


Referring patients with suspected lung cancer: a qualitative study with primary healthcare professionals in Ireland

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Abstract

Lung cancer is the leading cause of cancer death globally. Most cases are diagnosed late. Primary healthcare professionals are often the first point of contact for symptoms of concern. This study explored primary healthcare professionals' experience of referring individuals with signs and symptoms suggestive of lung cancer along the appropriate healthcare pathway and explored strategies to help primary healthcare professionals detect lung cancer early. Focus groups and individual interviews were conducted with 36 general practitioners, community pharmacists, practice nurses, and public health nurses. Data were analysed thematically. Participants identified typical lung cancer signs and symptoms such as cough and coughing up blood (i.e., haemoptysis) as triggers for referral. Atypical/non-specific signs and symptoms such as back pain, pallor, and abnormal blood tests were perceived as difficult to interpret. Participants often refrained from using the word 'cancer' during conversations with patients. Ireland's Rapid Access Lung Clinics were perceived as underused, with some general practitioners referring patients to these clinics only when clear and definitive lung cancer signs and symptoms are noted. Lack of communication and the resulting disruption in continuity of care for patients with suspected lung cancer were highlighted as healthcare system flaws. Education on early referral can be in the form of communications from professional organizations, webinars, interdisciplinary meetings, education by lung specialists, and patient testimonials. Lung cancer referral checklists and algorithms should be simple, clear, and visually appealing, either developed as standalone tools or embedded into existing primary care software/programmes.

Keywords: qualitative methods, lung cancer, primary care, early detection

INTRODUCTION

Lung cancer (LC) is the leading cause of cancer incidence and mortality globally, with 2.1 million new cases and 1.8 million deaths in 2018 (Bray et al., 2018). The World Health Organization International Agency for Research on Cancer (2020) estimated that, by 2040, annual LC incidence and mortality will increase to 3.63 and 3.01 million, respectively. Although the total global economic burden of LC is unknown (Leidl et al., 2016; American Cancer Society, 2019a), the cost of LC was €3.35 bn in European countries in 2011 (Leidl et al., 2016).

With approximately 2,700 yearly cases, LC is the fourth most diagnosed invasive cancer in Ireland (excluding non-melanoma skin cancer) (National Cancer Registry Ireland, 2021). Annual numbers of newly diagnosed cases in Ireland are projected to increase by 119% by 2045 (National Cancer Registry Ireland, 2019, 2021).

Five-year survival for LC in Ireland differs significantly by stage at diagnosis, ranging from 51% for stage I LC to 4% for stage IV disease (National Cancer Registry Ireland, 2021). Approximately, 60%

of LC cases in Ireland are diagnosed at stage III or IV ([National Cancer Registry Ireland, 2018](#)). Late-stage diagnosis is associated with reduced treatment options and poorer survival ([World Health Organization, 2020](#)). Symptoms of advanced disease, such as fatigue, loss of appetite, and pain, are associated with reduced quality of life ([Polanski et al., 2016](#)). Therefore, increasing the proportion of LC diagnosed early is key to improving survival rates and patient outcomes ([World Health Organization, 2020](#)).

A new-onset persistent cough, change in an existing cough, and shortness of breath are common symptoms of early-stage LC. However, early-stage disease can also be asymptomatic, contributing to delayed diagnosis ([Chowienczyk et al., 2020](#)). By the time the patient develops systemic symptoms, such as weight loss, they are more likely to have advanced disease ([American Cancer Society, 2019b](#)). The broad symptom signature of LC and the symptom overlap with co-morbidities such as chronic obstructive pulmonary disease, coupled with patient lack of knowledge of LC symptoms, limited access to healthcare professionals, and delays in referral and diagnosis, may contribute to late LC presentation and diagnosis ([Koo et al., 2018](#); [Cunningham et al., 2019](#); [Saab et al., 2021](#)).

Lung cancer referral and diagnosis in Ireland

Ireland operates a mixed public/private healthcare system. The Health Service Executive (HSE) is the publicly funded healthcare system in the Republic of Ireland and is the main provider of health and social care services. Approximately 32% of the population are eligible for the General Medical Services scheme, which provides free general practitioner (GP) access. The remainder of the population pay for primary care or purchase private health insurance.

The model of healthcare and the role and scope of practice of primary healthcare professionals in Ireland impact timeliness of LC diagnosis. In Ireland, LC is diagnosed through several routes including Rapid Access Lung Clinics (RALCs), other outpatient services, or emergently. Located in Ireland's eight designated cancer centres, RALCs aim to provide prompt diagnostic evaluation—within 2 weeks of referral—of patients with clinical/radiological findings suspicious for LC ([National Cancer Control Programme, 2017, 2020](#)). Approximately half of LCs are diagnosed through the RALCs, a quarter through emergency departments, and the remainder through other routes ([National Cancer Control Programme, 2017, 2020](#)).

