Common Causes of Outbreaks and Management from a Mental Health Perspective

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Management of Respiratory virus outbreaks and Norovirus in a Mental Health Facility

Respiratory Viruses

- Influenza
- Covid-19
- Respiratory syncytial virus (RSV)

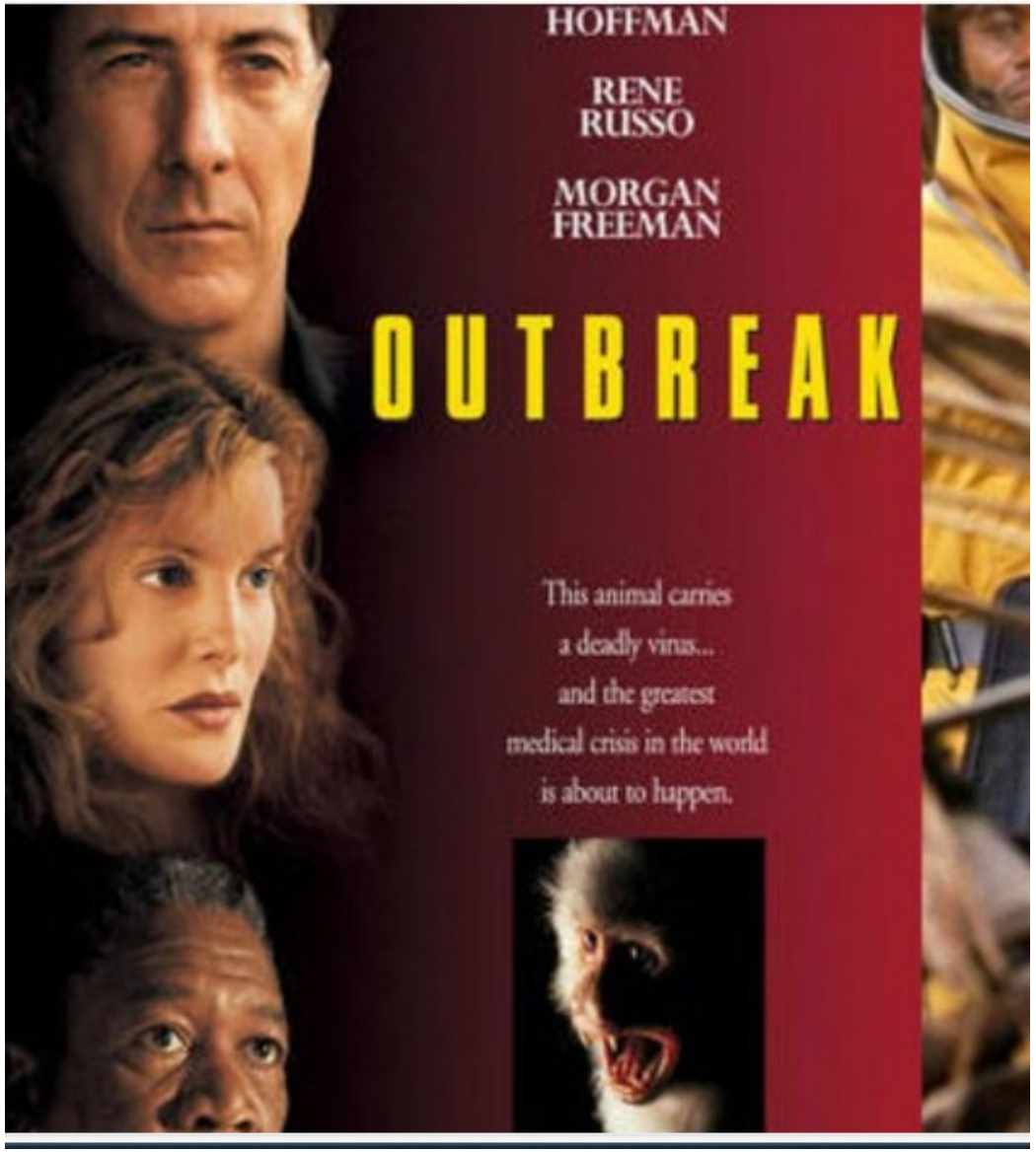
Viral Gastroenteritis

- Norovirus

Outbreak?

