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Invisible geographies - the rural and coastal blind spot in UK cancer policy: A content analysis

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ABSTRACT

Background: The United Kingdom's (UK) diverse geography means many people live in rural and coastal areas, where cancer outcomes are often poorer than in urban settings. Devolution means that the four nations of the UK have distinct approaches to cancer care. Scotland, Wales, and Northern Ireland have recently published national cancer strategies, while England's new plan is expected later in 2025. This study examined UK cancer policy documents, to identify, how, and to what extent, rural or coastal issues were considered.

Methods: UK cancer policy documents from 2000 to 2024 were sourced via The International Cancer Control Partnership (ICCP) website (https://iccp-portal.org/), UK government sites and Google. Documents were searched for rural and coastal related terms.

Results: Fifty-five documents were included (England n = 17; Northern Ireland n = 10; Scotland n = 21; Wales n = 7). No recent policies included a specific section or explicit recommendations for rural or coastal cancer care. Across the policies, contextual analysis highlighted that terms to promote rural or coastal equity rarely appeared within recommendations. Northern Ireland gave more attention to rural issues than other nations, as evidenced by a rural needs impact assessment and supporting documents to inform Northern Ireland's Cancer Strategy 2022–2032.

Conclusion: Despite sizeable rural and coastal populations facing specific health challenges across the UK, national cancer policies excepting Northern Ireland gave minimal guidance for delivering cancer care tailored to these communities. Other UK nations should consider adopting more rural-centric approaches like Northern Ireland.

Policy summary: Coastal and rural health issues have received policy attention via the Chief Medical Officer for England's annual reports (2021; 2023) and more recently in the UK Government's 10 Year Health Plan for

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England (July 2025). However, when it comes to high-level cancer policy across the UK, the needs of rural and coastal people with cancer are not being adequately or specifically recognised.

1. Introduction

In the United Kingdom (UK), one in two people will be diagnosed with cancer in their lifetime [1]. An estimated three million people in the UK currently live with cancer, predicted to rise to 5.3 million by 2040 [2]. This increase, coupled with NHS workforce shortages and longer-term impacts of COVID-19 [3], will likely result in a considerable loss of life-years [4,5]. UK cancer outcomes already lag behind other high-income countries with comparable healthcare systems [6–8].

Health has been a devolved matter (decision-making moving from London to devolved nations) for over twenty years, establishing four separate UK health services [9], NHS England, NHS Scotland, NHS Wales and NHS Northern Ireland [10]. Currently, plans are underway to abolish NHS England aiming to cut bureaucracy, save £175 million annually and increase ministerial control [11].

Devolution has led to distinct approaches to cancer care, with each UK nation prioritising its own policy initiatives and funding mechanisms. Scotland, Wales and Northern Ireland have recently published national cancer strategies and plans [12–15]. The UK Government has announced their intention to publish a National Cancer Plan for England later in 2025 [16].

Previous key cancer policies in the UK include the Calman-Hine report, The NHS Cancer Plan 2000, The Cancer Reform Strategy, and the NHS Long-Term Plan [17–20]. These have led to more centralised care, with a distinction between cancer units (treating common cancers close to the patient's home) and cancer centres (providing specialised care for all cancers often outside a patient's local area). While this has improved outcomes for many [21], it often requires patients, particularly those from rural or coastal areas, to travel long distances [22].

The UK is geographically diverse, with significant rural populations (Table 1) facing unique healthcare challenges, including workforce shortages [23] and unequal access to diagnostics, treatment and clinical trials, typically located in larger cities or academic centres. Global evidence associates rural living with poorer cancer experiences and outcomes [22,24–30], along with unmet psychosocial needs concerning finances, travel, and access [31]. In England, people with cancer who live in deprived rural areas face the longest travel times to treatment centres [22], and poorer geographical access to care has been associated with poorer outcomes [30]. It is essential to explicitly consider where geographical issues intersect with health, social and economic deprivation [32].

