

# Development and initial outcomes of an upper gastrointestinal multi-disciplinary clinic

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## ABSTRACT

**INTRODUCTION:** Patients with upper gastrointestinal cancer are often comorbid and require complex surgical treatments for their cancers, meaning that their preoperative assessment can be based around numerous outpatient assessments with multiple services. A multidisciplinary clinic (MDC) was developed for the assessment of patients with confirmed or suspected upper gastrointestinal cancers.

**METHODS:** Face-to-face meetings were held between stakeholder services at Waitemata District Health Board, and clinic resource allocated. Significant IT modification of existing clinic booking software was required.

**RESULTS:** Between September 2014, and September 2015, there were a total of 165 new patient, and 710 follow-up appointments. All new patients were seen by a surgeon and then other specialties. Of the 165 new patient appointments, 146 (88%) patients had a definitive treatment plan in place and were cleared by anaesthesia and intensive care at the end of the clinic. Staff and patients report high levels of satisfaction for the clinic.

**CONCLUSION:** A dedicated MDC has provided a single forum where complex patients can be reviewed, and a definitive treatment plan formulated in nearly 90% of patients, even when this involves multiple medical and paramedical specialties with high levels of patient and clinician satisfaction.

The upper gastrointestinal unit at Waitemata District Health Board (WDHB) manages patients with surgical conditions (both benign and malignant) affecting the oesophagus, stomach, pancreas, duodenum, liver, gallbladder and bile ducts. The unit serves the WDHB catchment population of 597,500, and also provides specialist service support to Northland District Health Board (population 169,000). Annually, the unit is referred approximately 500 complex patients, and of these, half have a diagnosis of, or high suspicion of upper gastrointestinal cancer.

The assessment, staging and treatment of patients with upper gastrointestinal cancer presents several challenges.<sup>1-3</sup> A tissue diagnosis may be difficult to confirm due to technical difficulties associated with biopsy,<sup>1,2</sup> treatment must encompass a large

area of field change,<sup>2</sup> cancer incidence peaks in the 7<sup>th</sup> and 8<sup>th</sup> decades meaning the patients are usually elderly and comorbid, requiring multiple diagnostic and staging investigations and sequential multidisciplinary review.<sup>3</sup> In addition, there is an increasing role for neoadjuvant therapy in a number of tumours, in addition to surgical therapy with significant perioperative risk, requiring patients to be in optimum condition pre-operation and prepared for significant postoperative rehabilitation.

From a patients perspective, the prevailing outpatient model requires multiple outpatient appointments and review by many specialties. This results in prolonged periods of pre-operative workup as assessments and investigations are done in a sequential, linear fashion, input from other specialty areas, in particular Intensive Care Medicine, was missing,

meaning that the opportunity for combined decision making was compromised. Inter-disciplinary communication relied on dictated letters, which take time to become available, or e-mails that are not accessible to all healthcare providers.

The current faster cancer treatment (FCT) guidelines for District Health Boards (DHBs) mandate that at least 85% of cancer patients receive their first treatment within 62 days of referral,<sup>4</sup> and encourage an efficient, patient-friendly process for diagnosis, staging and treatment. Multidisciplinary clinics (MDC) for the assessment of cancer patients have been previously described in the management of patients with breast,<sup>5</sup> gynaecological,<sup>6</sup> lung,<sup>7</sup> skin,<sup>8</sup> head and neck,<sup>9</sup> and prostate cancer,<sup>10</sup> while in the upper gastrointestinal tract specialist MDC have been described in the management of pancreatic<sup>11,12</sup> and liver tumours.<sup>13</sup> Based on these reports, MDC have been shown to be less stressful and more convenient for patients, facilitate care coordination, improve clinical team satisfaction and may lead to faster delivery of care.<sup>5-13</sup> Patients are also better prepared to assume an active role in their care and report feeling part of the team.<sup>14</sup> MDC also have the potential to improve quality of life by providing the opportunity to include other services, such as palliative care for symptom management, and psychologists and social workers for psychosocial support. However, MDC are resource intensive and often require significant rescheduling and change in practice by care providers.<sup>13</sup>

In response to a significant referral load, a realisation that the average journey for an upper gastrointestinal cancer patient had become convoluted and prolonged, as well as a commitment to meeting the 62-day FCT target, a MDC for upper gastrointestinal cancer patients was established in September 2014 at North Shore Hospital. This paper outlines the experience and results of the first 12 months of this clinic's function.

## Methods and process

The decision to proceed with developing an upper gastrointestinal MDC was made 6 months prior to its introduction. One surgeon changed his usual acute surgical call commitment to Monday from

Tuesday to ensure that he was consistently available to attend the MDC on a Wednesday morning. Separate clinics were developed to provide opportunity for separate assessment and treatment of patients with non-specialist general surgical conditions and to free-up clinic space for assessment of patients with upper gastrointestinal cancers.

