Policy for the Prevention of Nosocomial Invasive Aspergillosis
During Demolition/Construction/Renovation Activities

V2

22.01.16
Summary.

- Project outline agreed

- Classify patient at Risk Group (1-4)

- Classify construction activity and type (I, II or III and A, B, C or D)

  **Class 1 Type A**

  **Patient Risk Reduction**
  Move at-risk patients (Groups 2-4) away from construction area. If it is not possible to move e.g. ICU patients an impermeable dust barrier should be erected around the construction area
  Minimise patient’s exposure to the construction / renovation area
  Minimise dust and increase cleaning in patient area

  **Dust Control**
  Immediately replace ceiling tiles displaced for visual inspection.
  Execute work by methods to minimise dust generation from construction or renovation activities.
  Provide active means to minimise dust generation and migration into the atmosphere.
Class II Type B

Patient Risk Reduction
Move all patients from the construction area
If possible move at-risk patients (Groups 2-4) who are adjacent or near to the construction area
Ensure that patients do not go near construction area
All windows, doors, air intake and exhaust vents should be sealed in areas of the hospital containing patients who are classified as high-risk, if the construction or demolition work is considered likely to result in Aspergillus-contaminated air entering these areas
Very high-risk patients (Group 4) should be treated in HEPA-filtered, positive pressure rooms

Dust Control
Erect an impermeable dust barrier
Ensure windows and doors are sealed.
A separate entrance away from patient traffic should be created for use by construction workers
Protective clothing should be worn by construction workers and removed when leaving the construction site
Dust barrier should not be removed until the project is complete
Contain debris in covered containers or cover with either an impermeable or moistened sheet before transporting for disposal
Remove debris at end of the work day
An external chute will need to be erected if the construction is not taking place at ground level
Vacuum work area with HEPA filtered vacuums daily or more frequently if required

Class III Type C&D

Patient Risk Reduction
If possible move at-risk patients (Groups 2-4) who are adjacent or near to the construction area
Ensure that patients do not go near construction area
All windows, doors, air intake and exhaust vents should be sealed in areas of the hospital containing patients who are classified as high risk, if the construction or demolition work is considered likely to result in Aspergillus-contaminated air entering these areas
Very high-risk patients (Group 4) should be treated in HEPA-filtered, positive pressure rooms

Dust Control
Execute work by methods to minimise dust generation from construction or renovation activities
Provide active means to minimise dust generation and migration into the atmosphere.
Contain debris in covered containers or cover with an impermeable or moistened sheet before transporting for disposal
Ensure no increased dust within hospital, increased cleaning may be necessary
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1. **Introduction**

1.1. Aspergillus species are ubiquitous fungi that commonly occur in soil, water, organically enriched debris and decaying vegetation. Many species of Aspergillus have been recognised in nature but only a few have been associated with human disease. Aspergillus species are responsible for a wide spectrum of human illnesses ranging from colonisation of the bronchial tree to rapidly invasive and disseminated diseases.

Certain types of demolition and construction activities can result in increased incidence of invasive Aspergillosis (a condition in which pneumonia caused by inhalation of Aspergillus spores is established and the fungus is disseminated to other organs) among immuno-suppressed/vulnerable patients.

Aspergillus spores are superbly adapted to airborne dissemination. The spores are passively liberated during construction/renovation activities and can be transported great distances as airborne particles by normal atmospheric conditions such as convection currents and wind. Airborne transmission is the principal route of transmission of Aspergillus within the hospital environment. The respiratory tract is the most common portal of entry and the small diameter of the spores (2.5–3.5 μm) permits them to reach the pulmonary alveolar spaces, where they may germinate. Pulmonary Aspergillosis may then develop following inhalation of airborne fungal spores, and high spore counts within patient-care areas represent an extrinsic risk factor for invasive disease.

Nosocomial (i.e. hospital acquired) outbreaks of Aspergillosis are a well-recognised complication of construction, demolition or renovation work in or near hospital wards in which immuno-suppressed patients are accommodated. Because of the high mortality rate associated with invasive Aspergillosis in vulnerable patients, it is essential to minimise these risks. While demolition or construction activities are taking place it is necessary that immuno-suppressed / vulnerable patients be protected over that period.

