Supportive Care in Cancer (2026) 34:1079
https://doi.org/10.1007/s00520-026-11275-9

RESEARCH

Designing for delivery: a Delphi study of feasibility-informed implementation strategies for a fear of cancer recurrence clinical pathway

Ben Smith[1,2] · Verena Shuwen Wu[1,2] · Alison Pearce[1,3] · Jia Liu[4,5] · Heather L. Shepherd[6] · Joanne Shaw[7,8] · Afaf Girgis[2] · Gail Garvey[9] · Laura Kirsten[7,10] · Iman Zakhary[11] · Carolyn Ee[12,13,14] · Dan Ewald[15] · Annie Miller[7] · Andrea Smith[1,3] · Agamjot Kaur Virk[3] · Joy Gao[3] · Natalie Taylor[16]

Received: 16 February 2026 / Accepted: 24 September 2026
© The Author(s) 2026

Abstract

Purpose Fear of cancer recurrence (FCR) is pervasive among cancer survivors, yet evidence-based care is rarely implemented. Clinical pathways offer a structured approach to translating evidence into practice. This study identified key implementation barriers, enablers, and strategies for feasibly integrating an FCR clinical pathway comprising screening, assessment, and triage to stepped care into practice.

Methods A three-round Delphi study was conducted with Australian health professionals and FCR researchers. Participants rated and provided qualitative feedback on the feasibility of FCR clinical pathway elements. Qualitative responses were content analysed using the updated Consolidated Framework for Implementation Research. Recommended strategies were mapped using the Expert Recommendations for Implementing Change taxonomy.

Results Eighty-nine participants completed Round 1, 69 Round 2, and 73 Round 3. Feasibility ratings varied across pathway elements (49–90%). Stepped care elements were widely endorsed as feasible (71-83% agreement), while resource-intensive recommendations (e.g., training all staff for screening) were perceived as least feasible. Key implementation enablers included Adaptability, Access to Knowledge and Information, and strong Innovation Recipient Need. Major barriers were Available Resources, Work Infrastructure and limited Innovation Deliverer Opportunity. Recommended strategies included tailoring delivery to local contexts and patient needs supported by modular training and local champions.

Conclusion Implementing the FCR clinical pathway requires pragmatic adaptation and system-level support. Prioritising high-impact elements, providing training, integration into existing workflows, and shared decision-making to meet patient needs are critical. Future research should evaluate these strategies using hybrid effectiveness–implementation designs to ensure sustainable implementation and improved patient outcomes.

Keywords Fear of cancer recurrence · Cancer survivorship · Clinical pathway · Supportive care · Implementation · Delphi study

Introduction

The number of people living with and beyond cancer is growing rapidly, currently estimated to be over 53 million people globally [1]. Most people affected by cancer experience some degree of fear, worry, or concern about their cancer coming back or getting worse, which is referred to as fear of cancer recurrence (FCR) [2]. An international individual participant data meta-analysis ($n = 9311$) found 39% of people affected by cancer experience moderate FCR, while 19% experience severe/clinical FCR [3] equating to more than 30 million people affected by FCR globally. People with clinically severe FCR experience high and persistent levels of preoccupation and worry, hypervigilance to physical symptoms, and functional impairment [4]. Moreover, people with more severe FCR experience poorer mental health and quality of life [5], and use more healthcare services [6].

Receiving help with FCR has been identified as the greatest unmet supportive care need in people with cancer [7]. In response, a wide range of measures (e.g. the Fear of Cancer

Extended author information available on the last page of the article

Recurrence Inventory [8], FCR-4/7 [9], Ottawa Clinical Fear of Recurrence instruments [10]) and treatments (e.g. Conquer-Fear [11], FORT [12], SWORD [13]) have been developed and shown to effectively identify, assess, and treat FCR [14, 15]. However, translating these resources into routine clinical practice has proven challenging. Documented implementation barriers include limited awareness of FCR, inadequate referral pathways, concerns about equitable access, healthcare professional capacity constraints, and challenges applying manualised FCR interventions in diverse clinical contexts [16, 17]. Until recently, there was limited formal guidance on how to systematically address FCR in clinical settings. In 2024, this gap was addressed through the publication of Canadian FCR guidelines [18] and a complementary Australian FCR clinical pathway developed by our team [19]. Both advocate for routine FCR screening, followed by further assessment and triage to stepped care. Pilot studies have demonstrated the acceptability, feasibility, and preliminary efficacy of this approach [20], but there is limited evidence of successful implementation in routine care. Enhancing the translation of FCR research into clinical care and improving access to FCR treatment have been identified as international [21] research priorities.

Clinical pathways are a well-established strategy for translating evidence into practice. By offering standardised, context-specific recommendations for multidisciplinary care, they help bridge the gap between research and routine clinical delivery [22]. To support implementation of FCR research, we developed a clinical pathway incorporating contemporary evidence and consensus-based guidance on optimal FCR screening, assessment, and triage to stepped care [19]. The pathway was developed through a three-stage Delphi process, whereby $n = 94$ participants—primarily health professionals working across varied disciplines and settings—reached consensus on 35/38 (92%) of proposed pathway elements based on alignment with best-practice and potential to improve patient outcomes (optimality). With consensus achieved regarding the optimal clinical pathway, the next critical step is to ensure feasibility of pathway elements. Feasibility was also assessed in the Delphi study and has been identified as a key antecedent of successful implementation. Analysis of qualitative feedback regarding feasibility can identify strategies to overcome perceived implementation barriers and enablers.

This secondary analysis of data from the Delphi study conducted to establish the optimal FCR clinical pathway aimed to facilitate the successful future implementation of the pathway by:

1. Reporting the perceived feasibility of optimal pathway elements.
2. Identifying pathway implementation barriers and enablers.
3. Developing pathway implementation strategies.

Methods

Study design and context

This study is a secondary analysis of data collected during a previously published three-round Delphi study that established consensus on optimal elements of a clinical pathway for identifying and managing FCR in routine care of early-stage cancer survivors [19].

The study was approved by the University of New South Wales Human Research Ethics Committee (HC230052), conducted in accordance with the Conducting and Reporting Delphi Studies (CREDES) guidelines [23], and reported following the Standards for Reporting Implementation Studies (StaRI) Statement [24].

