



# E-Health And the rise of ambulant Chemotherapy

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**Innovation in chemotherapy provides both healthcare and software professionals with new challenges and opportunities in providing the best possible care. In particular, the trend towards home-based chemotherapy changes the nature of the day-to-day relationship between patient and hospital**

Oral chemotherapy treatments that enable patients to administer the treatment independently and at home are growing in their adoption rate. In France, for example, according to a 2013 study by UNICANCER\*, by 2020, 50% of chemotherapy treatments will be home-based or “ambulant” and orally administered. By comparison, the figure was only 25% in 2013. The proportion of intravenous treatments given in the patient’s home is also projected to increase in the same period, from 3% to 14%.

The UNICANCER hospital group, in response to their own findings, concludes that “these evolutions require from health establishments new methods of working which are based less on hospital visits and also greater coordination between all teams involved”. As treatment trends observed in France may occur elsewhere, cancer hospitals and their partners in many countries face organisational challenges - not least, how best to communicate with cancer patients who visit hospital less frequently for treatment?

A project under way at Life Sciences Expertise from Alsace in France aims to support hospitals and patients in the emerging ambulant model of treatment. As an IT consulting company specialising in healthcare, Life Sciences Expertise has a vision of how a well-designed and easy to use IT tool can play an enabling and helpful role in communication between the hospital and patient as treatment progresses. The patient can inform the hospital of what is happening at home with their treatment, the hospital can communicate guidance, answer questions, provide encouragement and reminders, and maintain a regular link.

Conversations with patient groups, oncology professional and pharmacists has given essential insight into the challenge ahead. Life Sciences Expertise’s *Chemo at Home* project takes three important success factors in any IT solution that supports ambulant chemotherapy: side effects, emotions and adherence.

The problem may seem obvious, yet patient groups in workshop conversation sessions have stressed the importance to the patient of clear two-way communication about **side effects**. Patients’ needs and wishes to inform carers of which side effects they experience, their severity, or questions about the side effects to expect must be satisfied by any communication tool that adequately supports home-based treatment.

Patient groups also make clear the impact of **emotion** on the effectiveness of treatment. So many stories and examples have been shared to provide insight. IT professionals, normally preoccupied with definite objective “requirements” and “business rules” must pay attention to the real circumstances of chemotherapy at home. Therefore, the treatment requires communication tool that enable patients to convey their own observations on their current emotional state, how they are feeling about their treatment, how the treatment makes them feel, any doubts and concerns: all is useful information to



Hospitals have provided feedback to the *Chemo at Home* team on issues around **adherence**. As many healthcare professionals have found, it cannot be expected that each patient will always follow treatment instructions, and in some cases the patient may not try to do so, for any of a variety of reasons. The physically remote nature of ambulant treatment, combined with the emotional strain to the patient of the illness itself and general factors affecting adherence, present an obvious challenge: how to understand if, and how, the patient is following instructions and guidance.

Conventional hospital-based chemotherapy involves a visit to the hospital and contact in person between healthcare staff and the patient. Valuable information is exchanged both ways during visits. A shift to ambulant treatment of course brings the risk that communication is lost or compromised. In response, Life Sciences Expertise aims to enable effective home-based treatment by delivering an IT solution that connects patients with hospital teams including pharmacy.

The basic idea is that patients will log-in daily to a website via desktop computer or mobile device to gain instructions and guidance about treatment and to give answers to questions asked by the hospital. Therefore hospitals can prepare customised information to provide to each patient and pose a series of questions to the patient designed to give a full understanding of the patient's current situation especially with regards to side effects, emotion and adherence. Any answers provided by the patient that cause concern can trigger alerts to hospital staff. Further, the questions posed each day may vary based on the information already provided to adapt to a given patient situation as it becomes apparent.

Mindful that each hospital may have its own preferences, and the preferences of each hospital may change over time, the system is highly configurable and the features can be tailored to each hospital.

Usability and good design is important to any system, but for *Chemo at Home* this is essential, because without engagement from the patient the tool will have only a limited impact. Therefore, a major area of focus in the project is making the website as easy as possible to access and to use for the patient. Problems logging in, finding information, navigating through the site, providing the information requested by the hospital must be avoided at all cost so that the patient feels the tool is a worthwhile support to the treatment. This also applies also to eventual features that make use of wearable devices to gather data. As always, simplicity of use and security are watch words.

Beyond features and design, Life Sciences Expertise adopts a flexible approach to customer preferences and the regulatory conditions of the hospital wherever it may be located in the world. Data protection and data sovereignty are of course matters that require careful decision-making in e-Health. To assure compliance with local regulations for data protection and the location of data, and also to satisfy internal IT policy in customer organisations, Life Sciences Expertise can adapt *Chemo at Home* to run on hospitals' own servers or in the public cloud in any country while maintaining regulatory compliance.

The first prototype is on its way in the first quarter of 2018, and Life Sciences Expertise welcomes enquiries and ideas from any interested healthcare professionals and potential partners anywhere in the world in relation to *Chemo at Home* during this time of change in chemotherapy or immunotherapy.