Definition of ‘outbreak’ - UKHSA

- an incident in which at least 2 or more people affected by the same infectious disease are linked by time, place, or common exposure
- a greater than expected rate of infection compared with the usual background rate for the place and time where the outbreak has occurred


HOFFMAN
RENE
RUSSO
MORGAN
FREEMAN
OUTBREAK
This animal carries
a deadly virus...
and the greatest
medical crisis in the world
is about to happen.


Don't Panic!

So, what's different in Mental Health?

- Service users usually have fewer comorbidities and indwelling devices
- They are typically ambulatory, and they mingle freely on many wards
- Lack of understanding / compliance with precautions
- May not cooperate with hygienic measures or health preventive measures, such as immunisation
- Waste and Laundry (plastic bag risk)

- Some similarities between the long-term care residential environment and the psychiatry care environment:
- Residents tend to stay for long periods of time
- They attend congregate events, such as group or recreational therapy
- Alcohol hand rub use is often limited
- Single rooms, ensuite

You cannot defeat your enemies until you know who they are.

Anthony Horowitz

Respiratory viruses

- Prevention
- Testing
- Mode of spread
- Control measures
- Environmental considerations

Prevention of respiratory viral infections

- Respiratory etiquette
- Vaccination

Respiratory virus testing and instigation of PPE

NHS
Avon and Wiltshire
Mental Health Partnership
NHS Trust

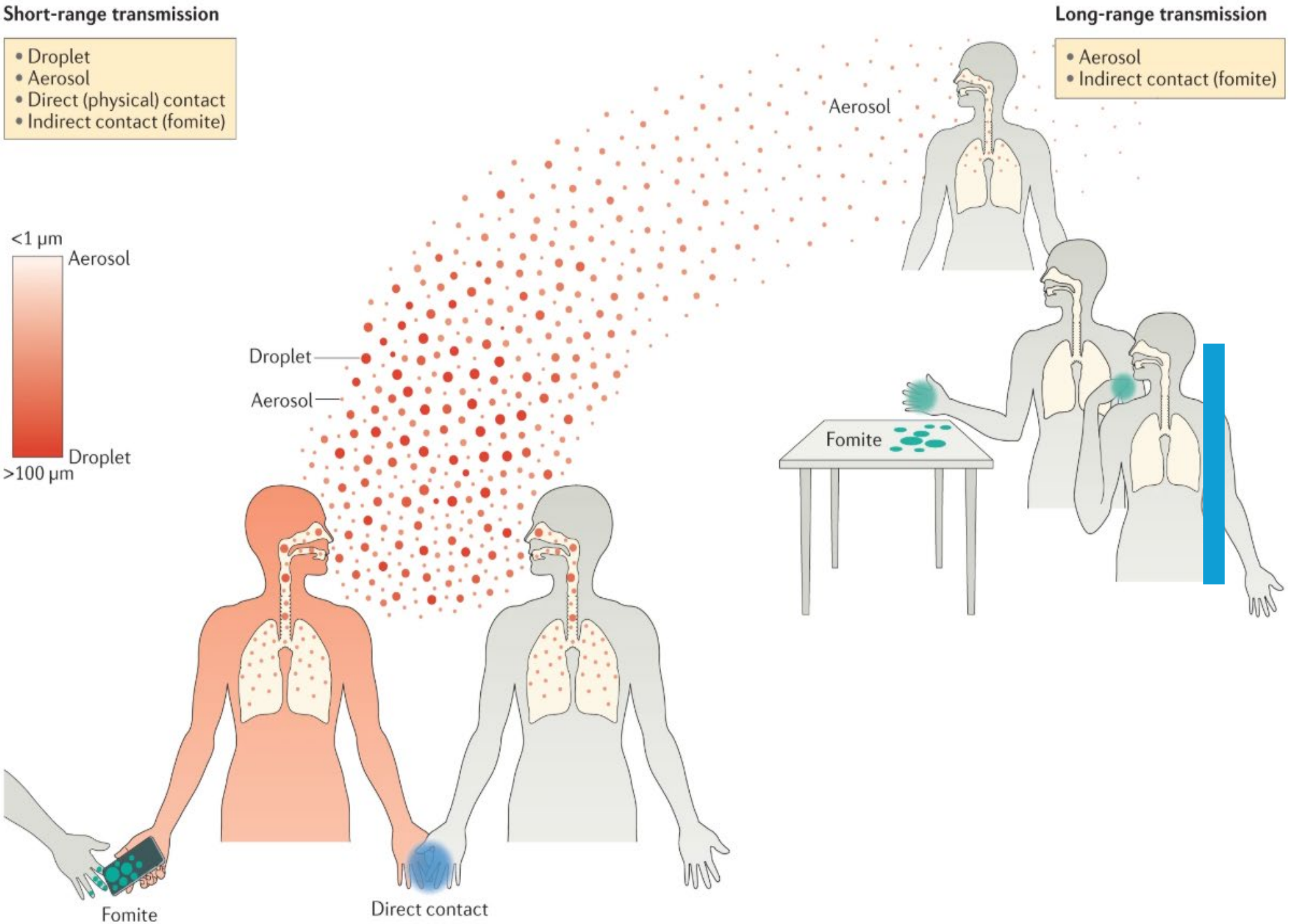
RESPIRATORY VIRAL INFECTION INPATIENT PATHWAY 2025/6

Service user develops significant symptoms of a possible respiratory viral infection

Common Flu symptoms include a sudden onset of a high temperature, aching muscles, headache, fatigue and dry cough. Common Covid-19 symptoms include fever or chills, continuous cough, shortness of breath, tiredness, body aches, headache and sore throat. Common symptoms of Respiratory syncytial virus (RSV) include cough, wheezing, shortness of breath, tiredness and fever.

Test service user for respiratory viruses using combination 4 in 1 Lateral Flow Test (tests for Covid-19, Influenza A&B and RSV). If LFT unavailable take throat swab for full respiratory panel PCR send to local laboratory in viral transport medium

