

Nosocomial Aspergillosis Infection-Bundle the Right Activities, Aiming at Zero Infection Rate

Pang Nguk Lan, Annellee Camet, Mary Rose Malinao,
Mya Soe Nwe, Wong Sook Thow,
Jessie Chan

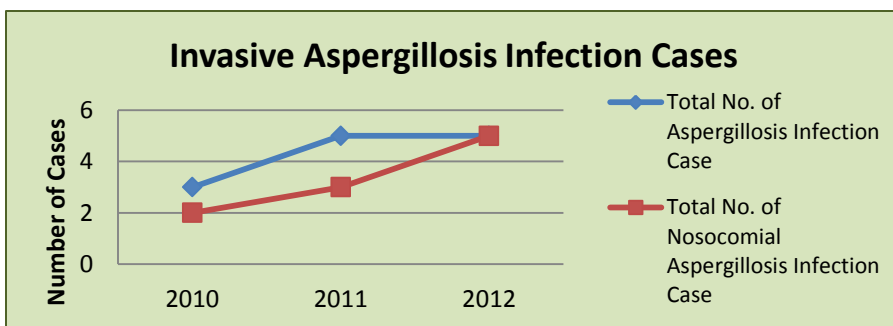


KK Women's and
Children's Hospital
SingHealth

Aim: Using the Enterprise Risk Management Framework to systematically identify and mitigate the risk of invasive Aspergillosis infection in an Oncology Ward.

Methodology

KKH has adopted Enterprise Management (ERM) Program to manage risk. A multidisciplinary work team was formed in November 2012 to address the rising rate of Aspergillosis infection in the oncology ward. A baseline data was collected over 2010 to 2012 (refer to chart below) and on average the mortality rate for patients with Aspergillosis infection was 54% (raw data)



The team combed through the existing measures in environmental control and clinical management of the oncology patients, perform risk assessment using ERM mitigation framework. The effectiveness in the prevention and management controls of invasive Aspergillosis were then rated. As shown on below chart, out of 18 risks identified 5 were potentially found to be inadequately controlled and 1 was not adequately managed.

Risk	Current Management and Mitigation	Risk Rating with Current Controls
Poor risk assessment and control of HAI	Hospital Healthcare-associated Infection surveillance Program	Potentially under-controlled
Poor surveillance of the HAI during the early phase	1) Monitoring of clinical cases of aspergillosis and other invasive mold infections is performed with enhanced surveillance of microbiological, pathological and radiological data to identify the trends. 2) Timely feedback and investigation, and appropriate infection prevention and control measures to be instituted. 3) Prevention by using prophylaxis treatment	Potentially under-controlled
Inappropriate facility design of the Isolation rooms	1) Current room is not designed for positive pressure control. 2) Surface finishes are easy to maintain and clean. 3) Plaster ceilings are used however there is a small opening to access maintenance of aircon and pipes.	Under-controlled
Ineffective airflow control in the Anteroom	1) Air flow in the Anteroom goes out to the corridor. 2) Air-handling system is shut down once a month for about 20 minutes. 3) Currently using fan during aircon servicing.	Potentially under-controlled
Risk of poor incident reporting	1) Create a safety culture with each individual taking responsibility of ensuring patient safety. 2) Encourage reporting of unsafe environmental conditions that may compromise patient safety e.g. damp or mouldy ceiling board, dusty surface or non-compliance to safe practices etc.	Potentially under-controlled
Non-compliance with the infection control program	1) Audit to be conducted to measure the compliance with infection prevention and control policies and procedures by direct observation, examination of logs and registers of specific activities. 2) Timely feedback. 3) Infection control team to conduct audit	Potentially under-controlled

