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The experiences of cancer nurses working in four European countries: A qualitative study

Daniel Kelly^{a,*}, Annette Lankshear^a, Theresa Wiseman^b, Patrick Jahn^c, Heleri Mall-Roosmäe^d, Kristi Rannus^{e,f}, Wendy Oldenmenger^g, Lena Sharp^h

^a School of Healthcare Sciences, Cardiff University, Eastgate House, Newport Road, Cardiff, CF24 0AB, UK

^b The Royal Marsden NHS Foundation Trust, Fulham Road, London, SW3 6JJ, UK

^c Health Services Research Working Group, Department of Internal Medicine, University Hospital Halle (Saale), Germany

^d Tartu Ülikooli Kliinikum, L. Puusepa 8, 50406, Tartu, Estonia

^e North Estonia Medical Centre, Oncology and Haematology Clinic, 19 J. Siitiste Str, 13419, Tallinn, Estonia

^f Tallinn Health Care College, 67 Kannu Str, 13418, Tallinn, Estonia

^g Department of Medical Oncology, Erasmus MC Cancer Institute, Rotterdam, the Netherlands

^h Division of Innovative Care Research, Department of Learning Informatics, Management and Ethics, Karolinska Institute, Stockholm, Sweden

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ABSTRACT

Purpose: Cancer nurses across Europe are being tasked with delivery of an increasing number of complex treatments and supportive care interventions as a result of ongoing advances in cancer research, and a rise in cancer incidence due to demographic changes. However, all health systems delivering cancer treatment innovations require access to an educated and motivated nursing workforce to meet demand.

This study by the European Oncology Nursing Society examines comparative features of cancer nursing in Estonia, Germany, the Netherlands (NL) and the United Kingdom (UK).

Methods: Descriptive qualitative study using focus groups and individual interviews drawing on the views of cancer nurses, managers and stakeholders from four European countries (n = 97). Data collection was designed around national cancer nursing conferences held in Berlin (Germany), Ede (NL), Harrogate (UK) and Tallinn and Tartu (Estonia) between May 2017 and April 2018. Participants included a mix of nursing grades and specialisms.

Findings: According to the participants education and career structure for cancer nursing was most well-developed in the Netherlands and the United Kingdom. In Germany and Estonia developments were taking place at Masters level. None of the countries had recordable qualifications in cancer nursing. Variations existed in terms of advanced practice roles and salary. Workload pressures were common, and were rising, and wellbeing initiatives were not identified. Nurses reported gaining positive feedback from caring for patients.

Discussion: As demand for cancer treatment continues to grow there is a need to ensure an adequate supply of cancer nurses with the appropriate education and career structure to support patients. This study provides insights from four countries and suggests the need for better recognition as well as working conditions, education and career structures that advance the potential of the cancer nursing role in Europe.

1. Introduction

Advances in biomedical technology coupled with increased cancer incidence and prevalence have resulted in significant expectations placed on the cancer nursing workforce to support people affected by cancer (PABC). Cancer nurses across Europe are being tasked with

delivering an increasing number of complex treatments and supportive interventions as a result of ongoing advances in cancer research (Ringborg et al., 2019). However, all cancer treatment innovations require access to a nursing workforce that is educated and motivated for successful delivery.

There is some evidence in the literature of the extent, nature and

* Corresponding author.

E-mail addresses: kellydm@cardiff.ac.uk (D. Kelly), Lankshearaj@Cardiff.ac.uk (A. Lankshear), Theresa.Wiseman@rmh.nhs.uk (T. Wiseman), patrick.jahn@med.uni-tuebingen (P. Jahn), helerimroosmae.eou@gmail.com (H. Mall-Roosmäe), Kristi.Rannus@ttk.ee (K. Rannus), w.h.oldenmenger@erasmusmc.nl (W. Oldenmenger), lena.sharp@sl.se (L. Sharp).

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efficacy of specialist nursing roles (Bonsall and Cheater, 2008; Morilla-Herrera et al., 2016). This evidence was systematically reviewed in Phase 1 of a project entitled “Recognising European Cancer Nursing (RECaN)” (Charalambous et al., 2018). This paper sets out results from the second phase with the purpose of examining comparative features of the working lives of cancer nurses in Estonia, Germany, the Netherlands (NL) and the United Kingdom (UK), including some working in specialist and advanced practice roles. By way of introduction and to aid comparison we first set out relevant contextual data for each of these countries.

1.1. Healthcare

The incidence of cancer within countries of the Organisation for Economic Co-operation and Development (OECD) alliance is currently in excess of 7.5 million per annum, the disease being responsible for more than 25% of all deaths (OECD, 2019). It also has a significant economic impact, accounting for 5% of health expenditure. The four countries selected for this study vary widely in their population and density (United Nations Department of Economic and Social Affairs, 2019), life expectancy (OECD, 2020), cancer mortality (OECD, 2013; OECD, 2020), health care expenditure (OECD, 2019) and numbers of practising physicians and nurses (OECD, 2019) (Table 1). While most health strategies emphasise that early detection is vital to the successful treatment of cancer, this table also shows wide variation in exemplar variables such as the number of diagnostic devices across the four countries and rates of cancer screening.