Institute immediate Infection Control Precautions based on possible Contact and Droplet spread. Advise service user to stay in their room, if possible and to wear mask if leaving the room. Staff to wear surgical mask, face visor, apron and gloves when within 1 metre of service user. Dispose of PPE in room as infectious waste and perform hand hygiene national-infection-prevention-and-control-manual-appendix-5b.pdf



Mode of spread

Transmissibility and transmission of respiratory viruses

ɔs://www.nature.com/art
s/s41579-021-00535-6

Table 1 (cont.) | **Transmissibility of, modes of transmission of and transmission-based precautions for common respiratory viruses in humans**

Transmissibility and transmission	HCoV	IV	MeV	PIV	RSV	HMPV	VZV	RhV	HAdV[a]
Evidence for aerosol transmission[c,e]									
Infectious virus survival in experimentally generated aerosols	✓	✓	✓	✓	✓	–	–	–	✓
Virus genetic material recovered in aerosols in human exhaled breath[f]	✓	✓	–	✓	✓	✓	–	✓	–
Infectious virus recovered in aerosols in human exhaled breath	–	✓	–	–	–	–	–	–	–
Virus genetic material recovered in aerosols in the air	✓	✓	✓	✓	✓	–	✓	✓	✓
Infectious virus recovered in aerosols in the air	✓	✓	–	–	✓	–	–	–	–
Infection initiated via exposure to infectious virus in aerosols demonstrated in volunteer studies	–	✓	–	–	–	–	–	✓	✓
Transmission of laboratory-confirmed infection via aerosols demonstrated in observational studies	✓	✓	✓	–	–	–	✓	–	–
Transmission of laboratory-confirmed infection via aerosols demonstrated in volunteer studies	–	–	✓	–	–	–	✓	✓	–
Transmission-based precautions in health-care settings[g]									
Contact precautions[h]	Y	Y	N	Y	Y	Y	N	Y	Y
Droplet precautions	Y	Y	N	Y	Y	Y	N	Y	Y
Airborne precautions	N	N	Y	N	N	N	Y	N	N

See Supplementary Table 1 for supporting references as well as evidence stratified by coronavirus types or influenza virus (IV) types/subtypes. Human bocavirus is not shown due to a lack of evidence regarding all modes of transmission. HAdV, human adenovirus; HCoV, human coronavirus; HMPV, human metapneumovirus; MeV, measles virus; N, not recommended; PIV, parainfluenza virus; RhV, rhinovirus; RSV, respiratory syncytial virus; SAR, secondary attack rate; VZV, varicella zoster

Aerosol generating procedures (AGPs) are medical procedures that can result in the release of aerosols from the respiratory tract. The criteria for an AGP are a high risk of aerosol generation and increased risk of transmission (from patients with a known or suspected respiratory infection).

