Chemotherapy can have a considerable impact on patients’ quality of life, causing nausea or hair loss as well as depression and anxiety. More personalised care could help many patients and even improve outcomes. The EU-funded project eSMART is putting a mobile phone-based remote patient monitoring system to the test.

In traditional clinical practice, cancer patients will have chemotherapy in a healthcare facility and then go home for a period of two to three weeks before coming in for the next cycle. While they are at home, they have to manage their symptoms, deciding for themselves which symptoms are problematic and should be healthcare professional.

For some, this means not reporting symptoms as and when they occur, thinking they are not serious enough to bother their doctor or nurse. Later on, at the next appointment, the patient will then have to recall how he or she has been over the last few weeks – a rather difficult task.

“The beauty of mobile health applications is that they can monitor patients and their symptoms within their homecare setting,” says the University of Surrey’s Roma Maguire, deputy coordinator of the eSMART project. “Symptoms of clinical relevance can be reported as and when patients experience them. Within a few minutes, the health professional can call them back and deal with that symptom, ultimately managing that symptom much earlier on and preventing it from getting worse.”

The aim of eSMART is to demonstrate the benefits of the Advanced Symptom Management System (ASyMS). Over 500 patients with breast, colorectal or haematological (blood) cancers undergoing chemotherapy at 14 sites in Austria, Greece, Norway, the Republic of Ireland and the UK will be provided with mobile phones equipped with the ASyMS application. The same number will receive standard care as the control group so that the results can be compared.
During their treatment, patients complete a daily symptom questionnaire on their mobile phone. A risk model on the phone, developed in collaboration with cancer care experts, analyses the patient’s reports for symptoms that are of clinical concern.

Two types of alert are generated and sent to doctors or nurses using a dedicated alert system at the patient’s hospital. Amber alerts denote symptoms that are mild to moderate where self-care or community intervention may be appropriate. A red alert goes out if symptoms are severe, requiring specialist input.

On receipt of an alert, health professionals can view a secure web page that provides them with real-time information on the patient’s symptoms and dedicated algorithms to assist with symptom assessment and management at the clinical site.

“It’s about real-time data transfer, which clinically is very powerful,” Maguire points out. “On the website the clinician logs on to follow the alert, they can see at a glance what triggered it. They have the patient’s details, their treatment history, information about their condition, their chemotherapy regime, and they can also view graphs of the patient’s symptoms over time.” Based on this comprehensive information, they can decide on a course of action.

In addition to the alert system, ASyMS offers the patients evidence-based self-care advice to help them manage their symptoms on their own. It also encompasses a dedicated library that includes patients’ stories as a supportive system that other patients can access on their mobile phones. Together, these elements are expected to empower patients to take on a more active role in their own treatment and lighten the symptom burden.

The trial will not end with the treatment phase, but continue one year post-treatment to determine whether the improved ASyMS care has a lasting effect, preventing common long-term issues, reducing supportive care needs and potentially allowing patients to return to work sooner.

**Predicting symptoms for the individual patient**

“As part of the study, we’re also looking to develop predictive risk models,” Maguire explains. “Based on data we and our collaborators have gathered in previous studies, we want to develop risk models to predict the symptoms that people undergoing chemotherapy will experience. Taking into consideration patients’ demographic and clinical details, we would like to be able to provide a personalised predictor of what chemotherapy toxicities they are likely to experience to allow for the delivery of preventative and targeted interventions.”

eSMART will also consider the cost-benefit component of the system and its impact on participating doctors and nurses compared to standard care.

The first 18 months of the project have been dedicated to preparing for the system to be deployed in other countries on a technological level, and translating it into the languages needed. The launch of the trial itself is planned for late summer/early autumn of this year.

**See also:**
CORDIS [3]

**Project:**
Randomised controlled trial to evaluate electronic Symptom Management using the Advanced Symptom Management System (ASyMS) Remote Technology for patients with cancers

**Project Acronym:**
ESMART

**Project website:**