1.2. Nurse staffing

The most recent OECD figures for total nurse staffing show an average of 8.8 per thousand population (OECD, 2019) and Table 1 demonstrates how our four index countries compare. Acquiring information on cancer nurses specifically, however, is more difficult as this qualification is not recorded in any of the four countries although informed estimates do exist. In the UK a 2017 report cited a total registered cancer nursing workforce of 7680 (Macmillan Cancer Support, 2017). In Germany, the oncology nursing society (*Onkologische Kranken-und Kinderkrankenpflege* or KOK) estimates that there are 64,000 nurses currently working in the cancer care sector. In neither NL nor Estonia is there clear government information about the current cancer nursing workforce.

1.3. Advanced practice

Basic Registered Nurse (RN) education in both NL and UK is already

at degree level, and in Estonia students study for 3.5 years in applied (professional) higher education that is equated to a bachelor’s degree. In Germany the vast majority of students undertake a three-year vocational programme although degree programmes are available. At the time of initial data collection, Estonia was an outlier in having no formal post-basic specialised nursing education in cancer, although at the time of writing a Masters-level cancer pathway had just been established. All EU countries have to comply with EU directives on the recognition of professional qualifications including required practice experience, and these will remain a key driver for future developments (Directive, 2005/36/EC of the European Parliament and of the Council of September 7, 2005 on the recognition of professional qualifications).

All regions (*Bundesländer*) of Germany offer a post-basic cancer programme of up to two years. These programs are government-controlled, but the lack of a federal structure for a mandated nursing register means that there is no consistent mechanism for ensuring that nurses are up to date (Rafferty et al., 2019). Both practice and post-registration education are treatment related and with a medical focus and there is little scope for independent practice despite attempts by nursing associations to promote progress in line with other European countries (*Deutscher Berufsverband für Pflegeberufe*, 2013). The opportunity to develop prescribing roles and to develop expanded nursing roles mainly in the field of chronic disease has been permitted under the “Nursing-Development Law” (*Pflegeweiterentwicklungsgesetz*) of 2008, but in fact the first nurses with prescribing competences will only finish their Bachelor degree in 2020. There are various reasons for the slow progress including the development of a federal structure of nursing associations and mandatory registration, but additionally the relatively high numbers of German physicians (Table 1) may have provided fewer incentives to expand the roles of cancer nurses.

In the NL, Masters level education programmes have been accredited since 1997 (Rafferty et al., 2019) and the role of specialist nurses in co-ordinating care and offering advice and support to PABC is set out in a national standards document (*Oncologische Samenwerking*, 2017). These require that by 2022 in the main cancer institutes, at least half of the nurses possess a cancer nursing qualification or are undertaking education for such a qualification. However, as in the UK, cancer nursing is not a recordable qualification on the register and therefore it is the responsibility of employers to ensure that nurses are suitably qualified for the role to which they are appointed. In NL, the rights and responsibilities of advanced practice nurses (APNs) was legally defined in the autumn of 2017, establishing the right to prescribe and to carry out endoscopies, biopsies and minor surgical procedures.

In the UK, significant expansion of the role of the nurse has been ongoing since the early 1970s. By 2017, roles carrying the title Clinical or Cancer Nurse Specialist (CNS) formed 79% of the cancer workforce

Table 1
Key data for the four index countries.

Country	Population (millions) ^a	Life expectancy at birth ^b		Cancer mortality per 100,000 population ^c	Health Expenditure As % of GDP ^d	Practising Doctors per thousand population ^d	Practising nurses per thousand population ^d	Computerised Tomography (CT) scanners per million population ^d	Magnetic Resonance Imaging Units per million population ^d	Mammography % women screened ^e
		Women	Men							
Estonia	1.3	82.6	73.8	226.6	6.4	3.5	6.2	18.2	13.6	56%.
Germany	82.1	83.4	78.7	200.3	11.2	4.3	12.9	35.1	34.7	52%
The Netherlands	17.1	83.4	80.2	224.6	9.9	3.6	10.9	13.5	13	78%
United Kingdom	66.1	83.1	79.5	216.4	9.8	2.8	7.8	9.5 (2014)*	7.2 (2014)*	75%

Latest figures available.

^a United Nations Department of social and economic affairs, 2018. List of European countries by Population.

^b OECD, 2020. Life expectancy at birth (indicator). In: OECD Data. OECD.

^c OECD, 2020. Deaths from cancer. OECD Publishing, Paris.

^d OECD, 2019. Health at a Glance 2019. In: OECD Indicators. Paris.

^e OECD, 2018. Health at a Glance, 2018. Organisation for Economic cooperation and development, Paris.

while 4% were Advanced Nurse Practitioners. A survey in 2017 revealed that of the former, 86% had responsibility for patients with a defined tumour site (Macmillan, 2017). After many years of clinical innovation but lack of formal regulation (King et al., 2017), the UK Royal College of Nursing now offers a credentialing framework for advanced nursing practice with the requirement of a relevant Master's degree and an independent prescribing qualification (RCN, 2018).