GPs in Ireland are self-employed, but they receive funding from the HSE for the provision of care to General Medical Services scheme patients. GPs are the gatekeepers of secondary care and the main source of referrals to the RALCs. Although other primary

healthcare professionals, including practice nurses (PNs), community pharmacists (CPs), and public health nurses (PHNs), cannot refer patients directly to secondary care, they play a pivotal role in the early diagnosis of cancer through encouraging people with concerning symptoms to consult their GP.

PNs are registered nurses who are privately employed by the GP. They provide holistic nursing care to patients, including management of chronic conditions, screening, immunization, and health promotion ([HSE, 2021b](#)). CPs are among the most accessible primary healthcare professionals ([Irish Pharmacy Union, 2018](#)). They work in privately owned pharmacies, with contracts to the HSE for drug provision. CPs dispense prescriptions and counsel patients on medication use. They also diagnose and treat minor ailments and advise patients to consult their GP or seek emergency care where appropriate. PHNs are registered nurses with a specialist nursing qualification. They provide general nursing services to patients with various medical needs in a variety of settings, including patients' home ([HSE, 2021d](#)).

There are approximately 30 million interactions with the Irish health service every year ([HSE, 2021c](#)). Although such interactions represent opportunities to improve the early diagnosis of LC, barriers to identifying and referring patients with LC 'alarm' signs and symptoms remain underexplored among primary healthcare professionals. A recent study with 46 at-risk individuals in Ireland found that some participants had no intention of visiting their GP due to GPs' perceived negative attitudes towards smokers, cost of healthcare, waiting time, and previous bad experiences with the healthcare system ([Saab et al., 2021](#)). This highlights the need to explore such barriers from the perspective of primary healthcare professionals, with the aim of developing strategies to engage primary healthcare professionals in initiatives focused on LC early diagnosis and timely referral. This study explored primary healthcare professionals' experience of referring individuals with signs and symptoms indicative of LC along the appropriate healthcare pathway and strategies to help primary healthcare professionals detect LC early.

METHODS

Qualitative description was used. This design is the least theoretical qualitative design since it describes the facts using participants' own words, rather than adhering to pre-existing theories ([Guba and Lincoln, 1994](#)). In line with the aim of our study, qualitative description helps obtain candid answers to questions that are relevant to practitioners and policymakers ([Sandelowski, 2000](#)). This study is reported using the

Standards for Reporting Qualitative Research checklist (O'Brien et al., 2014).

Participants and settings

Primary healthcare professionals (i.e., GPs, PHNs, PNs, and CPs) working in the Republic of Ireland were eligible for inclusion. Primary healthcare professionals working outside the Republic of Ireland were excluded due to differences in healthcare systems.

Purposive and snowball sampling strategies were used to recruit study participants. Professional bodies in the Republic of Ireland circulated the study invitation letter, poster, and Google Forms link (where participants registered their interest in participating) to their members. The National Cancer Control Programme, in collaboration with the [Irish Institute of Pharmacy \(2022\)](#), delivered a 1-hr webinar to pharmacists entitled 'The Importance of Pharmacists in the Early Detection of Lung Cancer'. At the conclusion of this webinar, attendees were invited to participate in the current study and were provided with the researchers' contact details. Attendees were also asked to encourage their colleagues to participate.

Data collection

This study received ethical approval. Participants were provided with a study information leaflet. They then signed informed consent and completed a sociodemographic questionnaire.

This study was conducted via videoconferencing due to COVID-19 restrictions. Although the preference was for focus groups, healthcare professionals typically have busy schedules or might not feel comfortable discussing their experiences in front of their colleagues. These individuals were given the option to participate in individual interviews. The combination of focus groups and individual interviews helps enhance data richness, depth of inquiry, and trustworthiness ([Lambert and Loisele, 2008](#)).

Icebreakers were used to establish a trusting relationship with the participants. This is known to optimize data authenticity ([Holloway and Galvin, 2016](#)). A semi-structured interview guide, tailored for each of the four participant groups, explored participants' experiences of previous referrals for LC signs and symptoms, as well as recommendations for strategies to help primary healthcare professionals recognize and refer high-risk individuals ([Supplementary Tables S1–S4](#)). Data were collected between February and April 2021. Interviews and focus groups were audio-recorded and facilitated by researchers with extensive expertise in qualitative research. Following data collection, each participant received a gift voucher covering the price of a meal.

Data analysis

Audio-recorded memos were kept by the researchers after each interview to identify the key themes and specify areas that need to be explored in subsequent interviews. This is known to enhance credibility and reflexivity ([Elo et al., 2014](#)).

Focus groups and individual interviews were transcribed verbatim. Inductive thematic analysis was used ([Braun and Clarke, 2006](#)), commencing immediately after the first focus group. Data were analysed manually. A coding sheet was created with three columns; the first column contained the question, the second column included the participant excerpt, and the third column contained the code ([Saab et al., 2020, 2021](#)). See sample coding sheet in [Supplementary Table 5S](#). Data from GPs, PHNs, PNs, and CPs were coded separately by one researcher and were cross-checked by a second researcher to enhance dependability. Codes were then collated and triangulated to explore data convergence, complementarity, and dissonance ([Carter et al., 2014](#)). Similar codes were collapsed and refined and major themes linking the various codes were generated.

