

Building a skilled and confident CAR-T nursing workforce

Assessing the impact of nurse-led CAR-T education

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Bayside Health

Alfred Care Group



DISCLOSURE

Conflicts of interest



Speaker honoraria

Gilead and Janssen

For participation in educational events.



Travel support

Gilead

To attend conferences.



Study day sponsorship

Gilead and Janssen

Sponsors of the CAR-T education days evaluated in this presentation.



Sponsor involvement was limited to catering for the education days. Neither company had any role in the curriculum, the delivery of the sessions, or the collection, analysis or reporting of the data.

All disclosures above relate to the presenting author, Cassandra Abbott.

BACKGROUND & CLINICAL PROBLEM

A rapidly expanding therapy, an urgent training need

CAR-T therapy re-engineers a patient's own immune cells to treat malignant and non-malignant disease.

Highly effective - but associated with potentially life-threatening complications requiring early detection and timely intervention.

Rapid program expansion has outpaced standardised nursing education, and variability in clinician exposure and experience can affect patient safety and service delivery.



A comprehensive, nurse-led CAR-T education day was developed to address this need.

THE TWO TOXICITIES DRIVING THE RISK



Cytokine Release Syndrome (CRS)

Systemic inflammatory response following cell infusion - can escalate rapidly to organ dysfunction.



Immune Effector Cell Associated Neurotoxicity (ICANS)

Neurological deterioration that demands structured, frequent nursing assessment to detect early.

A skilled nursing workforce is critical to early recognition of patient deterioration

What we did and how we measured it



Aim To evaluate the impact of a nurse-led CAR-T education day on participants' knowledge and confidence in caring for patients receiving CAR-T cell therapy.



Multidisciplinary curriculum

Covering the patient journey from initial assessment to post-treatment recovery

CAR-T mechanisms of action

Leukapheresis

Cell processing

ICANS

CRS

Emerging clinical trials

Medication management



Pre- and post-test survey design

- **Knowledge** 5-point Likert scale (1 = very poor understanding, 5 = very good understanding)
- **Confidence** 0-10 scale (0 = not at all confident, 10 = extremely confident)
- **Analysis** Descriptive statistics and independent samples t-tests, significance set at $p < 0.05$

Survey completion: pre-test n = 239 · post-test n = 218

Nine education days, 255 professionals

255

healthcare professionals trained

9

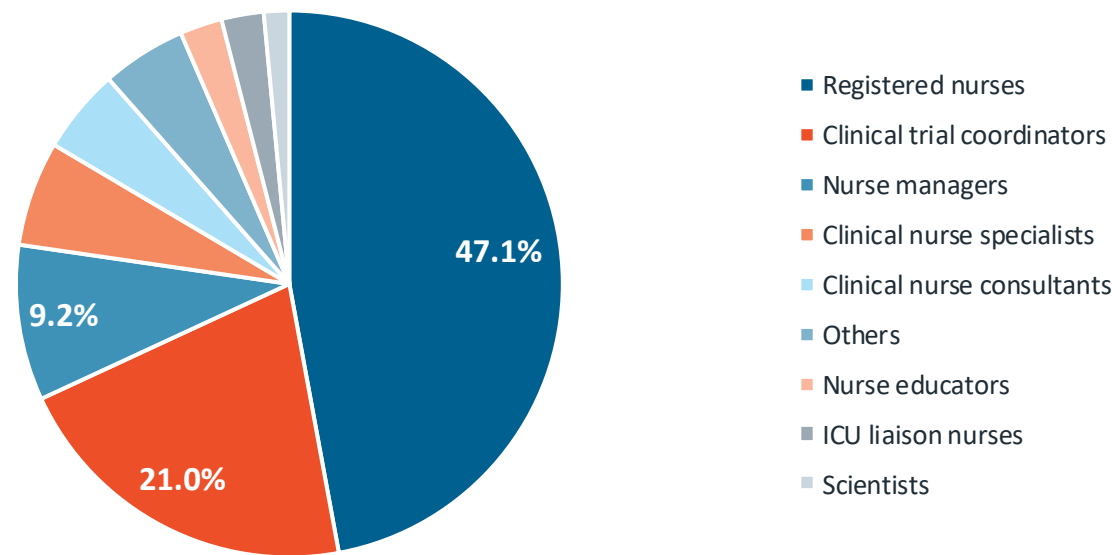
education days delivered
Mar 2023 - Nov 2025

