FEASIBILITY STUDY ON IMPLEMENTATION OF DOSE BANDING IN A TEACHING HOSPITAL

E. Fargier ¹, M. Durand ¹, I. Federspiel ¹, MD. Desruet ¹, A. Lemoigne ¹, B. Allenet ¹, L. Foroni ¹
¹ CHU Grenoble - Pharmacy, Boulevard Chantourne 38700 La Tronche, France

Dose banding (DB) is a system whereby, through agreement between prescribers and pharmacists, chemotherapy doses calculated on body surface area (BSA) are rounded up or down to predetermined standard doses (SD) with variance limit of +/- 5%.

In our hospital, over 30,000 preparations of chemotherapy per year are made. Implementation of DB could reduce patient waiting time and improve capacity planning of our cytotoxic preparation unit (CPU).

### Setting and Method

#### Phase I: Literature review of DB
- to identify selection criteria and method of assigning dose bands.

#### Phase II: Retrospective analysis of 2013’s production in CPU
- to identify cytotoxic drugs candidates and select SD

### Selection dose: « TARGET DOSE » based banding

**5-FU bolus injection (400mg/m²)**

- 90 dosages
- 1282 preparations

### Results

#### I. SELECTION CRITERIA

- Frequency of preparation (> 250/year)
- Physicochemical stability after reconstitution (> 7days)
- Opportunity for savings
- 5 SD should cover at least 60% of preparation

#### II. CYTOTOXIC DRUGS CANDIDATES

On the 70 pharmaceutical specialties prepared in our CPU, 6 were eligible:

- Cyclophosphamide
- Cytarabine
- Gemcitabine
- Calcium Folate
- Paclitaxel
- 5-Fluouracil (5-FU)

**Simulation SD 5-FU**

- 42 dosages
- 1282 preparations
- 4 SD

The simulation was made with paclitaxel, 5-FU bolus injection (400mg/m²), and 5-FU 48-hour continuous infusion (2400 mg/m²)

<table>
<thead>
<tr>
<th>5-FU Bolus injection (400mg/m²)</th>
<th>5-FU 48-hour continuous infusion (2400mg/m²)</th>
<th>Paclitaxel</th>
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</thead>
<tbody>
<tr>
<td><strong>SD (mg)</strong></td>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
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<tr>
<td>500</td>
<td>475</td>
<td>525</td>
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<td>800</td>
<td>760</td>
<td>840</td>
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<td>4 SD</td>
<td>69.5% of standardisation</td>
<td>4 SD</td>
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</tbody>
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### Conclusions

Before implementation, this DB project should be approved by the medical staff and some practical constraints such as software, system management, storage, control should be developed.

On the other hand, status of these preparations is not well established by health authorities in France. They can be considered as hospital preparations (authorization request, statement, and respect of Good Manufacturing Practice) or as compounded medications requiring an early prescription.

**References:**