

# ERM Effectively Mitigates Risks of Renovating and Relocating KKH's Oncology Pharmacy

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## Introduction

Oncology Pharmacy was relocated and expanded in July 2013 to address medication errors, near-misses & staff safety due to overcrowding.

## Objectives

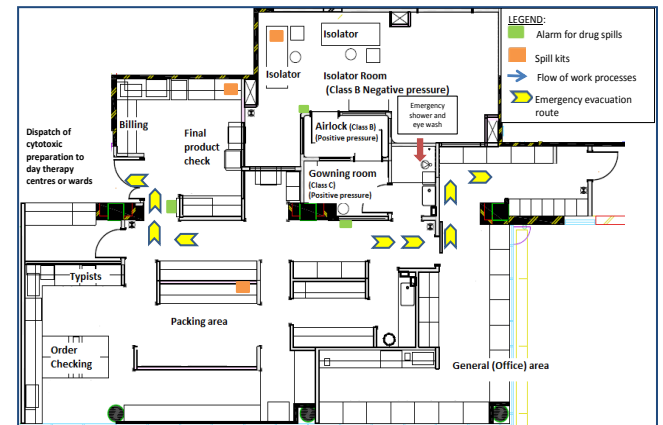
Our cross-functional team leveraged on enterprise risk management (ERM) approach to:

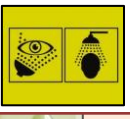
- plan the layout of the new Oncology Pharmacy
- plan & execute the move to the new premises without exposing staff and vendors to cytotoxic drugs or disrupting chemotherapy supply services

## Method

- A cross-functional team was formed with members from the KKH Enterprise Risk Management Office, Pharmacy, Security and Fire Safety, Facilities Development, technical consultants and vendors.
- The team identified risks with moderate to major impact and sought to assess and mitigate them (No extreme risks were identified) (please refer to table below).

Layout of new pharmacy to orientate staff



Risks	Potential Consequences of Control Failure	Impact	Likelihood	Current Management and Mitigation
1) UNFAMILIAR WITH NEW SETTINGS				
a) Fire outbreak	1. Interruption to department functions 2. Staff unable to react appropriately to the emergency	Major	Likely	1. Orientate all staff on the new layout and evacuation route during site visit to be conducted after the handover of the facilities and before the operations commences. 2. Revise the current fire plan 3. Conduct a table top exercise and fire drill
b) Cytotoxic drugs breakage/spillage during processing	Staff Exposure to Cytotoxic Drugs 	Major	Uncommon	1. All the staff are briefed on spillage procedures in the packing room facility during orientation and yearly competency test. 2. Cytotoxic drugs are handled with gloves and transported in baskets 3. Mandatory use of PPE when in isolator room where reconstitution and dilution of concentrated cytotoxic drugs is performed 4. Cytotoxic Spill kits are readily available in the throughout the pharmacy 5. Activation of the spillage alarm to alert the staff on the spillage and the need to evacuate. 6. Lock down the airflow when spillage occurs. 7. Staff in the Isolator room who will already be in PPE will clear the spillage. 8. Purge room air after spillage has been cleaned up 9. Decontamination at the dedicated area with emergency shower and eyewash within the pharmacy. 10. Manage the spillage as per protocol. 11. Work instructions to be revised to reflect changes as a result of the new facilities. 12. After spill incident, raise incident report, conduct post incident review and initiate appropriate improvement/corrective process.
2) POWER FAILURE AFFECTING OPERATIONAL FUNCTIONS	1. Affect the cleanliness of the room and isolators 2. Product contamination	Moderate	Uncommon	Prepare Work Instructions to be put in place and conduct annual competency test. A) Isolators are connected to E-power supply B) Perform particle count of the air within clean room after power supply resumes. C) Check room pressure D) Resume operations only when the optimum room and isolator negative pressure is achieved and particle count is within specifications E) Work instructions to be put in place.
3) UNFAMILIAR WITH THE GOWNING REQUIREMENTS	1. Affect the cleanliness of the room 2. Product contamination	Moderate	Occasional	Prepare Work Instructions to be put in place and conduct annual competency test. A) Staff are brief on: - requirement to enter clean room - hand hygiene - the correct process of handwashing and gowning B) Gowning and hand washing instructions will be in place at the entrance of each room. C) Supervisors will conduct ad hoc checks for compliance. D) Gowning requirements are to be formalised in PnP.
4) FIRE SAFETY				
a) Equipment damage by fire	1. Affect the cleanliness of the room 2. Product contamination 3. Damage of equipment 4. Interruption on the operations	Major	Remote	Use of Halotron fire extinguisher Raise RMS report Report to Fire Safety Manager FS Manager to report SCDF (decision to be made by FS Manager) Re-certification for particle count and filter integrity by vendor Activate BCP Activate damage assessment team
b) Non functional Isolators after shifting to the new site	Interruption of operation	Major	Remote	To shift one isolator and have it certified before shifting another one. Vendor has submitted the risk assessment and mitigation measures for the shift of the isolators.

## Results

- The structured ERM approach enabled us to design the new Oncology Pharmacy to be safe and efficient. Chemotherapy services were not interrupted during the relocation of the pharmacy to its new premises located in a different tower.
- The ERM experience gained deepened the team's commitment to a collaborative safety culture, where the whole is greater than the sum of its parts.

## Conclusion

- ERM offered a strategic, systematic & collaborative approach to identify, assess & mitigate the risks involved in renovating & relocating a hazardous facilities, such as an Oncology Pharmacy.

### Gowning Instructions



### Compulsory use of PPE



Hair cover & face mask



Gloves

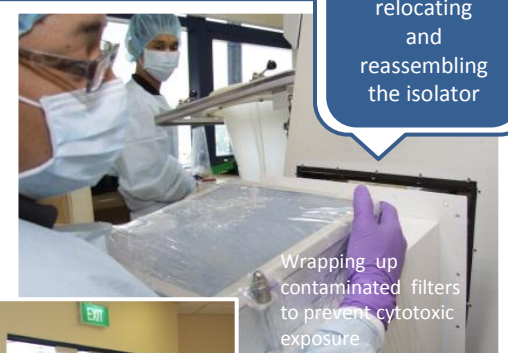


Isolator room shoes

### Spill kit & customised signage



### Dismantling, relocating and reassembling the isolator



Wrapping up contaminated filters to prevent cytotoxic exposure



Moving across towers



Protective covering to reduce dust



Final result