2. Methods

2.1. Design

This paper presents qualitative data from the three-phase RECaN project initiated and undertaken by the European Oncology Nursing Society (EONS) (Campbell et al., 2017), the first phase of which consisted of a systematic review of nursing roles in cancer (Charalambous et al., 2018). This second phase was designed to explore the opportunities, challenges and working conditions of cancer nurses in Estonia, Germany, NL and the UK. It also included an exploratory cross-sectional survey, using the Hospital Patient Safety Culture Survey (AHRQ, 2016), to study perceived patient safety culture among cancer nurses and the results of this were reported separately (Sharp et al., 2019). This phase was descriptive and followed key principles of qualitative research (DeJonckheere and Vaughn (2019)). These included taking a relational and facilitative stance to encourage data collection from the perspective of nurses in each country.

2.2. Data collection

Data collection was designed around national cancer nursing conferences held in Berlin (Germany), Ede (NL), Harrogate (UK) and Tallinn and Tartu (Estonia, where data were also collected during visits to a new cancer centre) between May 2017 and January 2018. The methods used in the different countries were as follows:

- Focus group x1 with managers (FGMan)
- Focus group x1 with clinical nurses (FGClin)
- 5–6 interviews with cancer nurse leaders (INT)
- Meeting with local stakeholders (in Estonia only)

The focus groups and interviews focused on revealing issues of relevance in terms of the development of cancer nursing using the same prompts. Topics included access to education, advanced nursing roles, conditions of service, workload, staffing and work environment. The study followed the COREQ criteria for qualitative research.

2.3. Ethical approval

The study protocol was approved by the ethics committee of Cardiff School of Healthcare Sciences, on behalf of Cardiff University in May 2017. The protocol was translated and approved the following month by the *Teatis Eetikakomitee* of Tartu University, Estonia and the *Medische Ethische Toetsings Commissie* of Erasmus MC University, NL approved it in November of that year. As all nurse participants were recruited as members of their national oncology nursing societies, neither UK National Health Service (NHS) nor German ethical approval was required.

2.4. Focus group discussions (FGD)

Invitations, participant information sheets and consent forms for the focus groups were sent out in advance by PJ, WO, and HM-R acting as EONS country representatives (in Germany, NL and Estonia respectively) and in the UK by the conference organisers. At each event, and after collecting signed consent forms, two FGDs were conducted, one for clinical cancer nurses and one for cancer nurse managers. All were conducted by AL, DK, PJ, KR, LS, TW in English with the exception of

those held in Germany, where this major barrier to recruitment was revised such that the FGDs were conducted in German by PJ and AL.

All group interactions were recorded using two voice recorders and boundary microphones. They were then transcribed in full and (for Germany only) translated. In Estonia an additional meeting was also held with around 10 local stakeholders representing University staff, nursing unions and professional associations as well as lead cancer physicians and nurses. This meeting was carefully minuted but not recorded.

2.5. Interviews

Interviews with leaders in the profession were also organised during the same conferences although tight time constraints meant that about half ($n = 14$) were also carried out subsequently by telephone by AL. Some of these participants had been identified by the EONS country representatives, whilst others arose from serendipitous meetings with senior individuals who showed interest in the study during each conference. All face-to-face interviews took place in a private or semi-private space. Telephone interviews were carried out by Skype call to participants' landlines using Ecamm recording technology that was found to give extremely high-quality, interference-free recordings. All interviews were later transcribed in full and anonymised. It should be noted that the quality of English spoken by respondents was high and quotations are presented verbatim, although sub-optimal language constructions may be evident in some cases.

2.6. Analysis and synthesis

Transcribed documents were imported into Dedoose 8.0.3.1 and, using a grounded approach based on constructivist theory, data were inductively analysed by theme and subthemes that were then combined and collapsed as necessary during the process of analysis (Nowell et al., 2017). As we moved from analysis to synthesis, findings were written up by country in relation to national context and the nature of the health-care system. Although themes were common across all four countries, there were also different emphases identified that are reported here.

2.7. Quality assurance & reflexivity

Once completed, each report was sent to the relevant country-based author for checks of accuracy in reporting health policy, legal and statistical data and amendments were made in the light of feedback. All qualitative data together with the country reports were made available to DK and LS who confirmed that the final reports were grounded in the data.

During the study AL was in close contact with each country lead and involved them in reviewing the emerging data and encouraging a reflexive approach to analysis and reporting. AL & DK also reflected on comparative findings across the four countries and the implications of each.

3. Findings

Results are presented according to response to the questions posed in the focus groups and interviews. The perspective from each country is considered as well as implications more generally for cancer nursing in Europe.

Although we set out to achieve broadly comparable numbers of participants across the four countries, some variation did occur. Attendance of participants at the focus groups and meetings is indicated in Table 2.

3.1. Cancer nursing education

Beyond basic nursing training, Estonian FGD participants confirmed

Table 2
Numbers attending focus groups and interviews by country.