Coastal areas also face persistent health inequalities acknowledged in the annual reports of the UK Chief Medical Officer in 2021 [33] and 2023 [34] and recently in the UK Government's 10 Year Health Plan for England published in July 2025 [35]. Similar to rural areas, the UK has significant coastal populations (Table 1). Some of these formerly desirable and prosperous coastal seaside towns are now characterised by deprivation, lower educational attainment, alcohol and substance misuse, greater disability and poor physical and mental health, compared to non-coastal areas [36,37]. For cancer, there is accumulating [38–42], research specifically acknowledging needs and challenges for UK coastal cancer patients. Whilst differences between rural and coastal communities are recognised, both settings face reduced access to health services, including cancer care. Therefore, national, and devolved cancer policymakers, should not neglect these challenges faced by rural and coastal communities [43]. This paper presents a comprehensive content analysis of UK cancer policy to identify the extent to which rural or coastal issues were considered.

Table 1
Estimates of the Rural and Coastal Populations Across the UK.

Nation	Rural Population	Coastal Population
England	~10 million people live in rural areas (17 % of population) [44].	12.3 million* (22 % of population) [39].
Northern Ireland	~670,000 (36 % of population) [45].	~760,000** (40 % of population) [46]
Wales	~1022,000 (32 % of population) [47].	~1.88 million*** (60 % of population) [48]
Scotland	~930,000 (17 % of population) [49].	~2.3 million**** (41 % of population) [50].

Notes: Figures are approximate and taken from a range of data sources. Definitions of 'rural' and 'coastal' differ across the four nations. Coastal populations can be classed as both coastal-urban and coastal-rural. *Figure is from Lower Super Output Area analysis (LSOA designated as 'coastal' if 25 % or more of postcodes within 5 km of the coastline) **Figure is derived from an Ireland-wide study (40 % reside within 5 km from the coastline) which includes Northern Ireland and the Republic of Ireland, this is a reasoned approximation and not an official statistic, The Northern Ireland Statistics and Research Agency (NISRA) do not have an official definition of "coastal community". ***60 % figure comes from a 2015 Welsh Government Report which states that over 60 % of the population lives and works in coastal areas which is a publicly available proxy in the absence of detailed GIS analysis. ****Scottish figure relates to populations who live within 5 km of the coastline.

2. Methods

2.1. Design

We performed a quantitative content analysis, which counts specific occurrences of words, concepts, or terminologies in text. It assumes that the degree of explicit recognition in the text reflects the level of policy attention and activity related to these issues outside the documents themselves [51]. We systematically searched documents for terms relating to "rural" and "coastal". Cancer policy was defined as decisions by UK governments in relation to cancer control, planning and care, as articulated through publicly available documents. This included both cancer policy (broad scope in relation to cancer at a wider system level: prevention, screening, treatment, research, workforce, long-term strategies) as well as cancer care policy (more focused on delivery of care to patients). This approach allowed evaluation of content and insight into gaps and priorities of UK-wide cancer policy. The following research question guided this content analysis:

To what extent do the four nations of the United Kingdom consider rural or coastal settings in cancer policy?

2.2. Inclusion of policy documents

We focused only on country-level cancer strategies, or plans, published since 2000, setting out ambitions for future cancer care and service delivery for the four nations of the UK. This was deemed the most relevant time frame in terms of recency and to account for policies under different national and devolved governments. The International Cancer Control Partnership (ICCP) website (https://iccp-portal.org/) was searched for UK cancer policy documents up to September 2024 [52]. We performed supplementary searching on Google and UK government websites. The final documents included the most recent national cancer strategies for the devolved nations [12–15], acknowledging that the most recent country-level cancer strategy available for England was 'Achieving World-Class Cancer Outcomes: A Strategy for England 2015–2020' [53]. An overview of included cancer policy documents can be found in the Appendices (A.1).

