Melanoma.

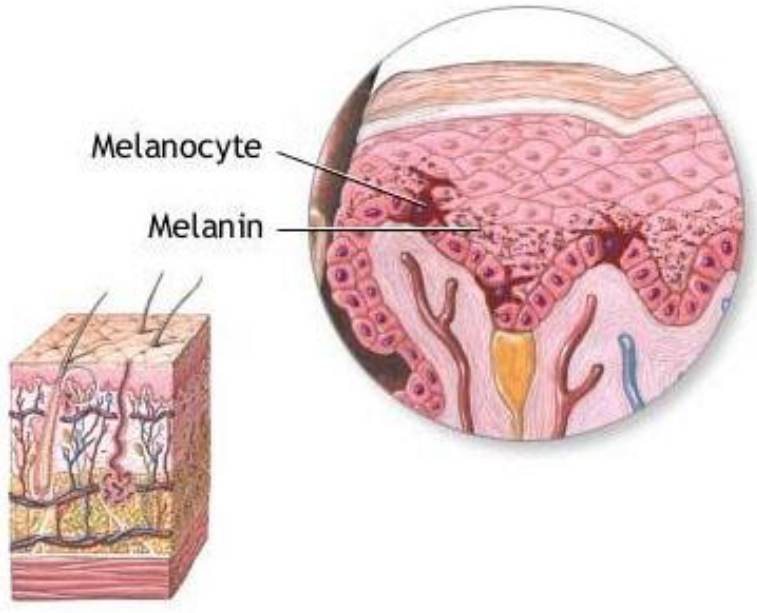
Diagnosis to treatment

Dr Damian Fry
General Surgeon
Melanoma surgeon

- Australia's National Cancer

What is Melanoma?

- Skin cancer arising from melanocytes
- High potential for metastasis
- Function of melanocytes is provide pigment to skin hair and eyes
- Provides some protection against UVA/UVB rays



Melanoma Statistics in Australia

- 18,257 cases in 2023
- 1,340 deaths expected in 2024
- The age-standardised incidence rate for melanoma increased by 120% between 1982 and 2019, from 29.UVU6 to 65 cases per 100,000 person
- Melanoma is the most common cancer among Australians aged 20 to 39.

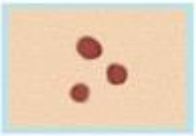
Risk Factors

- UV exposure
- UV apps on all phones 1-2
- Governments provide little legislation over shade to be provided in public spaces
- Fair skin, light eyes
- Family history

Importance of Early Detection

- 90% curable if detected early
- ABCDE self-examination
- Use your smart phone – create a folder and discuss with your GP
- New lumps and bumps especially neck/groin/axilla

ABCDEs MOLE OR MELANOMA?

MOLE FEATURES	BENIGN	SEE DOCTOR
A ASYMMETRY ONE HALF OF A MOLE DOES NOT MATCH THE OTHER.		
B BORDER THE EDGES ARE IRREGULAR, RAGGED, NOTCHED, OR BLURRED. NORMAL MOLES ARE ROUND OR OVAL.		
C COLOR THE MOLE IS NOT EVENLY COLORED. IT MAY INCLUDE SHADES OF BROWN OR BLACK, OR PATCHES OF PINK, RED, WHITE OR BLUE.		
D DIAMETER THE SPOT IS LARGER THAN 6 MILLIMETERS ACROSS	 LESS THAN .25 IN	 GREATER THAN .25 IN
E EVOLVING THE MOLE IS CHANGING IN SIZE, SHAPE, OR COLOR.		

Diagnosis

- Dermoscopy
- Advanced imaging - Vectra
- Excisional biopsy
- SLNB for staging


vectra

Surgical Treatment

- Wide Local Excision (WLE)
- Sentinel Lymph Node Biopsy (SLNB)
- Regional dissection
    - Axillary clearnce
    - Groin dissection
    - Neck dissection

Recommended Surgical Margins

Based on the Breslow thickness of the melanoma:

- **In situ melanoma:** 0.5–1.0 cm margin
- **Melanomas ≤1 mm thick:** 1 cm margin
- **Melanomas 1.1–2 mm thick:** 1–2 cm margin
- **Melanomas >2 mm thick:** 2 cm margin

