

Review Article

The Development of Ambulatory Cancer Care in the UK: A Scoping Review of the Literature

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Introduction. Ambulatory Care (AC), where patients receive inpatient cancer treatment on an outpatient basis, was introduced into the United Kingdom (UK) National Health Service (NHS) in 2004. Although now well established within some services, the development of AC across the NHS is yet to be described. We report findings of a scoping review that set out to understand the provenance of the clinical pathway, whilst exploring drivers for the development of AC in the UK. **Methods.** Using scoping review methods, database citation, and grey literature, searches were undertaken to map the storyline of AC's development internationally. The Joanna Briggs Institute guidance was followed; this included consultation with six professionals considered critical to the development of AC. **Results.** From the 57 records identified between 1979 and 2022, four domains were identified through a narrative synthesis that reflected the following drivers for AC: financial; optimisation of bed capacity; advances in technology and supportive care; and professional motivation to improve patient experience. **Conclusion.** We report the first descriptive analysis of the international development of AC, locating the UK cancer service within its commissioning, operational, and philosophical foundations. The review additionally highlights limited research exploring the experience of the AC model from the patients' perspective.

1. Introduction

Cancer care is an evolving specialty. Advances in treatment, technology and supportive care have helped foster greater opportunities for self-care, and many protocols that a decade ago would have required hospital admission can now be given on a daycare or ambulatory basis. Within healthcare contexts globally, the term Ambulatory Care (AC) typically refers to an outpatient service. In the United Kingdom (UK) cancer context, it denotes the hospital-led coordination and delivery of cancer treatment on an outpatient basis that would, throughout the National Health Service (NHS), usually require inpatient hospitalisation. What this means is that many cancer

patients now experience much of their care in a hotel or residential setting, and this is thought to be conducive to better patient experience. These ambulatory pathways also help meet increasing service demand. Although now well established as a clinical service within the NHS, a more comprehensive narrative on the development of AC within NHS cancer services has yet to be reported. This has limited the potential for shared learning, with different services beginning to develop AC practice in relative isolation from one another. In a new contribution to the AC literature, this paper reports the findings of a scoping review which set out to describe the provenance of the clinical pathway, whilst exploring the drivers for the development of AC in the UK.

2. Background

Since the early 1990s, the incidence of cancer has increased. In the UK there were over 375,000 new cancer cases every year in the period 2016–2018, with incidence rates having increased among those aged 0–24 by 19% and by 22% in those aged 25–49 in the last thirty years [1]. Growth in healthcare demand has driven innovations in care modelling and delivery with treatment, formerly requiring hospital admission, managed on a daycare or ambulatory basis. Consequently, many cancer patients now spend proportionally more time away from the inpatient setting; this is considered less disruptive to people's lives. These ambulatory pathways also help meet an increasing demand for services, by freeing up hospital bed capacity [2, 3].

This evolution in cancer care delivery mirrors a shift in healthcare organisation and culture from one dominated by notions of biomedicine as “all-knowing” or omnipotent, to aspirations for a person-centred system within which patients and the public can exercise greater autonomy in relation to their health [4, 5]. More holistic models of healthcare can be traced back to the USA, where in the 1960s, it was referenced as person-centred care [6]. Following this, within nursing, innovations in US approaches to care, such as the notion of self-care as described by Orem [7], began to have an influence on how care was delivered in the UK, reframing patients as active partners. Simultaneously, over time, advances in technology, alongside shifts in law and human rights have all had bearing on the move to individualised, collaborative patient-centred care delivery [8]. Yet concepts such as involvement in care, self-care and self-management did not become embedded in the UK health policy until the turn of the millennium [6], and while more engaged, person-centred care is now a feature of healthcare commitment [9, 10], and there is a move towards more shared responsibility for health [11], opportunities to enact this in a transformative way within acute care specialties have been less developed than in community settings.

A London teaching hospital, University College London Hospitals NHS Foundation Trust (UCLH), was the first to pilot, then introduce AC in the UK in 2004, where it is now a mainstay of cancer treatment delivery. Ambulatory Care is understood to foster independence [12–14], creating opportunities to experience freedom from the hospital environment [15] and receive more personalised care [16]. However, AC comes with expectations, as patients need to self-administer timed medications, monitor for signs of infection, observe for treatment-related toxicities and undertake clinical measurements previously undertaken by nurses or other members of the healthcare team. Professionals working in the AC field often describe patients rising to this challenge and informally cite patients' appreciation for the opportunity to receive their cancer treatment away from an inpatient ward. Little is empirically known, however, about patients' experiences of this care pathway. A research study investigating different stakeholders' experiences of a young people's cancer AC service in England has recently been completed [17]. Reported here is a scoping review of the AC literature to provide the context of this care delivery model.

3. Methods

Within a health topic known to have a disparate evidence base, and in mapping the emergence of AC as a unique kind of healthcare culture, casting the net wide through a scoping review intended to capture both the complexity and genesis of this service model. This scoping review involved the exploratory and iterative mapping of the literature, the inclusion of unpublished literature and a consultation phase [18–20]. We worked with the Joanna Briggs Institute (JBI) guidance [21], which is underpinned by previous Levac et al. [19] and Arskey and O'Malley [18] scoping review frameworks. One of the primary objectives of this review was to answer the question: *What were the drivers that informed the development of ambulatory care in the UK?*

3.1. Inclusion and Exclusion. The review began with the development of a working protocol template with inclusion and exclusion criteria (Table 1) that related directly to the objective of this review. The population, concept, and context [21] were defined; thereafter the search strategy was developed and checked with a specialist librarian. To comprehensively explore the scope of the AC field, all types of published and grey forms of literature were eligible for inclusion from database inception up to 22 April 2022, published in English or in a Latin script. Adult, child, teenage and young adult ambulatory cancer services were included.

3.2. Consultation Exercise. An optional, yet respected component of the scoping methodology is the consultation exercise [19, 20]. This stakeholder engagement was undertaken in parallel to the synthesis of the literature, and comprised a conversation with six healthcare professionals considered critical to the development or delivery of AC. It followed a topic guide and involved sharing findings from the literature with the objective of bringing insight and additional perspectives [19]. The consultation helped inform the ensuing review and analysis by offering conceptual clarity and/or indications of complexity within a topic area with a limited evidence base; it furthermore yielded the identification of new citations. NHS Ethics and Health Research Authority (HRA) review was not required for this consultation process. Guidance on the number of individuals to engage in consultation does not feature in the scoping review methodology. Steps were taken to ensure that the six professionals understood how their contribution would be presented, however, and all willingly engaged in the exercise. With the exception of one individual, whose identity is critical to the reading of this text, those who contributed are referred to by role only.

3.3. Analysis. A hermeneutic approach to the interpretation of the literature was undertaken within scoping review process which, rather than seeing it as linear and finite, integrated the analysis, interpretation, and the search for new literature at different time points within the interwoven

TABLE 1: Inclusion and exclusion criteria for the scoping review.

