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Saturday, August 10, 2019

(Room 10)

16:30 - 17:30 WS #130: Adolescent/Young Adult (AYA) Cancer - It's Rare but It's There

~~17:35 - 18:30 WS #140: Adolescent/Young Adult (AYA) Cancer - Its Rare but Its There
(Repeated)- CANCELLED~~

It's Rare but it's There

Cancer in NZ Adolescent and Young Adults (AYA)

Dr Tristan Pettit

South Island AYA Cancer Service

AYA Cancer Network Aotearoa



Talk outline

- AYA cancer in NZ: Incidence and survival
- AYA cancers: A unique cancer group, Most common AYA cancers for NZ AYA females and males
- Specific discussion on some of AYA cancer types: Carcinoma, Breast Ca, Colorectal Ca, Melanoma, Lymphoma, Gonadal Germ Cell Tumour
- Common AYA cancer presentations
- Regional AYA Cancer Service referral

How frequently do young people with potential cancer symptoms present in primary care?

Br J Gen Pract 2011; DOI: 10.3399/bjgp11X572418.

Aim

To determine how often teenagers and young adults consult, their reasons for doing so, and how often potential oncological symptoms ('alert' symptoms) appear.

Design and setting

Retrospective audit of consultations over 1 year. Three general medical practices in Scotland.

Method

Medical records were examined for 2326 teenagers and young adults. Date of birth, sex, and free-text relating to the consultation were recorded and coded according to an agreed coding system; symptoms of potential oncological significance were coded as alert symptoms.

Results

A total of 1659 teenagers and young adults (71.3% of registered patients) attended their GP at least once. Females attended more frequently than males ($P<0.001$), and older females more frequently than younger females ($P<0.001$). Males exhibited no association between consultation frequency and age. The main reasons for consultation were pregnancy/contraception (15.8%) and infection (15.7%). Alert symptoms were uncommon, (reported in 4.0% of all consultations; 276 alert symptoms in 179 patients), and were not associated with age or sex. The most common alert symptoms were unexplained pain (34.8%), unexplained fatigue (14.5%), and lumps (13.4%). Two benign tumours were detected.

Conclusion

A high proportion of teenagers and young adults consult their GP. Alert symptoms are uncommon and generally occur in isolation. More research is required to confirm these findings in a larger cohort and to examine how GPs respond to such alert symptoms.

- “ Cancer in teenagers and young adults is uncommon—a GP may diagnose one such cancer in their working life.”

AYA Cancer in New Zealand

- Between 2000 and 2009, 1606 new cases of malignant cancer were diagnosed among those aged 15-24 years.
 - an average of 69 adolescents aged 15-19 years and 92 young adults aged 20-24 years diagnosed with cancer each year.
- Analysis by gender:
 - More common in males : non-Hodgkin lymphoma and gonadal germ cell tumours
 - More common in females : breast cancer, melanoma, thyroid carcinoma and genitourinary carcinoma

Ballantine, K., & Sullivan, M. (2013). Adolescent and young adult cancer incidence and survival in New Zealand 2000-2009: Auckland: National Child Cancer Network.

Incidence

- AYA cancer incidence by ethnicity:
 - 287 per million for Maori,
 - 278 per million for Pacific Peoples,
 - 280 per million for non-Maori/Pacific Peoples
- A higher incidence of :
 - leukaemia amongst Pacific Peoples
 - Ewing tumours, carcinoma of the gastro-intestinal tract, and gonadal germ cell tumours amongst Maori
 - melanoma amongst non-Maori/Pacific Peoples.

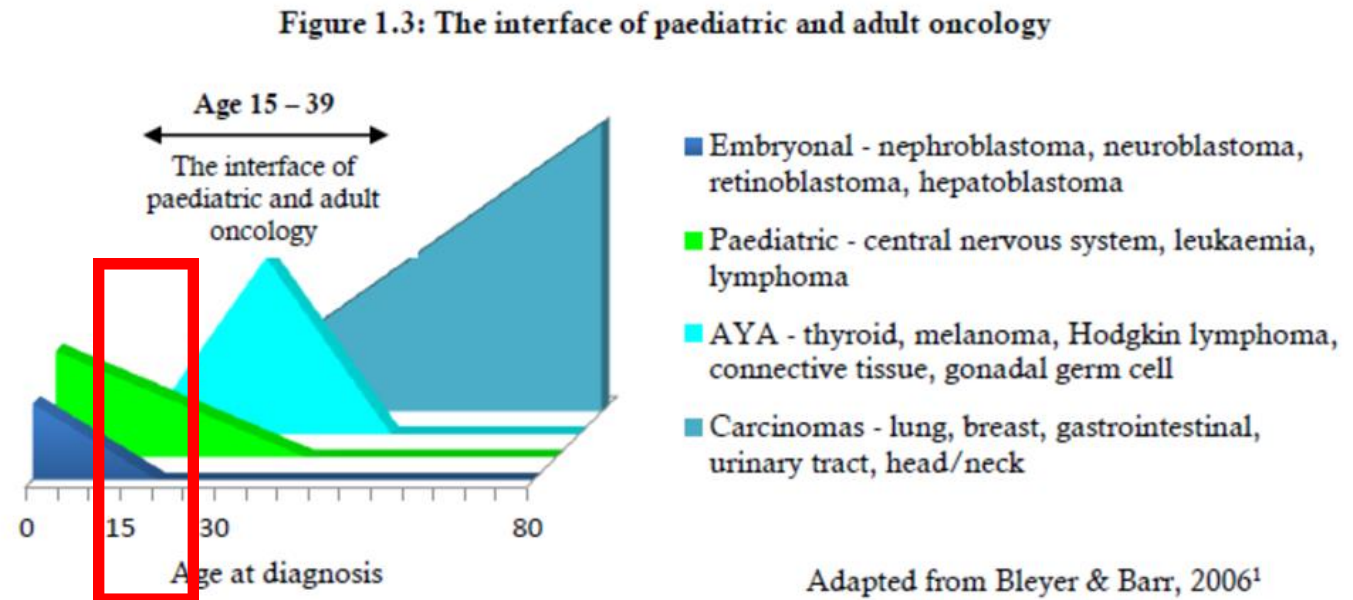
Ballantine, K., & Sullivan, M. (2013). Adolescent and young adult cancer incidence and survival in New Zealand 2000-2009: Auckland: National Child Cancer Network.

