

# Transformation of oncology inpatients: effects on length of stay and patient satisfaction

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## ABSTRACT

The oncology department at Imperial College Healthcare Trust ranked last in the National Cancer Patient Experience Survey in 2011/12 and 2012/13. Length of stay (LOS) was above national average. General Medical Council surveys of junior doctors highlighted significant issues with lack of senior review, education and working hours. Inpatient surveys echoed this with poor patient experience, and major complaints exposed lack of joint nursing and medical care. Restructuring the inpatient care pathway began in 2012 and centred around four target areas: 1) introduction of a ward based consultant; 2) defined admission criteria; 3) development of a cancer assessment unit; and 4) designated elective beds. Restructuring had a rapid effect on the service: total admissions per month declined from 246 in March 2013 to 183 in May 2014 and median LOS fell from 4.3 to 2 days over the same period ( $p < 0.001$ ). Complaints and serious incidents also fell and junior doctor satisfaction improved.

**KEYWORDS:** Acute oncology service, inpatient pathway, length of stay, patient satisfaction

## Introduction

Cancer care has undergone radical changes in recent years, with the development of cancer networks and the emphasis on multidisciplinary cancer teams and clear standards.<sup>1,2</sup> NHS Improvement laid out four 'winning principles' for improving cancer inpatient care, including assessing patients prior to the decision to admit.<sup>3</sup> The National Confidential Enquiry into Patient Outcome and Death reviewed the care of patients who had died within 30 days of receiving systemic anti-cancer therapy. The report, published in 2008, highlighted significant concerns regarding the quality and safety of patient care both at an organisational and a clinical level.<sup>4</sup> A subsequent report

by the National Chemotherapy Advisory Group stressed the need for acute oncology services (AOS) in every hospital with an emergency department.<sup>5</sup> Patients with cancer account for approximately 15% of all acute inpatient stays and 40% of cancer admissions are emergency admissions managed by acute medical teams.<sup>5,6</sup> Close working with acute physicians is therefore essential in improving the experience, safety and outcome of patients with cancer.<sup>7</sup>

Imperial College Healthcare Trust (ICHT) is one of the largest trusts in the UK and has one of the busiest oncology departments in London, treating patients with common and rare malignancies. Over 3,500 new diagnoses are made each year from a population of almost 2 million. ICHT employs 9 clinical oncology and 5.8 medical oncology consultants (full time equivalent) to deliver comprehensive care. In 2011/12 and 2012/13 ICHT ranked last in the National Cancer Patient Experience Survey.<sup>8</sup> There were two oncology wards (52 beds) with above national average length of stay (LOS). This had significant impact on both patients and staff, and financial and quality indicators. General Medical Council (GMC) surveys of junior doctors highlighted significant issues with lack of senior review, support, education and working hours. Inpatient surveys echoed this with poor patient experience, and major complaints exposed lack of joint nursing and medical care. During 2012/13, the chief of service worked with the medical, nursing and management teams to restructure the inpatient care pathway. This article will review the implementation of a comprehensive AOS unit and its outcomes.

## Solution/methodology

Restructuring the pathway included the development of an AOS but also centred on four target areas: 1) introduction of a ward based consultant; 2) defined oncology admission criteria; 3) development of a cancer assessment unit (CAU); and 4) designated elective beds. Phase 1 of the new care model was launched in April 2013, with phases 2 and 3 commencing in November 2013 and August 2014, respectively (Fig 1).

In phase 1, a single acute oncology consultant was appointed and designated responsible for all inpatients. This new role enabled a daily consultant-led (joint oncology and palliative care) ward round of all inpatients from Monday to Friday, ensuring continuity of care and early senior input for all acute oncology admissions. Phase 2 involved additional acute

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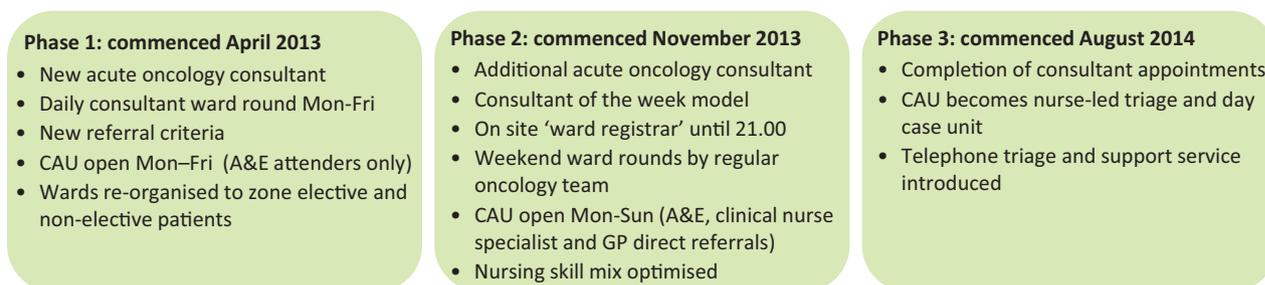


Fig 1. The three restructuring phases. CAU = cancer assessment unit; A&E = accident and emergency.

oncology consultant capacity and the introduction of weekend ward rounds. Phase 3 will see completion of consultant appointments responsible for all acute oncology and specialist oncology inpatients at ICHT. These developments will ensure that the service is compliant with recommendations from NHS England on urgent and emergency care.<sup>9</sup>

A CAU was created with the consultant triaging all cancer referrals via a single pager. Clear criteria were developed identifying those patients suitable for direct referral to the oncology team on arrival at hospital (Box 1).

