

Implementation and evaluation of a smoking cessation checklist implemented within Australian cancer services

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Abstract

Introduction: The detrimental impact of smoking tobacco can be mitigated when cancer patients quit smoking. Smoking cessation clinical pathways are inconsistently implemented within Australian cancer services. The aim of this study was to pilot test and evaluate the reach, adoption, and implementation of a smoking cessation checklist within oncology services.

Methods: The checklist was implemented over a 6-month period in medical and radiation oncology services at two metropolitan and one rural hospital. The RE-AIM framework guided the evaluation process. Implementation strategies included training, process mapping, and identifying champions. Evaluation measures included a clinical data audit, surveys, and semi-structured interviews with healthcare professionals (HCPs).

Results: Healthcare professionals (HCPs; N = 63; 41% oncologists, 32% nurses, 27% others) completed 1276 checklists with cancer patients between November 2019 and December 2020. Of the 126 (10%) identified current smokers, 34 (27%) accepted a referral to either Quitline, Nicotine Replacement Therapy, to a general practitioner or dedicated HCP for follow-up telephone support. There was variation in screening adoption by HCPs across the three hospitals, with 16%, 92% and 89.5% of patients screened respectively. Contextual factors, such as perceived commitment, role identity, and communication processes appeared to influence the outcomes.

Conclusion: A checklist is a simple, effective, and versatile intervention used to standardise smoking cessation practices in medical and radiation oncology services. The checklist supports standardisation of referral practices to smoking cessation services for cancer patients by either oncologist and/or nurses.

KEYWORDS

clinical pathway, evaluation, implementation, oncology, smoking cessation

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1 | INTRODUCTION

Quitting tobacco use is not only a preventative behaviour but has health benefits for those who are diagnosed with cancer. Evidence shows that cancer-specific mortality can be decreased by quitting smoking, for both tobacco-related and tobacco-unrelated cancers.¹⁻⁴ Cancer services are an ideal setting to coordinate smoking cessation.⁵ International NCCN guidelines⁶ recommend that smoking cessation interventions should be offered as part of the oncology treatment, with all patients being provided an opportunity to quit, regardless of their cancer diagnosis.

In Australia, the federal government has commissioned a framework for embedding brief interventions for smoking cessation within cancer health services.⁷ A brief intervention recommends that healthcare professionals (HCPs) use the 5As model (ask, advice, assess, assist, arrange) to promote smoking cessation. A combination of pharmacotherapy (e.g., Nicotine Replacement Therapy; NRT) and multi-session behavioural interventions (e.g., within Australia free telephone counseling through Quitline) is recommended. While HCPs are ideally placed to refer patients to smoking cessation services, even amongst 'hard to treat' populations such as committed smokers,⁸ evidence suggests that this is not routine practice.⁹

As part of a state-wide quality improvement initiative, a smoking cessation clinical pathway¹⁵ was developed in 2012, reviewed by HCPs from 16 public hospitals, and implemented in Queensland general inpatient services excluding oncology,¹⁰ inpatient acute mental health,¹¹ and general outpatient adult dental clinics¹². The components of the 5As model were developed into a checklist (Appendix S1),¹³ which was clinically reviewed, revised, and implemented by a multidisciplinary team. Focused effort is required to implement the checklist into routine clinical practice.¹⁴ The use of an implementation science approach to evaluate the checklist in an oncology setting is warranted.

Australia's most populous state, New South Wales (NSW), had a population of 7.91 million¹⁵ and cancer incidence of 44 491 in 2017; the most common cancer types were prostate, breast, melanoma, lung, and colon cancers.¹⁶ About 11.6% of Australian adults were reported tobacco users in 2019.¹⁷ Less than 25% of patients appear to be screened for smoking usage according to the 2018 Bureau of Health information data.¹⁸ As such, the implementation of the Queensland checklist in the New South Wales jurisdiction would be beneficial. Therefore, the aim of this study was to evaluate the implementation of the checklist in an oncology setting using the RE-AIM framework^{15,16} with particular use of the Reach, Adoption and Implementation components.