RESULTS

Participant characteristics

Thirty-six healthcare professionals participated in this study, comprising 10 CPs, 10 PHNs, 8 GPs, and 8 PNs working across 11 counties in the Republic of Ireland. Individual interviews and focus groups lasted on average 36 and 72 min, respectively. Most participants were female (80.5%) and held either a bachelor's (30.6%) or master's degree (30.6%). On average, participants had 21.67 years of experience (± 10.53) and spent 12.3 years (± 8.8) in their current role. More than half of the participants (61.1%) reported working in urban areas.

Six major themes were created from the data: (i) triggers for primary healthcare professionals to refer patients; (ii) perceived primary healthcare professionals' role in patient referral; (iii) awareness and use of the RALCs; (iv) challenges faced by primary healthcare professionals during referral; (v) continuity of care post-LC diagnosis; and (vi) strategies to promote early referral among primary healthcare professionals ([Table 1](#)).

Triggers for primary healthcare professionals to refer patients

Triggers for referring patients with suspected LC included typical signs and symptoms such as new-onset persistent cough or change in an existing cough. Non-respiratory and vague symptoms such as back pain, pallor, weight loss, fatigue, and abnormal blood tests were flagged as challenging and warranting further investigation:

Table 1: Study themes and abbreviated codes

Major themes	Abbreviated codes	Sources
Triggers for primary healthcare professionals to refer patients	• Typical LC signs and symptoms (localized [e.g., cough] and non-localized [e.g., weight loss, lack of energy])	CP, GP, PHN, PN
	• Atypical or non-specific signs and symptoms (e.g., back pain, looking pale/unwell, and abnormal blood tests)	GP, PHN, PN
	• Fear caused by coughing up blood (i.e., haemoptysis)	CP, GP, PHN, PN
	• Smoking as a LC risk factor	CP, GP, PHN, PN
	• Recurrent prescriptions (e.g., cough medicine, steroids, and antibiotics)	CP, GP, PHN, PN
Perceived primary healthcare professionals' role in patient referral	• Advising, encouraging, and reassuring patients	CP, GP, PHN, PN
	• Upholding and respecting patient autonomy	CP, PHN
	• Patient assessment	GP, PHN, PN
	• Recognizing the seriousness of presentation	GP, PHN, PN
	• Being on high alert ' <i>in the patient's home</i> '	PHN
Awareness and use of the RALCs	• Opportunistic referrals	PHN, PN
	• Varied service knowledge and use	CP, GP, PHN, PN
	• Greater awareness and use of other rapid access cancer clinics	CP, GP, PHN, PN
	• Experiences of using the RALC e-referral system	GP, PN
Challenges faced by primary healthcare professionals during referral	• Ease of access to CT	GP, PN
	• Limited role and scope of practice	CP, GP, PHN
	• Fear of scaring patients while emphasizing the urgency of referral	CP, GP, PHN
	• Pressures on healthcare professionals and the healthcare system	CP, GP, PHN
	• Respiratory diseases not prioritized (e.g., Chronic Disease Management Programme and continuous professional development)	GP, PHN, PN
	• Healthcare professional fatigue from repeated patient presentations	CP, GP, PHN
	• Late patient presentation and missed/delayed LC diagnosis	GP
	• Hesitance to refer patients to RALCs (e.g., fear of abusing the system and fear of mentioning LC when symptoms are not definitive)	GP, PN
	• ' <i>Knowing</i> ' the patient and the relationship of trust: a double-edged sword	CP, GP, PHN, PN
	• Continuity of care post-LC diagnosis	GP, PHN, PN
Continuity of care post-LC diagnosis	• Providing care and support following LC diagnosis	GP, PHN
	• ' <i>The missing link</i> ': lack of communication within the healthcare system and the resulting disruption in continuity of care	CP, GP, PHN, PN
	• Enhancing communication and continuity of care (e.g., interprofessional communication, strong relationship with GPs, and keeping records of consultations)	CP, GP, PHN, PN
	• Strategies to promote early referral among primary healthcare professionals	GP
	• Providing information on when to refer patients	GP
Strategies to promote early referral among primary healthcare professionals	• Delivering education by LC specialists	PHN, PN
	• Delivering education and webinars by professional organizations	CP, GP, PHN
	• Creating a checklist/algorithm for the early detection of LC signs and symptoms	GP, PHN, PN
	• Embedding LC symptoms into pre-existing systems (e.g., Chronic Disease Management Programme)	GP, PHN, PN
	• Using patient stories to educate healthcare professionals	CP, PHN
	• Adopting an interdisciplinary approach to education	CP

CP, community pharmacist; CT, computed tomography; GP, general practitioner; LC, lung cancer; PHN, public health nurse; PN, practice nurse; RALC, Rapid Access Lung Clinic.

