

|  |
| --- |
| Victorian Oesophagogastric Cancer Audit – report 2017  Victorian Integrated Cancer Services |
|  |

Department of Health

|  |
| --- |
| Victorian Oesophagogastric Cancer Audit – report 2017  Victorian Integrated Cancer Services |
|  |

|  |
| --- |
|  |
|  |
| To receive this publication in an accessible format phone (03) 9096 2136, using the National Relay Service 13 36 77 if required, or email cancerplanning@dhhs.vic.gov.au  Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.  © State of Victoria, Department of Health and Human Services September, 2018.  **ISBN** 978-1-76069-619-1 **(pdf/online/MS word)**  Available at www.health.vic.gov.au/cancer |

Contents

[Acknowledgements 1](#_Toc524425480)

[At a glance 2](#_Toc524425481)

[Key findings 2](#_Toc524425482)

[Main report 3](#_Toc524425483)

[Introduction 3](#_Toc524425484)

[Background 3](#_Toc524425485)

[Methodology 4](#_Toc524425486)

[Data validation and consolidation 5](#_Toc524425487)

[Data limitations 6](#_Toc524425488)

[Findings 6](#_Toc524425489)

[Conclusions 16](#_Toc524425490)

[MDM capture rate 16](#_Toc524425491)

[Does timeliness of care align with OG optimal care pathway recommendations? 16](#_Toc524425492)

[Appendix 1: List of audited hospitals 17](#_Toc524425493)

[Appendix 2: Victorian OG Cancer Audit case ascertainment method 19](#_Toc524425494)

[Abbreviations 21](#_Toc524425495)

[References 22](#_Toc524425496)

Figures and tables

[Figure 1: Optimal timeframes from the optimal care pathway for oesophagogastric cancer 3](#_Toc524422231)

[Table 1: Descriptive summary of the audit population (297 patients) 7](#_Toc524422232)

[Figure 2: Oesophagogastric cancer metastatic disease at diagnosis 9](#_Toc524422233)

[Table 2: Documented stage at diagnosis of audit population by ICS of residence (297 patients) 9](#_Toc524422234)

[Table 3: Descriptive summary comparing patients with evidence of an MDM discussion in their medical record in comparison with those who did not (271 patients) 10](#_Toc524422235)

[Table 4: Location of patient MDMs in relation to the patient’s ICS of residence 13](#_Toc524422236)

[Table 5: Timeliness of care for Victorians diagnosed with OG cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private health service (297 patients) 13](#_Toc524422237)

[Table 6: Timeliness of care reported in days by ICS of residence for Victorians diagnosed with OG cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private health service (297 patients) 15](#_Toc524422238)

# Acknowledgements

The data, analysis and commentary provided in this report represent a joint effort by numerous key contributors from the following groups.

The Oesophagogastric Clinical Working Party: Mr Ahmad Aly, Mr Paul Burton, Dr Peter Briggs, Mr Paul Cashin, Mr Gary Crosthwaite, Mr David Deutscher, Mr Cuong Duong, Dr Samuel Harris, Mr Matthew Leong, Dr Trevor Leong, Mr Kiat Lim, A/Prof. Sue-Anne McLachlan, A/Prof. Peter Nottle, Mr John Spillane, A/Prof. Niall Tebbutt and Dr Zee Wan Wong.

The central data team – Mandy Byrne, Amy Sutherland and Mirela Matthews – for developing the *Victorian OG cancer audit design and user guide*, undertaking tasks required to generate audit lists and consolidating the data.

The Victorian Integrated Cancer Services for preparing, collecting and submitting high-quality local data to inform this audit.

The Cancer Strategy and Development Unit of the Department of Health and Human Services for consolidating the data and preparing the report.

# At a glance

This report details findings of a medical record audit of Victorians diagnosed with oesophagogastric cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private hospital during this period. In particular, this report presents the key characteristics of patients who were or were not presented at a multidisciplinary meeting and evaluates the timeliness of care they received.

A total of 297 patients were audited. Of these patients, 194 (65 per cent) were diagnosed with stomach cancer and 103 (35 per cent) were diagnosed with oesophageal cancer. The majority of patients were male (71 per cent), and 37 per cent of all patients had metastatic disease.

## Key findings

### Multidisciplinary team meeting

Of the patients audited, 81 per cent of eligible patients were identified as having been discussed at a multidisciplinary meeting.

Patients who presented at a later stage of diagnosis were less likely to be discussed at a multidisciplinary meeting than those who presented early.

Patients with a documented referral to community palliative care services were also less likely to be discussed at a multidisciplinary meeting.

### Timeliness of care

The median time from receiving a referral to the commencement of first treatment was 34 days for oesophageal cancer patients and 36 days for patients diagnosed with stomach cancer. Sixty-three per cent of audited patients met the optimal care pathway recommendation of less than or equal to 42 days.

The median time from receiving a referral to the case being discussed at a multidisciplinary meeting was 16 days for patients diagnosed with oesophageal cancer and 18 days for patients diagnosed with stomach cancer. Seventy-one per cent of audited patients met the optimal care pathway recommendation of less than or equal to 28 days.

The median time from the case being discussed at a multidisciplinary meeting to beginning treatment was 25 days for patients diagnosed with oesophageal cancer and 23 days for patients diagnosed with stomach cancer. Twenty-seven per cent of audited patients met the optimal care pathway recommendation of less than or equal to 14 days.

