

“Because That is the Right Thing to do”: A Focus Group Study of Australian Expert Perspectives on Offering Smoking Cessation Support in Lung Cancer Screening

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Abstract

Introduction: Lung cancer screening (LCS) trials, targeting people with a smoking history, have demonstrated reduced mortality. How to optimally embed evidence-based smoking cessation support in LCS, including in Australia, needs to be better understood. We sought experts' perspectives to identify potential barriers and effective implementation strategies.

Aims and Methods: Perceptions of providing smoking cessation support in LCS were elicited in 24 focus groups and three individual interviews with clinicians, cancer screening program managers/policymakers, and researchers during 2021. We conducted framework analysis and mapped key topics to the updated Consolidated Framework for Implementation Research (CFIR).

Results: Experts ($N = 84$ participants) strongly supported capitalizing on an “opportunity time” for smoking cessation and new LCS participant contact opportunities throughout the screening and assessment pathway. Many advocated for adapting existing cessation resources to the LCS setting and providing support without participant costs. Experts generally considered referral alone to established programs (eg, telephone Quitline) as insufficient, but likely helpful in follow-up, and dedicated cessation specialist roles as essential. Broader cessation messaging (via mass media/community channels) was also suggested to reinforce individualized support. Experts described inherent alignment, and an ethical responsibility, to deliver smoking cessation as a core LCS component. It was suggested that LCS-eligible participants' varied experiences of stigma, health literacy, and motivation, be considered in cessation support. Primary care support and individualized interventions were suggested to facilitate implementation.

Conclusions: Experts considered smoking cessation support essential in LCS. The expert-identified and multi-level implementation strategies described here can directly inform smoking cessation-specific planning for Australia's forthcoming National LCS Program.

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Implications: The international literature includes few examples considering how best to provide smoking cessation support within a LCS program in advance of program commencement. Our analysis, using the updated CFIR, is one of the first to explore experts' perspectives within this context. Experts identified multiple implementation barriers to providing smoking cessation support within and outside of an Australian LCS program, including key work infrastructure barriers, and advocated for providing tailored interventions within this program. Our foundational work in a new targeted screening program's preimplementation phase will allow international comparisons to be made.

Introduction

In Australia, lung cancer risk is increased 17-fold for those currently smoking,¹ and most diagnoses are at advanced stages; relative 5-year survival is 23.5%.² Lung cancer screening (LCS) via low-dose computed tomography (LDCT), with risk-based selection considering age and tobacco smoking history, has resulted in earlier detection of disease.³ Moderate-certainty evidence across LCS randomized trials demonstrated 21% reduced lung cancer-related and 5% reduced all-cause mortality.⁴ Australia's targeted National LCS Program (NLCSP) will commence by July 2025, with biennial LDCT scans available for eligible participants who will: be asymptomatic, 50–70 year olds; have >30 pack-year cigarette smoking history, and if not currently smoking, have quit <10 years ago.⁵

Smoking cessation can further reduce lung cancer-related and delay all-cause mortality,⁶ regardless of LCS participants' current cancer status. Survival is also improved when quitting in advance of, at, or shortly after lung cancer diagnosis.^{7,8} International guidelines and experts therefore recognize the importance of providing smoking cessation support to LCS program participants,⁹ many of whom will currently smoke. LCS impacts multiple cessation-related psychosocial outcomes (eg, motivation)¹⁰ and presents unique “windows of opportunity” for cessation support.¹¹ High short-/long-term cessation rates have been consistently documented among LCS participants provided with even minimal or no cessation intervention^{12,13}, although more intensive intervention in LCS further improves outcomes.¹⁴

Beyond trial contexts, there is currently little guidance on how smoking cessation support can be optimally offered in LCS practice. To date, Australian feasibility work has not detailed how best to offer the proposed cessation support upon NLCSP entry. Referral to existing Quitline services has been discussed¹⁵; telephone-/text-/email-based services are currently available, with some jurisdictional service delivery differences. However, only using or referring LCS participants to existing supports is generally considered suboptimal, especially when compared to integrated models with specialist cessation practitioners.¹⁶

Integrating smoking cessation support within LCS is a key implementation challenge. Routinely offering brief cessation advice is suggested as standard in clinical practice, but relatively few people receive evidence-based cessation support, particularly after lung cancer diagnosis.¹⁷ Overcoming common barriers for providers (eg, insufficient time¹⁸) and participants (eg, anticipated smoking-related stigma¹⁹) may facilitate cessation support implementation.

Perspectives from experts integral to LCS implementation (ie, intervention deliverers) on acceptability component constructs can prospectively identify program modifications to maximize uptake.²⁰ They are also essential to inform policy/program planning and identify sustainability-enhancing strategies in new contexts. Australian studies to date have not sought LCS-related expert perspectives on smoking cessation specifically. Therefore, we aimed to explore views on *providing smoking cessation support* in LCS,

including expert-identified implementation barriers and enablers.