2.3. Analysis

We searched for words, phrases, or concepts relating to rural or coastal settings (see Appendices A.2). Terms searched reflected barriers to care, identified via the extant literature, e.g. deprivation, travel, access, inequality, workforce, digital. We also searched for terms in relation to 'urban' 'city' 'town'. All policy documents were saved as PDF files. To find occurrences of words in relation to rural and coastal, the Text Search Query function was used. Additionally, full-texts of each document was reviewed to ensure that no text relevant or conceptually aligned to rural and coastal communities were missed. Data were tabulated in a frequency table (CSV format) for each UK nation. The CSV files were loaded into R (Version 4.5.1) to visualise data using a heat map. In the Appendices (A.3) we also report on contextual details of where words "geog(graphy & graphical)", "rural" and "travel" and "transport" appear within the policy documents.

3. Results

A total of 55 UK cancer policy documents (A.1) were included (England n = 17, Scotland n = 21, Northern Ireland n = 10 and Wales n = 7). Across all recent cancer policy documents, there were no specific sections or explicit recommendations for rural or coastal cancer care. Across the policies, contextual analysis (A.3) highlighted that terms to promote rural or coastal equity rarely appeared within recommendations. Table 2 provides a summary of findings and Table 3 highlights the narrative where terms were reported in the most recent national policies. Fig. 1 shows the frequency of keywords in cancer policies across all four nations of the UK.

3.1. English cancer policy documents

In England, across all the 17 documents, "rural" appears 13 times and "coast/coastal" 10 times (nine uses in relation to place names). Terms relating to rurality appeared sporadically with normally fewer than five instances per document; in many policy documents they were entirely absent. Despite few rural and coastal references, the documents do show consistently high use of broader place-based terms, including "local" (n = 731), "community" (n = 296) and "regional" (n = 220). The terms "travel" (n = 33), "deprivation" (n = 225), "inequality" (n = 297) "workforce" (n = 240) are also frequent with "access" (n = 705) alone reaching > 50 mentions in multiple documents.

The term "rural" is only once referenced (Table 2 & Table 3) in the most recent cancer strategy for England [53] (Table 3). There were eight uses of geography/geographic in the same document. There were three uses of "travel" in this document. An equality impact assessment (E16_2015) was performed for this most recent strategy and "rural" and "coastal" do not feature as an item in this.

3.2. Scottish cancer policy documents

In Scotland, 21 documents provide the most extensive temporal coverage of all four UK nations. Despite this, rural appears only 18 times across all documents and coastal terms are entirely absent. Multiple documents particularly between 2004 and 2012 show small but consistent use of rural terminology, however, this is less frequent in the more recent policy documents. Terminology unique to the Scottish context such as "highland" (n = 97), "island" (n = 17) and "isles" (n = 3) appear across some of the policies, but are absent in most of the documents. Scotland mirrors England in its consistent emphasis on terms such as "local" (n = 542) "community" (n = 229) and "regional" (n = 649). Similarly, words in relation to barriers like "access" (n = 971), "deprivation" (n = 173), "inequality" (n = 178) and "workforce" (n = 353) occurred frequently and consistently across the documents, indicating policy attention on structural challenges to the delivery of cancer care.

The most recent Scottish cancer plan and strategy (2023) [14,15], mentions "rural" once and "remote" three times, with a further two mentions in the updated plan published in 2024 (S21_2024). There were five uses of geography/geographical in the 2023 cancer strategy [15], which specifically acknowledges the challenges of equity and accessing cancer care for rural and island communities (Table 3).

3.3. Northern irish cancer policy documents

In Northern Ireland, the word "rural" appears 113 times across 10 documents but "coast(al)" was not found in any of these documents. Compared to the other nations, "rural" appears much more frequently;

Table 2
Summary of Rural and Coastal Occurrences in UK Cancer Policy Documents.

