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Project title
An effective tool to assess environmental cleanliness- ATP pilot in NDH 2015

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Introduction
Contaminated environment serves as a reservoir for dissemination of MDROs. Bed occupied by patient with MDRO is a well-known risk factor for acquisition of the bug for subsequent patients. Terminal disinfection of patients' immediate environmental is part and parcel in breaking the chain of infection. Cleaning should be monitored to ensure the environment being thoroughly decontaminated. Ultra-violet (UV) assessment is a fundamental tool to monitor the quality of environmental cleaning, it is an economic assessment tool with real-time visible result. Depends on the type of UV stains, the marking can stained on the surface permanently and difficult to remove. False negative result may be caused by UV mark being removed by the motions of staff or patient instead of the cleaning procedure. In order to provide accurate and real-time feedback result to the cleaning personal, multiple site visits by the auditor is necessary. Environmental sample culture is another assessment tool of environmental cleanliness and is the gold standard to evaluate for the presence of MDRO. However, it is labor intensive, time-consuming and organism specific. Most of the time, the discharge bed would be occupied immediately by next patients after disinfection. The time required for culture, which usually takes 2-3 days, serves as an opportunity for transmission of the MDROs.

Objectives
1)To ensure good quality environmental cleaning is in practice. 2)To provide cleaning personnel with instant, objective and quantified feedback on the cleaning performance.

Methodology
By means of measuring Adenosine Tri-phosphate (ATP) on the environment surface, the presence of organic matter could be evaluated. ATP is a distinct marker to evaluate the degree of environmental contamination: ATP of the organism reacts with the specific enzymatic regent and generates light; the result is expressed in Relative Light Units (RLUs) which is measured by the Luminometer. ATP assessment is a quick tool for instant quantified result for the cleaning personnel.

Result
ATP was introduced in August 2015 to evaluate the quality of environmental cleaning. Assessment of the cleaning of MDRA patient discharged bed was one of the uses of ATP since September 2015. The pass level of ATP assessment is defined as ≤ 250 RLUs. 39 samples of the environment were cultured and compared with the data of ATP assessment. Only 4% of false negative was noticed. The Hospital Acquired Infection (HAI) MDRA rate was significantly dropped from 0.12% to 0.03% and the MDRA environmental sample culture was also significantly decreased from 9.39% to 1.13%. The result provided the cleaning personnel with instant and objective feedback. Most of the cleaning personnel cherished the instant recognition and feedback by the ATP tool. In conclusion, effective environmental decontamination is essential to eradication of MDROs. ATP is a useful quality tool for environmental cleaning.