“He [patient] presented with vague symptoms first of all...the only trigger really...was his CRP [C-reactive protein found in blood plasma. A high CRP test result is often a sign of acute inflammation] was quite raised. Ferritin levels were up [a blood protein that contains iron. Elevated ferritin levels can be associated with LC]. So, we were wondering ‘what’s going on?’...he was sent for chest X-ray, that was absolutely fine. And then the pain in the back really got progressively worse and we sent him off for an MRI [magnetic resonance imaging] and basically he had lung cancer with bone mets...” (PN2).

Coughing up blood (i.e., haemoptysis) was recognized as a red flag requiring urgent investigation. Participants also recognized the potential confounding influence of smoking when discussing a worsening cough with a patient and suggested techniques to manage this when obtaining a clinical history:

“I would always say to somebody I know smokes: ‘Is it your regular cough now or is it a different cough?’ And when they tell me it’s a different cough, I always say, ‘Well, ok. We’ll pretend as if you’re not a smoker now and this is just a different cough, so let’s deal with the cough and we have to get this different cough better.’ To take the smoking out of the equation for them and just treat it as like this is something different” (CP1).

CPs were cognisant of patients requesting cough medicine on a recurring basis or presenting with repeat prescriptions for antibiotics or steroids. As a result of their role in providing over-the-counter medication and dispensing prescription medication, CPs believed that they are well placed to identify concerning patterns and broach the subject with their patients:

“Persistent or a recurrent level of antibiotic and steroid prescribing in an attempt to cure a cough that wasn’t going away...you say to the patient ‘you’ve been in so many bottles of cough. The cough is still persisting. It’s not been taken away.’ It’s kind of a difficult conversation...it’s very difficult to manage...” (CP1)

Perceived primary healthcare professionals’ role in patient referral

Participants’ perception of their role in referral varied by profession. PNs felt that their role included *‘allaying fears’* (PN1) and upholding and respecting patient autonomy. The importance of effective communication was clearly iterated by PHNs:

“It’s how you communicate and it’s how you make somebody feel...that’s about just respecting clients and that’s very much so on an individual basis with a GP, with a public health nurse...we get public health nurses that go around pointing fingers and I will admit when I was self-righteous and knew everything when I started off, I did the same myself, but I soon realised that this isn’t a good way to do things” (PHN4).

Healthcare professionals who were not diagnosticians believed that their role was to advise, encourage, and reassure patients:

“I said [to the patient], ‘Will you do me a favour? Will you go down to your doctor and let him know this and see what he thinks?’ Now, he said he would, so like I would generally contact the GP myself, but I’d always get his permission obviously. But he promised me he would do that, and he did...” (PHN1).

Additionally, PHNs spoke about the importance of focusing on the *‘whole patient’* (PHN3) and *‘not just look[ing] at the hole [ulcer] in the leg’* (PHN3):

“I was saying it in discussion [with the GP], I was concerned about his [patient] smoking and his colour and I was thinking like could three courses of antibiotics have made no difference? He could do with a chest X-ray...and the doctor said: ‘you know, that’s a good idea. I’ll send him for an X-ray’” (PHN3).

Opportunistic referrals were highlighted by PHNs, who have close therapeutic relationships with patients and often see them in their home environment, presenting opportunities to notice signs and symptoms of concern:

“I remember there was one gentleman. I was going to him to do a leg dressing and subsequently he was telling me that with recent time, he was having pain in his lung and then the most alarming feature certainly was coughing up blood” (PHN2).

GPs and PNs described the clinical assessment and further management of a patient with suspected LC, including taking blood tests, weighing the patient, and arranging chest X-rays. Some GPs believed that their role involved clearly communicating the potential for a cancer diagnosis to the patient. For instance, one GP described how they broke the news to the patient following *‘a very abnormal chest X-ray’* (GP5):

“I basically had to tell her [patient] that it looked like it was lung cancer, and it was. And she was just distraught... We as GPs, we’re actually pretty good at kicking for touch on this [discussing a potential cancer diagnosis]” (GP5).

Awareness and use of the Rapid Access Lung Clinics

As the primary referrers to RALCs, GPs provided the most detailed accounts of their experiences with these clinics, describing the e-referral system as ‘seamless’ (GP3) and ‘one of the best developments between primary and secondary interfaces’ (GP2). GPs had confidence in the service, including the prompt response to referrals, the competence of the RALC staff, access to diagnostics, and the ability to bypass obstacles such as COVID-19 restrictions, waiting lists, and access to diagnostic tests:

“Once you have diagnosis, things always move fast...team very experienced, and a colleague feels confident in them” (GP5).

