

## DEVELOPMENT OF A COMPUTER APPLICATION TO REDUCE THE RISK OF ERRORS IN RECONSTITUTION OF CYTOTOXIC DRUGS

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### What was done ?

We present a simple and effective method that we have developed in our hospital to solve the problem of reconstitution errors.

### Why was it done ?

The cytotoxic drugs account for 15,6% of the medication errors rate<sup>1</sup>. Cytotoxic drugs represent the second drug class whose errors lead to death<sup>2,3</sup>.

A study of S. limat on 30,819 preparations made in chemotherapy reconstruction unit of the French Hospital of Besançon reported 140 faulty preparations or an error rate of 0.45%<sup>4</sup>.

The preparation of cytotoxic drugs perfusions can be accompanied by errors that can be fatal to some patients. Several methods were tested to minimize the risk of errors associated with reconstitution of cytotoxic perfusions (camera, HPLC, analytical balance, the presence of a second technician to monitor his colleague). All these methods can be expensive and not available to all hospital pharmacists.



IPP	Firstname	Lastname	Actions
127.858	Said	BENNANI	Protocol
127.859	Nihad	AZZOUZI	Protocol
127.860	Mohamed	NAIM	Protocol
127.861	Byass	CHIBANI	Protocol
127.862	Ziad	HAMDOUNI	Protocol
111.111	hamid	Radouss	Protocol
2.222.222	rachida	hammou	Protocol

NB: The names listed in the table above are indicative and not the names of real patients

### How was it done ?

Errors of cytotoxic drugs reconstitution can have catastrophic consequences for patients. Some studies have found that incidence of major and minor errors were respectively 0,19% and 0,26%. Reconstitution control methods are numerous but not always accessible to all hospital pharmacists and technicians, particularly in developing countries.

This work involves the development of a computer application developed from an Open Source voice recognition software. The daily chemotherapy protocols are entered in the application that dictates to the technician the protocol prescribed by physician product by product for all patients. The technician performs the cytotoxic preparations in the order in the centralized pharmaceutical unit for the preparation of cytotoxic drugs and he communicates with the application manually or by speaking.

The application begins with the patient's ID, name and surname, the first drug, the dosage, the dilution solution and the volume of this solution. Then, it passes to the second product and so on. In case of an observation, the application warns the technician to take this observation into account.

### What has been achieved ?

This application has helped to provide better assistance to the technicians and pharmacists in the reconstitution of cytotoxic drugs and no event or error was detected until now.

### What next ?

Making a large number of reconstitutions using this application to assess its effectiveness and install it in other hospitals who handle cytotoxic drugs.

Drug	Dosage	Dilution	Volume	Actions
CARBOPLATINE DBL	250 mg	Glucose solution	500ml	Play
CASODEX	500 mg	Glucose solution	250ml	Play

**Key words :** Computer application, Risk, Reconstitution of cytotoxic drugs

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