Participants and recruitment

Eligible participants included Australian health professionals involved in the care of adult cancer survivors (≥ 18 years) and researchers who had co-authored a peer-reviewed paper on FCR within the past 5 years. Participants working primarily with paediatric populations were excluded due to contextual differences in FCR presentation and management. Participants were recruited via professional oncology organisations, conference presentations, and social media. All participants gave informed consent. Participants who completed Round 1 were invited to subsequent rounds; no new participants were recruited after Round 1.

Outcomes and analysis

Feasibility assessment (Aim 1)

Participants rated the feasibility (i.e. likelihood of implementation in routine care) of each pathway element using a 5-point Likert scale from "strongly disagree" to "strongly agre,", with a "Not my expertise" option for items outside a participant's scope.

The proportion of participants agreeing/strongly agreeing that an item was feasible was analysed descriptively.

Identifying pathway implementation barriers and enablers (Aim 2)

Open-ended comments were collected alongside the Delphi item for each pathway element and at the end of each pathway component to capture perceived implementation barriers and enablers.

Directed content analysis was conducted on open-ended qualitative responses using the updated Consolidated Framework for Implementation Research (CFIR) [25]. Only

responses related to pathway elements included in the final clinical pathway were analysed. The updated CFIR is one of the most widely used and validated frameworks for categorising implementation barriers and enablers (i.e. determinants). It comprises five domains: Innovation (intervention attributes), Outer Setting (external context), Inner Setting (organisational context), Individuals (characteristics of those involved in implementation), and Implementation Process (implementation activities) [25]. Each domain includes multiple constructs representing potential barriers and enablers to implementation. As the clinical pathway is currently in the pre-implementation phase, the Implementation Process domain was not coded.

A codebook was developed by the research team based on the updated CFIR template (available at cfirguide.org) and adapted to the study context to aid consistent interpretation of constructs and support inter-rater reliability (see Supplementary Material 1). Each qualitative response was independently coded by two researchers (AKV and JG) to the single most relevant CFIR domain and construct. Coders also classified whether the response reflected an implementation barrier, enabler, or neutral factor. The number of barriers and enablers relating to each construct was counted.

Coding followed an iterative process. AKV and JG met regularly with the broader research team to discuss and refine coding decisions. Discrepancies were resolved through team consensus involving experienced qualitative/implementation researchers (ABS, AS, and VW). To enhance reliability, ABS and VW subsequently each coded half of the dataset, so every response was reviewed by three researchers. All coding was conducted using Microsoft Excel.

Developing implementation strategies (Aim 3)

Once key implementation determinants were identified, the CFIR-ERIC matching tool [26] was used to identify implementation strategies addressing the most common barriers and enablers. The CFIR-ERIC matching tool is a theory-informed resource that links specific implementation barriers and enablers identified using the CFIR, to evidence-based implementation strategies from the Expert Recommendations for Implementing Change (ERIC) taxonomy [27]. It enables systematic selection of strategies most likely to address identified contextual challenges, thereby enhancing the feasibility and likely success of implementation.

Results

Participants

Of the 94 individuals who consented to participate in the Delphi study, 89 completed Round 1 (April–June 2023), 69 completed Round 2 (July–August 2023), and 73 completed Round 3 (November–December 2023). Participants (see Table 1) were primarily healthcare professionals (86%), spanning disciplines including mental and allied health ($n=31$, 33%), nursing ($n=30$, 32%), and medical/radiation/surgical oncology ($n=18$, 19%) working in metropolitan (84%) tertiary referral centres (47%) in public settings (54%).

Feasibility of pathway elements (Aim 1)

Feasibility ratings for clinical pathway elements ranged from 49.4% ("All clinical staff should be trained to implement FCR screening and respond appropriately") to 90.1% ("It is important that all health care professionals validate and normalise FCR") (see Table 2). Average feasibility ratings were highest for the post-screening/triage stepped-care treatment pathway component (75.9%) and lowest for the supported self-management for moderate FCR pathway component (61.0%).

Determinants of pathway feasibility (Aim 2)

Of the 639 qualitative responses collected, 410 related to elements ultimately included in the FCR clinical pathway, which were coded to the Innovation ($n=99$), Individuals ($n=125$), Inner Setting ($n=144$), and Outer Setting ($n=9$) updated CFIR domains. Thirty-three responses were coded as 'not applicable' due to brevity or ambiguity.

170 responses were coded as barriers, 53 as neutral, and 154 as enablers. Barriers and enablers related to updated CFIR domains (in bold italics) and constructs (in bold) are provided below, with illustrative quotes in Table 3.

Innovation domain

Forty-five enablers, 22 barriers, and 32 neutral factors were identified regarding *Innovation*, namely the FCR clinical pathway.

Innovation design was both an enabler ($n=20$) and a barrier ($n=8$). Many participants viewed the pathway's design as aligned with best practice, but some thought screening prior to follow-up appointments may pick up transient peaks in FCR.

Innovation complexity was identified as a barrier ($n=7$). The two-step screening process was seen as adding administrative burden and concerns were also raised about stepped care leading to 'double handling' of the majority of patients likely to need extra support.

Innovation adaptability was the most frequently cited enabler ($n=22$). Participants emphasised the importance of tailoring implementation to local contexts, especially for rural and remote patients with limited access to in-person care