2 | METHODS

2.1 | Setting and participants

The implementation of the checklist occurred at three sites in metropolitan and rural hospital sites of New South Wales, Australia. Site A is a 750-bed tertiary teaching hospital that provides medical

Practitioner Points

- Screening and referral of cancer patients for smoking cessation can be a quick and simple process using a standardised checklist.
- Healthcare professionals have a responsibility to provide information to patients about the options available to them to minimise the risks associated with tobacco use.
- Assessing smoking status and empowering patients with the information to quit is the responsibility of the whole multi-disciplinary team, including oncologists, nurses, pharmacists, and allied health.

and radiation oncology and specialised survivorship clinic services. Site B is a 125-bed private hospital that provides specialised cancer services including medical and radiation oncology services. Site C is a 190-bed tertiary teaching hospital that provides medical and radiation oncology services.

2.2 | Procedures

2.2.1 | Recruitment and training of HCPs

A research team member from Sydney Catalyst Translational Cancer Research Centre²¹ verbally introduced the study to cancer service directors. Eligible HCPs included medical and radiation oncologists, nurses, hospital managers, and allied health at the participating sites.

HCPs were invited to a 1-hour smoking cessation training held during team meetings and introduced to the study, including a 20-30 minute discussion of the clinical pathway and champion identification. The details of each strategy are as follows:

- "Staff training" used the nationally recognised smoking cessation framework⁷ and resources¹⁷ about the importance of advising patients of quitting, dispelling myths, NRT options and dosage, and a series of short video re-enactments of HCPs referral to Quitline. Training was provided by three members of the research team who were initially trained by CINSW¹⁸. The hospital pharmacist explained NRT usage in a 15-30 minute session. Three additional training sessions were provided to new HCPs throughout the intervention period due to staff turnover.
- "Process maps"¹⁹ were created with HCP through collaborative discussion. The maps depict key timepoints for checklist usage (See Appendix S2 for the process maps developed and the ones that were implemented).
- "Champions" were HCPs identified at team meetings; they could self-nominate or volunteer for this role. Champions were provided with verbal instruction to remind HCPs in their department about the checklist and encourage other HCPs to standardise their practices through checklist usage.

During the meeting, HCPs were invited to complete baseline surveys, either paper-based or online, with an additional question in the survey to participate in a telephone or in-person interview. Completion of the survey was considered implied consent and written consent was obtained for interviews. The appropriate human ethics committees approved the study.

2.2.2 | Checklist completion

Checklists were completed using the following process:

1. If a patient was identified as a non-smoker, the checklist was not completed but was signed and scanned into the patient file for the purpose of data tracking.
2. If the patient was identified as a current smoker, the checklist was completed. HCP arranged referral options, which varied depending on site availability, including Quitline, NRT (via a general practitioner [GP] or in-service provision), or referral to an HCP for brief follow-up telephone support using behavioural strategies. Prior to NRT referral, HCPs would assess for nicotine dependence and any contraindications (e.g., pregnancy). If a patient declined referral then a Quitline brochure and/or QuitKit (including a self-guided booklet with reasons to quit, practical steps, goals, and links to support services).

2.2.3 | Variations to procedures

A flagging system was created to enable ongoing follow-up with current smokers at Site A and C. At these sites, a HCP made follow-up telephone calls with patients each fortnight. At Site A, HCPs could check with hospital pharmacists about NRT dosage and side-effects during consultations. At Site C, the HCP team created a quality checklist (QCL) in the electronic medical record (eMR) system for the pharmacists to dispense hospital-funded NRT.

2.3 | Implementation frameworks

The RE-AIM framework^{15,16} was used to evaluate the implementation process. Three components were measured during the study: (1) “Reach” was measured as the proportion of HCPs who were willing to participate in the given intervention; (2) “Adoption” was measured as the proportion of hospital settings willing to initiate the program; and (3) “Implementation” was measured by whether the intervention was delivered as intended.

