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# **FRAMEWORK FOR THE CONTROL OF AN OUTBREAK OR INCIDENT OF INFECTION IN ACUTE HEALTHCARE PREMISES IN WALES**

**March 2022**

## **1 Introduction**

Outbreaks and incidents of infection have serious consequences for service users and NHS organisations including; mortality, morbidity, distress, delays in treatment and impacts on service provision. Each health board and trust in Wales will have local policies for the arrangements for control of outbreaks or incidents of infection in their healthcare settings. The health board outbreak policy must reflect the principles and guidance contained in this framework document. In addition, some organisations will have separate operational policies and protocols for managing outbreaks of specific organisms e.g. presumed or confirmed viral gastroenteritis, acute respiratory infection e.g. flu or COVID-19, CPE.

## **2 Scope**

This guidance applies to outbreaks or incidents of infection occurring in:

- All Health Board and NHS Trust premises where NHS services are provided.
- All premises where NHS services are provided through contractual arrangements with NHS Health Boards and Trusts in Wales.
- Other premises, in situations where incidents or outbreaks of infection arise directly from Health Board or Trust staff providing healthcare services in pre and out of hospital settings, such as private dwellings, care homes and in public venues.

If an infectious disease outbreak within the above settings has implications for wider community, or if it is identified as being food or water borne, it will be managed using “The Communicable Disease Outbreak Plan for Wales (‘The Wales Outbreak Plan’)” (Chapters 1 – 6).

## **3 Routine communication between the IPCT and HPT/CCDC**

There is an expectation that the Health Board/ Trust Infection Prevention and Control Team (IPCT) will have established robust relationships with their local Health Protection Team (HPT)/Consultant in Communicable Disease Control / Consultant in Health Protection (CCDC/CHP). Such relationships will include regular liaison and two-way sharing of information regarding cases, clusters and potential outbreaks or incidents of infection. A member of the HPT will be a member of the Health Board or Trust Infection Prevention and Control ‘Strategic’ Group.

## **4 Recognition of an Outbreak or incident**



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An outbreak or incident may be identified by a number of routes depending on its nature and presentation e.g.

- ward staff may alert the IPCT to an outbreak of presumptive viral gastroenteritis or other specific symptoms in patients or staff related to specific infection e.g. *C. difficile*, COVID-19, flu or other respiratory viral infections, scabies, CLABSI and sepsis
- laboratory staff may highlight an outbreak of an organism that exhibits a specific antimicrobial resistance or whole genome sequence,
- IPCT may notice links between patients with 'alert' organisms or healthcare epidemiologists may identify increases in cases from routine surveillance within the health board/Trust or through CDSC at PHW.
- A national alert about a product or medical device may lead to case finding
- A national alert about a significant infection may trigger case finding or cases linked to an outbreak outside of the Health Board/Trust.

An outbreak may present as either related to a single 'point source' e.g. a contaminated piece of equipment or food or exposure to an infected case or as a pattern of ongoing transmission. If the outbreak or incident involves a notifiable disease or organism (see Part 6.11) the treating physician or laboratory must notify the CCDC/CHP as 'Proper Officer' of the Local Authority (Tel: 0300 00 300 32 and/or email [aware@wales.nhs.uk](mailto:aware@wales.nhs.uk)). During a period of increased incidence of disease locally or nationally e.g. Influenza, measles or norovirus all clinical staff should be alerted to the need to have increased suspicion of symptoms of the infection and act promptly to report their concerns to minimise onward transmission.

## 5 Definition of an Outbreak or Incident within a healthcare setting.

An outbreak of infection can be defined as an increase in cases against the normal background levels of an organism/disease **OR** when an organism / disease is deemed to have been acquired in the healthcare setting **OR** two or more cases linked in time and place within the healthcare setting.

When the background level of an organism/disease for the facility or organisation is normally zero, or a single case has serious potential consequences for public health or local services, e.g. a multi-resistant organism such as a carbapenemase producing Enterobacteriaceae (CPE), or a multi-drug resistant (MDR) TB, one case may constitute an outbreak and an Outbreak Control Team (OCT) formed (this may be termed an incident under these circumstances). Health Boards/Trusts may additionally have local organism/disease-dependent definitions for periods of increased incidence (PII) that will trigger an investigation.