Survival

- Five-year relative survival (5YS) for AYA (15-24 years)
 - significantly lower for Maori (69.5%) and Pacific Peoples (71.3%) than non-Maori/Pacific Peoples (84.2%).
- International comparisons
 - New Zealand 5YS for AYA cancer patients (80.6%) was significantly lower than reported by the European EUROCARE group (87.4%).
 - New Zealand 5YS for adolescents 15-19 years (75.1%) was also significantly lower than the survival reported by the United States (81.8%) and Canada (81%).

AYA – unique cancer group

- spectrum of cancer types and their relative frequencies is **distinctly different** in AYA
- Awareness of the unique spectrum of cancer types and the aggregate of symptoms and signs is essential for AYA cancer diagnosis.



NZ AYA cancer presentations by gender

Figure 3.6a Cancers diagnosed in male AYA aged 15-24 years, New Zealand, 2000-2009

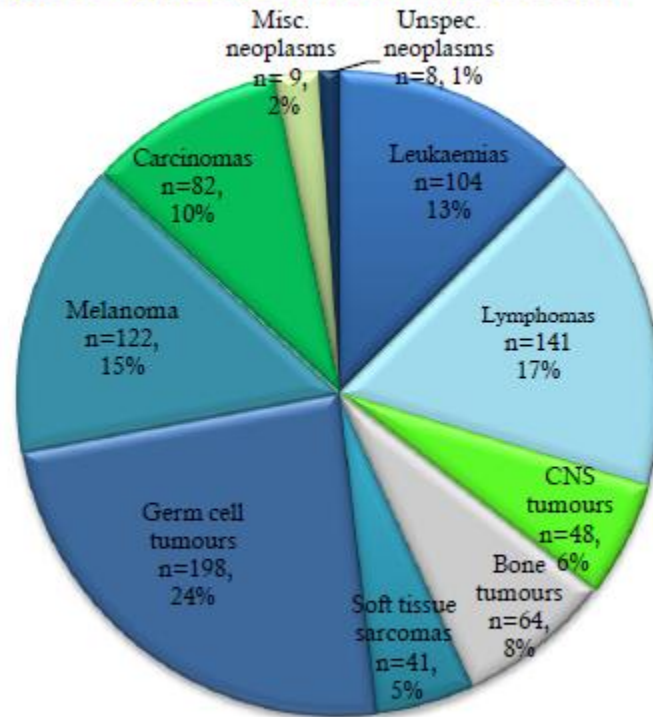
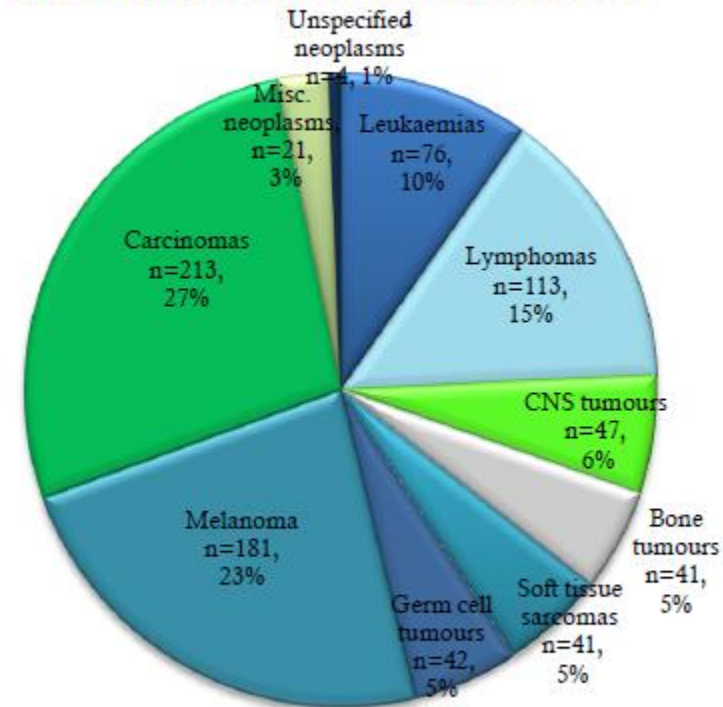