The median time from diagnosis to the case being discussed at a multidisciplinary meeting was 13 days for patients diagnosed with oesophageal cancer and 14 days for patients diagnosed with stomach cancer. Fifty-two per cent of audited patients met the optimal care pathway recommendation of less than or equal to 14 days.

The median time from diagnosis to commencement of first treatment was 35 days for patients diagnosed with oesophageal cancer and 33.5 days for patients diagnosed with stomach cancer. Forty per cent of audited patients met the optimal care pathway recommendation of less than or equal to 28 days.

# Main report

## Introduction

People diagnosed with oesophagogastric (OG) cancers have poor outcomes measured in both mortality and quality of life (Clark et al. 2011; McCall et al. 2016; Thursfield & Farrugia 2017). In Victoria, around 400 people were diagnosed with stomach cancer in 2016 and around 260 with oesophageal cancer (Thursfield & Farrugia 2017). Survival rates for OG cancers are poor when compared with other types of cancer, with approximately 20 per cent of patients diagnosed surviving their cancer for five years or more. Approximately two-thirds of patients with oesophageal cancer have inoperable disease at the time of diagnosis. Survival rates for stomach cancer are also relatively poor compared with other cancers, with only 30 per cent of patients surviving five years after diagnosis (Australian Institute of Health and Welfare 2014). Even if there are good initial treatment results, the recurrence rate is very high. Given the poor prognosis of this cancer, for the majority of patients treatment is often given with palliative rather than curative intent (Cancer Council 2018). Early specialist palliative care will be required for patients with OG cancers.

The optimal care pathway for OG cancers guides the delivery of consistent, safe, high-quality and evidence-based care. The pathway aligns with key service improvement priorities including providing access to coordinated multidisciplinary care and supportive care and reducing unwanted variation in practice. The recommended timeframes provided in Figure 1 are based on expert advice from the Oesophagogastric Cancers Working Group(Cancer Council 2018).

Figure 1: Optimal timeframes from the optimal care pathway for oesophagogastric cancer

This figure depicts the following timelines:
From referral to treatment: up to 42 days
From referral to MDM: up to 28 days
From MDM to treatment: up to 14 days
From diagnosis to MDM: up to 14 days
From diagnosis to treatment: up to 28 days

## Background

Members of OG cancer multidisciplinary teams from across Victoria gathered in August 2016 at the Oesophagogastric Cancer Summit to review variations in care among Victorians diagnosed with OG cancers, with a view to identify opportunities for statewide improvements. The summit made a number of recommendations:

* investigate the multidisciplinary meeting (MDM) capture rate for OG cancers
* investigate the timeliness of care for OG cancers at local health services and whether it is in line with the optimal care pathway
* investigate variations in treatment in some regional areas and the potential impact of this on poorer five-year survival in some regions of Victoria
  + develop a statewide strategy to improve upper gastrointestinal (UGI) MDM documentation including staging, ECOG (Eastern Cooperative Oncology Group) score, tumour type, treatment pathway and nutritional status.

The Department of Health and Human Services has commissioned several studies to investigate these issues. In particular, this report presents the findings of a medical record audit to determine the characteristics of those patients who are or who are not presented at an MDM.

### Project aim

This audit will provide the Victorian Integrated Cancer Services (ICS) with data to evaluate the current state of MDMs and the timeliness of care for OG cancer patients at their local health service and across Victoria.

### Project scope

The audit aims to ascertain:

* the percentage of OG cancer patients who had an MDM during the audit period
* the key characteristics of patients who had an MDM and those who did not
* if timeliness of care aligns with the optimal care pathway recommendations:
  + - from referral to first treatment ≤ 42 days
    - from referral to MDM ≤ 28 days
    - from MDM to first treatment ≤ 14 days
    - from diagnosis to MDM ≤ 14 days
    - from diagnosis to first treatment ≤ 28 days.

## Methodology

The ICS conducted a medical record audit conducted on the population of Victorians diagnosed with OG cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private health service, as reported in the Victorian Admitted Episodes Dataset (VAED). Victorian private health services were not included in the audit, except where ICS have established processes for medical record auditing. Non-Victorian residents treated in Victorian health services were excluded from data collection and analysis. The complete list of audited hospitals is included at Appendix 1. For the purpose of this audit, each individual hospital that may be part of a larger health service was defined as a ‘campus’. A patient may have attended more than one campus and appear more than once in the database.

A centralised case ascertainment method (detailed in Appendix 2) was used to collect data for each patient across all audited campuses. In summary, unique OG patients who attended audited campuses in each ICS during the study period were identified centrally using the VAED statewide dataset and assigned an audit ID. An audit list of identified patients was provided to each to add Victorian Cancer Registry data and to complete a medical record audit of eligible patients. As diagnosis date is not included in the VAED, each ICS used Victorian Cancer Registry data and medical record audits to confirm whether or not the patient was diagnosed in the time period. If the patient was not diagnosed in the time period, they were excluded from the audit. Each ICS completed its medical record audits and sent the results to the Cancer Strategy and Development Unit for consolidation and statewide analysis.

The Central Data Team, in collaboration with the Cancer Strategy and Development Unit, consolidated all data and prepared an analysis database as detailed below under ‘Data validation and consolidation’. Multiple data points pertaining to each case were consolidated into one record using the audit ID. This method allowed data analysis of the entire pathway of care across multiple campuses to ensure accurate dates regarding the MDM discussion and first treatment.

Consolidated data for all patients who were admitted to a campus in a given ICS was returned to that ICS for local analysis and reporting.

The Cancer Strategy and Development Unit conducted statewide data analysis and reporting.

