

**NEMICS Adolescent  
and Young Adult  
Cancer Care Audit  
Report  
2025**

## Acknowledgements

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NEMICS is a cancer services improvement network. NEMICS builds relationships between healthcare providers and other cancer care stakeholders to develop, implement and evaluate initiatives that improve the way our member health services provide care and support people affected by cancer. For more information, [www.vics.org.au/nemics](http://www.vics.org.au/nemics).

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## Acronyms

Acronym	Full text
AH	Austin Health
AYA	Adolescent and Young Adult
CNC	Clinical Nurse Consultant
EH	Eastern Health
GP	General Practitioner
MDM	Multidisciplinary Team Meeting
MHW	Mercy Hospital for Women
NEMICS	North Eastern Melbourne Integrated Cancer Service
NH	Northern Health
OCP	Optimal Care Pathways
UR	Unit Record
VAED	Victorian Admitted Episode Dataset

# Executive Summary

## Background

The Optimal Care Pathway (OCP) for adolescents and young adults (AYA) with cancer was published in 2022 to guide cancer care delivery for people diagnosed with cancer between the ages of 15-25 years. This OCP states that after a confirmed diagnosis, health professionals should strongly consider referral to a cancer centre with expertise in managing AYA cancers.[1]

In Victoria, the primary centre recommended for AYA cancer supportive care and care coordination is the Victorian Adolescent and Young Adult (AYA) Cancer Service at Peter MacCallum Cancer Centre. The Victorian AYA Cancer Service is a team of health and other professionals who specialise in the care of cancer patients aged 15-25 years. The service can provide support to the patient and their care team for all stages of the cancer care pathway including location of care, clinical trial access, treatment planning, and post-treatment guidance and community referrals.[2]

In 2023, Victorian admitted episode (VAED) data from 2017-2021 were examined to understand AYA cancer incidence and cancer care within the NEMICS region. The study found approximately 50 new AYA cancer diagnoses occurred within the NEMICS region each year with a distribution across NEMICS region health services of 31% Austin Health, 30% private health services, 22% Eastern Health, 15% Northern Health, and 2% Mercy Hospital for Women. The report recommended investigation of NEMICS member health service referrals to age-appropriate services, and specifically to the Victorian AYA Cancer Service, to examine adherence to OCP AYA referral recommendations.

This study examines alignment to the optimal care pathway of AYA cancer patients and the Victorian Cancer Service Performance Indicators. It assessed AYA cancer patient MDM presentation, supportive care screening, referral to the Victorian AYA Cancer Service, and communication of referral to the General Practitioner (GP).

## Aim

To assess whether referral pathways and supportive care screening activities documented in AYA patient records across NEMICS member health services align with relevant OCP recommendations for AYA cancer patients.

## Objectives

1. Determine the percentage of AYA patients with documented evidence they were presented at a NEMICS multidisciplinary meeting (MDM)
2. Determine the percentage of AYA patients with documented evidence that they received at least one supportive care screening at a NEMICS member services.
3. Determine the referral rate to the Victorian AYA Cancer Service for AYA cancer patients from NEMICS member health services and documented communication of referral to patients' GPs.
4. Determine whether AYA cancer service referrals are being documented consistently in patient records at the member health service with the highest proportion of AYA cancer patients in the NEMICS region (Austin Health).

## Methods

In 2024, an audit of AYA cancer patient medical records across NEMICS member health services was conducted. AYA cancer patients were identified based on patient age at the time of first cancer admission from the Victorian Admitted Episode Dataset (VAED). All patients aged 15-25 years at

the time of first cancer admission who were admitted to a NEMICS health service during 2021-2023 with a malignant solid and/or haematological cancer were included in the audit.

Patient electronic medical records were used to access information about patient demographics, tumour stream type, evidence of MDM presentation and disease staging, supportive care screening, referral to the Victorian Adolescent and Young Adult Cancer Service, and communication of the AYA referral to the patient's GP. Cross-referencing with Victorian AYA Cancer Service patient records was conducted on patient records from the service with the highest number of AYA cancer patients (Austin Health), to determine whether referrals were received. AYA patient records from Austin Health were re-audited to determine whether the referrals received by the Victorian AYA Cancer Service were documented in Austin Health patient records.

