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# Outbreaks

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## Assumptions ... but please still ask!

- ▶ From your clinical experience and/or the presentations you have had to date you have:
  - An understanding of standard precautions and transmission based precautions.
  - HCAI & AMR.
  - Aware of seasonal and some prevailing infectious disease in healthcare settings.
  - Aware that national guidance exist both nationally and internationally for control of infectious diseases in healthcare facilities.

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## What is an outbreak ?



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## Definitions

- ▶ Dictionary definition – Sudden appearance, riot, eruption, outburst.
- ▶ **HPSC:**
  - Two or more linked cases of the same illness.
  - A situation where the observed number of cases exceeds the expected number.
  - Single case of disease caused by a significant pathogen.

Outbreaks may be confined to a family or more widespread involving cases either locally, nationally or internationally.

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## W.H.O Definitions

- A disease outbreak:
  - Is the occurrence of cases in excess of what would normally be expected in a defined community, geographical area or season.
  - may occur in a restricted geographical area, or may extend over several countries.
  - may last for a few days or weeks, or for several years.

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## Can a single case be an outbreak ?

- ▶ A single case of a communicable disease may also constitute an outbreak.
  - ▶ Long absent from a population.
  - ▶ Or caused by an agent (e.g. bacterium or virus) not previously recognized in that community or area.
  - ▶ Or the emergence of a previously unknown disease.

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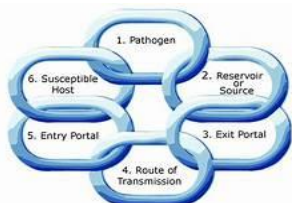
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### What causes an outbreak ?

- ▶ Can be unknown.
- ▶ Breakdown in the chain of infection.




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### How do you prevent an outbreak ?



"I HEAR THERE IS A BUG SWEEPING THE HOSPITAL..."

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### How do you prevent an outbreak of infection ?

- ▶ Polices, procedures and guidelines.
- ▶ Surveillance.
- ▶ Personal responsibility- vaccination , sick leave policies.
- ▶ Communication.
- ▶ Preparedness plans.

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## IP&C Measures

- ▶ Segregation – isolation or cohorting.
- ▶ Exclusion of ill staff.
- ▶ Hand Hygiene, PPE.
- ▶ Posters/signage.
- ▶ Environmental & Equipment decontamination – Ensure you have the correct products.
- ▶ Closure of wards/units.
- ▶ Visiting – Restrict or limit?
- ▶ Restriction on admissions & transfers of clients.
- ▶ Antimicrobial stewardship.
- ▶ Treatment and/or prophylaxis, vaccination.
- ▶ Monitoring of contacts.

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## Steps in Outbreak Management :

*Steps are concurrent as opposed to sequential*

1. Establishing the existence of an outbreak as early as possible– Surveillance is key.
2. Ensure methods are employed to Identify additional cases.
3. Verify the diagnosis– Results only as good as the sample taken.
4. Review all information available –e.g The Bristol stool chart.
5. Implement infection prevention & control measures – this often requires education.
6. Ensure control measures are affective and adequate – audit!

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## Steps in Outbreak Management : 2

1. Establish an outbreak control team –OCT.
2. Define what a case is & **have an outbreak definition**– This is so important– also needed to declare an outbreak over!
3. Perform descriptive epidemiology– Get a picture of what's going on–Public health can assist in this.
4. Develop, test & reconsider hypothesis.
5. Communicate, communicate and when finished communicate once more.
6. Debrief and final reports are vital

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### Other points to consider

- ▶ For any IC concerns –consider increasing environmental and equipment decontamination.
- ▶ Check products in use.
- ▶ Check sluice rooms, especially HWWD and commodes!
- ▶ Keep records. Not just minutes and agendas but also memos' & emails.
- ▶ All cases of *Clostridium difficile* Infection that die within 30 days of a diagnosis you must inform the coroner.
- ▶ LTCF have a legal requirement to inform HIQA of all outbreak within 3 days.
- ▶ The Department of Public Health needs to be informed of all outbreaks, they will also generate an outbreak code.

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### What determines the severity of an outbreak?

- ▶ Type of organism suspected.
- ▶ Virulence/pathogenicity.
- ▶ Number affected.
- ▶ Deaths or hospital admissions.
- ▶ Endemic status of the organism.
- ▶ Media interest ???

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### Challenges in Outbreak Investigations

- ▶ Reluctance to participate
- ▶ Data sources
- ▶ Small numbers
- ▶ Specimen collection and time lines for results
- ▶ Publicity

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## Follow up is so important!

- ▶ Outbreak report.
  - Summary
  - Chronology with relevant facts/figures
  - Lessons learned
  - Recommendations
- ▶ Large incidents may require “debriefing” meeting.
- ▶ Some diseases may require follow up e.g.
  - Vaccination for Hepatitis outbreaks
  - Microbiological clearance e.g. VTEC

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## We all have a personal responsibility in addition to a professional responsibility.

- If you have symptoms – stay off work – inform your line manager.
- Influenza : Vaccination.
- Adhere to controls placed in outbreak wards.
- Limited numbers to go to affected areas.

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## What would you do ?

- ▶ Acute hospital
- ▶ 3pm Friday afternoon.
- ▶ You overhear a Health Care Worker saying:
  - *“ I am so tired this afternoon, everyone seems to have diarrhoea today”*

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## Yet More Definitions !

- **Cluster:** A group of cases linked by time or place, but with no identified common exposure.
- **Sporadic case:** One that cannot be linked to other cases of the same illness, generally infrequent and irregular but need observation.
- ▶ **Epidemic:** Occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time
- ▶ **Pandemic :** An epidemic occurring over a widespread area and usually affecting a substantial proportion of the population.

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## Key messages

- ▶ No two outbreaks are the same and a "one size fits all" model will not work.
- ▶ A lot of the steps happen simultaneously and it requires preparation, co-ordination and team work!
- ▶ Clear and consistent communication is the key for successful prevention, management & control of infection outbreaks.

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## Thank You!




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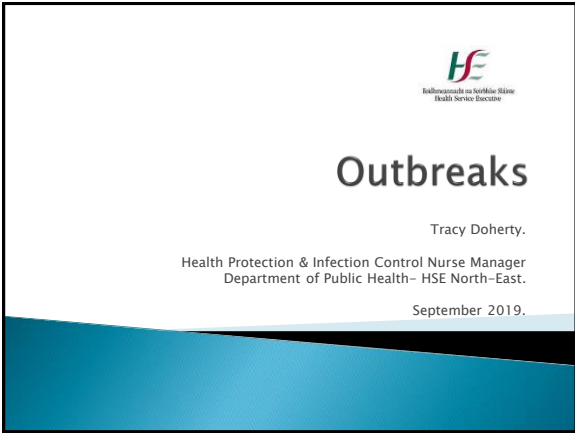
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