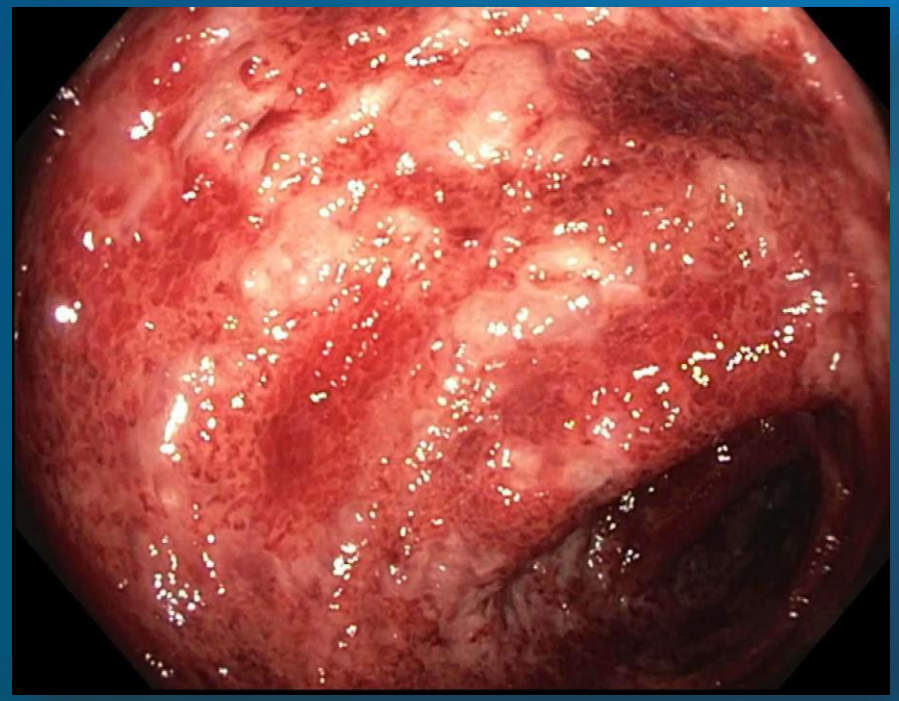
Fulminant Colitis



Mr Rowan Collinson FRACS

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai


General surgery
Clinical
Collaborative
Timely intervention

- ‘Fulminant colitis’ ≈ Acute severe UC

  = Absolute indication for surgery


Acute colitis
'Surgical colitis'
Surgery

Patient A

- 26 yr female

- Acute diarrheal illness
  - Now bloody
  - Abdominal pain
  - Bowel urgency
  - Frequency 8 x day

Acute colitis

- Infectious
  - Bacterial
    - Campylobacter
    - Shigella
    - Salmonella
    - Yersinia
    - Enterotoxigenic E. coli
    - Clostridioides
  - Parasitic
    - Entameba histolytica (amoebic)
    - Cryptosporidium
  - Viral
    - CMV
- Inflammatory
  - Ulcerative colitis
  - Crohn's disease
- Ischaemic colitis
- Microscopic colitis

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

GASTROINTESTINAL PCR (FilmArray) PANEL

RESULTS

Campylobacter	: Not detected
C. difficile (toxin A/B)	: Not detected
Plesiomonas shigelloides	: Not detected
Salmonella	: Not detected
Vibrio	: Not detected
Yersinia enterocolitica	: Not detected
E. coli (STEC)	: Not detected
Shigella/ E. coli (EIEC)	: Not detected
Cryptosporidium	: Not detected
Cyclospora cayetanensis	: Not detected
Entamoeba histolytica	: Not detected
Giardia lamblia	: Not detected
Adenovirus F 40/41	: Not detected
Astrovirus	: Not detected
Norovirus GI/GII	: Not detected
Rotavirus A	: Not detected
Sapovirus	: Not detected

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Assessment

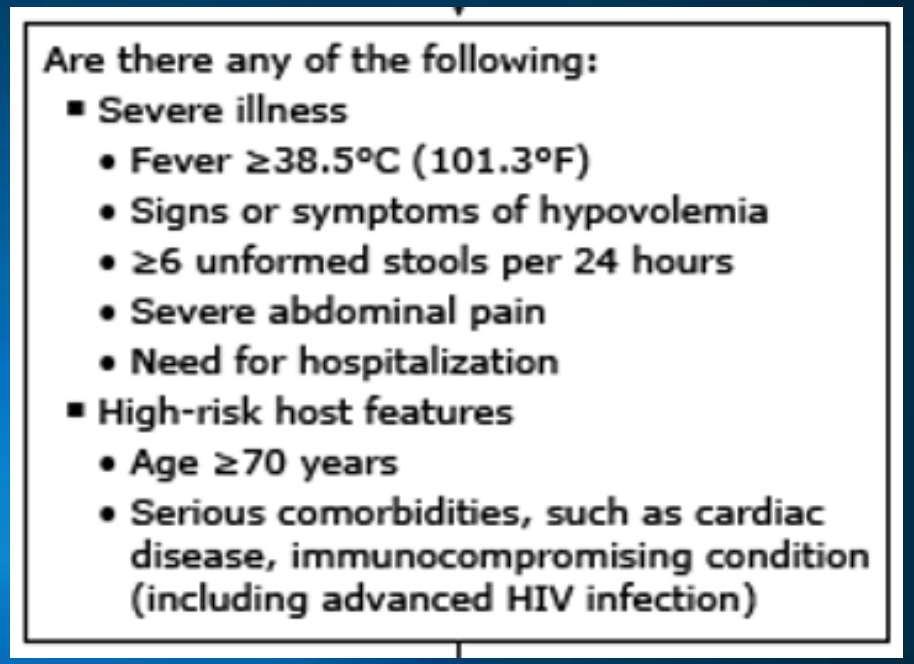
- Hx
- Exam

- Blood/urine analysis

- AXR
  - Consider cross-sectional

- Fluid resuscitation
- Stool cultures/PCR

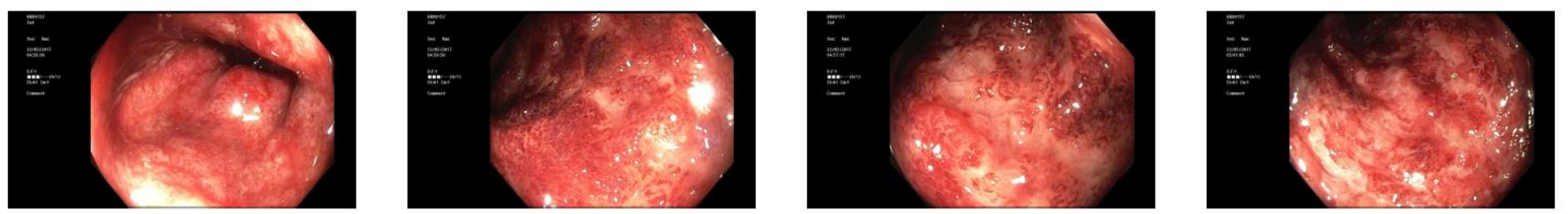
- Medical review



AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

- More history available
- Flexi sig done



- 4 days IV hydrocortisone 200mg BD
- Diarrhea 7 x day
- Fever 38.2

- Assessment of severity
- Estimate of likelihood of successful medical management
- Presence of absolute indication for surgery