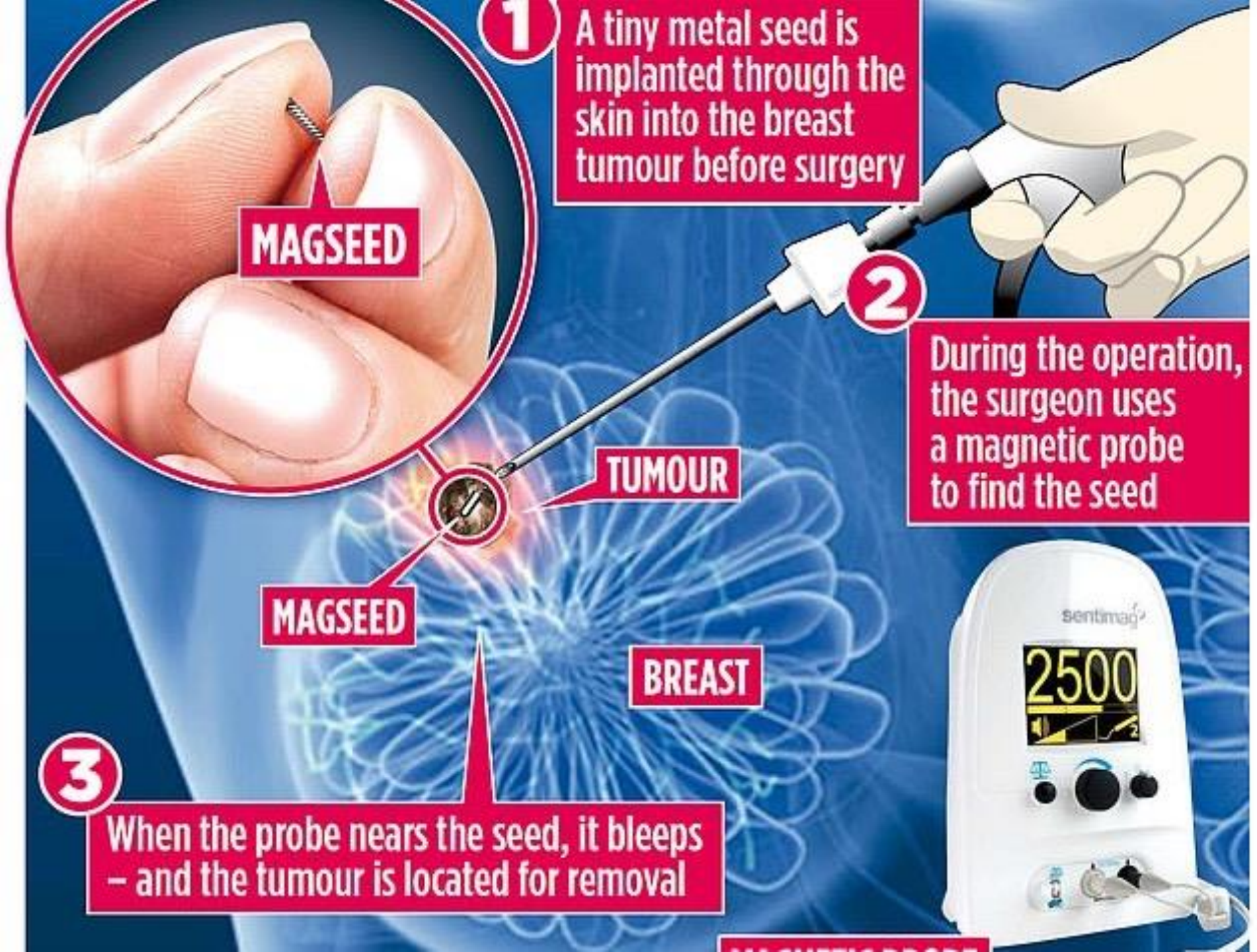
Sentinel Lymph node biopsy

MLST-1

- **Disease-Free Survival (DFS):** The study found that patients with intermediate-thickness melanomas (1.2 to 3.5 mm) who underwent SLNB had a higher 10-year DFS rate compared to those in the observation group (71.3% vs. 64.7%). For patients with thick melanomas (>3.5 mm), the 10-year DFS was also higher in the SLNB group (50.7% vs. 40.5%). aacrjournals.org
- **Melanoma-Specific Survival (MSS):** Overall, there was no significant difference in 10-year MSS between the SLNB and observation groups. However, among patients with intermediate-thickness melanomas who had metastases detected via SLNB and subsequently underwent CLND, there was an improvement in MSS compared to those who had nodal observation and later developed nodal metastases.