2.4 | Data collection

2.4.1 | Data audit measure and process

The research team designed an audit collection tool (Appendix S3) based on previously used tools.²⁰ The tool included seven items, including, the number of new cancer patients, the number of patients

screened for tobacco use, referred, and who accepted referral. Data was collected prior to implementation (November 2018 to December 2019) by randomly auditing 10% of patient records and during the implementation period (November 2019 to December 2020).

2.4.2 | Evaluation surveys and interviews

Quantitative data collection: Surveys were developed by the research team and captured using the online platform, REDCap10.0.1 at baseline and evaluation (1-month post-implementation) to evaluate HCP confidence and checklist usage. The surveys included multiple-choice, single-choice, and free-text responses.

Qualitative data collection: A semi-structured interview schedule was developed by the research team to gather information about the usage of the checklist and contextual factors during implementation. The interviews were conducted by telephone or in-person and were recorded and transcribed.

2.5 | Data analysis

The data from the audit tool was collated and descriptive statistics were generated in Microsoft Excel. Qualitative data from the interview transcripts were analysed using content analysis²¹ to provide an understanding of the implementation process in the context of the three hospital settings²².

3 | RESULTS

The results section provide the HCP participation details, followed by the pre-implementation practices (baseline audit, survey and interview data) and finally the implementation practices (baseline audit, survey and interview data). The results describe practices prior to the introduction of the checklist, followed by the implementation evaluation.

3.1 | Pre-implementation practices

3.1.1 | Audit data

A random subset of 10% of the total patients attending the clinic was audited (Table 1; November 2018 – December 2019). Documentation of smoking status was evident for 69% of patients (161/235) mostly in the initial assessment letter. Fourteen percent (23/161) were identified as current smokers. There was one documented case of HCPs advising patients to quit smoking and two documented attempts of referrals to cessation services.

3.1.2 | HCP survey and interview data

Based on baseline survey responses, the majority of HCPs (93%; 51/55) reported that smoking status was asked during the first specialist consultation (69%; 38/55). Providing quitting advice was

TABLE 1 Pre-implementation audit data for 10% of the cancer patients that attended at the three sites

Clinical audit data	Site A		Site B		Site C	
	N	%	N	%	N	%
Total patients accessing services	1196	100.0	900	100.0	243	100.0
Random audit of 10% of patients	120	10.0	90	10.0	25	10.0
Documented smoking status	66	55.0	76	84.4	19	76.0
Current smokers	6	5.0	13	14.4	4	16.0
<i>How did current smokers respond to smoking cessation referral options?†</i>						
Accepted referral	0	0.0	0	0.0	0	0.0
Declined referral	0	0.0	0	0.0	2	50.0
Currently already accessing services	0	0.0	0	0.0	0	0.0
Unknown‡	6	100.0	13	100.0	2	50.0
Former smokers	17	14.2	30	33.3	7	28.0
Non-smoker	43	35.8	33	36.7	8	32.0
Not recorded/Status not found	54	45.0	14	15.6	6	24.0

†Quitline, NRT, GP, follow-up telephone support.

‡Cannot distinguish whether the patient declined or the HCP did not ask.

reportedly common (73%; 40/55). Referral to smoking cessation services was reportedly less common: referral to NRT (33%; 18/55), or the GP for NRT (31%; 17/55), followed by Quitline services (29%; 16/55), a smoking cessation officer (18%; 10/55) or written materials (18%; 10/55). Some did not provide any referral options (31%; 17/55).

Free-text responses provided by HCPs indicated that the three main barriers to making a referral include time pressure during consultations, patient's reluctance or non-compliance to quit, and a lack of understanding about NRT (usage, referrals, follow-up required). As reported by a medical oncologist prior to implementation:

"If you are 40-min behind in clinic, you are not going to talk about smoking cessation at the first appointment and there was no good mechanism to remind yourself that this person is still smoking, it was buried in the database, so no prompt, so you would not revisit that to be honest" (E9).