Table 1 Participant characteristics

Characteristic		*N* (%) of respondents
Age	21–30	3 (3.2)
	31–40	25 (26.6)
	41–50	28 (29.8)
	51–60	24 (25.5)
	61–70	13 (13.8)
	Prefer not to say	1 (1.1)
Gender	Man/male	10 (10.6)
	Woman/female	84 (89.4)
Country of birth	Australia	71 (75.5)
	Other	23 (24.5)
Language spoken at home	English	82 (87.2)
	Other	12 (12.8)
Aboriginal/Torres Strait Islander status	Non-Indigenous	94 (100.0)
Geographic area	Metropolitan	79 (84.0)
	Regional	5 (5.3)
	Rural	10 (10.6)
Primary role	Clinician	81 (86.2)
	Researcher	10 (10.6)
	Educator	3 (3.2)
Primary focus	Psychology	18 (19.1)
	Social work	13 (13.8)
	Nursing	30 (31.9)
	Medical oncology	12 (12.8)
	Radiation oncology	5 (5.3)
	Surgical oncology	1 (1.1)
	Palliative care	1 (1.1)
	Other	14 (14.9)
Work setting (clinician/educator; $n=84$)[a]	Tertiary referral cancer centre	44 (46.8)
	District/local hospital	22 (23.4)
	Non inpatient cancer treatment centre	18 (19.1)
	Non-hospital based	10 (10.6)
	Primary care	2 (2.1)
	Community centre	6 (6.4)
	Other	6 (6.4)
Public/private (clinician/educator; $n=84$)[a]	Public	51 (54.3)
	Private	7 (7.4)
	Public and private	17 (18.1)
	Public charitable organisation	3 (3.2)
	Private charitable organisation	5 (5.3)
	Other	2 (2.1)
Years worked with cancer survivors (clinician/educator; $n=84$)	0–2	3 (3.2)
	3–5	11 (11.7)
	6–10	22 (23.4)
	10+	48 (51.1)
Role caring for cancer survivors with FCR (clinician/educator; $n=84$)[a]	Screening and/or assessment	49 (52.1)
	Referral to psychosocial support	55 (58.5)
	Provision of psychosocial support	47 (50.0)
Years conducting research (researcher; $n=10$)	6–10	3 (3.2)
	10+	7 (7.4)

[a]Respondents could select multiple responses

Table 2 Optimal and feasible ratings for elements included in the FCR clinical pathway

Pathway Component	Optimal % [a]	Feasible % [a]
Screening		**66.8%** [b]
Screening for FCR should commence at the completion of hospital-based treatment (e.g. surgery, chemotherapy, or radiotherapy)	52/72 (72.2%)	68/89 (76.4%)
Screening for FCR should be conducted prior to a cancer survivor's follow-up appointment to aid discussion during the appointment if needed	74/89 (83.1%)	61/89 (68.5%)
Screening for FCR should be repeated after a cancer survivor's follow-up appointment, to characterise the persistence of FCR	74/89 (83.1%)	57/89 (64.0%)
A brief validated tool, administered either in written or verbal form, should be used to identify cancer survivors experiencing FCR needing further assessment	88/89 (98.9%)	75/89 (84.3%)
Two-step screening should be used: (1) A brief (e.g. single-item) screening tool to identify individuals with potential FCR; (2) A longer (approx. 10-item) screening tool to assess FCR severity in those above cut-off on the initial measure	77/87 (88.5%)	60/89 (67.4%)
Specific clinical staff should be designated to review the results of FCR screening	76/89 (85.4%)	51/89 (57.3%)
All clinical staff should be trained to implement FCR screening and respond appropriately	75/89 (84.3%)	44/89 (49.4%)
Triage, assessment, referral		**71.4%** [a]
A triage conversation including discussion of results of FCR screening should take place with all cancer survivors (and their family caregiver if desired)	57/68 (83.8%)	37/69 (53.6%)
Non-mental health specialists (e.g. cancer care nurses/coordinators) are well-placed to have triage conversations with cancer survivors	71/86 (82.6%)	63/86 (73.3%)
Training is needed to support health care professionals to have triage conversations with cancer survivors about FCR	84/86 (97.7%)	72/86 (83.7%)
When the results of screening and the triage conversation suggest a cancer survivor has severe FCR they should be assessed by a mental health specialist (e.g. psychologist/psychiatrist) to confirm the recommendation of specialist FCR care	75/86 (87.2%)	53/86 (61.6%)
Patient education is needed to encourage uptake of recommended FCR interventions	77/86 (89.5%)	73/86 (84.9%)
Post-screening/triage stepped-care treatment		**75.9%** [a]
A stepped-care model is appropriate for managing FCR in cancer survivors	76/84 (90.5%)	64/85 (75.3%)
All cancer survivors should firstly be allocated to Step 1 (Universal care) regardless of initial FCR levels, then be stepped up to higher levels based on results of subsequent screening	72/84 (85.7%)	60/85 (70.6%)
Intervention recommendations for cancer survivors with moderate-severe FCR should consider their FCR level and their preference and capacity for engaging with self-management versus clinician-delivered interventions	59/66 (89.4%)	48/66 (72.7%)
The specific FCR treatment recommended to a cancer survivor should be guided by the stepped-care algorithm, but should be discussed and agreed on by patients and clinicians	63/66 (95.5%)	55/66 (83.3%)

and psychological support. This flexibility was seen as critical to supporting implementation across diverse settings and populations.

Individuals domain

Sixty-two enablers, 51 barriers, and 12 neutral factors were identified regarding *Individuals*, namely the people involved in pathway implementation.

Innovation deliverer capability was a key enabler ($n = 19$). Participants generally viewed FCR screening as within the *capabilities* of most staff. The *capability* of allied health professionals to address FCR across severity levels was also highlighted. Building *capability* through training was considered essential for some pathway elements, such as triage conversations and normalising FCR.

Responsiveness of the pathway to *innovation recipient need* was a strong enabler ($n = 25$). Screening was seen as

Table 2 (continued)