	FGD Managers	FGD Clinical staff	Interviews with Leaders (including meeting with stakeholders) ^a	Total
Estonia	3	7	5 (+10 ^b)	15 (+10 ^b)
Germany	13	12	6	31
Netherlands	7	8	5	20
UK	10	13	6	29
Total	33	40	22	95

^a Attendees at a minuted meeting of stakeholders in Estonia only.

that, at the time of the study, no formal approved specialist cancer education was available and most education was by means of in-service training, self-study or by attending national or international cancer nursing conferences. The modest size of the country, we were told, made it difficult to organise cancer-specific education other than on-the-job or student-centred forms of learning:

“These nurses who are interesting in cancer nursing, they can focus on cancer nursing and all the individual work they do during this programme they do focusing on cancer nursing. So we, as a small country, we can’t choose all these different clinical specialities, for example, we don’t have enough resources to focus only on cancer or rheumatology.” INT5 Estonia

German respondents demonstrated a very different picture showing widespread availability of regionally-approved cancer programmes although they also lacked a national system of registration or revalidation. This was seen as a limitation to how cancer nursing was viewed there:

“Yes, really, yes, that’s a big problem. You make the education and you make your examination and then you are a nurse, the whole life, ...that’s a great discussion in Germany at the moment, the last one or two years, that we nurses, we think we need a registration to professionalise our profession and the policy.” INT6, Germany

In both the UK and NL ongoing education was an absolute requirement for continued nursing registration and a wide range of Masters-level programmes in cancer nursing are already available. However, in the UK access was made difficult by a nursing shortage which was a challenge when release for study time was requested:

“When you talk about education, ...I find that people are called back to wards, they can’t go there; an enthusiastic workforce who want to be better than they already are but can’t ... We used to have two-week internal cancer programmes as well as the ones that went on the university. We had all sorts of different types of development. But sadly, not many people are freed up because of numbers.” FG Clin, UK

In NL each nurse has a personal training budget. A norm of a 50% ratio of qualified cancer nurses to RNs had been established in the country for all clinical settings, although some hospitals were struggling to achieve this because of the high rate of turnover of nurses:

“It goes a lot of time to educating them all so they can work safe and give the same quality of care as an experienced nurse and there is less experienced nurses I think and the young ones stay only for three or four years, so every time you think, now, we are almost at what I want, they are going again.” FG Man, NL

The variation in availability and access to education was a finding that applied to all four countries. The solution to this issue points to national policy responses that would allow the education and development of a workforce better prepared to meet rising cancer demand. This

is the next theme to be reported.

3.2. Advanced roles

Both the NL and the UK began extending the role of cancer nurses approximately 40 years ago, driven by a shortage of medical staff in the former and in the latter primarily by implementation of the European working time directive that set new limits on the hours to be worked by junior doctors. In both countries advanced nursing roles were initially met with concern or opposition by both nursing and medical colleagues (King et al., 2017).

Medical opposition in NL was to some extent also driven by financial concerns for those who were not employed wholly by hospitals, but again in both countries, there was a fear that educational opportunities for junior doctors would be lost:

“In the University Hospitals, at first, it was very difficult because they said, well, we are a hospital, and we also have to educate physicians and if we have a clinical nurse specialist and they will see those patients, then the doctors who have to learn more won’t see.” INT2, NL

In the UK CNSs are key workers in the cancer workforce and routinely assess haematological results and patient’s suitability for cytotoxic therapy. Here, however, there is still no legal definition of advanced nursing practice, although these roles have developed alongside postgraduate education provision and have often been able to offer more continuity of care than is possible by virtue of regular rotations of junior medical staff:

“On the surgical side we use them so patients get continuity of care because when doctors change every six months it then throws everything up in the air and we find patients aren’t getting what they need so the advanced nurse practitioner will make sure that all the new doctors coming on board know what those patients should have” INT2, UK

In both countries some highly qualified and experienced ANPs were undertaking independent endoscopic procedures, bone marrow aspiration and biopsies. If they had completed an accredited prescribing programme, they also had prescribing rights and could deal effectively with troublesome symptoms or managing the side-effects of cytotoxic medication. In NL a legal milestone had recently been reached in respect of nurse practitioners:

“Yes, well actually it’s a kind of celebration here! Because now for about five years it is an experimental role, but now it’s not experimental anymore. Now it’s the nurse practitioner is a professional and it’s written and ... September 2017 by law that we are a professional in the health care system and so it’s normal.” INT3, NL

In Germany, we uncovered some frustration amongst cancer nurse leaders there with regard to the very slow development of advanced nursing roles, with one respondent claiming that the country was “like a third world country” when it came to nursing, generally. However, despite the barriers outlined above, nursing practice in Germany had undergone some notable changes in recent years. Nurses had become more involved in assessing, advising and counselling patients prior to discharge and those who had completed a bespoke programme might, like their colleagues in the UK and NL, be delegated authority to administer chemotherapy treatment provided the hospital carried the legal risk.

One German participant who had completed a Masters degree in Switzerland and then taken up post as an Advanced Nurse Practitioner performing bone marrow aspirates and trephine biopsies, believed they were currently the only one in their oncology field in the country:

“Germany don’t know nurses in clinics. This is completely new and we do the myeloma clinic together, so the doctor and me and I am additional there for all the topics about symptom and symptom management, so that’s my chance to meet them right at the time point of diagnosis or even a little bit before when the diagnosis is unclear.” INT5, Germany

Thus, individual CNS and ANP roles were gradually being established in Germany, but respondents, whilst expressing their fundamental willingness to extend their roles, were adamant that they would only support these developments as and when the current acute shortage of nurses was addressed.

