Dr Alasdair Patrick
Gastroenterologist

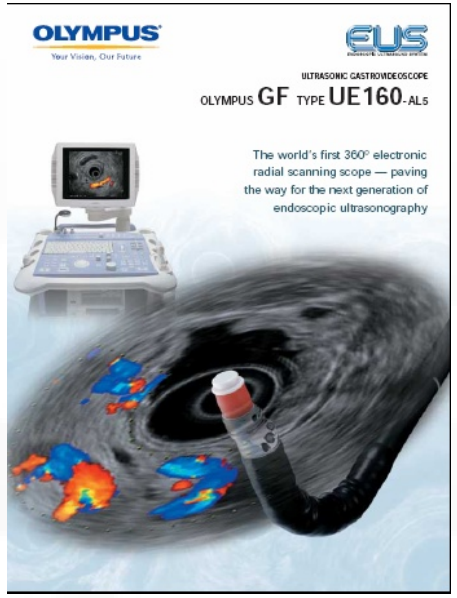
THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

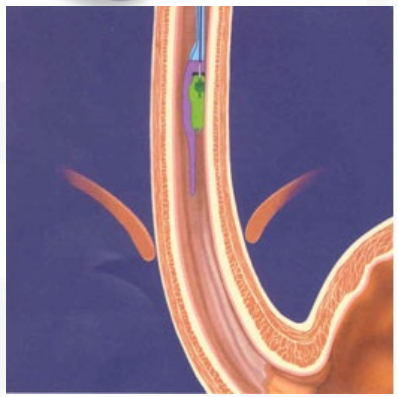
Royal Free Hampstead NHS
NHS Trust

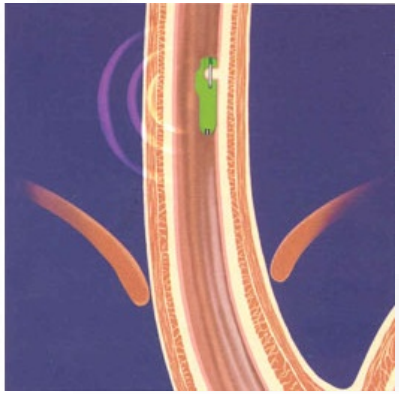
Singapore General Hospital
SingHealth

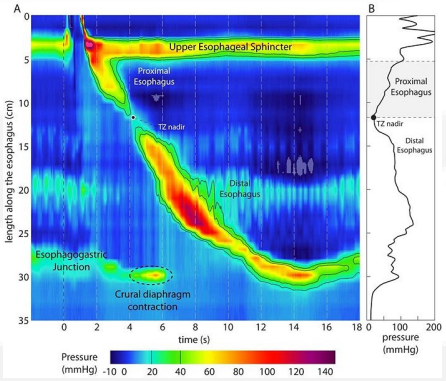
COUNTIES MANUKAU DISTRICT HEALTH BOARD
A Community Partnership

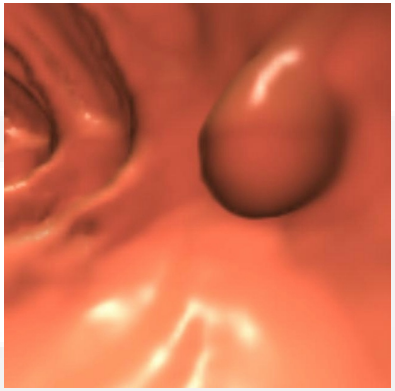
MACMURRAY
GASTROENTEROLOGY
DIGESTIVE DISEASES & ENDOSCOPY











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MACMURRAY CENTRE

Brand new facility in Remuera

5 Gastroenterologists
Upper GI surgeons
Lower GI surgeons
Dietician
Psychologist
Clinical nurse specialists

<u>Comprehensive digestive disease centre</u>
Consultations
BRAVO
pH/Impedance
Manometry
CT colonography
Full endoscopy services

MACMURRAY GASTROENTEROLOGY
DIGESTIVE DISEASES & ENDOSCOPY

MACMURRAY
GASTROENTEROLOGY
DIGESTIVE DISEASES & ENDOSCOPY

How to investigate diarrhea!

Dr Alasdair Patrick
Gastroenterologist

MacMurray Gastroenterology
CMDHB
University of Auckland

Overview

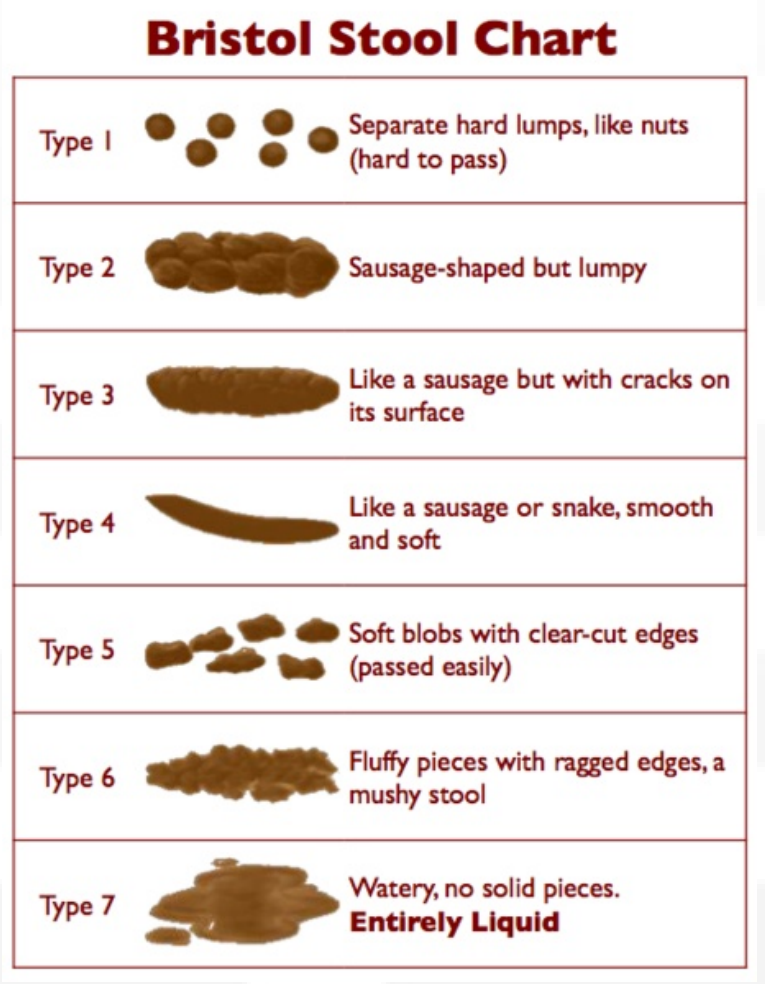
- Background
  - History and examination
- Framework for diagnosis
  - Acute
  - Chronic
- Summary
- 5 Cases