Assessment of severity

Defined by Truelove and Witts criteria

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 29 1955

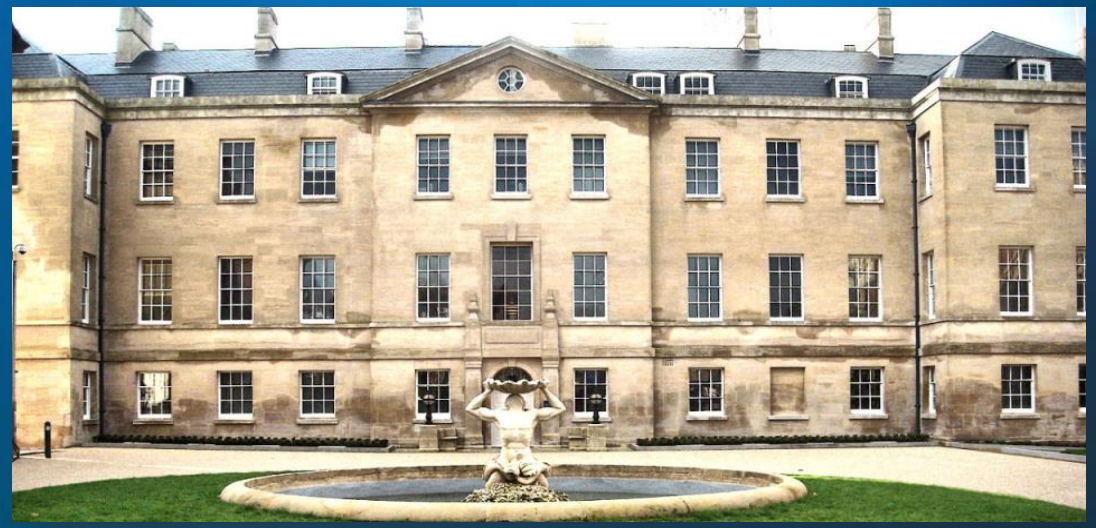
CORTISONE IN ULCERATIVE COLITIS

FINAL REPORT ON A THERAPEUTIC TRIAL

BY

S. C. TRUELOVE, M.D., M.R.C.P. AND L. J. WITTS, M.D., F.R.C.P.

Nuffield Department of Clinical Medicine, Radcliffe Infirmary, Oxford



AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

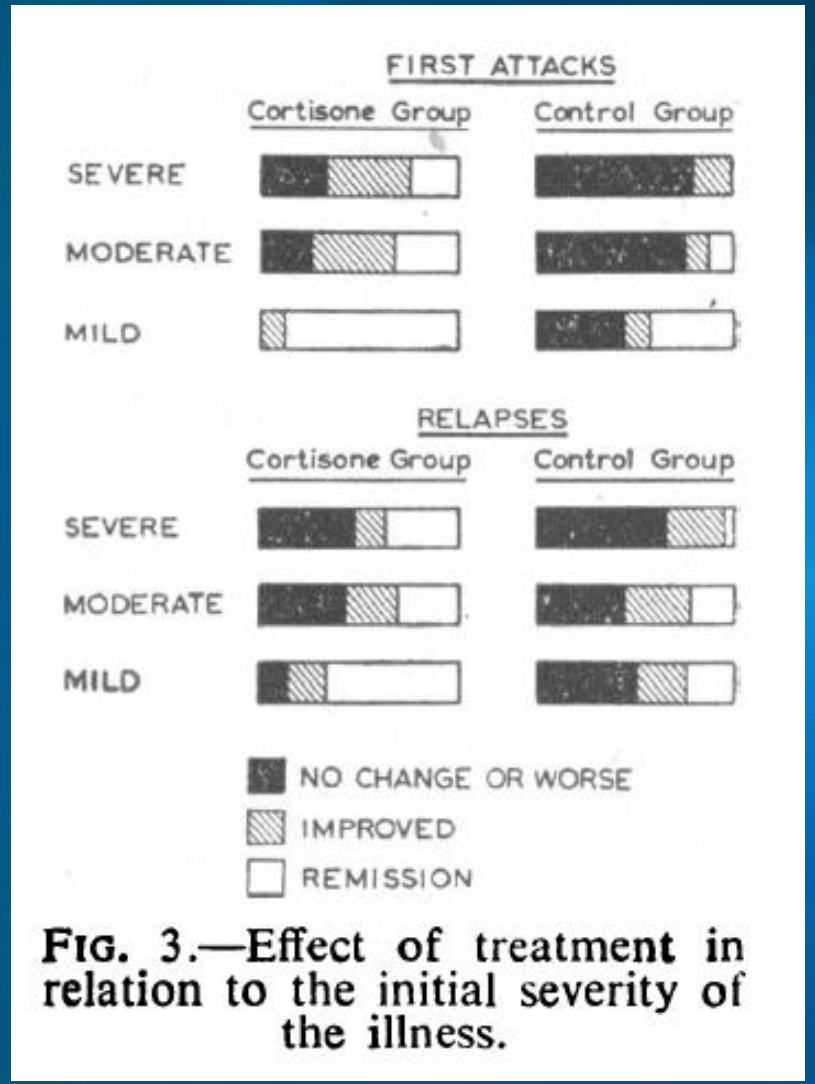


FIG. 3.—Effect of treatment in relation to the initial severity of the illness.

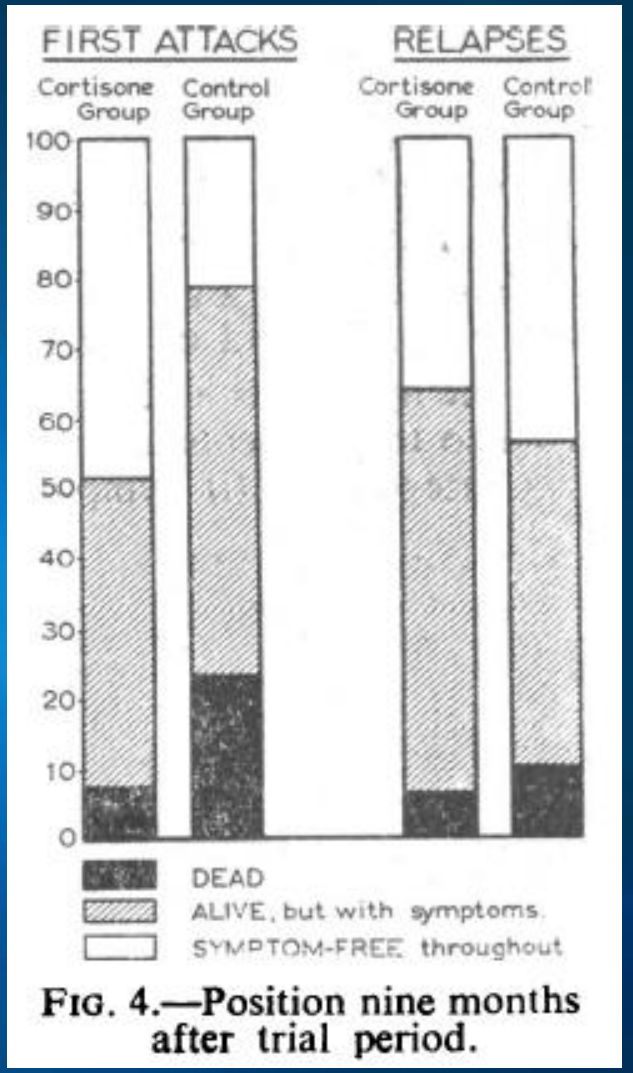


FIG. 4.—Position nine months after trial period.