Inclusion criteria	Exclusion criteria
Cancer-related treatment or care that is usually given in an inpatient setting. All publications and responses directly related to the delivery or receipt of Ambulatory Care that:	Non-cancer focused
(i) Describe the context within which AC has been introduced	Refer to standard daycare outpatient or domiciliary services
(ii) Describe the drivers for service introduction	Refer to surgical management of cancer/surgical pathways
(iii) Describe theoretical literature which speaks to the AC service	Refer to a community-coordinated ambulatory care service (i.e., not hospital-led)
(iv) Consider the philosophy underpinning the service	Focus is palliative care
(v) Report the experience of service users	Exclusive focus on medication safety or pharmacology
(vi) Report the benefits and challenges of the service	Management of neutropenia in a home setting
(vii) Allow consideration of common features across AC services	Focus on cancer screening, prediagnosis or cancer prevention
	Report clinical, toxicity, safety, or efficacy outcomes uncontextualised to patient experience or wellbeing
	<i>New added criteria:</i>
	Thromboembolism or its prevention
	Exclusive focus on breast, urological, prostate or lung cancer patients or services
	Primary focus on staffing or workforce requirements

circles of inquiry: a search and acquisition circle and a wider analysis and interpretation circle that built on one another [22]. It extended the categorisation, comparing, contrasting and synthesis inherent in scoping review methodology [23] to a more critical engagement, that connected the reader with the text and the relationship of each individual reference to the emerging whole body of the AC literature. This was further appraised with narrative from the consultation exercise.

This iterative, hermeneutic approach to interpretation and development of understanding acknowledges that further reading of a body of literature may continue to contribute understanding of a subject; it is an effectively an ongoing process [22]. It ended therefore with the lead reviewer's judgement that, for the purposes of the review, the material had been exhausted.

4. Literature Sources and Search Strategy

4.1. Literature Sources. Nine academic databases were selected across the fields of medicine, social science, nursing, psychology and healthcare (Medline, CINAHL Plus, SCOPUS, Embase, Web of Science, British Nursing Index (BNI), PsychINFO, Applied Social Sciences Index and Abstracts (ASSIA), and International Bibliography of the Social Sciences (IBSS)), using their entire cataloguing date fields. A manual search was conducted across the National Institute for Health and Care Excellence (NICE), the International Prospective Register of Systematic Reviews (PROSPERO), the University of York Social Policy Research Unit, Cochrane, and Google websites. A hand search was undertaken for policy, guidelines and meeting minutes at the one NHS hospital that had established a comprehensive AC service for evidence or information related to Ambulatory Care.

4.2. Search Strategy. Table 2 shows the main subject headings and search terms used across each database search. Supplementary Material File 1 lists the full search strategy

for each of the nine databases. The same keywords and search terms were used to search the databases and relevant grey literature. The initial search strategy was built in OVID Medline and then employed across each database, with modifications according to each database's configuration requirements. The strategy took account of the different synonyms for Ambulatory Care, including both North American and English spellings.

An initial search was undertaken in September 2019. No limits on date, language, or publication type were placed on each database search strategy. A total of 2,853 citations were exported to Endnote X9 and later to EndNote 20 (Clarivate Analytics) for screening. The reference lists of included studies were reviewed to identify additional papers that could be relevant. Citations within articles were also searched and captured for review using the snowball technique [24], as well as the key author searching.

The search strategy was rerun within each of the nine databases on 29 June 2020, generating 132 new citations for screening. Six new unique (non-duplicate) citations were imported to Endnote X9 (Clarivate Analytics) for full-text review. Database auto-alerts were used to check for new publications and on 22 April 2022 the search was run again, generating 157 new records which resulted in the inclusion of two papers that had been identified through citation searching.

Additional records were identified through hospital sources ($n = 3$), citation searching ($n = 6$) and the consultation exercise ($n = 6$) which had been undertaken before the second search in June 2020. Duplicates were removed in all three searches ($n = 917$ in 2019, $n = 14$ in 2020 and $n = 11$ in 2022) and through further manual removal where required during title screening ($n = 12$). After duplicate records were removed in all searches, the total number of records that remained for screening by title was 2203.

4.3. Study Selection. The search and selection process undertaken by the lead author (AF) is detailed in the PRISMA flow chart (Figure 1) which combines the results of all three

TABLE 2: Subject headings and search terms employed across each database.

Search terms:	Ambulatory care, ambulatory cancer care, ambulatory pathway, chemotherapy AND outpatient, and outpatient administration
Subject headings	“Cancer,” “haematology,” “oncology,” “neoplasm,” and “haematopoietic transplant” (and its various associated terms) were the key subject fields taking account of North American and the UK English spelling differences

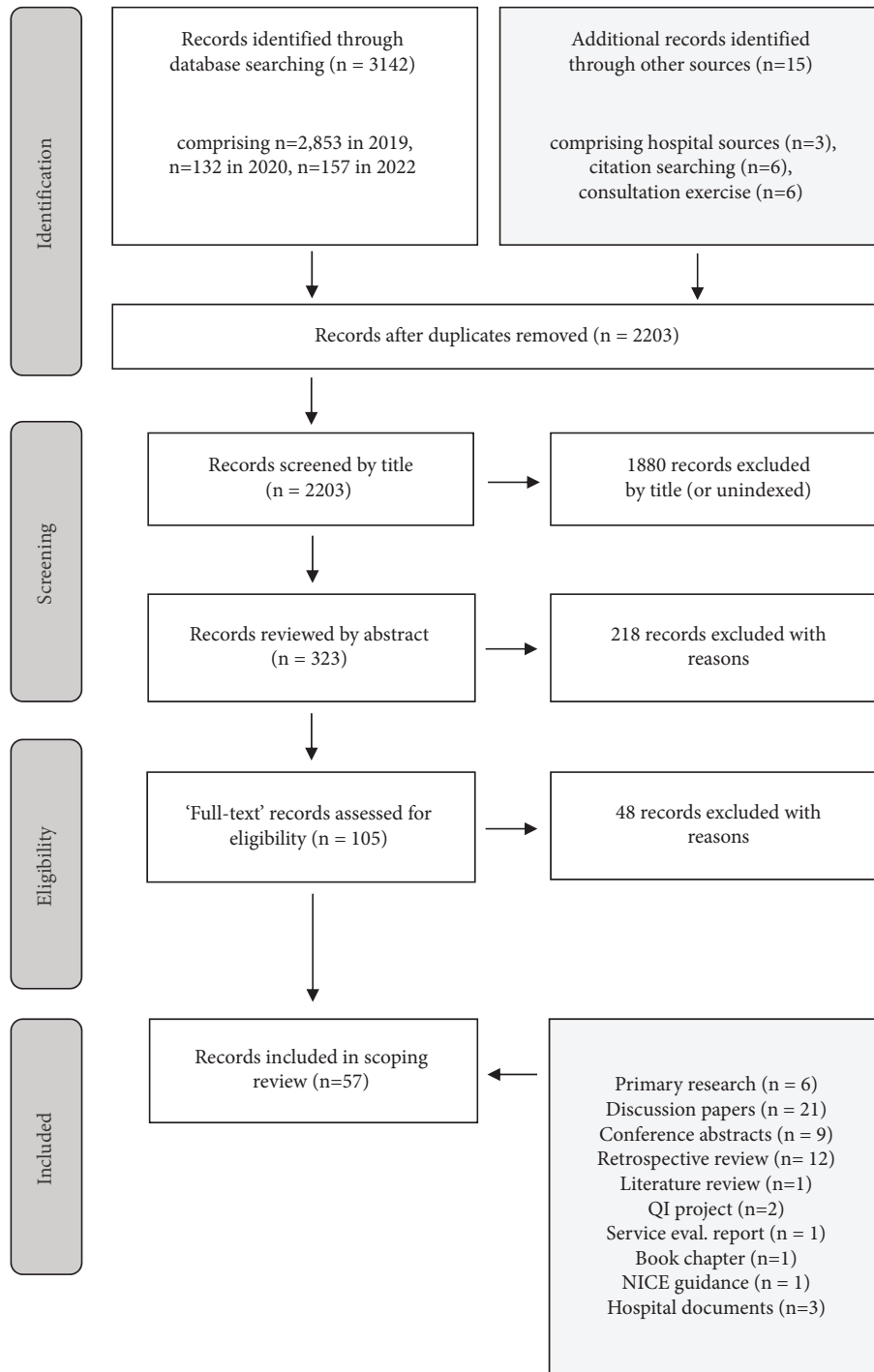


FIGURE 1: Scoping review of the Ambulatory Care literature: a search decision flowchart.

searches. Citations were exported to Endnote X9 (subsequently to Endnote 20), where title and abstract relevance screening was undertaken, working with the inclusion and exclusion criteria (Table 1). Given that the nomenclature “ambulatory care” can also refer to the standard daycare services, the review worked with the lead author’s clinical knowledge to screen and filter relevant publications. In becoming more familiar with the literature, “post hoc” exclusion criteria were added [19], so that reference selection became more relevant and refined.