At the time of data collection, there was no agreed definition of any advanced roles in cancer nursing in Estonia. If any clinical intervention is needed, the Estonian cancer nurse would refer the patient on to a physician or other healthcare professional. A key net benefit of the gradual introduction of advanced nursing roles in Estonia was that it provided a named link nurse for patients between hospital appointments:

“The patient comes first time, gets their diagnosis, then the nurse specialist, as we call it, talk with him or her and also talk about that what kind of side-effects could or may happen ... and then they get also in paper the phone number and contacts and then they go home from the hospital. Then they can always call to that nurse ... and the nurse will document this and also consult with physician if needed and we have also such kind of cases now that we have also said that you have to go urgently to the emergency department, so we have saved some lives I think, yes, with this consultation.” INT1, Estonia.

In terms of decision making, these emerging independent nurse roles still appear very constrained when compared with those of their colleagues elsewhere:

“When the patient comes nurse can take (blood work) analysis they can put intra-venous cannula and such kind of procedures, they can do it, and after that the nurses are waiting for the doctor’s decision.” INT3, Estonia

There was said to be some discussion in the country that might result in the conferring of limited prescribing rights to nurses but at the time of writing these are opposed by physicians and do not yet exist.

Participants from both Germany and Estonia could see potential benefits to patients by having extended nursing roles and could also identify how professional ambitions could be addressed by doing so. However, there were other factors also to be considered before this change might occur, including the central question of remuneration.

3.3. Conditions of service

Pay showed significant variation across our sample, although the comparison of figures is complex, not only because of variation in cost of living but also because of differences in published pay structures. At the time of the study the UK NHS had a unified banding system based on the complexity of clinical or managerial responsibility (RCN, 2017). NL and Germany had Federal agreements for the University sectors but otherwise pay negotiations took place between unions representing nurses and individual hospitals, regions and/or sectors. All figures quoted are for 2017-18, corresponding to the dates of data collection. The lowest pay we encountered was in Estonia where nurses in the focus group in 2017 quoted an hourly rate of €6.01 per hour before tax equating to €11,758 per annum. The starting salary for newly qualified nurses in the other three countries was around double that amount. The UK displayed the highest possible published salaries, at least in theory, where a majority of the specialist cancer nursing workforce (61%) are employed at grade 7 (maximum £41,787 or €47,647.66249 before tax), while 11% are on grade 8a-8c (maximum £69,168 or €78,869). It should be noted that despite the transparency of the UK pay scale there is considerable

room for different interpretations of the banding criteria:

“I think some Trusts band much higher than others, so certainly I’m based in (name of town), and some of the surrounding areas ... what we would class as a basic chemotherapy nurse is a Band 6 and mine are Band 5’s ... and we do lose staff to that ... I don’t think it’s about pay, the banding, that they are bothered about really. It’s about status. It’s about having that recognition of the responsibility that they have ... The complex treatment that we’re giving now is way different to what it was even three years ago when I first started in this role.” FG Man, UK

In one area of Germany (Baden-Württemberg) a newly qualified nurse working in the University sector in January 2018 would receive € 31,448 [(E7) gross per annum rising by periodic (not necessarily annual) increments to a maximum of € 50,451 € (E9) after 25 years]. A cancer nurse with the necessary training and experience at the top level would receive €67,236 (E13) (Öffentlicher Dienst, 2018). Nurses employed in the faith sector (which constitutes one third of Germany’s hospitals) would expect to receive considerably less, and those working in nursing homes less still.

In NL the figures for the university hospital sector rise from €26,400 per annum at the bottom of Grade 7 to €50,328 at the top of grade 10 (Cao University Medical Centres, 2015). It was reported by one participant, however, that the Dutch ‘do not like to talk about money’ and their nursing union was reported to be weak.

Despite all four countries being subject to the same EU working time directives, the four countries demonstrate a wide range of working conditions. In NL, the number of hours elapsing between shifts is mandated such that it is not possible to undertake an early shift immediately after a late shift, in accordance with the EU directive that mandates 11 consecutive hours rest in any 24-h period. On the other hand, nurses in one part of Estonia could work 24-h shifts without statutory breaks, negotiating rest times with each other as and if workload allowed. In other areas, these long shifts are allowed in exceptional circumstances only. Many staff in the former, we were told, preferred to work these long shifts because it meant less travelling for those who lived some distance from their workplace, and because they, at least notionally, had a significant period of time off between shifts. This last point is linked to pay (a significant number of Estonian nurses have more than one job and many more work significant amounts of overtime) and the 24-h shift makes both options possible. The clinical nurses in the Estonian focus group confirmed that they did have choice in the shifts they worked and stated that they were used to coping with 24-h shifts, but when asked a specific question, acknowledged that, having started a shift at 8am, were, by late in the evening, ‘exhausted.’