Table 1.2. Disease activity in UC [adapted from Truelove & Witts[32]].

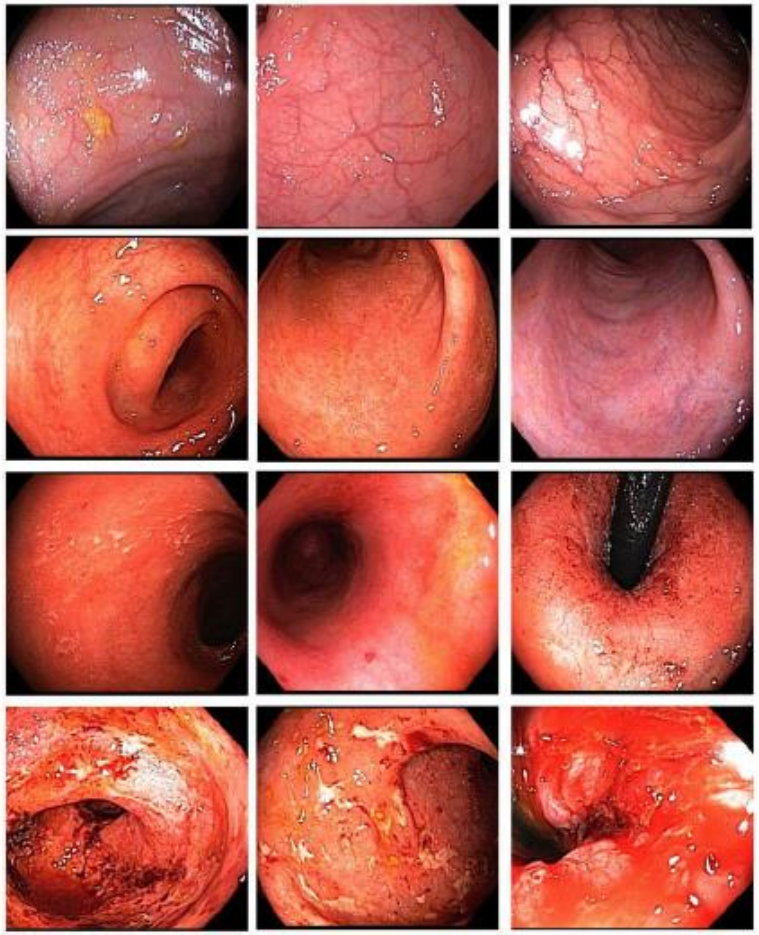
	Mild	Moderate 'in between mild and severe'	Severe
Bloody stools/day	< 4	4 or more *if*	≥ 6 *and*
Pulse	< 90 bpm	≤ 90 bpm	> 90 bpm *or*
Temperature	< 37.5°C	≤ 37.8°C	> 37.8°C *or*
Haemoglobin	> 11.5 g/dl	≥ 10.5 g/dl	< 10.5 g/dl *or*
ESR	< 20 mm/h	≤ 30 mm/h	> 30 mm/h *or*

ECCO Guideline/Consensus Paper
Journal of Crohn's and Colitis, 2017, 649–670 doi:10.1093/ecco-jcc/jjx008

Third European Evidence-based Consensus on Diagnosis and Management of Ulcerative Colitis. Part 1: Definitions, Diagnosis, Extra-intestinal Manifestations, Pregnancy, Cancer Surveillance, Surgery, and Ileo-anal Pouch Disorders

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Endoscopic Assessment of Disease Activity



UCEIS Score	Mayo Score	Endoscopic Features
0	0	Normal
1-3	1	Erythema, decreased vascular pattern, mild friability
4-6	2	Marked erythema, absent vascular pattern, friability, erosions
7-8	3	Spontaneous bleeding, ulceration

ACG Clinical Guideline: Ulcerative Colitis in Adults

David T. Rubin, MD, FACG[1], Ashwin N. Ananthakrishnan, MD, MPH[2], Corey A. Siegel, MD, MS[3], Bryan G. Sauer, MD, MSc (Clin Res), FACG (GRADE Methodologist)[4] and Millie D. Long, MD, MPH, FACG[5]

Am J Gastroenterol 2019;114:384–413. https://doi.org/10.14309/ajg.0000000000000152; published online February 22, 2019

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai

Table 4. Proposed American College of Gastroenterology Ulcerative Colitis Activity Index[a]

	Remission	Mild	Moderate-severe	Fulminant
Stools (no./d)	Formed stools	<4	>6	>10
Blood in stools	None	Intermittent	Frequent	Continuous
Urgency	None	Mild, occasional	Often	Continuous
Hemoglobin	Normal	Normal	<75% of normal	Transfusion required
ESR	<30	<30	>30	>30
CRP (mg/L)	Normal	Elevated	Elevated	Elevated
FC (μg/g)	<150–200	>150–200	>150–200	>150–200
Endoscopy (Mayo subscore)	0–1	1	2–3	3
UCEIS	0–1	2–4	5–8	7–8

[a]Modified from reference 44.

The above factors are general guides for disease activity. With the exception of remission, a patient does not need to have all the factors to be considered in a specific category.

CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; FC, fecal calprotectin; UCEIS, Ulcerative Colitis Endoscopic Index of Severity.