Magseed vs Hook Wire

- More accurate
- Less discomfort
- Precise localisation
- Improved surgical work flow
- Reduced pain and discomfort
- Better cosmesis
- Multiple lesions
    - Pacemakers
    - Specialised expensive equipment and seeds


1
A tiny metal seed is implanted through the skin into the breast tumour before surgery
MAGSEED
2
During the operation, the surgeon uses a magnetic probe to find the seed
TUMOUR
MAGSEED
BREAST
sentimag
2500
3
When the probe nears the seed, it bleeps – and the tumour is located for removal

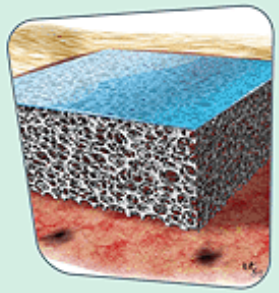
Biodegradable Temporising Matrix (BTM)

- Used in reconstruction post-surgery
- BTM (Biodegradable Temporising Matrix) is a synthetic dermal scaffold used in reconstructive surgery to promote wound healing in cases of full-thickness skin loss, such as burns, trauma, and surgical excisions. It provides a temporary dermal substitute, allowing neovascularization before definitive closure with a skin graft.

Advantages of BTM

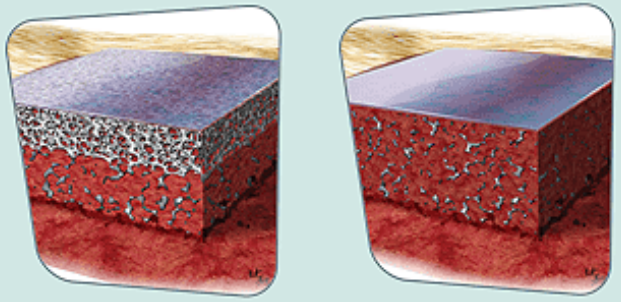
- **Advantages of BTM**
  ✓ **Avoids need for autografts in the first stage**, reducing donor site morbidity.
  ✓ **Promotes neodermis formation**, improving graft take and reducing contracture risk.
  ✓ **Minimizes infection risk** due to its closed-cell polyurethane structure.
  Proper adherence to these steps ensures **optimal wound healing, graft success, and functional skin restoration**.

Generation of a robust vascularised neodermis ready for definitive closure.



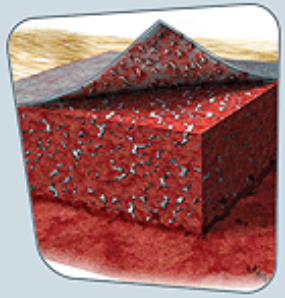
BTM Application

Cut BTM to shape and affix with sutures/staples to a clean and debrided wound bed. Quilting staples may be used to affix BTM to larger wounds.



Integration phase

Cellular migration enables new blood vessel formation and collagen production throughout the matrix. Integration time varies depending on patient and wound factors.



Delamination

Peel back the sealing membrane to reveal the underlying vascularised neodermis, ready for definitive closure.

MLST-2 Trial Findings

MLST-2

- **Survival Rates:** There was no significant difference in melanoma-specific survival between the CLND and observation groups. This indicates that immediate CLND did not provide a survival advantage over observation with regular monitoring.
targetedonc.com
- **Disease Control:** The CLND group had a lower rate of regional lymph node recurrence compared to the observation group, suggesting better regional disease control. However, this did not translate into improved overall survival.
ascopost.com
- **Morbidity:** Patients undergoing CLND experienced higher rates of complications, particularly lymphedema, with 24% in the CLND group versus 6% in the observation group.

SWOG Melanoma Trial Overview

SWOG S1801 Trial:

- **Objective:** Assess the impact of administering pembrolizumab before surgery (neoadjuvant) followed by continued therapy after surgery (adjuvant) versus pembrolizumab only after surgery in patients with resectable stage IIIB-IV melanoma.
- **Findings:** The neoadjuvant–adjuvant approach led to a higher major pathologic response rate, with over 50% of patients achieving significant tumor reduction before surgery. This strategy also improved event-free survival compared to the adjuvant-only approach.

NADINA Melanoma Trial Overview

The NADINA trial is a phase III clinical study that evaluated the efficacy of neoadjuvant (pre-surgery) immunotherapy in patients with resectable, macroscopic stage III melanoma. The trial compared two treatment approaches:

- **Neoadjuvant Arm:** Patients received two cycles of ipilimumab plus nivolumab before surgery, followed by response-driven adjuvant therapy.
- **Adjuvant Arm:** Patients underwent surgery first, followed by 12 cycles of adjuvant nivolumab.

NADINA Trial Methodology

- **Event-Free Survival (EFS):** The neoadjuvant approach resulted in a significantly higher EFS rate. At 12 months, 83.7% of patients in the neoadjuvant arm were event-free, compared to 57.2% in the adjuvant arm.
- **Distant Metastasis-Free Survival (DMFS):** At 18 months of follow-up, the neoadjuvant arm demonstrated a DMFS rate of 85.7%, indicating a lower incidence of cancer spreading to distant sites.
- **Pathologic Response:** A significant proportion of patients in the neoadjuvant arm achieved a major pathologic response, with some able to avoid further adjuvant therapy, thereby reducing overall treatment duration.