3.2 | Setting and HCP participation (Adoption)

All three hospital settings were willing to implement the checklist. Of the eligible HCPs, 67% participated in training (63/94). HCPs included oncologists/registrar (41%; 26/63), nurses (32%; 20/63), and others (27%; 17/63) including radiation therapists, pharmacists, hospital managers, and exercise physiologists. Of those who participated in the training, 87% completed baseline surveys (55/63), 45% completed evaluation surveys (27/60), and 35% HCPs had provided responses to both surveys (21/60). Three HCPs left the service at the time of evaluation survey completion.

The interviews were with HCPs, including hospital managers (21%; 20/94).

3.3 | Implementation practices

3.3.1 | Audit data: Checklist completion and quit referral acceptance rates (Reach)

Delivery of the checklist intervention was mixed across the three sites, with 16%, 92%, and 89.5% of patients screened respectively (See Table 2). The combined results across the three sites indicate that, of the 2368 patients that attended the clinics, a total of 1276 patients (54%) were screened for tobacco use (over a 13-month period from November 2019 to December 2020). Of those patients who were screened, 126 (10%) were identified as current smokers. Oncologists and nurses advised patients of quitting and referral, of which 34 (27%) patients accepted referral, 48 (38%) declined referral and did not want to quit, and 26 (21%) declined referral but wanted to quit. One patient was already accessing cessation services (1%) and 17 (13%) had no documented response. Current smokers averaged 61.9 years of age (SD = 11.90) and 59% were male. Many were assessed as nicotine dependant (80/126; 63%). Of the 34 patients that accepted referral, 11 (32%) accepted a referral to Quitline alone, three (9%) accepted NRT alone, and two (6%) accepted a general practitioner referral alone, one (3%) accepted HCP-led follow-up alone, and 17 (50%) accepted a combined referral to two, three, or all four options.

Twelve patients were referred for HCP-led follow-up support. Six (50%) were contactable on the first call but this decreased to four (30%) after a month. Nevertheless, two patients reported to quit smoking after 3-months after rapport was built. Adherence to the provision of follow-up support was hindered due to staff turnover and no role replacements. As discussed by one HCP, "we all firmly want our patients to be ex-smokers, and so we all have that commitment...[yet no role replacements remain, although] it wouldn't take that much to educate HCPs to do a 5-min [follow-up support] consult on the phone (E8)".

TABLE 2 Clinical audit data and Demographics of patients attending hospital sites during implementation

Clinical audit data	Site A		Site B		Site C	
	N	%	N	%	N	%
Total patients accessing services	1179	100.0	989	100.0	200	100.0
Checklists completed	187	15.9	910	92.0	179	89.5
Current smokers	19	10.2	80	8.8	27	13.5
<i>How did current smokers respond to smoking cessation referral options?[†]</i>						
Accepted referral	13	68.4	10	12.5	11	40.7
Declined referral and do not want to quit	4	21.1	32	40.0	12	44/4
Declined referral but want to quit	2	10.5	21	26.3	3	11.1
Currently already accessing services	0	0.0	1	1.3	0	0.0
Unknown [‡]	0	0.0	16	20.0	1	3.7
Nicotine dependant [§]	10	52.6	49	61.3	21	77.8
Former smoker	Unknown	Unknown	3	0.4	83	41.5
Non-smoker	Unknown	Unknown	827	90.9	69	38.5
Current smoker demographics	N = 19		N = 80		N = 27	
Sex						
Male	8	42.1	55	68.8	11	5.5
Female	11	57.9	25	31.3	16	8.0
Age (mean, range)	M = 62.89	SD = 10.17	M = 62.25	SD = 12.28	M = 60.11	SD = 12.49
Tumour types						
Breast	6	31.6	11	13.8	10	37.0
Colorectal	7	36.8	7	8.8	0	0.0
Gynaecological	0	0.0	1	1.3	0	0.0
Head and Neck	0	0.0	12	15.0	0	0.0
Melanoma	0	0.0	1	1.3	2	7.4
Neurological	0	0.0	3	3.8	0	0.0
Respiratory	1	5.3	22	27.5	6	22.2
Sarcoma	0	0.0	3	3.8	0	0.0
Upper gastrointestinal	2	10.5	2	2.5	6	22.2
Genitourinary (prostate)	0	0.0	12	15.0	0	0.0
Genitourinary (non-prostate)	3	15.8	4	5.0	2	7.4
Leukemia	0	0.0	1	1.3	1	3.7
Other	0	0.0	1	1.3	0	0.0

[†]Quitline, NRT, GP, follow-up telephone support.