ACG Clinical Guideline: Ulcerative Colitis in Adults

David T. Rubin, MD, FACG[1], Ashwin N. Ananthakrishnan, MD, MPH[2], Corey A. Siegel, MD, MS[3], Bryan G. Sauer, MD, MSc (Clin Res), FACG (GRADE Methodologist)[4] and Millie D. Long, MD, MPH, FACG[5]

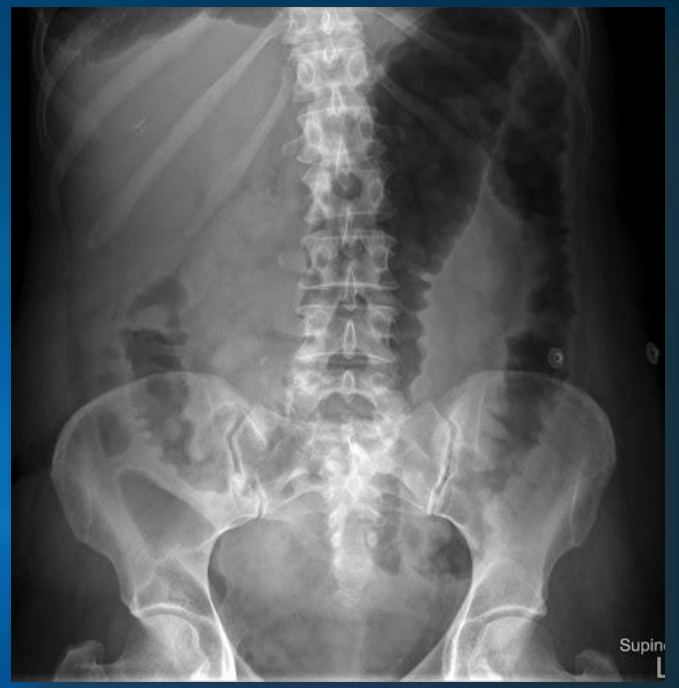
Am J Gastroenterol 2019;114:384–413. https://doi.org/10.14309/ajg.0000000000000152; published online February 22, 2019

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai

‘Fulminant colitis’

Absolute indications for colectomy

- Toxic megacolon
  - Total or segmental colon diameter >5.5cm
- Perforation
- Haemorrhage
- Multiorgan dysfunction



Predicting outcome in severe ulcerative colitis

S P L Travis, J M Farrant, C Ricketts, D J Nolan, N M Mortensen, M G W Kettlewell, D P Jewell

Gut 1996; **38:** 905–910

- ‘Travis criteria’
  - By day 3
    - Stool frequency >8
    - Stool frequency 3 – 8 and CRP >45

→ 85 % require colectomy

Table 8. Poor prognostic factors in ulcerative colitis disease severity

Poor prognostic factors
Age <40 yr at diagnosis
Extensive colitis
Severe endoscopic disease (Mayo endoscopic subscore 3, UCEIS ≥ 7)
Hospitalization for colitis
Elevated CRP
Low serum albumin

The greater the number of poor prognostic factors, the worse the prognosis as measured by the likelihood of colectomy (4).
CRP, C-reactive protein; UCEIS, Ulcerative Colitis Endoscopic Index of Severity.

ACG Clinical Guideline: Ulcerative Colitis in Adults

David T. Rubin, MD, FACG[1], Ashwin N. Ananthakrishnan, MD, MPH[2], Corey A. Siegel, MD, MS[3], Bryan G. Sauer, MD, MSc (Clin Res), FACG (GRADE Methodologist)[4] and Millie D. Long, MD, MPH, FACG[5]

Am J Gastroenterol 2019;114:384–413. https://doi.org/10.14309/ajg.0000000000000152; published online February 22, 2019

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai


We're going to try second line therapy…

- Infliximab or cyclosporine
- CONSTRUCT trial – IFX versus CSA
  - ‘Colectomy-free survival rate’
    - 70% at 1 year
    - 60% at 5 years

Williams JG, Alam MF, Alrubaiy L, et al. Infliximab versus ciclosporin for steroid-resistant acute severe ulcerative colitis (CONSTRUCT): A mixed methods, open-label, pragmatic randomised trial. Lancet Gastroenterol Hepatol 2016;1:15–24.

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

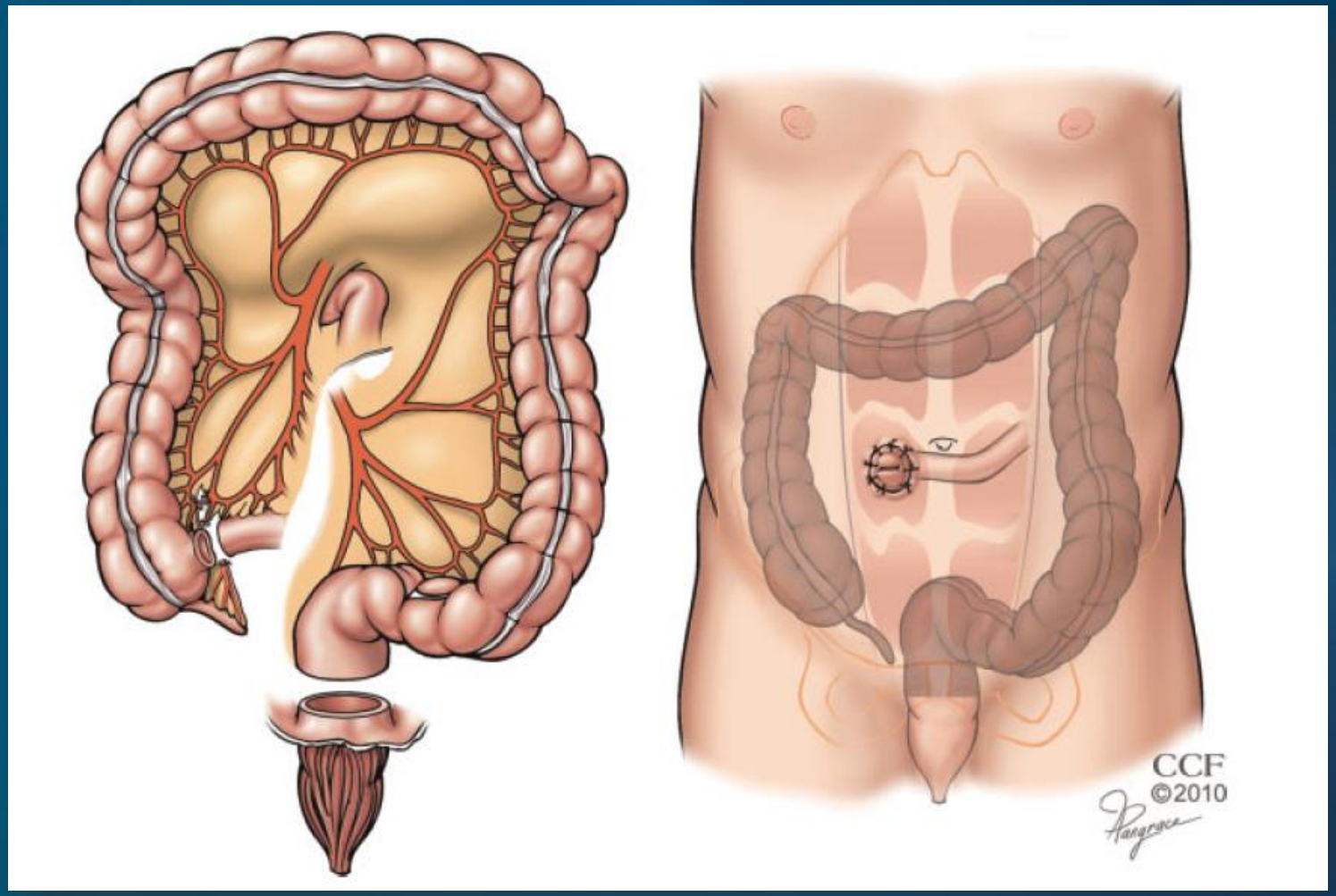
Other preop surgical considerations

- Ensure C.diff (toxin) and CMV colitis (flexi sig and biopsies) have been ruled out
- Avoid NSAIDs, opiates and anticholinergic agents
- DVT prophylaxis - YES
- Broad spectrum antibiotics - NO
- TPN for ‘bowel rest’ - NO
- EN with supplementation - YES