Nation	Coverage	No. of Docs	Overall mentions of "Rural"	Overall Mentions of "Coastal"	Mentions in most recent policy	Key Related Terms (Highest counts across all documents)	Observations on findings
England	2000–2015	17	13	10	***2015 Achieving World Class Cancer Outcomes*** [53] Rural (n = 1) Coastal (n = 0)	Research (n = 899) Local (n = 731) Access (n = 705) GP (n = 671) Community (n = 296)	Only one rural mention in the most recent strategy; frequent general place-based terms.
Northern Ireland	2008–2022	10	113	0	***A Cancer Strategy for Northern Ireland 2022–2032*** [12] Rural (n = 8*) Coastal (n = 0)	Access (n = 340) Regio(n&al&ally) (n = 287) Research (n = 235) Workforce (n = 130) Community (n = 123)	Rural count largely inflated due to a Rural Needs Impact Assessment document. Only one mention in the narrative of the most recent strategy itself.
Scotland	2001–2024	21	18	0	***Scotland's Cancer Strategy 2023–2033*** [15] ***& Cancer Action Plan for Scotland 2023–2026*** [14] Rural (n = 2) Coastal (n = 0)	Access (n = 971) Regio(n&al&ally) (n = 649) Research (n = 595) Local (n = 542) Workforce (n = 353)	2023 policy briefly notes rural and island challenges but relies more on broader health equity terms.
Wales	2012–2023	7	0	0	***Cancer Improvement Plan for NHS Wales 2023–2026*** [13] Rural (n = 0) Coastal (n = 0)	Research (n = 315) Access (n = 194) Local (n = 169) Workforce (n = 126) GP (n = 70)	No direct references to "rural" or "coastal"; More emphasis on regional coordination.

Note: *7/8 of these occurrences are in footnotes and references

Table 3
Example narrative where rural and coastal related terms appear in most recent UK cancer policies.

Nation	Document name	Example text
England	Achieving World-Class Cancer Outcomes A Strategy For England 2015–2020	*"Devolved decision-making, within national standards and ambitions: Cancer services (and the NHS more broadly) are too extensive for all decisions to be made nationally. **Local** or **regional** decision-making unlocks creativity and innovation, provides a vehicle for clinicians and patients to drive service development, and enables appropriate consideration of **local** circumstances (e.g. **rural geographies**). However, **local** decision-making must be within a national framework of agreed service quality standards and appropriate population sizes". (Page 17)* *"So it may be less burdensome for patients to **travel** for their surgery to centres where volumes are higher and outcomes better. Nevertheless, the option of increasing centralisation further needs evaluation. We need to balance the opportunities for improved outcomes through greater specialisation, with the implications for patients having to **travel** further." (In relation to how to improve survival, service configurations for surgery Page 37)*
Northern Ireland	A Cancer Strategy for Northern Ireland 2022–2032	*"In addition, there are challenges in ensuring **equitable access** for all sections of the population, particularly seldom-heard and underrepresented sectors, e.g. LGBTQ+ people, those from ethnically diverse backgrounds, people with cognitive impairment such as those with dementia, those experiencing homelessness, people in long-term institutional care including prison care, the ageing and frail population, and those **living in rural and remote areas**." (Page 100).*
Scotland	Cancer Strategy for Scotland 2023–2033 & Cancer Action Plan for Scotland 2023–2026	*"Scotland's **geography** means there are particular challenges in providing **equity** of **access** to some **rural** and **island** communities. Improving the accessibility of services through the location of services and use of digital technology, providing transport, maintaining support structures, ensuring affordability and increased focus on cultural competence of services are all measures likely to reduce inequalities. Speciality outreach services can improve access and self reported health." (Page 48).* *"**Access** should be equitable regardless of **geographical** or socio-economic factors, ethnicity, gender, disability or other equality characteristic." (Page 51).*
Wales	A Cancer Improvement Plan for NHS Wales 2023–2026	*"Welsh Government to hold Health Boards to account for delivery of cancer waiting time targets and recovery trajectories against backlogs and to incorporate a greater focus on **regional** working e.g. across cancer sites, with the establishment of **regional** waiting lists for some diagnostics and treatments." (Page 36).* *"Managing and monitoring **local** research portfolios is important to ensuring cancer clinical trials can be offered to patients in a timely and **equitable** way right across Wales. Improving the efficiency of trial setup and delivery processes and ensuring all relevant patients are approached about research is key to improving **equity** of **access** to research across populations, **geographies** and tumour sites." (Page 74).*

largely due to supporting documents for the most recent Cancer Strategy for Northern Ireland 2022–2032 [12] which gives considerable attention to the rural context. Looking specifically at those supporting documents, not surprisingly, the highest number of occurrences are in a Rural Needs Impact Assessment document (n = 70), followed by Public Consultation on the Cancer Strategy Report (n = 11) as well as featuring in the Equality Impact Assessment (n = 5). In the final cancer strategy itself, the word rural features eight times, although cited only once in the main text, the other seven occurrences being in footnotes and references (Table 3).