Methods

Design

This study is based on 24 focus groups and three individual interviews, with expert participants from all Australian states/territories; Dodd et al.^{21,22} previously reported on this sample of experts' perspectives about LCS-related health systems and participation factors. Data generation (February–July 2021) preceded the formal Australian Government announcement of the forthcoming NLCSP; a “potential LCS program” was discussed throughout.

Sample

Experts had potential professional involvement in LCS program implementation. LCS familiarity did not define inclusion.

Recruitment

To maximize diversity, recruitment channels included: health professional organizations/communications; state-/territory-based primary health networks, and; personal contacts. We used purposive sampling to target experts in settings with disproportionately high smoking prevalence and lung cancer incidence (eg, regional/remote²³), supplemented by passive snowball sampling. New recruitment ceased after exceeding the broader study's aim to conduct a minimum of six, predominantly face-to-face focus groups, which was modified due to COVID-19 pandemic restrictions of needing to conduct groups online. Participating experts were offered AUD\$100 retail gift vouchers.

Procedures

Experts were invited to complete a demographic survey before a one-off focus group/interview session of approximately 1 hour (actual range: 40–60 minutes; mean = 54 minutes). Except for two face-to-face focus groups, sessions were via Zoom videoconferencing, given that: COVID-19 restrictions were common; remote research methods are highly acceptable to expert participants, and; this could maximize national representation. Focus group sessions comprised two to five experts, consistent with recommendations for smaller remote (c.f., traditional in-person) groups,²⁴ and a total of 24 were held. Sessions were scheduled by mutual convenience, except for one designated focus group by request of a cancer screening program team (therefore comprising colleagues known to each other).

Sessions were moderated by R.H.D., N.M.R., and/or A.R.S., female research academics with behavioral science qualifications, qualitative cancer research experience, and LCS implementation professional interests. The moderator(s) used a structured LCS presentation following [Table 1](#).

The study was approved by the Human Research Ethics Committee of The University of Sydney (2020/743), and Cross-Institutional Approval was recognized by the Flinders

Table 1. Relevant Excerpts From Structured LCS Presentation and Focus Group Moderator Guide Used in Current Analysis

Structured presentation about LCS	
Main presentation	<p>International trials</p> <p>Eligibility criteria of age and smoking history:</p> <ul style="list-style-type: none"> - For example, 55–74 years and smoking history: people who are current or former smokers with ≥ 30 pack-year history, and former smokers who have quit in the past 15 years <p>Impact of LDCT screening on smoking cessation</p> <ul style="list-style-type: none"> - Lung cancer screening presents a “teachable moment” - Quit rates higher for screening participants than seen in general population, indicating motivation to quit^a
Additional slides (in case any questions were asked) ^b	<p>Screening and smoking cessation</p> <ul style="list-style-type: none"> - Quitting for 7 years gave the same risk benefit as screening in National Lung Screening Trial²⁵ - Offering smoking cessation interventions with annual screens improved the cost-effectiveness of [the] United States LDCT screening program between 20% and 45%²⁶ <p>Summary—improving lung cancer outcomes</p> <ul style="list-style-type: none"> - A multi-pronged approach including smoking cessation, screening, and early detection is essential to improve overall outcomes
Focus group moderator guide	
Overall discussion topic and probing questions	<p>What are your thoughts on including a smoking cessation program as part of lung cancer screening?^c</p> <ul style="list-style-type: none"> - What might this look like? - How successful might this be? - What could be the challenges? - If cessation services were external to the program, how do you think referrals to Quitline (or other community services) would work?
Other topics related to smoking cessation	<p>Anything that you think might make it difficult for the patients you see to accept or participate in lung screening?</p> <ul style="list-style-type: none"> - eg, Screening criteria, documentation of smoking history, patients’ concerns...

^aThe presentation also cited international and Australian trial data showing higher cessation rates among LCS participants with minimal or no intervention (compared with unassisted general population samples²⁷), from 1 to >5-year follow-up.^{12,13,28–33}

^bThis content was usually only shown to experts after the smoking-related discussion had concluded.

^cAlso presented on-screen during the structured presentation.

LDCT = low-dose computed tomography.

University Human Research Ethics Committee (project 6316). Written informed consent was documented during the advance survey, with verbal consent affirmed during focus groups/interviews.

Discussion Guide

The full, semi-structured guide was developed following the Consolidated Framework for Implementation Research (CFIR),³⁴ subsequently updated to categorize 48 constructs and 19 subconstructs under five domains recognized as effective implementation determinants.³⁵ Smoking cessation-related questions aligned with a subset of constructs from all domains. No changes were made to these after pilot testing with the first group (comprising five experts).

This analysis exclusively considered smoking cessation-related data, based on an overall discussion topic and probing questions (Table 1). Also considered were data in other session sections specifically related to smoking cessation (eg, assessing smoking history, including for LCS eligibility), or smoking-related stigma.