NADINA Trial Findings

The NADINA trial's findings suggest that administering ipilimumab plus nivolumab before surgery, followed by response-based adjuvant therapy, offers superior outcomes compared to the traditional approach of surgery followed by adjuvant therapy. These results support the adoption of neoadjuvant immunotherapy as a new standard of care for patients with resectable stage III melanoma.

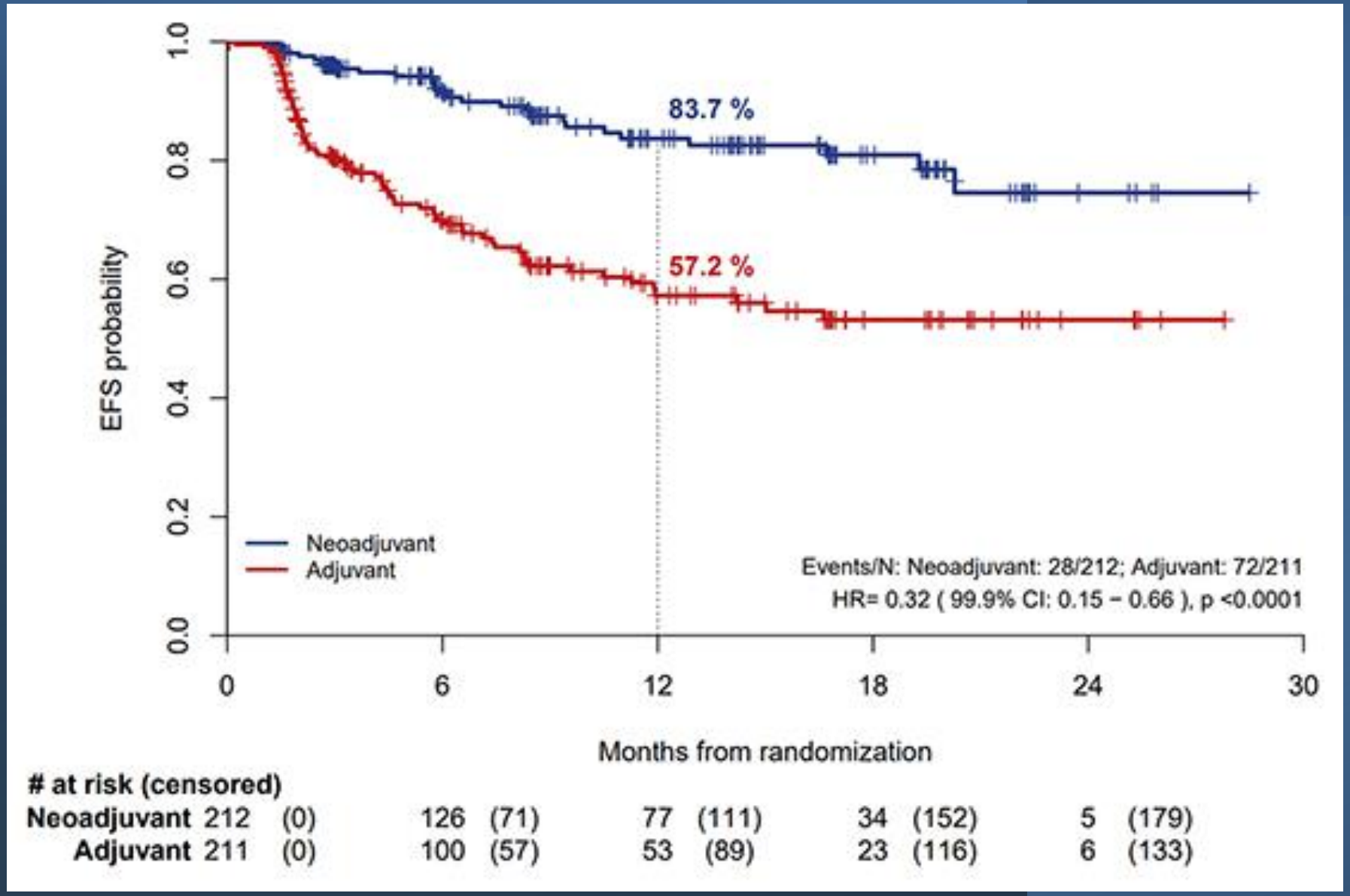
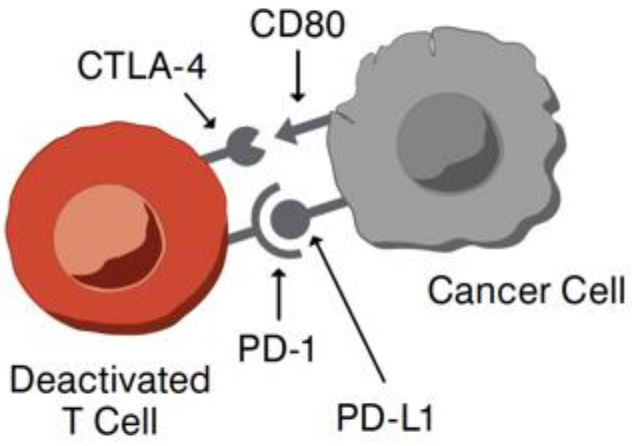
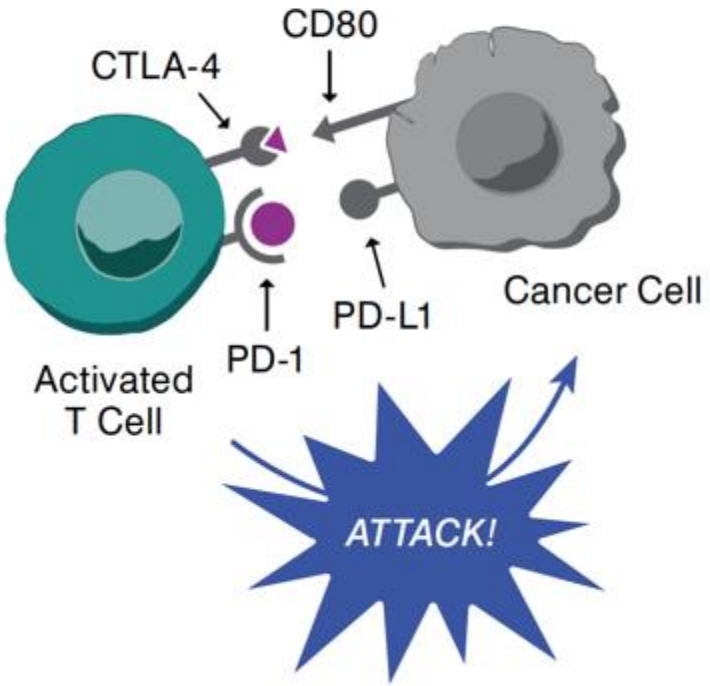