As well as the key author searches, citations within the records were also searched and captured for appraisal. Records identified for full-text review were shared with an independent reviewer (RMT) who, while working with the agreed inclusion and exclusion criteria, completed a test of relevance amongst all records selected for inclusion and exclusion. Where there was no consensus, these records were shared with a named clinician in the field for their independent review.

5. Results

A total of 3,142 citations were identified through database searching, with 15 records identified through additional sources. After duplicates had been removed, there were a total of 2,203 records. The number of full-text records assessed for eligibility totalled 105, from which 48 records were subsequently excluded. The scoping review of the AC literature thus comprised a total of 57 records as shown in Figure 1.

5.1. Study Characteristics. The AC literature included in the scoping review ($n=57$) covers the chronological period 1979–2022. Of this, the distribution of published literature ($n=51$) by date and geographical source origin is shown in Figures 2 and 3, respectively. Dominant countries of source origin are the USA (28 records) and the UK (17 records). A full breakdown of the geographical origin by individual publication is shown in Tables 3 and 4. Before 2005, the USA was the predominant country of source origin. Among the 38 academic journal publications included, just three reported primary research outcomes with the majority providing descriptive accounts of AC services.

Six papers were categorised as primary research, comprising three academic publications [26, 28, 29] and three research dissertations [12, 25, 27]. The characteristics and study methods are shown in Table 3 and comprise qualitative interview ($n=4$), questionnaire ($n=1$) and instrument measurement ($n=1$). Among the research, Tighe and colleagues [29] and Morrison [27] focused on nursing practice in Ambulatory Care. Among the other three research studies, Grimm and colleagues [28] explored the role and needs of caregivers, whereas Nissim and colleagues [26], Mcmonagle [25], and Statham [12] explored the experiences of AC patients. In addition, there were two quality improvement projects [40, 41], a service evaluation [42] and a form of literature review [43].

Twelve publications were categorised as retrospective data studies that reported analyses of existing health service data; characteristics of which are detailed among the data papers in Table 3. Articles published between 2008 and 2021 with one outlier from 1982, they predominately focus on demonstrating the feasibility, safety, clinical outcomes and efficiencies associated with the AC pathway within differing international settings [2, 3, 30–35, 37–39]. Patient-reported outcomes were not included as a part of these analyses.

Nine conference abstracts met the inclusion criteria, published between 2012 and 2019 [62–70]. Four abstracts centred on adult patient populations [62, 63, 68, 70] and four service design and delivery [63, 66, 67, 69]. In two abstracts, Breen and colleagues [64] and Overbeek and Vos and Koene [70] explored caregiver education which they concluded was critical to safety in the ambulatory cancer setting. Several abstracts described the role of experienced cancer nurses in helping to establish and innovate within the AC field [63–67, 70]. Conference abstracts did not report primary research activity.

The remaining literature comprised discussion papers ($n=21$) which focused on the AC context, setting up of AC services or professional accounts of the benefits or challenges of the care model (Table 4). In addition, the remaining literature included a book chapter [71], published guidelines [72] and local hospital documents ($n=3$) which comprised an operational policy [73], patient questionnaire responses [74] and an AC case study report [13].

6. Discussion

The narrative synthesis of the literature integrated with the consultation findings, enabled the identification of four themes that reflected the drivers for the development of AC: *financial drivers; optimisation of bed capacity; advances in technology and supportive care; and professional motivation to improve cancer experience*. The resulting synthesis of the literature presents a critical descriptive analysis.

6.1. Drivers That Informed Ambulatory Care Service Development in the UK. The main driver for the development of AC in the UK was usually understood to be the ability to increase cancer treatment capacity [3, 42]. A body of work confirms the safety of the pathway [3, 33, 37, 38, 40, 53] but there was less literature about the context and individual storyline of AC’s development, something that this review aimed to address. When interpreting the chronology of the review findings context became important; many treatments that used to require prolonged hospitalisation are now routinely given on a daycare basis. This literature, whilst helping inform understanding about the drivers for AC, is not necessarily reflective of contemporary AC practice. Shifts in societal thinking on more actively engaging with health- and self-care have also evolved considerably over the last three decades – the period that this review covers.

6.1.1. Financial Drivers. Practitioners working in the UK’s first AC service often described a site visit to Memorial Sloan Kettering Cancer Center (MSKCC), New York, in the early

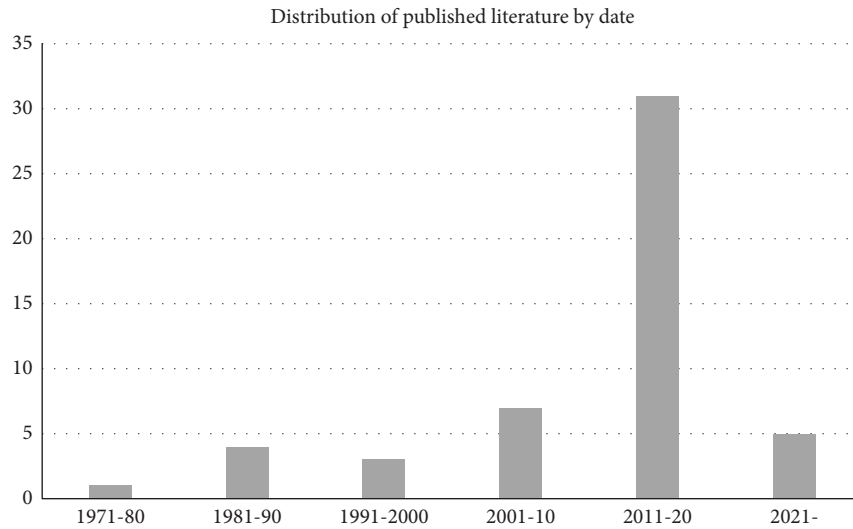


FIGURE 2: Distribution of published literature by date.