9

professional role groups represented

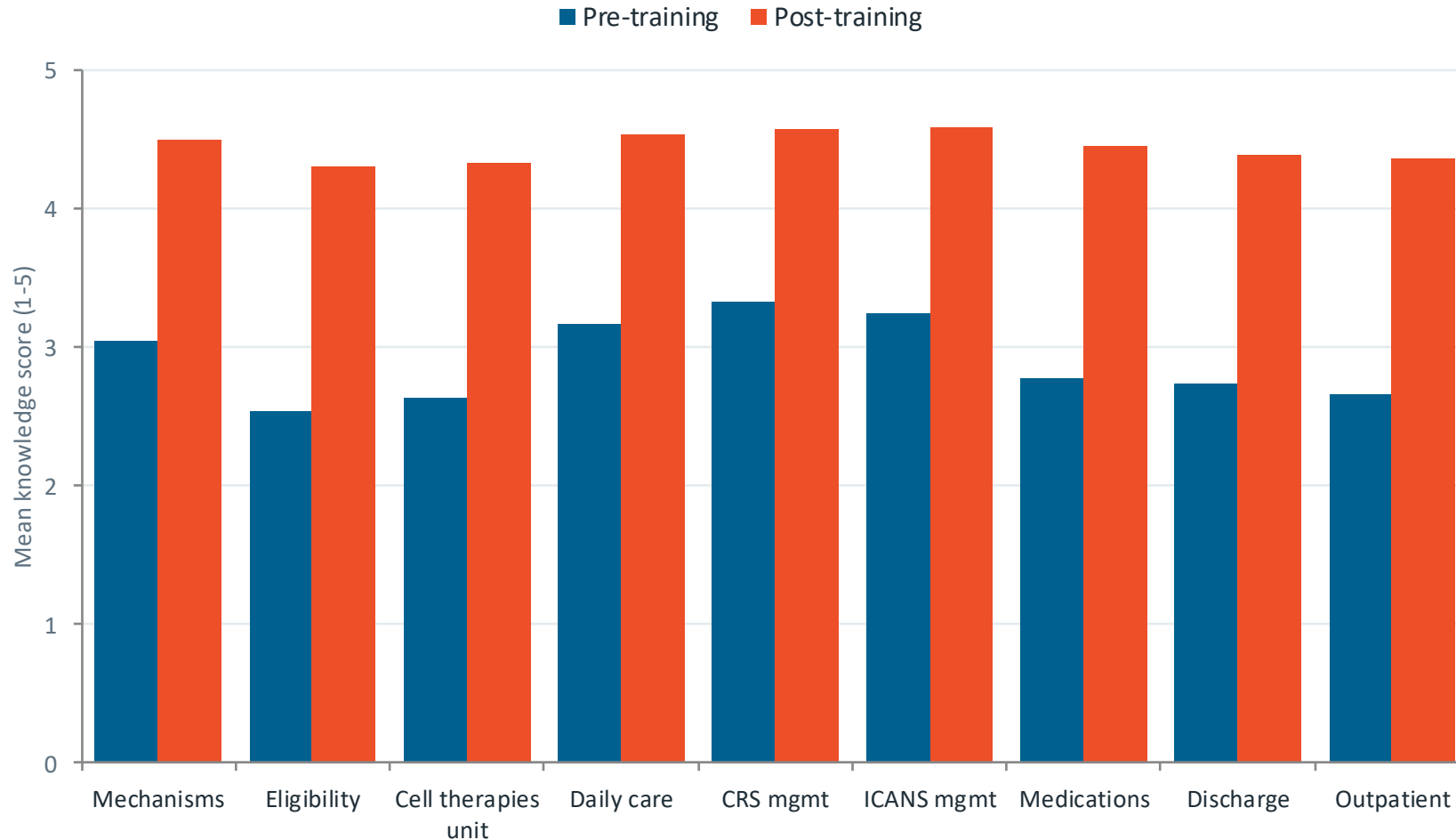
Reach beyond nursing alone - coordinators, educators, ICU liaison nurses and scientists all attended, reflecting how multidisciplinary CAR-T care actually is.