Surgery - planning

- Stoma education and marking
- Positioning
- Incision/access

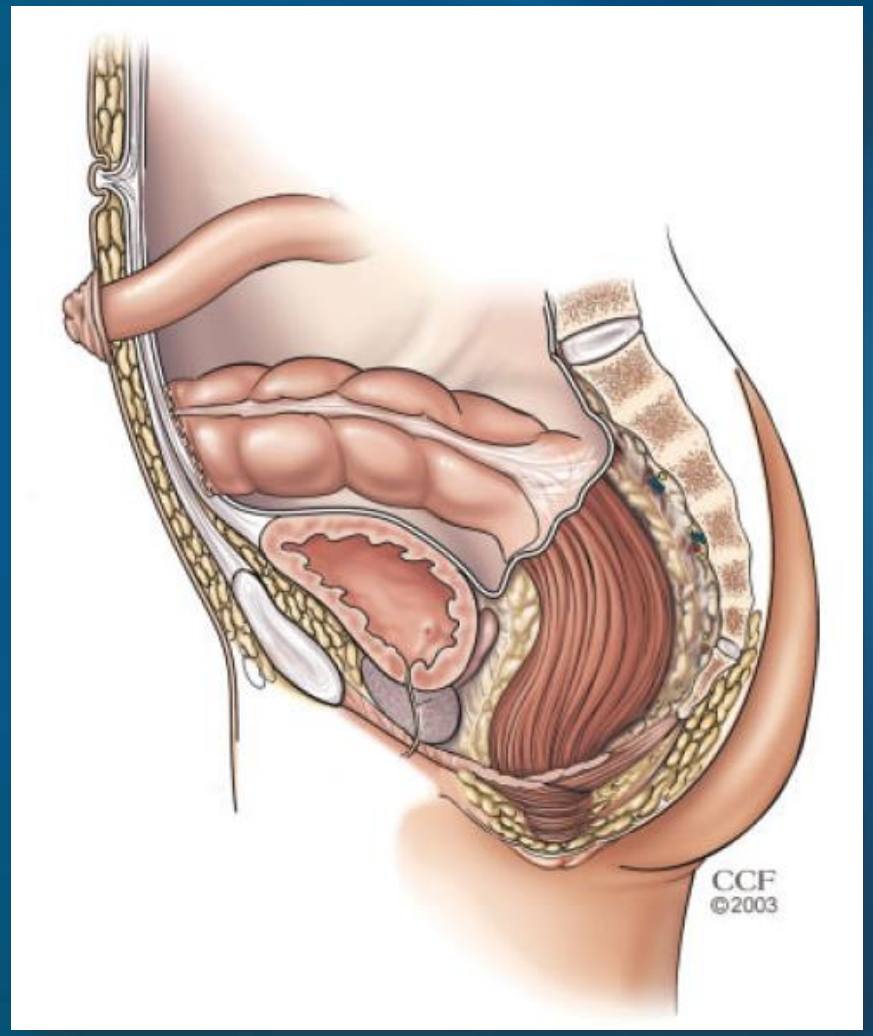
Emergency total colectomy with end ileostomy



- Omentum
- Ileocolic artery
- Mesentery division
- Rectosigmoid division

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Rectal stump



- Divided end and transanal rectal catheter
- Subcutaneous buried stump
- Sigmoid mucous fistula

Complications

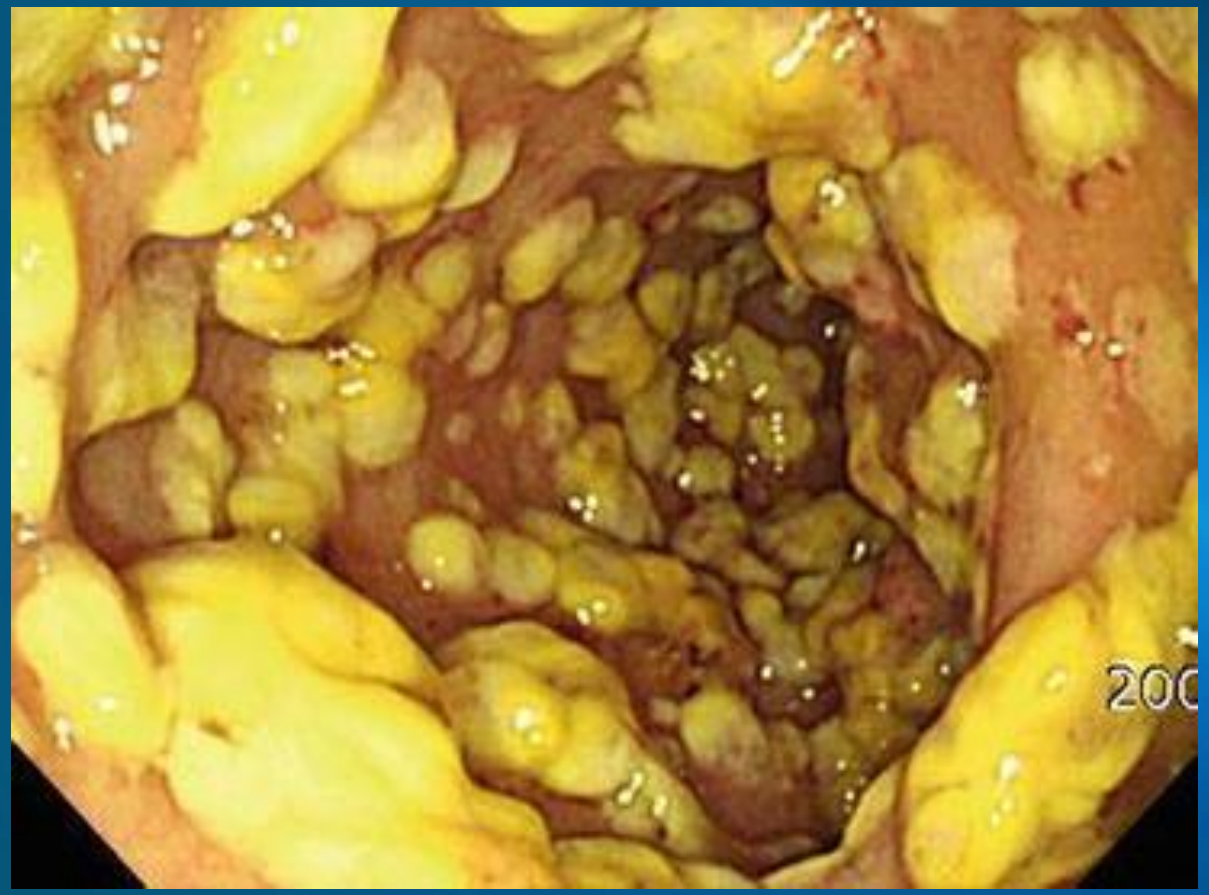
- Mortality ~2%
- Morbidity 40-50%
  - Wound infections/dehiscence
  - Intra-abdominal abscess
  - SBO
  - Stoma complication
  - Medical
    - Chest infection
    - DVT/PE
    - Portomesenteric venous thrombosis