EFS probability
1.0
0.8
0.6
0.4
0.2
0.0
83.7 %
57.2 %
Neoadjuvant
Adjuvant
Events/N: Neoadjuvant: 28/212; Adjuvant: 72/211
HR= 0.32 (99.9% CI: 0.15 − 0.66), p <0.0001
0
6
12
18
24
30
Months from randomization
at risk (censored)
Neoadjuvant 212 (0) 126 (71) 77 (111) 34 (152) 5 (179)
Adjuvant 211 (0) 100 (57) 53 (89) 23 (116) 6 (133)

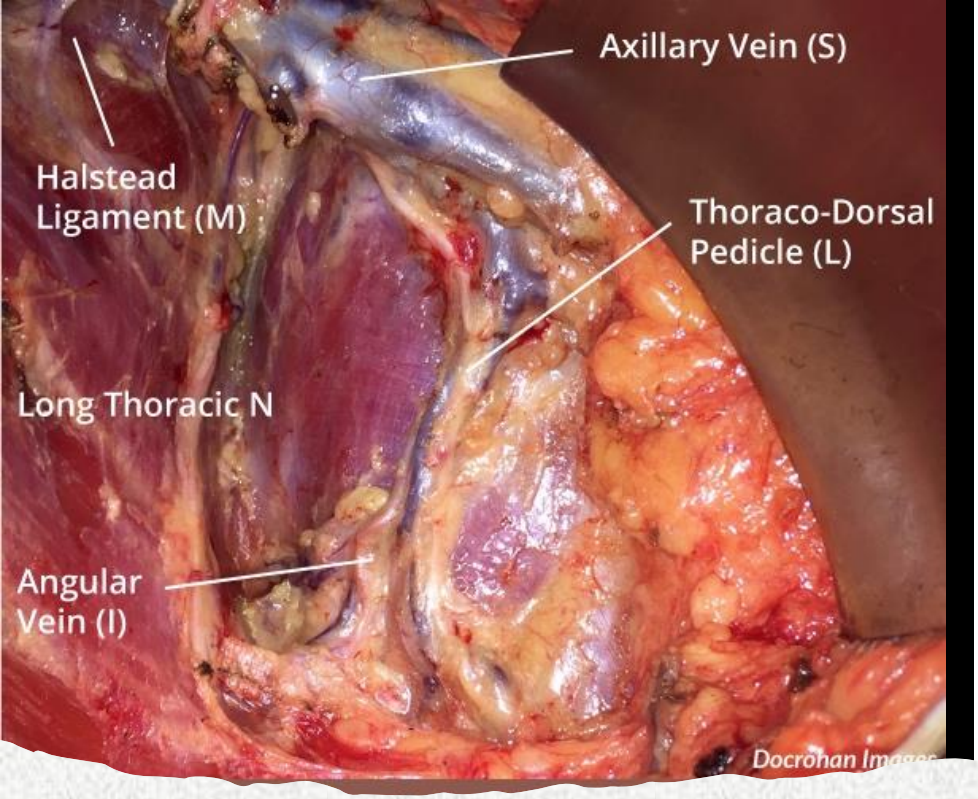
FIGURE 3. How Checkpoint Inhibitors Work[22-25]