## 6 Declaration of an Outbreak or Incident.



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Once alerted to an apparent increase in cases or other markers of a possible outbreak or incident, the IPCT will assess the situation and reach one of these conclusions:

- No outbreak or incident
- Outbreak or incident that can be managed by the IPCT and other colleagues within the organisation without the need for a formal OCT (this may include a period of increased incidence (PII) according to local definitions)
- Outbreak or incident requiring a formal OCT or Incident Management Team (IMT)
- Actual or potential major outbreak or incident with significant implications for public health, local or national services, requiring a formal Major OCT AND immediate discussion with HPT/CCDC/CHP (Tel: 0300 00 300 32; and/or email [aware@wales.nhs.uk](mailto:aware@wales.nhs.uk)) to consider invoking 'The Wales Outbreak Plan'

Key to outbreak management at a clinical level to prevent further transmissions will be prompt triage or assessment of cases/suspected cases, sampling, isolation.

It is not possible to be prescriptive about what constitutes the need for a formal OCT / IMT as the variety of potential scenarios is extremely diverse and will be affected by local factors including the physical environment and resources of the organisation/IPCT, the likely transmission route, the pathogenicity and virulence of spread and the likely impact on patients related to mortality, morbidity and provision of care.

If after initial investigation the decision is reached that

1. there is 'no' outbreak/incident/PII, **OR**
2. it is an outbreak/incident/PII that can be managed without a formal OCT

This decision should be reported to local management, the ICD / Consultant Microbiologist and CCDC/CHP. Following this the IPCT shall ensure the decision is subject to daily surveillance/review of new or emerging information. Accurate records should be kept of any decisions made and who made them, actions and interventions taken. The IPCT should maintain a low threshold for declaring a formal OCT / IMT especially during a pandemic or a national/local increase in disease.

## **7 Outbreak Control Team (OCT) / Incident Management Team (IMT)**

The lead role in managing an outbreak will normally be taken by the Health Board/Trust IPCT. This arrangement and any changes to this will be agreed and documented at OCT / IMT meetings

## **8 Core Membership**

The Chair may be taken by any senior member of the OCT and will ensure that all necessary members are invited, that the meetings are held as required and venue arranged, that the meetings are conducted in accordance with the agenda, that minutes are recorded, actions are logged with agreed timescales and are reviewed, and that all proceedings are recorded and communicated to the membership. Membership should include:

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- IPCT (including ICD and IPCNs)
- Consultant microbiologist (if not ICD) – (PHW or HB employed)
- CCDC/CHP (to assess wider public health risks and, if required, institute The Communicable Disease Plan for Wales; to facilitate cooperation between agencies; to provide expert epidemiological input to the investigation and management of an outbreak; provide an independent 'external' perspective to the OCT and in certain circumstances use their statutory powers).
- Senior professional (medical, nursing and departmental) representatives from the area(s) affected
- Healthcare epidemiologist (joint HB and PHW posts)
- Administrative support
- Communications representative
- Occupational health when staff are affected
- Management representative with the seniority/authority to restrict services and authorise the release/reassignment of resources as required.
  - Representatives from the other departments/professional groups may be invited depending on the nature of the outbreak/incident e.g. cleaning/housekeeping, engineering/estates, sterile services, occupational health, allied health professionals, epidemiologists, biomedical scientists, Quality and Safety (this list is not exhaustive).
  - Representatives from external agencies may be invited depending on the nature of the outbreak/incident e.g. Public Health Wales HARP team, commissioner stakeholders, Community Health Council, patient representatives, local authority, staff side
- A Major Outbreak Control Team should additionally include:
  - The Health Board / Trust CEO or nominated deputy
  - The Health Board / Trust Director of Public Health, who has specific responsibilities outlined in Communicable Disease Plan for Wales
  - Additional Public Health Wales input – specialist IP&C lead (Consultant Nurse or HARP programme Microbiologist / ICD); CDSC – epidemiological support.
  - Representatives from other agencies as required including: local authority; NHS Shared Services Wales Partnership (NWSSP) (this list is not exhaustive)

## **9 Core functions (core terms of reference)**

- To investigate the source and cause of the outbreak.
- To develop and review at each meeting the case definition for the outbreak/incident
- To maintain an accurate record of cases, control measures, actions and interventions.