The use of data for the audit was in line with *Conditions of release: Patient level datasets from the Victorian Data Linkage Unit to the Integrated Cancer Services (2016–2020)*.

## Data validation and consolidation

As data was collected across multiple campuses, multiple data points pertaining to each patient were consolidated using the audit ID and rules detailed below.

The total number of unique campuses in which each patient was audited during the period was determined and recorded.

Data from each audit site was used to ensure best quality data. Multiple records were combined for each patient to determine the final audit status (Included, Excluded or Not Audited).

Patients were Excluded if: they were a non-Victorian resident; there was no OG cancer documented in the medical record; or their diagnosis date was unknown or fell outside of the period 1 July through 31 December 2016.

The diagnosis date for each patient was updated to reflect the medical record diagnosis date if provided. If the medical record diagnosis date was not provided, the date provided by the Victorian Cancer Registry was used.

The first treatment date for each patient was updated to reflect the earliest treatment date recorded in the medical record. For patients with incomplete audit entries (who attended campuses that were not audited or had an incomplete medical record), the first treatment date was cross-referenced with admission dates in the VAED and the earliest recorded date was used. For patients with a first date obtained exclusively from the VAED, the associated source and date of referral, clinician who conducted the first treatment and the appointment type are not reported.

Where provided, the tumour-node-metastasis (TNM) classification was converted to a stage grouping as defined in the *American Joint Committee on Cancer staging manual* (7th edition).

The MDM status for each patient was consolidated to reflect the earliest MDM that was recorded at any campus. Patients who died within one month of diagnosis were excluded from the capture rate calculation but were included in describing the audit population.

The MDM capture rate for Victoria was calculated as follows:

|  |  |
| --- | --- |
| Numerator | Total number of included audit cases with MDM |
| Denominator | Total number of included audit cases |

Timeliness calculations were made using the consolidated records for each patient. Patients were included in each calculation if both dates were provided in the audit record. Timeliness calculations were made using the following formulas.

1. Referral to first treatment at campus ≤ 42 days
   * + - Referral to treatment = treatment start date – referral date
2. Referral to MDM ≤ 28 days
   * + - Referral to MDM = MDM date – referral date
3. MDM to treatment ≤ 14 days
   * + - MDM to treatment = treatment start date – MDM date
4. Diagnosis to MDM ≤ 14 days
   * + - Diagnosis to MDM = MDM date – diagnosis date
5. Diagnosis to treatment ≤ 28 days
   * + - Diagnosis to treatment = treatment start date – diagnosis date.

## Data limitations

The following data limitations are noted:

* The audit does not capture all cases where the first or entire treatment was provided at a private hospital.
* Patients who received any treatment, had an admission or an MDM at a campus that was not audited will have an incomplete audit record that may affect the timeliness calculations.
* Data collection relies on the quality of documentation in the medical record, the audit design and the skill of the auditors.
* Victorian patients may receive treatment in another state, which is not captured in Victorian datasets. This particularly affects the treatment data for patients in the Hume Regional Integrated Cancer Service area who regularly undergo their treatment in Albury, New South Wales.

## Findings

### Overview of audit sample

A total of 721 unique patients with oesophageal (C15) or stomach (C16) cancer were identified in the VAED with an admission from 1 July 2016 to 31 December 2016.

Of the 721 patients, 212 patients were excluded from the audit because they did not meet the inclusion criteria, and a further 212 were not audited. The majority of patients who were not audited were treated exclusively at a private health service that was not part of the audit; others attended small regional health services that the ICS elected not to audit. The remaining 297 patients were included in the audit.

Of the 297 remaining patients, 134 (45 per cent) had admissions reported to the VAED at more than one campus and/or ICS. And 220 patients (74 per cent) had all known admissions audited that were reported to the VAED. The remaining 26 per cent of patients had admissions reported in both audited and non-audited campuses and therefore a potentially incomplete audit record.

### Description of audit population

The median age of audited patients was 70 years, ranging from 27 to 96 years of age.

More males (212) than females (85) were included in the audit population.

Each Victorian ICS was represented in the audit population with the largest population of patients living in NEMICS[[1]](#footnote-1) (23 per cent) and the smallest population living in GICS (6 per cent) (Table 1). The majority of patients were first admitted to a metropolitan ICS campus (70 per cent), with the greatest proportion first admitted in WCMICS (27 per cent).

More than 50 per cent of patients were referred for consultation by their general practitioner (31 per cent) or emergency department (21 per cent). A large proportion of patients (41 per cent) were initially referred to a surgeon (UGI or other).

The greatest proportion of patients (26 per cent) had chemotherapy/targeted therapy as their first recorded treatment. Notably, identifying the first treatment type was restricted to the options provided in the audit database (chemoradiation, chemotherapy / targeted therapy, endoscopic mucosal resection, gastrectomy, oesophagectomy, radiotherapy). A significant proportion of patients (28 per cent) received a form of treatment that was not listed and not described further.

Thirty-six per cent of audited patients had a documented admission or referral for palliative care.