1.2. This version supersedes any previous versions of this document

2. **Purpose of this Policy/Procedure**

When major demolition and/or construction work is planned, the Trust must ensure that a multidisciplinary team comprising hospital managers, infection control staff, technical services staff, building / development contractors, designers and relevant clinicians in high risk areas is established, and that policies and procedures that clearly outline the responsibilities of all personnel involved, are put in place to minimise the risk of invasive Aspergillosis.

3. **Scope**

The policy is applicable to all internal/external staff and contractors during the activities of demolition, construction or renovation.

4. **Definitions / Glossary**

These are contained within the text.
5. Ownership and Responsibilities

5.1. Role of the Director of Estates
The Director of Estates is the delegated officer of the Chief Executive and is responsible for ensuring that arrangements are in place to effectively manage the risks arising from building demolition/construction.

5.2. Role of the Head of Estates Development
The Head of Estates Development has responsibility for ensuring that all phases of major demolition/construction/renovation activities needed to deliver the project are appropriately planned and reviewed by a multidisciplinary team that includes infection control representation, and are carried out in compliance with this policy.

5.3. Role of Capital Projects Officer
The Capital Projects Officer is responsible for ensuring that detailed plans for all capital schemes and projects are communicated to the infection control team and will provide contractors with appropriate documentation to enable the contractor to comply with this policy. The capital projects officer shares responsibility with other operational staff for monitoring contractor sites and behaviour to ensure implementation of preventive measures.

5.4. Role of Estates
Team leaders are responsible for ensuring that all development / refurbishment projects and schemes are undertaken in consultation with the Infection prevention and control team and in compliance with this policy. Technical services personnel share responsibility with other operational staff for monitoring contractor sites and behaviour to ensure implementation of preventive measures.

5.5. Role of Contractors (design, demolition, construction, commissioning)
Each contractor will be required to ensure that all activities and personnel within their control and those sub-contacted, are managed in accordance with this policy and with all other Trust policies as directed.

5.6. Role of Infection Prevention and Control Team
The Infection Prevention and Control Team are responsible for ensuring that this policy is kept up to date and is in line with available evidence and recognised “best practice”. The team will collaborate with medical and nursing staff to identify patients at risk, determine necessary risk reduction precautions and provide a source of expert advice to project managers and contractors. The infection control team share responsibility with other operational staff (as identified above) for monitoring contractor sites and behaviour to ensure implementation of preventive measures.

6. Standards and Practice

6.1. Risk Assessment
The major risk factor for invasive Aspergillosis is prolonged and severe neutropenia, both disease and therapy induced. The duration of neutropenia is an independent risk factor for the development of invasive fungal infections. Bone-marrow transplant recipients are the population at highest risk. However, other Immuno-suppressive
conditions have frequently been reported as risk factors for construction related nosocomial fungal infections: graft versus host disease requiring treatment, prolonged neutropenia following cytotoxic chemotherapy, prolonged use of antibiotics and steroid therapy.

6.2. Classification of At Risk Patients

At-risk patients may be categorised as follows:

**Group 1 - No evidence of risk**
1. Staff members, Service Providers and Contractors
2. All patients not listed in Groups 2 – 4 below

**Group 2 - Increased risk**
1. Patients on prolonged courses of high dose steroids particularly those hospitalised for prolonged periods
2. Severely immuno-suppressed HIV / AIDS patients
3. Patients undergoing mechanical ventilation
4. Patients having chemotherapy who are not neutropenic**
5. Dialysis patients

**Group 3 - High risk**
1. Neutropenia for less than 14 days following chemotherapy
2. Adult acute lymphoblastic leukaemia (ALL) on high dose steroid therapy
3. Solid organ transplantation
4. Chronic Granulomatous Disease of Childhood (CGDC)
5. Neonates in intensive care units (ICU)

**Neutropenia defined as absolute neutrophil count (ANC), <1x10^9/l**

**Group 4 - Very high risk**
1. Allogeneic bone marrow transplantation during the neutropenic period with graft versus host disease
2. Autologous bone marrow transplantation, i.e. during the neutropenic period
3. Peripheral stem cell transplantation, i.e. during the neutropenic period
4. Non-myeloablative transplantation
5. Children with severe combined immuno-deficiency syndrome (SCIDS)
6. Prolonged neutropenia for greater than 14 days following chemotherapy or immunosuppressive therapy
7. Aplastic anaemia patients
8. Patients receiving CAMPATH treatment (haematology regimens)

6.3. Preventative Measures to Control Invasive Aspergillosis

The key to eliminating Aspergillus infection is first to minimise the dust generated during construction activity and second, to prevent dust infiltration into adjacent patient care areas.