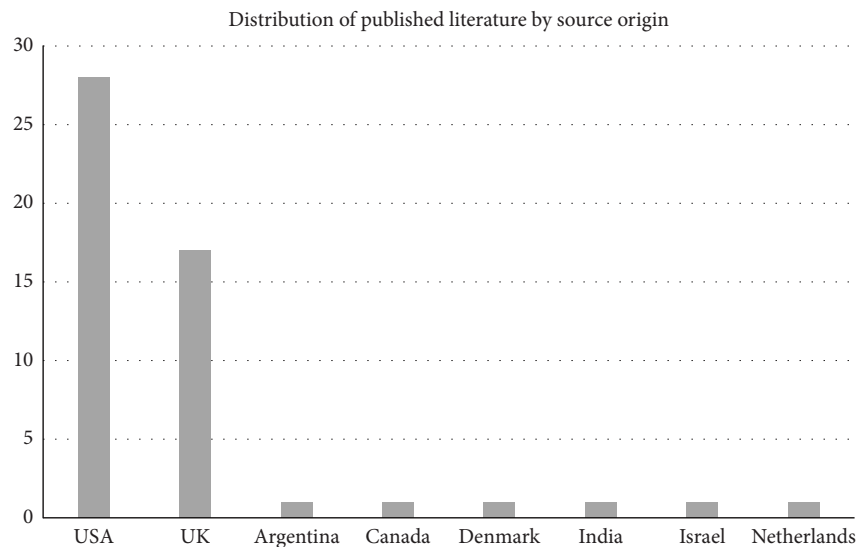


FIGURE 3: Distribution of published literature by source origin.

2000s as the precursor to piloting ambulatory cancer care in the UK [56]. Ambulatory Care as a concept was conceived in the USA where by 1995, considerable progress had been made to shift inpatient cancer treatment to outpatient or ambulatory pathways [39, 57, 58, 61]. According to Schulmeister [58], AC evolved into something of a misnomer, as non-ambulant patients also accessed these services.

“A very expensive venture” [49], cancer treatment comes at a cost in the USA, borne either personally, by one’s insurance provider or by government-funded programmes such as Medicaid or Medicare to help people on low or no income. Within this context, efficiencies in care can be seen as one of the key drivers influencing the development of AC in the USA. These efficiencies have centred on treatment cost reduction [2, 31, 49, 60, 62, 65] or cost containment [58].

Ambulatory Care is cheaper than an overnight hospital stay in the NHS, primarily due to reduced staffing and inpatient overheads [3]. In a literature review of outpatient

autologous haematopoietic stem cell transplant (AHSCT), Richie [43] noted how the cost of AHSCT drove the ambulatory model in the USA and Canada. In efforts to demonstrate the safety and feasibility of AC in Argentina, among what the authors described as a poorly resourced population, Villegas and colleagues [33] cited reduced cost as the driver for, and the associated benefit of the pathway. It is not clear, however, from the literature who the intended beneficiary is within this drive for reduced healthcare costs: the provider, the patient or the system.

6.1.2. Optimisation of Bed Capacity. Rather than cost saving the UK literature describes a lack of inpatient beds to ensure delivery of timely cancer treatment as the main contributing factor to AC’s development [3, 43, 47, 56, 63]. Sive and colleagues described the opportunity to increase the treatment capacity as the impetus for establishing AC within the

TABLE 3: Characteristics of data papers included in the scoping review studies (presented most recent first)

Author (year)	Country of origin	Study methodology and design	Study population	Outcomes measured	Key findings reported
Mcmonagle (2015) [24]	UK	Qualitative interview, three-time intervals, and phenomenological approach	8 adult participants with a mean age of 58 (range 35–67) undergoing melphalan or LEAM (lomustine, etoposide, cytarabine, and melphalan) autograft in an ambulatory care <i>Lymphoma (n = 5) and multiple myeloma (n = 3)</i>	Patient experience	Patients appreciated the privacy that ambulatory care afforded. Initially, most unaccompanied patients were content to stay on their own, but their need for companionship increased as they became more unwell. Often patients could recognise when they required hospital admission to complete treatment
Nissim et al. (2014) [25]	Canada	Qualitative interview and grounded theory	35 adult participants with a median age of 49 (range 26–71) <i>Acute myeloid leukaemia</i> Consolidation chemotherapy delivered on an ambulatory basis	Perceptions of experience during the transition from inpatient to ambulatory care	Participants described adjusting to the intensity of ambulatory care and the need to assume greater responsibility for their own care. They reported a focus on understanding their longer-term care plan, compared to a focus on the present time as an inpatient
Morrison (2010) [26]	USA	Qualitative interview	21 registered nurse participants <i>Cancer population</i>	Adult nurses' experiences of delivering ambulatory care	Identified five themes reflecting expert ambulatory nursing practice: being a content expert, creating positive relationships, listening with attuned skill, advocating for the patient, and developing long-term patient/family relationships Treatment in an ambulatory care is an empowering experience, which facilitates the implementation of various coping mechanisms such as an increased level of patient control, greater normality, and privacy.
Statham (2005) [12]	UK	Interpretive phenomenology and qualitative interview	7 adult participants with a mean age of 50 (range 40–63) <i>Lymphoma</i> BEAM (BCNU, etoposide, cytarabine, and melphalan) autograft	Patient experience	Results revealed that the <i>importance of relationships</i> was the most dominant theme, in particular, family and friends. A supportive social network, personal commitment, and motivation were found to be essential prerequisites for a positive ambulatory experience
Grimm et al. (2000) [27]	USA	A longitudinal, descriptive study comparing the emotional responses and needs of caregivers of patients who underwent bone marrow transplantation in an inpatient-outpatient setting compared with those in an inpatient setting. Data were collected at six points across the BMT trajectory (before the procedure to 12 months after)	43 caregivers were selected, $n = 26$ from the inpatient unit and $n = 17$ from the ambulatory setting <i>Haematological malignancy</i> Patients undergoing either autologous or allogeneic bone marrow transplantation	Emotional responses were measured by the profile of Mood states. The importance and satisfaction of information, patient care, and psychological needs were assessed by a caregiver needs survey	Findings support the inpatient-outpatient model of care as being less emotionally distressing and for better meeting the needs of family caregivers. Specific implications for practice include the importance of caregiver education
Tighe et al. (1985) [28]	USA	A conceptual framework of ambulatory care nursing activities was used to help describe the role of the oncology and non-oncology nurse at a large federal hospital	84 questionnaires were given to nurses with a 60% response rate <i>26% of participants were oncology nurses and, the remaining 74% were classified as "non-oncology"</i> Type of cancer treatment not stated	A self-report questionnaire based on the conceptual framework was developed to obtain information about nursing practice. Respondents indicated the frequency they had engaged in individual activities	Oncology nurses had a greater involvement in therapeutic care and communication activities within the ambulatory cancer setting compared with non-oncology nurses
Li et al. (2022) [29]	USA	A retrospective chart review of 253 cycles of high-dose and intermediate-dose cytarabine is given at a shorter time interval to facilitate the administration as an outpatient	118 adult patients <i>Acute myeloid leukaemia</i> Cytarabine given in a shorter interval of every 10 hr instead of 12 hrs	Safety, feasibility, and bed days saved along with the need for hospitalisation	No patients required hospitalisation during chemotherapy. 43 (36%) patients required hospitalisation most commonly due to neutropenia. Report shows that 1265 bed days were saved, and a significant income was generated
Li et al. (2021) [30]	USA	A retrospective chart review of 193 cycles of dose-adjusted EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, and doxorubicin) given via an ambulatory infusion pump on an outpatient basis	219 cycles of dose-adjusted EPOCH were given to 56 patients with a diagnosis of <i>B-cell lymphoma</i> with 193 cycles administered in the outpatient setting	Safety, financial analysis, and bed days saved	No patients required hospitalisation during outpatient administration resulting in 965 saved hospital days. There were 26 inpatient cycles administered with the most common reason for inpatient administration being close monitoring required for tumour lysis syndrome. 23 patients required 40 hospital admissions between cycles, most commonly due to neutropenia. Safety reported, alongside financial gains

TABLE 3: Continued.