If a cancer survivor does not engage with the initially agreed on FCR intervention alternative interventions within the same step should be discussed. If none appeal, less intensive interventions from the step below could be considered.	55/66 (83.3%)	50/66 (75.8%)
Rescreening cancer survivors for FCR at routine follow-up appointments is an appropriate way of monitoring progress and guiding referral for further treatment if needed	78/85 (91.8%)	64/85 (75.3%)
Key team members need to tailor the FCR clinical pathway for their service	73/85 (85.9%)	63/85 (74.1%)
Tailoring should take into consideration the local cancer survivor population (e.g., cultural background and health literacy) and resources available	81/84 (96.4%)	68/85 (80.0%)
Step 1: Universal care for Minimal to Mild FCR		**64.4%** [a]
Cancer survivors should initially be provided with information about risk of recurrence, possible symptoms of recurrence and how they relate to FCR from their oncologist	70/81 (86.4%)	54/81 (66.7%)
Oncology specialists and nursing staff are the ideal people to address mild FCR as part of routine care	69/81 (85.2%)	49/81 (60.5%)
Primary healthcare professionals (e.g., general practitioners/GPs or GP nurses) could play an important role in addressing mild FCR in routine care, if trained appropriately	58/66 (87.9%)	38/66 (57.6%)
It is important that all health care professionals validate and normalise FCR	78/81 (96.3%)	73/81 (90.1%)
All cancer survivors with mild FCR should receive FCR psychoeducational materials provided by cancer support organisations (e.g., Cancer Council or Australian Cancer Survivorship Centre)	75/80 (93.8%)	66/81 (81.5%)
If cancer survivors report minimal/mild FCR in rescreening, then they should continue to be screened for FCR and provided with information about FCR self-management and support options in case FCR worsens	58/66 (87.9%)	48/66 (72.7%)
Step 2: Supported self-management for Moderate FCR		**61.0%** [a]
Moderate FCR could primarily be addressed using online or group interventions, but other options should be offered to people who prefer/need other forms of support (e.g., elderly or culturally and linguistically diverse survivors)	57/65 (87.7%)	47/65 (72.3%)
Survivors with moderate FCR should be presented with FCR treatment options either within or outside the hospital setting to accommodate their preferences and circumstances	53/65 (81.5%)	45/65 (69.2%)
With further training, oncology health professionals without specialist psychology training (e.g., oncology nurses), could play an important role in delivering interventions recommended for moderate FCR	58/72 (80.6%)	33/65 (50.8%)
Allied health (e.g. social workers) or psychologists are the best people to deliver the interventions recommended	65/78 (83.3%)	48/80 (60.0%)
Healthcare professional-delivered booster sessions should be offered to patients whose FCR is improved but not remitted at rescreening	59/72 (81.9%)	42/80 (52.5%)
Patients should be rescreened for FCR 6 months post-intervention to determine long-term progress	74/80 (92.5%)	49/80 (61.3%)
Step 3: Specialist care for severe FCR		**69.0%** [a]
A mental health specialist (i.e. a psychologist or psychiatrist) should deliver interventions for severe FCR	72/78 (92.3%)	50/78 (64.1%)
A progress review should be conducted at completion or discontinuation of psychological treatment for FCR	75/78 (96.2%)	60/78 (76.9%)
Rescreening is appropriate for monitoring progress at FCR treatment completion/discontinuation and in the longer-term (e.g., 6 months post-FCR treatment)	72/78 (92.3%)	51/78 (65.4%)
Ultimately the treating psychologist or psychiatrist should decide whether a patient requires further treatment (e.g. booster sessions)	65/78 (83.3%)	56/78 (71.8%)
Rescreening is appropriate for monitoring progress at treatment completion/discontinuation	66/76 (86.8%)	52/78 (66.7%)

[a]Reported percentages represent the number of participants who agreed or strongly agreed with the item divided by the number of people who responded to that item, excluding those who indicated "Not my expertise". The highest optimal rating was taken from across rounds, and items were rated for feasibility once across all rounds, which is why denominators differ for the optimality and feasibility ratings within items and feasibility ratings across items

[b]Average feasibility for each pathway component was calculated by summing the percentage for each individual element included in the pathway and dividing by the total number of included elements in that component

*Shading denotes strength of feasibility ratings. Blue indicates 90–100% agreement; purple indicates 80–90% agreement; pink indicates 70–80% agreement; orange indicates 60–70% agreement; dark yellow indicates 50–60% agreement; and light yellow indicates < 50% agreement

Table 3 Most common implementation barriers and enablers according to updated CFIR domains and constructs

CFIR domain	Construct	Type	Coding frequency	Illustrative quotes
Innovation	Innovation Design	Enabler	20	This [FCR triage conversations with all survivors and caregivers] is consistent with best practice
	Innovation Design	Barrier	8	Screening in the immediate window prior to a follow-up appointment may pick up a lot of transient peaks (not the persistent/disabling FCR)
	Innovation Complexity	Barrier	7	[Two-step screening] increases administration burden and reduces feasibility While simple/straightforward, long term this [stepped care] impacts feasibility, as it will lead to increased "double handling" (i.e. for the ~ 60% of patients that will need to be stepped up)
	Innovation Adaptability	Enabler	22	A variety of means for administering the [FCR screening] tool should be used, especially for rural & remote patients "[FCR treatment] may need to be tailored around geographical location and availability of services."
Individuals	Innovation Deliverer Capability	Enabler	19	Any clinician could administer the [brief FCR screening] tool—novice to expert Social workers and mental health occupational therapists are well positioned to address FCR
	Innovation Recipient Need	Enabler	25	[FCR screening] Can assist patients identify and name their emotions and give permission to talk Important to be patient-centred and facilitate their autonomy of choice
	Innovation Deliverer Opportunity	Barrier	15	Not all clinical staff have the time or capacity to do this [FCR screening] in their clinic Accessing [allied health professionals/psychologists] within a timely manner [is] often difficult due to workload demands
	Innovation Recipient Need	Barrier	15	Joint decision with the patient and psychologist [regarding further treatment for severe FCR]
	Innovation Deliverer Opportunity	Enabler	11	Would be feasible if the screening was initiated by other clinical staff (e.g. clinical trials or care coordinators)
Inner Setting	Access to Knowledge and Information	Enabler	21	Education of all staff will increase uptake Online/module-based training (e.g. via EviQ) may be sufficient
	Access to Knowledge and Information	Barrier	7	Maintaining training to ensure all staff are upskilled is a challenge
	Work Infrastructure	Barrier	30	[Assessment or treatment for severe FCR is] dependent on whether a service has a mental health specialist on staff We barely cover significantly distressed active treatment patients, who have to take priority
	Work Infrastructure	Enabler	35	Always more nurses than psycho-oncology staff
	Available Resources	Barrier	31	Most social workers or psychologists would be unable to undertake this work unless additional hours were funded for that purpose Not all rural and remote have access to either [allied health/psychology]
	Structural Characteristics	Barrier	15	If there is really only one service, this [two-step screening] is likely a waste of time
	Structural Characteristics	Enabler	4	Staff go on leave etc., so needs widespread ownership
	Compatibility	Enabler	6	[FCR triage conversations are feasible] If implemented as routine screening practice within consultation
	Compatibility	Barrier	3	Administratively, this [6 month post-intervention rescreening] would be very difficult to determine
Outer Setting	Partnerships and Connections	Enabler	3	FCR interventions can be well delivered outside the treatment environment… these can be funded through other streams – Medicare, Private Health
	Local Conditions	Barrier	6	In the community setting there can be barriers to accessing psychological support; wait times for appointments, lack of oncology experienced psychology services in the area, costs associated with this Culturally and linguistically diverse survivors, especially elderly people, don't like to talk about mental health

