Building up a regional and interdisciplinary network for better use of medicines in intensive care units

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Background
Clinical pharmacy in intensive care units (ICUs) showed beneficial effects on safety and economics.

The set up of a regional network including pharmacists, physicians and nurses of all ICUs seemed useful for the following reasons:
- Issues regarding medication use in ICU are similar in all hospitals.
- Patients are often transferred from a tertiary care hospital to a secondary one or vice versa.
- Health care givers move from a hospital to another one during their career

In 2007, an interdisciplinary group, Sipharam, was set up in order to create a network in the French and Italian speaking parts of Switzerland.

Paper Purpose
The goals of the project are:
• exchange of data on drug administration in ICUs
• sharing of knowledge and skills
• establishing standards for the administration of drugs

Results
Four main axes have been developed:

1) Harmonisation of the dilution and preparation of intravenous drugs: 52 standard dilutions have been defined. This led to collaborations with industries in order to obtain ready-to-use preparations at the defined dilutions.

Examples of dilutions:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic name</th>
<th>DECISION OF SIFHARAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTRAPID</td>
<td>Insulin</td>
<td>mL 50 IU/1 mL of Dextrose 5% of NaCl 0,9% at 10 ml/h= 1 U/h</td>
</tr>
<tr>
<td>ADALAT</td>
<td>Nifedipine</td>
<td>5 mg (15 ml) of Dextrose 5% of NaCl 0,9% at 1 ml/h= 1 U/h</td>
</tr>
<tr>
<td>ADRENALINE</td>
<td>Epinephrine</td>
<td>5 mg 1,5 mg or 10 mg 20 ml of Dextrose 5% at 1 ml/h= 1 mg/min</td>
</tr>
<tr>
<td>ADRENALINE</td>
<td>Epinephrine</td>
<td>2 mg 0,5 mg or 4 ml 10 ml of Dextrose 5% at 1 ml/h= 1 mg/min</td>
</tr>
<tr>
<td>AGGRASTAT</td>
<td>Tirofiban</td>
<td>29 mg (11 ml) of Dextrose 5% of NaCl 0,9% at 1 ml/h= 30 µg/h</td>
</tr>
<tr>
<td>CATAPRESAN</td>
<td>Clonidine</td>
<td>Clonidine 1 mg or 3 ml 30 ml of Dextrose 5% of NaCl 0,9% at 1 ml/h= 1 mg/min</td>
</tr>
</tbody>
</table>

2) Harmonisation of the labelling of syringes: Definition of the minimal list of elements that labels have to include (based on the available international guidelines and norms).

Minimal list of elements required on labels

1. Preparation / Dilution
2. Highly relevant information (e.g. limited stability / To be protected from light)
3. Date / Time of preparation / signature(s)
4. Brand name
5. Generic name
6. Dose-speed of perfusion

3) Exchange of critical data
Messages of alerts, problems of stability or of physico-chemical compatibilities

Benefits of standardisation

Nurses:
Univocal documents
Simplicity in drug preparation and administration

Physicians:
Reflection on practices and of the way of prescribing

Pharmacists:
Simplification in the elaboration of reference documents (concentration, stability)
Simplification in the realisation of compatibility analysis

Discussion and conclusions
Establishing a network is an effective way of increasing the exchange of expertise.

It can lead to the simplification and harmonization of practices and therefore help reducing risks and medication errors and limit problems related to the movement of patients and caregivers.

Pharmacists have to be the driving force of such interdisciplinary projects focusing on drug use.

Materials and Methods

Sipharam involves now 13 hospitals. Each is represented by an ICU physician, an ICU nurse and a pharmacist.

The group meets twice a year. Then, each member has to implement the decisions in his/her hospital.

Evolution:

2007 Creation of Sipharam (5 centres)
2007-2012 Integration of new sites
2010 Integration of Sipharam as a unit of a medical network of all ICUs of the French- and Italian-speaking parts of Switzerland (RLMI)
2012 Most of the 13 sites members of Sipharam are represented by a physician, a nurse and a pharmacist.

Members of the network

Nurses:
Pierre Voiri, Melanie Schürch
Muriel Genet, Florence Prudhomme
Emmanuel Berthel, Constance Chalet

Nurses:
Alain Kocher, Nadine Guegueniat
Noëlle Schürch, Pierre Voirol

Physicians:
Murielle Joris-Frasseren
Emmanuel Benoît

Surgical:
Jura Alain Kocher
Norbert Croce
Juliane Borel

Surgical:
Lausanne: Gérald Seemater/Christine Lebrun

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Paris: Nathalie Schürch

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Lausanne: Anne-Laure Blanc

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