Overall, GPs knew how to access RALCs and use the e-referral process. However, there were concerns around ‘individual RALC procedures’ (GP2), information technology challenges: ‘didn’t know that RALC is on the e-referral system’ (GP4), ‘RALC link to website is broken’ (GP5), system incompatibility, and problems scanning test results.

It seemed as if RALCs may be ‘underutilised’ (PN2) and participants had greater awareness of other rapid access clinics (e.g., prostate, breast, and pigmented lesion) rather than RALCs, with some believing that ‘profiles of other conditions [as opposed to LC] are high’ (PHN1). There was also some lack of awareness regarding timeframes from referral to assessment:

“Prostate clinic is seen within three to four weeks, but not sure with the lung cancer one. The UK has a two-week criterion, [we] need to create that culture” (GP4).

Challenges faced by primary healthcare professionals during referral

CPs and PHNs believed that they had a limited role in referral due to their scope of practice. They voiced concerns around frightening patients by suggesting a possible LC diagnosis:

“I don’t think I’m skilled as a diagnostician and I’m certainly not a radiologist, so I’m not going to start to use terminology like that [cancer]” (CP1).

There was also a worry as to how patients would respond to the term ‘lung cancer’ when a diagnosis has not been confirmed:

“My patient was called to the cancer clinic, and I had to clarify that they don’t have cancer but need to investigate” (GP5).

Being a locum CP and not necessarily knowing the patient was highlighted as a challenge to discussing and following up on symptoms of concern:

“I’m a locum pharmacist...So I might be working in a pharmacy this coming Saturday and I may not be working in that same pharmacy for another month or six weeks or never again possibly. So, I would be at a disadvantage in unfortunately being able to follow up with those patients” (CP2).

Almost all primary healthcare professional groups identified the various pressures on healthcare professionals as key challenges to timely referral. These related to understaffing, lack of resources, high workload, high stress levels, and limited time:

“I’m too busy and I’ve too much else to do...that’s just unfortunate like with staffing. Sometimes you don’t have the time to devote for a 10-minute chat” (CP2).

Some participants believed that the Irish healthcare system and the media tend to focus on chronic diseases and cancers other than LC. GPs and PNs discussed the Chronic Disease Management Programme, which offers twice-yearly scheduled reviews to General Medical Services scheme patients over the age of 18 with type 2 diabetes, asthma, chronic obstructive pulmonary disease, or cardiovascular disease (HSE, 2021a). The reviews include ‘patient education, preventative care, medication review, physical examination, investigations and an individual care plan’ (HSE, 2021a). One PN referred to the fact that cancer is not included in the Chronic Disease Management Programme or in continuous professional development education that they have availed of:

“With our chronic disease management programme, we had a diabetes cycle of care up and running and it seemed to take priority over every other chronic disease at the time. But now it seems to have moved onto cardiovascular disease. In fact, even in terms of courses, I’m at the moment doing a cardiovascular disease management course...but there isn’t an equivalent [course] for respiratory [diseases]...” (PN1).

Another challenge related to repeated presentations of patients with respiratory disease and resulting healthcare professional fatigue, especially when healthcare professionals perceive that their advice regarding smoking cessation is not heeded:

“...you’d have the same fellow in the ambulance. And on oxygen and you’ll be: ‘Oh, you’re [name of patient], sorry, I’m coming back to you...Ah, give up the smoking already, will you?’ [Laughter]” (PHN4).

GPs spoke about delayed LC referral and diagnosis due to the broad symptom signature of LC, including vague/non-specific symptoms, and the symptom overlap with other respiratory conditions such as chronic obstructive pulmonary disease:

“Most of our palliative patients are lung cancer patients. I’m not sure why that is...they’ve nearly always been late diagnoses...I mean I’ve missed one recently. Saw a chap who has COPD [chronic obstructive pulmonary disease], but had a whole host of other medical ailments, losing weight, dysphagia, sent towards the surgeons. They said it was because he was on morphine for pain and he’d lost three stone in weight. Then he developed hoarseness, so he went to ENT [ear, nose, and throat specialist] so he sought different services, and, in the end, he ended up getting admitted acutely to hospital and having a CT [computed tomography]...probably a five-month delay between him presenting with symptoms consistent with cancer and him having a test done. I hold up my hand. I wasn’t thinking along the terms lung cancer. I thought it was more GI [gastrointestinal] or upper GI symptoms...I suppose the system failed him in a way” (GP4).

Some GPs expressed uncertainty and frustration in relation to RALC referral criteria, including concerns that these criteria are ‘too narrow...and a sense that the RALC is not built for uncertainty’ (GP5). Consequently, some GPs hesitated to refer patients to the RALCs unless they were sure that signs and symptoms were consistent with LC:

“...those people I’ve referred to the RALC have pretty much had proven lung cancer” (GP4).

“Weighing up putting somebody through a full dose CT [computed tomography] scan if symptoms were vague and no concerning history” (GP5).