empowering patients to discuss FCR. Participants emphasised the importance of supporting patient-centred care by enabling intervention choice within a stepped care model. This construct was also considered a barrier ($n = 15$) when pathway recommendations were perceived as misaligned with recipient preferences or capacity. For example, some felt oncologists should only provide recurrence risk information if patients wanted it. Similarly, recommendations that treating psychologists/psychiatrists should decide whether further treatment for severe FCR was warranted prompted calls for shared decision-making.

Views were mixed regarding *innovation deliverer opportunity*. Barriers ($n = 15$) included time and workload constraints limiting screening opportunities for some clinical staff. Integrating FCR triage into routine follow-up was seen as challenging due to the competing demands of medical management. Limited opportunity to provide FCR-related support was noted across roles, with oncologists particularly constrained. While allied health professionals and psychologists were viewed as best suited for moderate FCR interventions, access was limited. Enablers ($n = 11$) included training non-mental health specialists (e.g. nurses), though workload pressures remained a concern. Expanding access through community or private providers was also proposed.

Inner setting domain

Forty-five enablers, 91 barriers, and 8 neutral were identified regarding the *Inner Setting*, namely the organisational context of clinical pathway implementation.

Access to knowledge and information was the most frequently cited enabler ($n = 21$). Participants emphasised training and education as critical for pathway uptake. It was noted that modular online training may be sufficient to support healthcare professionals to have triage conversations. Training was viewed as essential for validating and normalising FCR and that training non-mental health specialists (e.g. nurses) to deliver interventions for moderate FCR could extend pathway reach. Mental health specialists were considered to have a fundamental knowledge base regarding FCR treatment but require continuing professional development. Barriers ($n = 7$) included time constraints and staff turnover.

Work infrastructure barriers ($n = 30$) centred on workforce capacity and service availability. Delivering key components, such as assessment or treatment of severe FCR, was seen as dependent on availability of mental health specialists, with access particularly limited in regional centres. Even where mental health specialists were present, demand often exceeded capacity. Enablers ($n = 35$) included using non-mental health specialist staff for screening and triage to address workforce gaps. Extending support into community settings was also proposed, though some raised concerns about GP coordination, long waitlists, and affordability.

Available resources barriers ($n = 31$) reflected similar concerns about funding and staffing. Universal or repeated care elements—such as rescreening or booster sessions—were seen as resource-intensive. Some suggested prioritising triage for moderate–high FCR due to constraints. Additional hours for social workers and psychologists were viewed as essential. Equity concerns were raised regarding lack of culturally appropriate measures, limited resources (e.g. care coordinators) for some cancer types, and FCR treatment by allied health/psychology, which may not be present in rural/remote areas. Only one response was coded as an enabler, highlighting the tension between need and feasibility.

Structural characteristics barriers ($n = 15$) related to organisational processes, such as difficulty capturing all patients at treatment completion and variation across public/private systems. Two-step screening was questioned when referral options were limited: Enablers ($n = 4$) included shared ownership of screening and designated private providers.

Compatibility with existing workflows was largely seen as an enabler ($n = 6$). Aligning screening with follow-up appointments was viewed as facilitating timely referral. Administrative barriers ($n = 3$) were noted if FCR screening timing did not align with standard schedules.

Outer setting domain

Three enablers, six barriers, and one neutral factor were identified regarding the *Outer Setting*, namely external factors influencing pathway implementation.

Partnerships and connections were the main enabler ($n = 3$). Participants highlighted opportunities to deliver FCR interventions outside cancer centres to reduce burden and improve access.

Local conditions barriers ($n = 6$) included limited availability of psychological services, long wait times, and costs. Differing cultural attitudes regarding discussing mental health were also noted.

Financing for specialist FCR care was questioned. These findings underscore the need for cross-sector partnerships and funding strategies to ensure equitable access.

Recommended implementation strategies (Aim 3)

Figure 1 outlines implementation strategies addressing identified barriers and enablers according to the CFIR-ERIC matching tool. Recommended strategies included educational meetings and tailored training resources to foster pathway awareness, ownership, and delivery capability across diverse health professional roles. Emphasis was placed on the pathway's adaptability and potential for local tailoring to address geographical and resource variability. To overcome limited opportunity among



Fig. 1 Summary of most the common implementation barriers and enablers by CFIR domain and CFIR-ERIC matched strategies. Legend: The inner ring shows the updated CFIR domain; the middle ring shows the updated CFIR construct, with the number in brackets representing the number of times the construct was coded; the outer ring shows the relevant ERIC implementation strategy

innovation deliverers, preparing local champions to model and support implementation was proposed. Engaging patients and families in shared decision-making was advised to meet varied recipient needs. Organisational strategies—such as building coalitions beyond cancer centres, securing implementation funding, and aligning pathway components with existing workflows—were recommended to support implementation.

Discussion

This analysis found varied feasibility across FCR clinical pathway elements and multiple implementation barriers and enablers. Triage to stepped care was widely seen as feasible, while recommendations involving universal or repeated screening/intervention posed a feasibility challenge. Key implementation

enablers included building capability through training and access to information. Major barriers were resource limitations and structural constraints. Multifaceted implementation strategies, including education provision and adapting pathway delivery to local contexts, may enhance feasibility.

Most participants agreed that pathway elements were feasible, though feasibility ratings were consistently lower than for optimality. Resource-intensive recommendations, such as training all staff in screening, or holding triage conversations with all survivors, were considered least feasible. Feedback underscored tension between what is best for patients and what providers can realistically deliver. Similar concerns were raised regarding implementation of an Australian clinical pathway for anxiety and depression in cancer, with support for structured screening and aftercare, but concerns about resource and role constraints [28]. Prioritising high-impact pathway elements and tailoring to local capacity—such as training selected staff to do screening and focusing triage on those with moderate/severe FCR—may improve feasibility in resource-limited settings.

