



**In the critical area of cancer care SafeChemo increases chemotherapy safety by introducing automation - from e-prescription to robotics assisted preparation of therapy doses. SafeChemo also aims at providing all the required process validation, reengineering and training expertise to ensure a better healthcare quality level for cancer patients.**

Today's healthcare providers are experiencing a growing pressure to improve patient safety and decrease operators' risk, while at the same time working more efficiently and containing costs. The compounding of oncology drugs – cytostatics – is a particularly challenging area, because of the following factors:

- high potential for adverse drug events, due to the narrow window between toxic a therapeutic effect;
- significant occupational risk, due to the exposure to toxic drugs during compounding and administration;
- rocketing drug budgets, due to growing cancer rates and marketing of new, expensive drugs.

SafeChemo directly addresses these challenges. The SafeChemo service automates cancer treatment from e-prescription to the automated preparation of cytostatics infusions, safely, accurately, efficiently and reliably. SafeChemo offers a set of modules – e-prescription, automation and robotics, remote access - to increase patient safety, lower operators' risk of contamination and reduce operating costs at the same time.

In order to achieve these goals SafeChemo aims at:

- testing a full set of state of the art automation (robotics and software)
- developing a thorough validation model to assess the service performance
- proposing reengineering and implementation services
- planning maintenance and assistance services

The SafeChemo turn-key approach includes:

1) A series of automation modules:

- an e-prescription module, allowing the definition of standard and/or specific protocols, interface to all available clinical data, automated calculation of doses, definition of all prescription details such as speed, route, administration time, etc.;
- a production scheduling module, which allows processing of all incoming prescription data, dispatching of prescription to multiple machines, organizing production cycles, etc.
- robotics for the preparation of injectable solutions in a sterile environment, allowing the automated compounding of drugs in final solutions, a highly precise check on drug, dose, volume and other relevant parameters, labelling of final compounded preparations;
- a medication administration module, allowing a point-of-care double check of patient and dose to be administered.

2) A validation model to assess:

- microbiological safety
- precision
- performance
- cross-contamination
- workers' safety
- return on investment

3) The reengineering and implementation services to analyze the current cytostatics management circuit and support process change

4) The maintenance and assistance services

The SafeChemo project will be validated by the oncology teams of three pilot hospitals: Imperial College Healthcare NHS Trust (UK), Region Hovedstadens Apotek (DK) and the General Hospital of Bolzano (I). These teams involve physicians, pharmacists, pharmacy technicians. Infusions will be prescribed, compounded and administered to patients in the three pilots sites.

The SafeChemo project wants to access a rough potential market of over 7500 hospitals worldwide. The European Union and the United States are the more promising targets in the short to medium term, with 2500 and 1400 potential customers each. The rising market of organizations providing home care for cancer patients is considered a medium to long term target. The sustainability of the SafeChemo service is linked to the fact that cytostatic drugs are expensive, dangerous and need to be administered short time after having been prepared. Significant cost factors within any cytostatics management system are a) cost of medication errors, b) cost of cytostatic preparation, c) cost of spoiling.

- Errors are very frequent and their cost ranges from €2,000 to €5,000 in additional care or longer hospitalization
- Cytostatic drugs need to be prepared patient-specific by trained personnel
- Every single cytostatic preparation can cost several hundred Euros
- By the introduction of its services, Safechemo targets and increased efficiency and safety level while reducing overall costs.

**Partners**

- BBraun BBraun has a very important role in the entire project. It is not only the project coordinator, but also the main business partner, as its international structure guarantees future deployment of the SafeChemo service.
- BTC and Medarchiver are the two main technical partner of the project and bring as a legacy the SafeChemo prototypes. Both companies will be involved in localization activities and pilot support. BTC will also drive market research activities, with a special focus on the Italian market.
- Kivex will be especially involved in localizing the SafeChemo service for its local market, understanding local constraints and supporting the Danish pilot.
- The pilot hospitals will drive the SafeChemo validation activities and will plan and perform a thorough survey on the impact of the SafeChemo platform

- a) at the patient safety level,
- b) at the healthcare operator risk management level and
- c) at the economic level.

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| <b>Duration</b>                | April 2007 – September 2008  |
| <b>Website</b>                 | <a href="http://www.safechemo.eu">http://www.safechemo.eu</a>  |
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| <b>Participating Countries</b> | Denmark, Italy, Sweden, UK   |