Figure 3.6b Cancers diagnosed in female AYA aged 15-24 years, New Zealand, 2000-2009



Ballantine, K., & Sullivan, M. (2013). Adolescent and young adult cancer incidence and survival in New Zealand 2000-2009: Auckland: National Child Cancer Network.

Most common by gender and 5YS

- Female AYA

1. Carcinoma – 86% (5YS)
2. Melanoma – 95%
3. Lymphoma – 90%
4. Leukaemia – 76%
5. CNS tumours – 63%

- Male AYA

1. Germ Cell Tumours – 94%
2. Lymphoma – 89%
3. Melanoma – 91%
4. Leukaemia – 63%
5. Carcinoma – 71%

Ballantine, K., & Sullivan, M. (2013). Adolescent and young adult cancer incidence and survival in New Zealand 2000-2009: Auckland: National Child Cancer Network.

Carcinoma

1. Thyroid – 100% 5YS
2. GU tract – Cervical – 92% (F), 100% (M)
3. GI tract – Colorectal – 50.9% (F), 53.5% (M)
4. Head & Neck – 100% (F), 78% (M)
5. Breast – 56.7% (F)

AYA classification	Average number of cases per year				
	12-14 years	15-19 years	20-24 years	Total 12-24 years	Total 15-24 years
8. Carcinomas	1.4	8.6	20.9	30.9	29.5
<i>8.1 Thyroid carcinoma</i>	0.3	2.5	6.1	8.9	8.6
<i>8.2 Other carcinoma of head and neck</i>	0.7	1.5	1.9	4.1	3.4
<i>8.3 Carcinomas of trachea, bronchus and lung</i>	0.2	0.4	0.4	1.0	0.8
<i>8.4 Carcinoma of breast</i>	-	-	1.8	1.8	1.8
<i>8.5 Carcinoma of genitourinary(GU) tract</i>	0.1	1.8	5.1	7.0	6.9
<i>8.6 Carcinoma of gastro-intestinal (GI) tract</i>	0.1	2.2	5.0	7.3	7.2
<i>8.7 Carcinomas of other and ill-defined sites</i>	-	0.2	0.6	0.8	0.8

Ballantine, K., & Sullivan, M. (2013). Adolescent and young adult cancer incidence and survival in New Zealand 2000-2009: Auckland: National Child Cancer Network.

Breast Ca in AYA

- In comparison with older women, AYAs are more likely to have **familial cancer predisposition** genes, **larger** breast tumors, **unfavorable** biological characteristics, **distant metastatic** disease at diagnosis, and **adverse outcome**.
- In addition, AYA breast cancers often exhibit an absence of estrogen, progesterone, and Her2 receptors, the so-called **triple negative** subtype.
- Extent of decisions at diagnosis can be **overwhelming** – type of resection (lumpectomy vs unilateral vs bilateral mastectomy), type of adjuvant therapy, type and timing of reconstruction, BRCA status, hormonal therapy, treatment induced early menopause

Colorectal Ca in AYA

- Younger patients with CRC tend to display a number of distinct characteristics including poorer differentiation state, lymphovascular invasion, mucinous histology, signet ring cells, less p53 overexpression, and **more advanced tumor stage** at diagnosis.
- SEER data demonstrating that survival is **lower** for colonic, rectal, and anal carcinoma in AYA than in older patients and
 - For each, **inversely proportional** to age within the AYA age range.
- PR bleeding often not disclosed due to embarrassment