Author (year)	Country of origin	Study methodology and design	Study population	Outcomes measured	Key findings reported
Fridjof et al. (2018) [31]	Denmark	A retrospective review of 177 ambulatory care chemotherapy courses. Service coordinated by a hospital with patients residing at home	84 patients aged 20–74 years (median age = 46–58) <i>Acute myeloid leukaemia, acute lymphoblastic leukaemia, non-Hodgkin lymphoma, and Hodgkin lymphoma</i> Induction and consolidation chemotherapy	Safety and ability to undertake self-care requirements using a portable programmable infusion pump	Homebased ambulatory care is safe and frees up hospital beds for patients in need. Safe use of portable programmable infusion pumps was demonstrated, and improved patient experience was suggested. Authors indicated that a national implementation study in six regional centres in Denmark to investigate the feasibility of portable infusion pumps and homecare-based advanced chemotherapy in AML was planned
Villegas et al. (2017) [32]	Argentina	A retrospective analysis of ambulatory high-dose methotrexate (HDMX) from April 2007 to December 2010. 150 of 447 courses of HDMTX (31.4%) were given on an outpatient basis among 24 patients	Children aged 7 to 17 years (mean age = 12.6) <i>High grade osteosarcoma</i> HDMTX administration with oral hydration, alkalinisation, and leucovorin rescue	Feasibility, safety	Successful ambulatory administration was defined as the lack of need for hospital admission within the first 24 hours after HDMTX administration. 91.2% of treatments were successfully completed on an ambulatory basis, demonstrating feasibility and safety in a less well-resourced population
Reid et al. (2016) [33]	USA	A retrospective chart review of 58 patients who received BCNU, etoposide, cytarabine, and melphalan (BEAM) conditioning on an outpatient basis, compared to a prior cohort of 49 patients who received inpatient BEAM conditioning	Outpatient cohort's mean age = 58 years. Inpatient cohort's mean age = 59 years <i>Hodgkin or non-Hodgkin lymphoma</i> BEAM chemotherapy before autologous haematopoietic stem cell transplantation	Feasibility, cost, complications, and clinical outcomes	Length of hospital stay reduced by 6 days for the outpatient (OP) cohort resulting in cost savings. Fewer complications, infections, and toxicities occurred in the OP cohort. Authors conclude a likely improvement in patient satisfaction and quality of life associated with the AC pathway
Graff et al. (2015) [34]	USA	A retrospective cohort study of 230 patients who underwent autologous haematopoietic cell transplantation for myeloma or lymphoma (135 inpatients and 95 outpatients)	In the outpatient cohort, aged 21–76 years, 66.3% had <i>myeloma</i> and 33.7% had <i>lymphoma</i> . (median age = 59 yrs)	Toxicities and adverse events; transplant outcomes	With daily evaluation and supportive care, outpatient transplantation can result in acceptable toxicities and good clinical outcomes. The impact of outpatient on quality of life requires further study and it acknowledges the requirement for a companion to take responsibility for the patient
Sive et al. (2012) [3]	UK	A retrospective analysis of data from 1443 AC patient episodes across a 6-year period (2005–2011)	Patients aged 18–79 years (median age = 41 years) <i>Haematological malignancies (82%) and sarcoma (17%)</i> Among the 1443 admissions to ambulatory care, 1203 were for the administration of chemotherapy, haematopoietic stem cell transplant, or monitoring of neutropenia	Safety, feasibility, and hospital capacity management	Creation of bed capacity is described as a driver. Safety and efficiencies of pathway are demonstrated. Report shows that anecdotal patient feedback had been generally positive, with an appreciation for less time spent on the ward and more with family members
Solomon et al. (2010) [35]	USA	A retrospective review of 100 consecutive patients who underwent a matched-related donor myeloablative allogeneic haematopoietic stem cell transplant (HSCT) on an ambulatory basis between January 2000 and February 2006. Patients were required to have a caregiver with them available on a 24-hr basis	Patients aged 21–64 years (median age = 44 years) <i>Haematological malignancies</i> Haematopoietic stem cell transplant	Safety, need for hospitalisation, and clinical outcomes	Outpatient myeloablative allogeneic HSCT with expectant inpatient management can be accomplished safely. Advances in supportive care medications have made transplants possible on an outpatient basis. Safety and efficiencies of pathway are demonstrated. Authors suggest efforts to decrease hospital utilisation that may translate to improved patient satisfaction and quality of life, reduced exposure to nosocomial pathogens, lower costs, and reduced pressure on available beds
Mahadeo et al. (2010) [36]	USA	A retrospective analysis of 97 ambulatory HDMTX administrations amongst 12 patients	Patients aged 7 to 22 years with a mean age of 15 years <i>High grade osteosarcoma</i> HDMTX	Safety, feasibility, and cost of outpatient administration	99% of AC admissions ($n = 97$) were successfully completed demonstrating safety, feasibility, and cost-effectiveness, whilst improved quality of life was suggested
Bakhshi, et al. (2009) [2]	India	A retrospective review to assess the outcomes of 90 cycles of acute myeloid leukaemia consolidation given to 30 patients between July 2003 and July 2007	Children aged 1.5–15 years (mean age = 8 years) <i>Acute myeloid leukaemia</i> High-dose cytosine arabinoside consolidation	Safety and feasibility	Among 69 cycles given on an outpatient basis, 44 cycles were managed entirely on an AC basis, and 25 cycles required readmission to the hospital (36.2%) associated with febrile neutropenic episodes or documented infections. Increasing attention to the quality of life and to healthcare costs, bigger demand for existing inpatient resources, and high risk of severe multidrug-resistant infections are seen as a driver for the service. Avoiding delays in treatment due to bed capacity is regarded as a benefit. Outpatient ambulatory chemotherapy was reported as safe, and resulted in a shorter duration of febrile neutropenia

TABLE 3: Continued.