The list of medical procedures that are considered to be aerosol generating and associated with an increased risk of respiratory transmission is:

- **awake* bronchoscopy** (including awake tracheal intubation)
- **awake* ear, nose, and throat** (ENT) airway procedures that involve respiratory suctioning
- **awake* upper gastro-intestinal endoscopy**
- **dental procedures** (using high speed or high frequency devices, for example ultrasonic scalers/high speed drills)
- **induction of sputum**
- **respiratory tract suctioning****
- **surgery or post-mortem procedures** (like high speed cutting / drilling) likely to produce aerosol from the respiratory tract (upper or lower) or sinuses
- **tracheostomy procedures** (insertion or removal).

*Awake including ‘conscious’ sedation (excluding anaesthetised patients with secured airway).

Appendix 5b: Personal protective equipment (PPE) when applying transmission based precautions (TBPs)

SICPs may be insufficient to prevent cross transmission of specific infectious agents and additional precautions (TBPs) may be required. PPE must protect adequately against the risks associated with the procedure or task. Refer to appendix 11a for additional information.

Hand hygiene must be performed before putting on and after removal of PPE.

TBPs	Gloves	Apron	Gown	Fluid resistant surgical mask (FRSM)	Respiratory Protective Equipment (RPE)	Eye/face protection
Contact precautions	✗ Unless exposure to blood or body fluid, mucous membranes, or non-intact skin is anticipated or footnote 1 applies[1]	✓	✗ Unless in place of an apron if extensive spraying or splashing is anticipated	✗ Unless risk of splashing or spraying of blood or body fluids is anticipated or footnote 2 applies[2]	✗	✗ Unless risk of splashing or spraying of blood or body fluids is anticipated
Droplet precautions	✓	✓	✗ Unless in place of an apron if extensive spraying or splashing is anticipated	✓	✗	✓
Airborne precautions	✓	✗	✓	✗	✓	✓

Where to put on and remove PPE

Gloves are not an alternative to hand hygiene. Gloves must always be removed after each task on the same patient and hand hygiene performed as per the 5 moments for hand hygiene.

Contact precautions: required PPE should be put on within the patient room/care area immediately **before** direct contact with the patient or their environment and should be removed and disposed of **before** leaving the patient room/care area.

Droplet and airborne precautions: required PPE should be put on **before** entering the patient room/care area. Unless there is a dedicated isolation room with anteroom, gowns, aprons and gloves should be removed and disposed of before leaving the patient room/care area. Eye/face protection and RPE (if worn) must be removed and disposed of **after** leaving the patient room/care area.

Outbreak control measures may include and are not limited to:

- increase cleaning frequency of frequently touched surfaces in shared areas
- use 1,000 ppm chlorine-based solution or other product effective against respiratory viruses to clean the room, toilet and shower services used by symptomatic service users
- reminders to regularly letting fresh air in, in all areas
- universal use of Type IIR fluid repellent surgical masks when providing care
- reminders on hand and respiratory hygiene
- proportionate reductions or postponement of communal activities
- monitor all residents for elevated temperature and other respiratory symptoms
- proportionate reductions in admissions which may include temporary closure of the home to further admissions
- proportionate changes to visiting

Respiratory virus surface survival

Respiratory viruses in the UK, such as Covid-19 and influenza, can persist on surfaces for over 72 hours, though they significantly reduce within 48 hours

Survival is longer at lower temperatures (4°C) compared to room temperature (25°C)

Viruses survive longer on non-porous surfaces like plastic and stainless steel compared to porous materials

Respiratory Syncytial Virus (RSV) survives on environmental surfaces in the UK for 4 to 7 hours

Antiviral Treatment?

Non-severe influenza, at risk population for severe influenza and hospitalisation

1st line: oseltamivir (PO)

Antiviral treatment has been shown to reduce transmission from influenza case-patients to others

Exposure due to a localised outbreak for example in a care home PEP can be considered

Covid-19 / CMDU

Non-hospitalised patients are eligible if they meet all of the following:

- Present with a positive COVID-19 lateral flow test result
- Are symptomatic AND onset of symptoms of COVID-19 within last 5 days and showing no signs of clinical recovery.
- AND have risk factors for progressing to severe COVID-19

There is no specific antiviral treatment for RSV in older adults

Common Respiratory Virus Incubation Periods

- Common Cold (Rhinovirus): 12 hours to 3 days
- Influenza (Flu): 1 to 4 days (average is 2 days)
- COVID-19 (Omicron): 2 to 14 days (average 3-4 days)
- RSV (Respiratory Syncytial Virus): 3 to 6 days

Outbreak over?