Melanoma in AYA

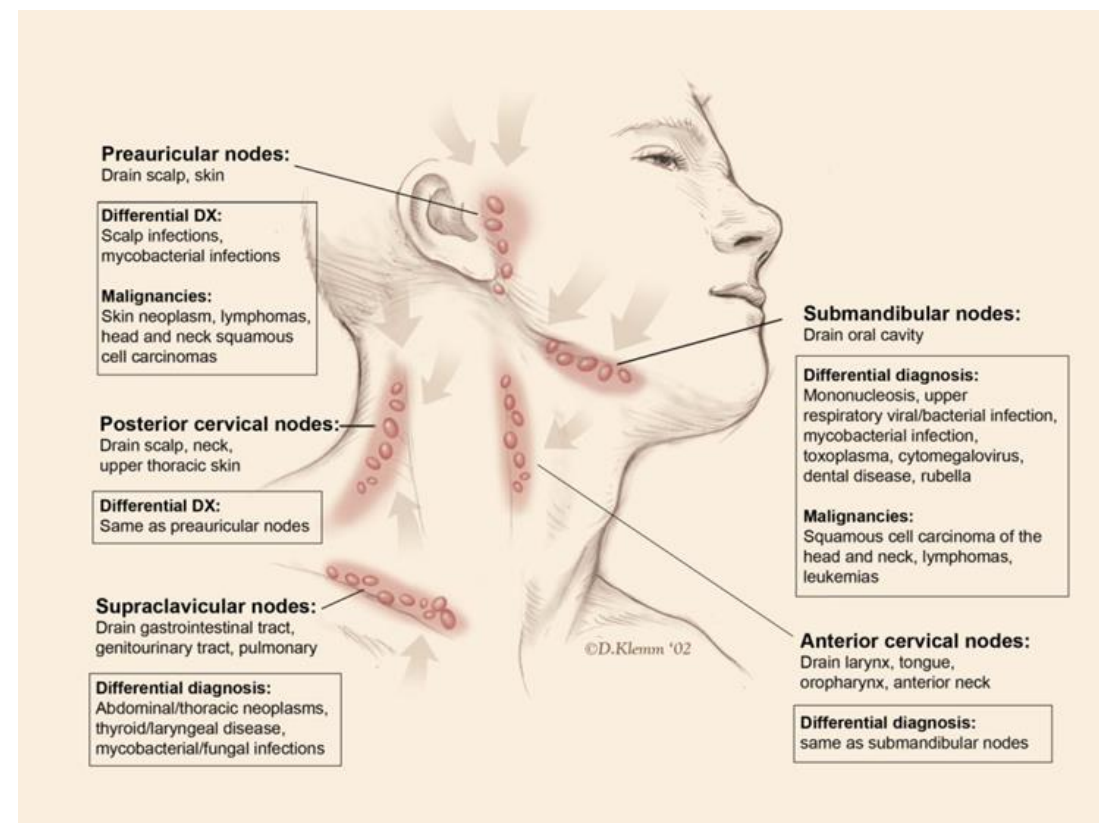
- Most frequent site of primary involvement:
 - AYA – **trunk**
 - Adult - head, neck and extremities
- The cutaneous lesion might appear **amelanotic** or **raised** in young patients. The ABCDE rule commonly applied to adults may be **misleading** in AYAs.
- As in adults, most cases of melanoma arising in AYA (~75%) are localized at diagnosis, and most are amenable to radical excision
- Higher incidence of AYA melanoma in NZ parallels other countries with **higher UVR exposure**

Melanoma in AYA

- Recent genomic analysis of AYA melanoma has shown (Wilmott et al):
 - Similar to mature adult cutaneous melanomas, AYA melanomas showed a high mutation burden and mutation signatures of ultraviolet radiation (UVR) damage.
 - The frequencies of somatic mutations in **BRAF (96%)** and **PTEN (36%)** in the AYA WGS cohort were **double** the rates observed in adult melanomas.
 - AYA melanomas contained a **higher proportion of non-UVR-related** mutation signatures than mature adult melanomas.
- Recent phase 3 studies that have shown encouraging response rates to BRAF inhibitors and immunotherapy agents (anti PD1) usually **exclude** patients under 18 years old
 - Bearing in mind that most drugs have similar pharmacokinetics, tolerability profiles, and recommended doses for adolescents relative to adults
- Clinical trial enrolment barriers a massive issue for AYA cancer patients

Lymphoma – Hodgkin (HL) in AYA

- HL – 5YS
 - 93% (F), 96% (M)
- **Most common** AYA haematologic malignancy
- Nodular sclerosing the most common subtype in AYA
- painless, nontender, firm, rubbery cervical or supraclavicular lymphadenopathy.
- Anterior mediastinum often involved



Cure at a cost

- **Risk adapted combined modality therapy** has resulted in outstanding survival outcomes in paediatric HL.
- Main aim of cooperative group trials now is to maintain survival whilst reducing toxicity.
- **PET response** after two cycles of treatment can determine **need for Radiotherapy** in both paediatric and adult treatment approaches
- Reduction/Omission of RT
 - **Relative risk of 3.5** of developing second malignancy (20 year follow up study)
 - If treated with Mantle Radiotherapy before age 20, a **40 times increased risk of developing breast cancer**
- Reducing anthracycline cumulative dosage
 - 25-year cumulative incidence of **congestive heart failure** after mediastinal irradiation and anthracycline (doxorubicin, daunorubicin) exposure was 7.9%.