Definition of diarrhea

- Stool weight in excess of 200g per day

Definition

- “Ask the patient”
- Patients vary enormously in what they call diarrhea
  - Consistency
  - Quantity
  - Frequency
  - Fecal incontinence
- AGA definition is reduced stool consistency

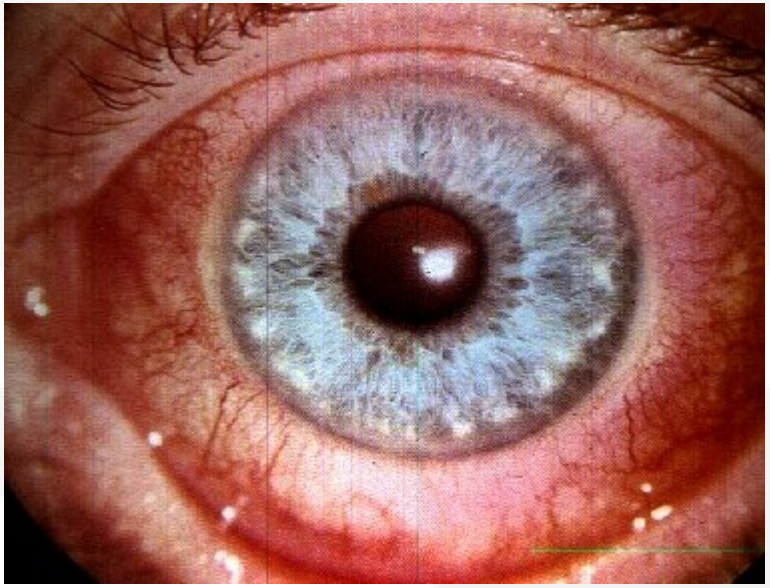


History

- Clear understanding of what the patient means by diarrhea
- Stool characteristics
- Duration and onset
- Alarm symptoms
- Nocturnal symptoms
- Extra intestinal symptoms
- Risk factors
  - Travel, contacts, family history

