

Preventing an Outbreak

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Preventing Outbreaks

- Reported Long Term Care Outbreaks
 - Respiratory – Influenza
 - Gastrointestinal -Norovirus & *Clostridium difficile*
 - Blood borne - Hep B and C
 - Skin-Scabies
- What measures are needed to prevent these outbreaks?



Outline

- Aims of Prevention
- Flu –
 - Symptoms
 - Outbreak definition
- Actions to prevent and detect an outbreak
 - What guidelines are available?
 - Surveillance
 - Vaccination
 - Supplies
 - Infection control measures in an outbreak
- Gastroenteritis Outbreak
 - A review of an outbreak in a long term care setting



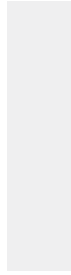
Outbreak Definition

An outbreak of infection or food borne illness may be defined as

- two or more linked cases of the same illness or
- a situation where the observed number of cases exceeds the expected number
- a single case of disease caused by a significant pathogen e.g. diphtheria

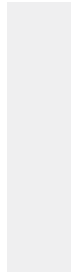
Preventing an outbreak aims

- To prevent the spread among patients and staff
- To reduce morbidity and mortality
- To detect outbreaks early and then manage them effectively (surveillance)



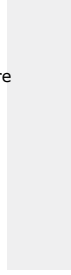
Influenza infection (1)

- Three types A, B and C (A & B cause human illness)
- Associated with causing epidemics each year world wide
- Influenza season typically (Sept-May) but can occur all year round
- Results in increased mortality especially in the elderly as a result of its pulmonary complications



Influenza infection (2)

- Acute self-limiting illness of respiratory tract
- Recovery is usually in 2-7 days
- Sudden onset of symptoms including fever, cough, sore throat, myalgia, headache
- Can be severe in persons ≥ 65 years, those with underlying medical conditions e.g. chronic heart, respiratory, renal disease, Diabetes Mellitus
- Atypical presentation in
 - Elderly- e.g. poor fever response, cough fatigue, confusion, exacerbation COPD
 - Children-diarrhoea & vomiting



Transmission

- Virus present in nose & airway passages
- Large droplets expelled by coughing & sneezing
- Direct contact with nasal secretions and contaminated surfaces
- Highly infectious and spreads rapidly in institutions
- Virus present in respiratory secretions 1-2 days **before** the onset of symptoms and for 4-5 days after symptoms begin.
 - Viral shedding prolonged in children or people with weakened immune systems



Influenza morbidity & mortality

- 670 confirmed influenza hospitalised cases
- The highest age specific rates were in those
 - aged less than 1 year and
 - aged 65 years and older.
- 82 confirmed influenza cases were admitted to ICU
- 34 influenza-associated deaths reported
 - 1 in a 0-4 year old,
 - 1 in a 5-14 year old,
 - 6 in 15-64 year olds and
 - 26 deaths were in patients aged 65 years and over.

Influenza Surveillance in Ireland – Weekly Report Influenza
Week 20 2014 (12th – 18th May 2014)



Respiratory Outbreaks – 2013/2014 Season

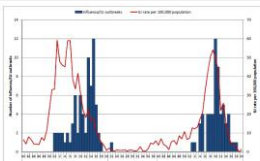
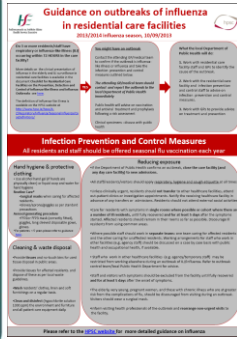


Figure 20. Number of influenza/ILI outbreaks and national sentinel GP-ILI consultation rate per 100,000 population by week and influenza season. Source: Computerised Infectious Disease Reporting System (CIDRS) & GISA.

- 77 acute respiratory outbreaks reported to HPSC
 - 58 associated with Influenza
 - 19 were influenza negative
- The majority of these outbreaks were in residential care facilities/community hospital units mainly for the elderly/those with intellectual disabilities.