## Scheduling

Formal meetings were held with the Departments of Anaesthesia, Intensive Care, Palliative Care, Physiotherapy, Interventional Radiology and Nutrition Services to define their resource requirements. Physiotherapy were initially unable to attend the clinic, however a clinical trial investigating the benefits of pre-operative education on post-operative respiratory complications provided interim physiotherapy input for trial patients. The MDC is also supported by interventional radiology who run an adjacent fortnightly concurrent clinic facilitating cross-referral and assessment. A palliative care consultant was able to attend on a case by case basis. Time allocations for each service appointment are presented in Table 1.

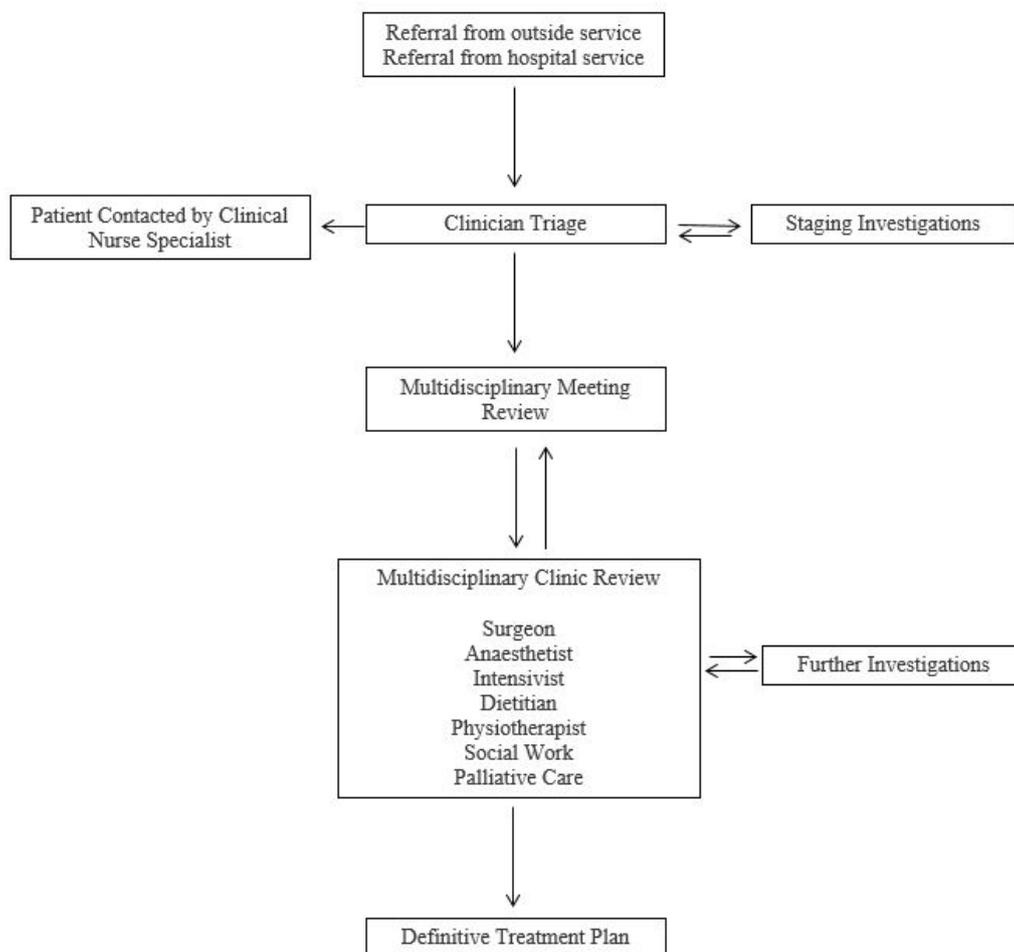
## Patient pathway

New patient referrals are received by the booking and scheduling service at WDHB and triaged by one of the upper gastrointestinal surgeons. Investigations (eg, staging CT scans) are booked at the time of triage with the aim of seeing patients for a definitive first specialist assessment (FSA) within 14 days of the receipt of the referral. The Clinical Nurse Specialist (CNS) then contacts the patient to inform them their referral has been received and to warn of any pending investigations. Patients who receive their cancer diagnosis at their FSA will see only the surgeon so they are not overwhelmed by an MDT assessment on the day of their diagnosis, although patients with dysphagia, or other significant nutritional issues, will also see the dietitian at their FSA. Radiology and pathological findings were reviewed in a multidisciplinary meeting (MDM) prior to the first specialist appointment. Following the MDM, a decision is made regarding who will be the lead surgical clinician for that patient and what other services should also be involved in their assessment and treatment.