Accurate Record Keeping!

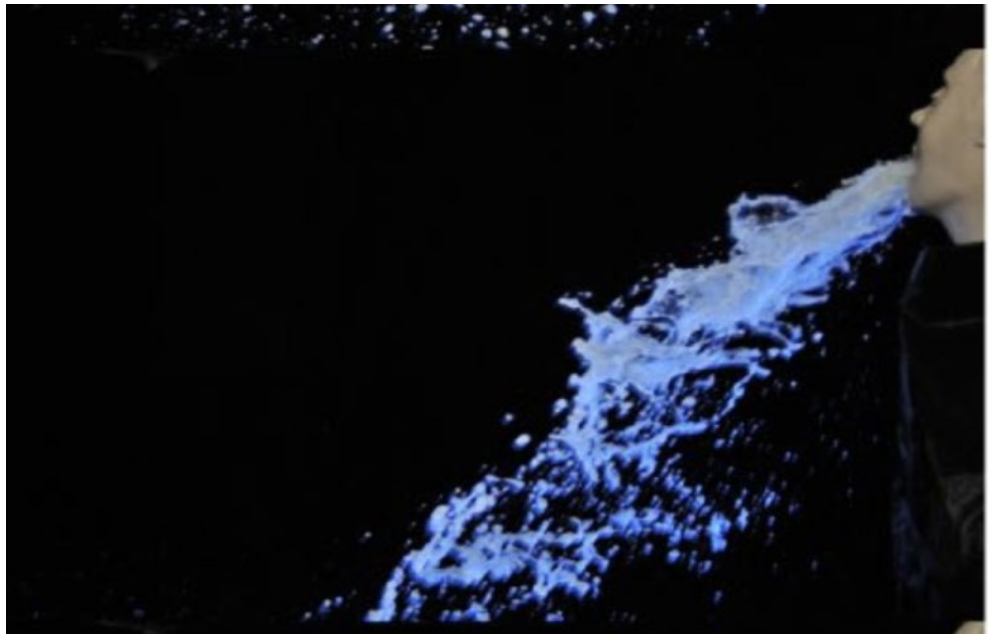
- Flu - No new cases for 4-5 days, isolate any cases for 5-7 days.
- RSV – No new cases for 5 days, isolate any cases for 5 days.
- Covid-19 – No new cases for 5 days, no caution up to 14 days, isolate any cases for 5 days.
- Terminal clean of affected rooms at end of isolation