The effect of ‘knowing’ the patient featured strongly in most interviews. Although a trusting therapeutic

relationship was identified as a factor that facilitated open dialogue and candour, participants considered the counterargument, where a close doctor–patient relationship may act as a barrier to early referral:

“A patient can get an appointment within a day or two to see a doctor, but they might decide to hang around to see the doctor that they know well. And if they’re waiting around to see a doctor they know well, there may be a delay in getting to see them” (GP3).

Continuity of care post-lung cancer diagnosis

Most participants perceived their role to include post-LC diagnosis care and support. GPs, for instance, discussed managing the physical and psychological effects of LC and its treatment:

“...after they’ve [patients] received the diagnosis, after they come back to you for that initial chat and they may be anxious...depressed...stressed, they may have lots of questions...in fact this gentleman, I’ve probably seen him six times because he had post-surgical neuralgia. He had chest wall pain, so I’ve started him on anti-neuralgic treatment. He got very worried. So often, most of the time, investment is post-surgery or post-investigation” (GP3).

Participants expressed their frustration around the lack of communication within the Irish healthcare system and the resulting disruption in continuity of care for patients with suspected LC. This was believed to stem from the lack of an integrated healthcare system, lack of communication between the different healthcare professional disciplines, and lack of awareness of the roles of some healthcare professionals involved in the referral process. CPs described how, having advised the patient to see the GP, they often heard no more and had to follow up with the patient directly to know the outcome of referral. PHNs reported similar experiences:

“You’re only picking up really from the client because he comes home after all these tests and sure he only has a small amount of information and we don’t get any official knowledge or information or feedback from the hospital. So, it’s through us contacting his GP to really get the full picture of what is actually happening at the time because obviously we were to call to do his leg dressings, but outside of that, we didn’t really know what the plan was for this gentleman” (PHN2).

PHNs, PNs, and GPs spoke about the importance of ‘seamless’ (GP2) communication between and within

the different disciplines. This was perceived to enhance continuity and quality of patient care. However, interdisciplinary communication between primary healthcare professionals was based on personal and professional relationships and ad-hoc initiatives rather than formal, standardized national approaches:

“I would have worked with GPs where you’d be on to them regular. You could almost pick up their phone. You’d have their mobile phone. I referred in whoever. How is she?” (PHN4).

Strategies to promote early referral among primary healthcare professionals

Participants reported that primary healthcare professional education would facilitate early referral of people with suspected LC. Education around motivational interviewing to help boost smoking cessation was discussed (GP5), as was a request for reminders of the LC referral pathways and how to access them (GP3). GPs felt that they should be able to retrospectively look back and learn from previous mistakes, and in so doing, ‘open[ing] the communication’ (GP4) around misdiagnosis and remove the ‘blame culture’ (GP1) attached to it.

PNs believed that ‘nurse education should precede patient education’ (PN1) and recommended education by specialists based on previous positive experiences. Similarly, PHNs spoke about the effectiveness of face-to-face training in the past, and the need for specialized rather than generalist approaches to education in relation to LC going forward (PHN2). They also suggested using HSEland, Ireland’s HSE’s online learning and development portal, for delivery of courses on the signs and symptoms of LC, as well as embedding this topic into existing PHN courses. A challenge to education for some primary healthcare professional disciplines is the lack of continuous professional development funding:

“I think funding is an issue for practice nurses as well to do these courses because we’re not employed by the HSE. We’re employed privately, so if you want to do a course, you’ve got to pay for it yourself...so that’s a deterrent straight away for practice nurses...” (PN1).

GPs suggested e-mail communications as well as using their professional network’s (i.e., Irish College of General Practitioners) weekly webinars to reach large numbers of GPs. Similarly, CPs identified the webinar series delivered by their representative body, the Irish Institute of Pharmacy, as an appropriate educational approach. CPs referenced a recent webinar delivered by the National Cancer Control Programme and the

Irish Institute of Pharmacy, which represented the first time that many attendees recalled being offered comprehensive information on LC referral pathways, including the RALCs:

“I’ve been working for years as a pharmacist and the first time I knew about the Rapid Access was in the lecture that’s been held by the IOP [Irish Institute of Pharmacy]. So, I don’t think this information has been communicated for the pharmacist...I never knew about it until I was in that IOP webinar” (CP1).

PHNs also identified e-mail as a suitable approach for educational initiatives (PHN3) but noted that content needs to be catchy to prevent ‘e-mail fatigue’ (PHN4). GPs, PNs, and PHNs suggested creating simple, clear, and visually impactful checklists/algorithms to assist in identifying patients with signs and symptoms suggestive of LC:

“I would look on what we would have for a lot of other interventions where we have an algorithm... if we had two particular symptoms, three particular symptoms, whatever. A yes/no, do you go that pathway? Is that warranting a Rapid Access? Is that warranting a ‘wait and see’?...monitoring...I think that would be beneficial...” (PHN1).