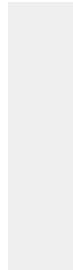
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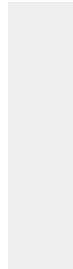
Education

- Ensure all staff
 - receive annual education re Influenza (signs & symptoms) and the essential role of vaccination
 - have a high index of suspicion for influenza during flu season
 - recognise and report potential cases and clusters
 - are familiar with and have access to recommended infection control measures
 - have contact details for their local Infection Prevention & Control staff (if any) and local Public Health department
- Nominate a senior manager to co-ordinate all actions and communication in the event of a suspected or actual outbreak to Public Health
- Report to HIQA



Vaccination – patients & staff

- Inform all staff/patients/visitors of the importance of and risks and benefits of vaccination and non vaccination
- Provide flu vaccination advice to respite admissions from September to the end of April
- Ideally flu vaccination should be given 2 weeks prior to admission
- If not vaccinated prior to admission, vaccine should be offered as soon as possible after admission.
- Ensure staff know how to avail of seasonal influenza vaccination
 - make vaccination easily accessible to staff

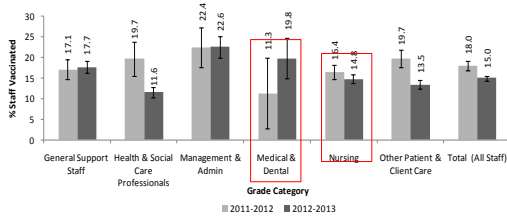


Influenza Vaccine

- Inactivated vaccine
- Trivalent vaccine (antigens for Influenza A X2, B X1)
- Changes annually based on WHO recommendations
- Takes 2 weeks approx to work, protection lasts one year
- Efficacy in the elderly is only 30-40%
 - 50%–60% effective in preventing hospitalisation
 - 80% effective in preventing death



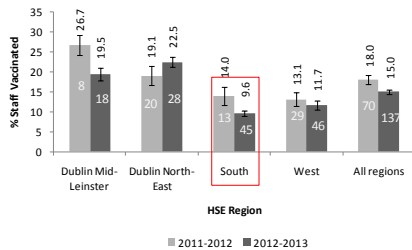
Percentage uptake influenza vaccine in long-term care facilities by HSE staff category, 2011/12 and 2012/13



Source HPSC



Percentage uptake of the seasonal influenza vaccine by long-term care facility staff by HSE area



Source HPSC



Influenza vaccine and Healthcare Workers



- Influenza vaccine is recommended for healthcare workers and carers of risk groups-
 - for their own protection
 - protection of the patients who may have a suboptimal response to the vaccine
- Currently available vaccine efficacy in healthy adults is 70-90% if circulating strain matches the vaccine strain
 - Most healthy adults can infect others beginning 1 day before symptoms develop and up to 5 to 7 days after becoming sick
 - 20% of HCWs may have sub-clinical infection

High vaccine uptake among patients and healthcare workers is the cornerstone of outbreak prevention



Supplies needed in the event of an outbreak

- PPE
 - Are gloves, aprons and surgical facemasks available for care of residents?
- Viral Swabs available
 - Dept Public Health will advise on most appropriate residents for throat swabs to be taken from
- Antivirals
 - Ready access to antiviral
- List of residents and staff vaccinated available.



Surveillance

- Implement ongoing surveillance
 - Patients with influenza like illness (ILI) during influenza season (Sept-May)
 - Staff illness patterns
- Review unusual illness patterns
 - more than expected staff absent
 - 3 or more cases of ILI in a 72 hr period?
- Ensure medical staff review possible cases and consider Influenza



What are the symptoms of ILI?

Case Definition of Influenza Like Illness (ILI)

1. Sudden onset of symptoms

And

2. At least one of the following four systemic symptoms:

- Fever or feverishness
- Malaise
- Headache
- Myalgia (muscle pains)

And

3. At least one of the following three respiratory symptoms:

- Cough
- Sore throat
- Shortness of breath



What is considered an ILI outbreak?

• Definition of Influenza/(ILI) Outbreak

Three or more cases (amongst residents and/or staff) of influenza like illness (ILI) or influenza or respiratory illness

- within the same 72 hour period in the residential care facility
 - which meet the same clinical case definition
- and**
- where an epidemiological link can be established.



Influenza in the Elderly

- In older adults, symptoms may initially be very subtle and difficult to recognise.
- Elderly residents may present only with
 - cough, fatigue and confusion.
 - fever response may be more blunted.
 - an exacerbation of an underlying condition
- If an increased number of residents become unwell over a short period of time with respiratory illness, influenza should be suspected.