3.4. Workload and staffing

A rising workload was reported across the whole sample, attributed to an expanding ageing population, improved diagnostic techniques and novel treatments that give rise to greater patient acuity in the hospital sector (Macmillan, 2017). That the size of the nursing workforce had not increased commensurate with demand was illustrated by the situation in Germany, where hospitals are experiencing an acute shortage of registered nurses. This was ascribed to lower training numbers, now inadequate in the light of demographic changes, an increase in physician numbers, static levels of pay, a predominantly female profession that does not return to work after maternity leave (because of the difficulties of shift work) and a growing range of occupational choices, especially for the better educated. Once trained, there is a significant loss to the profession—the average length of service was reported to be 7–8 years with one NL respondent suggesting that 3–4 years was more accurate. It was suggested by one respondent that nursing finds itself in a vicious circle in which shortage of nursing staff leads to even further shortages:

“The nurse to patient ratio was much better 10 years ago and ... there are young people who are working the first years in hospitals who go away because they say it’s too much work, it’s too much stress, and ... we have to go out of doing the job, not because of the job, but because of the problems that ... they are suffering from the lack of nurses.” INT1, Germany

Dutch respondents also stated that in many ways nursing was still an attractive profession to new recruits, offering secure employment and a wide variety of roles and specialisms. Despite this, there was also perceived to be a shortage of available nurses, although it was not clear whether this was an actual reduction in numbers or a relative insufficiency in the light of new roles, changed work patterns, increased workload and higher staffing standards. One FGD participant, the head of oncology services in a small local hospital, noted that patients were usually more ill and therapeutic regimes increasingly individualised, yet articulating the case for more nursing resources for oncology in a general hospital was difficult when all departments were experiencing an increased workload:

“... we are not an oncology centre, we are just an ordinary hospital with everything in it, and we think we are special because we are from oncology, but the other ones think that we ask too much, so how do we make our own position in the hospital, that’s the difficulty.” FG Man, NL

The net result was that the ability of nurses to offer emotional support to patients, seen as perhaps the most rewarding part of their job, was being compromised. Attempts in the NL have been made in the past to recruit from other countries, but language constraints served to limit the field.

At the time of the study there was no extant cancer plan in Estonia, the last having expired in 2015. Overall, there was a shortage of registered nurses, calculated at 1000 vacancies from a total of 9000. Nevertheless, recruitment to nursing programmes appeared healthy, with one Estonian educationalist reporting a three to fourfold rate of applications. One nurse leader told us that they lost a significant number of nurses immediately on graduation, partly to motherhood and partly to other countries. Clinical nurses in Estonia reported that the shortage of cancer staff, across all professions, was endemic:

“We do not have enough doctors and the number of patients is growing and growing and in Estonia the incidence of cancer is rising roughly 2% per year. Every year it rises, rises, rises.” FG Man, Estonia

At the time of the FGDs, when asked for the one thing that Estonian nurses would wish to be changed, workload was the primary issue mentioned:

“I think our department wants more nurses, but the system is quite closed-minded about that because our department doesn’t have the money, so we just have to live with the over hours and the exhaustion. We are always overpopulated with patients ...” FG Clin, Estonia

It emerged that maintaining and growing the number of increasingly skilled clinical nurse specialists/advanced practitioners to a service with rising numbers of patients was a major problem, especially in large (and expensive) cities. Participants spoke of having, for the first time, to recruit newly qualified nurses into the cancer field.

Some UK Trusts had looked abroad, both to Europe and beyond and there were major concerns about the decision of the UK to withdraw from the EU, bringing an end to the free movement of people, including more nurses. Furthermore, recent changes to nurse education in England had both abolished the bursary (a payment of around £6000 per annum) and mandated that students, rather than the Department of Health, pay university fees – a move widely expected to reduce entrants further. At the time of writing this decision was under review.

3.5. Working environments

One of the most striking features of the discussions with participants across the four countries was the extent to which participants spontaneously shared their love for the work, citing colleagues and patients as key motivators in the workplace:

“The patients are very positive as well and if you do your job well then they give you a positive feedback and that gives you energy that helps you get through the harder times” (murmur of agreement). FG Clin, Estonia

“I like my job because our patients come for longer chemotherapy. Five or seven days or something or sometimes more days. ... I like supporting patients in the whole treatment and what I like the most is not the technical part of the work but the psychosocial part of the work. Attentive care.” FG Clin, NL

One of the most difficult and emotionally taxing parts of a cancer nurse’s job, we were told, is managing the end of active treatment and the transition to palliative care at a point where relatives may not necessarily be ready, even when patients feel that they have had enough:

“I sometimes have a problem with, on the one hand, patients finding it difficult to understand the palliative situation ... it is always the most difficult thing to say at some point, ok, we’re here now at the end, and now it would just be better to focus on palliative related activity.” FG Clin, Germany

We did not find evidence of any systematic formal support for cancer nurses across the sample. Clinical supervision was cited by some managers as important in theory to address the emotional support needs of staff, although others stated that individual nurses neither valued nor wanted it. Different approaches had been tried, one involving a member of the psychology team who led a group at which attendance was said to be compulsory. The value of having someone from outside the unit was stressed by one UK manager:

“They were at first very sceptical but fortunately this chap is ... new in post, he’s got lots of ideas, he’s quite innovative, he’s used things like he’s taught them mindfulness and things like that and how to relax and I don’t go to them, so you know, that’s protected time away from me, I don’t know what’s discussed, I don’t know anything.” INT5, UK

When looked at in totality there was positive feedback about working in an oncology environment by these participants. This did not vary across the countries although other factors did, including pay and access to education. This variation is summarised in [Table 3](#).