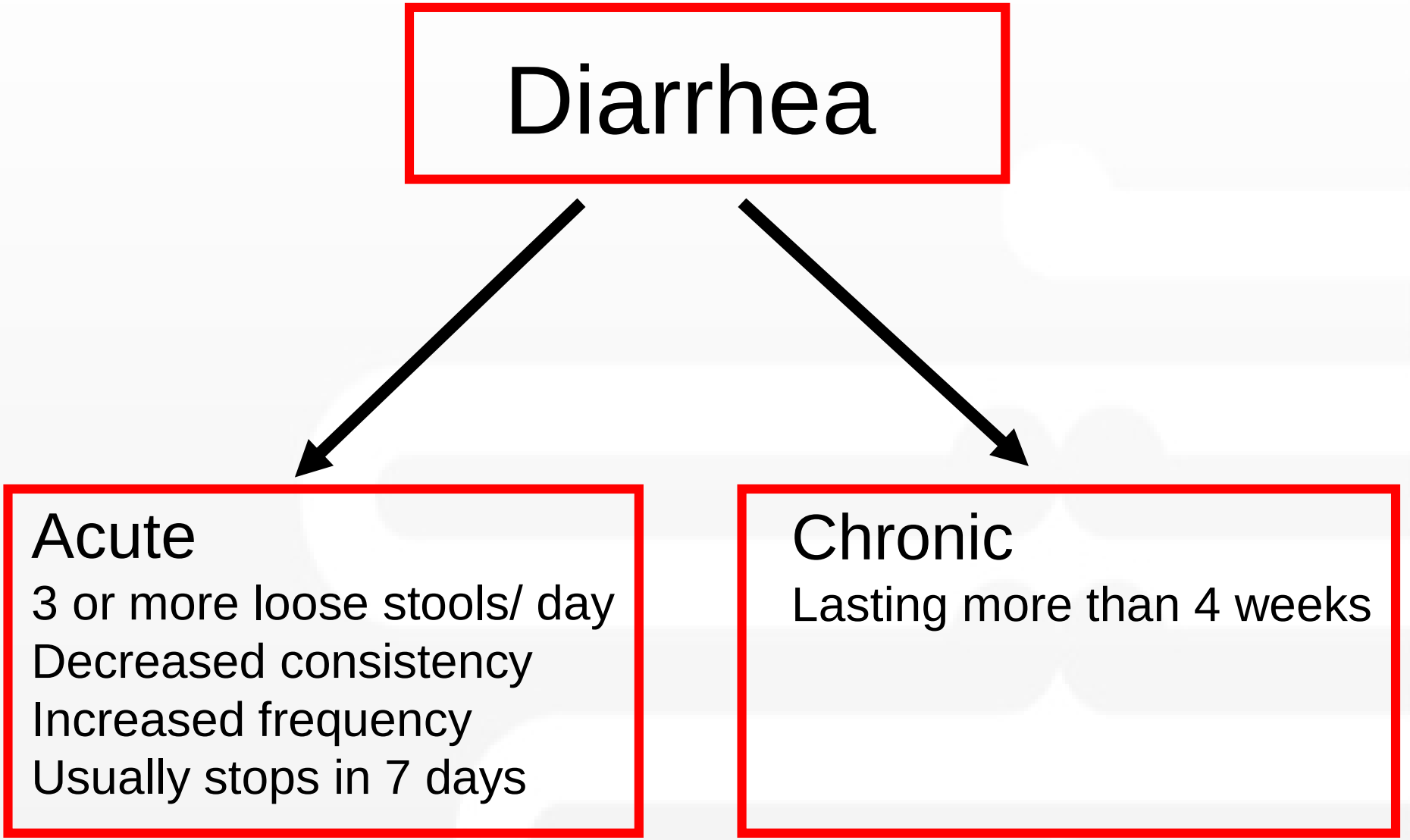
Examination

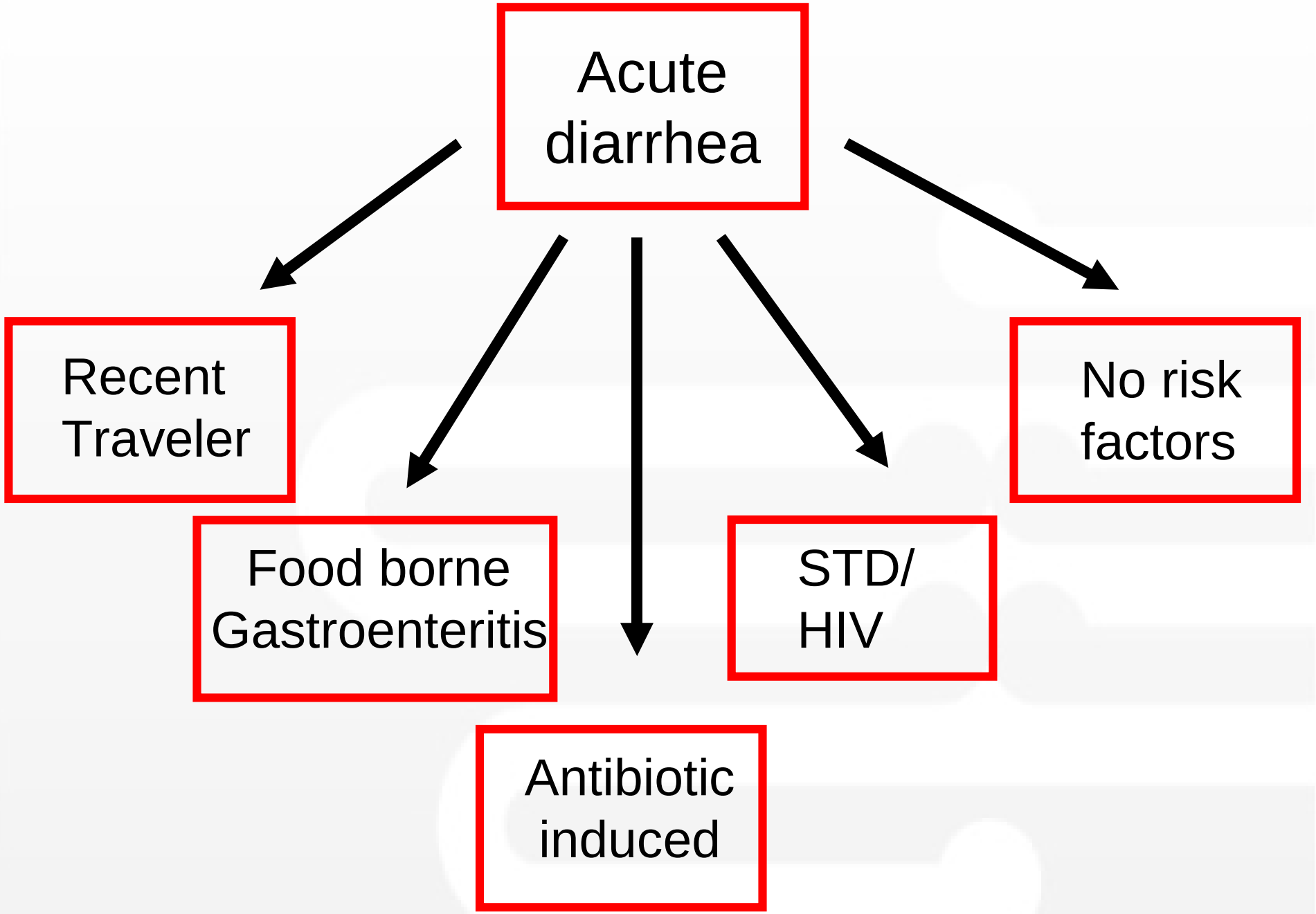
- Usually unhelpful for diagnosis
  - Check fluid balance
  - Abdominal/PR mass
  - Lymphadenopathy
  - Wasting
  - Mouth ulcers
  - Episcleritis



Investigations

- Clues to serious pathology
  - Blood tests
    - FBC and iron studies
    - U & E
    - Albumin
    - CRP and/or ESR
  - Stool specimen X3
    - C difficle
    - Pathogens culture and sensitivity
  - Transglutaminase antibodies