[‡]Cannot distinguish whether the patient declined, or the HCP did not ask.

[§]Based on three questions: Site A - 3 missing data, Site B - 7 missing data.

3.3.2 | HCP survey and interview data: Evaluation of checklist usage and role identity (Implementation)

HCPs suggested that sections of the checklist (e.g., Assess) could be clearly stated as optional given the relevancy only for patients who accepted NRT. When the patient was willing to quit, HCPs reported that the checklist acted as a “structured” approach to advise and refer patients. HCPs found it was a “timely” prompting tool. HCPs survey ratings of their confidence to advise and refer patients had increased

after the implementation of the checklist, based on a sub-group of 21 HCPs who completed both baseline and evaluation surveys (Figure 1). One nurse reported, “[The checklist] was beneficial, it helped us streamline our thinking and identify particular areas that we needed to think about...from a patient's perspective...if you have made a decision [to quit], and it is not an easy decision to make...walk away with a plan...[to] commence is pretty important” (B1).

Reasons for the lower response at Site A were explored. Table 3 presents the contextual factors that influenced the implementation process at each site (e.g., system, staff, and intervention). In relation

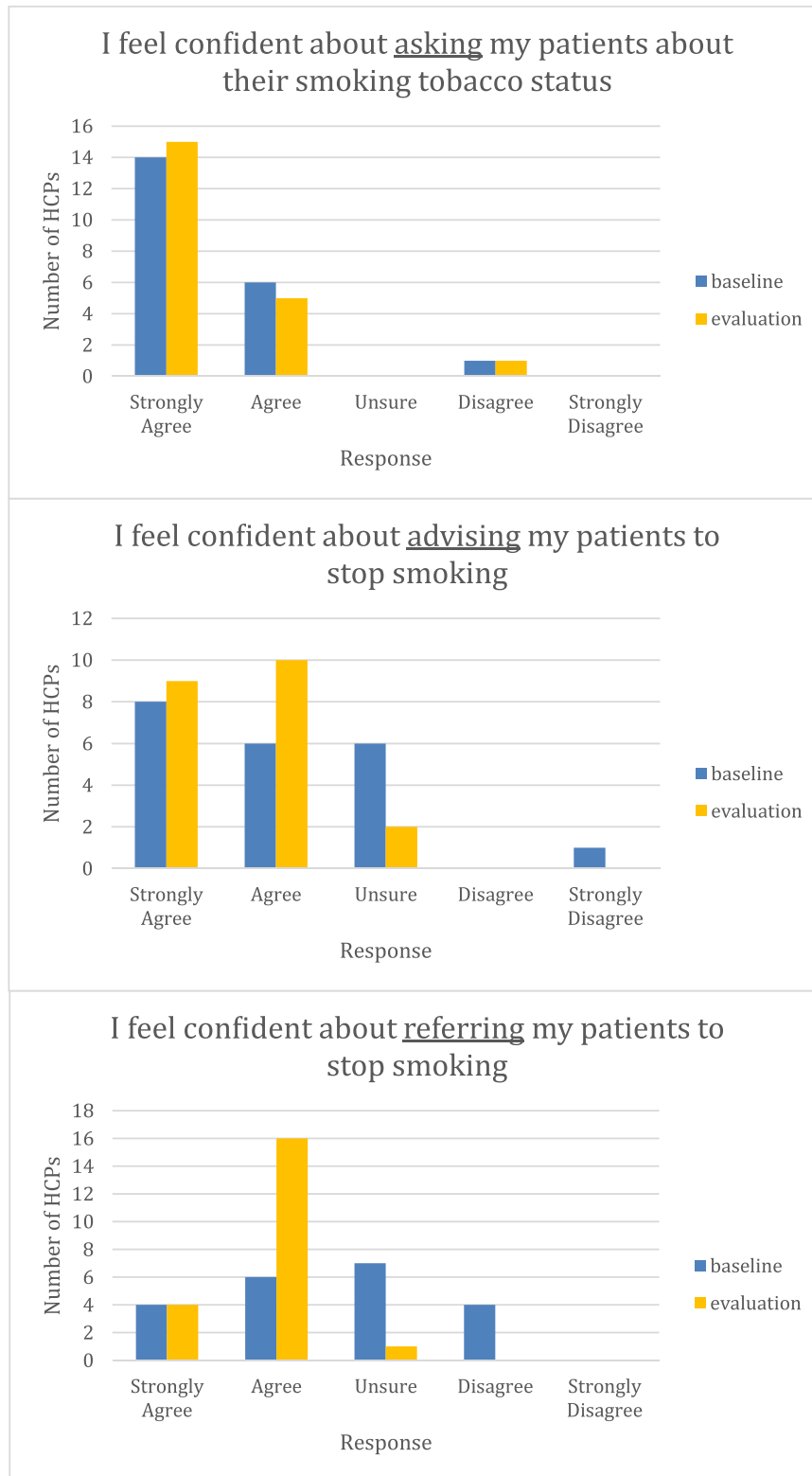


FIGURE 1 Healthcare professional's (n = 21) self-reported confidence about asking, advising, and referring patients to smoking cessation services at baseline and evaluation time-points [Colour figure can be viewed at wileyonlinelibrary.com]

to role identity, HCPs reported during interviews that the training empowered pharmacists and nurses to advise patients to quit and dispense NRT. Nevertheless, some HCPs reported that if one person (i.e., champion) within a single discipline was completing the checklist then another was less likely. Some HCPs reported that since smoking

cessation was a general concern of all HCPs it was not part of their role description or considered their responsibility. As one HCP said, "People think their role is important and therefore time is precious. Therefore, they don't have time to be asking a generic question - one that can be asked by anyone" (E7).

TABLE 3 Multi-level contextual factors influencing the adaptation and sustainability of smoking cessation practices at the three sites domains adopted from Geerligs et al.²⁹

Domains	Site A	Site B	Site C
SYSTEM			
Environment	750-bed tertiary teaching hospital that provides medical and radiation oncology, specialised survivorship clinic services	125-bed private hospital that provides specialised cancer services including medical and radiation oncology services	190-bed tertiary teaching hospital that provides medical and radiation oncology services
Culture	Based on the training day and interviews, HCPs were moderately receptive to changing practices	Based on the training day and interviews, HCPs were highly receptive to changing practices	Based on the training day and interviews, HCPs were highly receptive to changing practices