## Key Findings

- Of the 133 AYA patients extracted from the VAED, 110 met inclusion criteria for the audit.
- 46 (42%) AYA patients were first admitted to Austin Health, 35 (32%) to Northern Health, 24 (22%) to Eastern Health, and five (5%) to Mercy Hospital for Women.
- The most common cancer types among the AYA audit cohort were lymphoma (37%), followed by thyroid (15%), genito-urinary (14%), and gynaecological (8%) cancers.
- Of the 110 AYA patients included in the audit:
  - 74% had documented evidence of at least one MDM presentation in their patient record.
  - 25% had documented evidence of at least one supportive care screening in their patient record.
  - Nine (8%) had documented evidence of a referral to the Victorian AYA Cancer Service in their medical record, with Austin Health referring the most (5 referrals).
  - Three patients had documented evidence of communication to the GP that a referral to the Victorian AYA Cancer Service had been made.
- Data validation with the Victorian AYA Cancer Service identified an additional seven Austin Health patients that were seen by the Victorian AYA Cancer Service who did not have a referral documented in their Austin Health patient records.
- For Austin Health, the rate of referrals to the Victorian AYA Cancer Service increased from 11% (n=5/46) to 26% (n=12/46) after cross-validation with the Victorian AYA Cancer Service.
- Feedback from the Victorian AYA Cancer Service during the cross-validation process identified that 15 secondary consultations had occurred with Austin Health staff to provide support and advice about AYA patients with cancer in addition to the documented referrals.

## Conclusion

- During 2021-2023, AYA patients from NEMICS member health services had a low documented referral rate of approximately 26% to the Victorian AYA Cancer Service. Limited information is available to determine whether all referrals are being captured in a patient's health record. Evidence of the referral in communication to the patient's GP was low.
- The rate of AYA cancer patient presentations at a cancer MDM (74%) is below the recommended target of 85%.
- The rate of AYA cancer patient supportive care screening documentation (25%) is below the recommended target of 80%. The use of an evidence-based, age-appropriate AYA supportive care screening tool across NEMICS health was not assessed within this study and remains unknown.

## Recommendations

NEMICS member health services should improve alignment with the OCP for adolescents and young adults with cancer and the Victorian Cancer Services Performance Indicator targets by:

1. informing multidisciplinary teams of the AYA cancer care audit report findings and opportunities for improvement,
2. improving referral pathways, GP communications, and Victorian AYA Cancer Service documentation in the medical record,
3. continuing to deliver the NEMICS MDM quality program across the region to ensure compliance with the MDM quality framework,
4. improving supportive care policy, practices, education and access to relevant services at member health services, including the implementation of an evidence-based, age-appropriate AYA supportive care screening tool. For example, [Cancer Mind Care](#) is an online resource that provides support, information and access to psycho-oncology services and may be useful for AYA patients,
5. developing and implementing an AYA supportive care guideline that includes the use of AYA screening tools, referrals to AYA Service and signposting to relevant supportive care services including Canteen, and
6. considering opportunities to develop an AYA specific CNC position at Austin Health, as the 4<sup>th</sup> largest provider of AYA care in Victoria.

## Background

The Optimal Care Pathway (OCP) for adolescents and young adults (AYA) with cancer was published in 2022 to guide cancer care delivery for people diagnosed with cancer between the ages of 15-25 years. This age group require cancer care and support that is tailored to the unique needs of a person at this stage of life.

The OCP states that after a confirmed diagnosis, health professionals should strongly consider referral to a cancer centre with expertise in managing AYA cancers.[1] In Victoria, the primary centre recommended for AYA cancer supportive care and care coordination is the Victorian Adolescent and Young Adult (AYA) Cancer Service at Peter MacCallum Cancer Centre. The Victorian AYA Cancer Service is a team of health and other professionals who specialise in the care of cancer patients aged 15-25 years. The service can provide support to the patient and their care team for all stages of the cancer care pathway including location of care, clinical trial access, treatment planning, and post-treatment guidance and community referrals.[2]

In 2023, an analysis of Victorian admitted episode (VAED) data from 2017-2021 were explored to understand AYA cancer incidence and cancer care within the NEMICS region. During this 5-year time-period, 247 AYA cancer diagnoses were recorded across the NEMICS region indicating approximately 50 new AYA cancer diagnoses within the NEMICS region each year. The distribution of new AYA cancer diagnoses by admission location was 31% Austin Health, 30% private health services, 22% Eastern Health, 15% Northern Health, and 2% Mercy Hospital for Women. Haematology identified as the most common tumour stream for AYA cancer patients, accounting for 41% of the data cohort. However, as the VAED does not collect data on whether referrals to age-appropriate services (i.e., The Victorian AYA Cancer Service, formerly called the OnTrac program at Peter MacCallum) are made for new AYA cancer diagnoses. The 2023 study was unable to determine how well NEMICS member health services adhere to OCP recommendations and the Australian Youth Cancer Services Framework, and a recommendation was made to conduct a further investigation. [3,4]