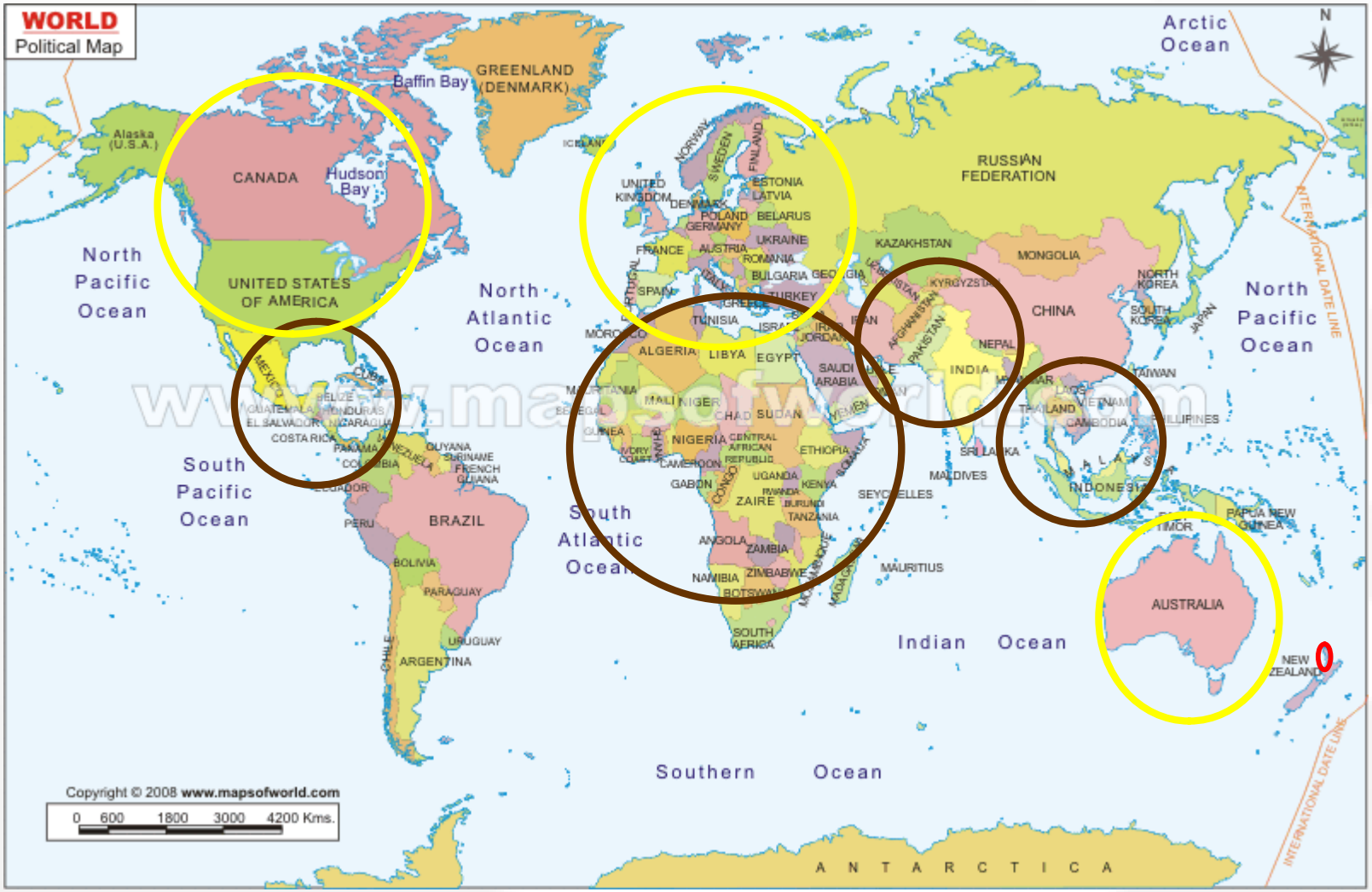

Diarrhea
Acute
3 or more loose stools/ day
Decreased consistency
Increased frequency
Usually stops in 7 days
Chronic
Lasting more than 4 weeks


Acute diarrhea
Recent Traveler
Food borne Gastroenteritis
Antibiotic induced
STD/ HIV
No risk factors

Travelers diarrhea

- Typical symptoms
  - Abrupt onset of cramps followed by watery diarrhea
  - 3-8 stools/day
  - Lasts 1-5 days
- Symptomatic treatment
  - Glucose containing electrolyte solution
    - Pinch of salt, ½ tsp sugar in glass of fruit juice
  - Reduced intake of fruit and vegetables
  - Loperamide 2mg (max 16mg/day)

Travelers diarrhea



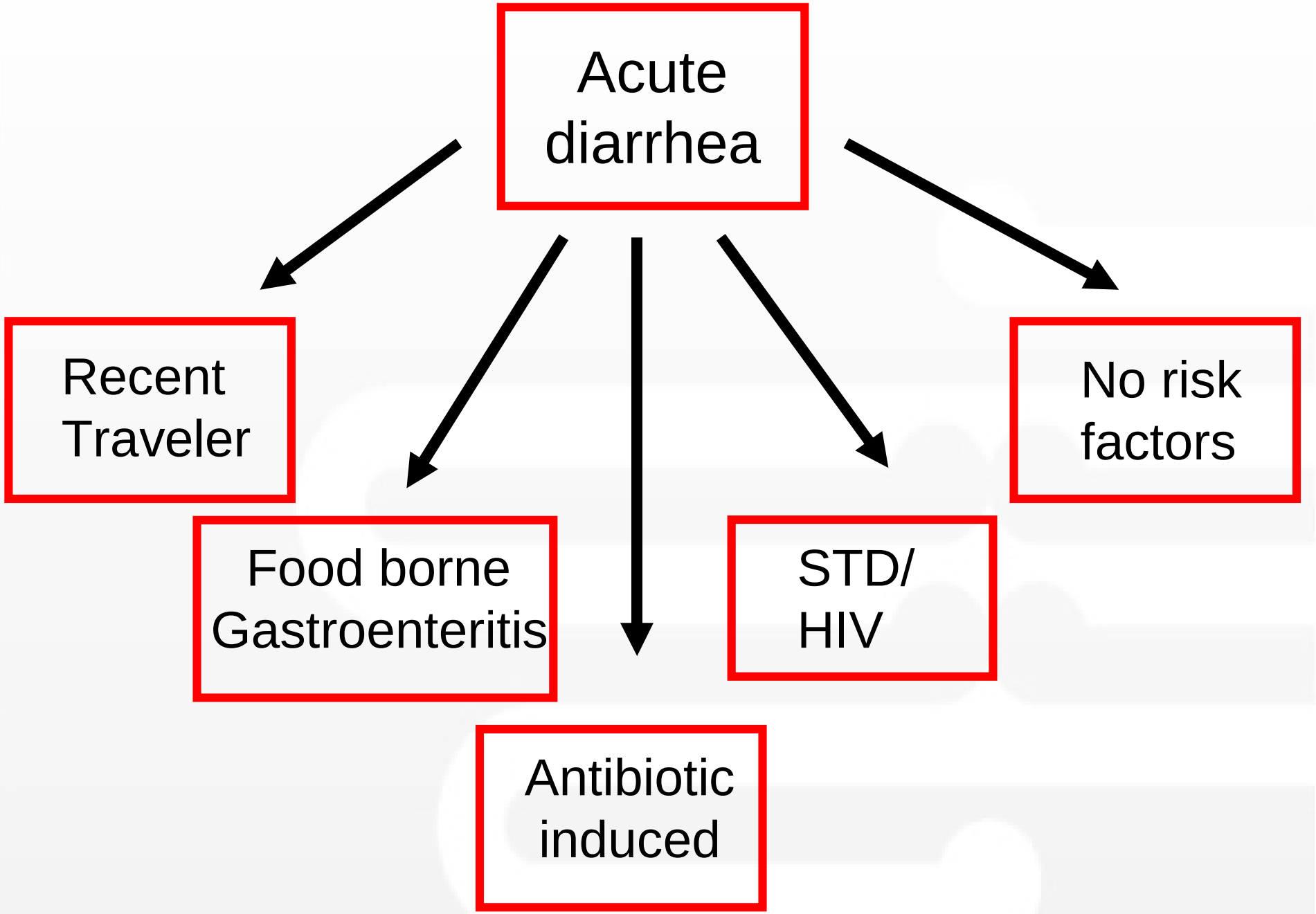
Travelers diarrhea

- If from low risk area is likely food borne and self limiting
- If from a high risk area then consider early empirical ciprofloxacin 500mg bd
  - If diarrhea persists check stool and treat appropriately
    - WCC up in E coli, shigella and camplyobacter
    - Variable in the others

Pathogen	Developed %	Developing %	Traveler %
Rotavirus	20-45	15-40	<10
Norwalk + other	5-20	5-10	0
Campylobacter	5-10	5-10	5-15
Etoxogenic Ecoli	<5	10-40	10-40
Epath Ecoli	<5	<5	<5
Shigella	5-10	5-10	10
Salmonella	<5	<5	5-10
Giardia	<5	<5	<5
Unknown	40	35-40	20