Author (year)	Country of origin	Study methodology and design	Study population	Outcomes measured	Key findings reported
Zelcer et al. (2008) [37]	USA	A retrospective review of 708 chemotherapy cycles during a 6-year period (1996–2002)	82 children and young people aged 6–32 (median age = 16 years) <i>High grade osteosarcoma</i> HDMTX	Safety and feasibility	82% were successfully completed as an outpatient demonstrating that the ambulatory pathway is safe and feasible
Rosen and Nirenberg (1982) [38]	USA	Review of experience delivering HDMTX on an ambulatory basis among 5000 treatments during a 5-year period (1977–1982)	Adult and adolescent oncology <i>High-grade osteosarcoma</i> HDMTX	Safety and feasibility	Asserting that outpatient administration of high-dose methotrexate (HDMTX) is safe, and often safer if delivered in an outpatient setting as patient and family members can be often more diligent in undertaking the monitoring required. Reduced cost of treatment is a benefit of the service
Ranney et al. (2020) [39]	USA	Quality improvement project: Home ambulation following high-dose methotrexate delivered in hospital for acute lymphoblastic leukaemia amongst 10 patients who completed a total of 38 chemotherapy cycles. A quality of life (QOL) mixed-methods survey was administered to patients and their caregivers to measure concepts related to QOL	Age range: 2 to 16 years with a mean age of 7 years <i>Acute lymphoblastic leukaemia</i> HDMTX	Outcomes measured: Laboratory results of renal function and medication clearance, length of hospitalisation, and family-reported quality of life	Project sought to improve the QOL for patients and their families during the period post HDMTX infusion without compromising safety. Families reported that measured quality of life improved in most domains with family time and sleep having the largest improvement, while the level of stress remained the same (completion rate 50% = 5 families). The opportunity to use families' developed support system, coping skills, and connection to friends and family was reported
Beaty et al. (2015) [40]	USA	A quality improvement project to establish a process for the administration of vincristine, dactinomycin, and cyclophosphamide (VAC) chemotherapy in the outpatient setting to improve patient satisfaction and to reduce costs	7 patients aged 1–16 years (median age of 8.5 years) who received 31 cycles of outpatient VAC Most patients were male ($n=6$) <i>Rhabdomyosarcoma</i> Vincristine, dactinomycin, and cyclophosphamide (VAC), chemotherapy	Caregiver satisfaction and cost	Alongside clinical outcomes, patient and caregiver satisfaction was measured via a modified Likert scale survey (parental proxy reporting). 100% of patients reported that they prefer outpatient over inpatient administration. Reduced costs are seen as a driver for the pathway alongside the release of inpatient beds for other patients
Brown and Walker (2016) [41]	UK	A service evaluation exploring the different stakeholder perspectives of AYA ambulatory care via focus group, claims, concerns, and issues exercise with nurse specialists ($n =$ unknown), questionnaires to nursing staff ($n = 14$) and doctors ($n = 5$)	Age range: 13–24 years (age of participants not stated) <i>Adolescent and young adult cancer</i> Focus group participants: patients $n = 3$ and carers $n = 2$ Type of treatment not stated	Experience	Stakeholders identified opportunities for ambulatory care to empower TYA patients enabling young people to get involved and take more responsibility for their care whilst living as normal a life as possible. A potential for anxiety associated with the pathway was acknowledged
Richie (2005) [42]	UK	Described as a "mini-review," the aim of the literature search was to assess whether outpatient autologous haematopoietic stem cell transplant (AH SCT) was as effective as inpatient	Four databases were searched, 10 references were screened by abstract, and four studies were included in the review	Bed occupancy and morbidity	A perception that ambulatory AH SCT offers a better quality of life but there was little evidence available to support this

TABLE 4: Characteristics of discussion papers included in the scoping review (most recent first).

<i>Author year name and title of the publication</i>	<i>Country of origin</i>	<i>Topic</i>	<i>Patient population</i>	<i>Salient points raised that relate to the scoping review question</i>
Borogovac et al. (2021) [44]	USA	Safety and feasibility of outpatient chimeric antigen receptor CAR-T cell therapy on an outpatient basis	Adult haematology	The potential for CAR-T cell therapy services to be planned on an outpatient basis from inception
Cunningham et al. (2021) [45]	USA	Nursing's role in supporting CAR-T cell therapy on an outpatient basis	Not specified	Describe the nurses' role as critical to the service. Report that outpatient tisagenlecleucel administration is preferred by patients, and supports an increased level of activity, better nutrition, and decreased exposure to infectious organisms compared with inpatient admission
Myers et al. (2021) [46]	USA	Perspectives on outpatient administration of CAR-T cell therapy	Adult haematology	Outpatient CAR-T cell therapy can be feasible and safe with policies, procedures, and governance arrangements in place. Expansion of CAR-T cell therapy on an outpatient basis is likely as expertise develops
Pirschel (2019) [16]	USA	Explores the role of oncology nursing in ambulatory care	Adult cancer	Ambulatory care helps make sure that patients are not defined by their cancer diagnoses. It is an evolving field as new treatments are moving from the inpatient to ambulatory setting. There is a need to focus on caregivers, as well as patients. Improved QoL positioned as a key driver for the service
Comerford and Shah (2019) [47]	UK	Explores the practicalities of starting, staffing and managing an ambulatory cancer service	Adult haematology and oncology	Ability to increase bed capacity across a cancer service is a driver and a benefit of an ambulatory care whilst avoiding treatment delays. The benefit to patients' experience should remain the priority when implementing the pathway
Comerford and Shah (2019) [48]	UK	Explores ambulatory care as a nurse-led service, alongside the importance of team collaboration. Describes the eligibility criteria and safety features of the service	Adult haematology and oncology	Suitability for AC should be reviewed on a case-by-case basis. The role of the nurse is critical to running an AC service. Educating patients to self-care is critical to their safety. Caregivers may need safeguarding from burden
Moore et al. (2018) [49]	USA	Discusses drivers for AC in the USA, and a guide to the transition of different chemotherapy regimens	Adult haematology	Lower inpatient bed availability, increased care costs, and commitment to increase patient satisfaction are described as drivers for ambulatory care alongside improvements in supportive care medications and continuous infusion pumps. Patient and caregiver education critical to safety. Caregiver support and availability can influence suitability for AC

TABLE 4: Continued.

<i>Author year name and title of the publication</i>	<i>Country of origin</i>	<i>Topic</i>	<i>Patient population</i>	<i>Salient points raised that relate to the scoping review question</i>
Comerford and Shah (2018) [14]	UK	Discusses the AC approach from the perspective of the patient experience. Explores the roles of the multidisciplinary team and their part in patient safety and the benefits, challenges, and cost considerations of an AC service	Young adult and adult haematology and oncology	Not all patients require a hospital inpatient bed and continuous nursing care, despite undergoing intensive cancer treatment. Describes the routines, eligible protocols, and responsibilities of AC from a multidisciplinary perspective. Presents results of patient experience captured via electronic survey in 2017 (average responses to each question = 104) which included perceptions of safety and confidence alongside quotes from services users suggesting service well-suited to meet their needs. Reports that AC delivers tailored care whilst enabling independence
Mastal (2018) [55]	USA	Describes the evolution of the ambulatory care professional nursing specialism in the USA	Ambulatory care nursing in general	The professional speciality of ambulatory care nursing first conceptualised in 1998 emphasised the individuality of the patient and the role of different outpatient and community providers. The American Academy of Ambulatory Care Nursing professionally leads the speciality, although not synonymous with the transition of inpatient treatment to the outpatient setting
Ingram (2017) [15]	UK	Describes drivers for ambulatory care in the UK and the planning and guidance required to set-up services	Haematology and oncology (age not specified)	The portable nature of treatment delivery gives patients freedom from the hospital environment, provides families time together, and allows a degree of normality to remain. Consideration should be given to the potential added costs to patients and caregivers
McKeag (2015) [50]	UK	Describes the evolution of infusion pumps since the 1960s which have facilitated ambulatory care	Cancer	Portable ambulatory infusion pumps which can be used to infuse chemotherapy or hydrating fluids have made ambulatory care possible
Newton and Ingram (2014) [51]	UK	Describes the key features of the young people's service with an emphasis on infusion pumps as a facilitator of ambulatory care	Adolescent and young adult cancer	The experience of ambulatory care is empowering as it enables teenage and young adult patients to take control of their care and can promote normalcy. Patient education is vital to running a safe service
Knott et al. (2013) [52]	UK	Describes the preparation of patients and experiences of staff engaging in self-monitoring. Explores the development of a teenage and young adult ambulatory service from a change project perspective	Adolescent and young adult cancer	Self-monitoring on the ward is a first step to preparing patients for ambulatory care Focus on nurse-led to patient-led monitoring can challenge the philosophy and culture of nursing care on the ward. The concept of peer support could be challenged by the ambulatory care model

TABLE 4: Continued.