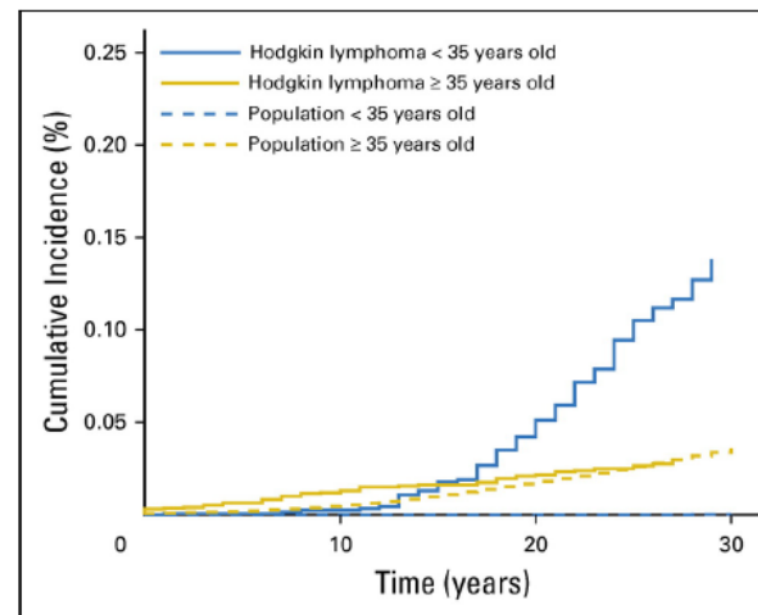
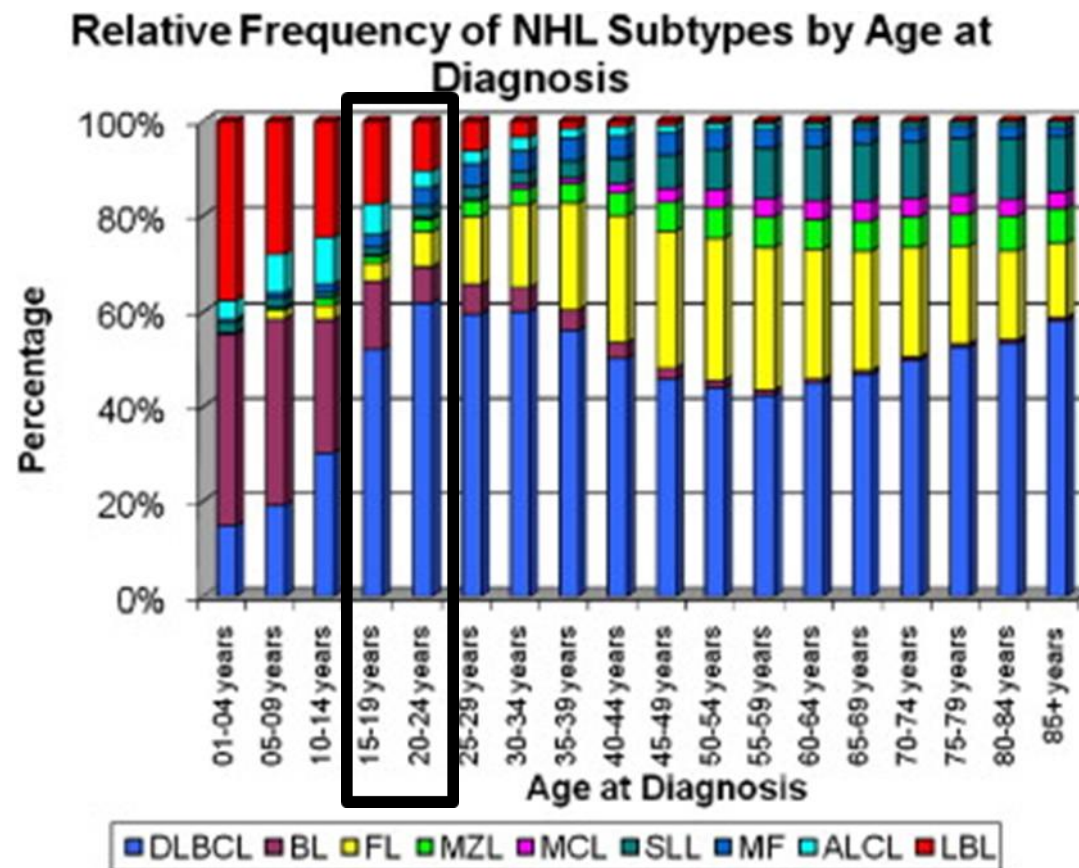


Fig 1. Cumulative incidence of breast cancer in female survivors of Hodgkin lymphoma, by age at Hodgkin lymphoma diagnosis, with death treated as a competing risk. The solid blue line represents women diagnosed