The pathway design was generally viewed as an enabler, though elements such as two-step screening and delivering universal care before stepping up were seen as adding complexity. While following a single-item FCR screen (e.g. FCR-1r [29]) with a more comprehensive measure (e.g. FCRI-SF [8]) increases administrative burden, it is critical for guiding care based on FCR severity, as per guidelines [18]. Automated electronic patient reported outcome measure (PROM) administration could reduce complexity, and future AI-supported triage may further streamline processes. For now, the second screening tool could be incorporated into triage conversations alongside questions about FCR impact and support needs. Clinician-patient conversations that build on PROMs results can help develop relationships [30] and normalise patients' FCR [31].

Whether progressive stepped care (starting with universal care) or stratified stepped care (direct allocation to the appropriate level) is preferable likely depends on available resources—another key implementation barrier identified. Progressive stepped care may conserve specialist capacity but risk delaying intensive support, whereas stratified stepped care may improve timeliness but increase costs. Evidence shows minimal outcome differences between approaches in oncology [32], while mental health literature suggests stratified stepped care is more effective but also more costly [33].

Ultimately, while the pathway provides consensus-based, guideline-concordant recommendations, local adaptation is essential. The need for local adaptation to enable equitable access to FCR treatment despite resource constraints has also been identified in Canadian sites implementing the Fear of Recurrence Therapy (FORT) intervention [17]. Developing an implementation blueprint with clear strategies, timelines, and roles, supported by local consensus discussions, is recommended. Process mapping to align new pathways with existing workflows and address context-specific barriers has demonstrated promise in developing implementation plans for other complex aspects of cancer care [34].

Building capability and leveraging existing capacity through training and access to information were key enablers. This aligns with evidence showing lack of accessible training is a major barrier to implementing PROMs in oncology [35]. Recommended strategies include development of training materials and educational sessions. Previous research found 99% of clinical and psychosocial professionals were interested in FCR training [36]. However, training all staff in every aspect of pathway delivery, while ideal, may not be feasible. A modular approach, tailored to roles and resource constraints, may be needed.

Existing FCR training programmes for primary care (in-person) [37] and oncologists (online) [31] have been found to be acceptable and feasible, but programmes for multidisciplinary teams are limited. Face-to-face sessions may improve engagement and visibility, while centralised online resources could support scalability and address staff turnover. Uptake of online training for similar pathways has been low (7%) [38], highlighting the need for organisational support and incentives to encourage participation.

Most pathway implementation barriers pertained to the Inner Setting, largely relating to resources and infrastructure. Staffing, funding, and service limitations—especially in regional and community settings—mirror challenges implementing a cancer clinical pathway for anxiety and depression [28]. These barriers may be mitigated by building capacity across multiple disciplines rather than relying on a single speciality. Identifying local champions is recommended to support uptake, integration, and troubleshooting. Effective champions typically demonstrate influence, ownership, and physical presence at the point of change, combined with persuasiveness, resilience, and a participative leadership style [39]. Building a coalition of implementers is also recommended, and expanding primary care capacity could reduce pressure on tertiary services, particularly in rural areas and for First Nations, ethnic and racial minority populations, who may prefer community-based support [40].

To enhance equitable pathway implementation and reduce health professional burden, coalitions of implementers could include trained lay workers, such as people affected by cancer. With appropriate training, these individuals could assist with patient navigation, help identify those experiencing FCR, connect them with suitable services, and provide emotional support. An umbrella review of patient navigation in cancer care found potential improvements in quality of life and psychological wellbeing, with no clear differences in effectiveness between health professional and lay navigators [41]. Additional funding is critical to enable these strategies, whether for workforce expansion, training, or integration of lay navigators. Investment in FCR care may lower overall

healthcare costs [6], making a strong case for prioritising resource allocation for pathway implementation.

Compatibility with existing practices and adaptability to local needs were key implementation enablers. Adaptability has supported PROMs implementation [35] and appears equally important here. Local tailoring—such as defining roles responsible for each pathway element and adjusting referral pathways based on available resources—was also critical to implementing an anxiety and depression clinical pathway [42]. Tailoring to individual needs, including cultural background and health literacy, was strongly endorsed and considered feasible. While co-production of culturally appropriate FCR measures and interventions with communities and end-users is essential [40], collating existing resources for diverse groups could aid tailored pathway implementation in the meantime. Shared decision-making regarding FCR treatment was seen as vital for facilitating engagement, particularly with self-management interventions, consistent with broader survivorship care recommendations [43]. Preferences for FCR support vary [44], and some patients with severe FCR prefer less intensive options [20], despite recommendations for specialist care.

Strengths and limitations

Study strengths include applying an established implementation determinant framework to a large multidisciplinary dataset and using a recognised taxonomy to map tailored strategies. The updated CFIR was useful for categorising implementation determinants, though some brief responses were difficult to classify. This was mitigated through double-coding and consensus.

While multidisciplinary, the sample was lacking in primary and palliative care clinicians, surgeons, patients, and cultural diversity. Most participants were experienced health professionals working in secondary or tertiary cancer services within Australian public hospitals, so findings may not generalise beyond this context. However, resource constraints appear common across settings [45], suggesting broader applicability of strategies addressing this barrier. Patient perspectives and adaptations for First Nations, ethnic and racial minority populations are being explored in ongoing work.

Conclusion

Implementing the FCR clinical pathway requires pragmatic adaptation to overcome resource and structural barriers. Resource-intensive recommendations were least feasible, underscoring the need to prioritise high-impact elements, tailor delivery to local contexts and patient needs, and use shared decision-making to optimise engagement. Key implementation strategies include modular training, integration into existing workflows, and use of local champions, supported by implementation coalitions that extend beyond cancer hospitals. Future research should engage stakeholders to contextualise and prioritise strategies and test these in real-world settings using hybrid effectiveness-implementation designs to ensure sustainable delivery and address cancer survivors' greatest unmet need through routine FCR screening and tailored support.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s00520-026-11275-9.