However, there was a warning against too many checklists and the resulting risk of healthcare professional disengagement. Alternatively, participants suggested embedding the checklist/algorithm into existing systems (e.g., Chronic Disease Management Programme):

“...I would recommend integrating some kind of screening or X-ray recommendation into the Chronic Disease Management module because every GP in the country fills that in twice a year. And so, if there was something that we could be doing on that, if you fill in something’s wrong, they’ll say well, have you referred to? the diabetes one says have you spoken to them [patients] about their diet? Well, if not, what are you going to do? So, you could integrate [LC]. That would be by far the best way” (GP5).

PHNs and CPs called for using positive patient stories and testimonials to educate healthcare professionals about LC signs and symptoms, early referral, referral pathways, and outcomes. CPs were the only group to suggest an ‘interdisciplinary campaign that is visible’ (CP2) to educate healthcare professionals about LC. They based this suggestion on successful historical approaches to continuous professional development:

“I’m 30 years qualified, so when I started working, there were interdisciplinary lectures...a consultant in the hospital would give a lecture say on lung cancer and pharmacists and doctors would be added together. And it was a great way of everybody being on the same page and everybody knowing, but it has completely stopped. We never ever get any intervention like that now anymore...but it was always very good because everybody heard the same information and this is the person who is leading it in the area, so we all knew what was the way to go. And yes, you might get two in the year, but they were very useful. Very useful” (CP1).

DISCUSSION

This study explored primary healthcare professionals’ experience of referring individuals with LC ‘alarm’ signs and symptoms along the appropriate healthcare pathway, as well as strategies to help primary healthcare professionals detect LC early. Participants identified several typical cancer signs and symptoms as triggers for referral. Coughing up blood (i.e., haemoptysis) triggered fear among patients and healthcare professionals and warranted immediate referral. The perceived urgency of haemoptysis is well documented in previous studies with individuals who had symptoms suggestive of LC (Birt et al., 2014) as well as those who were at risk of developing LC (Saab et al., 2021). Haemoptysis is a highly predictive symptom of LC and is one of the ‘alarm’ symptoms warranting urgent referral to specialist services (Hennessy et al., 2020), including RALCs, yet it only occurs in 20% to 23% of patients who have LC (Koo et al., 2018). In contrast, vague/non-respiratory signs and symptoms such as back pain, pallor, and abnormal blood tests were perceived as more difficult to interpret. The broad symptom signature of LC potentially contributes to patient and healthcare professional delays in LC diagnosis (Koo et al., 2018). A recent Irish study with 46 individuals at an increased risk of LC identified lack of symptom awareness and symptom misappraisal as key barriers to LC help-seeking (Saab et al., 2021).

Participants often refrained from using the word ‘cancer’ during conversations with patients due to scope of practice limitations and fear of misdiagnosing the patient or causing alarm. Interestingly, a study exploring conversations around an abnormal human papillomavirus screening test for cervical cancer found that providers, but not patients, expressed discomfort with use of the word ‘cancer’ during specialist referral (Simon et al., 2010). However, Saab et al.’s (2021) study of high-risk individuals in Ireland found that the

words ‘cancer’ and ‘lung cancer’ caused fear and panic among participants.

Despite challenges surrounding the referral process, participants felt their role was to advise, encourage, and reassure patients while upholding and respecting patient autonomy. Understanding and having professional insight into a patient’s health were also highlighted as important, specifically in terms of ‘knowing’ the patients and seeing them in their own homes. In contrast, locum pharmacists, who moved between different pharmacies, reported challenges in recognizing and referring patients with possible signs and symptoms of cancer due to the lack of an established therapeutic relationship. However, in some cases, ‘knowing’ the patient made it difficult for some healthcare professionals to articulate the potential seriousness of the clinical presentation and the importance of timely referral.

GPs reported positive experiences with RALCs, including confidence in the expertise of the RALC team. GPs also valued the timely access to diagnostics (including computed tomography) afforded by the RALCs while expressing some concern in relation to burdening the system. Issues with the e-referral system were highlighted, however, with some GPs discussing information technology challenges. Another issue identified by GPs was the potential underuse of RALCs, with some GPs referring patients to RALCs only when clear and definitive LC symptoms are noted. Although it is critical to ensure that RALCs are used appropriately, and that patients referred to these services meet the designated clinical and/or radiological criteria, as gatekeepers of the service, healthcare professionals themselves can potentially present a barrier to patients accessing RALCs. A study on RALCs by Hennessy et al. (2020) found that 37% of patients attending the RALCs for the first time in 2012–2018 were subsequently diagnosed with LC. Current key performance indicators include a target LC detection rate of >25% at the RALCs. The considerably higher cancer detection rate of 37% observed by Hennessy et al. (2020) suggests that the criteria for referral to RALCs may be too stringent, or that these services may be underused by GPs. These concerns were echoed by current study participants. In the context of appropriate funding and resourcing, increased awareness of RALCs and potential revision of existing GP referral guidelines may help us to optimize use of the RALCs, supporting timely LC diagnosis. Healthcare professionals should be provided with the opportunity to revisit and source new or updated information on the RALCs. For example, education sessions through continuous professional development programmes would enhance awareness amongst community-based healthcare professionals.