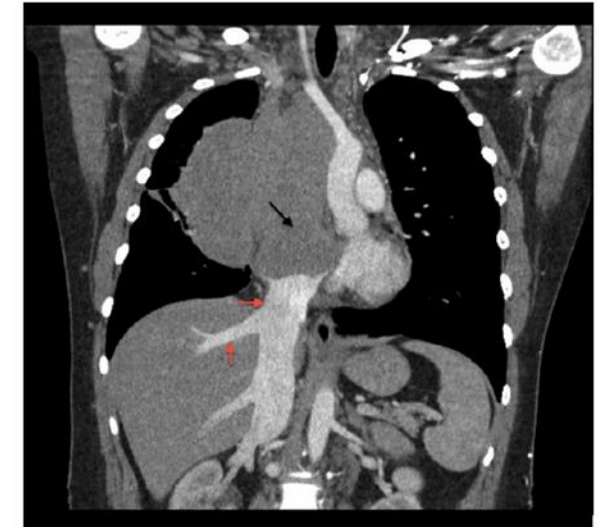
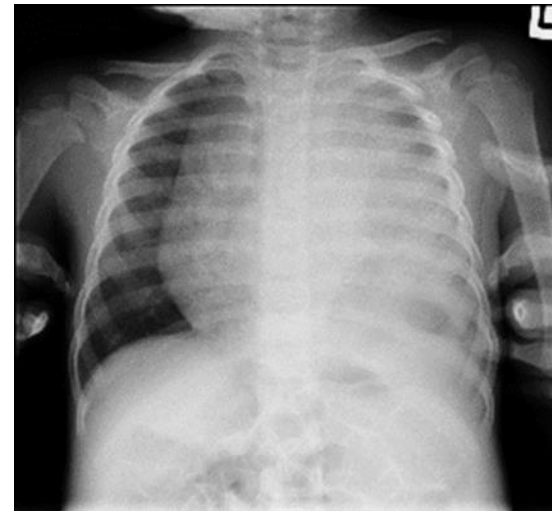
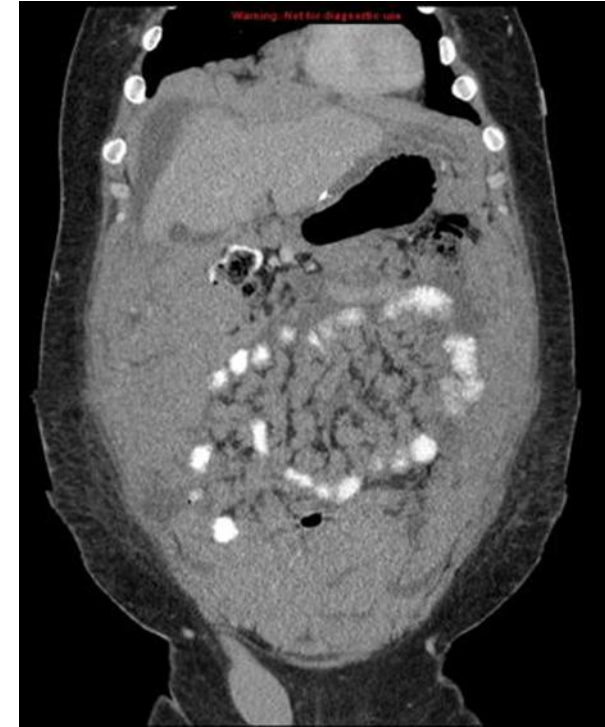
Non Hodgkin Lymphoma (NHL)

- NHL – 5YS
 - 81% (F), 78% (M)
- The more aggressive NHLs are seen more commonly in the younger population with a **transition** to low-grade, indolent subtypes as the population ages.
- Most common NHLs in AYA
 - B-NHL
 - Diffuse Large B-Cell Lymphoma (most common) + Primary Mediastinal B-Cell Lymphoma, Burkitt Lymphoma
 - T-NHL
 - Lymphoblastic Lymphoma, Anaplastic Large Cell Lymphoma



NHL clinical presentations

- BL
 - Known to be aggressive with short clinical history prior to presentation
 - **Advanced stage** at diagnosis, often unwell.
 - may be found throughout the body, including the abdomen (sporadic), bone and bone marrow, jaw (endemic) and CNS.
- PMBCL or T-LBL – mediastinal mass
 - Signs of **compression of trachea** – shortness of breath, especially on lying down
 - **SVC compression/obstruction** – headache, facial swelling and flushing, upper limb edema. Distended neck veins



Germ Cell Tumours

- Testicular GCT **most common solid tumour** in AYA males
- In comparison to children, AYA have a higher incidence of pure embryonal carcinoma (EC) and mixed non-seminomas. These behave **more aggressively** than their pre-pubertal counterparts, with **20–30% presenting with metastatic** disease at diagnosis.
- Study comparing paediatric to adolescent to adult T – GCT
 - Adolescent group had:
 - **lowest EFS**, but similar OS (salvage therapy has good response rates)
 - **Higher stage** at presentation
- Distressing, often isolating time for AYA.
 - orchidectomy, told of likely diagnosis, then 2-3 week wait until receipt of results, with subsequent oncology referral.
 - Wait time v distressing. AYA age group – impulsive, risk taking
 - AYA Cancer service referral **at time of initial referral** to urology, Keyworker support throughout waiting period

Testicular self awareness - Know thy nuts

- <https://youtu.be/cvrnmNVUvEU>
- <https://nz.movember.com/mens-health/testicular-cancer>

GET THE LOWDOWN OUR GUIDE TO CHECKING YOUR NUTS

GETTING TO KNOW WHAT'S NORMAL FOR YOUR NUTS IS IMPORTANT,
SO THAT YOU'LL KNOW WHAT'S UP IF SOMETHING DOESN'T FEEL RIGHT.