4. Discussion

This study has provided new insights into the views of cancer nurses working in four European countries. This is important as the demand for cancer nurses globally will only continue to rise ([Cummings et al., 2018](#)). The insights provided by this study provide areas for priority action, including rising workloads, access to education and career development, parity on pay and addressing shortages to prevent losing nurses to a system that becomes relentlessly demanding.

Cancer patients value the allocation of named, well-informed and skilful nurses who can ensure that they have the necessary investigations and interventions at the right time, can undertake clinical procedures safely, can guide them in making decisions and support them through their darkest hours ([Macmillan Cancer Support, 2017](#)). Systematic reviews ([Buerhaus et al., 2000](#); [Newhouse et al., 2011](#)), have demonstrated the positive impact on patients of the care that advanced nurse practitioners and clinical nurse specialists can play worldwide. However, our findings also suggest that the system is under strain and we

Table 3
Pay (January 2018) and educational availability by country.

Category	Estonia	Germany	Netherlands	UK
Salary per annum Newly qualified RN-Highest clinical salary January 2018 ^a	€11,758–16,294	€31,448,141 - €67,236 ^b	€26,400–50,328 ^c	£22,128 (£25,132) - £69,168 (£78,570) ^d
Formal (non-accredited) education in cancer nursing	In one hospital, otherwise on-the-job	Yes, variable by Bundesland	Yes	Yes
Higher education in Cancer nursing	No	No	Masters level	Masters level
Clinical salary structure to ANP level	No	No	Yes	Yes

^a Range of salaries shows basic salary for newly qualified RN to top of clinical scale in cancer nursing.

^b Bottom Level E7 – E13 (with cancer qualification), University Hospitals.

^c Bottom Grade 7- top grade 10, University Hospitals.

^d Bottom grade 5 – top 8c.

should pay attention to the views of nurses who may leave local health systems if they fail to recognise their ambitions and limit remuneration (Drennan and Ross, 2019). The cancer nursing workforce is a global commodity whose needs should be better understood through studies such as this.

Our finding that services in all four countries were under increasing financial and workload pressures as a result of the rising cancer incidence in ageing populations, alongside the increasing cost of novel cancer drugs and insufficient number of nurses in training is echoed in the literature (Cummings et al., 2018; Dahl, 2016; Drennan and Ross, 2019; OECD, 2019; Rafferty et al., 2019). Both the UK and NL have responded by the development of new nursing roles, supported by access to educational provision, that focused on experienced nurses dealing with specified types of cancer. In both these countries changes to laws on prescribing had underpinned this role expansion, and in NL a definition of advanced practitioner is now enshrined in statute.

In a few hospitals in Germany, nurses' roles were gradually being extended, albeit, at the time of the study, without prescribing rights although such a development is legally possible and at least one degree-level prescribing programme is in progress. Nursing shortages were also hampering developments in Estonia, although some nurses who had acquired a specific knowledge base were now offering advice to patients with a wide range of cancers. The latter country's lack of post-basic clinical education had hampered role enhancement and here the development of specialised clinical education was seen as urgent, not only for reasons of patient safety but also to stimulate and motivate young nurses seeking self-improvement. In the meantime, the long hours worked by Estonian nurses, driven partly by shortages and partly by low wages necessitated widespread overtime working, is clearly in breach of the EU working time directive and is a cause for concern, not least because it could make access to post-basic education difficult even if this becomes available.

In none of the four countries were there official records of nurses working in the field of cancer nursing, although estimates had been made in the UK (Macmillan, 2017). Nor were there systems for tracking those with specialist qualifications despite the need for a clear Europe-wide picture of the cancer nursing workforce. Access to education and role development that allows cancer nurses to be deployed where they are needed is likely to become even more pressing in the light of new and more complex, personalised approaches to cancer risk assessment as well as improved treatment efficacy (OECD/European Union, OECD, 2020).

The finding that respondents in all four countries reported enduring shortages of registered nurses gives rise for concern especially with the 'greying' of the nursing workforce across the world and the predicted rising incidence of cancer (OECD, 2013; Sherman et al., 2013). In the UK, for example, it is estimated that there are currently approximately 40,000 unfilled nurse vacancies and 33% of the specialist adult cancer nursing workforce were reported as being over 50 years old (Fahy et al., 2017). We also know that 14.9% of the UK nursing workforce was born elsewhere (WHO, 2020), and that Brexit, with its inevitable

anti-immigration message, threatens to further exacerbate the current shortage (Fahy et al., 2017; House of Commons Health Committee, 2018). In addition, the fears expressed by our respondents that recent changes to the funding of nurse education in the UK would result in a reduction in the numbers entering nursing programmes in 2017 were borne out by subsequent figures (Matthews-King, 2018; Merrifield, 2017).

The shortages reported by German nurses were reinforced by the findings of the RN4cast study in which 82% of respondents from that country did not feel that staffing was sufficient to provide good quality care (Rafferty et al., 2019). In Estonia, the shortage of registered nurses and the corresponding necessity to work overtime to subsidise their currently low salaries to subsistence level, albeit that evidence suggests the associated risks to patient safety and staff wellbeing (Griffiths et al., 2014; Rogers et al., 2004).

