

Evaluation of the improvements on pharmacy technicians' work practices after implementation of operational procedures

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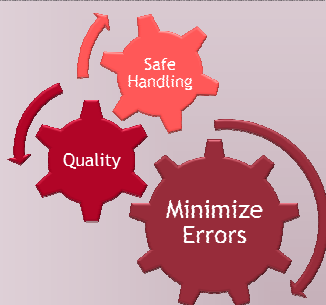
Abstract

Several antineoplastic drugs have been demonstrated to be carcinogenic or to have mutagenic and teratogenic effects. The greatest protection is achieved with the implementation of administrative and engineering controls and safety procedures. Objective: to evaluate the improvements on pharmacy technicians' work practices, after the implementation of operational procedures related to individual protection, biologic safety cabinet disinfection and cytotoxic drug preparation. Method: case-study in a hospital pharmacy undergoing a certification process. Six pharmacy technicians were observed during their daily activities. Characterization of the work practices was made using a checklist based on ISOPP and PIC guidelines. The variables studied concerned cleaning/disinfection procedures, personal protective equipment and procedures for preparing cytotoxic drugs. The same work practices were evaluated after four months of operational procedures implementation. Concordance between work practices and guidelines was considered to be a quality indicator (guideline concordance practices number/total number of practices x 100). Results: Improvements were observed after operational procedures implementation. An improvement of 6.25% in personal protective equipment practices was achieved by changing second pair of gloves every thirty minutes. The major progress, 10%, was obtained in disinfection procedure, where 80% of tasks are now realized according to guidelines. By now, we got an improvement of only 1% at drug preparation procedure by placing one cytotoxic drug at a time inside the biological safety cabinet. Then, 85% of practices are according to guidelines. Conclusion: Before operational procedures implementation 80.3% of practices were according to the guidelines, while now concordance is 84.4%. This indicates that is necessary to review the procedures frequently in the benefit to reduce the risks associated with handling cytotoxic drugs and maintenance of drug specifications.

Introduction and Aims

The centralized preparation of cytotoxic drugs, with the safe and efficient handling, assures the safety of personal in view of the potential adverse effects of hazardous drugs and reduces medication errors. [1,2]. Despite recommendations of recent guidelines documents that all aseptic manipulations must be performed under pharmacy control, medication errors with intravenous drug delivery continues to occur. [2,3]

In order to reduce medication errors and to improve the efficiency and competitive advantages of institutions in relation to cost effectiveness and quality of care, many hospitals and pharmacies across Europe have redesigned their procedures for aseptic manipulation, based on performance standards and good manufacturing practices. [2, 4]



Results

Quality Indicators were calculated:

$$\text{Quality indicator} = \frac{\text{Concordant observation}}{\text{total number of observations}}$$

The level of compliance with the criteria of the guidelines improved after written operational procedures implementation (Figure 1). The most important progress concerned the criteria involving cleaning procedures (10%).

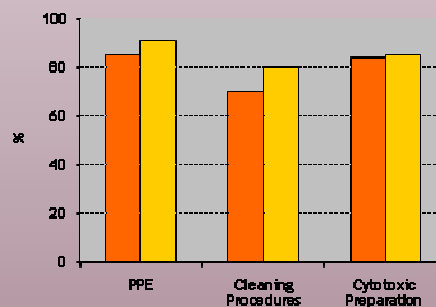


Figure 1. Compliance with Guidelines

Despite the improvements made, we would like to underline two critical points, which can compromise pharmacy technician safety:

- Room temperature, humidity and pressure are not checked before starting cytotoxic preparation;
- No Pharmacy Technician proceeds to change the second pair of gloves every 30 minutes.

Discussion

There was an improvement of 4,1% of concordant procedures with the guidelines in four months.

The main assumption is that written operational procedures are very important, but is not enough to reach the total compliance.

Organizational changes related to implementing continuous quality improvement in a hospital requires prior transformation of the culture and behaviour of health care professionals. [4, 5] This can be achieved with the creation of quality teams that consists of one each professional group that works with cytotoxic drugs. [5]

Although the implementation of quality management systems in health care institutions is already a reality, the total quality control is coming to hospitals very slowly. [5]

In order to reduce the risks associated with handling cytotoxic drugs and medication errors, it is necessary to review the procedures periodically (e.g. yearly). [6]

Strengths and weaknesses of the study

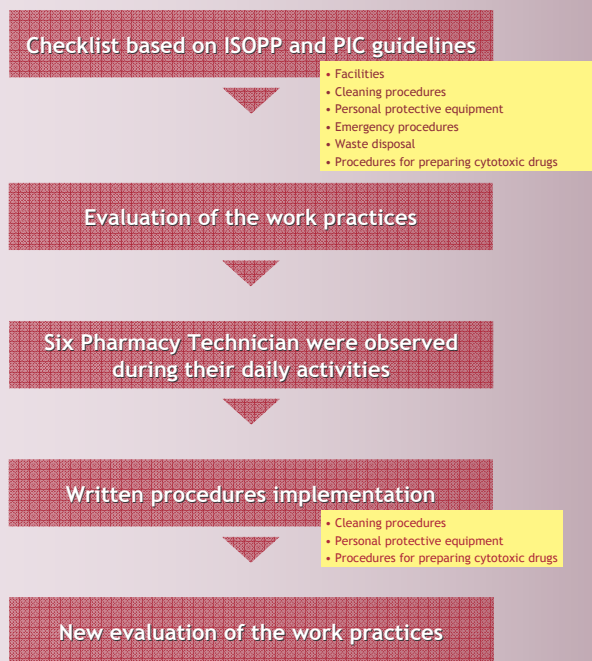
The main strength of the study is the measurement instrument which provides detailed information about each step of the main activities related to cytotoxic. Periodically monitoring of these indicators allows selecting events that are more likely than other events to reveal problems.

The study's weakness is inherent to the number of professionals observed (6/11 pharmacy technicians).

To evaluate the improvements on pharmacy technicians' work practices after the implementation of written operational procedures

Methods

Study design: case-study in a hospital pharmacy undergoing a certification process



References:

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