01

GET STEAMY. A WARM SHOWER WILL
PUT YOUR NUTS IN THE MOOD.



02

ROLL ONE NUT BETWEEN THUMB
AND FINGERS TO CHECK FOR LUMPS,
SWELLING OR PAIN.

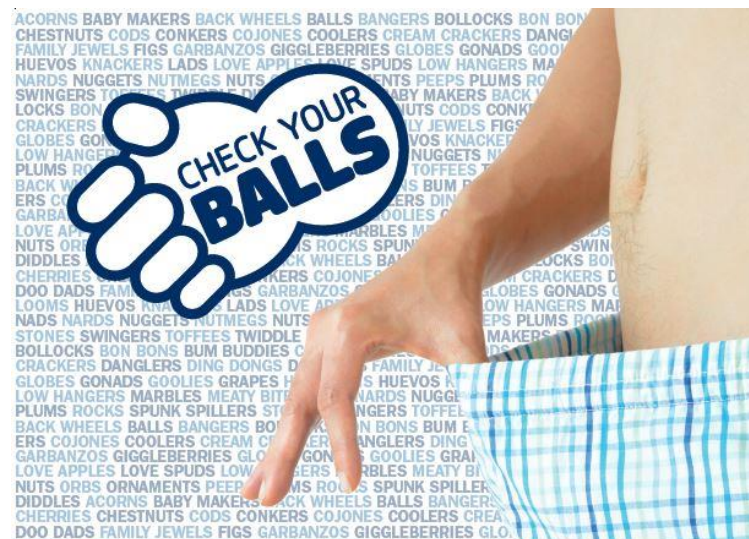


03

REPEAT WITH THE OTHER NUT.

YOUR NUTS SHOULD FEEL SMOOTH, FIRM AND SENSITIVE BUT NOT
PAINFUL. IF SOMETHING DOESN'T FEEL RIGHT, SEE A DOCTOR.

MOVEMBER.COM



Get those thumbs ON YOUR PLUMS!

Testicular cancer is the most common
cancer in young New Zealand men...

But if diagnosed early has the highest
cure rate of all cancers

testicular.org.nz
0800 660 800



AYA cancer symptoms and signs

Cancer*	Symptoms	Signs
Breast cancer	Breast lump, discharge from nipple	Breast mass, nipple discharge, skin change (peau d' orange)
Melanoma	Increasing size, color change, bleeding, itching of skin lesion	Increasing size, irregularity of shape, color change, ulceration or bleeding of skin lesion
Thyroid cancer	Lump in neck, hoarseness, cough, difficulty in swallowing	Hard, irregular mass in neck
Testis cancer	Painless lump in testicle	Firm testicular mass
Non-Hodgkin lymphoma	Fever, night sweats, weight loss, enlarged lymph node(s)	Adenopathy, mediastinal obstruction, abdominal mass, hepatomegaly, splenomegaly, inflammatory skin infiltrates
Uterine cervix cancer	Abnormal vaginal discharge	Palpable pelvic, abdominal or rectal mass; abnormal vaginal examination
Hodgkin lymphoma	Fever, night sweats, weight loss, enlarged lymph node(s)	Adenopathy, mediastinal obstruction, hepatomegaly, splenomegaly
Colorectal cancer	Abdominal pain, weight loss, vomiting, constipation, diarrhea, loss	Palpable abdominal, pelvic or rectal mass

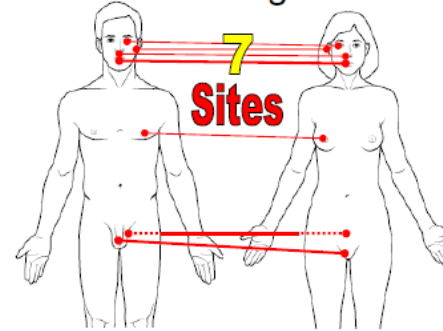
Semin Oncol 36:207-212.