Acknowledgements Thank you to Dianne Gibbs, Shannon Philp, Dr Lahiru Russell, Dr Penelope Stephens, and all the other healthcare professionals and researchers who generously donated their time and expertise to participate in this study. Thanks also to Prof Michael Jefford and Prof Bogda Koczwara for providing feedback on the initial draft of the Delphi survey. Finally, thanks to the Cancer Council NSW, Cancer Nurses Society of Australia, Cancer Symptoms Trials Group, Clinical Oncology Society of Australia, McGrath Foundation, Oncology Network, Oncology Social Work Australia New Zealand, Primary Care Collaborative Cancer Clinical Trials Group, Psycho-Oncology Co-operative Research Group and South Western Sydney Local Health District for promoting the study.

Author contribution Ben Smith and Afaf Girgis contributed to study conception. All authors contributed to study design and material preparation. Data collection and analysis were performed by Ben Smith, Verena S Wu, Agamjot Kaur Virk, and Joy Gao. All authors contributed to interpretation of the study results. The first draft of the manuscript was written by Ben Smith and Verena S Wu, and all authors reviewed and commented on manuscript drafts. All authors read and approved the final manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. This research was supported by the New South Wales Government through a Cancer Institute NSW Career Development Fellowship awarded to Allan 'Ben' Smith (2021/CDF1138). Gail Garvey was supported by a National Health and Medical Research Council Leadership Grant (GNT #2034453).

Data availability The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval The study was approved by the University of New South Wales Human Research Ethics Committee (HC230052).

Consent to participate Informed consent was obtained from all individual participants included in the study.

Competing interests Ben Smith has received honorarium from Novartis to participate in a podcast on fear of cancer recurrence. Andrea Smith sits on Patient Advisory Groups for Menarini Stemline and Gilead and has received travel funding and honorarium payments. No other authors have any other conflicts of interest to declare.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in

the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

1. Ferlay J, E.M., Lam F, Laversanne M, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2024) Global cancer observatory: cancer today (version 1.1). Available from: https://gco.iarc.who.int/today. Accessed 08/01/2026
2. Lebel S et al (2016) From normal response to clinical problem: definition and clinical features of fear of cancer recurrence. Support Care Cancer 24(8):3265–3268
3. Luigjes-Huizer YL et al (2022) What is the prevalence of fear of cancer recurrence in cancer survivors and patients? A systematic review and individual participant data meta-analysis. Psychooncology 31(6):879–892
4. Mutsaers B et al (2020) Identifying the key characteristics of clinical fear of cancer recurrence: an international Delphi study. Psychooncology 29(2):430–436
5. Simard S et al (2013) Fear of cancer recurrence in adult cancer survivors: a systematic review of quantitative studies. J Cancer Surviv 7(3):300–322
6. Williams JTW, Pearce A, Smith AB (2021) A systematic review of fear of cancer recurrence related healthcare use and intervention cost-effectiveness. Psychooncology 30(8):1185–1195
7. Lisy K et al (2019) Identifying the most prevalent unmet needs of cancer survivors in Australia: a systematic review. Asia Pac J Clin Oncol. https://doi.org/10.1111/ajco.13176
8. Simard S, Savard J (2009) Fear of Cancer Recurrence Inventory: development and initial validation of a multidimensional measure of fear of cancer recurrence. Support Care Cancer 17(3):241–251
9. Humphris GM et al (2018) Unidimensional scales for fears of cancer recurrence and their psychometric properties: the FCR4 and FCR7. Health Qual Life Outcomes 16(1):30
10. Giguère L et al (2024) The Ottawa clinical fear of recurrence instruments: a screener, self-report, and clinical interview. Psychooncology 33(6):e6364
11. Butow PN et al (2017) Randomized trial of ConquerFear: a novel, theoretically based psychosocial intervention for fear of cancer recurrence. J Clin Oncol 35(36):4066–4077
12. Maheu C et al (2023) Fear of cancer recurrence therapy (FORT): a randomized controlled trial. Health Psychol 42(3):182–194
13. van de Wal M et al (2017) Efficacy of blended cognitive behavior therapy for high fear of recurrence in breast, prostate, and colorectal cancer survivors: the SWORD study, a randomized controlled trial. J Clin Oncol 35(19):2173–2183
14. Maheu C et al (2025) Systematic review of fear of cancer recurrence patient-reported outcome measures: evaluating methodological quality and measurement properties using the COSMIN checklist. Healthcare (Basel). https://doi.org/10.3390/healthcare13172165
15. Tauber NM et al (2019) Effect of psychological intervention on fear of cancer recurrence: a systematic review and meta-analysis. J Clin Oncol 37(31):2899–2915
16. Deuning-Smit E et al (2023) Barriers and facilitators for implementation of the SWORD evidence-based psychological intervention for fear of cancer recurrence in three different healthcare settings. J Cancer Surviv 17(4):1057–1071
17. Lebel S et al (2025) Investigating the pre-implementation facilitators and barriers of the implementation of the Fear of Recurrence Therapy (FORT) intervention in Canadian cancer centers. Psychooncology 34(10):e70293
18. Lebel S, Zwaal C, Craig L, Conrod R, Freeman L, Galica J, Maheu C, Nissim R, Savard J et al (2024) Fear of cancer recurrence guideline. Toronto (ON): Ontario Health (Cancer Care Ontario). Program in Evidence-Based Care Guideline No.: 19–7
19. Smith AB, Girgis A, Taylor N et al (2026) Step-by-step: A clinical pathway for stepped care management of fear of cancer recurrence—results of a three-round online delphi consensus process with Australian health professionals and researchers. J Cancer Surviv 20:766–780. https://doi.org/10.1007/s11764-024-01685-1
20. Tran MJ et al (2025) Feasibility and acceptability of the fear-less screening and stratified-care model for fear of cancer recurrence among people affected by early-stage cancer. Psychooncology 34(2):e70070
21. Shaw J et al (2021) Setting an international research agenda for fear of cancer recurrence: an online Delphi consensus study. Front Psychol 12:596682
22. Pereira VC et al (2022) Strategies for the implementation of clinical practice guidelines in public health: an overview of systematic reviews. Health Res Policy Syst 20(1):13
23. Jünger S et al (2017) Guidance on conducting and reporting Delphi studies (CREDES) in palliative care: recommendations based on a methodological systematic review. Palliat Med 31(8):684–706
24. Pinnock H et al (2017) Standards for reporting implementation studies (StaRI) statement. BMJ 356:i6795
25. Damschroder LJ et al (2022) The updated consolidated framework for implementation research based on user feedback. Implement Sci 17(1):75
26. Perry CK et al (2019) Specifying and comparing implementation strategies across seven large implementation interventions: a practical application of theory. Implement Sci 14(1):32
27. Powell BJ et al (2015) A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. Implement Sci 10(1):21
28. Rankin NM et al (2015) Everybody wants it done but nobody wants to do it: an exploration of the barrier and enablers of critical components towards creating a clinical pathway for anxiety and depression in cancer. BMC Health Serv Res. https://doi.org/10.1186/s12913-015-0691-9
29. Smith AB et al (2023) Evaluation of the validity and screening performance of a revised single-item fear of cancer recurrence screening measure (FCR-1r). Psychooncology 32(6):961–971
30. Greenhalgh J et al (2018) How do patient reported outcome measures (PROMs) support clinician-patient communication and patient care? A realist synthesis. J Patient Rep Outcomes 2:42
31. Liu J et al (2021) Novel clinician-lead intervention to address fear of cancer recurrence in breast cancer survivors. JCO Oncol Pract. https://doi.org/10.1200/op.20.00799
32. Abdalla T et al (2025) Stepped-care models for cancer symptom management: a systematic review of efficacy and cost-effectiveness. JNCI J Natl Cancer Inst. https://doi.org/10.1093/jnci/djaf153
33. Delgadillo J et al (2022) Stratified care vs stepped care for depression: a cluster randomized clinical trial. JAMA Psychiat 79(2):101–108
34. Taylor N et al (2025) Advancing the speed and science of implementation using mixed-methods process mapping – best practice recommendations. Int J Qual Methods 24:16094069251340908
35. Lyu J et al (2024) Facilitators and barriers to implementing patient-reported outcomes in clinical oncology practice: a