Other measures include the erection of airtight plastic and dry wall barriers around the construction sites, the use of negative-pressure ventilation in the construction area, covering of all air intake and exhaust vents in the construction zone to prevent the introduction of contaminated air into the hospital heating, ventilation and air conditioning systems, capping the open ends of any existing ventilation ducts in the construction zone, redirection of construction traffic away from patient areas,
regular removal of the construction debris from the site in sealed containers or at least covered by a damp cloth, the use of sticky mats and damp cleaning.

The environmental control measures implemented will depend on the type of construction/renovation being undertaken in the hospital and the proximity of the at risk patients to this site. This will be based on the results of a risk assessment carried out by the infection prevention and control team in conjunction with project managers. The categories of construction/renovation activities and the recommended preventive measures for these activities are outlined in a Sample Construction Permit provided in Appendix 1.

Preventive measures can be considered under the following headings:
- demolition, construction and ventilation measures;
- infection control measures
- chemoprophylaxis.

6.4. Demolition, Construction and Ventilation Measures

A number of measures may be implemented by hospital construction design teams and maintenance personnel to protect at-risk patients during building activities on hospital sites. The measures vary from minimal precautions and good housekeeping to major mechanical services intervention involving dedicated HEPA filtered installation systems to protect the areas in which the at-risk patients are accommodated.

These measures may be divided into:
- Measures to reduce dust emission from construction area
- Measures to physically protect at-risk patients

6.4.1 Measures to reduce dust emission from construction area

- The construction area should be sealed fully during the construction period. A dust barrier should be created from the floor to the slab (true ceiling) and edges sealed. For short-term minor projects this may be plastic sheeting, however for more long-term projects this should be a solid sealed barrier. It may be necessary to create a lobby (anteroom) if the barrier is the entrance/egress for construction workers.

- All windows, doors, vents, plumbing penetrations, electrical outlets and any other sources of potential air leak should be sealed in the construction zone.

- Air pressure in the construction zone should be negative compared with adjacent areas. An extract fan may be used for this purpose. Air from the construction zone should be exhausted directly to the outside and this is the most appropriate option. If this is not possible then the air should be filtered through HEPA filters (that have been properly fitted and strictly monitored) before being re-circulated to the hospital.

- Dust reduction techniques should be used for cutting and hole boring.

- Debris should be removed from the construction area at the end of each working day. Debris should be removed in covered containers preferably through window openings. A chute may be necessary if the construction is above ground floor level. In addition, normal good housekeeping procedures
should prevail during the operation in particular, holding skips and other containers should be kept moistened and/or covered. The construction area should be vacuumed on a daily basis or more frequently if required, to maintain an environment as free from dust as possible.

- A mat with a sticky surface or moist carpet should be placed inside the exit from the construction zone to trap dust. This should be vacuumed/changed daily or more frequently when visibly soiled.

- Construction workers should wear protective clothing, which should be removed before leaving the construction zone.

- The measures implemented to reduce dust emission from the construction area will vary depending on the construction/renovation activity. The measures required for the various types of construction activity are outlined in Appendix 2.

6.4.2 Measures to physically protect at-risk patients

- Patients who are at risk should be moved to an area away from the construction zone if the air quality cannot be guaranteed during construction. At-risk patients (Groups 2-4) should wear protective masks if it is necessary to transport them through a construction area. These masks should be capable of filtering Aspergillus spores such as particulate-filter respirators (FFP 2 as a minimum) which give a >95% filtration efficacy of 0.3 μm particle size and are used in association with the National Institute for Occupational Safety and Health (NIOSH) regulations.

- All windows, doors (apart from essential access points) and vents should be sealed in areas of the hospital containing patients who are most susceptible (Groups 2-4), if the construction or demolition work is considered likely to result in Aspergillus contaminated air entering these areas. If the area is not served by a ventilation system, these precautionary measures may result in unacceptable environmental conditions within the area involved. Any fresh air introduced into this area must be HEPA filtered. If the area is connected to a central ventilation system, it is important that prior to demolition and/or construction works, the ventilation should be thoroughly checked and if it is to remain functional; it should be fitted with HEPA filters if air from the construction zone may be drawn into the system.