Norovirus

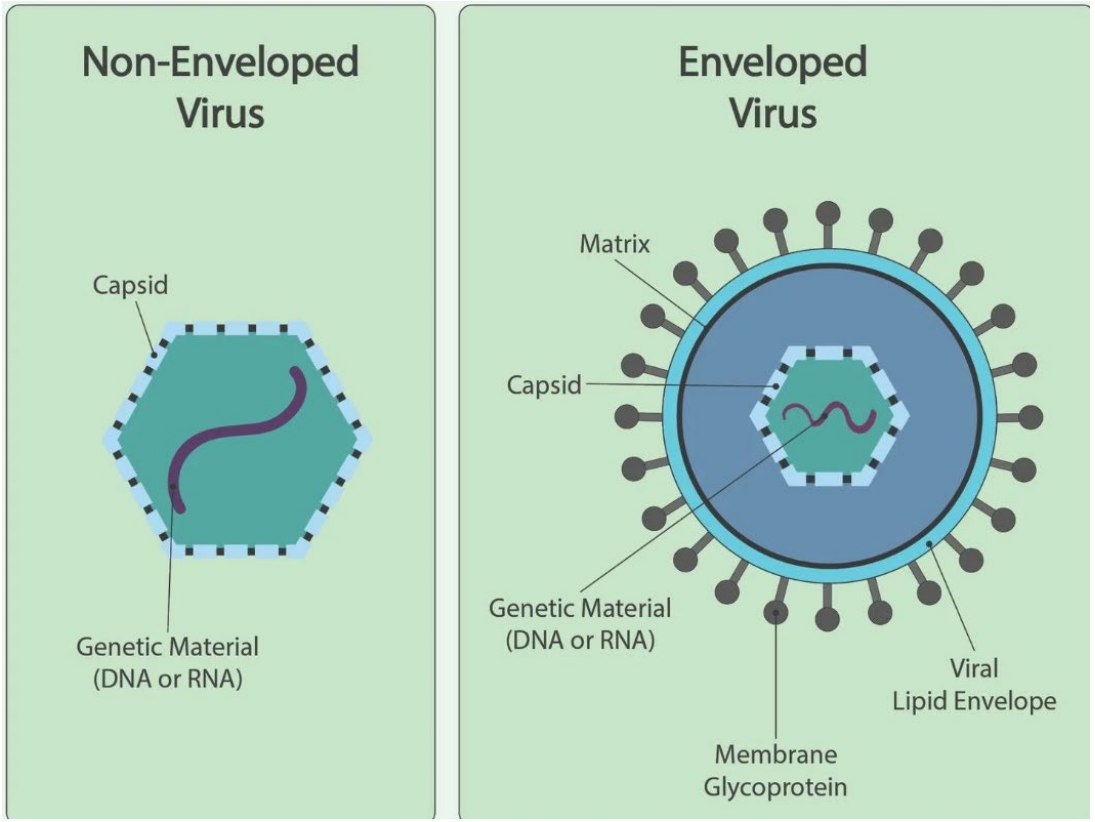
Norovirus is released in extremely high quantities during vomiting, with an average of 1.7×10^8 to 30 million genomic equivalent copies (GEC) potentially released in a single vomiting event.

Because as few as 10 to 100 viral particles can cause infection, a single episode of projectile vomiting can theoretically contain enough virus to infect over 150,000 individuals.

Vomiting Larry



Non-enveloped viruses are typically more virulent This is because they usually cause host cell lysis. Also resistant to detergents, heat, and acidic environments (like the stomach)