This study examines NEMICS member health service AYA cancer care against the OCP for adolescents and young adults with cancer and the Victorian Cancer Services Performance Indicator (CSPI) targets. Specifically, the CSPI targets are 85% of audited patients should have documented evidence of MDM recommendations, and 80% should have documented evidence of supportive care screening. [5] The current audit assessed patient records to better understand AYA presentation at an MDM, supportive care screening at treatment sites, referral to an age-appropriate AYA Cancer Service, and communication of the referral pathway to General Practitioner's (GP) for ongoing communication and management.

## Aim

To assess whether referral pathways and supportive care screening activities documented in AYA patient records across NEMICS member health services align with the OCP recommendations for AYA cancer patients.

## Objectives

1. Determine the percentage of AYA patients with documented evidence they were presented at a NEMICS multidisciplinary meeting (MDM)
2. Determine the percentage of AYA patients with documented evidence that they received at least one supportive care screening at a NEMICS member services.
3. Determine the referral rate to the Victorian AYA Cancer Service for AYA cancer patients from NEMICS member health services and documented communication of referral to patients' GPs.

- Determine whether AYA cancer service referrals are being documented consistently in patient records at the member health service with the highest proportion of AYA cancer patients in the NEMICS region (Austin Health).

## Methods

During May to July 2024, an audit of AYA cancer patient medical records of NEMICS member health services was conducted.

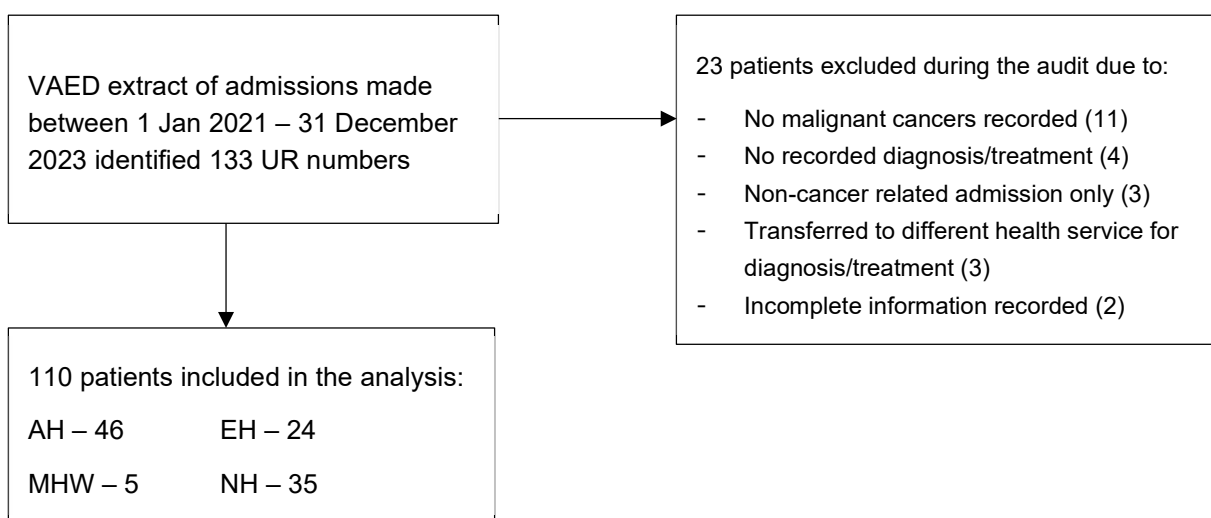
Data from the cancer subset of the Victorian Admitted Episode Dataset (VAED) was used to extract UR numbers of patients aged 15-25 years at the time of first cancer admission who were admitted to Austin Health, Eastern Health, Mercy Hospital for Women or Northern Health during 2021-23 with a malignant solid and/or haematological cancer diagnosis. The VAED collects information on patient demographics, disease (diagnoses) and treatment (procedures) during a hospital admission. The VAED cancer data subset relates specifically to admissions where one or many diagnoses for the admitted patient are cancer related.

Using the extracted UR numbers, patient records were examined against inclusion criteria for the audit. Patient records were excluded from the analysis if no malignant cancers were recorded in the hospitals' medical records, no diagnosis/treatment was recorded or diagnosis/treatment was transferred to a different health service, only non-cancer related admissions were recorded, or incomplete information was recorded in the patient file.