Enterotoxigenic E coli

- Fecal-oral transmission from food or water
  - Incubation 1-3
  - Profuse watery diarrhea for 3-4 days
- Self limiting
- No treatment required but cipro will shorten duration of symptoms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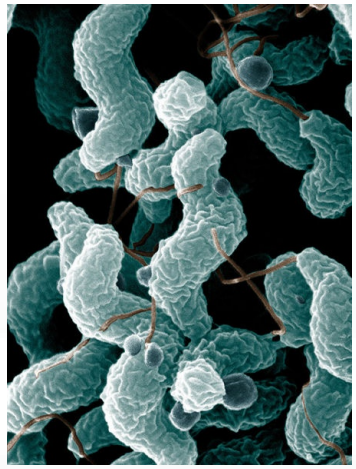
Incubation period gives clue to bug

- <6 hours due to preformed toxin
  - Staph, Bacillus
- 8-16 hours due to in-vivo toxin production
  - Clostridium species
- >16 hours due to tissue invasion
  - Salmonella, shigella, campylobacter, yersinia
  - Rotavirus
  - Can be bloody

Number of cases in NZ in 2008

- Campylobacter 6693
- Cryposporidiosis 764
- Giardia 1662
- Salmonella 1346
- Shigella 113
- VTEC/STEC 128
- Listeria 27
- Rotavirus ??

Campylobacter

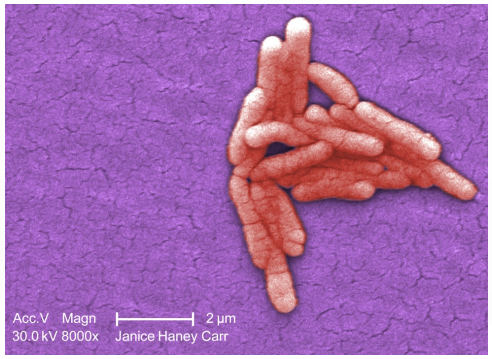


- Fecal-oral especially raw chicken
- Incubation period 1-7 days
- Prodrome headache and fevers
- Abdominal pain, vomiting and bloody diarrhea
- Lasts less than 7 days
- Antibiotics controversial

Giardia

- Spread by ingestion of cysts that can survive 2-3 months in cold water
- Incubation period 1-2 weeks
- Most infections asymptomatic
  - Insidious IBS like symptoms and constitutional
  - Malabsorbtion
- Test with stool antigen
  - 3 stools 2 days apart
- Treat with Metronidazole
  - 2g od for 3/7

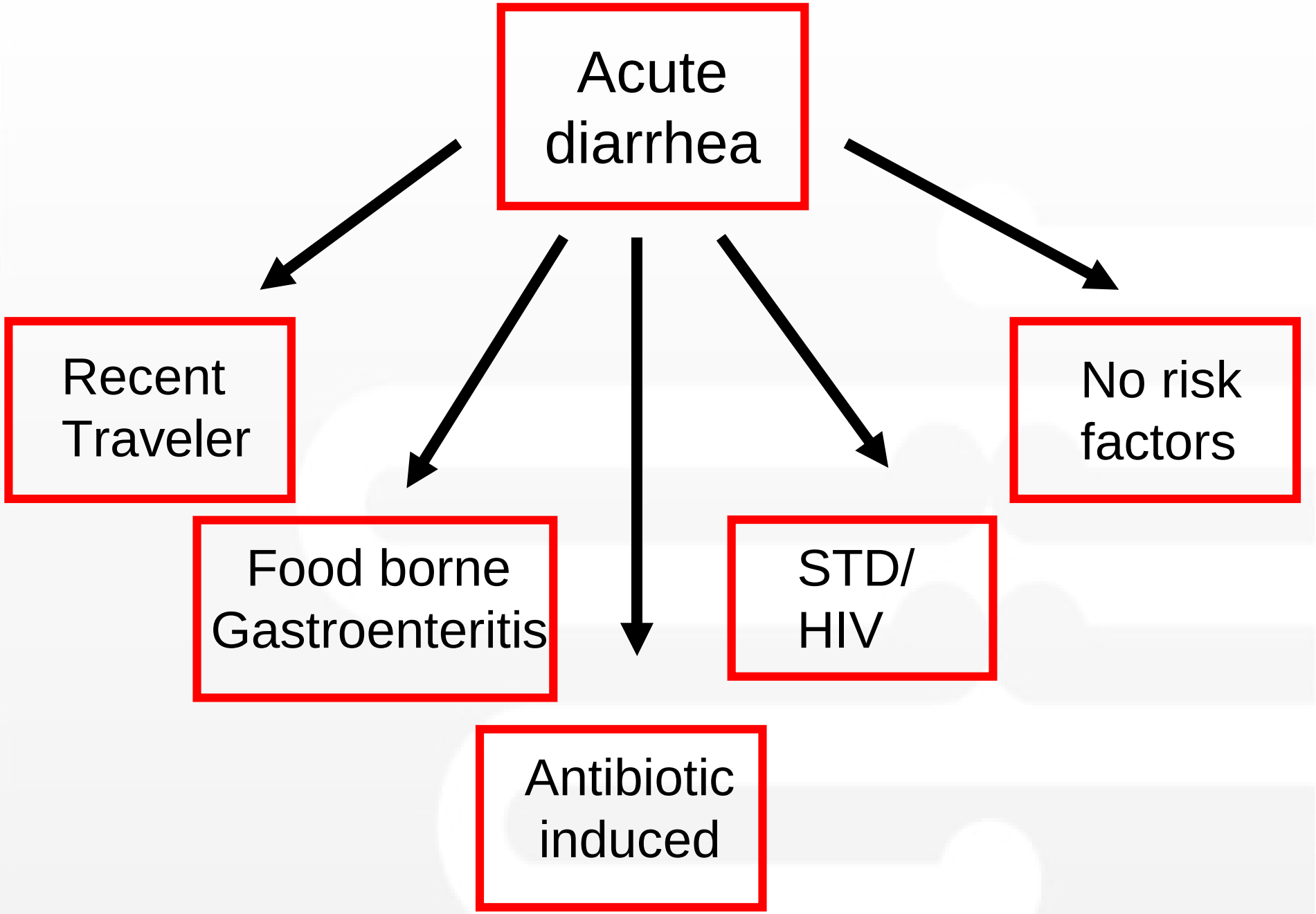
Salmonella



- From eggs and poultry
- Gastroenteritis
  - 8-48 hour incubation
  - Fever/ chills/ enteritis for 3-7 days
  - No treatment required
- Typhoid fever
  - 5-21 days
  - 7 day prodrome then disseminated symptoms
  - Antibiotics and refer