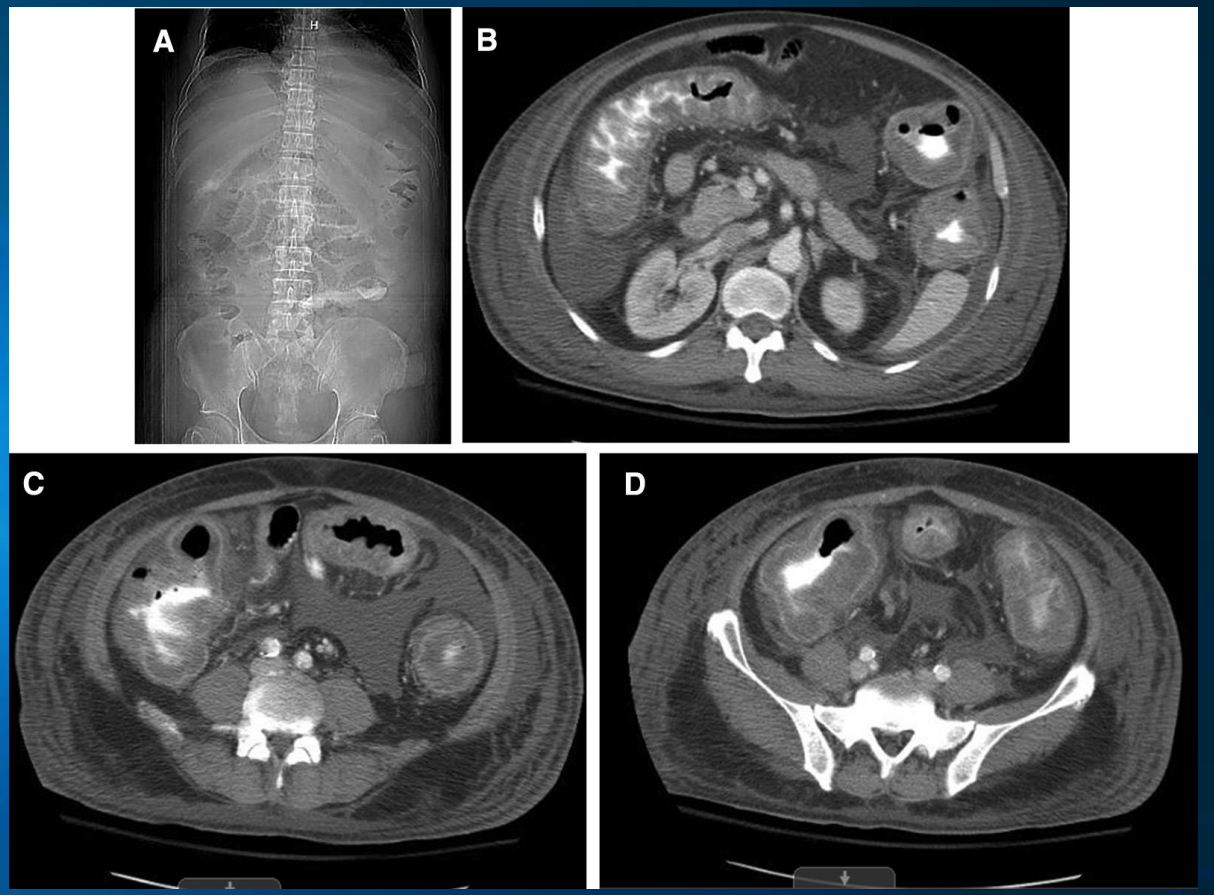
AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Clostridium difficile colitis *('Clostridioides')*

- Antibiotic association versus community acquired
- Over 300 toxigenic strains in Nth Am
- Diagnosis
  - Diarrhea > 3 times in 24hrs
  - Positive stool test for C. diff *or pseudomembranes on lower endoscopy*
- Only test stool if liquid





AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

C. Diff severity grading

Table 2
Severity grading scale - American college of gastroenterology.[16]

Mild	Moderate	Severe	Complicated
Diarrhea only	Diarrhea Any additional sign or symptom not meeting Severe or Complicated criteria	Diarrhea WBC>15,000 cells/μL Serum albumin <3 g/dL Abdominal tenderness	Any of the following: Hypotension (with or without vasopressor use) End organ failure Altered mental status Fever >38.5° Ileus or abdominal distention or tenderness WBC>35,000 cells/μL Serum lactate >2.2 mmol/L Admission to the ICU

Zar FA, Bakkanagari SR, Moorthi KMLST, Davis MB. A comparison of vancomycin and metronidazole for the treatment of *Clostridium difficile*-associated diarrhea, stratified by disease severity. *Clin Infect Dis*. 2007;45:302–307.