CAUTION! Consider Cancer – 7 AYA ca sxs

Change in mole or new skin lesions



Abnormal discharge from orifice

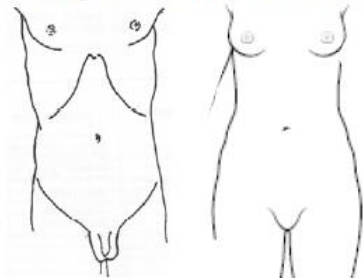


Unilateral knee/shoulder pain/swelling



Buecker, MC Gebhardt, K Weber: Osteosarcoma. Liddy Schriver Sarcoma Initiative

Tumor / bulge/ bump / lump anywhere



Increasing lymph gland



Obstinate fatigue, fever



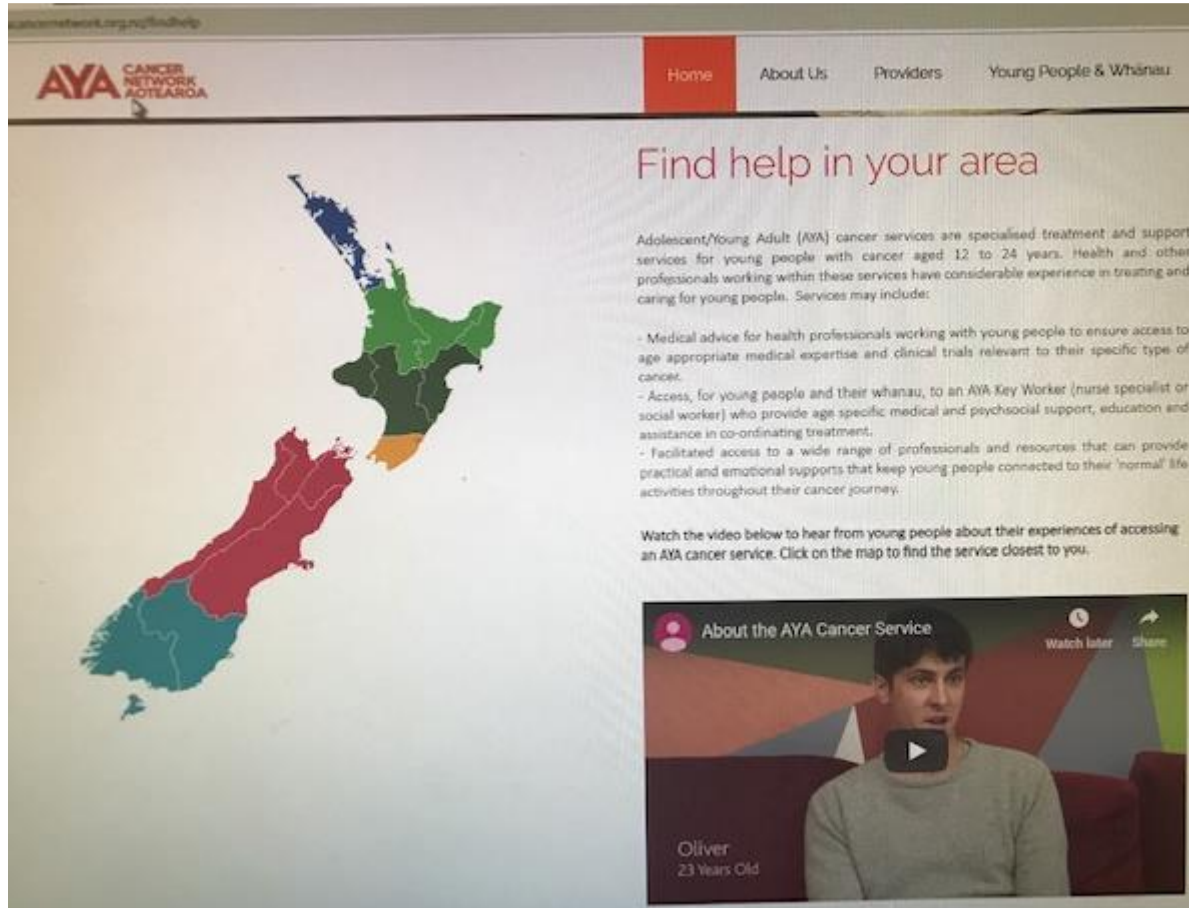
Neurologic deficit



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Semin Oncol 36:207-212.

AYA Cancer Service referral



The screenshot shows the AYA Cancer Network Aotearoa website. The header includes the AYA logo and navigation links: Home, About Us, Providers, and Young People & Whānau. The main content area is titled "Find help in your area" and features a map of New Zealand with colored regions. To the right of the map, there is text explaining AYA cancer services and a list of services. Below the text, there is a video player showing a young man named Oliver, 23 years old, speaking about his experience.

Find help in your area

Adolescent/Young Adult (AYA) cancer services are specialised treatment and support services for young people with cancer aged 12 to 24 years. Health and other professionals working within these services have considerable experience in treating and caring for young people. Services may include:

- Medical advice for health professionals working with young people to ensure access to age appropriate medical expertise and clinical trials relevant to their specific type of cancer.
- Access, for young people and their whānau, to an AYA Key Worker (nurse specialist or social worker) who provide age specific medical and psychosocial support, education and assistance in co-ordinating treatment.
- Facilitated access to a wide range of professionals and resources that can provide practical and emotional supports that keep young people connected to their 'normal' life activities throughout their cancer journey.

Watch the video below to hear from young people about their experiences of accessing an AYA cancer service. Click on the map to find the service closest to you.

About the AYA Cancer Service

Watch later Share

Oliver
23 Years Old

<https://ayacancernetwork.org.nz/findhelp>

Relevant Literature

- Johnson RH et al. Breast cancer in adolescents and young adults. *Pediatr Blood Cancer*. 2018;65:e27397.
- Wilmott et al. Whole genome sequencing of melanomas in adolescent and young adults reveals distinct mutation landscapes and the potential role of germline variants in disease susceptibility. *Int. J. Cancer*. 2019;144, 1049–1060
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