Quality of Life through Quality of Information
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'Onco Alerts' to support Acute Oncology services

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Abstract. The National Chemotherapy Advisory Group report has recommended that all hospitals in the UK with an Emergency Department should establish an acute oncology (AO) service. Acute oncology, when implemented at a clinical network level, presents significant challenges for informatics, including the requirement for 'onco alerts' – automated notification of admission of potential cancer patients, whose diagnosis may not be recorded on the admitting hospital's IT systems. In this short paper we present a case study and describe an approach to supporting the development of AO services with cross-organisational information systems.

Keywords. EPR, cancer, acute oncology, information systems

Introduction

The National Chemotherapy Advisory Group report [1] has recommended that all hospitals in the UK with an Emergency Department should establish an acute oncology (AO) service: 'Acute oncology encompasses both the management of patients who develop severe complications following chemotherapy or as a consequence of their previously diagnosed cancer, as well as the management of patients who present as emergencies with previously undiagnosed cancer'. As noted by King et al. [2], this final statement poses a significant challenge, because oncologists are usually only involved once a diagnosis of cancer is established.

From an informatics perspective, information systems should support the development of AO services by ensuring that access to relevant patient information is available for clinicians at the time, and in the place, that it is needed. However, this involves cross-referencing data across organisational boundaries and becomes even more complex in a cancer network scenario, in which patients may be treated in, and admitted to, any one of several district general hospitals in a sub-regional area. In this short paper we describe the background to, and requirements, for a patient flagging system, outline a case study from the Merseyside and Cheshire Cancer Network (MCCN), in the North-West of England, UK, and propose an initial solution for implementation of 'onco alerts' and access to cancer patient summary records for all relevant clinicians working within the Cancer Network area.

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1. Onco Alerts : the requirement for an oncology patient flagging system

The 2006 National Service Improvement Programme, 'Going Further on Cancer Waits', developed a number of projects with the aim of developing or adapting systems to realise an improvement in the approach to admission, diagnosis, treatment and discharge of cancer patients, focusing particularly on the appropriateness of length of stay, bed utilisation and in-patient experience. RAPA, or Recurrent Admission Patient Alert, is an alert system that sends an email or text message to a nominated person when a known cancer patient attends the Emergency Department. It was developed under the NHS Improvement Programme and is endorsed by the Cancer Reform Strategy as an innovative way of supporting the needs of cancer patients. The national pilot of the RAPA project was hosted by Sherwood Forest Hospitals NHS Foundation Trust where a 6-month trial demonstrated a significant positive impact, with reductions in length of stay for non-electively admitted patients and some patients, who would previously have been admitted, were triaged home with outpatient appointments.

The Manual for Cancer Services [3] now includes the requirement to implement a similar patient flagging system to RAPA and to provide access to summary oncology care records for acute care clinicians in general hospitals. Because acute oncology is not yet a 24/7 discipline, and cannot always be available to provide immediate oncology information to other clinicians, "the hospital should have implemented a system for immediate essential patient information retrieval which should be intended for the management of patients presenting acutely with the complications of systemic chemotherapy for malignant disease and of radiotherapy" (e.g. neutropaenic sepsis, extravasation injury, acute hypersensitivity reactions). The system should identify patients who have received treatment within the previous six weeks and the information should include: their standard demographic details; current cancer diagnosis; their most recent systemic treatment regimen and date of most recent administration; and the treatment intention. The information should be viewable electronically by medical staff during the first medical consultation undergone in the Emergency Department or acute Medical Assessment Unit. Importantly, the arrangements should be an improvement on the current default situation of waiting for hard copies of the patient's case notes [3].

The term 'onco alerts' has been used to describe an associated requirement for automated notification of emergency admission of cancer patients. In its simplest form, an onco alert can be defined as an automated message to the acute oncology team, notifying them of an admission of a possible cancer patient. On receipt of an onco alert, the acute oncology team members should have immediate access to a summary oncology care record, followed by rapid access to more detailed patient information in the oncology electronic patient record (EPR) system.

2. Case Study : Wirral University Teaching Hospital NHS Foundation Trust

Wirral University Teaching Hospital NHS Foundation Trust is one of seven hospitals with an Emergency Department, within the MCCN area. The hospital refers approximately 1,200 patients per year to The Clatterbridge Cancer Centre NHS Foundation Trust, a leading UK cancer centre that provides non-surgical oncology services and operates as the 'hub' of the cancer network.

Using an Oracle 10g data warehouse installed on IBM AIX 5.3 servers, a daily extract, transfer and load (ETL) process is conducted using MS SQL Server/ SSIS. The process facilitates an automated comparison of the cancer centre's master patient index (MPI) with emergency admissions referred to the Clinical Decisions Unit, Medical Assessment Unit or Surgical Assessment Unit at the acute hospital, during the preceding 24-hour period. Patient matches are identified using multiple-valued logic and a report is automatically generated and e-mailed to members of the Acute Oncology team. Since its implementation on 1/11/2010, the system has generated more than 4,000 patient matches and the associated onco alerts have enabled the acute oncology team to visit approximately five percent of patients up to three days earlier than was previously possible.. When a patient is listed on the onco alerts report, their hospital number, NHS number, name, date of birth, ward and the date and time of the admission are provided. Remote access to the oncology EPR system is provided via a Citrix Xenapp desktop, hosted by the cancer treatment centre and accessible via the national NHS IT network. The system allows authorized clinicians within the cancer network to access the patient's electronic oncology record, containing all the AO information items specified in the Manual of Cancer Services, from any NHS computer. Feedback on patient experience appears to be positive and an emerging body of evidence from acute oncology services suggests that an average reduction of two days in length of stay is possible if the system was implemented across the cancer network [4].

3. Developing a cancer network level solution

As it is possible for cancer patients to have their treatment at various locations within the geographical area covered by the cancer network, and because they may subsequently be admitted to any one of the acute hospitals in an emergency, the ideal patient flagging system will refer to an index of all patients registered with the cancer treatment centre, at the time of admission. Using similar processes to those implemented at Wirral, it is intended to provide a data feed of the cancer MPI to all acute hospitals, to be used as a look-up table when recording admissions on their local EPR systems. This would ensure that all patients, with the exception of those registered in the short period of time between the latest MPI feed and the admission, would be flagged to the AO team for intervention in near real-time.

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