Notably "rural" features 19 times in the Regional Cancer Framework: A Cancer Control Programme for Northern Ireland published in 2008. Similar to other UK nations, "access" (n = 340), "workforce" (n = 130), "deprivation" (n = 79) featured frequently and consistently across most policy documents. "Travel" (n = 74) and "transport" (n = 22) appeared across some of the policies, although not in all of the Northern Irish documents.

3.4. Welsh cancer policy documents

In Wales, "rural" and "coast(al)" were entirely absent in all seven cancer policy documents. Similarly to other UK nations, there were frequent and consistent mentions of "access" (n = 194) and "workforce" (n = 126). Whilst there is no explicit "rural" mention in the recent Cancer Improvement Plan for NHS Wales 2023–2026 [13] there were multiple occurrences of "Region/al/ally" referring to different regions in Wales and expressing intent to set up regional hubs for specific services (Table 3). In the most recent Welsh plan, there were also statements about improving equity of access to cancer research across different geographies (Table 3).

4. Discussion

Analysis of 55 UK cancer policy documents indicates that rural and coastal contexts are largely overlooked. Despite sizeable populations in these areas, recent policies rarely acknowledge their unique challenges. This gap may reflect a lack of research to guide policy, with the UK and Europe lagging behind countries such as Australia, Canada, and the USA in academic output on rural and coastal cancer issues [24]. Across documents, key terms such as "rural" and "coastal" appeared infrequently, in passing, or in footnotes, and almost never within substantive policy recommendations. This contrasts to frequent use of broader spatial or structural terms such as "local", "regional", "community" and "access". These terms suggest some recognition of geographical disparities in service provision, but fall short of explicitly articulating targeted strategies or interventions to address rural or coastal challenges such as increased travel burden [22,31], workforce shortages [23] or limited access [30,31].

Our findings suggest limited engagement with rural and coastal issues in cancer policy, with references often lacking specific recommendations. This may stem from insufficient evidence on the scale,