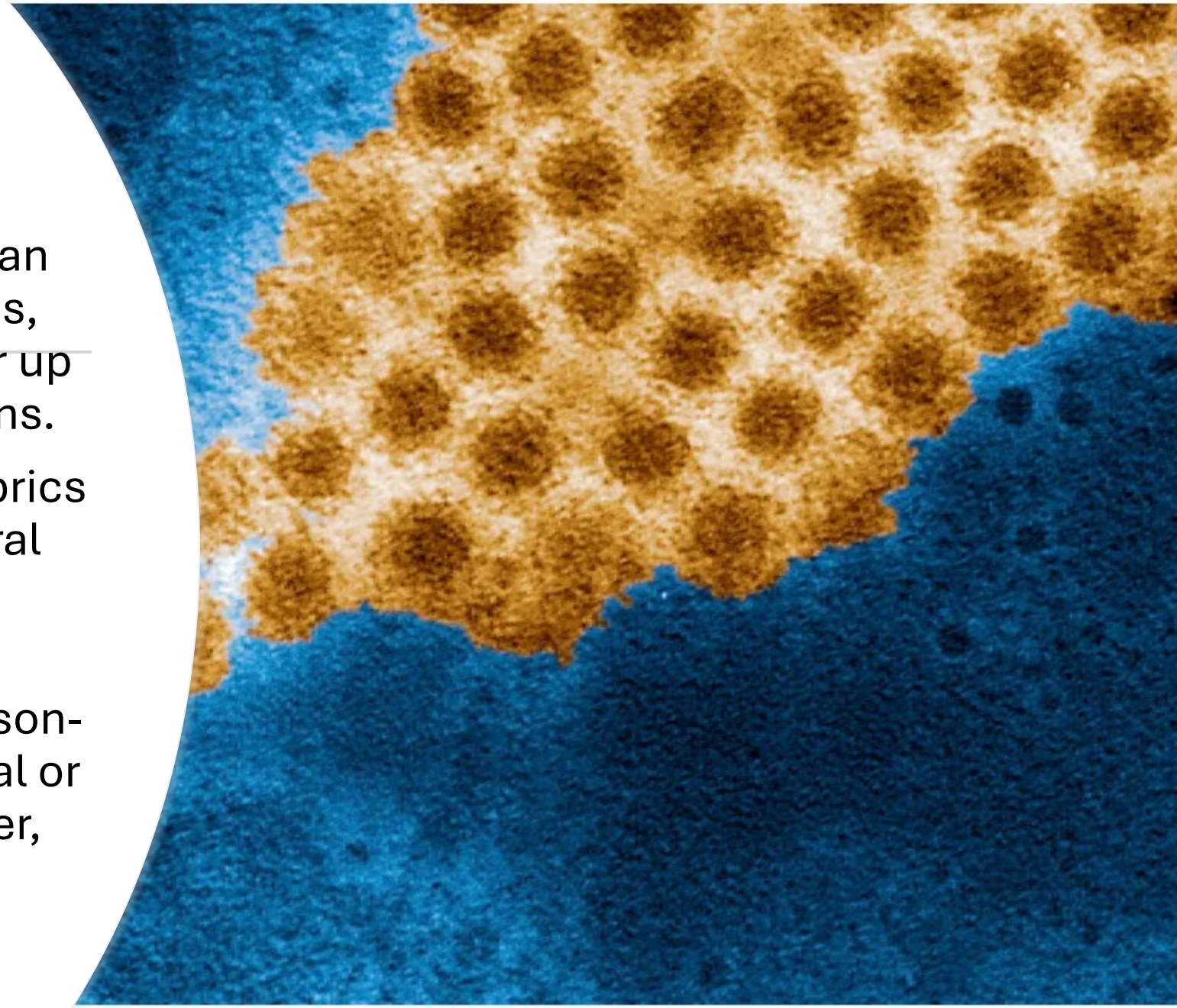


Enveloped viruses are enclosed in a lipid membrane derived from host cells, making them fragile and susceptible to alcohol-based sanitisers, yet better at evading the immune system.

Non-enveloped ("naked") viruses lack this layer, making them rugged, environmentally stable, and typically harder to eliminate, often requiring physical disinfection like washing with soap

Norovirus

- Research shows that the virus can remain infectious on hard surfaces, like countertops or doorknobs, for up to 2 weeks under certain conditions.
- On porous surfaces, such as fabrics or carpets, it may persist for several days. Longer if significant organic matter also present.
- Transmission can be direct (person-to-person) or indirect through fecal or vomit contamination of food, water, fomites and the environment



on electron micrograph (TEM) showing morphology displayed by nor

Norovirus

Patient testing

- If possible, test all symptomatic patients at admission or when they develop symptoms.
- Use PCR for testing – other methods are not sensitive enough to ensure the absence of norovirus.
- Use faeces for testing – other specimens are not sensitive enough to ensure the absence of norovirus.
- No need to retest, unless the patient is at high risk of chronic infection.

- During norovirus outbreaks, undertake continuous risk assessment to establish which control measures are needed.
- Provide staff with sufficient information and training so they can quickly act when a norovirus outbreak occurs.
- Avoid using soft furnishings and non-wipeable items

Norovirus outbreak control

- Undertake surveillance for new cases and symptoms.
- Hand hygiene: appropriate handwashing with soap and water is superior
- PPE: gloves and aprons when caring for symptomatic patients; masks for clearing vomiting and diarrhoea.
- Cleaning: higher frequency and terminal cleaning, ensure organic soiling is removed before disinfection.
- Disinfection: any suitable surfaces with 1000 ppm sodium hypochlorite,

Vomit is high risk, particularly in communal areas

- Spill kit

- Wider disinfection

Norovirus outbreak control

- Risk-assess whether unit/facility closures, or staff/visitor restrictions, are needed and feasible.
- Offer food and drink that is covered or individually wrapped; remove anything that becomes contaminated.
- Exclude staff from work and do not let them return until 48 hours after symptoms disappear. Avoid transfers to other units.
- If possible, maintain control measures for 72 hours after the last symptoms in the last case disappear to prevent recurrence.
- Treatment/symptom control

Norovirus outbreak over?

Symptom onset usually occurs within 12–48 hours of exposure and symptoms typically last 1–3 days

No new cases for 72 hours, isolate any cases until no symptoms for 48 hours (staff and service users)

Terminal clean of affected rooms at end if isolation period / Deep clean if vomiting has occurred

Thanks for Listening!