Analysis

We followed Gale et al.’s framework method procedures.³⁶ Sessions were audio recorded; verbatim transcripts were de-identified, and verified by at least one author. (Given the design, experts did not review transcripts.) Initial smoking

cessation-related codes were first developed in Dodd et al.’s reports,^{21,22} where “smoking cessation” was identified as a cross-cutting topic: briefly, the moderators independently familiarized themselves with, and inductively coded, three transcripts, and then discussed and compared initial codes using six additional transcripts.

N.J.H read/re-read smoking cessation-related data, and listened to audio recordings for relevant content in all but one session (following audio file error). Salient potential codes were incorporated into a working analytical framework with the initial codes. N.J.H open-coded two transcripts, identified as broadly representative (eg, in experts’ professional characteristics). To center analysis “close” to the data, a hybrid combination of primarily inductive and deductive (discussion guide- and CFIR construct/domain-derived) codes were used. Senior authors reviewed a subsequent analytical framework, before application (by N.J.H.) across the dataset, facilitated by NVivo (QSR International, 2020). To interpret findings, key topics and associated data were mapped in an updated CFIR-guided framework matrix; all relevant constructs were considered, even if they did not specifically guide data generation.³⁵ Table S1 shows the final coding structure.

This report follows the Consolidated Criteria for Reporting Qualitative Research.³⁷ Expert quotations are edited for length and clarity, and presented with sequentially assigned focus group[FG#]/interview[I#] indicators and professional discipline for context.

Results

The analytic dataset comprised 84 experts. One other individual interview participant did not meet the inclusion criteria (instead registering after being personally affected by lung cancer), and was excluded. This is common practice with stakeholder samples and follows the previous exclusion of completed interviews after noting inclusion–exclusion criteria.^{38,39}

Table 2 summarizes sample characteristics. Most reported working primarily in clinical roles (including as general practitioners [GPs], nurses, and radiation oncologists). Experts most often reported working in public hospitals (40.2%), New South Wales (43.9%), and for clinicians, urban/inner-city (52.4%) and public and/or bulk-billing practices (53.7%).

Figure 1 presents a high-level overview of coding framework topics according to the CFIR, and Table S2 illustrative quotations. Findings are organized below by CFIR domain headings (with definitions following Damschroder et al.³⁵; additional details in Table S1), then within domains by summary topic headings. Relevant lower-level CFIR constructs are indicated by bold type.

Innovation

The innovation being considered for implementation was operationalized as: smoking cessation support, offered as part of the Australian LCS program.

New Opportunities in LCS (vs. Current Practice)

Experts generally viewed existing cessation programs favorably, where available, but described current access barriers, particularly for patients experiencing disadvantage (eg, with lower educational attainment, higher geographical isolation). The **relative advantage** was that LCS implementation would present new opportunities to offer cessation support across all contact points of the LCS screening and assessment pathway. Doing so as “part of every conversation” [*manager/nurse practitioner, I#26*] was important.

There was strong support for capitalizing on an “opportunity time” [*thoracic surgeon, FG#12*] for cessation. Experts assumed that cessation-related discussions would be “an integral part of risk assessment” [*medical oncologist, FG#20*], including for individuals ineligible under NLCSP criteria. The time immediately prior to/at LDCT was most frequently suggested for providing cessation resources: it was considered to prompt “increased sensitivity for people to consider their smoking” [*general surgeon, FG#14*], or where LCS participants would have heightened emotions. Others suggested that risk assessment or receipt of results (particularly following screen-detected nodules/incidental findings) could also motivate cessation attempts. For example, visual feedback incorporating LDCT images was considered to have the potential to present personalized and compelling evidence of smoking-attributable impacts on LCS participants’ lungs; in comparison, generic risk information could only describe *potential* impacts. Recognizing that LCS was “not just a one-off chat” [*practice nurse, FG#04*], repeat LDCT scans and monitoring previously collected participant information was felt to further encourage cessation if repeated smoking cessation support was offered.

Other Models of Success and Supporting Resources

Experts thought the range of current smoking cessation resources (eg, mobile apps, conversation protocols) should be

Table 2. Professional and Personal Characteristics Reported by Experts (N = 82* Participants)