Table 1: Descriptive summary of the audit population (297 patients)

| Variable | Level | Number (%) |
| --- | --- | --- |
| Diagnosis | C15 Malignant neoplasm of oesophagus | 103 (35%) |
| C16 Malignant neoplasm of stomach | 194 (65%) |
| Died within 30 days of diagnosis | Entire audit population | 25 (8%) |
| ICS of residence | NEMICS | 67 (23%) |
| SMICS | 56 (19%) |
| WCMICS | 64 (22%) |
| BSWRICS | 27 (9%) |
| GRICS | 17 (6%) |
| Hume RICS | 20 (7%) |
| LMICS | 27 (9%) |
| GICS | 19 (6%) |
| ICS of first treatment\* | NEMICS | 65 (22%) |
| SMICS | 64 (22%) |
| WCMICS | 79 (27%) |
| BSWRICS | 26 (9%) |
| GRICS | 8 (3%) |
| Hume RICS# | 12 (4%) |
| LMICS | 25 (8%) |
| GICS | 18 (6%) |
| Age | Mean (SD) | 69.43 (11.89) |
| Median [range] | 70 [27–96] |
| Interquartile range | 62–79 |
| Gender | Female | 85 (29%) |
| Male | 212 (71%) |
| Stage at diagnosis | I | 30 (10%) |
| II | 38 (13%) |
| III | 47 (16%) |
| IV/metastatic disease | 112 (38%) |
| Other | 12 (4%) |
| Unknown | 44 (15%) |
| Missing data\*\* | 14 (5%) |
| First treatment | Chemoradiation | 45 (15%) |
| Chemotherapy / targeted therapy | 77 (26%) |
| Endoscopic mucosal resection | 11 (4%) |
| Gastrectomy | 41 (14%) |
| Oesophagectomy | 5 (2%) |
| Radiotherapy | 23 (8%) |
| None of the above | 85 (29%) |
| Unknown | 8 (3%) |
| Missing data\*\* | 2 (<1%) |
| Source of referral to first appointment or consultation | General practitioner | 92 (31%) |
| Emergency department | 63 (21%) |
| Private specialist | 61 (21%) |
| Other public hospital | 31 (10%) |
| Internal | 20 (7%) |
| Unknown | 13 (4%) |
| Missing data\*\* | 17 (6%) |
| Clinician who conducted first appointment or consultation after the referral | UGI surgeon | 69 (23%) |
| Other surgeon | 54 (18%) |
| Medical oncologist | 54 (18%) |
| Gastroenterologist | 48 (16%) |
| General medicine | 24 (8%) |
| Radiation oncologist | 14 (5%) |
| Other | 9 (3%) |
| Unknown | 7 (3%) |
| Missing data\*\* | 18 (6%) |
| First appointment or consultation type | Inpatient | 127 (43%) |
| Outpatient | 141 (47%) |
| Missing data\*\* | 29 (10%) |
| Did the patient have an admission to a palliative care ward or referral to community palliative care services? | Yes, admitted to palliative care ward | 29 (10%) |
| Yes, community palliative care referral | 65 (22%) |
| Yes, referral to both palliative care ward and community palliative care services | 13 (4%) |
| No documented admission or referral | 169 (57%) |
| Missing data\*\* | 21 (7%) |

# Note HumeRICS data limitation regarding patients receiving their treatment in NSW.

\* The term ‘ICS of first treatment’ is defined as the ICS of the campus where the patient received their first treatment (chemotherapy, radiotherapy, surgery) or, if no treatment was received, the ICS of the campus where the patient was first referred.

\*\* If a field entry was not completed by the auditor, the data was recorded as missing. No assumptions were made.

### Stage at diagnosis

Eighty per cent of audited patients had their cancer stage documented in their medical record, with the greatest proportion of patients (38 per cent) diagnosed with stage IV/metastatic disease. Gippsland Regional ICS had the largest proportion of patients diagnosed with stage IV/metastatic OG cancer (76 per cent) compared with other ICS (see Figure 2 and Table 2).

Figure 2: Oesophagogastric cancer metastatic disease at diagnosis

Notably a significant proportion of the audit population did not have stage documented (missing or unknown) in their audit record from SMICS (25 per cent), GICS (26 per cent), Hume RICS (30 per cent) and LMICS (33 per cent), whereas stage was recorded for 94 per cent of GRICS patients.

Table 2: Documented stage at diagnosis of audit population by ICS of residence (297 patients)

| ICS of residence | Stage I | Stage II | Stage III | Stage IV/  metastatic | Other | Missing\* | Unknown |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NEMICS | 3 (4%) | 6 (9%) | 10 (15%) | 34 (51%) | 3 (4%) | 0 (0%) | 11 (16%) |
| SMICS | 7 (12%) | 7 (12%) | 8 (14%) | 16 (29%) | 4 (7%) | 5 (9%) | 9 (16%) |
| WCMICS | 12 (19%) | 8 (12%) | 15 (23%) | 21 (33%) | 1 (2%) | 1 (2%) | 6 (9%) |
| BSWRICS | 2 (7%) | 7 (26%) | 4 (15%) | 9 (33%) | 0 (0%) | 3 (11%) | 2 (7%) |
| GRICS | 1 (6%) | 0 (0%) | 1 (6%) | 13 (76%) | 1 (6%) | 0 (0%) | 1 (6%) |
| GICS | 1 (5%) | 1 (5%) | 6 (32%) | 5 (26%) | 1 (5%) | 0 (0%) | 5 (26%) |
| Hume RICS# | 2 (10%) | 3 (15%) | 2 (10%) | 7 (35%) | 0 (0%) | 5 (25%) | 1 (5%) |
| LMICS | 2 (7%) | 6 (22%) | 1 (4%) | 7 (26%) | 2 (7%) | 0 (0%) | 9 (33%) |
| **Total** | **30 (10%)** | **38 (13%)** | **47 (16%)** | **112 (38%)** | **12 (4%)** | **14 (5%)** | **44 (15%)** |

# Note HumeRICS data limitation regarding patients receiving their treatment in NSW.

\* If a field entry was not completed by the auditor, the data was recorded as missing. No assumptions were made.