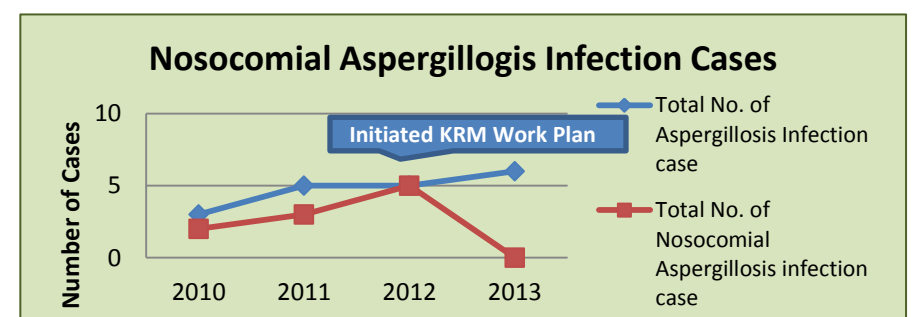
Risk Mitigation Work plan

The Key Risk Mitigation (KRM) work plan has allowed the team to systematically identify the management and environmental control gaps. The effectiveness of the additional measures and strategies has help to reduce Aspergillosis infection. Indeed lack of surveillance system for early detection, 'make do' facility design, lack of specific maintenance protocol for filter replacement, unclear roles in environment control and monitoring, and lack of cross-checking and compliance assessment for environmental maintenance were risks not adequately managed. The identified deficiency gaps were closed with additional measures and the implementation has optimized the prevention in addition to the prophylaxis of antifungal treatment.

Risk	Changes to Controls	Change to Control Effectiveness	Risk Rating After Changes to Controls	Accountable Person/ Department
Poor risk assessment and control of HAI	1) Use of ERM approach to mitigate the risk 2) Infection Control Risk Assessment can be created to develop protocols for protection of high risk patients from outbursts of mold spores that might occur.	Substantial improvement	Adequate	RMO and Infection control team
Poor surveillance of the HAI during the early phase	1) Oncology will report cases to the Infection control team for them to track and monitor mold infections. 2) The result will be monitored and disseminated every quarter to Oncology and Nursing	Substantial improvement	Adequate	Infection control team and Oncology
Inappropriate facility design of the Isolation rooms	1) Routine cleaning and checking of the dampness performed at every terminal cleaning 2) Compulsory use of dust tent whenever performing maintenance of ceiling and pipes. 3) Routine check for potential water leaks 4) Shifting of patient to another room if there is dampness	Substantial improvement	Adequate	Facility Management
Ineffective airflow control in the Anteroom	1) No fan is allowed during shutdown for maintenance (20mins-1 hour) 2) Caregiver to be educated of the disadvantages of using the fan. 3) Mandatory shut down is not allowed however, any maintenance should not exceed one hour otherwise it should be pre-planned and the staffs will be notified.	Substantial improvement	Adequate	Facility Management
Risk of poor incident reporting	Oncology will report cases to the Infection control team for them to track and monitor mold infections.	Substantial improvement	Adequate	Nursing , Oncology, Infection control team, Facility Management and Environment Services
Non-compliance with the infection control program	1) FM will do their own compliance audit that will be forwarded to Nursing for tracking and monitoring 2) Oncology will report cases to the Infection control team for them to track and monitor mold infections.	Substantial improvement	Adequate	Nursing , Oncology, Infection control team, and Facility Management

Result

The baseline data showed a significant rising number of nosocomial Aspergillosis cases from 2 in 2010, 3 in 2011 and 5 in 2012, however with implementation of additional control measures, the number was reduced to zero in 2013.



Sustainability

Aspergillosis infection rate is captured by Department of Paediatric Oncology, and closely monitored by Infection Control Unit. All KRM Work Plan will be tracked and Asperigilosis infection rate will be closely monitored by KKH's Risk Management Office.

Conclusion

Nosocomial Aspergillosis represents a serious threat to immunocompromised patients with high risk of mortality; therefore the use novel framework in mitigating the risk impact that affect the survival rate of these patients is hence critical. As IHI's McCannon says that it's reasonable to expect that zero infections will become a widely-accepted goal for hospital performance. "What we're talking about here is reliability. Once you bundle the right activities into the physical and mental space of the caregivers, change happens".

Acknowledgement

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