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- To monitor the effectiveness of infection prevention & control measures and other interventions required against a hierarchy of controls (appendix 6).
- To monitor provision of required IPC training required to care for patients safely
- To facilitate the optimal clinical care or pathway of patients.
- To monitor the safety and health impact on the patient and staff including morbidity and mortality.
- To review evidence of the outbreak / incident and the results of epidemiological and microbiological investigations including WGS or typing, data collection and analysis on patients and associated staff within the affected area.
- To decide on the need for outside help and expertise.
- To manage the communication between relevant agencies and those with a legitimate interest in the outbreak, including patients and their families, WAST, primary care, Welsh Government, PHW, other Health Boards, NHS organisation in another UK nation and the general public if required.
- To provide up to date clear guidelines for patients, relatives, staff and the general public.
- To review and update communications at each meeting as required.
- To ensure that individuals with assigned individual responsibilities within the outbreak policy execute their roles.
- To identify any additional resources required and potential costs
- To define the end of the outbreak.
- To evaluate the lessons learned and any root causes and prepare a final outbreak report with recommendations for the Health Board/Trust and Welsh Government which can also be used as part of further external or legal review.

## **10 Outbreak Surveillance**

Health Boards / Trusts should monitor the numbers and types of outbreaks by location over time. There is an expectation that all Health Boards / Trusts will participate in the Public Health Wales outbreak surveillance system, by recording each outbreak or incident within ICNet. There may be a requirement to contribute to enhanced UK surveillance if the outbreak is linked to a national/international event.





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## 11 Standards for Outbreak Investigation and Management/Control

Outbreak Recognition	Initial investigation to clarify the nature of the outbreak, when it begun, who it is affecting. Complete within 24 hours of recognition or identification of potential outbreak or PII
	Immediate risk assessment undertaken and decisions and immediate actions recorded following receipt of initial information
Outbreak Declaration	Decision made and recorded at the end of the initial investigation regarding outbreak/incident declaration, communication with key individuals within and outside the health board/Trust and convening of outbreak control team
Outbreak Control Team	OCT held within 48 hours of decision to convene
	All departments/disciplines involved in investigation and control represented at OCT meeting alongside core membership
	Chair and or deputy agreed and recorded
	Roles and responsibilities of OCT members agreed and recorded
Outbreak Investigation	Case definition agreed, recorded and reviewed at each meeting and as more information becomes available.
	Maintain a line list of possible, probable and confirmed (as required) cases and associated microbiology (including WGS/typing)
	Describe the cases (patients/staff/visitors)– time, place, person (from notes, charts, admission history) including new cases, recovered, discharged.
	Describe associated morbidity and mortality of cases, severity and any escalation in harm or quality of care.
	Present the data, keeping all the data presentations up to date per meeting e.g. epidemic curve, time line, transmission plot, ward map, TICL charts. Annotate charts with key information so there is no ambiguity on time, place, person.
	The IPC team to utilise ICnet for case management alongside outbreak control module
	Identify if there has been any change in the system that could have resulted in the outbreak (changes in people, equipment, procedures, the environment, national alert)
	Analytical study considered and rationale for decision recorded



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	Investigation protocol prepared, if an analytical study is undertaken
	Involve professional experts in the investigation of the failure of medical devices or clinical equipment e.g. SMTL, MHRA, manufacture
	Develop a legacy list of actions or change requirements for resources, training, estates, equipment etc
Outbreak Control Measures	Control measures documented with clear timescales for implementation and responsibility; Implementation monitored and reviewed at each meeting
	Audits undertaken and results reviewed at each meeting e.g. compliance with SICP/TBP e.g. hand hygiene, PPE, isolation practices, cleaning scores, equipment audits, environmental audits, movement of staff, movement of patients, sampling, prompt isolation of cases, prescribing practice e.g. SSTF (as appropriate to the outbreak/incident)
	Requirement for patient and staff prophylaxis or immunisation reviewed, documented and implemented, if applicable.
	Requirement to risk assess extremely vulnerable or at risk staff
	Requirement for timely patient and staff screening reviewed, documented and implemented, if applicable.
	Requirement to cohort patients and staff.
	Requirement for additional environmental management and involvement of estates team e.g. ventilation, water, isolation, repairs/decoration
Service Impact	Monitor the impact of the outbreak on health board / Trust services e.g. ward/bay/hospital/service closures, bed days lost, procedure cancellation, staffing levels, regional impact if applicable e.g. tertiary neonatal, renal, cancer or cardiac network. Reputational risk.
	Monitor the impact of the outbreak on NHS partners e.g. WAST, social care including care homes