### Multidisciplinary meeting

Patients who died within 30 days of their cancer diagnosis (*n* = 25) and patients who declined to be discussed in an MDM (*n* = 1) were excluded from the MDM capture rate calculation and from the data presented in Tables 3 and 4.

Of the remaining 271 patients audited, 81 per cent (220 of 271) were identified as having been discussed at an MDM.

Of the patients who were included in the MDM capture rate calculation, 28 per cent had an incomplete audit record in which the patient attended more than one campus during the audit period and at least one of the campuses was not audited. It is therefore expected that the MDM capture rate reported here is lower than the actual rate. Notably, the MDM capture rate remains unchanged at 81 per cent if all patients with an incomplete record are excluded from the rate calculation.

Patients diagnosed with stage I–III OG cancer were more likely to be discussed at an MDM than patients who were diagnosed with stage IV/metastatic disease. The median age for patients discussed at an MDM (69 years) was significantly lower than for patients who were not discussed at an MDM (74 years).

The relationship between treatment type and MDM presentation remains poorly understood because a large proportion of patients with unknown treatment type also did not have a documented MDM in their audit record (43 per cent). The audit data available indicates that patients who are first treated with chemoradiation or gastrectomy are more likely to be discussed at an MDM than not.

Patients with a known referral to a community palliative care service had a lower MDM rate than patients who did not have a documented palliative care referral.

Table 3: Descriptive summary comparing patients with evidence of an MDM discussion in their medical record in comparison with those who did not (271 patients)

| Variable | Categories | MDM | No MDM | P-value˄ |
| --- | --- | --- | --- | --- |
| Diagnosis | C15 Malignant neoplasm of oesophagus | 74 (34%) | 20 (39%) | 0.555 |
| C16 Malignant neoplasm of stomach | 146 (66%) | 31 (61%) |
| ICS of residence | NEMICS | 44 (20%) | 16 (31%) | 0.134 |
| SMICS | 43 (20%) | 11 (22%) |
| WCMICS | 53 (24%) | 5 (10%) |
| BSWRICS | 19 (9%) | 6 (12%) |
| GRICS | 12 (5%) | 5 (10%) |
| Hume RICS# | 17 (8%) | 1 (2%) |
| LMICS | 20 (9%) | 3 (6%) |
| GICS | 12 (5%) | 4 (8%) |
| ICS of first treatment\* | NEMICS | 39 (18%) | 17 (33%) | 0.007 |
| SMICS | 52 (24%) | 9 (18%) |
| WCMICS | 68 (31%) | 6 (12%) |
| BSWRICS | 18 (8%) | 6 (12%) |
| GRICS | 4 (2%) | 4 (8%) |
| Hume RICS# | 10 (5%) | 1 (2%) |
| LMICS | 18 (8%) | 3 (6%) |
| GICS | 11 (5%) | 5 (10%) |
| Age | Mean (SD) | 68.35 (11.26) | 71.75 (13.05) | 0.031 |
| Median [range] | 69 [32–89] | 74 [27–92] |
| Interquartile range | 61–77 | 66.5–81 |
| Gender | Female | 62 (28%) | 14 (27%) | 1 |
| Male | 158 (72%) | 37 (73%) |
| Stage at diagnosis | I | 26 (12%) | 3 (6%) | < 0.001 |
| II | 37 (17%) | 0 (0%) |
| III | 42 (19%) | 3 (6%) |
| IV/metastatic disease | 72 (33%) | 26 (51%) |
| Other | 11 (5%) | 1 (2%) |
| Unknown | 27 (12%) | 11 (22%) |
| Missing data\*\* | 5 (2%) | 7 (14%) |
| First treatment at audited campus | Chemoradiation | 41 (19%) | 4 (8%) | 0.001 |
| Chemotherapy / targeted therapy | 63 (29%) | 14 (27%) |
| Endoscopic mucosal resection | 9 (4%) | 2 (4%) |
| Gastrectomy | 40 (18%) | 1 (2%) |
| Oesophagectomy | 5 (2%) | 0 (0%) |
| Radiotherapy | 15 (7%) | 5 (10%) |
| None of the above | 43 (20%) | 22 (43%) |
| Unknown | 2 (1%) | 3 (6%) |
| Missing data\*\* | 2 (1%) | 0 (0%) |
| Source of referral to audited campus | General practitioner | 77 (35%) | 12 (24%) | 0.044 |
| Emergency department | 34 (15%) | 12 (24%) |
| Private specialist | 45 (20%) | 16 (31%) |
| Other public hospital | 24 (11%) | 2 (4%) |
| Internal | 18 (8%) | 1 (2%) |
| Unknown | 11 (5%) | 2 (4%) |
| Missing data\*\* | 11 (5%) | 6 (12%) |
| Clinician who conducted first appointment or consultation after the referral | UGI surgeon | 61 (28%) | 5 (10%) | 0.072 |
| Other surgeon | 38 (17%) | 13 (25%) |
| Medical oncologist | 40 (18%) | 13 (25%) |
| Gastroenterologist | 37 (17%) | 7 (14%) |
| General medicine | 13 (6%) | 4 (8%) |
| Radiation oncologist | 12 (5%) | 1 (2%) |
| Other | 4 (2%) | 0 (0%) |
| Unknown | 4 (2%) | 2 (4%) |
| Missing data\*\* | 11 (5%) | 6 (12%) |
| First appointment or consultation type | Inpatient | 77 (35%) | 26 (51%) | 0.003 |
| Outpatient | 125 (57%) | 16 (31%) |
| Missing data\*\* | 18 (8%) | 9 (18%) |
| Did the patient have an admission to a palliative care ward or referral to community palliative care services? | Yes, admitted to palliative care ward | 17 (8%) | 2 (4%) | 0.038 |
| Yes, community palliative care referral | 44 (20%) | 17 (33%) |
| Yes, admission to palliative care ward and referral to community palliative care | 8 (4%) | 5 (10%) |
| No documented admission or referral | 135 (61%) | 22 (43%) |
| Missing data\*\* | 16 (7%) | 5 (10%) |