**Table 1:** Time allocation chart.

Clinician time allocation	FSA appointment	MDT appointment	Follow-up appointment
Surgeon	20 mins	20 mins	20 mins
Clinical Nurse Specialist	20 mins	20 mins	20 mins
Dietician	40 mins	20 mins	20 mins
Intensive Care		20 mins	
Anaesthetics		40 mins	20 mins

**Figure 1:** Summary of patient pathway from referral, triage to multidisciplinary review.



### Multidisciplinary Clinic appointment

New patients are initially seen by a specialist upper gastrointestinal surgeon with discussion of the results of MDM review and the proposed treatment plan. Other services are then involved. Anaesthetic assessment occurs at the beginning of the patients’ treatment journey, prior to neo-adjuvant chemotherapy, which allows extra time for optimisation and, if required, a pre-habilitation programme with the

physiotherapist. Each clinician sees the patient individually and documents the outcome separately. There is opportunity for cross service discussions. A dedicated clinic letter template was developed with a 24 hour turnaround on transcription to ensure all healthcare providers have timely access to the clinic outcome. The lead clinician also fills out a MDC outcome form and any other relevant documentation, such as a surgical booking form. The CNS then sees the patient to review the visit,

treatment plan and any remaining questions. The time allocations for each service are presented in Table 1.

Time allocation for each service in multidisciplinary clinic. Intensive care require only new patient appointments. It was initially thought that anaesthesia would only require one new patient appointment, however, subsequent reviews are often done after the completion of neo-adjuvant chemotherapy or following additional assessments with other specialists such as cardiology or respiratory specialists. (FSA: first specialist assessment, MDT: multidisciplinary team).

### Resourcing and coding

WDHB uses iPMS (Patient Information Management System, Department of Veterans Affairs, US) to book outpatient clinic appointments. This system requires the appointments to be booked under an individual staff member name rather than under a service or similar entity.

Clinic profiles for surgeons with session codes built within them enabled other specialties to be added to the appointment.

The MDC was initially named the multidisciplinary team clinic, but this created the expectation among both staff and patients that all patients would be seen by everyone. Patient text reminders for the clinic were adjusted to just one text rather than the patient receiving separate texts for 3–5 appointments. Clinic profiles were also sent to Information Consultant Decision Support for review and approval from a Purchase Unit level and new clinic letters were written for MDC appointments describing the process and the need for up to 3 hours of clinic attendance.

Specific information system support was then involved to create a clinic profile that:

- enabled clinic appointments for between 1 to 5 clinicians
- permitted individual clinicians to access their patient lists
- enabled clinical records to send records to all clinics
- charged the Ministry of Health accurately
- captured the work being done (both for funding as well as operational reasons. In particular the

dietitian and anaesthetists needed to accurately capture the numbers of patients seen for resource and staffing justifications).

This resulted in a separate clinic list sent to the out-patient department for each clinician, the work done is captured by each department and the funding requirement from the Ministry of Health is clear and transparent.

### Clinic outcomes

The desired outcomes of the MDC were:

- numbers of patients receiving a definitive treatment plan by the completion of their MDC appointment
- patient satisfaction measures and numbers of complaints received
- staff satisfaction measures
- impact on FCT compliance.

## Results

Between September 2014, and September 2015, there was a total of 165 new patient appointments, and 710 follow-up appointments. Of the new patient appointments, all 165 were initially reviewed by a surgeon, a further 33 were reviewed by anaesthesia alone, and 38 were reviewed by anaesthesia and intensive care prior to defining a surgical plan. Sixty-three patients were formally reviewed by the upper gastrointestinal clinical nurse specialist, and 67 were assessed and reviewed by a dietitian with respect to nutritional optimisation prior to surgery. In total, the assessments by anaesthesia, intensive care, nurse specialists and dietitians amounted to 238 discrete appointments. For the new patients, formal review of radiology and pathology was undertaken at a multidisciplinary meeting prior to the clinic appointment in 121 patients, although the proportion improved from 42 (35%) in the first 6 months to 79 (65%) in the second 6 months as coordination improved.

Of the 165 new patient appointments, 77 were for liver or biliary disease (primary hepatic tumours = 7, metastatic tumours of the liver = 52, tumours of the gall-bladder = 12, tumours of the bile ducts = 6), 51 were for pancreatic disease (primary pancreatic cancer = 34, pancreatic cysts = 17), and 44 for gastro-oesophageal disease (gastric cancer = 18, oesophageal cancer

= 26). Patients planned for pancreatic or gastro-oesophageal resections were more likely to see both an anaesthetist (20 of 33 anaesthetic appointments) and an intensivist (21 of 38 combined anaesthetic and intensive care appointments) than patients being assessed for hepatectomy.