Professional characteristics	
	n (% of total)
Professional role	
General practitioner (GP) or GP registrar	14 (17.1)
Nurse	11 (13.4)
Radiation oncologist	10 (12.2)
Radiologist	9 (11.0)
Respiratory physician	9 (11.0)
Policy/program manager	6 (7.3)
Medical oncologist	4 (4.9)
Allied health professional	3 (3.7)
Researcher	2 (2.4)
<i>Other (eg, other medical specialty, operational role)</i>	14 (17.1)
Workplace setting	
Public hospital	33 (40.2)
Medical center/community-based clinic ^a	11 (13.4)
Private practice/sole practitioner	8 (9.8)
Academic, university-based clinic	4 (4.9)
Private hospital	2 (2.4)
Combination of the above settings	8 (9.8)
<i>Other (eg, Government agency)</i>	16 (19.5)
State or territory of work	
New South Wales	36 (43.9)
Victoria	14 (17.1)
Queensland	11 (13.4)
Western Australia	8 (9.8)
Tasmania	5 (6.1)
South Australia	3 (3.7)
Australian Capital Territory	3 (3.7)
Northern Territory	2 (2.4)
Location of clinical practice	
Urban/inner-city	43 (52.4)
Suburban	19 (23.2)
Rural, regional, or remote	8 (9.8)
<i>Not applicable (non-clinician)</i>	12 (14.6)
Nature of practice ^b	
Public (bulk-billing) ^a	44 (53.7)
Private	14 (17.1)
Non-practising	12 (14.6)
<i>Other (eg, mixed billing)</i>	10 (12.2)
<i>Not applicable (non-clinician)</i>	2 (2.4)
Number of years worked professionally	
0–10	31 (37.8)
11–20	17 (20.7)
21–30	21 (25.6)
≥30	12 (14.6)
<i>Not applicable</i>	1 (1.2)
Country of university education completion	
Australia	75 (91.5)
Other country	7 (8.5)
Personal characteristics	
Age	
18–40 years	36 (42.9)
41–60 years	37 (45.1)
≥61 years	9 (11.0)

Table 2. Continued

Professional characteristics	
Gender	
Female	48 (58.5)
Male	34 (41.5)
Country of birth	
Australia	54 (65.9)
Other country	28 (34.1)
Aboriginal or Torres Strait Islander	
Yes	5 (6.1)
No	77 (93.9)

[†]Demographic surveys were not completed by two expert participants.

[‡]Response options including “Public (bulk-billing)” were intended to indicate, for example, medical specialists working in public (vs private) hospitals, as well as GPs in predominantly bulk-billed (vs private-billing) practices; $n = 8$ GP/GP registrar participants (57.1% of GP/GP registrar participants in sample) reported working in medical center/community-based clinics, and $n = 7$ GP/GP registrar participants (50.0% of those in sample) reported working in public and/or bulk-billing practices at least most of the time. It should be noted that the vast majority of medical centers and general practices in Australia, including those that are predominantly bulk-billing, are privately owned.

[§]These items were asked in the context of “your practice” and assumed to be relevant to clinicians only.

adapted for LCS settings. Some also cited international cessation support models, but considered that a unique Australian context required **adaptability**. Across groups, adapting other preventive/chronic disease screening models (eg, routinely providing objective risk information, and annual health assessments) was suggested.

Optimum Package of Care

Noting the potential inaccessibility of pharmacotherapy, experts emphasized that all cessation supports should be provided without cost to LCS participants. In intervention **design**, some advocated for a broad range of individualized interventions, while others felt minimal approaches (eg, information provision) would ensure feasibility. Experts generally considered integrated support models—that is, where dedicated professionals delivered behavioral support and arranged pharmacotherapies at LDCT visits—as the most comprehensive, and likely avoiding separate (primary care/pharmacy) appointments. One-on-one/face-to-face support, sometimes including motivational interviewing, was described as particularly important in increasing quit motivation. Some experts suggested using printed pamphlets or telephone follow-up (eg, daily/weekly Quitline calls) in conjunction with and to extend the face-to-face support provided at LDCT visits.

Experts often cited the established **evidence base** for clinical smoking cessation interventions, particularly brief interventions, and suggested likely transfer to LCS contexts; “...just bringing it up in passing” [*respiratory physician, FG#01*] was suggested for first participant contact. Some considered that brief/very brief interventions could prompt behavior change and were likely to be beneficial. However, one expert expressed concern about brief advice by itself (“...what would be sad to see is a tokenistic version...” [*public health physician, FG#17*]) and others felt that longer, one-on-one counseling consultations would be required.

Outer Setting

For this domain, smoking cessation support outside of a formal LCS program was considered. That is, for LCS participants following formal program exit, and in the broader community (including for potentially eligible people who do not participate in LCS).

Referral (Alone) is Not Enough

Experts generally considered passive service referral (eg, “just a tick and flick referral...” [*policy adviser, FG#13*]) to be insufficient, and that additional **partnerships and connections** would be required within LCS—for example, NLCSP staff to assist in navigating external follow-up (eg, Quitline services, mobile apps).

Community Perceptions

Experts described how lung cancer-/smoking-related **local attitudes** would require consideration. Some community members and health professionals were felt to endorse nihilistic views, and attribute blame to people with a smoking history; as such, LCS participation and resourced cessation supports may be more contentious. However, the existence of these attitudes generally reinforced for experts the importance of offering cessation support to LCS participants, to achieve “something other than just sort of find[ing] the cancers after they’ve been smoking their whole life” [*radiologist, FG#23*], and reduce societal stigma.