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	Accurately record decisions/rationale to open/close affected areas or part of them during the outbreak or move staff between affected and unaffected areas. Record who has authority to make those decisions outside of outbreak meetings during and outside working hours.
Communications	Communications strategy agreed at first OCT meeting, including to patients and relatives (in line with the Putting Things Right Agenda and the Duty of Candour), staff of relevant departments and other health boards / Trust or services affected.
	<b>Welsh Government informed without delay (SI or No surprises reporting via <a href="mailto:improvingpatientsafety@wales.gsi.gov.uk">improvingpatientsafety@wales.gsi.gov.uk</a> )</b>
	Prepare pro-active / reactive press releases, as required
End of Outbreak	Final outbreak report completed within 4 weeks of the formal closure of the outbreak, unless delayed or dictated by legal proceedings (e.g. Coroner)
	Health board / Trust multidisciplinary review of root causes, lessons learnt and report on recommendations to prevent repeat and further actions (including legacy list) required within 3 months of formal closure of the outbreak.
	The OCT will audit their response to the outbreak/incidence against this guidance
	Outbreak report and audit to be forwarded to office of CMO, Welsh Government within 3 months of formal closure of the outbreak or as directed by Welsh Government as part of the serious incident reporting system ( <a href="mailto:improvingpatientsafety@wales.gsi.gov.uk">improvingpatientsafety@wales.gsi.gov.uk</a> )





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## Appendices

### Appendix 1 - Notifiable Diseases/Organisms

<p>The regulations require that a <b>registered medical practitioner</b> notifies the proper officer of the relevant local authority if a patient they are attending is believed to have a disease listed in Schedule 1: Notifiable Disease and Syndromes</p>	<p>The legislation <b>laboratories</b> reletors of <b>diagnostic</b> to notify identify a causative agent lister of the evidence of such an agent, in a h</p>																				
<p>Anthrax</p> <p>Botulism</p> <p>Brucellosis</p> <p>Cholera</p> <p>Coronavirus Disease (COVID-19)</p> <p>Diphtheria</p> <p>Encephalitis (acute)</p> <p>Enteric fever (typhoid or paratyphoid fever)</p> <p>Food poisoning</p> <p>Haemolytic uraemic syndrome (HUS)</p>	<table border="0"> <tr> <td><b><i>Bacillus anthracis</i></b></td><td><b><i>Bacillus cereus</i></b> (only if associated with food poisoning)</td></tr> <tr> <td><b><i>Bordetella pertussis</i></b></td><td><b><i>Borrelia spp</i></b></td></tr> <tr> <td><b><i>Brucella spp</i></b></td><td><b><i>Burkholderia mallei</i></b></td></tr> <tr> <td><b><i>Burkholderia pseudomallei</i></b></td><td><b><i>Campylobacter spp</i></b></td></tr> <tr> <td>Chikungunya virus</td><td><b><i>Chlamyphila pssittaci</i></b></td></tr> <tr> <td><b><i>Clostridium botulinum</i></b></td><td><b><i>Clostridium perfringens</i></b> (only if associated with food poisoning)</td></tr> <tr> <td><b><i>Clostridium tetani</i></b></td><td><b><i>Corynebacterium diphtheriae</i></b></td></tr> <tr> <td><b><i>Corynebacterium ulcerans</i></b></td><td><b><i>Coxiella burnetii</i></b></td></tr> <tr> <td>Crimean-Congo haemorrhagic fever virus</td><td><b><i>Cryptosporidium spp</i></b></td></tr> <tr> <td>Dengue virus</td><td>Ebola virus</td></tr> </table>	<b><i>Bacillus anthracis</i></b>	<b><i>Bacillus cereus</i></b> (only if associated with food poisoning)	<b><i>Bordetella pertussis</i></b>	<b><i>Borrelia spp</i></b>	<b><i>Brucella spp</i></b>	<b><i>Burkholderia mallei</i></b>	<b><i>Burkholderia pseudomallei</i></b>	<b><i>Campylobacter spp</i></b>	Chikungunya virus	<b><i>Chlamyphila pssittaci</i></b>	<b><i>Clostridium botulinum</i></b>	<b><i>Clostridium perfringens</i></b> (only if associated with food poisoning)	<b><i>Clostridium tetani</i></b>	<b><i>Corynebacterium diphtheriae</i></b>	<b><i>Corynebacterium ulcerans</i></b>	<b><i>Coxiella burnetii</i></b>	Crimean-Congo haemorrhagic fever virus	<b><i>Cryptosporidium spp</i></b>	Dengue virus	Ebola virus
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Infectious bloody diarrhoea	<i>Entamoeba histolytica</i>	<i>Francisella tularensis</i>	
Infectious hepatitis (acute)	<i>Giardia lamblia</i>	Guanarito virus	
Invasive group A streptococcal disease and scarlet fever	<i>Haemophilus influenzae</i> (invasive)	Hanta virus	
Legionnaires' Disease	Hepatitis A, B, C, delta, and viruses	Enfluenza virus	
Leprosy	Junin virus	Kyasanur disease virus	Forest
Malaria	Lassa virus	<i>Legionella spp</i>	
Measles	<i>Leptospira interrogans</i>	<i>Listeria monocytogenes</i>	
Meningitis (acute)	Machupo virus	Marburg virus	
Meningococcal septicaemia	Measles virus	Mumps virus	
Mumps	<i>Mycobacterium tuberculosis complex</i>	<i>Neisseria meningitidis</i>	
Plague	Omsk haemorrhagic fever virus	<i>Plasmodium falciparum, vivax, ovale, malariae, knowlesi</i>	
Poliomyelitis (acute)	Polio virus (wild vaccine or types)	Rabies virus (classical rabies) and rabies-related	
Rabies	lyssaviruses	<i>Rickettsia spp</i>	
Rubella	Rift Valley fever virus	Rubella virus	
SARS	Sabia virus	<i>Salmonella spp</i>	
Smallpox	SARS coronavirus	<i>Shigella spp</i>	
Tetanus	Severe acute respiratory syndrome coronavirus-2 (SARSCoV-2)	<i>Streptococcus pyogenes (invasive)</i>	
Tuberculosis	Streptococcus pneumoniae (invasive)	Variola virus	
Typhus	Varicella zoster virus	<i>Vibrio cholerae</i>	