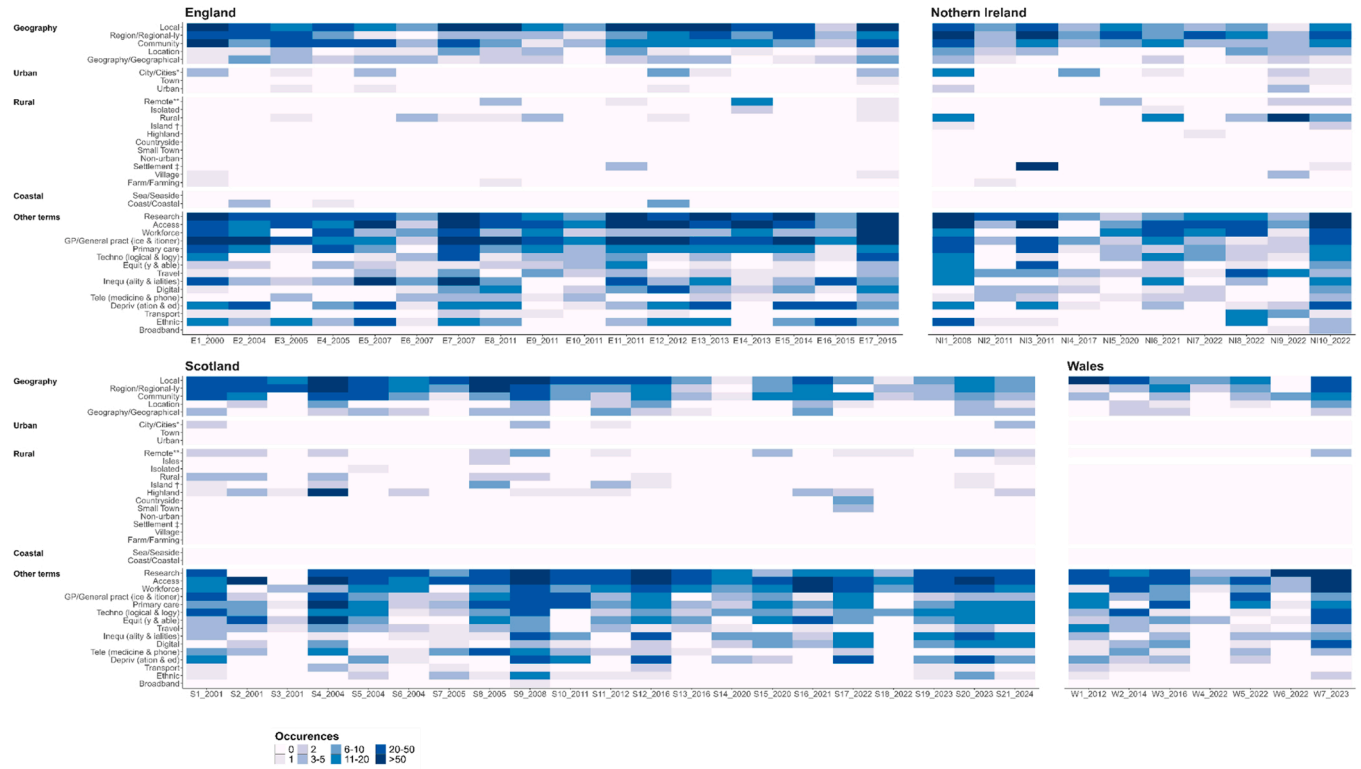

Fig. 1. Heat Map Showing Occurrence of Terms in UK Cancer Policy Notes: Labels on the x axis refer to document number and year of publication. Corresponding list of all policy documents and their titles can be found in the Appendices (A1). X axis moves from left (earlier time point) to right (most recent time point). X axis ranges in length for each nation due to a different number of policy documents being analysed per nation. Darker colours denote higher frequency counts of terms.

causes and solutions for inequalities in healthcare access, transport, and digital health infrastructure. High quality, targeted research is urgently required to inform future policy. Future cancer strategy should directly acknowledge rural and coastal challenges, supported by meaningful consultation with these communities to guide future planning and tailored and effective interventions [24,43].

It is unclear whether the upcoming cancer plan for England will recognise the needs of rural and coastal communities [16,43]. Of already published national plans, Northern Ireland's Rural Needs Impact Assessment is commendable but substantive integration of rural considerations into the recent Northern Irish cancer strategy is still limited. We encourage all nations of the UK to follow Northern Ireland's lead in conducting a Rural Needs Impact Assessment to inform the development and implementation of cancer planning going forward.

The concept of "coastal" health inequalities is relatively new and largely absent from UK cancer policy, though it has gained attention through the Chief Medical Officer's 2021 and 2023 reports [33,34] and the UK Government's 10-Year Health Plan (July 2025) [35]. This growing recognition offers an opportunity to embed coastal cancer care challenges directly into policy, rather than subsuming them under broader health inequality agendas. There is an important opportunity to capitalise on this and to specifically recognise the challenges of coastal cancer care in upcoming policy. Research evidence on cancer and coastal communities is still preliminary, albeit growing [38–42]. Existing data show higher rates of emergency cancer diagnosis compared to national trends [54]. This aligns with suggestions that inequalities in coastal communities could partly stem from poor engagement with cancer screening [33].