Transmission	Microbes
Water	Vibro/Norwalk/Giardia/Crypto
Poultry	Salmonella/Shigella/Campylobacter
Beef	Hemorrhagic Ecoli
Seafood	Vibro/Salmonella/HepA
Diary	Listeria
Eggs	Salmonella
Mayonnaise	Staph food poisoning
Fried Rice	Bacillus Cereus
Canned veges/fruit	Clostridium species
Animal to person	Salmonella/Campylobacter/Giardia
Day care centers	Shigella/campylo/crypto/giardia
Hospitals/antibiotics	C diff
Pools/rivers	Giardia/crypto

Organism	Therapy
amoebiasis	metronidazole
Campylobacter jejuni	erythromycin or quinolone
cholera	tetracycline or quinolone
Clostridium difficile	metronidazole
cryptosporidiosis	paromomycin but treatment often unhelpful
enteropathogenic *E coli*	symptomatic treatment only but quinolone if immunocompromised, elderly, has comorbid conditions or is severely ill
enterotoxic *E coli*	symptomatic treatment only but quinolone if immunocompromised, elderly, has comorbid conditions or is severely ill
giardia	metronidazole
Norwalk virus	symptomatic treatment only
Rotavirus	symptomatic treatment only
Salmonella	symptomatic treatment only but quinolone if immunocompromised, elderly, has comorbid conditions or is severely ill
Shigella	quinolone
typhoid	intravenous ceftriaxone or quinolone if sensitive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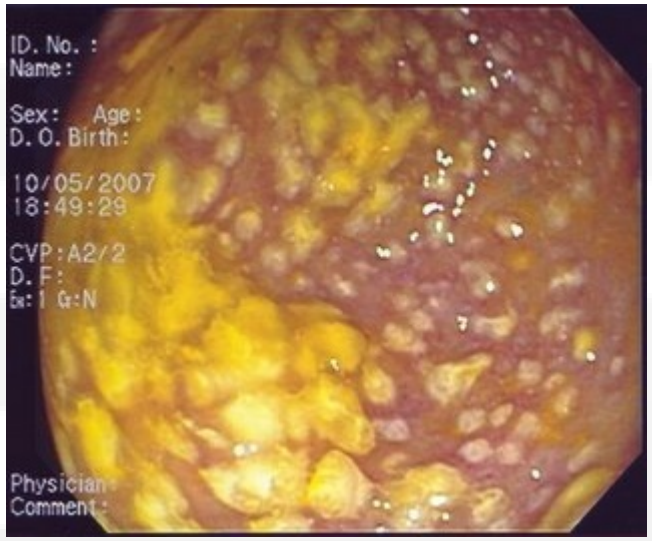
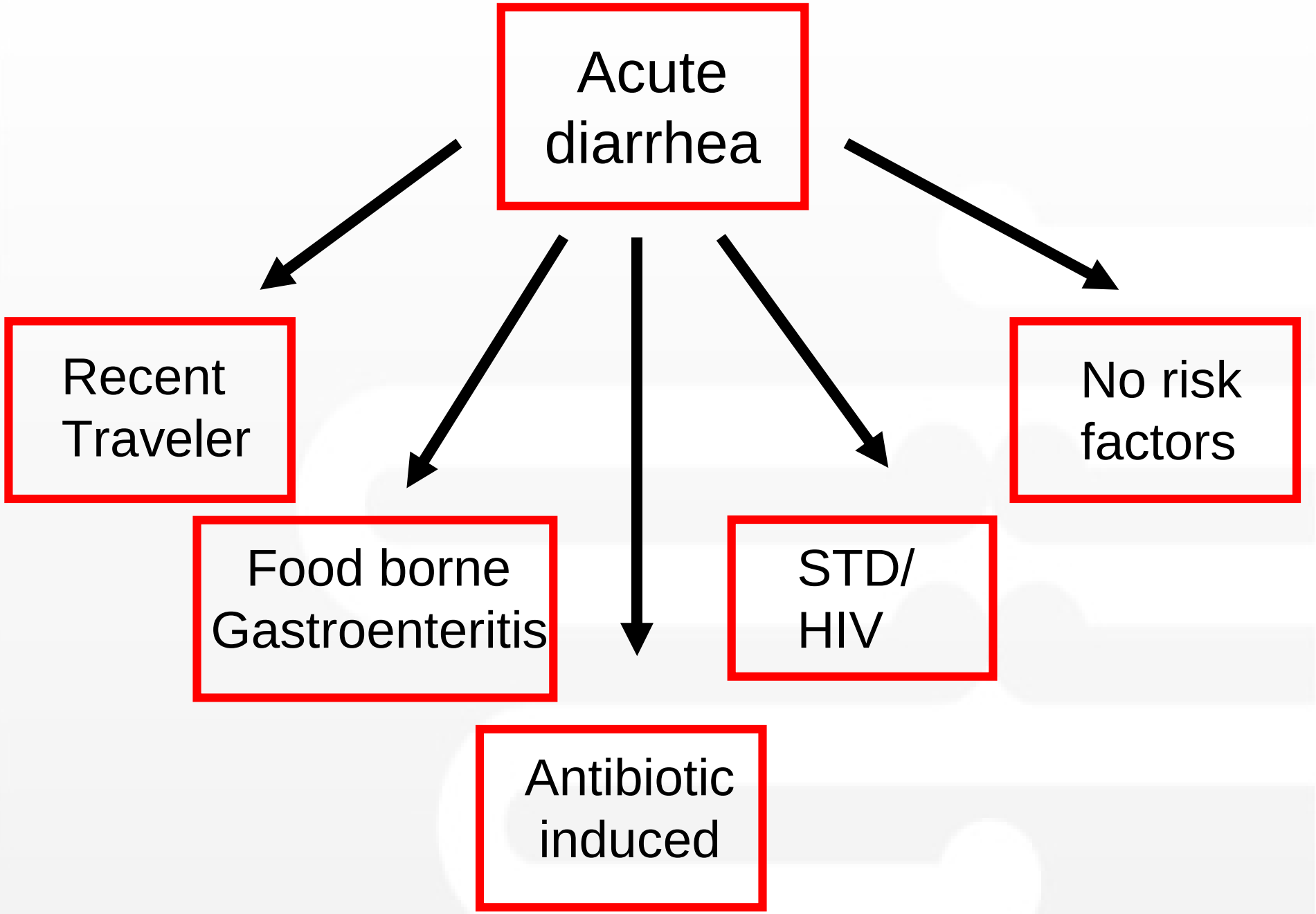
Antibiotic induced

- If any recent broad spectrum antibiotics
  - Can be due to antibiotic or C diff
  - Stop antibiotic
  - After 3 days check for C diff toxin
  - 25% of people recently treated are colonized