Of the 165 new patient appointments, 146 patients had a definitive treatment plan in place and were cleared by anaesthesia and intensive care at the end of the clinic appointment. Of these, 67 were consented and booked for surgical resection or percutaneous tumour ablation, 31 were referred to medical oncology for systemic chemotherapy, 16 to radiation oncology, 20 were assessed by palliative services for palliative care only, 8 were planned for follow-up imaging alone, and 4 were referred for percutaneous tumour biopsy to confirm disseminated disease. Of the 19 patients who did not have a definitive treatment plan in place, 13 were referred for further diagnostic imaging and 6 for biopsy to confirm benign disease.

Between September 2014 and September 2015, no patient complaints were received regarding the MDC, and staff (both medical and nursing) reported high levels of satisfaction (>90% completely satisfied). Faster cancer treatment parameters for upper gastrointestinal surgery also improved over this time, with 62-day treatment compliance increasing from 58% in September 2014, to 80% in September 2015, and 31-day compliance increasing from 72% to 93% over the same period.

## Discussion

This investigation describes our experience in developing and implementing a multi-disciplinary management clinic for patients with confirmed or suspected upper gastrointestinal cancers. The drivers for this were a desire to create a more patient-friendly method of assessment and eliminate the need for multiple clinic appointments for review by multiple specialties, to assemble the multidisciplinary team in a single site to assess patients in real time, to include intensive care medicine at the beginning of the patient journey, to encourage direct clinician to clinician communication and decision making, and to improve the effi-

ciency of our patient assessments in line with the Ministry of Health's FCT targets.

We were conscious of a number of potential problems that may affect the ability of the MDC to function efficiently. The MDC requires patients to spend a half day in hospital and they receive a large amount of complex information in a short space of time. However, patient feedback was very positive and emphasises that, after clinic, they have a clear management plan in place, often with a confirmed date for surgery, have completed anaesthetic pre-assessment, personally met all their clinicians and their questions have been addressed. A further anticipated barrier was the question whether several services could work together and function effectively making decisions in a relatively short space of time. Staff satisfaction levels with the clinic are very high, primarily because patients are seen, assessed, and a definitive treatment plan is decided on by the end of clinic and future schedules are established. The Intensive Care Medicine specialists report the benefit of having met the patient and family prior to postoperative admission. The CNS is better placed to facilitate and coordinate any further investigations, procedures and referrals as a result of the enhanced inter-disciplinary communication.

In the clinic's first year of operation, we were able to decide on a definitive treatment for 88% of new patients at a single clinic appointment. In the majority of patients, their clinic appointment was preceded by MDM review prior to their appointment. However, this was not always possible due to scheduling or limited availability of MDM resource (currently capped at 20 patients per 60 minute weekly meeting), although coordination of MDC and MDM review improved over the year. We plan to begin a second weekly MDM immediately prior to the clinic to review radiology on clinic patients and make initial decisions around multidisciplinary care and treatment. We hope that this will mean all patients (both new and follow-up) will have radiology formally reviewed in MDM prior to assessment.

Most previously described MDC concentrate on managing the interplay between surgery, medical oncology, and radiation

oncology in the various tumour types.<sup>5-13</sup> Our clinic currently differs from these in that we have initially concentrated on the multidisciplinary assessment of patients with upper gastrointestinal malignancies, and placed an emphasis on preoperative and pretreatment assessment and optimisation in an often highly comorbid group of patients. Currently, patients who require medical or radiation oncology review and treatment are discussed in MDM, reviewed in MDC and then referred directly to oncology services at Auckland City Hospital. Following treatment (either neoadjuvant, adjuvant or palliative) they are referred back to the MDC for surgical management or ongoing follow-up. However as part of the development of a local oncology service at WDHB, the intention is to expand the scope of the clinic to include medical

oncology assessment by on-site oncology staff with their treatment planning facilitated by MDM review immediately prior to the clinic. Specialist clinical psychologists have also been appointed and will also begin to see referrals in the MDC in early 2016 and it is anticipated that a research nurse will also be available to discuss clinical protocols and biobanking with clinic patients.

Review of the first year of function of a specialist upper gastrointestinal MDC has shown that it provides a single forum where patients can be reviewed and a definitive treatment plan formulated in nearly 90% of patients, even when this involves multiple medical and paramedical specialties. The clinic results in high levels of patient and clinician satisfaction.

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**Competing interests:**

Nil

**Acknowledgements:**

The work of nursing and administrative staff of the Patient Service Centre and the surgical outpatients department at Waitemata District Health Board and the IT support service is gratefully acknowledged.

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