Clostridium difficile

Care Homes IPC Study Day

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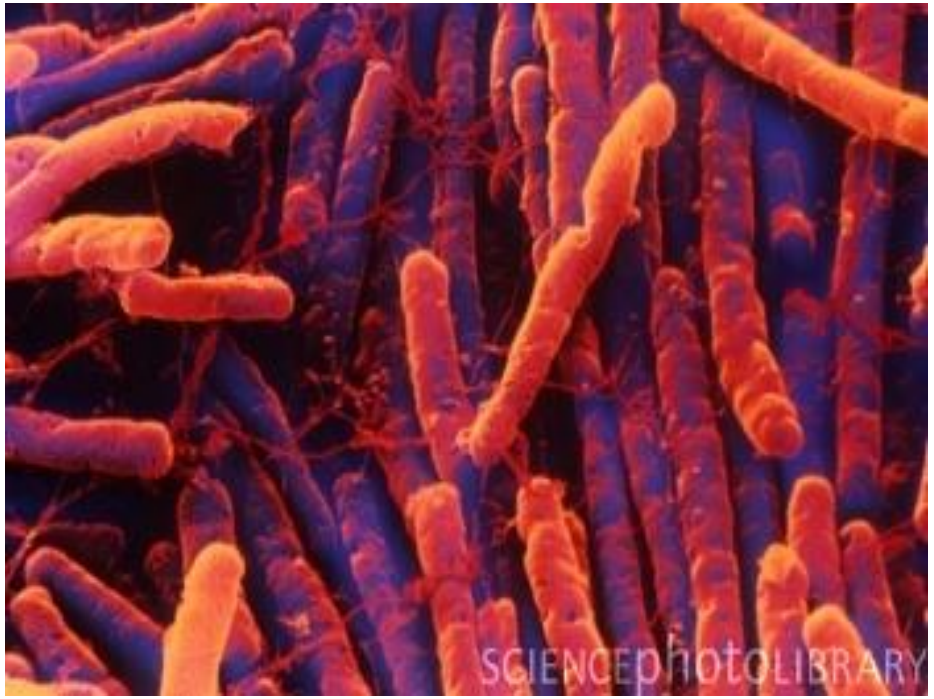
Clostridium difficile

- A spore forming Bacterium.
- Difficult to grow in the laboratory – hence the name



Introduction – *C.difficile*

- A bacterium that can cause diarrhoea that is usually associated with healthcare

- In many cases it causes a relatively mild illness, however occasionally and particularly in patients over the age of 65 years, it may result in serious illness and even death.

- The bacterium produces two toxins which are responsible for the diarrhoea and sometimes damage the cells lining the walls of the bowel.

Where is *C. difficile* found ?

- Present as one of the "normal" bacteria in the gut of up to 3% adults and more than 50% of infants up to a year old. Increasing to around 25% of elderly patients
- Healthcare environments

Wider scale – can be found in

- Farmyard and domestic animals
- Soil

Mode of transmission

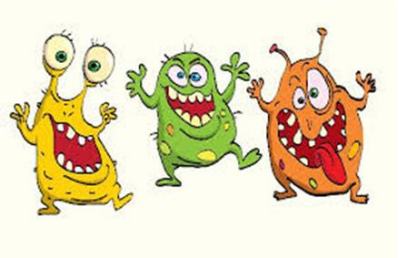
- Person to person spread from *C. difficile* bacteria or spores shed in faeces.

- Spores - can contaminate the environment and be transported on the hands of staff or residents
  - The bacteria is surrounded by a thick wall and becomes dormant
  - Resistant to heat and drying, remaining alive for long periods (5 months).
  - Protected from standard detergents - bleach based cleaners are required to kill the spores in the environment

Risk factors for *C.difficile*

- Age over 65
- Antibiotics
- Underlying illness, especially gastrointestinal
- Non-surgical gastrointestinal procedures
- Anti-ulcer medication
- Long duration or frequent hospital stays
- Weakened immune status
- Compromised nutritional status

How *C difficile* causes disease



- Your gut flora must be disrupted eg.
  - From antibiotics with antimicrobials
  - Gastrointestinal illness
- Be colonised or have come into contact with the bacteria or spores
- When the bacteria multiplies it produces toxins which irritate the lining of the gut – causing inflammation (colitis) and symptoms

C.difficile colonisation (antigen +ve)

- People can be colonised with the bacteria but not have the infection
- No symptoms
- But if the gut flora is disturbed eg have antibiotics…symptoms could develop

C.difficile infection

- The time between contact with *C.difficile* and symptoms starting is not known
- Symptoms can appear immediately after beginning antimicrobial therapy, or they may not develop until several weeks after it is completed.
- The disease is a continuum that can include asymptomatic carriage, diarrhoea, colitis, pseudomembranous colitis.

Symptoms

- Offensive smelling watery diarrhoea
- Abdominal pain / bloating
- Raised temperature
- Nausea/loss of appetite
- Raised WBC
- Colitis

How is *C.difficile* infection diagnosed?

- A clear clinical history is essential.
- Stool sample – testing for the toxins.
- Investigations such as sigmoidoscopy, biopsy or X-ray may sometimes be needed.

- *C.difficile* infection should be considered in any patient who develops diarrhoea and is taking an antibiotic, or has received a course of antibiotics in the past few months.