Patient electronic medical records included in the audit were explored to collect data related to patient demographics, tumour stream type, evidence of MDM presentation and disease staging, supportive care screening, communication of AYA referral to the GP and referral to the Victorian Adolescent and Young Adult Cancer Service.

A sub-analysis using data from the health service that received the highest number of first cancer admissions for AYA patients in the audit (Austin Health, n=46) was conducted to confirm that all relevant referrals had been identified in the audit. A list of all audited Austin Health AYA patients were cross-referenced with Victorian AYA Cancer Service patient records to determine whether referrals from Austin Health were received. Austin Health AYA patient records were then re-audited to determine whether the referrals received by the Victorian AYA Cancer Service were documented in the Austin Health patient records.

**Figure 1: Recruitment process for included patients**



# Findings

## Audit

### Patient demographics

Of the 133 UR numbers that were identified in the VAED dataset and audit, 23 patient records were excluded because they had no malignant cancers recorded (n=11), no recorded diagnosis/treatment (n=4), non-cancer related admission only (n=3), transferred to different health service for diagnosis/treatment (n=3), and incomplete information recorded (n=2). The remaining 110 patient records were included in the audit.

At first admission, 11 (10%) of audited AYA patients were aged 15-18 years, 27 (25%) were aged 19-21 years, and 72 (65%) were aged 22-25 years. Half (50%) of the audit cohort are male, and half (50%) are female. Across the NEMICS region, 46 (42%) AYA patients were first admitted to Austin Health, 35 (32%) to Northern Health, 24 (22%) to Eastern Health, and 5 (5%) to Mercy Hospital for Women. The majority (78%) of patients reside within the NEMICS region.

Majority (78%) of audited AYA patients were born in Australia, 18% were born overseas, and 4% did not have place of birth documented in their patient records. Almost all (96%) AYA patients primarily speak English and do not need an interpreter. Majority (97%) are non-indigenous, 2% have no documentation of indigenous status, and 1% are Aboriginal.

The most common cancer types among the AYA audit cohort in the NEMICS region are lymphoma (37%), thyroid (15%), genito-urinary (14%), and gynaecological (8%) cancers.

### MDM documentation and supportive care screening

Of the 110 patients included in the audit, 74% (n=81) had documented evidence of MDM presentation in their patient record. Of the 81 patients who have documented MDM presentation, 64 (79%) also have documented staging.

Only 25% (n=27) of the 110 audited AYA records had documented evidence of supportive care screening.

### AYA referral rates

Only nine (8%) of the audited AYA records had documented evidence of a referral to the AYA Cancer Service. Five of these referrals were made for patients with lymphoma (the most common tumour stream within this cohort). Austin Health records demonstrated the most AYA referrals (n=5, 11%), however Austin Health has the most AYA patients included in the audit. All identified AYA Cancer Service referrals were made and documented for patients aged 17-24 years.

Across the cohort, only six patients received both supportive care screening at a NEMICS member service and a referral to the AYA Cancer Service. Only three patients had documented evidence of communication to the GP that a referral to the Victorian AYA Cancer Service had been made.

Documentation demonstrating a referral had been made was limited, but correspondence from the AYA Cancer Service to acknowledge referral was the most common form of evidence of referral in this audit.

## Cross-referencing of Austin Health patient records

Cross-referencing Austin Health AYA patient details against referrals documented in Victorian AYA Cancer Service records identified an additional seven patients seen by the AYA Cancer Service between 2021-2023 who did not have a referral to the service documented in their Austin Health patient records. Including these seven additional patients in referral rate calculations increases the rate from 11% (n=5 out of 46 Austin Health patients) to 26% (n=12 out of 46 patients). The revised total referrals from the secondary audit matched the total number of referrals received by the

Victorian AYA Cancer Service for Austin Health patients during the audit time period. When reauditing Austin Health AYA patient records using the expanded patient list, only one patient was identified as having a record of an AYA Cancer Service referral in the Austin Health patient records that was previously missed in the initial audit.

## Limitations

In the initial audit, correspondence/referral to and/or from the AYA Cancer Service recorded in patient records was used as the primary indicator for presence of a referral. Validating the Austin Health data with the AYA Cancer Service identified that a significant proportion of referrals to this service are not recorded in health service patient records. This suggests that using documented evidence of correspondence/referral to and/or from the AYA Cancer Service provides an incomplete measure of the rate of referral to age-appropriate AYA cancer services.