Participant professional background (n = 255)



CAR-T Study Day participants, November 2024

Knowledge improved across every domain



$p < 0.001$

Significant improvement across all nine knowledge domains

+1.25 to +1.76

Mean gain per domain on the 5-point scale

Every domain

No domain failed to improve - the gains were consistent, not concentrated

Largest gain: patient eligibility, workup and apheresis (2.54 to 4.30)

Confidence rose by 57%

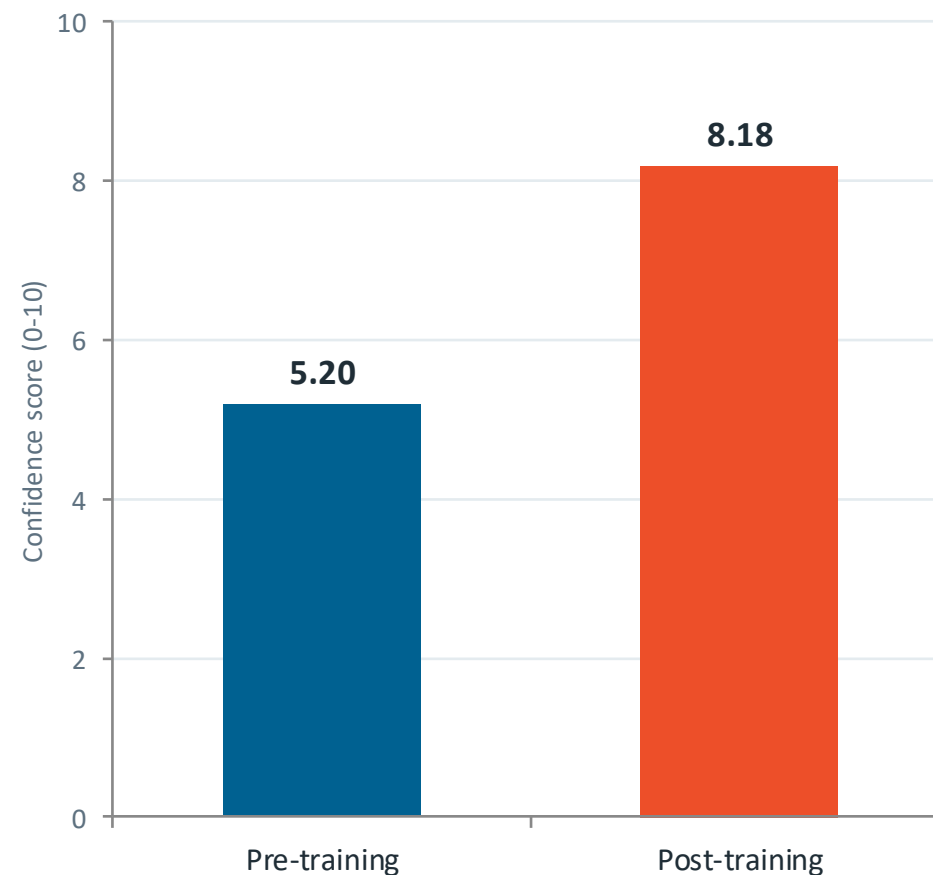
5.20 → **8.18**
BEFORE AFTER

Mean self-rated confidence in caring for patients receiving CAR-T cell therapy, on a 0-10 scale where 0 = not at all confident and 10 = extremely confident.



Participants moved from around the mid-point of the scale to clearly confident - a shift that matters at the bedside, not just on paper.

Improvement in confidence after CAR-T education



What this evaluation can and cannot tell us



Results are encouraging, but reflect a single self-reported cohort — not yet evidence of sustained competence or patient-level benefit.

WHERE THE EVIDENCE IS LIMITED



Single-site, single-cohort design with no control group



Self-selected attendees, likely more motivated than peers



Confidence self-reported rather than observed competence



Immediate post-course testing only; retention untested



No patient-level or practice-change outcomes measured

HOW WE WILL ADDRESS IT

1

Repeat surveys at 3 and 6 months to test knowledge retention

2

Extend delivery across sites to broaden the sample

3

Add objective, scenario-based competency assessment

4

Link training to service metrics such as escalation times

What this means for CAR-T services



Structured, nurse-led CAR-T education significantly improves nursing knowledge and confidence, directly supporting safe and effective CAR-T patient care.

WHAT THIS ENABLES



Safe expansion of CAR-T services



Earlier CRS and ICANS recognition



Stronger escalation and toxicity management pathways



A scalable, reproducible education framework



Service excellence and patient safety in cellular therapies

FUTURE DIRECTIONS

1

Longitudinal follow-up to assess knowledge retention

2

Evaluation of correlation with patient safety outcomes

3

Expansion to additional CAR-T centres nationally

4

Development of advanced and refresher modules

WITH THANKS

Acknowledgements



The 255 participants who attended across nine CAR-T education days and completed the pre- and post-training surveys.



The multidisciplinary faculty who developed and delivered the curriculum, from leukapheresis and cell processing through to CRS, ICANS and medication management.



Gilead and Janssen for their continuing sponsorship of the CAR-T education days.



Our co-authors and colleagues across Bayside Health, Alfred Care Group and Monash University.

Thank you

Questions welcome | c.abbott@alfred.org.au

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