Media and Community Messaging

Experts suggested that repeated public cessation messaging would increase **societal pressure** to engage with cessation supports and quit smoking. Many experts thought existing cancer prevention/cessation approaches had increased awareness, and suggested leveraging campaigns with appropriate targeting to ensure sufficient population subgroup reach. However, others had reservations about fear-evoking campaigns including cancer-related imagery. Experts felt LCS messaging should acknowledge risk reduction for cancer(s) and other chronic diseases, and advocated for broader community dissemination of cessation information, including LCS participants’ positive experiences through personal networks.

Inner Setting

The innovation was considered in the inner setting context of an Australian LCS program’s screening and assessment pathway. As data generation preceded the NLCSP’s announcement, anticipated (c.f., known) organizational characteristics/context had particular relevance²²; for most LCS participants, this included primary care referral and private sector radiology LDCT.¹⁵

Ethical Responsibility

Experts described a responsibility to implement cessation support as an “obvious” NLCSP component, to capitalize on existing smoking cessation efforts in contexts outside LCS. To maximize **human-equality centredness**, experts considered that cessation support provision should not be contingent upon LDCT participation, and vice versa (ie, to facilitate “easy” opt-out for LCS participants).

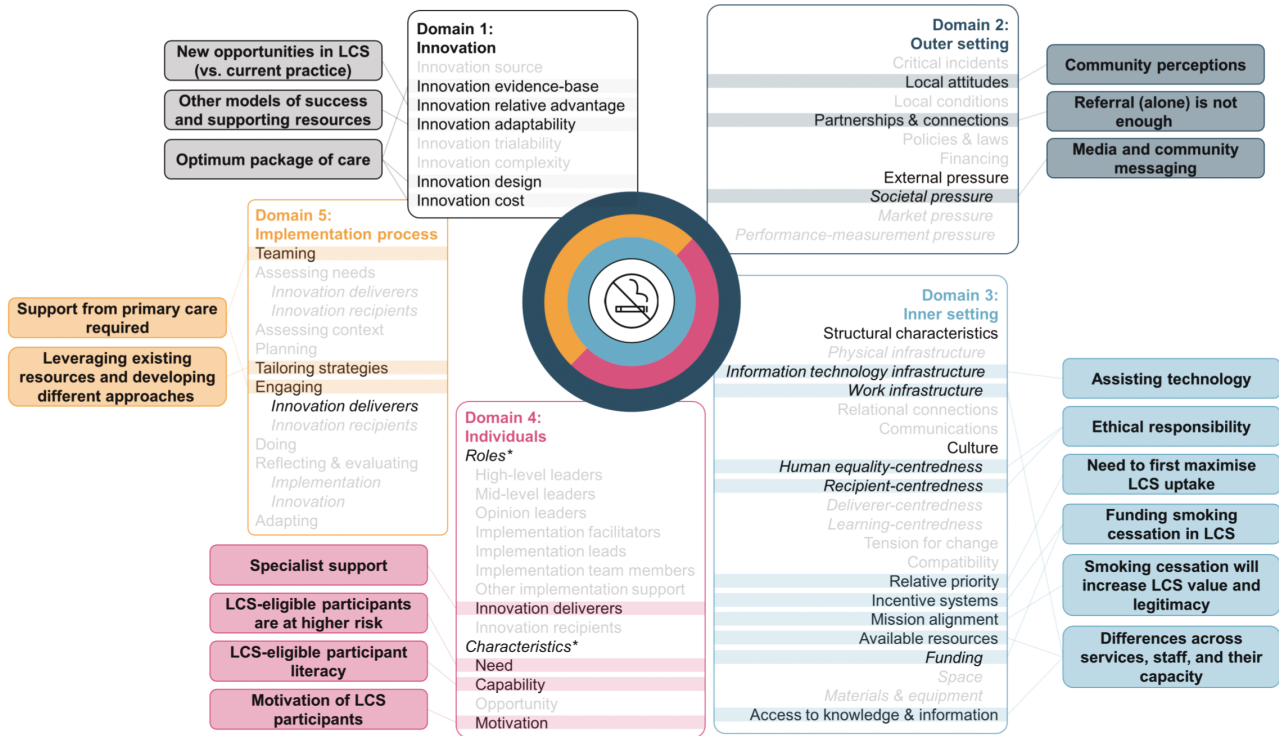


Figure 1. Summary topics mapped against relevant Consolidated Framework for Implementation Research (CFIR)³⁵ domains and constructs. *Note.* Shaded boxes indicate summary topics; domains and constructs follow CFIR definitions.³⁵ Italicized text = lower-level CFIR constructs, except for * = subdomains. The gray text indicates CFIR constructs which were not identified in the mapping of topics. This figure has been designed using a resource from Flaticon.com.