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Medical treatment

- Metronidazole
- Vancomycin

- FMT
  - *Faecal microbiota transplant*

- Mabs
- Immunoglobulin

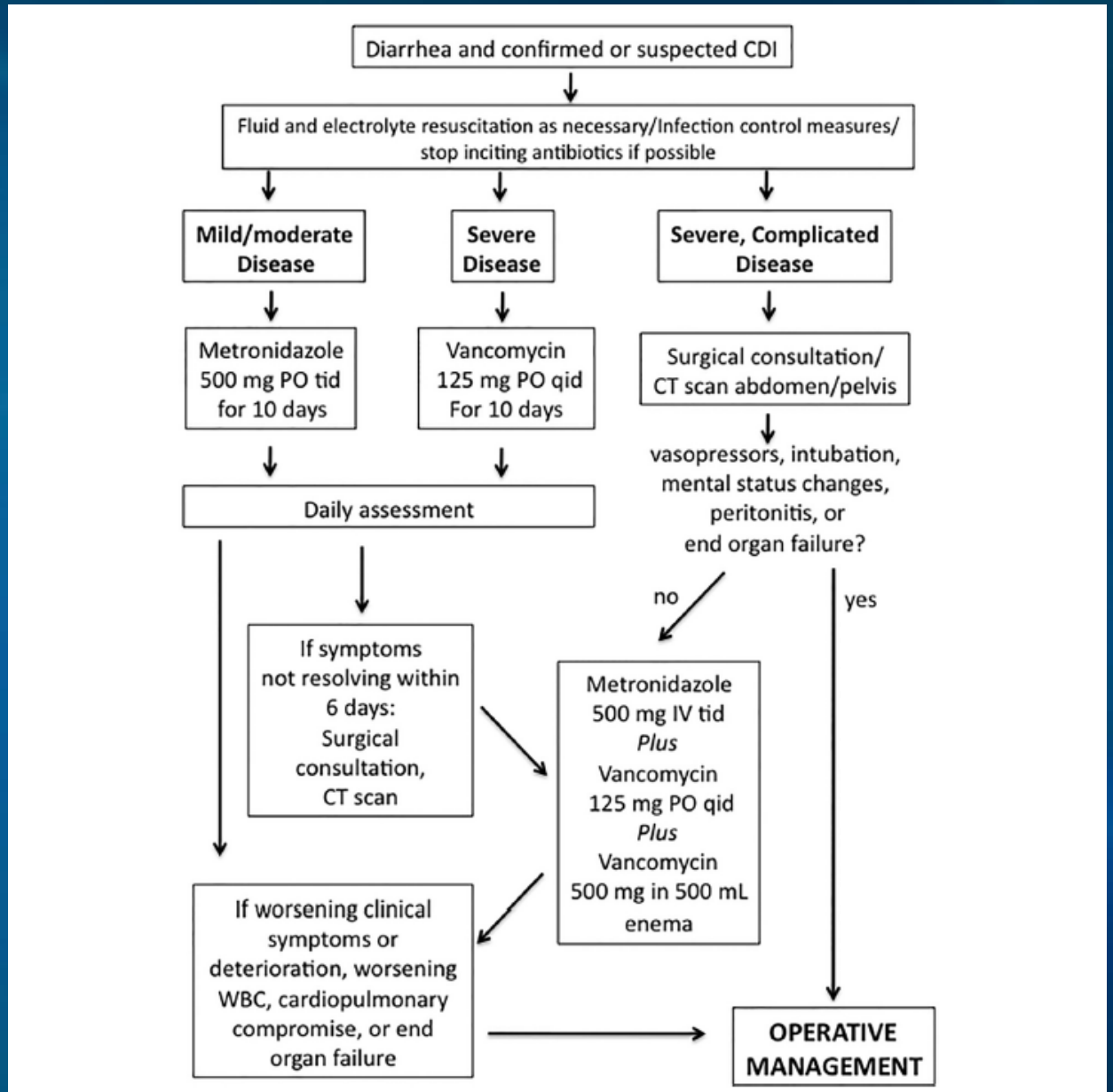


Fig 5. Surgical consultation and treatment strategies for CDI. (From Brian S. Zuckerbraun MD, University of Pittsburgh.)

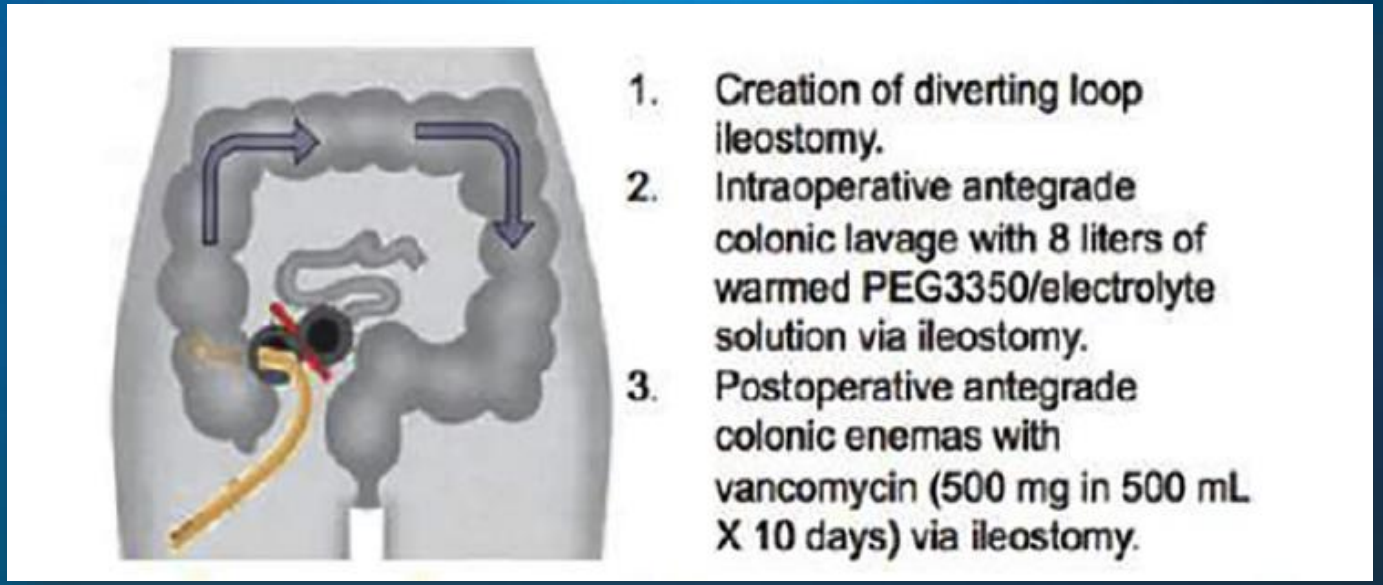
‘Fulminant colitis’
Absolute indications for colectomy

- Toxic megacolon
  - Total or segmental colon diameter >5.5cm
- Perforation
- Abdominal compartment syndrome
- Multiorgan dysfunction

Surgical strategies

- Subtotal colectomy and end ileostomy

- Diverting loop ileostomy and antegrade colonic lavage



1. Creation of diverting loop ileostomy.
2. Intraoperative antegrade colonic lavage with 8 liters of warmed PEG3350/electrolyte solution via ileostomy.
3. Postoperative antegrade colonic enemas with vancomycin (500 mg in 500 mL X 10 days) via ileostomy.