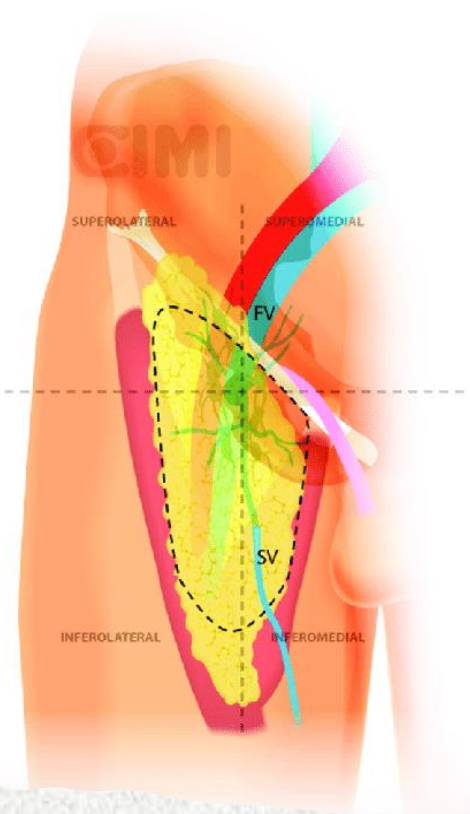
Interaction between checkpoint proteins on T cells and cancer cells prevents the immune system from killing cancer



Checkpoint inhibitors (purple) allow T cells to activate and attack cancer







Clearance is it a dying art

Prevention Strategies

- Slip, Slop, Slap campaign

Reduce your risk

SLIP SLOP SLAP SEEK SLIDE

Cancer Council

The Australasian College of Dermatologists

Melanoma Screening

Box 1. Benefits and harms of a cancer screening program

The **benefits** of cancer screening mainly apply to positively screened individuals who receive an early cancer diagnosis. Most individuals who undergo screening have a negative test and will receive little-to-no benefit.

Improved outcomes may include secondary prevention[iii] (e.g., early removal of a precancerous lesion) or reduced risk of severe disease, morbid interventions, and death (e.g., treatment of a localised cancer prior to it spreading).

Screening programs can also provide reassurance to negatively screened individuals who are truly disease free and improve disease education and awareness, including prevention.

Cancer screening can also cause **harms**. Screening tests make errors by negatively screening some individuals who do have disease (risking false reassurance, delayed diagnosis, loss of trust, and legal consequences) and positively screening some patients without disease (risking unnecessary investigations and treatment with possible complications, psychological ramifications, and strain to both individuals and the health system, including financial stress).

Even when the screening test is correct, harm can ensue in the form of 'overdiagnosis.' Overdiagnosis refers to detection of cancers that would not have progressed during a person's lifetime, and where knowledge and treatment of the cancer does more harm than good.[31,32]