Communication processes	Based on the training day and interviews, interdepartmental communication between oncologists, nurses, pharmacists, and information technology services was relatively low	Based on the training day and interviews, interdepartmental communication between oncologists and nurses was relatively moderate	Based on the training day and interviews, interdepartmental communication between oncologists, nurses, pharmacists, and information technology services was relatively high
External requirements	Based on interviews, external pressures and expectations impacted highly on the deliverables of the system comparatively to the other two sites	Based on interviews, external pressures and expectations impacted lowly on the deliverables of the system comparatively to the other two sites	Based on interviews, external pressures and expectations impacted moderately on the deliverables of the system comparatively to the other two sites
STAFF			
Attitude towards implementation	Senior and junior Oncologists buy-in	Senior Oncologists and nurse buy-in	Multi-disciplinary team buy-in
Understanding/awareness	Low understanding of the aims and methodology of the intervention	Moderate understanding of the aims and methodology of the intervention	High understanding of the aims and methodology of the intervention
Role identity	Few senior and junior Oncologists considered themselves responsible to complete smoking cessation screening and referral	Few senior Oncologists resumed responsibility and most nurses considered themselves responsible to complete smoking cessation screening and referral	Most members of the multi-disciplinary team considered themselves responsible for an aspect of smoking cessation pathway
Skills, ability, confidence	HCPs reported barriers included time management, competing demands, lack of understanding about NRT	HCPs reported barriers included time management and competing demands	HCPs reported barriers included time management and competing demands
INTERVENTION			
Ease of integration	Low-Moderate "fit" with current system and resources given the ability to adapt procedures to include a flagging system but with difficulty to routinely integrate	High "fit" with current system and resources given the ability to adapt procedures to include checklist without flagging system	High "fit" with current system and resources given the ability to adapt procedures to include checklist within electronic medical record with flagging system
Face validity/evidence base	Mixed views on whether the checklist components are effective	Most viewed the checklist components as effective	Most viewed the checklist components as effective
Safety/legal/ethical concerns	Moderate concerns with needing more information about NRT	No concerns with needing more information about NRT	Low concerns with needing more information about NRT
Supportive components	Moderate education/training provided due to time constraints and high audit/feedback	High education/training provided and high audit/feedback	High education/training provided and high audit/feedback