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Viral haemorrhagic fever (VHF)	Verocytotoxigenic Escherichia coli (including E.coli O157)	Yellow fever virus
Whooping cough	West Nile Virus	
Yellow fever		Yersinia pestis



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## **Appendix 2 Model Agenda for OCT Meeting**

6.11.1 The initial agenda for the first outbreak meeting will include:

- a) Agree membership and chairperson/deputy chairperson
- b) The outbreak policy and individual actions / responsibilities.
- c) Initial assessment of the outbreak.
- d) Case definition(s).
- e) Reporting mechanisms.
- f) Investigation of outbreak.
- g) Management/control measures.
- h) Communication channels.
- i) Frequency of Outbreak Meetings.
- j) Date and time of next meeting

6.11.2 Subsequent agendas will include:

- a) Minutes of previous meeting
- b) Update on actions and matters arising
- c) Situation report
- d) Investigation progress reports
- e) Review of control measures and effectiveness
- f) Review of case definition(s)
- g) Review of membership/extend if required
- h) Agreement of actions and responsible person(s) with timescale
- i) Communications
- j) Date and time of next meeting





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**Appendix 3 - Example – Escalation/Risk Assessment Criteria** (adapted from Health Protection Scotland Watt Risk Matrix)

	Impact on:			
Impact level:	Patients	Services	Public Health	Public Anxiety
<b>Minor</b>	Only minor interventional support needed as consequence of the incident No mortality	No, or only very short term closure of clinical areas(s) with minor impact on any other service	No, or only minor implications for public health	No significant increased anxiety or concern anticipated
<b>Moderate</b>	Patients require moderate interventional support no mortality as a consequence of the incident	Short term closure(s) having moderate impact on some services, e.g. multiple wards closed or ITU closed	Moderate implications, i.e. there is a moderate risk of only moderate impact infections to other persons	Increased concern and or anxiety anticipated
<b>Major</b>	Life threatening illness or	Significant disruption and impact	Significant implications for public	Alarm within at least some
	death as a consequence of the incident in one or more patient	on services e.g. hospital closures for any period of time	health, i.e. there is a moderate risk or major risk of major infection to someone else	areas of the community anticipated

Assessment:

All minor = manage as internal incident/outbreak, consider formal OCT

3 minor and 1 moderate = manage as internal incident/outbreak – declare formal OCT

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No major and 2-4 moderate – declare formal OCT, consider declaring Major OCT

Any major\* – declare Major OCT and discuss with CCDC/CHP/DPH whether to invoke The Wales Outbreak Plan

**\*note** this includes one or more deaths as a result of an outbreak or incident as defined NOT necessarily as a result of a single case of an 'alert organism' or HCAI



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## Appendix 4 MODEL OUTBREAK CHECKLIST