Viral Swabs

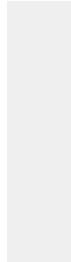
- Pre-addressed postage box to the "National Virus Reference Lab"



- 2 Viral swabs
 - Instructions for Throat Swab to test for Influenza"



- Request form with "Respiratory Viral Suite"



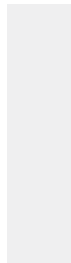
Infection Control Measures

- Standard, Droplet and Contact Precautions immediately for symptomatic cases
 - **do not wait for laboratory results**

- Patient Placement
 - Place patient in a single room or cohort with similar patients
 - Maintain a distance ≥ 1 metre between infectious patient and others
 - Wear surgical masks within 1 metre of care
 - Limit patient movement

- Management of admissions/transfers

- Limit social activities/gatherings
 - Limit visitors
 - Exclude symptomatic visitors & children



Infection Control Measures

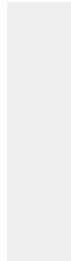
- Staff
 - Vaccinated staff to care for the ill
 - Exclude ill staff - 5 days post onset of symptoms
 - Limit staff movement
 - Asymptomatic unvaccinated staff should wait one incubation period (3 days) prior to working in a non-outbreak facility.
 - Asymptomatic vaccinated staff have no restrictions working at other facilities

- Environmental cleaning and disinfection
 - Clean with detergent and water
 - Disinfect with 1,000ppm available chlorine
 - Rinse and dry

- Ongoing surveillance of ill pts/staff - maintain list

- Communication/signage

- An influenza outbreak is declared 'over' eight days after the onset of symptoms in the last new case



Surveillance

- Implement ongoing surveillance
 - Year round for gastroenteritis
- Review unusual illness patterns
 - 2 or more cases of D&V in either staff or residents
- Staff illness patterns
 - more than expected staff absent

• Diarrhoea

- three or more loose/watery bowel movements which take up the shape of their container
- which are unusual or different for the resident/client in a 24 hour period



What are the symptoms of Norovirus?

Norovirus

- is usually mild,
- is a self limiting with symptoms lasting 12-60 hours
- usually appears 24 to 48 hours of being exposed to the virus

Characterised by of

- acute rapid onset
- nausea
- vomiting (may be projectile)
- abdominal cramps
- May also develop headache, myalgia and pyrexia.

• Commonest cause of outbreaks of acute gastrointestinal infection

Jan -Mar 2014

- 226 outbreaks reported to HPSC
- 499 people ill



What is considered a Norovirus outbreak?

Norovirus outbreak- defined as an episode in which two or more people, thought to have a common exposure, experience a similar illness or proven infection.

Criteria for suspecting an outbreak is due to Norovirus

- Vomiting (often projectile) in >50% of cases
- Duration of illness 12-60 hrs
- Incubation period 15-48 hours
- Staff and patients affected
- Stools negative for bacteria and other viruses



Assess

If possible cases of gastroenteritis are identified:

- **Make a list** of residents and staff with symptoms (use a template):
 - Name/DOB
 - Date of first symptoms (onset)
 - Symptoms and number of episodes
 - Duration of symptoms
- If there is more than one GP attending the facility, ensure all are aware of other potential affected residents/staff.
- Inform Public Health and Infection Prevention and Control Nurse (if available to you).



Outbreak Monitoring Record - Please read instructions before commencing records

Name & Address of Facility: _____ Please indicate under each date the symptoms each person presented with

Total Number of Residents: _____ Number of Staff: _____

Contact Name: _____

Contact Number: _____

Signs and Symptoms Gastroenteritis: → → →
 Diarrhoea (D), Vomiting (V) Indicate number of episodes and time of symptoms
 Nausea (N), Malaise (M), Stomach Cramps (SC), Fever (F)

No	Name	DOB	Ward	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30	Day 31	Day 32	Day 33	Day 34	Day 35	Day 36	Day 37	Day 38	Day 39	Day 40	Day 41	Day 42	Day 43	Day 44	Day 45	Day 46	Day 47	Day 48	Day 49	Day 50	Day 51	Day 52	Day 53	Day 54	Day 55	Day 56	Day 57	Day 58	Day 59	Day 60																																																																		
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Outbreak Monitoring Record to be maintained by Unit Manager and Infection Prevention and Control Nurse

Outbreak Monitoring Record to be maintained by Unit Manager and Infection Prevention and Control Nurse

Guidelines on Infection Prevention & Control 2012 → → → General Guidelines on the Management of
 IPCR Study (Check & Copy) → → → Infection Outbreak → → → Page 9 of 9
 Community Services → → →