- For very high-risk patients (Group 4), it is recommended that an environment that is fully HEPA filtered and at positive pressure is provided. This involves the installation of dedicated remote air handling systems, which are ducted through supply systems to the at-risk area. The intake air handling unit is fitted with a combination of coarse bag and panel filters and finally a HEPA filtered section which is the only filter capable of trapping the 2.5 to 3.5 μm size of the Aspergillus spore. Typically, these dedicated ventilation/filter units should provide an air exchange rate of >12 air changes per hour within the at-risk area and a pressure differential for positive pressure areas of >2.5 pascals (ideal pressure differential of >8 Pa).

- A mat with a sticky surface should be placed at the entrance to the patient care area. This should be changed or vacuumed daily or when visibly soiled.
6.5. Infection Prevention and Control Measures

Communication and education are vital elements in the successful implementation of proactive infection prevention and control measures to eliminate/reduce the risk of nosocomial invasive Aspergillosis in immuno-compromised patients. Effective communication between all parties including architects, engineers, technical services, sub-contractors, infection control personnel, medical and nursing staff is essential during all stages of construction work.

6.5.1 Dust containment

The objectives of dust containment measures are:
- To minimise the dust generated during the work activity
- To prevent dust infiltration into adjacent patient care areas.

The categorisation of the construction activity in conjunction with its geographical location will determine the controls required to achieve these objectives. The use of a construction permit will assist in achieving compliance with the requirements (Appendix 1).

6.5.2 Cleaning

In addition to minimising dust through measures outlined in the construction permit, increasing the existing cleaning regimes to prevent dust accumulation on surfaces, ceilings and air duct grilles will be necessary. As the quantity of dust generated will vary depending on the type of building activity, the increased cleaning regimes need to be adjusted accordingly to minimise dust accumulation. Air filtration systems must be regularly checked. Where vacuum cleaners are used, in areas where high-risk and very high-risk patients are cared for and in adjacent areas, these should be equipped with HEPA filters and appropriately maintained to minimise dust dispersal.

Filters in the air filtration systems and the vacuum cleaners need to be changed regularly and a record/log should be kept of these changes.

6.5.3 Traffic

Pedestrians: Pedestrian traffic from the construction area should be directed away from patient areas, with workmen having separate access to the construction site. Wherever possible, patients and visitors should be prevented from entering the hospital adjacent to major construction/demolition sites, or where debris or dust is being removed from the works area.

6.5.4 Supplies

Alternative routes, which avoid the construction site, should be identified during construction. Clean or sterile supplies or equipment should be transported to storage areas by a route that minimises contamination risks. In some critical areas and in some instances where it may not be possible to alter traffic patterns consideration will have to be given to scheduling construction to ‘out of hour’ periods and weekends. Some areas may need to be relocated or closed temporarily.

6.6. Chemoprophylaxis and the Prevention of Invasive Aspergillosis

Antifungal chemoprophylaxis is recommended in patients expected to be neutropenic (ANC, 0.1-0.5 x10^9/l) for at least two weeks or profoundly neutropenic...
(ANC, < 0.1x10^9/l) for more than one week. The British Society for Antimicrobial Chemotherapy (BSAC) also made recommendation in 1993 for neutropenic and transplant patients nursed without HEPA filters where there is a high institutional rate of invasive Aspergillosis or where building works are being undertaken. There is also some benefit to secondary prophylaxis in patients with a history of invasive Aspergillosis and undergoing further treatments.

There is a lack of evidence for the use of prophylaxis in high-risk patients; no data exists for its use in the lower risk groups. Bearing this in mind chemoprophylaxis may be considered in at-risk groups in the presence of construction work if these patients cannot be protected by environmental measures. An evaluation of the at-risk population should be done in consultation with the Consultant Medical Microbiologist to determine if prophylaxis is likely to be of benefit.

6.7. Protective Measures for At-Risk Patients

Patients deemed to be at risk of systemic mould infection should be assessed on the basis of their underlying disease, its treatment and the area in the hospital in which they are being treated in relation to the proposed building programme.