INITIAL ASSESSMENT	Yes Date and Initial	No (or mark N/A)
1. Is an Outbreak Control Team necessary to manage the incident?		
2. Has an outbreak been declared?		
3. Is there community involvement with the incident?		
4. Does the incident involve a notifiable disease/organism?		
5. If notifiable, has the CCDC/HPT been notified?		
6. Have the results of the initial assessment been recorded?		
<b>COMMUNICATION</b>		
1. Senior management of Trust/Health Board informed		
2. Chief Executive or designate informed		
3. IPC lead informed		
4. CCDC/HPT consulted		
5. Departmental manager informed		
6. Operational services manager involved (catering, cleaning, portering, waste, laundry)		
7. No surprises from completed and submitted to WG		
8. SAI form completed and submitted		
9. Datix report completed and submitted		
10. Appropriate senior estates manager informed		
11. Comms officer identified		
12. Proactive/reactive press statement prepared		
13. Communication with relevant personnel and departments considered		
14. Appropriate information provided to staff		
15. Appropriate information provided to patients		
16. Appropriate information provided to relatives and visitors		
17. Microbiology department informed and outbreak number assigned		



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18. PHW HARP team contacted (as appropriate and directed by HPT or ICD or Infection Prevention Lead)		
19. Other Healthcare facilities or services informed as appropriate e.g. WAST, social care		
20. Other relevant bodies e.g. commissioning groups contacted, NHS organisations outside Wales. If so, which?		
<b>MANAGEMENT/ORGANISATIONAL ASPECTS</b>		
1. Need for increased clinical care considered e.g. extra staff		
2. Need for additional IPC training and the use PPE		
2. Need for extra cleaning resources considered		
3. Need for increased laundry, sterile supplies considered		
4. Need for increased clerical staff considered		
5. Need for increased bed capacity		
6. Isolation facilities defined		
7. Cohort ward considered and use defined		
8. Isolation and nursing procedures defined		
9. Nursing, medical and other staff informed of these procedures		
10. Domestic/housekeeping procedures defined		
11. Availability of supplies assessed		
<b>INVESTIGATION</b>		
1. Case definition established		
2. Line list of cases created		
3. Epidemiological investigation started		
4. Morbidity and mortality associated with outbreak reviewed		
5. Need for microbiological screening of staff and patients considered		
6. Need for serological screening of staff and patients considered		
7. Engineers involved (if appropriate)		
8. Need for environmental samples considered		
9. Need for food samples considered		
<b>CONTROL</b>		
1. Control measures agreed and documented		
2. Need for active or passive immunisation considered		



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3. Need for antibiotic prophylaxis considered		
4. Isolation policies implemented		
5. Policy on patient transfer, discharge and admissions defined		
6. Policy on the movement of patient and staff within the hospital defined		
7. Visiting arrangements defined		
8. Audit requirements reviewed and assessed each meeting e.g. Hand Hygiene, environmental		
<b>IMPACT</b>		
1. Impact of outbreak on services reviewed		
2. Bed days lost calculated		
3. Staff days lost calculated		
4. Procedures delayed calculated		
5. Associated costs		
<b>END OF OUTBREAK</b>		
1. End of outbreak formally declared		
2. Preliminary report compiled		
3. Meeting of OCT held to consider lessons learned		
4. Outbreak response audited against guidelines		
5. Final report including lessons learned and recommendations compiled circulated within Health Board/Trust		
6. Final report and audit submitted to Welsh Government		





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## **Appendix 5 Template Outbreak Report**

- 1. Executive Summary**
- 2. Introduction/Background: Brief narrative of circumstances of outbreak**
- 3. Investigation:**
  - Case Definition
  - Epidemiological
  - Microbiological
  - Environmental
- 4. Results:**
  - Epidemiological
  - Microbiological
  - Environmental
- 5. Control Measures**
- 6. Outcome of Root Cause Analysis (where undertaken)**
- 7. Conclusions/Recommendations:**
  - a) a statement on the causes of the outbreak, including any failures of procedures or breaches of legislation
  - b) comments on the conduct of the investigation and lessons learnt
  - c) comments on any training needs identified by the investigation and
  - d) performance against agreed standards
- 8. Appendices:**
  - Minutes of OCT meetings
  - Results of statistical analyses
  - Epidemiological Report
  - Estimated costs and impact (*optional*):
    - Staffing
    - Medical/surgical equipment
    - Additional cleaning resources
    - Bed days lost
    - Pharmaceuticals
    - Service delays



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Additional e.g. decontamination, sample testing, patient information, time  
Associated Mortality/morbidity or Impact on staff wellbeing, reputational impact



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## Appendix 6 – Hierarchy of Controls

### NIOSH HIERARCHY OF CONTROLS