“It’s just a responsible thing to do, to have a smoking cessation program...to give them items, resources for smoking cessation—because that is the right thing to do.” [*respiratory physician, FG#03*].

Experts endorsed a nonjudgemental, **recipient-centered** environment in which service/staff interaction could reduce stigma (eg, by participants not needing to justify their smoking history). Community LCS settings (eg, dedicated screening centers as opposed to hospital-based LDCT) and one-on-one interactions, drawing on established connection with GPs/practice staff to encourage sensitivity, were suggested; it was considered that smoking-related discussions “can’t happen with someone you’ve only met for five minutes” [*anatomical pathologist, FG#08*]. Experts also encouraged respecting LCS participants’ preferences when offering support, particularly as some would respond negatively to persistent cessation advice or expectations of “an overt smoking cessation program” [*radiation oncologist, FG#21*], which may discourage repeat LCS engagement.

Smoking Cessation Will Increase LCS’s Value and Legitimacy

Experts perceived inherent **mission alignment** between smoking cessation and LCS. Offering cessation support was seen to reinforce the importance of quitting and also perceived LCS program “value” for LCS participants. This was assumed to be particularly relevant for those without significant LDCT findings, for whom LCS could facilitate repeated discussion about other chronic disease risk factors or other health behaviors (eg, e-cigarette or illicit drug use), in interactions across the screening and assessment pathway including for repeat LDCT scans.

Need to First Maximize LCS Uptake

Experts emphasized that maximizing LCS uptake was an essential precursor to cessation support in this context. However, views were mixed about the potential impacts of cessation support on LCS participation, and therefore **relative priority**: some suggested cessation support might *encourage* LCS participation, and others that an overt focus early in the LCS pathway might *discourage* less receptive participants (“...pull back from both options” [*cancer care coordinator, FG#07*]). Some medical specialists cautioned that additionally providing intervention for other (non-respiratory) conditions could detract from the program focus.

Differences Across Services, Staff, and Their Capacity

Existing time constraints were noted as a major **work infrastructure** barrier, especially in after-hours or mixed-billing general practices, and for complex consultations. Many suggested that offering smoking cessation support was “*more suited to a public-funded model*” [*radiologist, FG#15*]. In private sector radiology providers, it was unclear which professionals would have responsibility for providing support. As it is central to NLCSP eligibility, assessing smoking history was also frequently discussed as a timepoint at which cessation support provision could begin (eg, “...doing the surveys, [you’re] already kind of starting on that first couple of ‘A’s’ there, the ask and assessment” [*GP, FG#12*]). However, experts felt assessments with sufficient detail to determine pack-year history (eg, accounting for periods of changed or non-smoking) could be time-consuming and potentially limit the capacity to provide service referral/support during consultations unrelated to respiratory health.

Quitline was usually assumed to have consistent capacity, but experts thought other existing services' **available resources** varied, and envisaged insufficient resources for LCS participant numbers during early-stage implementation.

Experts described varied **access to knowledge and information** between current workplaces, and how cessation support implementation in LCS would be unlikely if providers had little formal training: specific education with evidence-based counseling for health coaching and behavior change was suggested to further professionals' motivation.

Assisting Technology

Experts considered that pack-year history would likely be under-reported, notwithstanding inflation to ensure NLCSP eligibility (ie, >30 pack-years). **Information technology infrastructure**, via technology-based preappointment assessments, were suggested to improve precision and report bias.

Funding Smoking Cessation in LCS

Experts suggested **incentive systems** including tangible rewards would improve outcomes: for example, for participants joining/completing cessation programs, and subsidizing cessation counseling by ensuring appropriate Medicare Benefits Schedule items (under the Australian public insurance scheme) to encourage providers to "...actually spend some more time and invest more time..." [GP, FG#17], particularly in primary care.

Experts noted that implementing and sustaining smoking cessation supports would incur **funding** costs and represent additional NLCSP expenses, but viewed these as modest compared to individual/societal costs of continued smoking. Some also cautioned that funding (individual participant-level) cessation support could potentially detract from other NLCSP components, or population-level tobacco control strategies (eg, mass media campaigns), and advocated for continued preventive health funding.

Individuals

This domain concerns individuals' roles and characteristics. We considered both potential intervention deliverers (ie, the LCS workforce) and intervention recipients (ie, potential LCS participants), from experts' perspectives.

Specialist Support

To capitalize on face-to-face LCS participant contact, experts considered that dedicated **innovation deliverer roles** and involving a range of LCS program staff (c.f., reliance on a single professional) to reinforce cessation support were essential. There was some resistance to being responsible for cessation support, including strong preferences for one expert's professional group not to provide cessation support: "Please don't make the radiologists do it!" [radiologist, FG#25].