Additionally, this audit only examined referrals to the Victorian AYA Cancer Service to calculate age-appropriate referral rates. The optimal care pathway guidelines for AYA cancer patients acknowledges that AYA-specific supportive care services may be available at treatment sites, in the community, or at dedicated services such as the Victorian AYA Cancer Service. Therefore, the referral rate may be an underestimation of patients that have accessed AYA-specific supportive care services.

This study assessed supportive care screening rates but not the tool used or the identified problems. Four patients in this audit were also included in the NEMICS Supportive Care Audit. [5] While all four patients included in the NEMICS Supportive Care Audit identified problems related to the emotional and physical domains, it is important to note that these needs were identified using the National Comprehensive Cancer Network (2019) Distress Thermometer [6], an adult supportive care screening tool. A more appropriate measure for AYA cancer patients is the Adolescent and Young Adult Psycho-Oncology Screening Tool (AYA-POST).[7] The current study did not identify the level of distress or problems experienced by AYA cancer patients across NEMICS member health services.

## Conclusion

AYA-specific cancer care services are important to address the unique needs of cancer patients aged 15-25 years. During 2021-2023, AYA patients from the NEMICS region had a low referral rate of approximately 26% to the Victorian AYA Cancer Service. Cross-validation of referral data suggests that when a referral is made, this may not be captured in the patient's health record. Evidence of referral in communication to the patient's GP was very low.

The OCP for adolescents and young adults with cancer and the Victorian Cancer Services Performance Indicator program outline the importance of cancer MDM presentation and supportive care screening. The rates of AYA cancer patient presentation at a cancer MDM and supportive care screening are below the Victorian targets. The use of an evidence-based, age-appropriate AYA supportive care screening tool across NEMICS health was not assessed in this study and remains unknown, despite recommendations for use of the AYA-POST screening tool. Cancer services throughout the NEMICS region providing AYA cancer care need to improve alignment with the OCP.

## Recommendations

NEMICS member health services should improve alignment with the OCP for adolescents and young adults with cancer and the Victorian Cancer Services Performance Indicator targets by:

1. informing multidisciplinary teams of the AYA cancer care audit report findings and opportunities for improvement,
2. improving referral pathways, GP communications, and Victorian AYA Cancer Service documentation in the medical record,
3. continuing to deliver the NEMICS MDM quality program across the region to ensure compliance with the MDM quality framework,
4. improving supportive care policy, practices, education and access to relevant services at member health services, including the implementation of an evidence-based, age-appropriate AYA supportive care screening tool. For example, [Cancer Mind Care](#) is an online resource that provides support, information and access to psycho-oncology services and may be useful for AYA patients,
5. developing and implementing an AYA supportive care guideline that includes the use of AYA screening tools, referrals to AYA services and signposting to relevant supportive care services including Canteen, and
6. considering opportunities to develop an AYA specific CNC position at Austin Health, as the 4th largest provider of AYA care in Victoria.

## References

- [1] Victorian Paediatric Integrated Cancer Service 2022, Optimal care pathway for adolescents and young adults with cancer. 1<sup>st</sup> edn, Paediatric Integrated Cancer Service, Melbourne, Australia.
- [2] Peter MacCallum Cancer Centre Victoria Australia. Adolescent and Young Adult Cancer Service. [Internet] [cited 2023 October 3]; Available from: <https://www.petermac.org/health-professionals/services-for-health-professionals/adolescents-and-young-adults-aya>
- [3] Tjuntu (TJ) Muhlen-Schulte, Sumit Parikh, Ashley Macleod and Linda Nolte. Adolescents and Young Adults: cancer care in NEMICS region. 2023. NEMICS, Melbourne, Australia.
- [4] CanTeen Australia (2017). Australian Youth Cancer Framework for Adolescents and Young Adults with Cancer. <https://www.canteen.org.au/health-education/measures-manuals/australian-youth-cancer-framework>
- [4] Stephanie Lawson, Spira Stojanovik, Ashley Macleod, Francesca McGannon, Jesvinder Kaur, Claire Rickard, Sameerah Arif and Linda Nolte. 2024. NEMICS Supportive Care Audit Report. 2024. NEMICS, Melbourne, Australia.
- [5] Department of Health. 2023. Cancer Services Performance Indicator Audit of 2022 activity: Information and methodology – 2023. Department of Health, Melbourne, Australia.
- [6] National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology: Distress management. v2.2019. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Distress Management V.2.2019.
- [7] Canteen. 2011. Adolescent and Young Adult Oncology Psychosocial Care Manual (Rev.ed.2021). Australia: Canteen.