Full Screen
Close Full Screen

Gastroenteritis Outbreak - An example

Public Health Informed

Name	DOB	Ward	Onset Date	Duration	Diarrhoea	Vomiting	Stool Tests	Results	Comments
		Ward 1	15-01-2014	19-01-2014	x 6	No	C&S	Neg	Fluid Osmolality increased
		Ward 1	15-01-2014	18-01-2014	x 5	No	C&S	Neg	
		Ward 1	15-01-2014	17-01-2014	x 2	x 5	C&S	Neg	T-30.3 Nucleated Erythrocyte Inclusion Bodies present
		Ward 1	17-01-2014	19-01-2014	x 3	No	No		
		Ward 1	17-01-2014	18-01-2014	x 2	No	No		Had Isotonicella Type 4/5
		Ward 2	17-01-2014	20-01-2014	x 10	x 4	C&S/Noro	Noro pos	immodium given
		Ward 2	17-01-2014	19-01-2014	x 3	x 1	No		
		Ward 2	18-01-2014	21-01-2014	x 6	No	No		Caption commenced 18/01/14
		Ward 2	18-01-2014	20-01-2014	x 10	x 4	C&S/Noro		IDCM Co. Add orange strands
		Ward 2	18-01-2014	20-01-2014	x 5	No	No		18.01 - commenced Immodium (Bioscience)
		Ward 2	21-01-2014	22-01-2014	x 1	x 1	C&S/Noro	Noro pos	
		Ward 2	21-01-2014	22-01-2014	No	x 1	No		
		Ward 2	21-01-2014	22-01-2014	x 1	No	No		
		Ward 2	21-01-2014	22-01-2014	x 2	x 1	No		
		Ward 2	21-01-2014	23-01-2014	x 1	x 1	No		A described as clear & watery episode (off the ground)
		Ward 2	24-01-2014	26-01-2014	x 7	x 1	No		Received 1ml of rehydrating (off the ground)

Gastroenteritis Outbreak - An example

- 15.01.3 residents in Ward 1 with D&V
- Reported 17.01 – Dept Public Health
- Visited 21.01 –
 - Milton 1,000ppm available chlorine advised
- Re-visited 24.01.
 - Realised Milton antibacterial spray in use – no chlorine
- 30.01. – Outbreak declared over

Consequences of this outbreak

- 16 residents, 12 staff affected
- Admission from Acute hospital & Respite admissions cancelled
- 2 residents for transfer to NH delayed



Cleaning & Disinfection



Bleach-free with a lovely fresh scent.

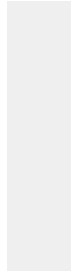


Risk of cross infection??



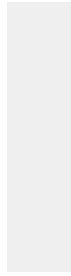
Infection Control Measures

- In a residential healthcare setting,
 - Obtain samples for C&S, *C.diff* and Norovirus
- Immediate cleaning and disinfection of any area where residents have been symptomatic
 - Disinfect with 1,000 ppm available chlorine
 - Discard any exposed food near affected residents
- Scrupulous attention to handwashing
 - Staff and residents
- Enhanced environmental cleaning
- Consider segregating those who are ill from those who are not until at least 48/72 hours following their last symptoms.
 - Cohort
- Contact Precautions – adapted to the setting
- Exclude symptomatic staff from work for 48 hours from their last episode of vomiting or diarrhoea



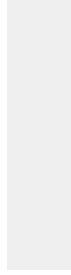
Infection Control Measures

- Monitor residents symptoms "Infection Prevention and Control stool chart 2011"
- Maintain records of those affected
 - Residents and staff
 - Keep line list updated
- Limit the movement of residents & staff –
 - The day room
 - 12 hour shift
- Consider admissions, transfer, discharges
- Sensible visiting would be advised.
- Communicate with external areas/ services
- Plan to resume services



Prevention of Outbreaks-key messages

- Outbreaks occur in nursing homes and long term care settings
 - Norovirus and Flu are the most common
- Detect outbreaks early by continuous surveillance for unusual patterns of illness
- Prompt reporting to Department of Public Health/your Infection Prevention and Control Nurse (if available) is key to managing them effectively – implement appropriate precautions
- Review lessons learned at the end of an outbreak and make the necessary changes





Resources

- Checklist for Residential Care Facilities on the Prevention, Detection and Control of Influenza-like illness and Influenza Outbreaks www.hpsc.ie
- Public Health Guidelines on the Prevention and management of Influenza Outbreaks in Residential Care Facilities in Ireland 2013/2014 (PHMCDG) www.hpsc.ie
- HIQA Safety Alert 003/2012, Outbreaks of Influenza in designated centres. <http://www.hiqa.ie/system/files/Provider-Safety-Alert-003-2012.pdf>
- Infection control and influenza and some posters: <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Infectioncontroladvice/>
- National Disease Surveillance Centre (2003) National Guidelines on the management of outbreaks of Norovirus infection in healthcare settings. Health Protection Surveillance Centre, Dublin. <http://www.hpsc.ie/hpsc/AZ/Gastroenteric/Norovirus/Publications/File,2109,en.pdf>