4 | DISCUSSION

This study aimed to evaluate the implementation of a pre-existing smoking cessation checklist in three oncology services in NSW, Australia. About half of all patients were screened for tobacco use across the three sites (with two sites screening over 89% of patients). Of the patients who were current smokers (10%), one in four (27%) accepted cessation referral to a smoking cessation service. HCP confidence and documentation of assessment and referrals had increased after checklist implementation. This study highlights the strength of clinician-driven implementation and the influence of contextual factors on successful implementation.

In consideration with the RE-AIM framework¹⁵, the implementation showed some promising findings. Firstly, the reach or proportion of HCPs participation was reasonable; 67% of the eligible HCPs who were invited received training and 87% of those went on to participate in the initial survey. Over time, however, participation in surveys declined. More focus on recruitment strategies to involve a greater proportion of HCPs is merited (e.g., identify a clinician recruiter)²³. However, greater reach through survey completion may not be necessary, given that the checklist uptake at two sites was very high. Second, in relation to setting adoption, all oncology services that were invited, participated. Lastly, implementation of a standardised pathway is possible by checklist completion, as evident by the screening and referral of 92% and 89.5% of patients at two sites. We considered that implementation was moderate (54%) across the sites, highlighting the impact contextual factors (e.g., culture, communication processes, ease of integration) can have on the outcomes observed (Table 3). Intentions for sustained use of the checklist are shown by HCPs who embedded the checklist into existing workflows (i.e., the initial nursing assessment at Site B and the eMR system at Site C). This integration shows promise for the pathway and warrants further exploration in other settings.

Previous smoking cessation programs targeting all cancer patients in hospital settings also provided referral options for pharmacologic and non-pharmacologic interventions. A program conducted in South Carolina²⁰ evaluated the development of system to electronically refer all new cancer patients to Quitline and track smoking status within three community oncology services, with 36% of the overall smokers accepting Quitline referral over a 15-month period. A program from Cancer Centre Ontario²⁴, which included 14 regional cancer centres screened all new ambulatory cancer patients over a 3-year period, found that the acceptance of a referral to a range of services (e.g., telephone counseling, cessation clinics, pharmacy for pharmacologic options) by self-identified smokers were less than 25%. Moreover, a London Regional Cancer program that involved a two-year evaluation period aimed to screen and refer all cancer patients in hospital-based settings²⁵. The results showed a 13% acceptance of referral to written material and a nurse-led brief behavioural intervention. Acceptance of referral in our study is comparable to prior programs (27% of identified smokers). An opt-out approach has been proposed²⁴⁻²⁶ and evaluated with US state-wide Quitline referrals²⁷ as a strategy to overcome the

low acceptance rate. Identified smokers are automatically referred to smoking cessation options instead of asked whether they are ready to quit.

A myriad of reasons for declining referral are possible, including stress following a cancer diagnosis²⁸, a desire to maintain personal choice within the context of a diagnosis²⁸ and patient risk perceptions of the link between smoking and health^{28,29}. Of those who declined referral in the current study, some (34%; Table 2) were interested in quitting. The timing of referral to a smoking cessation service could be more effective at a time-point other than the initial consultation. The highest quit attempts occur within the 12-months post-diagnosis and rates continued but decline after diagnosis according to an Australian study of 3315 mixed cancer-type patients³⁰. The eMR flagging system allowed HCPs to re-assess cessation, which is considered an important step given that a patient's motivation to quit can be prolonged³¹.