In phase 1 this was available to accident and emergency attenders only, and then expanded to oncology outpatient department attenders. In phase 2 this was further developed to enable clinical nurse specialist and GP direct referrals. The unit was initially open weekday working hours, but in phase 2 was opened 7 days per week and overseen by an on-site oncology specialist registrar until 21.00. In addition, the unit acted as an ambulatory care unit, enabling elective day procedures. Patients are assessed by nurses and junior doctors and are reviewed by a consultant prior to admission or discharge.

The reorganisation of inpatient beds was the keystone in the transformation. One ward was designated an inpatient unit for non-elective patients requiring overnight stays. The second ward was divided into the new CAU and elective

overnight stays. Pathways and *pro formas* created a streamlined admissions process and standardised the documentation. In phase 2, greater emphasis on nursing skill mix enabled the concentration of chemotherapy trained nurses in the elective unit, and meeting of chemotherapy delivery targets. In phase 3, triage advanced practitioners will lead the CAU and AOS service.

We hypothesised that these changes would reduce the number of admissions, LOS and improve patient satisfaction. We carried out a retrospective analysis of these indicators in March 2013 (pre-restructuring), and then again in May and November 2013, and May 2014 (following phase 2). Number of admissions and LOS was obtained from electronic admissions records and patient satisfaction was assessed using a locally designed trust-wide patient experience questionnaire involving Likert scales (I-track).

## Outcome

The restructuring had a rapid effect on the service. The total number of admissions per month declined from 246 in March 2013 to 183 in May 2014 (Fig 2a), as did the number of prolonged admissions ( $\geq 7$  days) from 111 in March 2013 to 50 in May 2014 (Fig 2b). The median LOS fell from 4.5 days (range: 0–86) in March 2013 to 3 days (range: 0–74 days; 0–72 days) in May and November 2013 and then to 2 days (range: 0–33 days) in May 2014. The LOS data were analysed by Kruskal–Wallis non-parametric one-way analysis of variance with a significance at  $p < 0.001$ .

The 23 question I-track survey provided comprehensive feedback on all aspects of inpatient care. Each question was given a red, amber or green (RAG) rating according to the percentage of negative responses received for that question. The survey was conducted on both wards, and then the results were combined for each month analysed. There were therefore 46 overall RAG-rated responses per month analysed. Patient satisfaction improved initially but was seen to fall again in November 2013 (Fig 3). It then stabilised and was almost equivalent to original levels. While in March 2013 there were 8 red responses, 7 amber and 31 green, in May 2013 there were 6 red, 4 amber and 36 were green (with a total number of 166 and 138 respondents respectively). The results in November 2013 were 10 red, 5 amber and 31 green (53 respondents), and in May 2014 were 6 red, 7 amber and 33 green (96 respondents).

### Box 1. Suitability criteria for direct referral to the oncology team.

- > Chemotherapy (within four weeks)
- > Current radiotherapy
- > Complications of cancer
  - > new brain metastases requiring inpatient radiotherapy
  - > neutropenic sepsis
  - > metastatic spinal cord compression
  - > malignant hypercalcaemia not responsive to bisphosphonates
  - > malignant/chemotherapy related acute renal failure
  - > malignancy induced bowel obstruction (excluding constipation)
  - > malignant pleural effusions and malignant ascites
  - > superior vena cava obstruction

