Title: Microbial contamination of single- and multiple-dose vials after opening in a pulmonary teaching hospital

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Body: Introduction: Intravenous therapy is a complex procedure usually requiring the preparation of the medication in the clinical area before administration to the patient. Breaches in aseptic technique may result in microbial contaminations of vials which is a potential cause of different avoidable infections. Aims: We aimed to investigate the prevalence and pattern of microbial contamination of single- and multiple-dose vials (SDVs and MDVs) in the largest pulmonary teaching hospital in Iran. Methods: In a period of 2 month, opened SDVs and MDVs from different wards were collected by a pharmacist. The name of the medication, ward, labeling of the vials, the date of opening, and storing temperature were recorded for each vial. Remained contents of each vial were cultured using appropriate bacterial and fungal growth media. Results: Microbial contamination was identified in 11 of 205 (5%) of vials. The highest contamination rate was 14.29% for vials used in interventional bronchoscopy unit. The most frequent contaminated medications were Insulin and potassium chloride. Gram-positive bacteria (81.82%) were more significantly involved than gram-negative ones (9.09%) and fungi (9.09%), with the highest frequency for Staphylococcus epidermidis. Conclusions: Use of safe injection practice is critical to prevent microbial contamination of products administered to patients. A training program for health care workers in aseptic techniques and written guidelines for aseptic handling of intravenous solutions are required.