The provision of a follow-up system for patients is necessary and could also be conducted not only by the oncologists, but by other services or HCPs. A United States-centralised hospital-based program with highly trained smoking cessation officers provided intensive assessments, follow-up and a combination of referral options has shown to be effective, with quit rates of greater than 40%³². Nevertheless, many institutions may not have the resources for a dedicated team, and other methods may be more viable. Another model of care involves dedicated HCPs running a smoking cessation pathway within cancer services. The Ontario Cancer Centre program referred all new cancer patients to a full-time registered nurse employed to provide behavioural support, pharmacologic options, and 6-month follow-up contact, with quit rates of 44%.³³ Other HCPs have also been shown to play an important role in providing brief smoking cessation interventions within cancer services, including hospital pharmacists who can enhance NRT prescribing³⁴ and social workers.³⁵ The follow-up telephone support provided in the current study appeared to provide needed support for patients given the rapport built with a designated person. Having a dedicated and trained HCP within the hospital setting was preferred by HCPs in the current study and echoed nationally by Australian medical and radiation oncologists⁹.

Key strengths of the implementation are noteworthy. First, the two metropolitan and one rural hospital provided diversity in observing how the checklist functioned under different conditions, using paper-based or electronic processes. Embedding the checklist into a paper-based intake form or eMR system was considered exemplary, with both processes providing successful screening. Nevertheless, automated referral to Quitline direct from the eMR can streamline referral and is occurring nationally.³⁶ Second, sites that had training with most of the multidisciplinary team allowed for cross-disciplinary collaboration. Subsequently, mutually agreed-upon process maps were developed and champions were appointed accordingly. Third, complimentary NRT was provided at one site, which appeared to streamline the referral process. Prior cancer service interventions with unmotivated smokers report that when free NRT is available, engagement by patients is higher.^{20,37} Yet, the necessity of complementary NRT remains unknown.

This study also has several limitations. In the pre-implementation stage, 69% of HCPs self-reported that patients were asked about their smoking status, yet this is discrepant with the pre-implementation medical record audit. It is noted in the literature that HCPs often overestimate their smoking cessation provision³⁸. Yet, reliance on audit data is problematic given the likely under-documentation⁹ but also highlights the practice-documentation problem when standardising smoking cessation processes. There were some disruptions during the study at two sites due to COVID-19, during which time data collection ceased for 2-months, and HCPs reported difficulties with checklist completion due to changes in practice. Future studies would benefit from the use of a modified checklist, including a control condition over a longer time period, with strategies to adapt to telehealth consultations.

A checklist is a simple, effective, and versatile intervention used to standardise smoking cessation practices in medical and radiation oncology services. Delivery of the checklist within cancer services improved successful referral. Embedding the checklist into the initial nursing assessment and eMR system were clear examples of clinician-driven initiatives that built upon existing frameworks within the hospital system to create lasting change. The integration of a standardised checklist into routine cancer care warrants further large-scale testing in a randomised trial.

DATA AVAILABILITY STATEMENT

No data is available from the current study.

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CONFLICT OF INTEREST

Philip Beale has received Advisory Board payment over the past two years relating to ovarian cancer treatment. Robert Zielinski has received industry payment for Advisory Board participation and speakers at webinars from MSD, Roche, Tilray, Pfizer, Astra Zeneza, and BMS.

ETHICS APPROVAL STATEMENT

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Human Research Ethics Committee - CRGH of the Sydney Local Health District (protocol code 2019/ETH10553 and approved on 20 August 2019).

PATIENT CONSENT STATEMENT

Informed consent for the interview data was obtained from all subjects involved in the study. Patient consent was waived for survey completion because consent was implied for the completion of surveys.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

Permission has been granted to reproduce the checklist.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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