6.7.1 Environmental measures:

- **Very high-risk patients** (Group 4)
  Patients at very high risk (Group 4) should receive maximum protection irrespective of the type/size of the building programme. All very high-risk patients should be nursed in HEPA filtered positive pressure rooms during the neutropenic period. As long as the fabric of these rooms is not disturbed so as to release dust from walls or ceiling spaces and as long as the filters are functional and correctly maintained, patients nursed in them should be safe. At times of work likely to generate environmental dust, adherence to isolation of all very high-risk patients needs to be particularly strict. The need to transfer these patients to other facilities would only be required if the integrity of the rooms was breached.

- **High-risk patients** (Group 3)
  Patients at high risk (Group 3) should receive protection if the area of treatment is next to or near the hospital construction area or if it is otherwise likely that Aspergillus-contaminated air may enter the area. High-risk patients should be nursed in a ward with sealed windows and suitable air quality.

- **Increased-risk patients** (Group 2)
  Patients at increased risk (Group 2) are usually dispersed throughout the hospital and therefore physical protection may be impractical. Consideration should be given to moving patients away from the construction area.

6.7.2 Diagnosis and Surveillance

It is imperative to maintain a high index of suspicion for the diagnosis of nosocomial Aspergillosis in the at-risk patients (Groups 2-4). This surveillance should be achieved through review of relevant clinical cases at ward level and review of relevant microbiological / histological specimens at laboratory level.
6.7.3 Diagnostic Strategies for Invasive Aspergillosis

There is no single diagnostic test that is applicable to all patients groups and the sensitivity and specificity of the available tests vary. The current gold standard involves the performance of invasive procedures, which are often contraindicated. A number of alternative methods are under development, however until the ability to diagnose this infection improves, a high index of suspicion in patients at risk of invasive disease is essential. Currently a combination of clinical, radiological and microbiological criteria can be used to predict the probability of invasive disease.

6.7.4 Criteria that may be used to aid in the diagnosis of invasive Aspergillosis

- **Clinical criteria:**
  Invasive Aspergillosis may manifest differently in different patient groups. It is important to ensure that clinicians with at-risk patients under their care are aware of the additional risk that occur during construction/renovation activities and that a high index of suspicion is maintained and clinical expertise in the area of diagnosis and management is readily available. Once a clinical suspicion exists appropriate investigations can be performed.

- **Radiological criteria:**
  Radiological examination remains an essential part of the diagnostic strategy and hospitals managing these patients must ensure that appropriate facilities are available. The routine CXR is insensitive and patients with clinical features compatible with infection and in an at-risk group should have high resolution CT or MR imaging as soon as practicable after suspecting the diagnosis. The presence of lesions suggestive of invasive Aspergillosis should trigger appropriate investigations and consideration of the need for immediate empirical antifungal therapy.

- **Microbiological techniques:**
  - **Tissue Culture:**
    The gold standard is the demonstration of fungal hyphae and the isolation of Aspergillus spp. from tissue specimens. However as already outlined biopsy is often contraindicated in patients at risk and suspected of having invasive disease and is rarely performed.
  - **Microscopy and Culture:**
    This examination can be performed on a variety of specimens including biopsies, fluid aspirates, broncho-alveolar fluid, tracheal aspirates or sputum. Culture alone is insensitive; however, the combination of microscopy and culture will increase the diagnostic yield by 15-20%.
  - **Serology:**
    Fluid, blood and aspirates can be examined for the presence of antibodies and antigen.
  - **Molecular techniques:**
    The detection of Aspergillus spp. DNA in blood and other specimens has not been developed as yet to a clinically useful level. Such technology however will probably become an important part of the diagnostic workup in the future.
6.8. Environmental Sampling for Aspergillus Species

Air sampling for Aspergillus spp. is difficult and not always useful. Generally it is not recommended that sampling be performed routinely even if demolition / construction / renovation activities are taking place.

It is particularly important that users understand that a sample will only reflect what is happening at one point in time and hence multiple samples at different sites and times will be required to give an accurate picture. **Control measures rather than sampling are more effective.**

7. Dissemination and Implementation

This policy will be implemented via the following routes:

- The policy will be included in the Trust’s Document Library
- The policy will be circulated to Estates and Capital Planning Teams

8. Monitoring compliance and effectiveness

This policy will be a standing agenda item for the Infection Control Committee during any major demolition/construction works, so that the effectiveness of the policy can be monitored.