systematic review based on the consolidated framework for implementation research. Implement Sci Commun 5(1):120
36. Thewes B et al (2014) Current approaches to managing fear of cancer recurrence; a descriptive survey of psychosocial and clinical health professionals. Psychooncology 23(4):390–396
37. Berrett-Abebe J et al (2019) Impact of an interprofessional primary care training on fear of cancer recurrence on clinicians' knowledge, self-efficacy, anticipated practice behaviors, and attitudes toward survivorship care. J Cancer Educ 34(3):505–511
38. Shaw J et al (2022) Development, acceptability and uptake of an online communication skills education program targeting challenging conversations for oncology health professionals related to identifying and responding to anxiety and depression. BMC Health Serv Res 22(1):132
39. Bonawitz K et al (2020) Champions in context: which attributes matter for change efforts in healthcare? Implement Sci 15(1):62
40. Anderson K et al (2021) A systematic review of fear of cancer recurrence among indigenous and minority peoples. Front Psychol. https://doi.org/10.3389/fpsyg.2021.621850
41. Chan RJ et al (2023) Patient navigation across the cancer care continuum: an overview of systematic reviews and emerging literature. CA Cancer J Clin 73(6):565–589
42. Butow PN et al (2021) From ideal to actual practice: tailoring a clinical pathway to address anxiety or depression in patients with cancer and planning its implementation across individual clinical services. J Psychosoc Oncol Res Pract. https://doi.org/10.1097/OR9.0000000000000061
43. Howell D et al (2021) Management of cancer and health after the clinic visit: a call to action for self-management in cancer care. J Natl Cancer Inst 113(5):523–531
44. Luigjes-Huizer YL, van der Lee ML, Richel C et al (2024) Patient-reported needs for coping with worry or fear about cancer recurrence and the extent to which they are being met: a survey study. J Cancer Surviv 18:791–799. https://doi.org/10.1007/s11764-022-01326-5
45. Jabbour M et al (2018) Defining barriers and enablers for clinical pathway implementation in complex clinical settings. Implement Sci 13(1):139

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Ben Smith[1,2] · Verena Shuwen Wu[1,2] · Alison Pearce[1,3] · Jia Liu[4,5] · Heather L. Shepherd[6] · Joanne Shaw[7,8] · Afaf Girgis[2] · Gail Garvey[9] · Laura Kirsten[7,10] · Iman Zakhary[11] · Carolyn Ee[12,13,14] · Dan Ewald[15] · Annie Miller[7] · Andrea Smith[1,3] · Agamjot Kaur Virk[3] · Joy Gao[3] · Natalie Taylor[16]

✉ Ben Smith
ben.a.smith@sydney.edu.au

1 The Daffodil Centre, The University of Sydney, and Cancer Council NSW, Sydney, Australia

2 South West Sydney Clinical Campuses, UNSW Medicine & Health, UNSW Sydney, Sydney, Australia

3 Sydney School of Public Health, The University of Sydney, Camperdown, Australia

4 The Kinghorn Cancer Centre, St Vincent's Hospital, Sydney, NSW, Australia

5 St Vincent's Clinical School, UNSW Sydney, Darlinghurst, NSW, Australia

6 Susan Wakil School of Nursing and Midwifery, Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia

7 Psycho-Oncology Cooperative Research Group, The University of Sydney, Camperdown, NSW, Australia

8 School of Psychology, Faculty of Science, The University of Sydney, Camperdown, Australia

9 School of Public Health, The University of Queensland, Brisbane, Australia

10 Nepean Cancer Services, Nepean Blue Mountains Local Health District, Kingswood, Australia

11 Multicultural Services, Liverpool Hospital, South Western Sydney Local Health District, Sydney, Australia

12 Flinders LiveWell Cancer Research Centre, Caring Futures Institute, Flinders University, Adelaide, Australia

13 NICM Health Research Institute, Western Sydney University, Sydney, NSW, Australia

14 Chris O'Brien Lifehouse Cancer Centre, Camperdown, NSW, Australia

15 Sydney University Medical School, Northern Rivers University Centre for Rural Health, Lismore, NSW, Australia

16 Implementation to Impact (i2i), School of Population Health, UNSW Sydney, Sydney, Australia