrence and what not to prescribe routinely

Intervention	Current practical stance
Probiotics	Do not advise routinely for primary or secondary CDI prevention; avoid especially in severely ill, immunocompromised, central-line, or structural heart disease patients unless a clear specialist reason exists.
PPI	Do not stop a clearly indicated PPI solely because CDI exists; reassess and discontinue only if unnecessary.
Cholestyramine / bile-acid binders	Do not use as monotherapy for CDI and do not give concurrently with oral vancomycin or fidaxomicin because binding may reduce antibiotic efficacy. Psyllium may be used after recovery for stool bulking if needed.
Oral vancomycin prophylaxis	Not routine for all patients receiving systemic antibiotics. May be considered selectively by specialists in very high-risk patients with prior CDI, especially IBD or multiple recurrences.
Unnecessary antibiotics	Avoid; document CDI history so future prescribers consider recurrence risk.

60.6.22 Practical bedside summary table

Situation	One practical regimen / action
AAD after antibiotics but mild/no toxicity	Stop or switch culprit if feasible, fluids, electrolytes, reassess. Do not test CDI if stool is formed or symptoms clearly due to laxatives.
Suspected CDI	Unexplained >=3 unformed stools/24 h -> isolate -> test appropriate stool -> stop unnecessary antibiotics/PPI -> fluids.
Initial non-fulminant CDI	Fidaxomicin 200 mg PO BID x10 d if feasible; vancomycin 125 mg PO QID x10 d acceptable.
Fulminant CDI	Vancomycin 500 mg PO/NG QID + metronidazole 500 mg IV q8h; add rectal vancomycin 500 mg/100 mL NS q6h if ileus; ICU/surgery.
First recurrence	Fidaxomicin standard/extended-pulsed, or vancomycin standard/taper-pulse if fidaxomicin unavailable.
Multiple recurrence	Fidaxomicin, vancomycin taper/pulse, vancomycin-rifaximin chaser, microbiota therapy/FMT; specialist input.
IBD + diarrhea	Exclude CDI, prefer toxin-based multistep testing, treat CDI and active IBD concurrently; consider CMV/endoscopy if no response.
Infection control	Contact precautions, soap/water, dedicated toilet/equipment, sporicidal cleaning, precautions >=48 h after diarrhea resolves.

60.6.23 Must-memorize exam pearls

- Most AAD is not CDI; simple AAD is usually mild and self-limited.
- CDI requires symptoms plus supportive testing; NAAT alone may detect colonization.

- Test only unexplained >=3 unformed stools in 24 h; do not test formed stool or asymptomatic patients.
- TcdB is the main cytotoxin; toxins inactivate Rho GTPases and disrupt the cytoskeleton/tight junctions.
- A-/B+ strains can cause CDI; binary toxin-positive strains are linked to outbreaks and severe disease.
- Fidaxomicin reduces recurrence and is preferred when feasible; vancomycin remains acceptable.
- Metronidazole is no longer routine first-line therapy and is not recommended for recurrence.
- Fulminant CDI = shock/hypotension, ileus, or toxic megacolon; use high-dose oral/NG vancomycin plus IV metronidazole, and add rectal vancomycin if ileus.
- Ileus may produce severe CDI with little diarrhea.
- Do not use IV vancomycin alone for CDI; it does not reach the colon adequately.
- Do not perform a test of cure.
- Probiotics are not routinely recommended for CDI prevention or recurrence prevention.
- CDI can mimic IBD flare; always exclude CDI in new or worsening IBD diarrhea.
- C. difficile spores require contact precautions, soap-and-water hand hygiene, and sporicidal environmental cleaning.

60.6.24 Source anchors for chapter references

Use these as reference anchors if you update the chapter reference list:

- IDSA/SHEA 2021 focused update on adult CDI management: fidaxomicin, recurrence therapy, bezlotoxumab framework.
- AGA Clinical Practice Update 2026: management of CDI in adults; multistep testing, fidaxomicin/vancomycin, microbiota therapy, probiotics, bile-acid binder cautions.
- AGA Clinical Practice Update 2026: CDI in inflammatory bowel disease; testing, treatment, IBD therapy, recurrence, microbiota therapy, probiotics, and oral vancomycin prophylaxis caveat.
- ACG Clinical Guideline 2021: prevention, diagnosis, and treatment of CDI; diagnosis, severity, recurrent disease, FMT, IBD, and probiotics.
- ESCMID 2021 CDI treatment guidance: initial/recurrent/severe CDI, recurrence-risk stratification, fidaxomicin, vancomycin, FMT/bezlotoxumab framework.
- NICE NG199: antimicrobial prescribing for CDI; UK-style prescribing differences and referral/specialist-care principles.
- CDC 2026 clinical guidance for CDI prevention in acute-care facilities: contact precautions, testing stewardship, sporicidal cleaning, stewardship, and duration of precautions.
- Stanford Health Care CDI pathway, revision 06/2026: pragmatic treatment algorithms and regimen examples.
- UpToDate 2026 topics on adult CDI epidemiology/pathophysiology, clinical manifestations/diagnosis, treatment/prevention, and pediatric diagnostic caveats.
- ASHP drug shortage notice 2025: Merck discontinued Zinplava/bezlotoxumab in January 2025 and was the sole US supplier.