A UK-wide approach to rural and coastal cancer care research, priority setting, and policy making is needed, one that recognises shared challenges and nation-specific issues. Stakeholders, including patients and carers, should build consensus on research priorities to align with the information needs of policy makers, with the ultimate goal of improving geographically equitable care. The process could run alongside extensive patient and public involvement and engagement (PPIE) and co-production with rural and coastal communities, focusing on granular, place-based data, to avoid homogenisation and enabling targeted, effective policy and interventions.

An important limitation of our analysis is basing it on publicly available (some had broken weblinks but were accessible via members of the research team) cancer policy documents without evaluating implementation or seeking information about local-level initiatives that could already be implemented to meet specific needs in rural or coastal communities of the UK. It is vital that cancer policy documents remain freely available to ensure equity of access, transparency and informed decision-making. Without open-access, accountability and progress in cancer care are threatened. Future research could also usefully examine local, national and international policies from high output countries in rural cancer research (e.g. USA, Canada, Australia) to assess how rural or coastal issues are addressed there. Research should also investigate whether the policy gaps identified here lead to service disparities or poorer outcomes in rural and coastal areas at a local, regional and national level.

5. Conclusion

Despite significant rural and coastal populations across the four countries of the UK, national cancer policies, with the exception of Northern Ireland, currently give limited consideration to the challenges of living with, or caring for someone with, cancer in rural and coastal settings. The other UK nations should consider adopting more rural-centric approaches (e.g. Rural Impact Assessments) like Northern Ireland when it comes to support future cancer policies. If the UK and its respective nations are to achieve equitable cancer care, future national and devolved strategies need to move beyond generic references to "access" and "local" and directly engage with the structural, geographic

and social determinants that are impacting on rural and coastal communities.

Policy summary

Coastal and rural health issues in England have received considerable policy attention via the Chief Medical Officer for England's 2021 and 2023 annual reports [33,34] and more recently in the UK Government's 10 Year Health Plan for England published in July 2025 [35]. However, in current national cancer policy across the four nations of the UK, the needs and challenges of rural and coastal people affected by cancer are not being sufficiently recognised. It is unclear whether the upcoming National Cancer Plan for England [43] will change this, while the soon-to-be published Northern Ireland Cancer Research Strategy, represents a further opportunity to stand out from the other UK nations as a driver of cancer research and its implementation in rural and coastal settings

Authors contributions

DN led on the conception and design of the study with support from PM, NC, BP-S, SC, TK, RK, PS and ML. PM and NC led on the acquisition of data and analysis. All authors contributed to the interpretation of the findings (DN, NC, BP-S, KS, SC, TK, MI, KMcP, RK, SN, EW, RF, LC, PS, ML, PM). DN drafted the first version of the manuscript with support from all co-authors (NC, BP-S, KS, SC, TK, MI, KMcP, RK, SN, EW, RF, LC, PS, ML, PM) who provided a critical review. All authors (DN, NC, BP-S, KS, SC, TK, MI, KMcP, RK, SN, EW, RF, LC, PS, ML, PM) have approved the final version that has been submitted for publication.

CRediT authorship contribution statement

Kathie McPeake: Investigation, Writing – original draft, Writing – review & editing. **Anna Prytherch:** Investigation, Writing – original draft, Writing – review & editing. **David Nelson:** Conceptualization, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Eila Watson:** Investigation, Writing – original draft, Writing – review & editing. **Shahana A. Naqvi:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Ros Kane:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **Mark Lawler:** Conceptualization, Investigation, Supervision, Writing – original draft, Writing – review & editing. **Samuel Cooke:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **Peter Selby:** Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Katie Spencer:** Investigation, Methodology, Writing – original draft, Writing – review & editing. **Lynn Calman:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **Ben Pickwell-Smith:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **Rebecca Foster:** Investigation, Writing – original draft, Writing – review & editing. **Natalia Calanzani:** Conceptualization, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. **Maxime Inghels:** Methodology, Visualization, Writing – original draft, Writing – review & editing. **Peter Murchie:** Conceptualization, Data curation, Formal analysis, Investigation, Supervision, Writing – original draft, Writing – review & editing. **Tanja K. Kleinhappel:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing.

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Appendix A. Supporting information

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