LCS-Eligible Participants Are At Higher Risk

As LCS targets a smoking history-defined population, experts suggested that a NLCSP could attract higher-need participants—that is, those with lower engagement with health services (eg, primary care) or preventive screening (eg, other cancers). Potential participants' experiences of lung cancer-related stigma, particularly internalized stigma, and related constructs (eg, nihilism), were raised as highly relevant. Experts therefore suggested cessation messaging should emphasize benefits, and that practitioners should communicate empathetically to avoid exacerbating stigma.

Experts considered that potential LCS participants already well-connected with cessation services would be more likely to participate in the NLCSP. Experts assumed that cessation would only be discussed with those who currently smoke, but questioned ineligibility under potential NLCSP parameters: for example, if shisha, e-cigarette, or cannabis use would be considered in LCS risk assessment or as a cessation target.

LCS-Eligible Participant Literacy

The eligible LCS (vs. existing population-based screening program) population was assumed to have a different **capability**, including potentially lower health literacy levels. With many from culturally and linguistically diverse backgrounds, experts suggested consideration of participants' English-language proficiency, and messaging via community leaders.

Motivation of LCS Participants

Experts felt that LCS participants (vs. eligible non-participants) could represent a more health-conscious subgroup, who had quit or had high quit **motivation** and would be more open to cessation advice/interventions.

Some experts suggested initial conversations might "plant the seed" before follow-up discussions. They sometimes assumed that LCS participants would be either at precontemplation or contemplation stages, consistent with Transtheoretical/Stages of Change Models in which contemplating behavior change (eg, smoking cessation) is a precursor to the subsequent change and maintenance of that behavior.⁴⁰ Rather than offering cessation support regularly, some clinician experts advocated waiting for LCS participants' perceived readiness to change.

Implementation Process

Here, we report experts' views on activities/strategies to facilitate cessation support implementation, from a preimplementation process perspective.

Support From Primary Care Required

Primary care support, along with appropriate resourcing for primary care, were frequently recognized as essential in **teaming** to deliver cessation support and follow-up/ongoing management (eg, prescribing pharmacotherapies).

Experts felt that documenting LCS participation in electronic records accessible to primary care providers was warranted, for follow-up cessation discussions outside of the NLCSP. Experts supported **engaging** primary care practice staff (and in turn, LCS-eligible participants) with cessation interventions by identifying clinical "champions" among staff teams; current champions' charisma and strong clinical skills were described.

Leveraging Existing Resources and Developing Different Approaches

Suggested **tailoring strategies** to promote LCS implementation included cessation pharmacotherapy packaging inserts or point-of-sale advertising, and cessation counselors to encourage LCS referral. Cessation support approaches tailored on smoking- and health-related (eg, mental health) and personal (eg, cultural background, cancer belief) characteristics were also suggested to maximize engagement, particularly for priority groups. This was often operationalized as connecting

LCS participants with appropriate options, rather than a “one-size-fits-all” approach.

Discussion

This study explored experts’ views about smoking cessation support provision in a proposed LCS program. Findings highlight significant opportunities to embed routine cessation supports as a core component of the Australian NLCS. The potential “windows of opportunity,” described across the LCS screening and assessment pathway, were consistent with previous LCS participant (but less often clinician) studies.¹¹ Some similar findings were documented in advance of other LCS programs, including where Canadian primary care providers described new counseling provision opportunities.⁴¹ In the present sample, experts repeatedly stated that LCS cessation support should not rely exclusively on existing service referrals. Experts reinforced the negative health and equity implications if accessing supports (particularly pharmacotherapies) incurred LCS participants’ costs, but also cautioned that investment should not be at the expense of broader prevention strategies. Cessation supports generally incur modest costs but improve the cost-effectiveness of LCS programs.²⁶

Experts also recommended appropriately tailored intervention investment to ensure access to appropriate support(s). Locally tailored cessation support is also suggested by the Australian context, including a hybrid public-private provider health system with federal- and state/territory-level funding, and a dynamic tobacco control environment: for example, tobacco price increases, public education campaigns, and highly restrictive e-cigarette regulation. Despite substantial population-level declines, smoking prevalence remains high in some priority population subgroups, where specifically tailored programs have been suggested.⁴² Targeted cessation interventions may not necessarily generalize, particularly between cultural groups with substantial smoking prevalence variation⁴³ and unique cessation/screening-related barriers (eg, anticipated stigma).⁴⁴

Experts also perceived an ethical responsibility to embed supports, similar to recent descriptions of the current absence of risk reduction interventions in Australian cancer

screening.⁴⁵ As is common,⁴⁶ some experts expressed hesitancy with cessation-related conversations and “overwhelming” potential participants. This appears to concern patients less frequently,⁴⁷ particularly as many expect providers to initiate such discussions, at least when communicated positively.⁴⁸ Relatively few providers provide cessation advice or referral, and patients being insufficiently “ready” is a key perceptual barrier,⁴⁹ despite established evidence that situational determinants may be behavior change antecedents regardless of individuals’ motivational “stage.”⁵⁰ Behavior change motivation is relatively high in healthcare settings, particularly when clinicians provide cessation advice,⁵¹ but how changed motivation might be sustained longer-term (eg, to support repeated quit attempts) is less clear. This highlights a need to reinforce cessation support offers at every opportunity, in conjunction with appropriately tailored LCS interventions considering behavioral determinants, such as smoking-related attitudes.