^ Differencesin categorical variables were assessed using Pearson’s chi-squared test (with Yates’ continuity correction where necessary). Differences in continuous variables were assessed using the Wilcoxon-Mann-Whitney test to assess differences in continuous variables.

# Note HumeRICS data limitation regarding patients receiving their treatment in NSW.

\* The term ‘ICS of first treatment’ is defined as the ICS of the campus where the first VAED admission was reported, where the patient first received treatment (chemotherapy, radiotherapy, surgery) or, if no treatment was received, the ICS of the campus where the patient was first referred.

\*\* If a field entry was not completed by the auditor, the data was recorded as missing. No assumptions were made.

### Multidisciplinary meeting location

In most cases, patients were discussed at an MDM located within their ICS of residence, with two exceptions: a greater proportion of Gippsland and Hume residents were discussed at an MDM in a metropolitan ICS (Table 4).

Table 4: Location of patient MDMs in relation to the patient’s ICS of residence

| ICS of residence | NEMICS | SMICS | WCMICS | Barwon SW RICS | Gippsland RICS | Hume RICS # | Loddon Mallee ICS | Grampians ICS |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NEMICS | 28 | 7 | 9 |  |  |  |  |  |
| SMICS |  | 40 | 3 |  |  |  |  |  |
| WCMICS | 6 | 1 | 46 |  |  |  |  |  |
| BSWRICS |  |  | 2 | 17 |  |  |  |  |
| GRICS | 3 | 2 | 2 |  | 5 |  |  |  |
| Hume RICS# | 4 | 1 | 5 |  |  | 7 |  |  |
| LMICS |  |  | 3 |  |  |  | 16 | 1 |
| GICS |  |  | 1 |  |  |  | 1 | 10 |

# Note HumeRICS data limitation regarding patients receiving their treatment in NSW.

### Timeliness of care

The timeliness figures are calculated using data collected from the audit and from the VAED. A proportion of patients did not have dates recorded in their audit record for referral, commencement of treatment and/or MDM. These patients are classified as missing data in Table 5 and the number of patients is documented. Patients who did not receive chemotherapy, radiotherapy or surgery (oesophagectomy, gastrectomy, endoscopic mucosal resection) have missing dates for the commencement of first treatment. Patients with a missing MDM date may be either missing date entries or did not have an MDM documented in their audit record. Patients with their first treatment recorded prior to an MDM were excluded from the timeliness calculation for that variable.

Overall, the median time between (1) referral to commencement of first treatment, (2) referral to MDM and (3) diagnosis of an OG cancer and presentation at an MDM, was within the timeframes recommended in the optimal care pathway. The percentage of audited patients who achieved optimal care pathway recommended timeframes were 63 per cent for referral to first treatment (42 days or fewer), 71 per cent for referral to MDM (28 days or fewer), and 52 per cent for diagnosis to MDM (14 days or fewer).

The median time between (1) diagnosis of an OG cancer and beginning treatment and (2) MDM to first treatment was outside of the recommended timeframes. The percentage of audited patients who achieved optimal care pathway recommended timeframes were 40 per cent for diagnosis to commencement of treatment (28 days or fewer) and 26 per cent for MDM to first treatment (14 days or fewer).

Table 5: Timeliness of care for Victorians diagnosed with OG cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private health service (297 patients)

| Variable | Statistic | Oesophageal cancer | Stomach cancer |
| --- | --- | --- | --- |
| Referral to first treatment | No. patients | 60 | 105 |
| Mean (SD) days | 41.52 (33.36) | 56.49 (65.80) |
| Median [range] days | 34 [-24–152] | 36 [0–357] |
| Interquartile range days | 20.75–53 | 21–57 |
| No. patients with missing data | 43 | 89 |
| Referral to MDM | No. patients | 70 | 123 |
| Mean (SD) days | 28.20 (42.07) | 38.89 (64.15) |
| Median [range] days | 16 [-22–249] | 18 [-14–358] |
| Interquartile range days | 8–28.5 | 7.5–33 |
| No. patients with missing data | 33 | 71 |
| MDM to first treatment | No. patients | 47 | 92 |
| Mean (SD) days | 28.40 (18.8) | 25.42 (19.19) |
| Median [range] days | 25 [1–99] | 23 [0–117] |
| Interquartile range days | 14.5–37.5 | 13.5–34.25 |
| No. patients with missing data | 44 | 80 |
| No. patients excluded | 12 | 22 |
| Diagnosis to MDM | No. patients | 79 | 149 |
| Mean (SD) days | 19.96 (38.30) | 20.68 (27.91) |
| Median [range] days | 13 [-35–256] | 14 [-25–174] |
| Interquartile range days | 6–22 | 7–26 |
| No. patients with missing data | 24 | 45 |
| Diagnosis to first treatment | No. patients | 70 | 132 |
| Mean (SD) days | 37.60 (28.21) | 36.17 (25.19) |
| Median [range] days | 35 [0–168] | 33.5 [0–130] |
| Interquartile range days | 21–46.5 | 20.75–49.25 |
| No. patients with missing data | 33 | 62 |

Timeliness figures are further broken down by the patient’s ICS of residence in Table 6.