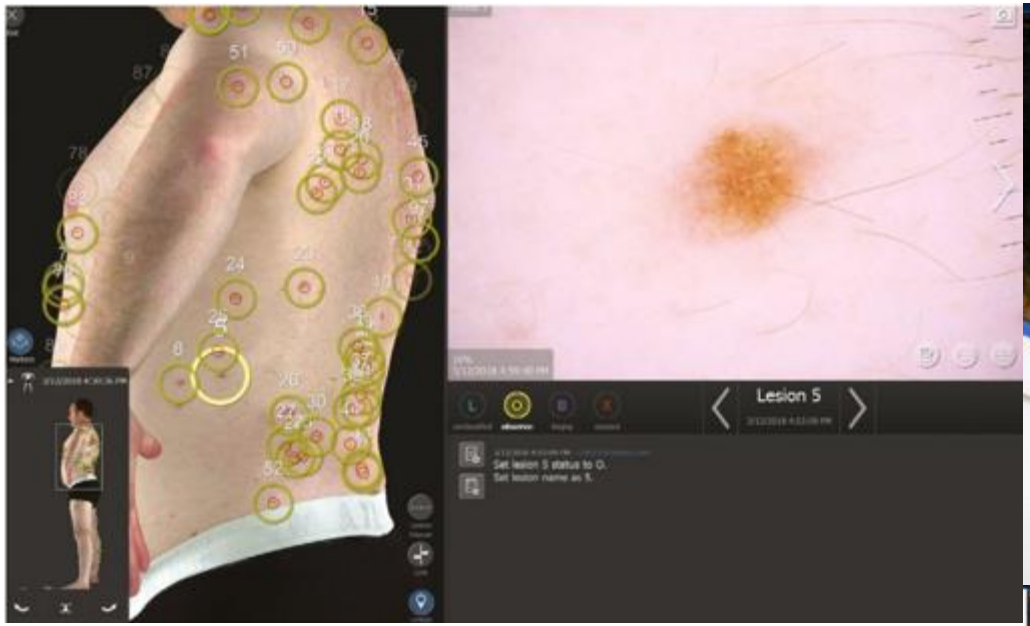
Melanoma
Institute Australia

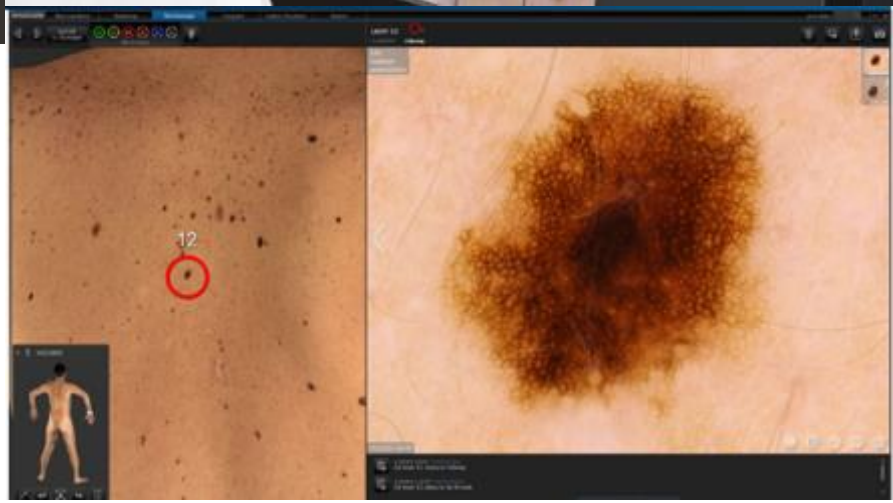
Darling Downs Melanoma Clinic

Coming Soon to Toowoomba Featuring Vectra WB360 imaging

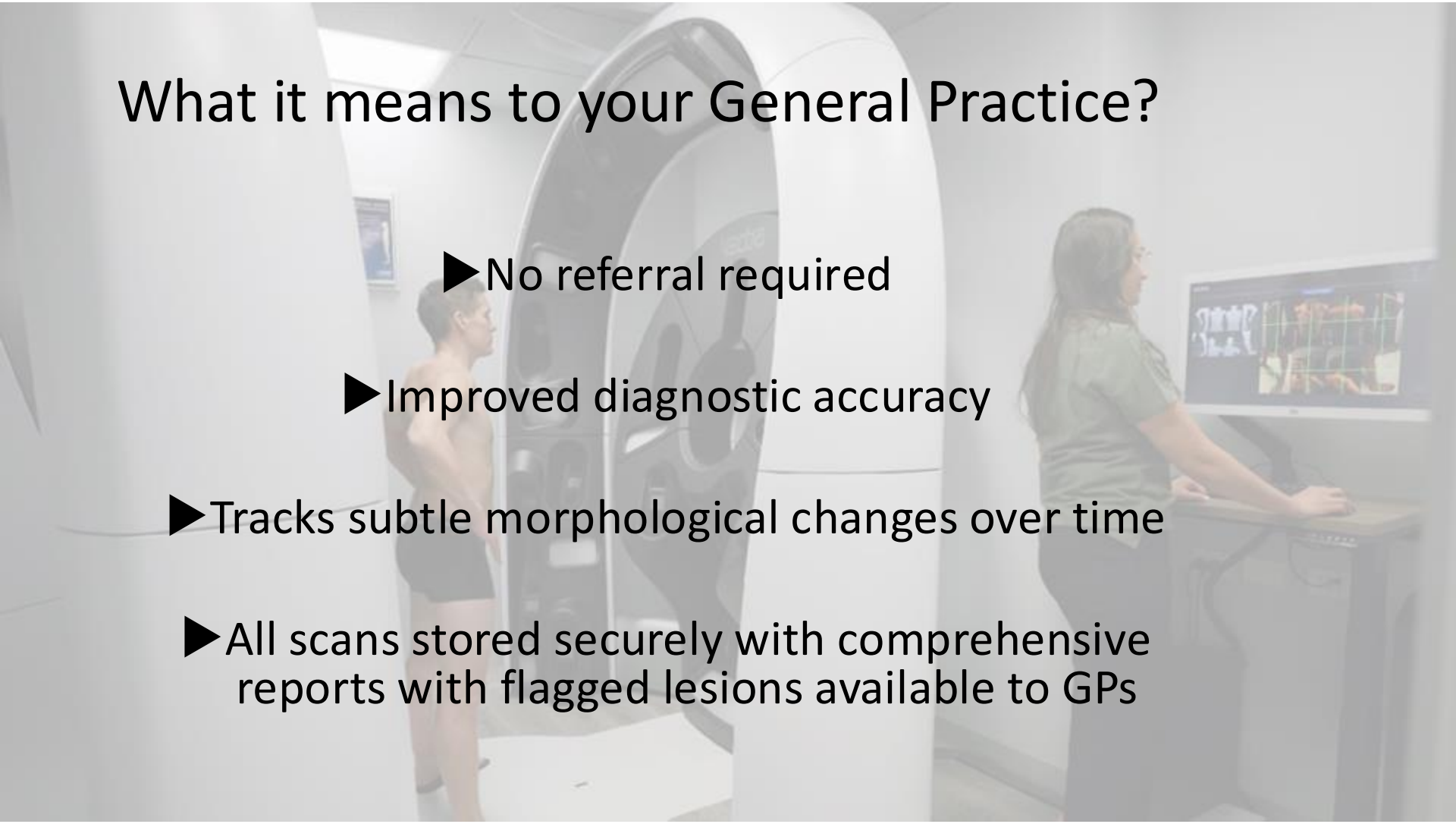
Vectra WB360

- Whole body 3D imaging system
  - Captures entire exposed skin surface in macro quality resolution with single capture
- 92 high resolution cameras that flash simultaneously with cross-polarised light





Vectra WB360 combines advanced 3D imaging and AI technology to create a full-body avatar, enabling precise mapping of moles and lesions with high-resolution accuracy.



What it means to your General Practice?

- No referral required
- Improved diagnostic accuracy
- Tracks subtle morphological changes over time
- All scans stored securely with comprehensive reports with flagged lesions available to GPs

Melanoma Nurse Program- Toowoomba Base Hospital

Queensland Government

Who am I

Registered Nurse for 9 years- predominantly in medical oncology and haematology

Previously worked The Princess Alexandra Hospital, Brisbane and The Royal Marsden, London

Grew up in Rural Queensland

National Melanoma Nurse's Program

Federally funded role to support 30 Full Time Equivalent melanoma nurses by 2025-26

The National Melanoma Nurses Program is an initiative aimed at improving care and outcomes for melanoma patients in Australia through expert nursing care as part of the multidisciplinary team