<i>Author year name and title of the publication</i>	<i>Country of origin</i>	<i>Topic</i>	<i>Patient population</i>	<i>Salient points raised that relate to the scoping review question</i>
Anderson et al. (2013) [53]	USA	The clinical team share their philosophy, strategies, and tools to support adolescents and young adults to receive treatment for osteosarcoma on an outpatient basis	Adolescent and young adult cancer	Portable infusion pumps and advances in supportive care medications have made ambulatory chemotherapy possible. Role of family in practically and emotionally supporting the patient to receive treatment on an outpatient basis Improved QoL positioned as a key driver for service. Philosophy of care as “family-centred”
Ganzel and Rowe (2012) [54]	Israel	Commentary paper which explores the “revolutionisation” of haematology care	Adult haematology	Portable infusion pumps, effective supportive care medications, and residing close to the hospital make ambulatory care effective and safe. Asks whether the expansion of an ambulatory care might involve mobile teams going out to give treatments and support patients at home
Kelly (2005) [56]	UK	Discusses development, rationale, and details of an ambulatory care programme at UCLH	Adult haematology	Describes the programme in its infancy where up to six patients ambulate from a nearby hotel for treatment. Service informed by a visit to a US ambulatory care service. Describes strong clinical drivers: managing increased patient activity alongside the creation of more normality for patients. Positioned as empowering for patients. Captures patient feedback via a questionnaire. Recommends using a pilot project approach including thorough audit, regular patient feedback, and financial evaluation when introducing ambulatory care services
Mikhail et al. (1995) [57]	USA	Describes and contextualises the shift to ambulatory care in the USA	Cancer services in general	Describes the progress made in 1995 in a shift to outpatient and ambulatory cancer care. Increased effectiveness and efficiency alongside patient preference and US legislative attempts to increase equity are described as a driver. Infusion therapy devices, surgical advances, and haematopoietic growth factors to reduce myelosuppression made ambulatory care feasible alongside better antiemetics and other supportive care medications

TABLE 4: Continued.

<i>Author year name and title of the publication</i>	<i>Country of origin</i>	<i>Topic</i>	<i>Patient population</i>	<i>Salient points raised that relate to the scoping review question</i>
Schulmeister (1991) [58]	USA	Discusses how nurse-led patient education programmes meet the need of ambulatory patients	Cancer services in general	Positions ambulatory care as a cost containment strategy in the US Describes “ambulatory care” as a misnomer as non-ambulant patients also access services. Describes the role of the nurse as critical to patient education and therefore safety in this setting. Technology and the promotion of self-care have led to the need for greater emphasis on patient education. Notes providers have started to competitively market their AC services
Corrigan Wandel et al. (1990) [59]	USA	Describes an ambulatory care service within the context of the expanded scope of a nurse	Adult haematology	Describes the successful management of consolidation chemotherapy amongst 23 patients in the ambulatory setting. Indicates that this provides patients with independence and control over their care. Poor family support is described as something that limits suitability for ambulatory care
Esparza et al. (1989) [60]	USA	Discusses ambulation of high-dose cisplatin and MTX alongside conceptual factors informing ambulatory care. Describes service set-up and coordination of care	Cancer services in general	Drivers for ambulatory care include technical developments and patient choice, quality of life, convenience and economics (keeping costs down). Describes 24-hr access to clinical services as a key feature of the ambulatory cancer centre, within which patients can retain their normal lifestyles and can exercise choices
Nirenberg and Rosen (1979) [61]	USA	Describes the setup of an ambulatory care unit at Memorial Sloan Kettering, and the philosophy of care informing the service	Adolescent oncology	Describes over 200 adolescent patients who received high-dose methotrexate for osteosarcoma on an outpatient basis, enabling them to live at home and participate in their normal educational and social life whilst maintaining independence. Promotion of a degree of normal lifestyle described as a driver

UK in 2004 [3]. Here, an additional 1443 adult cancer treatment episodes were successfully delivered via AC across the 6-year period (2005–2011), avoiding treatment delays, maximising treatment outcomes and freeing up hospital beds for acutely unwell patients [3]. Within other international literature, transitioning chemotherapy regimens that were traditionally given as an inpatient to an outpatient basis to manage increasing demand on inpatient beds was also described by Li and colleagues [30] as a key driver. Within non USA literature, avoiding delays in treatment due to limited bed capacity was described by Bakhshi, Singh, and Swaroop [2] as one of the drivers for piloting the ambulatory haematology to give consolidation chemotherapy to paediatric haematology patients in India.

6.1.3. Advances in Technology and Supportive Care. The first published examples of AC originated in the US four decades ago and involved the administration of high-dose methotrexate (HDMTX) [39, 60, 61]. Other clinicians followed, demonstrating the safe ambulation of HDMTX, typically used to treat osteosarcoma or acute leukaemia [33, 37, 38, 40, 53]. Confidence in the safety and efficacy of the pathway has extended the AC treatment portfolio in some larger cancer centres to include other high-dose chemotherapy treatments [2, 3, 14, 15, 26, 30–32, 41, 43, 56, 59, 71]. Autologous haematopoietic transplant [3, 14, 28, 34, 51, 54], allogenic haematopoietic transplant [3, 14, 28, 36, 54] and more recently, new modalities of care including Chimeric Antigen Receptor T-cell (CAR-T)

therapy [16, 44–46] are also being managed on an ambulatory basis.

Alongside the drive to bring about healthcare efficiencies in response to inpatient bed availability or increased inpatient costs [49], advances in technology and supportive care medications have also influenced the transition of historically inpatient chemotherapy treatment into the ambulatory setting. The creation of portable infusion pumps in the 1960s paved the way for safer treatment delivery. Becoming more commercially available in subsequent decades, they enable infusion of chemotherapy, supportive medication and/or hydrating fluids on an ambulatory basis [50, 71]. Eleven publications cited portable infusion devices, programmable to give continuous as well as intermittent infusions, as a key influencer in the drive to pilot AC [14, 15, 32, 49–51, 53, 56–58, 71]. Transitioning chemotherapy to an AC regimen usually requires protocol adjustment to ensure drug stability [47] and sequencing so that the treatment can run safely with the minimal intervention [15], enabling patients to take care of the infusion progress and monitoring requirements themselves.

Whilst the potential use of portable infusion technology in the ambulatory setting has been an option since the late 1970s [61], treatment-related toxicities (such as those seen with HDMTX, ifosfamide, cisplatin or cytarabine) in conjunction with chemotherapy-induced nausea, vomiting and myelosuppression of the immune system, meant that inpatient treatment remained the mainstay. It was the development of haematopoietic growth factors that reduced the severity and length of myelosuppression, alongside better antiemetics and other supportive care medications, which instigated more widespread piloting and development of AC [36, 49, 54, 57].

6.1.4. Professional Motivation to Improve Patient Experience.

Biomedicine is often presented as the driving force behind improvements in cancer care, but alongside this is the reconceptualisation of living with and beyond cancer [75], with patients increasingly regarded as active partners in their care [9, 11]. Undertaking elements of self-care is fundamental to AC. The independence [59], control [51, 52, 59, 66] and promotion of normalcy [15, 42, 51, 52, 56, 61] understood to be derived through one's willingness to undertake self-care responsibilities, were reoccurring themes in the review findings that aligned with perceptions of enhanced patient experience. There was additionally a professional perception that not all patients require continuous nursing care during cancer treatment [14, 56, 63].

