Measures to ensure the quality and safety of refrigerated drug in pharmacy
Cheng MKC(1), Leung YMF(1), Wong FFC(1), Chui CMW(1)
(1) Queen Mary Hospital S1 Central Pharmacy

Keywords:
Refrigerated drug
Quality
Safety
Pharmacy
Pharmacist

Introduction
Queen Mary Hospital S1 Central Pharmacy is responsible to dispense over 6000 drug items on usual working days. Some of the drugs would need to be refrigerated because of the stability or chemical natures of drugs. In the past, refrigerated drugs were dispensed in transparent plastic bags with extra storage precautionary and alert labels. Dispensers would need an average of 10 seconds per prescription to check the uncollected refrigerated drugs and put them back into the pharmaceutical refrigerators for future collection. Moreover, about 3 patients per month would fail to identify the storage condition of the refrigerated drugs and require pharmacy staffs to follow-up the failure.

Objectives
The objective of the project is to reduce the checking time of uncollected refrigerated drugs by at least 50%. The number of patient who fails to identify the refrigerated drugs and require follow-up per month is aimed to decrease by at least 50%.

Methodology
The project was carried out from 4/11/2013 to 3/11/2014. The time to check uncollected refrigerated drugs and number of patient complains were recorded and analyzed. The 5 why approach and fish bone diagram were used to identify the cause and effect relationships. In order to highlight the presence of refrigerated items, they were dispensed in a green plastic bag designated for refrigerated items with preprinted cautionary wordings instead. Refrigerated drug was placed on the top of the drug baskets as well. A red tag was clipped on the drug basket, a pharmacy staff wrote down 'fridge item' on the prescription to alert other staffs. Patients were educated to notify the pharmacy staff if they collected the drugs later, so that the
pharmacy staff could directly put the drugs into the refrigerator once checked. All the refrigerators had temperature loggers for daily checking.

**Result**
Pharmacy staff found it easier to differentiate refrigerated drugs in the same drug basket. The checking time for the uncollected refrigerated drugs was decreased from an average of 10 seconds to 5 seconds per basket. Supporting staffs can be arranged for the checking instead of dispensers, in order to better utilize the manpower in pharmacy. Patients also welcome the above measures, which can remind them about the storage condition of refrigerated drugs. The number of patients who failed to identify the refrigerated drugs and required follow-up decreased from an average of 3 patients to 0.25 patients per month.