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Title: Exploring disparities in receipt of adjuvant chemotherapy in culturally and linguistically diverse (CALD) groups: an Australian centre's experience.

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Running head

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Abstract

Background Globally, racial and ethnic disparities exist in treatments and outcomes for cancer patients. In Australia, there is little published data relating to cancer patients from culturally and linguistically diverse (CALD) backgrounds.

Aim To explore disparities in adjuvant chemotherapy utilisation in cancer patients from CALD groups.

Methods Retrospective analysis of patients who were recommended adjuvant chemotherapy for early-stage breast cancer (eBC) or early-stage colorectal cancer (eCRC) between July 2011 and October 2014. Rates of adjuvant chemotherapy uptake were analysed between those who identified English as their first preferred language, versus those who did not, as well as between patients who were born in a country where English is the main language (non-CALD), versus those born in a country where English is not the main language (CALD).

Results 211 patients were identified. 143 (67.7%) patients had eBC and 68 (32.2%) patients had eCRC. No difference was detected in the acceptance of adjuvant chemotherapy between non-CALD (80.9%) and CALD patients (81.3% $p=0.984$) or between patients who identified as English their first preferred language (80.8%) and those who did not (81.8% $p=0.870$). There was no difference in the rate of chemotherapy completion, with 75.6% completion in the non-English speaking group and 81.1% in the English-speaking group ($p=0.426$).

Conclusion No difference was observed in adjuvant chemotherapy utilisation in patients who identified English as their first preferred language compared to

those who did not as well as between non-CALD and CALD groups. This is the first study to assess these differences in Australia.

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Introduction

Racial and ethnic disparities in the provision of healthcare are well documented and identified as potential barriers to improved health outcomes worldwide.^{1, 2} For patients with cancer, this can impact on the receipt of definitive primary therapy, adjuvant therapy, palliative therapy and supportive care, resulting in inferior patient outcomes.^{2, 3} Whilst a reduction in cancer-related mortality in the general population has been achieved in recent decades, this is not consistently represented in minority or migrant populations, representing a clear gap in care.⁴⁻⁷

In Australia, studies in healthcare disparities in oncology to date have largely focused on the Aboriginal and Torres Strait Islander people. There are still limited published data on patients from culturally and linguistically diverse (CALD) backgrounds, despite CALD groups comprising a significant proportion of the Australian population.⁸ In research and practice, CALD is used to distinguish those groups with a cultural and/or linguistic background (i.e. born in a country where English is not the main language) as distinct from the dominant Anglo- Australian culture of the population. The most recent national census completed in Australia in 2011 revealed that at least one-quarter of Australia's population was born overseas and over 560,000 people (3% of total population) spoke English poorly or not at all.⁹ The main CALD groups in Australia include those from Italy, Greece, China, South-East Asia, India, Germany and Lebanon. Whilst outcomes data are lacking, Australian studies have shown that patients from CALD and non-English speaking backgrounds (NESB) report greater difficulty communicating with healthcare

professionals as well as greater difficulty understanding how to navigate the healthcare system.¹⁰⁻¹² A 2009 prospective cohort study involving 31,401 people demonstrated that CALD groups have lower rates of participation in screening for bowel and breast cancer.¹³

As noted above, racial and ethnic disparities may impact on the receipt of evidenced based cancer care, including adjuvant chemotherapy utilisation leading to inferior survival outcomes. For example, in the United States, the lower rate of adjuvant chemotherapy utilisation in African-American and Hispanic groups is recognised.¹⁴⁻¹⁸ In our study we chose to explore disparities in receipt of adjuvant chemotherapy in patients with breast and bowel cancer. In 2016, the estimated incidence of bowel and breast cancers are second and third highest among all new cancers diagnosed in Australia, representing 13.4% and 12.3% respectively.¹⁹

The evidence for adjuvant chemotherapy in colorectal cancer is well established for patients with stage III (node-positive) disease with an approximately 30% reduction in disease recurrence and 22-32% reduction in mortality.^{20,21} However, adjuvant chemotherapy can also be recommended for stage II disease with high risk features where the absolute benefit in overall survival is approximately 4-5%.²² Similarly, the benefit of adjuvant chemotherapy in breast cancer has been demonstrated in patients across all stages of early breast cancer.^{23,24}

As it is standard practice to offer adjuvant chemotherapy for these patients, this represents an ideal cohort to assess the potential differences between English speaking and NESB as well as between non-CALD and CALD groups, by exploring utilisation rates of adjuvant chemotherapy.²⁵ To our knowledge this is the first study to specifically examine differences in receipt of adjuvant chemotherapy between these two groups.

Methods

We conducted a retrospective, single-centre analysis of adjuvant chemotherapy participation rates for early-stage breast cancer (eBC) or early-stage colorectal cancer (eCRC), between two groups of patients: those from NESB versus English-speaking and non-CALD versus CALD backgrounds. We identified patients who had a projected absolute benefit in overall survival of at least 4-5% from adjuvant chemotherapy; 1) patients with Stage 2 or above breast cancer regardless of phenotype, and Stage I triple negative or human epidermal growth factor receptor-2 (*HER2*) amplified breast cancer and, 2) eCRC patients with stage III disease or stage II with high-risk features that were identified at multidisciplinary meetings.

Patients from CALD backgrounds were defined as those born in a country where English is not the main language. Patients who are non-English speaking (NESB) were defined as those as identifying a language other than English as their first preferred language. Thus, the two groups studied were those who identified English as their first preferred language and those for

whom English is not their first preferred language. Patients who received neoadjuvant chemotherapy were excluded.

Our centre, the Northern Hospital (TNH), represents one of the busiest public health services in Melbourne, Australia, with a large CALD population.²⁶ Patients presenting to TNH medical oncology outpatient clinics with eBC or eCRC are routinely discussed in a MDM and clinicians' consensus treatment recommendations are documented in the North Eastern Metropolitan Integrated Cancer Services (NEMICS) database. The database was interrogated to identify patients who were recommended to have adjuvant chemotherapy. Electronic records of each patient were audited to determine if they subsequently accepted or declined chemotherapy.

Clinical and demographic variables collected included gender, age, country of birth, first preferred language, American Joint Committee on Cancer (AJCC) clinical stage, recommended adjuvant chemotherapy regimen and whether chemotherapy was accepted and completed. Descriptive statistics (counts and percentage frequencies, mean \pm standard deviation, SD) were used to summarise patient characteristics within the two subgroups of breast and colorectal cancer and for the primary variable of English speaking and the outcome of acceptance of chemotherapy. Differences in categorical variables were assessed using the Chi-squared test, or Fishers Exact test on occasions when frequencies were less than 5. Differences in continuous variables such as age were assessed using the Mann-Whitney (rank-sum) test due to the slight skew in this variable. A two-tailed p-value of

less than 0.05 was considered to indicate statistical significance. STATA statistical analysis software (version 12.1) was used (StataCorp, College Station, TX, USA).

Ethics approval was obtained from the Northern Health ethics committee.

Results

Between July 2011 and October 2014, 211 patients with eBC and eCRC who were recommended to have adjuvant chemotherapy were identified. There were 143 (67.7%) patients with eBC and 68 (32.2%) patients with stage III colorectal cancer. (Table 1) Within the eBC cohort, 5 patients were excluded based on insufficient data for country of birth and/or English speaking status, resulting in a total of 137 patients available for analysis. In total, 38 different countries of birth were identified with 92 (44.4%) patients born in 23 countries with a language other than English as the national language, which were defined as CALD patients. Fifty-five patients spoke a language other than English as their first preferred language, therefore comprising 26.6% of the study population. Table 2 lists the 5 most common countries of birth and the main languages spoken by patients. The three most common first preferred languages were English 73.4% (n=151), Macedonian 5.8% (n=12) and Arabic 4.8% (n=10).

The eBC group included one male (0.7%) and was on average, slightly younger than the patients from the eCRC group, with an average age of 55.7

years (SD 12.3), compared to an average age of 62.0 years (SD 12.3) in the eCRC group. The proportion of males within the eCRC group was 52.2% (n=35). The proportion of English speaking patients was slightly higher in the eCRC group (75.4%) compared to the eBC group (72.5%).

All patients were offered chemotherapy with no difference in uptake for English speaking (80.8%) and non-English speaking patients (81.8%) (p=0.870). For the eBC group there was a non-statistically significant increase in uptake for English speaking patients (84.0%) compared to the non-English speaking patients (78.9%, p=0.484). The eCRC group had slightly lower rates of uptake of chemotherapy than the eBC group at 77.9%, with a higher uptake of chemotherapy for non-English speaking patients (88.2%) compared to English speaking patients (74.5%), although this difference was also not statistically significant (p=0.237). (Table 3)

There was no difference in uptake between patients born in a country where English is the main language (non-CALD, 80.9%) compared to patients born in a country English is not the main language (CALD, 81.3%, p=0.984). Completion rates between non-CALD and CALD groups were not statistically significant (84.3% vs. 74.4%, p=0.1125). (Table 3)

Gender was not observed to be a factor in chemotherapy uptake within the eCRC cohort (p=0.710). Patients who accepted chemotherapy were younger than those who declined chemotherapy (Mean \pm SD: 54.1 \pm 11.0 vs. 63.6 \pm 15.3 years, respectively, p=0.004) in the eBC group. Patients

accepting chemotherapy were also younger in the eCRC group (Mean \pm SD: 60.8 \pm 11.9 vs. 65.8 \pm 13.2 years, respectively, $p=0.186$), although this difference was not statistically significant.

There was no difference in the rate of chemotherapy completion, with 75.6% completion in the non-English speaking group and 79.7% in the English-speaking group ($p=0.564$). "Completion" was defined as patients who completed all planned cycles of adjuvant chemotherapy with no dose reductions. (Table 3)

Discussion

In our study, we did not find a significant difference in the proportion of patients accepting adjuvant chemotherapy between English speaking and non-English speaking patients with eBC or eCRC who were recommended chemotherapy by consensus at MDM review. There was also no difference in completion rates of chemotherapy between English speaking and non-English speaking patients. There was also no difference identified when patients were categorised as non-CALD compared to CALD patients. Patients who accepted chemotherapy for eBC were noted to be younger than patients who declined chemotherapy. A similar non-significant trend was noted in patients with eCRC. Overall, a large proportion of the eBC group (82.6%) and eCRC group (77.9%) accepted chemotherapy.

Our study is unique in that there are no published data from Australia on the CALD and non-English speaking population and the uptake of adjuvant

chemotherapy. Adjuvant chemotherapy for eBC and eCRC has been shown to improve disease recurrence and overall survival. Racial and ethnic disparities in uptake of anti-cancer treatments and outcomes have consistently been demonstrated in the literature, with much of the data focusing on groups such as “blacks”, “whites”, Hispanics, or migrant populations; these findings are also reflected in the adjuvant chemotherapy setting.^{2, 27-30} Specifically, a recent study from the USA demonstrated the greatest disparity between non-Hispanic blacks and non-Hispanic whites with colorectal cancer in terms of cancer-specific survival were in fact in patients with stage II and stage III CRC.⁷

Broadly, factors that can influence disparities in cancer care can be categorized into patient factors, use of care and quality of care.¹⁵ In CALD groups, these factors may include: an association with lower socioeconomic status, lower English language competency creating barriers to accessing and receiving medical care, as well as poorly resourced and trained health centres with limited access to interpreters and culturally appropriate training.^{2, 31} Identifying factors that contribute to disparities in health outcomes is important in order to develop initiatives that can improve outcomes in vulnerable groups

Interestingly, in contrast to current international data, our study did not show a significant difference in rates of adjuvant chemotherapy participation between the studied groups.¹⁴⁻¹⁸ There are several possible explanations for our findings. Poor communication is a factor contributing to poor health outcomes in patients who are proficient in a language other than English.^{2, 31}

Although data on interpreter use was not collected, it is routine hospital practice to have an interpreter for all patients who identify as non-English speaking. TNH has a large population of CALD and NESB patients and has made significant investments in improving interpreting services with the creation of the Transcultural and Language Services Department (TALS) in 2007, which contributed to an improvement of length of stay, shortened from 9 days to 5 days.³² Having ready access to an interpreting service allows for improved communication between patients and their healthcare providers, and can thus overcome one of the recognised barriers that contribute to healthcare inequality. Furthermore, effective communication is part of a larger concept of cultural competence. Cultural competence is an emerging factor contributing to disparities in healthcare outcomes. A culturally competent health care system has been defined as one that recognises the interaction of health beliefs and behaviours between different cultures and how they may influence the individual patient.³³ Thus, healthcare professionals that work with a large CALD and NESB population may be more culturally aware and have greater experience interacting with patients from different cultural backgrounds.³⁴

Our hypothesis that CALD and NESB groups may be less likely to accept adjuvant chemotherapy may also reflect inaccurate physician perceptions. When an outpatient appointment is difficult or longer than anticipated due to language or cultural barriers, this may be erroneously perceived as a patient's unwillingness to have chemotherapy, when instead the patient may be having difficulty with language comprehension or

navigating the healthcare system. A similar paradigm is observed for example in the USA, where it is often widely claimed that minority groups are less likely to participate in healthcare research but there are actually a paucity of data to substantiate this claim. Instead, large studies have found that there is no difference in the willingness of minorities to participate in health research.³⁵

The main limitations of our study is its single-centre retrospective nature and limited sample size. Notably, while the likelihood of finding a statistically significant difference would be increased with a larger sample size, the observed difference in our analysis suggests a much smaller difference, if any, than what was anticipated; for example, the proportion accepting chemotherapy in the NESB group actually exceeded the proportion in the English speaking group in the eCRC group.

In conclusion, our study found that there were no significant differences in the uptake of adjuvant chemotherapy for patients with eBC and eCRC between English speaking patients and patients with a language other than English as their first preferred language or between non-CALD and CALD groups. This study is the first to explore this clinically relevant question pertaining to our patient demographic in Australia. It is unclear if our centre's results are a reflection of lack of disparity in adjuvant chemotherapy across all Australian cancer centres, or a reflection of investments made toward interpreting services. Future prospective studies and qualitative research will help answer this question and identify areas of improvement in health care delivery to CALD groups

References

- 1 Du XL, Meyer TE, Franzini L. Meta-analysis of racial disparities in survival in association with socioeconomic status among men and women with colon cancer. *Cancer*. 2007; **109**: 2161-70.
- 2 Shavers VL, Brown ML. Racial and ethnic disparities in the receipt of cancer treatment. *Journal of the National Cancer Institute*. 2002; **94**: 334-57.
- 3 Check DK, Samuel CA, Rosenstein DL, Dusetzina SB. Investigation of Racial Disparities in Early Supportive Medication Use and End-of-Life Care Among Medicare Beneficiaries With Stage IV Breast Cancer. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2016; **34**: 2265-70.
- 4 Boulogne R, Jouglu E, Breem Y, Kunst AE, Rey G. Mortality differences between the foreign-born and locally-born population in France (2004-2007). *Social science & medicine (1982)*. 2012; **74**: 1213-23.
- 5 Norredam M, Krasnik A, Pippert C, Keiding N. Differences in stage of disease between migrant women and native Danish women diagnosed with cancer: results from a population-based cohort study. *European journal of cancer prevention : the official journal of the European Cancer Prevention Organisation (ECP)*. 2008; **17**: 185-90.
- 6 Harding S, Rosato M, Teyhan A. Trends in cancer mortality among migrants in England and Wales, 1979-2003. *European journal of cancer (Oxford, England : 1990)*. 2009; **45**: 2168-79.
- 7 Holowatyj AN, Ruterbusch JJ, Rozek LS, Cote ML, Stoffel EM. Racial/Ethnic Disparities in Survival Among Patients With Young-Onset Colorectal Cancer. *Journal of Clinical Oncology*. 2016.
- 8 Australian Bureau of Statistics, 2016. Migration, Australia, 2014-2015. Cat no. 3412.0.
- 9 Australia Bureau of Statistics: 4102.0 Australian social trends Canberra 2014.
- 10 Goldstein D, Bell ML, Butow P, Sze M, Vaccaro L, Dong S, *et al*. Immigrants' perceptions of the quality of their cancer care: an Australian comparative study, identifying potentially modifiable factors. *Annals of oncology : official journal of the European Society for Medical Oncology / ESMO*. 2014; **25**: 1643-9.
- 11 Butow PN, Bell ML, Aldridge LJ, Sze M, Eisenbruch M, Jefford M, *et al*. Unmet needs in immigrant cancer survivors: a cross-sectional population-based study. *Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer*. 2013; **21**: 2509-20.
- 12 Sawrikar P, Katz I. Enhancing family and relationship service accessibility and delivery to culturally and linguistically diverse families in Australia. *Australia Family Relationships Clearinghouse*. 2008: 1-22.
- 13 Weber MF, Banks E, Smith DP, O'Connell D, Sitas F. Cancer screening among migrants in an Australian cohort; cross-sectional analyses from the 45 and Up Study. *BMC public health*. 2009; **9**: 144.
- 14 Dimou A, Syrigos KN, Saif MW. Disparities in colorectal cancer in African-Americans vs Whites: before and after diagnosis. *World journal of gastroenterology*. 2009; **15**: 3734-43.

- 15 Morris AM, Rhoads KF, Stain SC, Birkmeyer JD. Understanding racial disparities in cancer treatment and outcomes. *Journal of the American College of Surgeons*. 2010; **211**: 105-13.
- 16 Hershman D, McBride R, Jacobson JS, Lamerato L, Roberts K, Grann VR, *et al*. Racial disparities in treatment and survival among women with early-stage breast cancer. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2005; **23**: 6639-46.
- 17 Tropman SE, Ricketts TC, Paskett E, Hatzell TA, Cooper MR, Aldrich T. Rural breast cancer treatment: evidence from the Reaching Communities for Cancer Care (REACH) project. *Breast cancer research and treatment*. 1999; **56**: 59-66.
- 18 Laiyemo AO, Doubeni C, Pinsky PF, Doria-Rose VP, Bresalier R, Lamerato LE, *et al*. Race and Colorectal Cancer Disparities: Health-Care Utilization vs Different Cancer Susceptibilities. *Journal of the National Cancer Institute*. 2010; **102**: 538-46.
- 19 Australian Government, Cancer Australia. All cancers in Australia. . Vol. 2016. . 2016.
- 20 Stein A, Hiemer S, Schmoll HJ. Adjuvant therapy for early colon cancer: current status. *Drugs*. 2011; **71**: 2257-75.
- 21 Rousseau B, Chibaudel B, Bachet JB, Larsen AK, Tournigand C, Louvet C, *et al*. Stage II and stage III colon cancer: treatment advances and future directions. *Cancer journal (Sudbury, Mass)*. 2010; **16**: 202-9.
- 22 Sargent D, Sobrero A, Grothey A, O'Connell M, Buyse M, Andrew T, *et al*. Evidence for cure by adjuvant therapy in colon cancer: observations based on individual patient data from 20, 898 patients on 18 randomised trials. *Journal of Clinical Oncology*. 2009; **27**: 872.
- 23 Peto R, Davies C, Godwin J, Gray R, Pan HC, Clarke M, *et al*. Comparisons between different polychemotherapy regimens for early breast cancer: meta-analyses of long-term outcome among 100,000 women in 123 randomised trials. *Lancet (London, England)*. 2012; **379**: 432-44.
- 24 Moja L, Tagliabue L, Balduzzi S, Parmelli E, Pistotti V, Guarneri V, *et al*. Trastuzumab containing regimens for early breast cancer. *The Cochrane database of systematic reviews*. 2012; **4**: Cd006243.
- 25 Henry NL, Somerfield MR, Krop IE. Role of Patient and Disease Factors in Adjuvant Systemic Therapy Decision Making for Early-Stage, Operable Breast Cancer: American Society of Clinical Oncology Endorsement of Cancer Care Ontario Guideline Recommendations Summary. *Journal of oncology practice / American Society of Clinical Oncology*. 2016; **12**: 482-4.
- 26 Northern Health: Services. Vol. 2016. 2016.
<http://www.nh.org.au/services>.
- 27 Griggs JJ, Sorbero MES, Stark AT, Heining SE, Dick AW. Racial Disparity in the Dose and Dose Intensity of Breast Cancer Adjuvant Chemotherapy. *Breast cancer research and treatment*. 2003; **81**: 21-31.
- 28 Gross CP, Smith BD, Wolf E, Andersen M. Racial Disparities in Cancer Therapy: Did the Gap Narrow Between 1992 and 2002? *Cancer*. 2008; **112**: 900-8.
- 29 Jessup JM, Stewart A, Greene FL, Minsky BD. Adjuvant chemotherapy for stage III colon cancer: implications of race/ethnicity, age, and differentiation. *Jama*. 2005; **294**: 2703-11.

- 30 Li CI, Malone KE, Daling JR. Differences in breast cancer stage, treatment, and survival by race and ethnicity. *Archives of Internal Medicine*. 2003; **163**: 49-56.
- 31 Ski CF, King-Shier KM, Thompson DR. Gender, socioeconomic and ethnic/racial disparities in cardiovascular disease: a time for change. *International journal of cardiology*. 2014; **170**: 255-7.
- 32 Promoting the engagement of interpreters in Victorian health services (2013). Foundation House.
- 33 Betancourt JR, Green AR, Carrillo JE, Ananeh-Firempong O. Defining cultural competence: a practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports*. 2003; **118**: 293-302.
- 34 Kai J, Beavan J, Faull C, Dodson L, Gill P, Beighton A. Professional uncertainty and disempowerment responding to ethnic diversity in health care: a qualitative study. *PLoS medicine*. 2007; **4**: e323.
- 35 Wendler D, Kington R, Madans J, Van Wye G, Christ-Schmidt H, Pratt LA, *et al*. Are racial and ethnic minorities less willing to participate in health research? *PLoS medicine*. 2006; **3**: e19.

TABLES

Table 1. Patient characteristics	
Breast Cancer (n=143)	No. of patients
Female	142
Male	1
Histology	
Ductal	110
Lobular	25
Other	8
Stage	
I	25
II	84
III	34
Grade	
1	12
2	64
3	66
Not stated	1
Receptor status	
HR positive	111
HER2 positive	32
Adjuvant chemotherapy regimen offered	
TC +/- H	70
ACT+/-H	28
FEC +D/T +/-H	23
CMF	1
Weekly paclitaxel +/- H	5
Trastuzumab alone	1
Not stated	15
Colorectal Cancer (n=68)	
Male	35
Female	33
Histology	
Adenocarcinoma	65
Mucinous	2
Signet ring	1
Stage	
II	20
III	48
Adjuvant chemotherapy regimen offered	
FOLFOX	35
De Gramont	13
Capecitabine	10
5-fluorouracil	5
FOLFOX or capecitabine	2
Not stated	3
ECOG	
0	122
1	75
2	12
3	1
Unknown	1
Abbreviations: HR, hormone receptor; HER-2, human epidermal growth factor receptor-2; TC+/- H, docetaxel + cyclophosphamide +/- trastuzumab; ACT, doxorubicin + cyclophosphamide + paclitaxel; FEC + D/T, 5-fluorouracil + epirubicin + cyclophosphamide + docetaxel/paclitaxel; CMF, cyclophosphamide +methotrexate + 5-fluorouracil; FOLFOX, 5-fluorouracil + oxaliplatin; ECOG, Eastern Cooperative Oncology Group	

Table 2. First preferred language of all patients and five most common countries of birth

First preferred language	No. of patients
English	151
Macedonian	12
Arabic	10
Italian	6
Greek	5
Turkish	5
Vietnamese	4
Croatian	3
Punjabi	3
Assyrian Neo Aramaic	2
AUSLAN*	2
Spanish	2
Hakka	1
Country of birth	
Australia	82
Italy	17
Former Yugoslavia	14
Greece	10
Turkey	8

* Australian Sign language

Table 3. Proportion of patients accepting adjuvant chemotherapy			
	English as first preferred language (%)	Language other than English (%)	P value
Overall			
Accepted chemotherapy	122/151 (80.8%)	45/55 (81.8%)	0.870
Completed chemotherapy	99/122 (81.1%)	34/45 (75.6%)	0.426
Breast cancer			
Accepted chemotherapy	84/100 (84.0%)	30/38 (78.9%)	0.484
Colorectal cancer			
Accepted chemotherapy	38/51 (74.5%)	15/17 (88.2%)	0.237
Overall (eBC and eCRC)			
	Non-CALD	CALD	P value
Accepted chemotherapy	89/110 (80.9%)	78/96 (81.3%)	0.984
Completed chemotherapy	75/89 (84.3%)	58/78 (74.4%)	0.1125
Abbreviations: eBC, early breast cancer; eCRC, early colorectal cancer; non-CALD, non-culturally and linguistically diverse; CALD, culturally and linguistically diverse			