<table>
<thead>
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<th>Element to be monitored</th>
<th>Dust control/protection of patient</th>
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<tr>
<td>Lead</td>
<td>Capital Planning Managers</td>
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<tr>
<td>Tool</td>
<td>Progress meetings</td>
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<tr>
<td>Frequency</td>
<td>To be determined by the Capital Planning Manager at the start of each project</td>
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<tr>
<td>Reporting arrangements</td>
<td>Any issues to be reported at the progress meetings</td>
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| Acting on recommendations and Lead(s) | The Progress Meeting Group will undertake subsequent recommendations and action planning for any or all deficiencies and recommendations within reasonable timeframes. |
| Change in practice and lessons to be shared | Required changes to practice will be identified and actioned immediately. A lead member of the team will be identified to take each change forward where appropriate. Lessons learned will be shared with all the relevant stakeholders. |

9. Updating and Review

This policy will be reviewed within 3 years.

10. Equality and Diversity

This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ‘Equality, Diversity & Human Rights Policy’ or the Equality and Diversity website.

10.1. The Initial Equality Impact Assessment Screening Form is at Appendix 2.
Appendix 1. Governance Information

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<tr>
<td>Date Valid To:</td>
<td>30\textsuperscript{th} January 2019</td>
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<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Infection Prevention &amp; Control</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872 25 4969</td>
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<tr>
<td>Brief summary of contents</td>
<td>Certain types of demolition and construction activities can result in increased incidence of invasive Aspergillosis (a condition in which pneumonia caused by inhalation of Aspergillus spores is established and the fungus is disseminated to other organs) among immuno-suppressed/vulnerable patients. This policy outlines the responsibilities of all personnel involved, and the measures required to minimise the risk of invasive Aspergillosis.</td>
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<td>Executive Director responsible for Policy:</td>
<td>Executive Director Nursing, Midwifery and AHPs</td>
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<tr>
<td>Date revised:</td>
<td>22\textsuperscript{nd} January 2016</td>
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<td>Policy for the Prevention of Nosocomial Invasive Aspergillosis During Demolition/Construction/Renovation Activities V1</td>
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<td>Name and Post Title of additional signatories</td>
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<td>Signature of Executive Director giving approval</td>
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Policy for the Prevention of Nosocomial Invasive Aspergillosis

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**Links to key external standards**

- Aspergillus website ~ [www.aspergillus.man.ac.uk](http://www.aspergillus.man.ac.uk)


- Department of Health (2013) Health Building Note 00-09 Infection Control in the Built Environment.


**Training Need Identified?** No
## Version Control Table

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<tr>
<td>Aug 10</td>
<td>V1.1</td>
<td>New Policy</td>
<td>Louise Dickinson Consultant Nurse Joint DIPC</td>
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<tr>
<td>Sept 10</td>
<td>V1.2</td>
<td>Comments from Anton Kruger incorporated.</td>
<td>Louise Dickinson Consultant Nurse Joint DIPC</td>
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<tr>
<td>Jan 16</td>
<td>V3</td>
<td>Re-formatted. References amended.</td>
<td>Louise Dickinson Consultant Nurse Joint DIPC</td>
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**All or part of this document can be released under the Freedom of Information Act 2000**  

**This document is to be retained for 10 years from the date of expiry.**  

**This document is only valid on the day of printing**  

**Controlled Document**  
This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.
**Appendix 2. Initial Equality Impact Assessment Form**