Table 6: Timeliness of care reported in days by ICS of residence for Victorians diagnosed with OG cancers between 1 July and 31 December 2016 who were admitted to a Victorian public or selected private health service (297 patients)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ICS of residence | Referral to first treatment  *n*, median [IQR] | Referral to MDM  *n*, median [IQR] | MDM to first treatment  *n*, median [IQR] | Diagnosis to MDM  *n*, median [IQR] | Diagnosis to first treatment  *n*, median [IQR] |
| NEMICS | 32, 34 [24–53] | 36, 18.5 [8.75–29.75] | 29, 28 [12–41] | 45, 14 [6–19] | 42, 34 [23.25–49.75] |
| SMICS | 32, 29.5 [18.25–42.5] | 34, 10.5 [7–22.5] | 29, 24 [17–31] | 44, 9 [5.75–16.25] | 43, 34 [21–40] |
| WCMICS | 45, 40 [32–61] | 51, 19 [11–33] | 37, 25 [15–40] | 56, 15 [8.5–27] | 51, 39 [24–54] |
| BSWRICS | 12, 45.5 [22.75–54.25] | 16, 11.5 [3–28.25] | 12, 30 [23.5–37.5] | 19, 13 [6–26.5] | 15, 49 [36.5–53] |
| GRICS | 8, 28 [4.75–39.5] | 10, 16.5 [8.75–32.5] | 5, 19 [18–24] | 12, 14.5 [9–26.75] | 9, 24 [13–34] |
| Hume RICS# | 10, 29.5 [6.25–51.75] | 16, 15.5 [11.25–23.25] | 8, 23 [7–30] | 18, 14.5 [2.25–20.5] | 12, 37 [19.5–49.25] |
| LMICS | 18, 34 [21.25–68.5] | 22, 23.5 [14.5–46] | 14, 13.5 [8.25–19] | 22, 18 [8–26.5] | 18, 27.5 [15.25–49.75] |
| GRICS | 8, 28.5 [20–94.5] | 8, 61 [27.75–77.75] | 5, 28 [7–40] | 12, 18 [11.75–32.5] | 12, 23.5 [13.75–30] |
| Victoria | 165, 35 [21–55] | 193, 18 [8–32] | 174, 20 [3.25–31.75] | 228, 14 [6–25] | 202, 34 [21–48.75] |

# Note HumeRICS data limitation regarding patients receiving their treatment in NSW.

IQR = interquartile range

# Conclusions

## Multidisciplinary meeting capture rate

The MDM capture rate for the reported audit population of Victorians diagnosed with OG cancers between 1 July and 31 December 2016 was 220 of 271 (81 per cent).

## Does timeliness of care align with OG optimal care pathway recommendations?

**Recommendation 1:** Time from receipt of referral to commencement of first treatment ≤ 42 days

The average time from referral to commencement of treatment was 42 days for patients diagnosed with oesophageal cancer, in which 50 per cent of patients began treatment within 34 days (IQR 20.75–53). The average time from referral to commencement of treatment was 56 days for patients diagnosed with stomach cancer, in which 50 per cent of patients began treatment within 36 days (IQR21–57). Overall, this timeframe was achieved for 63 per cent of audited patients.

**Recommendation 2:**Time from receipt of referral to MDM ≤ 28 days

The average time from referral to MDM was 28 days for patients diagnosed with oesophageal cancer, in which 50 per cent of patients were discussed at an MDM within 16 days (IQR 8–28.5). The average time from referral to MDM was 39 days for patients diagnosed with stomach cancer, in which 50 per cent of patients were discussed at an MDM within 18 days (IQR 7.5–33). Overall, this timeframe was achieved for 71 per cent of audited patients.

**Recommendation 3:** Time from MDM to commencement of first treatment ≤ 14 days

The average time from MDM to commencement of first treatment was 28 days for patients diagnosed with oesophageal cancer, in which 50 per cent of patients began treatment within 25 days (IQR 14.5–37.5). The average time from MDM to commencement of first treatment was 25 days for patients diagnosed with stomach cancer, in which 50 per cent of patients began treatment within 23 days (IQR 13.5–34.25). Overall, this timeframe was achieved for 26 per cent of audited patients.

**Recommendation 4:** Time from diagnosis to MDM ≤ 14 days

The average time from diagnosis to MDM was 20 days for patients diagnosed with oesophageal cancer, in which 50 per cent of patients were discussed at an MDM within 13 days (interquartile range 6–22). The average time from diagnosis to MDM was 21 days for patients diagnosed with stomach cancer, in which 50 per cent of patients were discussed at an MDM within 14 days (interquartile range 7–26). Overall, this timeframe was achieved for 52 per cent of audited patients.

**Recommendation 5:** Time from diagnosis to commencement of first treatment ≤ 28 days

The average time from diagnosis to commencement of first treatment was 38 days for patients diagnosed with oesophageal cancer, in which 50 per cent of patients began treatment within 35 days (IQR 21–46.5). The average time from diagnosis to treatment was 36 days for patients diagnosed with stomach cancer, in which 50 per cent of patients began treatment within 34 days (interquartile range 20.75–49.25). Overall, this timeframe was achieved for 40 per cent of audited patients.