Implications

Our analysis identified implementation-relevant determinants across all five CFIR domains, which can facilitate LCS policy development and the future prioritization of expert-identified implementation strategies to overcome barriers to offering smoking cessation support. These can maximize the accessibility and extent of local support provision, plus inform efforts in other jurisdictions considering implementation or expansion of organized LCS programs. Similar approaches may be applied in advance of formal screening programs commencing in other contexts, to inform jurisdictional implementation with consideration of anticipated service delivery (eg, reflecting existing cessation support provision, healthcare policies, and funding models) and the unique characteristics of priority groups.

Concerns regarding the perceived time-consuming nature or inaccuracy of assessing smoking history at LCS risk assessment, coupled with a recent primary care audit suggesting that few LCS candidates have sufficient smoking history information to determine pack-year history,⁵² indicate the potential utility of self-report measures. Recent community-based trials and pilot studies overseas similarly go beyond referral alone and offer more intensive supports (eg, opt-out

Table 3. Summary of Key Findings From Analysis of Experts’ Perspectives

Key findings

- Smoking cessation supports offered in LCS should:
 - o Be made at every opportunity across the screening and assessment pathway
 - o Not rely exclusively on existing service referral (eg, to telephone Quitline)
 - o Be available without incurring costs to participants (including for pharmacotherapies)
- To ensure access to a wide range of potential innovation components:
 - o Tailored smoking cessation supports should be offered in LCS—including behavioral interventions, pharmacotherapies, and self-help resources (eg, considering behavioral determinants, such as smoking-related attitudes)
 - o Individual support should be reinforced with broader messaging
 - o LCS program planning and design needs to balance using a range of existing services/resources (including those potentially tailored to the LCS context), and developing new, bespoke NLCS-specific cessation supports
 - o Appropriate investment is required, but this should not be at the expense of existing cessation supports (in non-LCS contexts) or broader prevention strategies
- Professional workforce development and best-practice cessation support training should be prioritized
- The provision of cessation support should be recognized as a core LCS component to promote routine delivery, including potentially by all associated practitioners

specialist cessation counseling, with a defined period of regular follow-up support, and pharmacotherapy provision^{53–55}).

Key findings based on experts' perspectives are summarized in Table 3. Experts also identified potential facilitators relevant to the NLCSP planning and design stages. Considering the information needs and concerns described here, these findings also have implications for furthering professional smoking cessation capacity with the LCS workforce, highlighting opportunities to explore professional development needs in specific disciplines such as radiology (and radiography), where little cessation-specific resourcing/training is available.⁵⁶

Strengths and Limitations

Key strengths include one of the largest qualitative expert samples in smoking cessation and LCS internationally, and elicitation of significant information to inform how cessation support could be incorporated into Australia's NLCSP before its commencement. These findings extend a very limited Australian literature, including interviews with LCS trial participants (where cessation interventions were not discussed^{57,58}), and qualitative stakeholder research in the United States/Canada. These have documented clinician perspectives on LCS decision-making⁵⁹ and smoking cessation-related discussions,⁴⁶ respectively; other, broader LCS studies with clinician perspectives report limited smoking cessation data.⁶⁰

The CFIR did not explicitly guide data generation for this topic, which may have limited scope of application. Opportunities remain to assess relevant preimplementation determinants not raised in unprompted discussion (eg, "Assessing context"). Although recruitment strategies were varied and broad multidisciplinary participation was achieved here, some key workforce groups relevant to Australian LCS (especially Quitline/Tackling Indigenous Smoking counselors, and Aboriginal and/or Torres Strait Islander health workers) were not represented.¹⁵ In addition to further research with such professionals to inform NLCSP design, community and consumer perspectives (following existing studies in other countries) are now required to determine the acceptability of expert-identified strategies. Future studies should assess cessation support preferences and consider resource co-development with LCS-eligible participants: following experts' suggestions here, local input and engagement will likely facilitate implementation.

Conclusions

This Australian expert study showed strong support for capitalizing on new opportunities for smoking cessation support in the LCS context through a wide range of existing and adaptable resources. These findings highlight key workforce and infrastructure considerations and provide a foundation for planning implementation strategies to facilitate smoking cessation support provision. Findings are also relevant to the planning and design of other organized LCS programs, in conjunction with context-specific evidence.

Supplementary material

Supplementary material is available at *Nicotine and Tobacco Research* online.

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Declaration of Interests

The authors declare that they have no competing interests.

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Data Availability

Data cannot be shared publicly because of privacy or ethical restrictions. Public availability may compromise expert participants' confidentiality or reveal confidential information about their employers.

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