Lack of communication and the resulting disruption in continuity of care for patients with suspected LC were highlighted as healthcare system flaws. The greatest challenges appeared to be the lack of integrated care and appropriate communication between healthcare professionals. Healthcare professional groups that are not directly engaged in referral to secondary care (e.g., GPs and PHNs) expressed their frustration at the lack of communication once a patient had been advised to consult the GP. To address this challenge, participants recommended enhancing continuity of care through interprofessional communication.

The complexity of these issues is acknowledged, and systems-level change would be required to achieve enhanced continuity of care to the level described in this study. For example, Ireland operates a mixed public/private healthcare system, with some primary healthcare professionals publicly employed by the HSE, whereas others are privately employed, adding to the complexity of proposed solutions to achieve integrated care. Considerations include governance, professional roles and scope of practice, information communication technology solutions, and data protection issues. E-referral systems have the potential to enhance interdisciplinary communication and facilitate continuity of care (Martirosov et al., 2020). Suboptimal continuity of care also increases the risk of patients ‘falling through the cracks’. Potential solutions may include creating new roles, such as nurse navigators, who act as the primary point of contact for patients diagnosed with cancer and serve as a liaison between the patient and other healthcare professionals (Shusted et al., 2019; Haase et al., 2020).

Participants highlighted the importance of continuous professional development in educating healthcare professionals about LC. Continuous professional development offers healthcare professionals opportunities to sustain, enhance and expand their knowledge and skills, therefore improving patient care (Coventry et al., 2015). Several barriers to continuous professional development exist for some cohorts (e.g., privately employed nurses) and are well documented in the wider literature, with financial cost presenting a major barrier (Palma et al., 2020). This aligns with current study findings. Other barriers to continuous professional development uptake include understaffing, difficulty taking time off, concerns that continuous professional development would compromise time outside work, and lack of organizational support (Katsikitis et al., 2013; Coventry et al., 2015; Summers, 2015; Palma et al., 2020).

Professional organizations and e-mail communications were also recommended to spread the word about LC and RALCs; however, some participants warned about e-mail fatigue. Indeed, although electronic fora

like webinars, online conferences, and e-mails can be conducive to the acquisition of new information, particularly in the context of the COVID-19 pandemic, e-mail overload may deter healthcare professionals from engaging with educational initiatives (Paul and Levi, 2014; Wood and Krasowski, 2020).

Simple, memorable, and brief referral checklists, flowcharts, and algorithms were recommended. However, participants stressed the importance of avoiding overloading healthcare professionals with too many checklists, which could lead to disengagement. GPs and PNs, who use Ireland’s Chronic Disease Management Programme, recommended integrating a cancer module into this system or embedding a LC checklist into existing modules (e.g., the chronic obstructive pulmonary disease module).

GPs, who sometimes reported feeling like ‘outsiders’ in the system, believed that interdisciplinary education has the potential to raise LC awareness and facilitate collaboration among healthcare professionals. Indeed, there is evidence to support the beneficial impact of interdisciplinary education models on patient outcomes (Bridges et al., 2011). The use of positive patient stories and testimonials was identified as another means to engage healthcare professionals in LC education. In fact, the use of patient stories is a well-established strategy to educate healthcare professionals (Haigh and Hardy, 2011). Laing et al. (2017) found that digital stories of patients with cancer helped healthcare professionals understand the patient experience. This was thought to lead to more efficient patient care and clinical decision-making.

LIMITATIONS

Only primary healthcare professionals who volunteered to participate in the study were interviewed, with associated risk of self-selection bias. In accordance with public health and government guidance relating to the COVID-19 pandemic, all interviews and focus groups were conducted virtually. Although this approach was feasible, the human element of qualitative interviewing was lacking.

CONCLUSION

This research offers valuable insights from primary healthcare professionals regarding the referral of individuals with signs and symptoms suggestive of LC. Responsibility for referral to specialist care remains with GPs, who are the gatekeepers to secondary care in Ireland. Other primary healthcare professionals can advise and encourage patients to consult their GP as an initial step before specialist referral. Recommendations to promote early and

timely referral by primary healthcare professionals are summarized in [Supplementary Figure S1](#). Education for primary healthcare professionals is recommended in the form of communications from professional organizations, webinars, interdisciplinary team meetings, educational interventions delivered by LC specialists, and positive patient testimonials. LC referral checklists and algorithms should be simple, clear, and visually appealing, either developed as standalone tools or embedded into existing primary care software/programmes. The need for enhanced integration of care and improved communication between the different healthcare disciplines is also clearly identified.

Supplementary Material

Supplementary material is available at *Health Promotion International* online.

Funding

This work was funded by the National Cancer Control Programme, Health Service Executive, Ireland.

Conflict of Interest statement

None to declare.

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