Commenced in the role August 2024

Melanoma Institute Australia

Darling Downs Health

National Melanoma Nurse's Program

The program is focused on developing nursing skill and capability to provide expert nursing care to patients with complex clinical care needs.

Patients will be able to receive personalised nursing care, education on melanoma and treatment options and support throughout the pre- and post-surgical period, neoadjuvant and adjuvant therapy, radiotherapy, and advanced melanoma therapy.

Melanoma Institute Australia

Darling Downs Health

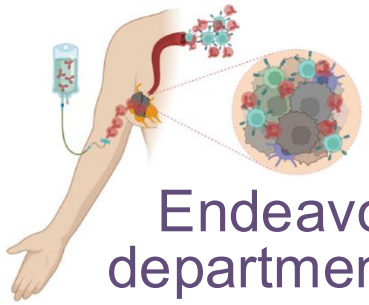
Queensland Government

Medical Oncology Component

Review patients at oncology OPD and treatment

Complete mid cycle toxicity checks on patients

Problem solve any adhoc issues that may come up for patients



Point of contact at the hospital

Endeavour to keep oncology patients out of emergency department's- can toxicities be managed as an outpatient ?

Melanoma Clinic Surgical Component

Review all melanoma referrals

Complete MIA SLNBx calculator

Meet new melanoma patients in the melanoma a fortnight

Provide education around procedure, administrative tasks such as patient travel, sentinel lymph node biopsy procedure

Post Operative wound reviews - BTM, skin grafts, complex wounds

Summary of Key Points

- Early detection
- Prompt biopsy
- Surgical assessmment
    - WLE / SLNBx – Node Picking
- Staging
- MDT review
- Follow up
- Support
- Research.

Q&A

- Discussion and questions