Clostridium difficile

- Acquired by 20% of hospitalized patients
- Can occur up to 10 weeks after exposure
- Stool antigen only 69-87% sensitive
  - If suspicious refer for endoscopy
- Stop antibiotic
  - Metronidazole 400mg tds
  - Probiotics
- Relapse is common

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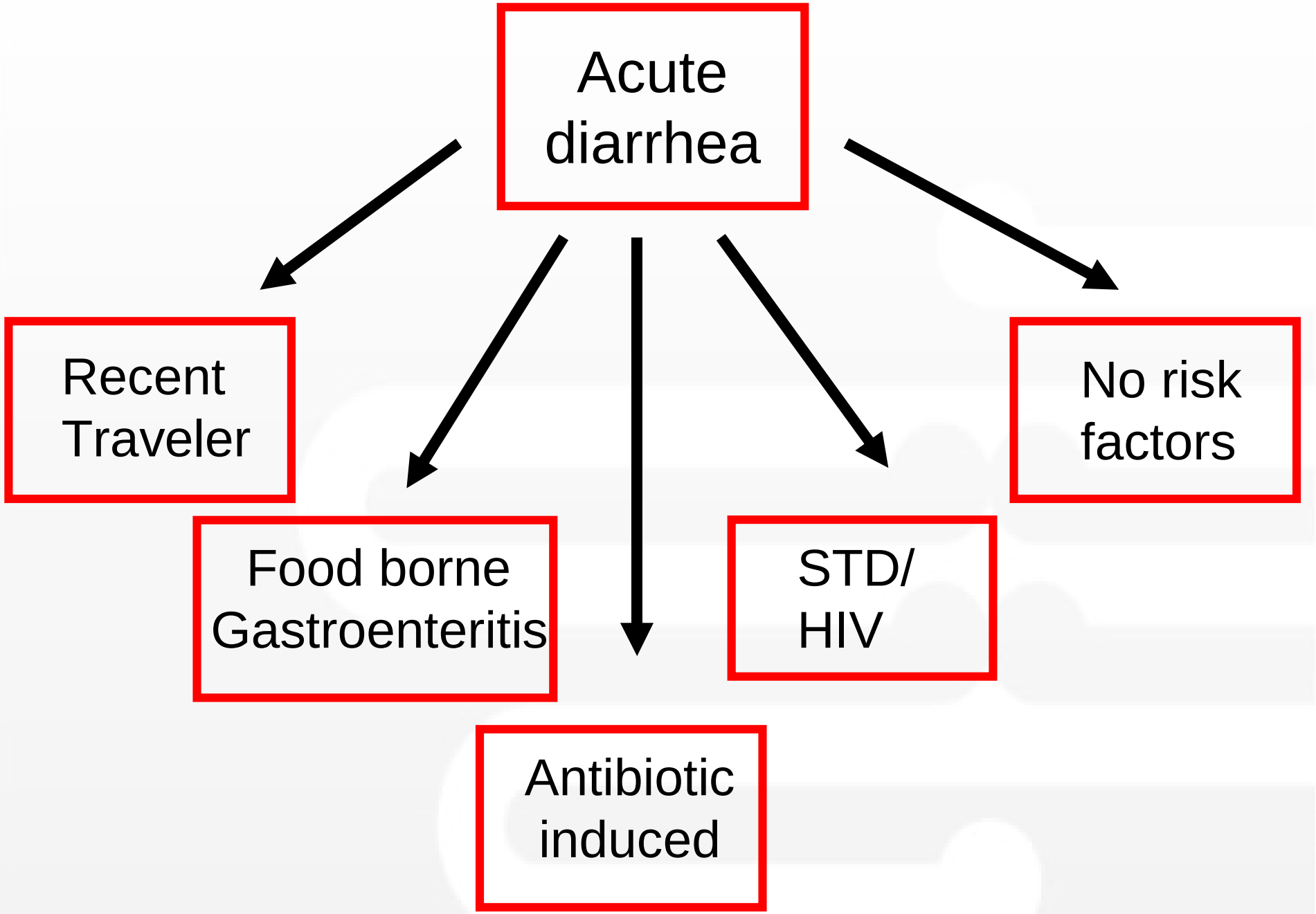
STD/HIV

- Consider risk factors
  - Unprotected sex, anal sex, HIV risk factors
- STD that can cause diarrhoea
  - HIV
  - Shigella/ Salmonella
  - E Histolytica
  - Campylobacter
  - Giardia
  - Chlamydia/gonorrhea/herpes proctitis
  - Amoebiasis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Acute diarrhea and no risk factors

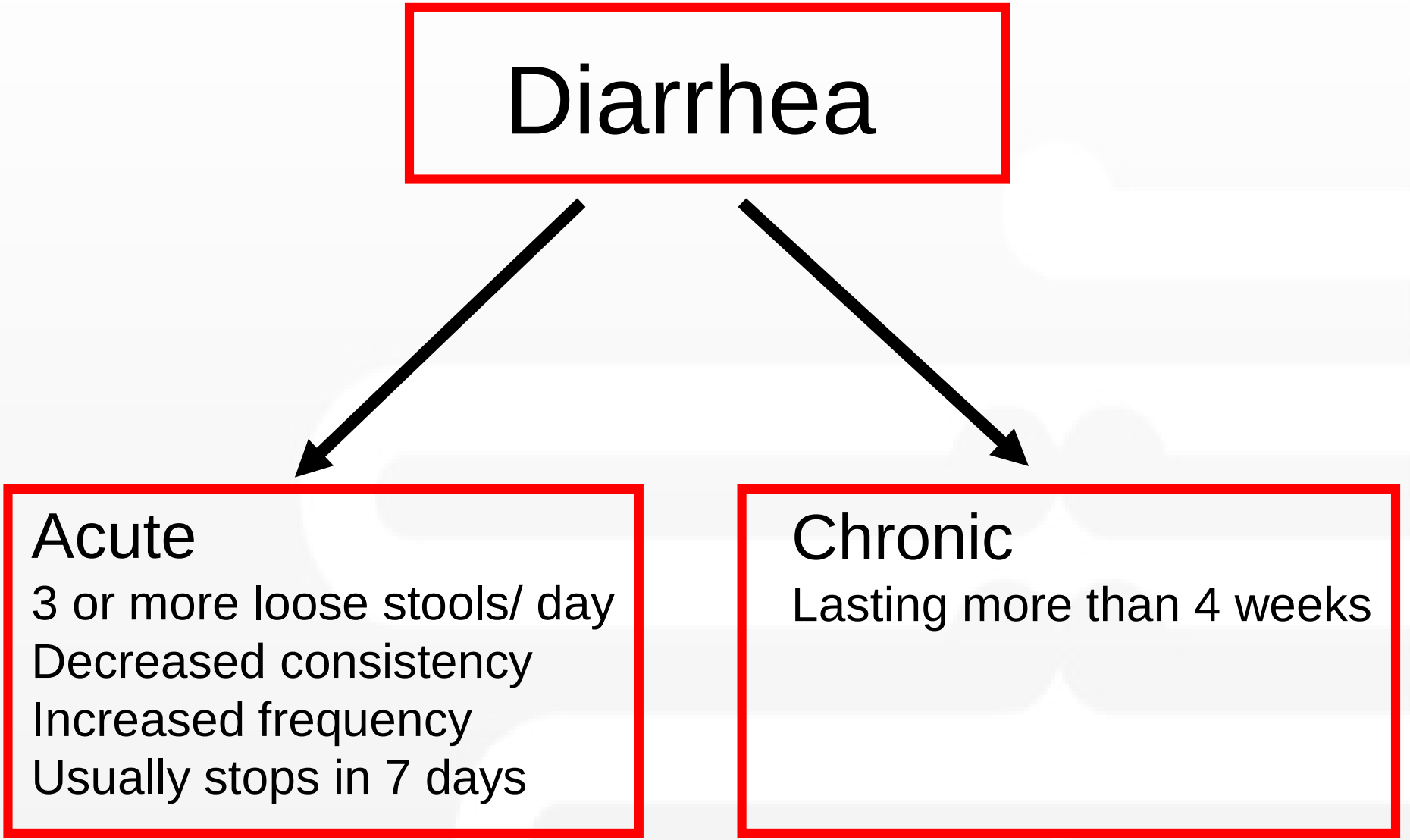
- Often Norwalk or Rotavirus
- Usually self limiting
  - Low residue/lactose free diet
  - Observation

Rules of thumb for referral to hospital (acute):

- Take a history
  - Patient is elderly with multiple co-morbidities or poor mobility
  - PR bleeding
  - Significant abdominal pain
  - C diff not settling
- Examine the patient
  - Patient is toxic
  - Patient has postural hypotension or dehydration

If diarrhea persists for 2 weeks

- Check FBC, U & E and creatinine
- Check stool
  - Culture
  - Ova
  - Cysts
  - Parasites
  - C diff toxin
- Try empirical metronidazole/ ciprofloxacin
- Refer after 3-4 weeks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Chronic diarrhea

- Specific diagnosis can be made in 90%
- Must do rectal exam
  - Looking for rectal cancer
- 3 stool specimens for culture and sensitivity include C difficile
  - Giardia, amoebiasis, C difficile
- Check FBC, U&E, ESR, CRP, Albumin, TTG
- Refer

Chronic diarrhea

- Fecal fat screen
  - Malabsorption
- Bile salt malabsorption
- TFT, drug history etc
- Colonoscopy if over age 45 or alarm features
  - Inflammatory
  - Diverticular disease
  - Cancer
  - Normal
    - Irritable bowel syndrome

Diverticular disease

- 90% arise in the sigmoid colon
- Cause a range of symptoms
  - Functional
  - Infective
  - Bleeding
- All should have a colonoscopy to exclude another cause

Diverticular disease

- High fiber diet
- Trial of fecal bulking agent
- Antispasmodics for pain
- Intermittent antibiotics if suggestion of inflammation
- If recurrent severe symptoms consider sigmoid colectomy

Bowel cancer

- Vast majority asymptomatic (76%)
- 2700 NZers develop this per year
  - 90% over the age of 50
  - 1200 die annually
- 2nd most common Ca in men and woman
- Screening announced May 2008
  - Awaiting pilot study

Irritable bowel syndrome

- There is a physiologic basis
  - Altered gut sensitivity
  - Altered gut reactivity (motility, secretion)
  - Dysregulation of brain gut axis
- Treatment response = Dr-pt relationship
  - Education
  - Reassurance
  - Symptom control
  - Referral

Take home messages

- History
  - What do they mean?
  - Nocturnal symptoms?
  - Alarm symptoms?
- Examination
  - Dehydration
  - Abdominal masses
  - PR
- Acute
  - Travelers
  - Food borne
  - Antibiotic induced
  - STD
  - No risk factors
- Chronic
  - Many causes
  - Basic screen and consider referral

Case 1

- 23 year old well European female with diarrhea
- History
  - 6 months
  - Same frequency, softer stool
  - No nocturnal symptoms
  - No alarm symptoms
  - No recent travel
- Examination
  - Fluid balance

What other tests would you do?

- Stool specimens
  - Negative including giardia
- FBC, U&E, albumin, CRP, ESR normal
- Transglutaminase antibodies
  - Positive

- What is the diagnosis?
- What would you do?

Case 2

- 48 year old Indian lady with diarrhea
- History
  - 3 days severe 6/daily watery with cramps
  - 5 times at night
  - No blood, fever
  - Returned from Indian 6 days ago
- Examination
  - Not dehydrated

What other tests would you do?

- Stool specimens
  - Unable to obtain
- FBC mild neutrophilia
- U&E mild raised Cr, normal albumin
- CRP and ESR mildly raised

- What is the diagnosis?
- What would you do?

Case 3

- 45 year old Korean lady with diarrhea
- History
  - 8 years intermittent
  - Increased frequency and changed form
  - No nocturnal symptoms
  - No alarm symptoms but anxious
  - Father had bowel cancer at aged 55
- Examination
  - Normal PR, fluid status, no abdominal mass

What other tests would you do?

- Stool specimen
  - Normal
- FBC, U&E, CRP, ESR, albumin
  - Normal

- What is the diagnosis?
- What would you do?

Case 4

- 78 year old PI lady with diarrhea
- History
  - 8 months
  - Stool leaks out constantly even at night
  - No alarm symptoms
- Examination
  - PR empty rectum
  - Lax anal tone

What other tests would you do?

- FBC, U & E, CRP, ESR, albumin
  - Normal
- Stool specimen
  - Probably not useful

- What other history would you ask about?
- What is the diagnosis?
- What would you do?

Case 5

- 45 year old European man with diarrhea and recent antibiotics
- History
  - 3 weeks (antibiotics 5 weeks ago)
  - Increased volume, frequency and soft stools
  - No nocturnal or alarm symptoms
- Examination
  - Fluid status normal
  - Normal PR

What other tests would you do?

- WCC, CRP, ESR
  - Elevated
- Albumin and U&E
  - Normal

- What is likely diagnosis?
- What would you do?

Thanks

- Dr Alasdair Patrick
  - 021681323