Infectious period

- Infectious whilst they have diarrhoea
- Considered to be recovered and non infectious when they are clinically well, including being asymptomatic for 48 hours.
- ***CLEARANCE SPECIMENS ARE NOT REQUIRED*** - toxin will be detected in the stool for about 6 weeks after recovery

Relapse

- Relapse is one of the most frustrating and challenging complications of *C.difficile*. About 20% of patients with *Cdiff* will relapse.
- Ways to help prevent relapse
  - If possible consider stopping any antibiotics and any proton pump inhibitors (PPI's)
  - Nutritional review to ensure a adequate and balanced diet
  - Use of probiotic products
  - Ensuring resident understands the importance of IPC and thorough cleaning
  - Explaining to residents & relatives the risk of relapse, preventative measures and what to look out for

Mrs Bloggs

- Mrs Bloggs is an 84 year old resident in your home. She has been with you for 5 years but went into hospital 2 months ago with an intestinal obstruction for which she had an operation – she has been back at the care home for 3 weeks. She normally has a good appetite but since her operation she has not felt like eating but is having Ensure supplements – although she doesn't like them. She started getting copious diarrhoea 2 days ago and has been diagnosed with *C.difficile*

You are contacted by Sue at the CCG who wants to know - has your resident….?

- Had antibiotics in the last 4 weeks?
  - What type were they
  - Are they high risk for Cdiff
- Been in hospital in the last 10 weeks?
  - Where and what dates
- Have gastric acid reducing meds eg PPI, antacids?
- Been linked with other Cdiff cases?
- Got any other major conditions including bowel conditions?

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Management of patient with *C difficile*

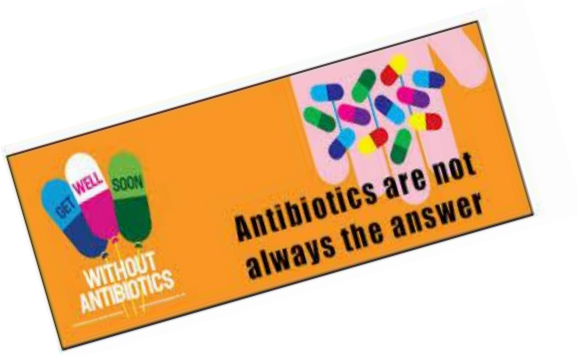
- If a resident has unexplained diarrhoea they should be assessed by the doctor
- Isolate until an infectious cause has been ruled out
- For elderly frail residents ensure they are drinking enough and maintaining hydration.
- If they deteriorate at any time contact the doctor
- They should be kept clean and comfortable
- Use a barrier cream to protect skin from excoriation

Treatment

- Doctor will assess condition – if unwell, dehydrated, distended abdomen they should be admitted to hospital.
- If symptoms are mild - oral metronidazole 400mg 3 x day commenced for 10-14 days.
- If symptoms are moderate or severe Vancomycin 125 mg 4 x day for 10-14 days and may need admission
- If improving - complete treatment course – if not improving must be reviewed.

Prevention of *C difficile*

- C difficile can be prevented by:
  - Prudent antibiotic prescribing
  - Effective hand hygiene & PPE
  - Environmental decontamination
  - Isolation of patients



Prudent antibiotic prescribing

- Follow local guidance on empirical antibiotic prescribing
- Avoiding use of high risk broad spectrum antibiotics especially in those at risk eg the elderly eg. cephalexin, ciprofloxacin, clindamycin, co-amoxiclav.
- Stopping inappropriate use overall eg for colds & flu
- Using recommended course lengths of antibiotics
- Delayed prescriptions or non-prescription pads
- Educating the public

Effective hand hygiene & PPE

- Wash hands with soap & water when caring for residents with *C.difficile*
- Use a good technique
- Wear gloves and aprons when caring for residents
- WHO - Five moments for hand hygiene
- Family members should be encouraged to wash the hands with soap & water

Environmental decontamination

- Standard cleaning products will not kill *C.difficile* spores
- A chlorine-releasing agent must be used for cleaning e.g Actichlor, milton at a strength of 1000ppm. Chlorine containing disinfectants must be made up fresh and discarded after 4 hours.
- Rooms or bed space must be cleaned at least daily, paying particular attention to bathroom & toilet areas.
- When a resident with *C.difficile* is recovered, or leaves, the room must be thoroughly cleaned and curtains changed

Isolation

- Residents with diarrhoea should be isolated until an infectious cause is ruled out
  - Single room with en-suite or designated commode
- Isolate until no diarrhoea for 48 hours and a normal stool has been passed
  - Monitor using Bristol Stool Chart
    - Diarrhoea = types 5-7
    - Formed = types 1-4
- If isolation is not possible cohort nurse
- Transfer only if essential and inform receiving area of residents CDI status in advance

Is there a risk to carers and relatives?

- There is very little risk unless these people have risk factors themselves:
- Any risk is reduced if they practice good standards of hygiene particularly good hand hygiene and cleaning of environments, especially bathrooms
- Visitors to any care setting should always be encouraged to wash their hands before and after visiting.

Summary

- Residents that have *C.difficile* infection must be:
  - Isolated whilst infectious
  - Monitored closely for hydration and signs of deterioration

- *C.difficile* infection can be prevented by:
  - Using Standard Infection Control Precautions at all times – **HAND HYGIENE**
  - Avoid unnecessary and inappropriate antibiotic therapy
  - Ensuring residents environment is cleaned thoroughly with chlorine-releasing/bleach based disinfectant