Infection Control Risk Assessment for Hospital Construction and Renovation

*Health care facilities work to keep individuals healthy. When an organization begins a construction, renovation, or demolition project, it needs to assess the risks to its infection prevention and control efforts. This infection control risk assessment matrix can help organizations identify what steps need to be taken to ensure the health of the individuals served.*

|  |  |
| --- | --- |
| Step 1 | Using the following table, identify the type of construction project activity (Types A–D). Write the type of activity on the line provided below. |
| Type A | **Inspection and noninvasive activities**  Includes but is not limited to the following:   * Removal of ceiling tiles for visual inspection only (for example, limited to one tile per 50 square feet) * Painting (but not sanding) * Wall covering, electrical trim work, minor plumbing, and activities that do not generate dust or require cutting of walls or access to ceilings other than for visual inspection |
| Type B | **Small-scale, short-duration activities that create minimal dust**  Includes but is not limited to the following:   * Installation of telephone and computer cabling * Access to chase spaces * Cutting of walls or ceiling where dust migration can be controlled |
| Type C | **Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies**  Includes but is not limited to the following:   * Sanding of walls for painting or wall covering * Removal of floor coverings, ceiling tiles, and casework * New wall construction * Minor ductwork or electrical work above ceilings * Major cabling activities * Any activity that cannot be completed within a single work shift |
| Type D | **Major demolition and construction projects**  Includes but is not limited to the following:   * Activities that require consecutive work shifts * Activities that require heavy demolition or removal of a complete cabling system * New construction |
| Step 1**.** | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step 2 | Using the following table, identify the patient risk groups (low–highest risk) that will be affected. If more than one risk group will be affected, select the higher-risk group. Write the group(s) on the line provided below. | | | |
| Low Risk | | Medium Risk | High Risk | Highest Risk |
| * Behavioral therapy or counseling rooms * Common areas * Conference rooms * Offices * Recreational facilities * Waiting rooms | | * Cardiology * Echocardiography * Endoscopy * Nuclear medicine * Physical therapy * Radiology/MRI * Respiratory therapy | * Cardiac care units * Emergency department * Labor and delivery room * Laboratories (specimen) * Medical units * Newborn nurseries * Outpatient surgery * Pediatrics * Pharmacy * Postanesthesia care units * Surgical units | * Any area caring for immunocompromised patients * Burn units * Cardiac catheterization labs * Central sterile supply * Intensive care units * Negative-pressure isolation rooms * Oncology * Operating rooms (including C-section rooms) |
| Step 2**.** | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Step 3 | Match the Patient Risk Group (Low, Medium, High, Highest) with the planned Construction Project Type (A, B, C, D) on the following matrix, to find the Class of Precautions (I, II, III or IV) or level of infection control activities required. Class I–IV Precautions are delineated below. Write the class or level in the line provided. | | | | |
| Patient Risk Group | | Type A | Type B | Type C | Type D |
| Low-Risk Group | | I | II | II | III/IV |
| Medium-Risk Group | | I | II | III | IV |
| High-Risk Group | | I | II | III | IV |
| Highest-Risk Group | | II | III/IV | III/IV | IV |
| **Note:** *Infection Prevention and Control department approval will be required when the Construction Activity and Risk Level indicate that Class III or Class IV control procedures are necessary.* | | | | | |
| Step 3**.** | | | | | |