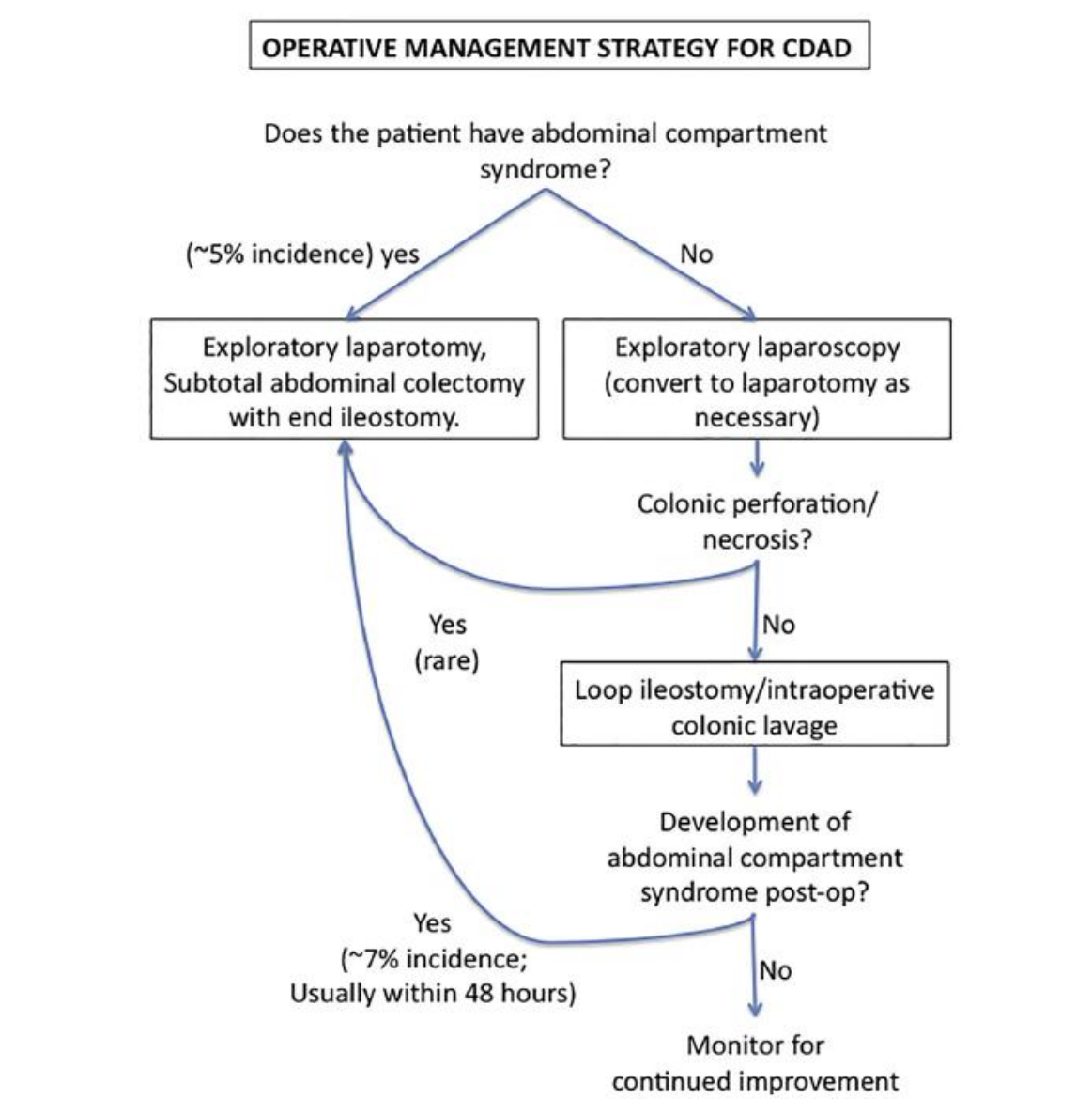
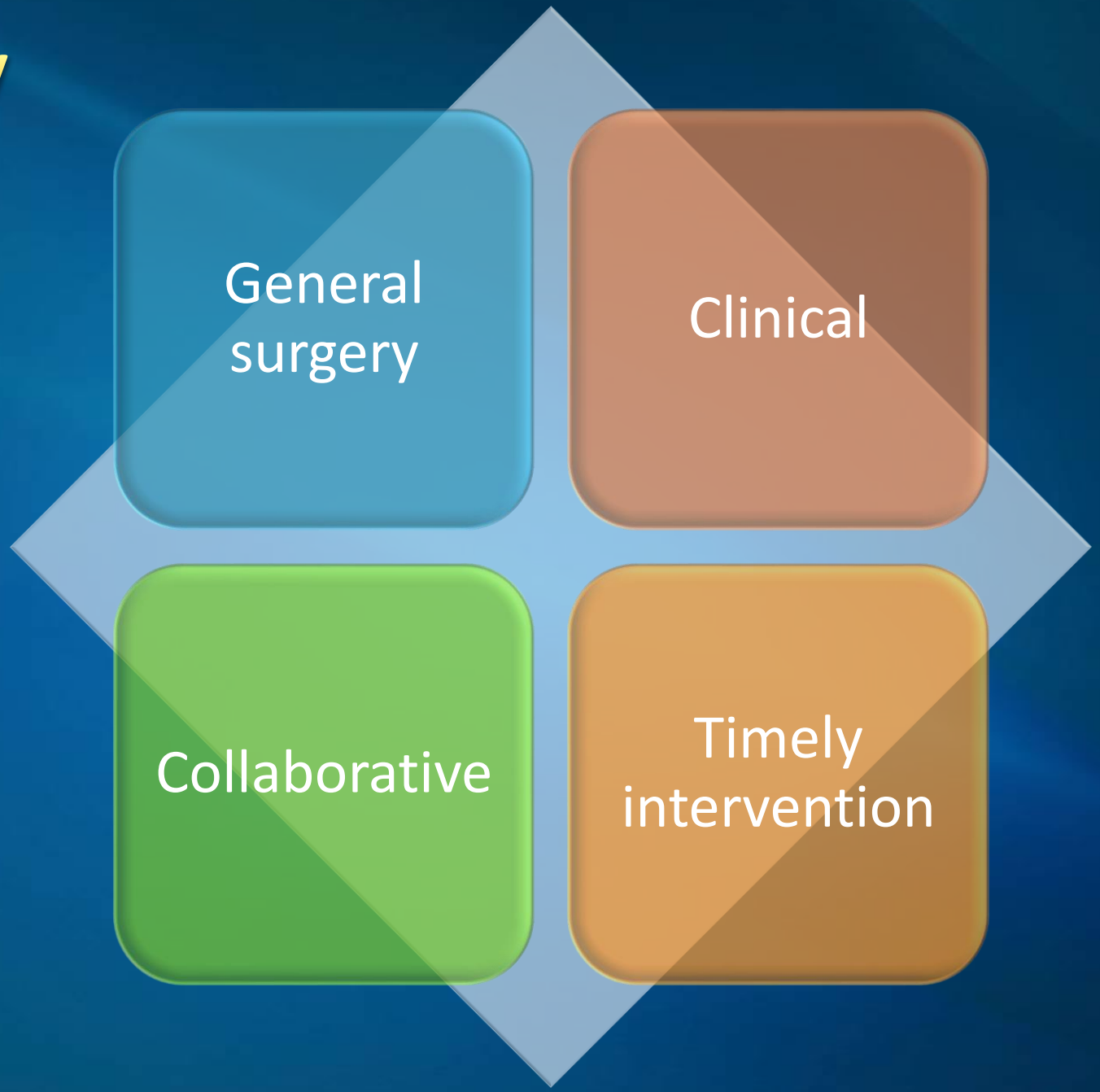


Fig 6. Operative management strategy for CDI. (From Brian S. Zuckerbraun MD, University of Pittsburgh.)

Neal MD, Alverdy JC, Hall DE, Simmons RL, Zuckerbraun BS. Diverting loop ileostomy and colonic lavage: an alternative to total abdominal colectomy for the treatment of severe, complicated *Clostridium difficile* associated disease. Ann Surg 2011;254:423-7; discussion 427-9.

Summary



AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai