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'Is it my last Christmas?' Using real-world data as a prompt to reflect on goal-concordant advanced lung cancer care—a retrospective, longitudinal study

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OBJECTIVES: Advanced non-small cell lung cancer (NSCLC) treatment paradigms include prolonged systemic anti-cancer therapy (SACT) courses. Treatment breaks during significant life events may align with patients' care goals but are poorly studied. We evaluated the temporal patterns of palliative SACT received by NSCLC patients during Christmas 2006–2023, a period during which treatment options increased.

METHODS: A retrospective, longitudinal study using electronic records examined palliative SACT for NSCLC in the month of December 2006–2023. It was conducted in a hospital designated as a European Society of Medical Oncology Designated Centre of Integrated Oncology and Palliative Care Services.

RESULTS: In December 2006–2023, 250 patients with NSCLC received palliative SACT with a mean age of 65.5 years (range: 36–94). Adenocarcinoma constituted 171 cases, and 188 patients were stage IV. During their last Christmas, 53% received palliative SACT ($n = 133/250$), 4% died within 30 days of treatment ($n = 5/133$) and 5% spent their last Christmas Eve/Day and/or Boxing Day admitted in hospital ($n = 7/133$). The proportion of those alive the following Christmas increased over the study period ($p < 0.001$).

CONCLUSIONS: Most advanced NSCLC patients received palliative SACT during their last Christmas, reflecting the need for greater cognisance of goal-concordant care and for studies to provide an evidence basis for treatment breaks.

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BACKGROUND

Lung cancer is the leading cause of cancer death worldwide, and many patients with non-small cell lung cancer (NSCLC) present with advanced disease at diagnosis; thus, curative therapy is not commonly possible [1, 2]. Palliative systemic anti-cancer therapy (SACT) may be considered to prolong life and reduce symptom burden. Twenty years ago, palliative chemotherapy was offered to just 8% of patients with advanced NSCLC. Since then, the treatment landscape has evolved considerably due to multi-disciplinary advances in lung cancer care, as outlined in Fig. 1 [2, 3].

Nonetheless, as medical oncologists, we wrestle with decisions determining whether and when treatment for patients with advanced cancer might be beneficial. Our evidence base for these decisions comes from data from pivotal clinical trials, which enrol participants with a median age of 65 or younger and an Eastern Cooperative Oncology Group Performance Status of 0 or 1 [4, 5]. In clinical practice, many patients with advanced NSCLC fall outside of these criteria, so the data may not be reflective of their care. Survival of patients with metastatic NSCLC is nearly 25% less for patients who receive chemotherapy in real-world practice compared to in clinical trials [6, 7]. This “efficacy-effectiveness gap” reduces therapeutic humility as it leads to overestimation of

treatment benefits. Palliative SACT can also be considered to reduce symptom burden. However, health-related quality-of-life data are underestimated and underreported in phase III NSCLC clinical trials [8]. The lack of such data makes it challenging to navigate evidence-based, shared decision-making when patients wish to focus on quality of life as opposed to quantity of time.

This dilemma was highlighted by Silverman et al. in a study titled “Is this my last Christmas dinner?” [9]. They reported that between 2011 and 2012, the majority (55%) of patients who received chemotherapy during the Christmas period were not alive by the following Christmas [9]. Goal-concordant patient care was not described in their abstract publication, but studies have shown substantial variability amongst patients regarding the degree of acceptability of toxicities in relation to survival benefits [10]. For example, one study showed many with advanced NSCLC would accept the toxicities of therapy for a survival benefit of a week, while others would decline for survival benefits of 2 years [11]. The standard of care, as advised by an oncologist, may not reflect a patient's aims. Patients may wish to pursue or stop treatment for reasons counter to clinical logic [12]. Thus, goal-concordant care and standard care are not absolute and highlight the importance of discussing a patient's wishes [13].

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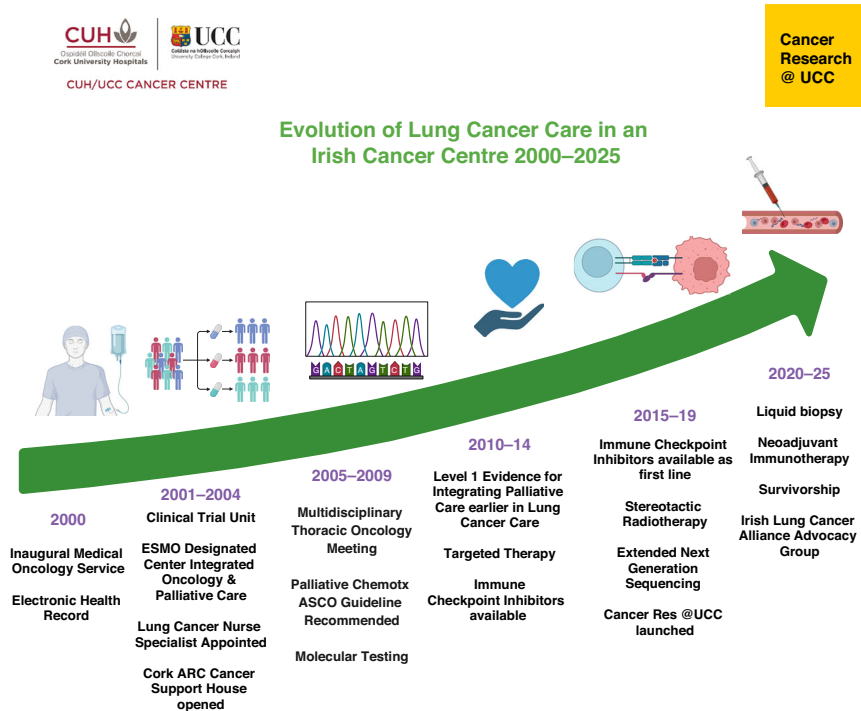


Fig. 1 Evolution of lung cancer care in an Irish Cancer Centre 2000–2025.

Conversations with patients about their goals of care improve a variety of health outcomes in various settings, and the National Academy of Medicine has identified the delivery of goal-concordant care as a key priority [14, 15]. Aligning a patient's aims and values with the treatment they receive (or do not receive), particularly in the final weeks and months of life, is a key characteristic of patient-centred care [16]. Goal-concordant care relies on shared decision-making between patient and doctor, which has been described as a fundamental method of care by major oncology societies and is the approach advised by major NSCLC guidelines when discussing all treatment recommendations with patients [17].

As mentioned, receiving systemic treatment during a significant life event may be considered goal-concordant care for some patients who wish to prioritise potential survival benefit [18]. Others may want to enjoy a life event, which might be their last opportunity to do so. They may wish to do this without the risk of developing unintended but potentially significant biological toxicities. Furthermore, time and financial toxicity are increasingly recognised as factors that contribute to the burden of systemic therapy and may hamper a patient's goal of enjoying a significant event [19, 20]. As described by Henry Thoreau, "the price of anything is the amount of life, or time, that you exchange for it" [21].

As clinicians, we often face the challenge of treatment interruption or delay for patient preference, seasonal holidays, or family events. While research examining intercycle delays showed they did not affect overall survival, we lack evidence-based guidelines to support such decision-making [22–24]. Equally, there are personal and professional challenges in instituting cytotoxic chemotherapy to patients at significant domestic periods. A constellation of these issues prompted a reflective practice assessment on the implications of how we treat advanced NSCLC in our cancer centre.

While many events such as birthdays, weddings, graduations or anniversaries may be regarded as significant to patients, the date of their occurrence naturally varies. In contrast, the Christmas period is a predefined time period. In Ireland, Christmas is a

nationally significant holiday, with a previous survey finding that 80% of respondents cited the December Christmas period as their favourite celebration of the year and Christianity accounting for the religion practiced by 82.3% of the Irish population [25, 26]. Using Christmas as a surrogate for important life events, we sought to explore the relevance of Silverman's findings in a longitudinal fashion over 19 years and to provide insights that would aid patients in receiving and doctors in providing goal-concordant care.

METHODS

A retrospective, longitudinal study was conducted to assess palliative SACT use around Christmas between 2006–2023 inclusive. The primary objective was to quantify the proportion of participants who received palliative SACT during the Christmas period in one year who had died by Christmas the following year. Secondary objectives included characterising the treatment received by all participants to assess for changes over the study period and, in keeping with best practice, 30-day mortality after SACT administration.

Patient and public involvement

While patient and public involvement did not occur in setting the research question or outcome measure, subsequent patient involvement was central to the study. A co-author of the present paper has a metastatic malignancy and their involvement was key to interpreting the study's findings. The results were reviewed with the co-author to obtain their perspective and feedback. This process ensured the discussion of the findings applied to patients with advanced cancer and the presentation of the findings would allow them to reach beyond the research community and to the relevant population. The patient co-author made high-value contributions to the clinical applicability of the study for patients.

Inclusion criteria

All patients who attended an Irish oncology day ward for palliative SACT between December 1st and December 31st from 2006 to 2023 were identified. This period was chosen to ensure the population's homogeneity. Furthermore, it covered the lead-up to Christmas and the immediate days following, which can involve meeting extended family, preparing for festivities, exchanging gifts, and the closure of educational

Table 1. Patient characteristics in each year of treatment.

| | Year of treatment | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|-------------------|---------|---------|--------|---------|--------|---------|--------|--------|---------|---------|--------|---------|---------|---------|---------|---------|---------|---------|--|
| | Total | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | |
| Number of people | 250 | 13 | 3 | 4 | 6 | 8 | 12 | 9 | 5 | 11 | 15 | 10 | 16 | 21 | 17 | 17 | 25 | 35 | 23 | |
| Mean age (SD) | 66 (9) | 62 (11) | 79 (21) | 61 (6) | 61 (12) | 65 (7) | 68 (6) | 70 (5) | 63 (9) | 62 (7) | 65 (7) | 69 (8) | 69 (11) | 65 (11) | 60 (10) | 68 (5) | 67 (8) | 66 (8) | 65 (9) | |
| Gender (%) | | | | | | | | | | | | | | | | | | | | |
| Female | 105 (42) | 6 (46) | 0 | 2 (50) | 2 (33) | 5 (62) | 3 (25) | 2 (22) | 2 (40) | 2 (18) | 8 (53) | 3 (30) | 7 (44) | 16 (76) | 8 (47) | 5 (29) | 11 (44) | 14 (40) | 9 (39) | |
| Male | 145 (58) | 7 (54) | 3 (100) | 2 (50) | 4 (67) | 3 (38) | 9 (75) | 7 (78) | 3 (60) | 9 (82) | 9 (47) | 7 (70) | 9 (56) | 5 (24) | 9 (53) | 12 (71) | 14 (56) | 21 (60) | 14 (61) | |
| Subtype (%) | | | | | | | | | | | | | | | | | | | | |
| Adenocarcinoma | 171 (68) | 6 (46) | 2 (67) | 2 (50) | 2 (33) | 6 (75) | 8 (67) | 4 (44) | 2 (40) | 6 (55) | 11 (73) | 8 (80) | 11 (69) | 18 (86) | 16 (94) | 14 (82) | 18 (72) | 23 (66) | 14 (61) | |
| Squamous cell carcinoma | 64 (26) | 4 (31) | 1 (33) | 1 (25) | 2 (33) | 2 (25) | 4 (33) | 4 (44) | 2 (40) | 3 (27) | 3 (20) | 2 (20) | 5 (31) | 2 (10) | 0 | 3 (18) | 7 (28) | 10 (29) | 9 (39) | |
| Other | 6 (2) | 1 (8) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (7) | 0 | 0 | 1 (5) | 1 (6) | 0 | 0 | 2 (6) | 0 | |
| Not otherwise specified | 9 (4) | 2 (15) | 0 | 1 (25) | 2 (34) | 0 | 0 | 1 (11) | 1 (20) | 2 (18) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Stage (%) | | | | | | | | | | | | | | | | | | | | |
| Stage IIIA | 13 (5) | 1 (8) | 0 | 0 | 1 (17) | 0 | 0 | 1 (11) | 1 (20) | 0 | 1 (7) | 0 | 2 (13) | 1 (5) | 0 | 0 | 3 (12) | 1 (3) | 1 (4) | |
| Stage IIIB | 42 (17) | 1 (8) | 1 (33) | 1 (25) | 0 | 3 (38) | 1 (8) | 2 (22) | 1 (20) | 1 (9) | 1 (7) | 1 (10) | 5 (31) | 5 (24) | 5 (29) | 2 (12) | 2 (8) | 5 (14) | 6 (26) | |
| Stage IIIC | 7 (3) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (5) | 1 (6) | 0 | 0 | 3 (9) | 1 (4) | |
| Stage IV | 188 (75) | 11 (85) | 2 (67) | 3 (75) | 5 (83) | 5 (63) | 11 (92) | 6 (67) | 3 (60) | 10 (91) | 13 (87) | 9 (90) | 9 (56) | 14 (67) | 11 (65) | 15 (88) | 20 (80) | 26 (74) | 15 (65) | |
| Alive at Christmas the following year | 117 (47) | 1 (8) | 0 | 1 (25) | 0 | 3 (38) | 2 (17) | 2 (22) | 3 (60) | 2 (18) | 4 (27) | 6 (60) | 8 (50) | 15 (71) | 12 (71) | 11 (65) | 16 (64) | 14 (40) | 17 (74) | |

SD standard deviation.
Numbers may not equal 100.0% due to rounding.

institutions and workplaces. January could be seen as the end of the festive period and a return to the status quo.

Only those who were admitted for infusional treatments attended the day ward; thus, patients on oral agents such as oral tyrosine kinase inhibitors were not included in this study. Palliative intent was defined as cancer that was not surgically resectable or suitable for radical dose radiotherapy. Participants under 18 years old were excluded. The Clinical Research Ethics Committee of the Cork Teaching Hospitals provided ethical approval (reference number ECM4 (v) 14/05/2024).

Data extraction

Variables were recorded from electronic health record systems. These included gender, age at diagnosis, date of diagnosis, cancer subtype, age and disease stage at time of SACT, date and cycle of SACT, type of SACT, line of therapy, date of death and whether Christmas was spent in hospital, defined as an inpatient admission over the 24th, 25th and/or 26th of December. Deaths are recorded on the electronic health record system irrespective of whether they occurred at the study centre, another healthcare facility or home. To ensure completeness, all patients who were not recorded as deceased on the electronic health record system were cross-referenced with a national death notices website. In the case of three patients, the date of death was recorded from this source.

Statistical analysis

Statistical analysis was conducted with IBM SPSS V29.0.2.0 and consisted of the Kolmogorov–Smirnov test and the Shapiro–Wilks test to determine the distribution of continuous variables where $n \geq 100$ and $n < 100$, respectively. This is because the Shapiro–Wilk test has more power to detect nonnormality and is a widely used method for small sample sizes [27]. The descriptive statistics for normally distributed variables were mean, standard deviation and range. Mean survival was calculated from the day SACT was received and the date of death. Pearson Chi-squared analyses were performed for categorical data where all cells had an expected count >5 . Otherwise, Fisher's exact test was utilised. A $p < 0.05$ was considered statistically significant for all variables.

Setting

The study was conducted in one of eight National Cancer Control Programme cancer centres and serves a supra-regional population of over 1 million. The hospital is a European Society of Medical Oncology Designated Centre of Integrated Oncology and Palliative Care Services, which is an accreditation programme that "recognises cancer centres that provide highly integrated oncology and palliative care services, with the goal of improving research, education and clinical practice by setting standards for service development" [28].

RESULTS

Patient characteristics

Between 2006 and 2023, 250 patients with NSCLC received SACT with palliative intent in December (Table 1). One hundred and eighty-eight people had treatment during the month of December in one calendar year. Twenty people had treatment during December in two calendar years resulting in 40 encounters; six in 3 years resulting in 18 encounters, and one in 4 years. Thus, there were 250 encounters due to 215 individuals, and their characteristics are demonstrated in Table S1 (Supplementary Material).

Of the 250 who received palliative SACT over the study period, the majority were male (58%, $n = 145/250$), the mean age at the time of treatment was 65.5 years (range 36–94) and adenocarcinoma constituted 68% of cases ($n = 171/250$) (Table 1). Three in four were stage IV at the time of treatment ($n = 188/250$; 75%) (Table 1).

'Is it my last Christmas?'

The overall proportion of patients with advanced NSCLC who received palliative SACT during their last Christmas period was 53% ($n = 133/250$). The mean survival after receiving SACT in December of the 133 patients who died was 173 days (range 7–379). Seven people ($n = 7/133$; 5%) were admitted as inpatients

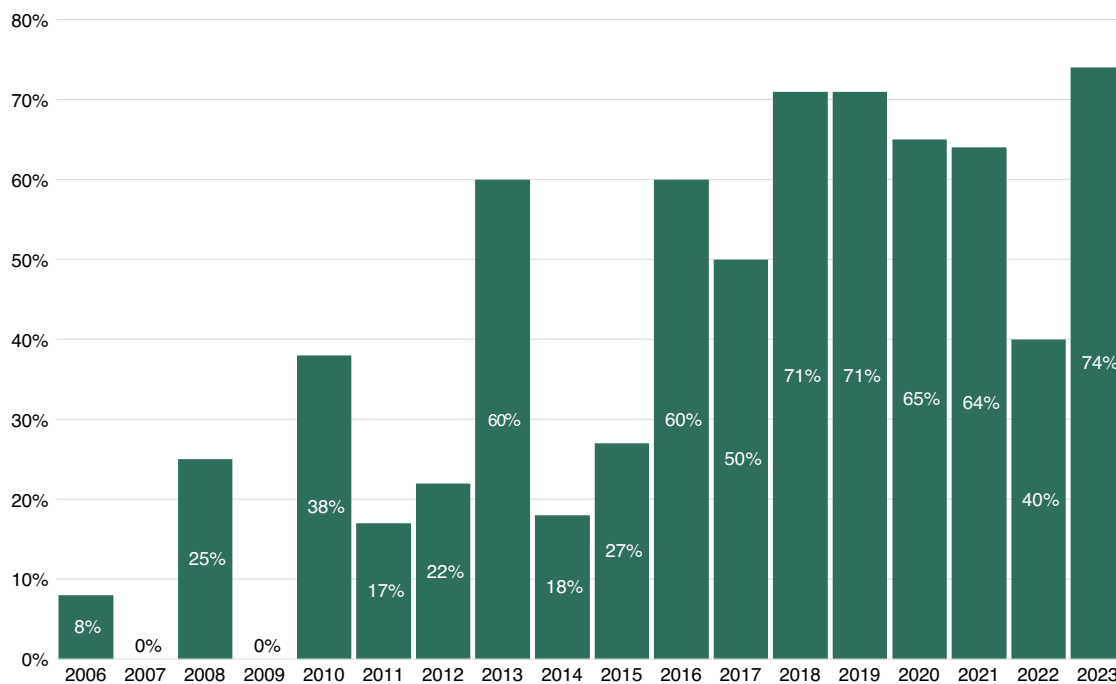


Fig. 2 Proportion of people who received palliative SACT during the Christmas period in 1 year who were alive at Christmas the following year.

during the Christmas period and thus spent their last Christmas in hospital. Five patients died within 30 days of receiving SACT around the Christmas period, which resulted in a 30-day mortality of 4% ($n = 5/133$).

The mean age at the time of treatment of those who received palliative SACT during their last Christmas period was 65 years (range 36–94) and 66% were male ($n = 88/133$). Four in five people's cancer was stage IV at the time of treatment ($n = 106/133$; 80%). Adenocarcinoma and squamous cell carcinoma accounted for 61% ($n = 81/133$) and 32% ($n = 42/133$) of cases, respectively. Three in five people were receiving first-line treatment ($n = 80/133$; 60%) and one in five maintenance treatment ($n = 27/133$; 20%). From 2006 to 2016, platinum-based doublet chemotherapy regimens were the most common type of SACT received by those during their last Christmas period ($n = 43/72$; 60%). However, from 2017 onwards, combination chemotherapy and immunotherapy was the most commonly prescribed SACT type (19/61; 31%).

The overall proportion of people who had received SACT with palliative intent during December in one calendar year and were alive following Christmas was 47% ($n = 117/250$). The proportion of those alive the following Christmas changed significantly over the study period as demonstrated in Fig. 2 ($p < 0.001$). Between 2006 and 2016, 25% who received palliative SACT during the Christmas period in 1 year were alive at Christmas the following year ($n = 24/96$) compared to 60% between 2017 and 2023 ($n = 93/154$) ($p < 0.001$).

Characteristics of palliative systemic anti-cancer therapy during the Christmas period between 2006–2023

In total, ten people who received palliative SACT in December were admitted as inpatients during the Christmas period of that year ($n = 10/250$; 4%). Of those, four were receiving first-line treatment and the remaining six second-line, third-line or maintenance treatment. Nine of the ten people had received the agent before. Overall, one in six people were receiving the first cycle of treatment ($n = 40/250$; 16%). Between 2006 and 2016, SACT was often the first-line treatment and from 2017 onwards it

was often maintenance treatment (Table 2). Platinum-based doublet chemotherapy regimens were the most common type of SACT received by those during the Christmas period ($n = 83/250$; 33%) (Table 2). However, immunotherapy, either in combination or as monotherapy, became increasingly common from 2017 onwards (Table 2).

DISCUSSION

This study is the first to explore the survival of a cohort with an advanced solid tumour in the context of a significant life event using real-world data. Between 2006 and 2023, the majority of patients (53%) of people who received SACT with palliative intent for NSCLC during the Christmas period died before the following Christmas. Silverman et al. reported a nearly identical rate of 55%; however, they looked at many cancer types and are not directly comparable [9]. Of those who received palliative SACT during their last Christmas period, 5% spent their last Christmas admitted to hospital. Four per cent died within 30 days of receiving SACT, which is in line with national guidance and compares favourably to other international studies [29–31]. Throughout the study, the proportion of patients alive the following Christmas changed significantly from an average of 25% between 2006 and 2016 to 60% between 2017 and 2023.

Over the course of this study period, this increase in the proportion who lived to the following Christmas may demonstrate the overall improving prognosis for those with advanced NSCLC (Fig. 2). This is likely multifactorial, with better treatments and integration of early palliative care (EPC) [2, 32, 33]. However, in this study many patients still received palliative SACT during their last Christmas and some spent their last Christmas in hospital or died within 30 days of receiving SACT in December. Christmas can be a time of heightened reflection on what matters most to patients. Patients' and families' belief systems around Christmas, death and dying and the implications of religious leaning can be at odds with each other, which pose further challenges and add a layer of complexity due to cognitive dissonance, where one's beliefs are at odds with their behaviour and choices. The retrospective nature of

Table 2. Treatment encounter characteristics in each year of treatment.

| | Year of treatment | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|---------|---------|---------|---------|---------|---------|---------|--|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | | | | |
| Total | 250 | 13 | 3 | 4 | 6 | 8 | 12 | 4 (33) | 1 (11) | 2 (40) | 4 (36) | 3 (20) | 2 (20) | 2 (13) | 1 (5) | 0 | 1 (6) | 17 | 25 | 35 | 23 | |
| Number | 40 (16) | 5 (38) | 0 | 0 | 1 (17) | 3 (38) | 4 (33) | 4 (33) | 1 (11) | 2 (40) | 4 (36) | 3 (20) | 2 (20) | 2 (13) | 1 (5) | 0 | 1 (6) | 17 | 25 | 35 | 23 | |
| First cycle (%) | | | | | | | | | | | | | | | | | | | | | | |
| Line of treatment (%) | | | | | | | | | | | | | | | | | | | | | | |
| First line | 136 (54) | 9 (69) | 2 (67) | 2 (50) | 4 (67) | 7 (88) | 7 (58) | 7 (58) | 3 (60) | 3 (60) | 10 (91) | 12 (80) | 7 (70) | 6 (38) | 12 (57) | 8 (47) | 5 (29) | 9 (36) | 9 (36) | 15 (43) | 11 (48) | |
| Second line | 29 (12) | 4 (31) | 1 (33) | 1 (25) | 2 (33) | 1 (13) | 2 (17) | 1 (13) | 1 (20) | 1 (11) | 1 (20) | 3 (20) | 1 (10) | 2 (13) | 2 (10) | 0 | 1 (6) | 1 (6) | 2 (8) | 3 (9) | 2 (9) | |
| Third line | 5 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (6) | 1 (5) | 1 (6) | 0 | 1 (4) | 1 (4) | 1 (3) | 0 | |
| Maintenance | 80 (32) | 0 | 0 | 1 (25) | 0 | 0 | 3 (25) | 0 | 1 (20) | 1 (11) | 1 (20) | 0 | 2 (20) | 9 (44) | 6 (29) | 8 (47) | 11 (65) | 13 (52) | 16 (46) | 10 (43) | | |
| Type of SACT (%) | | | | | | | | | | | | | | | | | | | | | | |
| Single-agent chemotherapy | 50 (20) | 6 (46) | 2 (67) | 2 (50) | 1 (17) | 1 (13) | 4 (33) | 1 (13) | 2 (40) | 1 (11) | 2 (40) | 1 (7) | 4 (40) | 7 (44) | 3 (14) | 2 (12) | 4 (24) | 5 (20) | 2 (8) | 2 (6) | 1 (4) | |
| Platinum-based doublet | 83 (33) | 5 (46) | 1 (33) | 2 (50) | 4 (67) | 7 (88) | 7 (58) | 7 (58) | 2 (40) | 6 (67) | 8 (73) | 11 (73) | 5 (50) | 2 (12) | 6 (29) | 4 (24) | 3 (18) | 2 (8) | 2 (6) | 6 (17) | 2 (9) | |
| Single agent IO | 69 (28) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 (20) | 1 (10) | 7 (44) | 12 (57) | 11 (65) | 10 (59) | 6 (24) | 7 (20) | 12 (52) | | |
| Chemotherapy & IO | 40 (16) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 (48) | 20 (57) | 8 (35) | |
| Other | 8 (3) | 2 (15) | 0 | 0 | 1 (17) | 0 | 1 (8) | 1 (8) | 2 (22) | 1 (20) | 1 (9) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Numbers may not equal 100.0% due to rounding.
SD standard deviation, IO immunotherapy.

the study limited its ability to discern what patients' preferences would have been as well as the consequences of use versus omission of SACT during Christmas, but the high proportion of patients hospitalised during their final Christmas highlights the importance of ensuring goal-concordant care [34]. This can be achieved through bidirectional communication and shared decision-making [35, 36].

Oncologists should be clear about the non-curative intent of treatment and discuss prognosis, response rates, potential survival benefits, potential symptomatic improvement and toxicities. Qualitative research has shown this is usually not the case, with most patients being given vague or no information on the survival benefits of palliative SACT and patients often have a limited understanding of the non-curative intent of treatment [37, 38]. Nelson et al. have found that "the pathway for patients with NSCLC focuses on clinical management at the expense of patient-centred care" [38]. It can be hard to navigate the suggestion of a treatment break or a palliative medicine referral and oncologists may avoid these conversations for many reasons, such as a desire not to take away hope and difficulty predicting a patient's illness trajectory [39, 40]. However, the majority of patients want to know more about their prognosis and are open to EPC input, but this option is often not raised by oncology teams, thus patients miss out on the many benefits of EPC integration [41, 42]. The number of healthcare professionals and disciplines involved in patients' journeys is increasing, particularly as people are living longer with cancer and the therapeutic landscape advances continuously. The outcome of goals of care discussions should be communicated to all those involved in the care of the patient as they move between different healthcare settings [43].

Furthermore, as part of bidirectional communication, patients should be enabled to voice their preferences. However, awareness is required of influencing factors such as pre-consultation interactions and preferences, acceptability of toxicities, prioritisation of survival duration and beliefs around control [10, 11, 38]. EPC integration can increase the accuracy of patients' prognosis perceptions, influence treatment decision-making and reduce the proportion of patients who receive SACT in the last 30 days of life [31, 44]. Data to support patients if they wish to explore the options of a treatment break or cycle omission are sparse. Research examining intercycle delays during NSCLC treatment showed they did not affect overall survival; however, both studies pre-date the advent of immune checkpoint inhibitors (ICI) [22, 23]. The present study demonstrated that in recent years, more patients are receiving combined chemotherapy and ICI compared to chemotherapy alone. Sehgal et al. demonstrated that pausing or delaying ICI for either immune-related adverse events (33%), non-immune-related medical issues (26%) or patient-physician preference (41%) did not adversely affect outcomes [24]. This data could be extrapolated to treatment breaks or cycle omissions for patients around significant life events such as Christmas.

This paper was inspired by Silverman et al. whose brief findings were cited in "European School of Oncology- European Society of Medical Oncology 2nd international consensus guidelines for advanced breast cancer (ABC2)" because of a growing recognition that we needed to consider the practical implications and appropriateness of systemic therapy timing for advanced cancers [9, 45]. The present study explores this further by utilising Christmas as an opportunity to reflect on the ultimate aim of providing patients with advanced cancer care, which is goal-concordant. Furthermore, despite the relatively small population study, the distribution of variables such as gender, age and non-small cell lung cancer subtype accurately reflects international standings and thus the results are applicable on a broader scale [1]. The present study excluded patients who received molecularly targeted therapy agents. In our cancer centre these patients constituted less than 10% of NSCLC patients and the favourable

toxicity and administration profile of the agents involved would not have the same complexity of decision making [46, 47].

A significant limitation of the study is that it is retrospective and patient preferences about their goals of care could therefore not be elicited. Additionally, the proportion of those receiving EPC was not captured due to a lack of availability of this data locally. Prognosis and associated factors such as comorbidities and health status are not included in this study, which is a limiting factor. Furthermore, the retrospective nature of this study means those who had a treatment break, whether by choice or due to treatment toxicity, were not included. Thus, examination of the association between treatment breaks during significant life events and patient prognosis is beyond the scope of this study.

These limitations impact the conclusions that can be drawn, but do highlight the need for improving patient involvement in advanced cancer care treatment decisions. This study can also form hypotheses and suggest future research questions. These include examining whether the care patients are receiving around significant life events is goal-concordant and may be best performed prospectively with the involvement of patients, their families and palliative care. Longitudinal studies examining how decisions evolve throughout the cancer journey, from diagnosis to treatment choices, to palliative and end-of-life care, are needed to better understand patient decision-making. These studies could also explore the role of healthcare providers in guiding decisions and how these conversations shift as the disease progresses.

A future area of exploration could be ways to improve prognostication without the removal of hope, and one avenue may be the development of a tool, such as the many decision-aid tools that exist for cancer, but also other conditions [48]. This could assist patients and providers in attempting to balance all of the factors, such as prognosis, response rate, survival benefit, potential toxicities, and if available, health-related quality of life data as these are the factors that formulate the basis of shared decision making around palliative SACT for those with advanced cancer. As the neurosurgeon Paul Kalanithi, who described his terminal NSCLC illness in the novel “When Breath Becomes Air”, wrote “a physician’s duty is not to stave off death or return patients to their own lives...but to work until they can stand back up and face, and make sense of, their own existence” [49].

CONCLUSION

In this retrospective study, we demonstrated that 53% of patients with advanced NSCLC received SACT during their last Christmas between 2006 and 2023. Of those, 5% spent their last Christmas in hospital and 4% died within 30 days of treatment. The number of patients alive the following Christmas has increased over this period, consistent with improvements in treatments for people with advanced lung cancer. However, 40% of people who received palliative SACT during Christmas between 2017 and 2023 were not alive the following Christmas. Bidirectional communication and shared decision-making about palliative systemic treatment during significant life events, such as Christmas, may lead to care that is concordant with the person’s goals and values. An integral component of this includes reflective, rather than reflex, prescribing in how we as oncologists practice today.

DATA AVAILABILITY

The corresponding author affirms that data supporting the results can be provided upon request.

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SOR is Deputy Editor for BJC Reports and recused himself from all decisions about this paper. The authors declare no other competing interests.

ETHICAL APPROVAL

The Clinical Research Ethics Committee of the Cork Teaching Hospitals provided ethical approval (reference number: ECM4 (v) 14/05/2024). Consent from participants was waived due to the retrospective nature of the study. The study was performed in accordance with the Declaration of Helsinki.

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