As Buchan and May (2013) pointed out, shortages of nurses are not absolute. They may be taken to be indicative of the number of non-practising nurses unwilling to work in current conditions and, ironically, the greater the number of vacancies and heavier and less rewarding the workload, the greater the rates of those intending to leave and the less likely that leavers will return to practice. A 2013 study of nursing intentions to leave the profession reported a mean of 9% with NL showing 5%, UK 10% and Germany 17% (Heinen et al., 2013). Estonia was not a participant.

In two of the four countries in our study, (UK and NL) the large number of vacant posts may be in part a function of a rising number of available roles. Allocating a nurse navigator and CNS to every patient at or close to diagnosis; augmenting or replacing consultant oncologists in outpatient and chemotherapy clinics and carrying out procedures linked to extended roles all put stress on nursing numbers and serve to syphon staff away from inpatient areas. More research is needed to explore this issue as cancer patients with the highest acuity will found be in the inpatient hospital sector where registered nursing shortages may be greatest.

Continuing professional development for cancer nurses would seem to be self-evidently crucial, given the fast-changing nature of cancer treatment and the potentially lethal effects of errors or adverse events. As more bespoke regimens of molecularly targeted agents, immunotherapy drugs and innovative treatments (CarT cell therapy, MRI Linac) are introduced, education becomes still more vital (Ringborg et al., 2019). It is therefore of some concern to note the limited opportunities for cancer education opportunities in Estonia, as well as the fact that nurses in the UK reported that they were unable to access available education either because they could not be released from the clinical setting or could not be supported financially.

We were struck by the observation of one respondent in Estonia who linked the low status of nurses to their lack of education, arguing that patients placed greater value on the information given by what they may perceive to be better-educated physicians. If, as Brekke and Nyborg argue in their paper on motivation, feeling important to patients is an important motivator for health professionals, increasing access to

education may raise both the status and motivation (and by implication retention) even in the absence of salary rises (Brekke and Nyborg, 2010). For countries such as Estonia wishing to develop education for cancer nurses from a low base, there is a range of evidence-based guidelines and competencies available (CANO/ACIO, 2018; EONS, 2018; Gaguski et al., 2017).

Across all four countries there was a common dissatisfaction with nurse's pay. This finding is, of course, always relative. What is an acceptable salary for a single newly qualified nurse working in a relatively well-supervised ward in a small town may seem inadequate for a mature colleague with many years of experience working in an expensive capital city. Although the NL and UK were found to have the highest salary bands for nurses, including those with specialist skills and qualifications, the current pay of an individual nurse managing complex patient pathways, including the initiation and monitoring of treatments seems hardly excessive when compared to the salaries of physicians, and it may be it is at this end of the scale that change also needs to occur. Although the apparently transparent national salary structure in the UK, and by sector in NL (Cao University Medical Centres, 2019) shows rising levels of pay, it is clear that grades can be manipulated by employers by the variation in interpretation of banding criteria (Macmillan Cancer Support, 2017).

It was somewhat surprising, given the demanding nature of cancer nursing, that the data also revealed a generally high level of work satisfaction. There were few examples of formal support being provided by management; most respondents stating that they enjoyed their autonomy and received specific support both from colleagues who understood the stresses of the job and from the close relationships with a patient group who valued them. It is notable, however, that this opportunity was not always available to those working in high turnover environments.

4.1. Limitations

The main limitation of this study lay in the relatively small sample size in each country, especially given the fact in some pay and conditions are negotiated by region and/or by sector and can vary widely. Data were gathered at nursing conferences and it can be argued that those who attend conferences may not necessarily be representative of the population as a whole. Only in Estonia did we have the opportunity to gather data from participants in a hospital setting. Furthermore, the English language requirement (except in Germany) added an additional layer of selection to the sample. We therefore cannot claim that the experiences in any country are shared universally but suggest that these data highlight issues to be addressed in future research.

5. Conclusion

At the time of writing an imminent surge in cancer diagnosis and treatment is occurring globally following the dramatic interruption to urgent care caused by COVID 19 (Burki, 2020). These factors, taken together with existing professional demographics, demand that urgent steps be taken to address cancer nursing workforce deficits on a global scale, as well as in Europe. It is important to consider the risks of exhaustion to the nursing workforce and to explore ways to replenish it.

Given our findings the political voice of nurses across Europe should be heard on policy groups and committees who are likely to impact the future of cancer care. By working together to share experiences at the European and global level, cancer nurses should engage with national power brokers to gain better recognition and shape their own future to better meet the needs of the increasing number of people who will face a cancer diagnosis.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Daniel Kelly: Conceptualization, Methodology, Writing - original draft, Writing - review & editing. **Annette Lankshear:** Ethical approval, Data gathering, Formal analysis, Writing - original draft. **Theresa Wiseman:** Writing - original draft, Formal analysis. **Patrick Jahn:** Data gathering, local ethical approval advice, Writing - original draft. **Heleri Mall-Roosmäe:** data gathering, Writing - original draft. **Kristi Rannus:** Ethical approval advice, data gathering, Formal analysis, Writing - original draft. **Wendy Oldenmenger:** Ethical approval advice, data gathering, Writing - review & editing. **Lena Sharp:** contributed to data collection, Writing - review & editing, Writing - original draft.

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