|  | During Construction Project | Upon Completion |
| --- | --- | --- |
| Class I | 1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace a ceiling tile displaced for visual inspection. | 1. Clean work area upon completion of task. |
| Class II | 1. Provide active means to prevent airborne dust from dispersing into atmosphere. 2. Water-mist work surfaces to control dust while cutting. 3. Seal unused doors with duct tape. 4. Block off and seal air vents. 5. Place dust mat at entrance and exit of work area. 6. Remove or isolate HVAC system in areas where work is being performed. | 1. Wipe work surfaces with cleaner/disinfectant. 2. Contain construction waste in tightly covered containers before transport. 3. Wet mop and/or vacuum with HEPA–filtered vacuum before leaving work area. 4. Upon completion, restore HVAC system where work was performed. |
| Class III | 1. Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system. 2. Complete all critical barriers (that is, sheetrock, plywood, plastic) to seal area from nonwork area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. 3. Maintain negative air pressure within work site using HEPA–equipped air-filtration units. 4. Contain construction waste in tightly covered containers before transport. 5. Cover transport receptacles or carts. Tape covering unless solid lid. | 1. Wipe work surfaces with cleaner/disinfectant. 2. Contain construction waste in tightly covered containers before transport. 3. Wet mop and/or vacuum with HEPA–filtered vacuum before leaving work area. 4. Upon completion, restore HVAC system where work was performed. |
| Class IV | 1. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 2. Complete all critical barriers (that is, sheetrock, plywood, plastic) to seal area from nonwork area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. 3. Maintain negative air pressure within work site using HEPA–equipped air-filtration units. 4. Seal holes, pipes, conduits, and punctures appropriately. 5. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site, or they can wear cloth or paper coveralls that are removed each time they leave the work site. 6. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area. | 1. Do not remove barriers from work area until completed project is inspected by the organization’s Safety and IC departments or other leadership and is thoroughly cleaned by the Environmental Services department or other leadership. 2. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction. 3. Contain construction waste in tightly covered containers before transport. 4. Cover transport receptacles or carts. Tape covering unless solid lid. 5. Vacuum work area with HEPA–filtered vacuums. 6. Wet mop area with cleaner/disinfectant. 7. Upon completion restore HVAC system where work was performed. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Step 4 | Identify the areas surrounding the project area, assessing potential impact. | | | | | | |
| Unit Below | | | Unit Above | Lateral | Lateral | Behind | Front |
|  | | |  |  |  |  |  |
| Risk Group | | | Risk Group | Risk Group | Risk Group | Risk Group | Risk Group |
| Step 5 | Identify specific site of activity (for example, patient rooms and medication room). | | | | | | |
|  | | | | | | | |
| Step 6 | Identify issues related to ventilation, plumbing, and electrical in terms of the occurrence of probable outages. | | | | | | |
|  | | | | | | | |
| Step 7 | Identify containment measures, using prior assessment. What types of barriers (for example, solids walls)? Will HEPA filtration be required?  (**Note:** *Renovation/construction area shall be isolated from the occupied areas during construction and shall be negative with respect to surrounding areas.)* | | | | | | |
|  | | | | | | | |
| Step 8 | Consider potential risk of water damage. Is there a risk due to compromising structural integrity (for example, wall, ceiling, and roof)? | | | | | | |
|  | | | | | | | |
| Step 9 | Work hours: Can or will the work be done during non–patient care hours? | | | | | | |
|  | | | | | | | |
| Step 10 | Do plans allow for adequate number of isolation/negative airflow rooms? | | | | | | |
|  | | | | | | | |
| Step 11 | Do the plans allow for the required number and type of hand-washing sinks? | | | | | | |
|  | | | | | | | |
| Step 12 | Does the infection prevention and control staff agree with the minimum number of sinks for this project? (Verify against Facility Guidelines Institute design and construction guidelines for types and area.) | | | | | | |
|  | | | | | | | |
| Step 13 | Does the infection prevention and control staff agree with the plans relative to clean and soiled utility rooms? | | | | | | |
|  | | | | | | | |
| Step 14 | Plan to discuss the following containment issues with the project team (for example, traffic flow, housekeeping, debris removal [how and when]). | | | | | | |
|  | | | | | | | |
| Appendix | | Identify and communicate the responsibility for project monitoring that includes IC concerns and risks. The ICRA may be modified throughout the project. Revisions must be communicated to the project manager. | | | | | |
|  | | | | | | | |

HEPA, high-efficiency particulate air; HVAC, heating, ventilating, and air-conditioning; IC, infection prevention and control; ICRA, infection control risk assessment

Source: Adapted from Judene Bartley, Epidemiology Consulting Services, Inc. Beverly Hills, MI. © 2002. Updated 2017. May be adapted for internal use.