# Appendix 1: List of audited hospitals

| ICS | Type | Health service |
| --- | --- | --- |
| Barwon RICS | Public | Hamilton Base Hospital |
| Barwon RICS | Public | Geelong Hospital |
| Barwon RICS | Public | South West Healthcare [Warrnambool] |
| Barwon RICS | Private | St John of God Hospital Warrnambool |
| Barwon RICS | Private | St John of God Hospital Geelong |
| Barwon RICS | Private | Geelong Private Hospital |
| Gippsland RICS | Public | Bairnsdale Regional Health Service |
| Gippsland RICS | Public | West Gippsland Healthcare Group [Warragul] |
| Gippsland RICS | Public | Bass Coast Regional Health |
| Gippsland RICS | Public | Central Gippsland Health Service [Sale] |
| Gippsland RICS | Public | Leongatha Memorial Hospital |
| Gippsland RICS | Public | Latrobe Regional Hospital [Traralgon] |
| Gippsland RICS | Private | Maryvale Private Hospital [Morwell] |
| Grampians RICS | Public | East Grampians Health Service [Ararat] |
| Grampians RICS | Public | Ballarat Health Services [Base Campus] |
| Grampians RICS | Public | Wimmera Base Hospital [Horsham] |
| Grampians RICS | Public | Stawell Regional Health |
| Grampians RICS | Public | Djerriwarrh Health Service [Bacchus Marsh] |
| Grampians RICS | Public | Melton Health |
| Grampians RICS | Private | St John of God Hospital Ballarat |
| Hume RICS | Public | Goulburn Valley Health [Shepparton] |
| Hume RICS | Public | Northeast Health Wangaratta |
| Hume RICS | Public | Wodonga Regional Health Service |
| Loddon Mallee RICS | Public | Bendigo Hospital, The |
| Loddon Mallee RICS | Public | Kyneton District Health Service |
| Loddon Mallee RICS | Public | Maryborough District Health Service [Maryborough] |
| Loddon Mallee RICS | Public | Swan Hill District Hospital [Swan Hill] |
| Loddon Mallee RICS | Public | Echuca Regional Health |
| Loddon Mallee RICS | Public | Kerang District Health |
| Loddon Mallee RICS | Public | Mildura Base Hospital |
| Loddon Mallee RICS | Public | Mount Alexander Hospital [Castlemaine] |
| Loddon Mallee RICS | Private | St John of God Hospital Bendigo |
| Loddon Mallee RICS | Private | Mildura Private Hospital |
| NEMICS | Public | Austin Hospital |
| NEMICS | Public | Box Hill Hospital |
| NEMICS | Public | Maroondah Hospital [East Ringwood] |
| NEMICS | Public | Northern Hospital, The [Epping] |
| SMICS | Public | Alfred, The [Prahran] |
| SMICS | Public | Monash Medical Centre [Clayton] |
| SMICS | Public | Monash Medical Centre [Moorabbin] |
| SMICS | Public | Rosebud Hospital |
| SMICS | Public | Sandringham & District Memorial Hospital |
| SMICS | Public | Dandenong Campus |
| SMICS | Public | Frankston Hospital |
| WCMICS | Public | Western Hospital [Footscray] |
| WCMICS | Public | Royal Melbourne Hospital – City Campus |
| WCMICS | Public | Sunshine Hospital |
| WCMICS | Public | St Vincent’s Hospital |
| WCMICS | Public | Peter MacCallum Cancer Centre [East Melbourne] |

# Appendix 2: Victorian OG Cancer Audit case ascertainment method

Flow chart for completing the data collection from medical record by the central data team and ICS.
Central data team reponsible for provising a list of all OG cases during period to ICS data manager. Data manager responsible for linking cases to medical records, conducting audit.

# Abbreviations

|  |  |
| --- | --- |
| BSWRICS | Barwon South Western Regional Integrated Cancer Service |
| GICS | Grampians Integrated Cancer Service |
| GRICS | Gippsland Regional Integrated Cancer Service |
| Hume RICS | Hume Regional Integrated Cancer Service |
| ICS | Integrated Cancer Service |
| IQR | interquartile range |
| LMICS | Loddon Mallee Integrated Cancer Service |
| MDM | multidisciplinary meeting |
| NEMICS | North Eastern Melbourne Integrated Cancer Service |
| OG | oesophagogastric |
| SMICS | Southern Melbourne Integrated Cancer Service |
| UGI | upper gastrointestinal |
| VAED  VCR | Victorian Admitted Episodes Dataset  Victorian Cancer Registry |
| WCMICS | Western and Central Melbourne Integrated Cancer Service |

# References

Australian Institute of Health and Welfare 2014, *Cancer in Australia: an overview 2014*, Cancer series No. 90. Cat. no. CAN 88, AIHW, Canberra.

Cancer Council 2018, [*Optimal care pathway for people with oesophagogastric cancer*](http://www.cancer.org.au/ocp), viewed 10 September 2018, <www.cancer.org.au/ocp>.

Clark K, Girgis A, Currow D 2011, ‘Palliative care of people with oesophageal cancer’, *Cancer Forum*, vol. 35, no. 3, pp. 175–179.

McCall M, Graham P, Bathe O 2016, ‘Quality of life: A critical outcome for all surgical treatments of gastric cancer’, *World Journal of Gastroenterology*, vol. 22, no. 3, pp, 1101–1113.

Thursfield V, Farrugia H 2017, *Cancer in Victoria: statistics & trends 2016*. Cancer Council Victoria, Melbourne.

1. The full names of all the ICS are provided in the Abbreviations list. [↑](#footnote-ref-1)