| Name of service, strategy, policy or project (hereafter referred to as *policy*) to be assessed: **Policy for the Prevention of Nosocomial Invasive Aspergillosis During Demolition / Construction / Renovation Activities** | Is this a new or existing Procedure? | Existing |
| Direcorate and service area: Corporate | Is this a new or existing Procedure? | Existing |
| Name of individual completing assessment: Louise Dickinson | Telephone: 01872 25 4969 |
| 1. Policy Aim* | When major demolition and/or construction work is planned, the Trust must ensure that a multidisciplinary team comprising hospital managers, infection control staff, technical services staff, building / development contractors, designers and relevant clinicians in high risk areas is established, and that policies and procedures that clearly outline the responsibilities of all personnel involved, are put in place to minimise the risk of invasive Aspergillosis. |
| 2. Policy Objectives* | The policy provides details on dust control measures required during any demolition or construction activities |
| 3. Policy – intended Outcomes* | To minimise the risk of invasive Aspergillosis. |
| 4. How will you measure the outcome? | This will be a standing agenda item at the Hospital Infection Prevention and Control Committee meetings during any major building works. |
| 5. Who is intended to benefit from the Policy? | Patients |
| 6a. Is consultation required with the workforce, equality groups, local interest groups etc. around this policy? | Yes |
| b. If yes, have these groups been consulted? | Yes |
| c. Please list any groups who have been consulted about this procedure. | Infection Prevention and Control Steering Group Hospital Infection Prevention and Control Committee |

*Please see Glossary
7. The Impact
Please complete the following table.

<table>
<thead>
<tr>
<th>Equality Group</th>
<th>Positive Impact</th>
<th>Negative Impact</th>
<th>No Impact</th>
<th>Reasons for decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
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<td></td>
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<tr>
<td>Disability</td>
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<tr>
<td>Religion or belief</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Transgender</td>
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<tr>
<td>Pregnancy/ Maternity</td>
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<tr>
<td>Race</td>
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<td>Sexual Orientation</td>
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<tr>
<td>Marriage / Civil Partnership</td>
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</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- A negative impact and
- No consultation (this excludes any policies which have been identified as not requiring consultation).

8. If there is no evidence that the policy promotes equality, equal opportunities or improved relations - could it be adapted so that it does? How?

Full statement of commitment to policy of equal opportunities is included in the policy

Please sign and date this form.

Keep one copy and send a copy to Matron, Equality, Diversity and Human Rights, c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Chyvean House, Penventinnie Lane, Truro, Cornwall, TR1 3LJ

A summary of the results will be published on the Trust’s web site.

Signed: Louise Dickinson

Date: 21st January 2016
Appendix 3. Aspergillus Construction Permit

Description of Works:

N.C.C. No:

Project Start Date:

Project Completion Date:

Type of Construction / Renovation (Aspergillus Policy Appendix 4):

Location of Construction:

Estimated Duration:
Demolition Phase:
Construction Phase:

Contractor: Contact Person (Demolition):
Tel:

Contractor: Contact Person (Construction):
Tel:

Capital Projects Officer Approval:
Tel:

Infection Prevention and Control Personnel Approval:
Tel:

Population Risk Groups (Aspergillus Policy Appendix 5):

Class of Infection Prevention / Control Recommendations
Appendix 4. Demolition/Construction/Renovation Activity

Type A - Minor Internal Containable Activities (Complete permit to work form)
Inspection and non-invasive activities and small-scale activities that create minimal dust
These include, but are not limited to:
Activities that require removal of ceiling tiles for visual inspection (limited to 1 tile per 5m2),
painting (no sanding), wall covering, electrical trim work, minor plumbing and other
maintenance activities that do not generate dust or require cutting of walls or access to
ceilings other than for visual inspection.
Activities that require access to conduit spaces, cutting of walls or ceilings where dust
migration can be controlled for installation or repair of minor electrical work, ventilation
components, telephone wires or computer cables. It also includes minor plumbing.

Type B - Major Internal Containable Activities (Complete construction permit)
Any work that generates a moderate level of dust or requires demolition or removal of any
fixed building components or assemblies (e.g. counter tops, cupboards, sinks)
These include, but are not limited to:
Activities that require sanding of walls for painting or wall covering, removal of floor-
covering, ceiling tiles and stud work, new wall construction, minor duct work or electrical
work above ceilings, major cabling activities, and any activity that cannot be completed
within a single work shift.
This type of activity includes extensive plumbing work. It also includes demolition or
removal of a complete cabling system or plumbing and new construction that requires
consecutive work shifts to complete.

Type C - Minor External Non-Containable Activities (Complete construction permit)
External construction activities that generates moderate levels of dust or minor
excavations.
Such activities include digging trial pits and minor foundations, trenching, landscaping and
minor construction and demolition work.