Across the USA, *ambulatory care* refers to all outpatient treatment, irrespective of illness or disease group. Since its inception in the 1990s in the USA, the professional specialty of ambulatory care nursing has emphasised both patient individuality and the central role of nursing [55]. The setup of AC requires medical, and not least pharmacy expertise, and once established, AC requires multidisciplinary coordination and management. The literature, however, suggests that in the UK the operational running of AC is, for the most part, a nurse-led service.

Concern for patient experience often sits within the nursing domain: among the 21 publications that promoted the potential of AC to enhance patient experience as a driver for the development and adoption of the service, nine nurse authors led 16 publications. Nirenberg is a central nursing figure in the “storyline” of AC. In their 1979 paper titled “The Day Hospital: ambulatory care” she and a clinical colleague described the set-up of an adolescent unit at MSKCC, driven by motivation to promote a degree of normality in young people's education and social life during treatment for cancer [61]. Established during a consultation with her (and with an agreement to waive anonymity) is that their early, revolutionary approach went on to inform the establishment of the children's AC service at MSKCC, dispelling worries a patient's family might have about safety in the ambulatory setting. The idea that people should not be defined by their cancer was central to these services, as well as the critical role played by the family in supporting the delivery of care. Noteworthy is the fact that the specialty of adolescent cancer care had not been established until c1990 in the UK [76, 77].

Across the AC literature, there were indications that AC positively contributed to patient experience [12, 15, 16, 25, 26, 28, 41, 42, 47, 48, 51, 52, 56, 61, 67]. Quality of life [2, 53], preference [57] and satisfaction with care were also reported [25, 41, 49]. Though concern for patient experience is evident within the literature, it was rarely positioned as the principal driver for the development of an AC service. The scoping review suggests that within a field where there has been limited research, the relationship between system drivers for AC, responsibility for care and the pathway's ability to contribute to positive experience remains obscure.

6.2. The Consultation Exercise: Integrating Context to the Review Findings.

Concurrent with synthesis of the literature, author AF consulted with the six professionals about their involvement in developing AC. During this exercise, she described some of the literature, to help build a more composite and contextualised understanding of the findings. For example, during the consultation, a specialist pharmacist contributed their first-hand experience of listening to the AC team from MSKCC present at a conference in c2002. Hearing about how MSKCC had successfully transitioned HDMX to an ambulatory pathway, had compelled the pharmacist to propose the idea to pilot a similar model in a UK hospital, UCLH. They recalled the realisation that with protocol adjustments, education, and the use of technology, the osteosarcoma population who were young, and often only in the hospital for intravenous hyperhydration, fluid monitoring and administration of folinic acid, did not need to be confined to a hospital ward. A visit to MSKCC followed and oncology patients diagnosed with osteosarcoma became some of the first adult AC patients in the UK to ambulate with HDMX, which helped demonstrate safety and confidence in the service [13]. A matron consulted described how, as confidence in the pathway grew, there were recurrent conversations between doctors, pharmacists, and nurses to identify other chemotherapy protocols that could be transitioned to an ambulatory basis.

The consultation also helped explicate some of the literature findings, for example, the imperative to innovate and manage inpatient bed capacity. The NHS Cancer Plan [78] directed the centralisation of specialist services in a drive to improve cancer outcomes in England. A consultant haematologist described that whilst centralisation of cancer treatment “pooled” expertise and strengthened outcomes, it both increased the size of cancer services and entailed patients having to travel long distances for treatment. There became, they explained, an imperative to invest in AC. They contextualised this by describing that if many of the complex cancer treatments required inpatient admission, these would not only place pressure on beds and timely treatment, but they would also require separation of a patient from their family. Besides being more cost-efficient, the haematologist understood that this was why large cancer hospitals in the USA had a commercial hotel on campus, where an accompanying companion could help share care.

Consistent with the literature, the haematologist spoke about the need to optimise bed capacity as the primary driver for the development of AC in the UK. Within haematology, inpatient services consistently run at 95% occupancy, explained a senior nurse we consulted, indicating that this fact alone drove the requirement to transition some treatment to an ambulatory setting. They explained how many complex treatments had a step-down component with less care or supervision requirements than at other points, and during month-long admissions, there were periods where patients were not particularly unwell but were considered at risk. Through consultation, we learned how some of the first haematology AC treatments were determined based on “well but at risk,” a concept evident within the hospital’s adult AC policy [73]. Identified through the consultation too, was the opportunity for AC to benefit clinical research and trial activity through having a larger patient cohort.

Another driver reported in the consultation exercise, also consistent with the literature, was patient experience. This, according to a consultant oncologist was central to the development of teenage and young adult AC. The fact that a patient is in control of their own time management and lifestyle was considered advantageous for all ages and particularly for younger people. The knowledge gap here, posited by some of the professionals consulted, was how the healthcare system delivers cancer care safely, in a different way, while ensuring the best possible patient outcomes and experience.

6.3. Strengths and Limitations of This Scoping Review. This is the first review of the development of AC in the UK. The scoping review brings together literature that contributes knowledge and evidence about AC’s development as a pathway and clinical service. Not placing restrictions on publication date has facilitated a more extensive, and chronological presentation of the AC literature than previously described.

The JBI Manual for Evidence Synthesis recommends that the record selection should be undertaken by at least two independent reviewers from the point of title/abstract

screening [79]. In this review, the process of record selection involved the secondary review of all full-text publications that met the prespecified criteria for inclusion as it was not feasible to undertake this earlier in the process. This could be considered a limitation of our review. The consultation exercise drew on the experiences of six professionals identified as critical to the development of AC. All except one individual had contributed to the development of AC services at UCLH. While this aligned with our primary intent to build understanding about the development of UK AC services, there is recognition that including consultation with others, as they became known through engagement with the literature, may have yielded further insights.

Critical to the transition of inpatient cancer pathways to an ambulatory model of care is the pharmacist role. There is expansive literature within the field of pharmacy and pharmacology that describes the adjustment to chemotherapy formulations and modes of delivery required for AC. Whilst these publications were not in scope for this review, this body of work should be recognised as part of the safety net and backbone of the development of AC services.

7. Conclusion

This scoping review set out to describe the development of ambulatory cancer care in the UK from its international commissioning and philosophical foundations. Presented here is an integrated and historical account of the development of UK ambulatory cancer care in the NHS, which offers the first account of its provenance.

Whilst AC is still regarded as somewhat novel in the UK, by the 1990s in the USA, the pathway was well established. The review has evidenced the impetus for AC as the ability to safely manage increased service demand, whilst ensuring timely access to cancer treatment and efficient management of costs. Advances in infusion therapy devices and haematopoietic growth factors, alongside better antiemetics and other supportive care medications have culminated in AC becoming increasingly feasible. The perceived benefit to patient experience was also evidenced in the literature as a basis from which to develop the commissioning of AC. What is feasible may not be practical in all NHS settings, however, nor does this consider the views of all stakeholders, including patients.

The review process has been able to clearly explain the claims and concepts attributed to the AC model as a basis for further exploration through empirical study. Accounting for different perspectives, including service user experience, will be important to inform further development of the service in the UK or when expanding the AC model to different international cancer care settings.

Data Availability

The details of the complete search strategies used to support the findings of this scoping review are included within the supplementary information file.

Disclosure

The views expressed are those of the authors and not necessarily those of the National Institute for Health and Care Research (NIHR) UK, Health Education England, the NHS or the UK Department of Health and Social Care.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Supplementary Materials

The supplementary information file contains the complete search strategies used for this review. (*Supplementary Materials*)

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