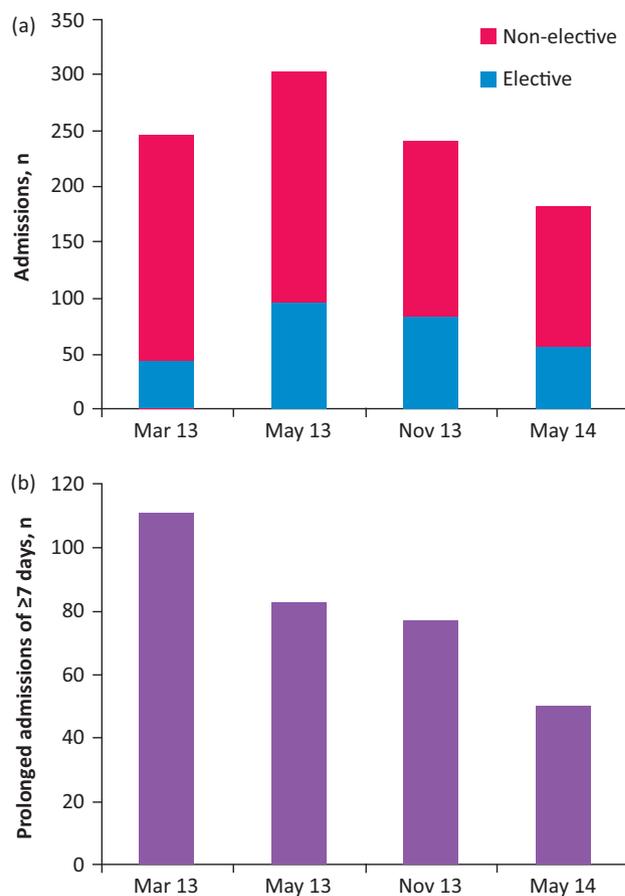


Fig 2. (a) Total number of admissions in March, May and November 2013 and May 2014; (b) number of prolonged admissions of ≥7 days.

### Conclusion and next steps

The transformation of the specialist oncology inpatient beds reduced the total number of overnight beds by 10 and was cost neutral. The consultant posts in phase 1–3 were delivered by re-organising current posts. The existing wards were re-organised to allow more efficient triaging and management of patients;

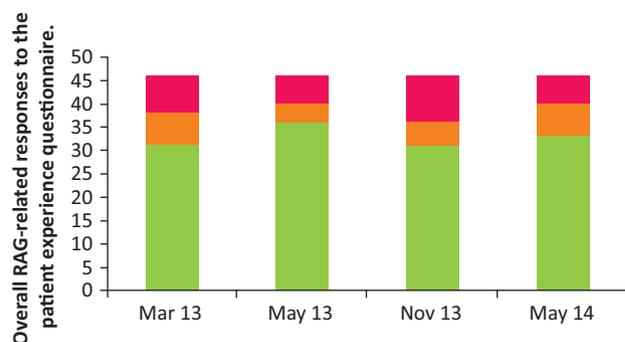


Fig 3. Overall RAG-rated responses to the patient experience questionnaire in March, May and November 2013 and May 2014. RAG = red, amber or green.

and elective and emergency admissions are now zoned. This improved patient flow, increasing capacity for a limited bed base.

Our experience of the new model has been that the new admission criteria have been controversial and maintaining close relationships with acute medicine is essential. They have enabled those that require specialist oncology care to receive it, while non-oncology care is continued on the most appropriate ward. A designated consultant-held pager for referrals has optimised access to senior decision-making and advice and linked the decision to admit to the responsibility of bed base. The integration of palliative care has aided the delivery of holistic care and allowed sharing of the workload. In phases 2 and 3 the model is a consultant of the week, mirroring the trust-wide initiative and ensuring continuity of care. Once phase 3 has been completed the CAU will be a nurse-led triage and day care unit, and will be the fixed arm of the trust-wide AOS.

The effect on the junior doctors as evidenced by the GMC survey was immediate, with all parameters turning to green within 3 months. All the ward consultants are designated educational and clinical supervisors ensuring effective training and supervision.

The reduction in LOS was the most dramatic finding. Although it is difficult to determine cause and effect, this could be related to the daily multidisciplinary board round, close team working, effective and consistent decision-making in the morning and holistic assessments. Of particular note was the reduction and almost elimination of specialist oncology patients outlying on other wards. At the end of phase 2, patient satisfaction was approximately equivalent to pre-restructuring levels. However, the number of complaints fell during the year from a mean of 8 to 3. Serious incidents also fell from 3 to zero.

These results are limited by a lack of control or an assessment of overall hospital trends. It analysed three main metrics: admissions, LOS and patient experience. However the wider multidisciplinary team and consultant experience was not surveyed. Despite this, these data provide a descriptive representation of the trends observed with the implementation of the new unit. There are multiple ongoing challenges: enabling the regular oncology team to be involved, developing trust-wide AOS and meeting all acute admission and urgent care targets. This is our experience of implementing a comprehensive acute oncology model in a large teaching hospital cost effectively. Further work will be required to assess the service following completion of phase 3 and to ensure that more specialist oncological and palliative care is delivered in or close to the patient's home.

The new service model is compatible with the Royal College of Physicians' Future Hospital Commission.<sup>10</sup> It has been designed to ensure that the fundamental standards of care are always met and that the patient experience is valued as much as clinical effectiveness. It directly aims to reduce unnecessary admissions. The model ensures that the responsibility for each patient's care is clear and communicated. It embraces the principle that trainees should be supported to deliver safe, compassionate care 7 days a week within a consultant-led service.

### Key points

- > Acute oncology – ward consultant and consultant-led service 7 days a week

- > 7/7 cancer assessment unit – trained oncology nurses and consultant review
- > ‘Zoning’ of inpatient areas – elective admissions versus emergency admissions
- > Acute oncology service guidelines and referral criteria for oncology admissions
- > Engagement with junior medical staff: improved training, efficiency and satisfaction ■

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