Type D - Major External Non-Containable Activities (Complete construction permit)
External construction activities that generate large levels of dust.
Such activities would include major soil excavation, demolition of buildings and any other
construction activity not covered under Type C.
Appendix 5. Recommendations for Infection Prevention/Control Measures (minimum requirements)

Class I
Class I Preventive Measures are recommended for Minor Internal Containable Construction Activities (Type A)

Dust Control
- Immediately replace ceiling tiles displaced for visual inspection.
- Execute work by methods to minimise dust generation from construction or renovation activities.
- Provide active means to minimise dust generation and migration into the atmosphere.

Cleaning
- Wet mop and vacuum area as needed and when work is completed
- Wipe horizontal and vertical work surfaces with hot soapy water

Infection Control Personnel
- Approval to be given
- In collaboration with cleaners and technical services ensure that the construction zone remains sealed and that the cleaning is adequate at all times

Patient Risk Reduction
- Move at-risk patients (Groups 2-4) away from construction area. If it is not possible to move e.g. ICU patients an impermeable dust barrier should be erected around the construction area
- Minimise patient's exposure to the construction / renovation area
- Minimise dust and increase cleaning in patient area

Class II
Class II Preventive Measures are recommended for Major Internal Containable Construction Activities (Type B)

In addition to the Class I measures outlined above the following measures should be also implemented for Type B activities:

Dust Control
- Erect an impermeable dust barrier
- Ensure windows and doors are sealed
- A separate entrance away from patient traffic should be created for use by construction workers
- Protective clothing should be worn by construction workers and removed when leaving the construction site
- Dust barrier should not be removed until the project is complete

Ventilation of Construction Area
- Seal windows
- Maintain negative pressure within construction zone by using a portable extract fan

Policy for the Prevention of Nosocomial Invasive Aspergillosis
• Ensure air is exhausted directly to the outside and away from intake vents or filtered through a HEPA filter before being re-circulated
• Ensure ventilation system is functioning properly and is cleaned if contaminated by soil or dust after construction or renovation project is complete

Debris Removal and Cleaning
• Contain debris in covered containers or cover with either an impermeable or moistened sheet before transporting for disposal
• Remove debris at end of the work day
• An external chute will need to be erected if the construction is not taking place at ground level
• Vacuum work area with HEPA filtered vacuums daily or more frequently if required

Infection Control
• As for Class I

Patient Risk Reduction
• Move all patients from the construction area
• If possible move at-risk patients (Groups 2-4) who are adjacent or near to the construction area
• Ensure that patients do not go near construction area
• All windows, doors, air intake and exhaust vents should be sealed in areas of the hospital containing patients who are classified as high-risk, if the construction or demolition work is considered likely to result in Aspergillus-contaminated air entering these areas
• Very high-risk patients (Group 4) should be treated in HEPA-filtered, positive pressure rooms
• Traffic Control
• In collaboration with the technical services manager designate a traffic pattern for construction workers that avoids patient care areas and a traffic pattern for clean or sterile supplies, equipment, patients, staff and visitors that avoids the construction area
• A traffic path should be designated for the removal of rubble from the construction site which preferably is separate to and away from all hospital related traffic

Class III
Class III Preventive Measures are recommended for All External Non-Containable Construction Activities (Type C & D)

Dust Control
• Execute work by methods to minimise dust generation from construction or renovation activities
• Provide active means to minimise dust generation and migration into the atmosphere.

Debris Removal and Cleaning
• Contain debris in covered containers or cover with an impermeable or moistened sheet before transporting for disposal
• Ensure no increased dust within hospital, increased cleaning may be necessary
Infection Control
- Approval to be given
- In collaboration with technical services ensure that dust is minimised from the construction site and that the construction site measures are being adhered to
- Ensure that cleaning is adequate to minimise dust within the hospital

Patient Risk Reduction
- If possible move at-risk patients (Groups 2-4) who are adjacent or near to the construction area
- Ensure that patients do not go near construction area
- All windows, doors, air intake and exhaust vents should be sealed in areas of the hospital containing patients who are classified as high risk, if the construction or demolition work is considered likely to result in *Aspergillus*-contaminated air entering these areas
- Very high-risk patients (Group 4) should be treated in HEPA-filtered, positive pressure rooms

Traffic Control
- See Class II measures