

# Translating guidelines to practice: a training session about cancer-related fatigue

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## ABSTRACT

**Background** Cancer-related fatigue (CRF) is the highest unmet need in cancer survivors. The Canadian Association of Psychosocial Oncology (CAPO) has developed guidelines for screening, assessment, and intervention in CRF; however, those guidelines are not consistently applied in practice because of patient, health care provider (HCP), and systemic barriers. Notably, previous studies have identified a lack of knowledge of CRF guidelines as an impediment to implementation.

**Methods** In this pilot study, we tested the preliminary outcomes, acceptability, and feasibility of a training session and a knowledge translation (KT) tool designed to increase knowledge of the CAPO CRF guidelines among HCPs and community support providers (CSPs). A one-time in-person training session was offered to a diverse sample of HCPs and CSPs ( $n = 18$ ). Outcomes (that is, knowledge of the CAPO CRF guidelines, and intentions and self-efficacy to apply guidelines in practice) were assessed before and after training. Acceptability and feasibility were also assessed after training to guide future testing and implementation of the training.

**Results** After training, participants reported increased knowledge of the CAPO CRF guidelines and greater self-efficacy and intent to apply guidelines in practice. Participant satisfaction with the training session and the KT tool was high, and recruitment time, participation, and retention rates indicated that the training was acceptable and feasible.

**Conclusions** The provided training is both acceptable to HCPs and CSPs and feasible. It could increase knowledge of the CAPO CRF guidelines and participant intentions and self-efficacy to implement evidence-based recommendations. Future studies should investigate actual changes in practice and how to optimize follow-up assessments. To promote practice uptake, KT strategies should be paired with guideline development.

**Key Words** Cancer-related fatigue, guidelines, knowledge translation, health care provider training

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## INTRODUCTION

Guidelines from the Canadian Psychosocial Oncology Association (CAPO) and the U.S. National Comprehensive Cancer Network define cancer-related fatigue (CRF) as a “distressing, persistent, subjective sense of tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning”<sup>1,2</sup>. Its symptoms vary, including generalized weakness, diminished concentration or attention, exhaustion preventing participation in usual activities, and emotional lability<sup>3–5</sup>. A multidimensional symptom, CRF manifests physically, psychologically, and emotionally<sup>3–5</sup>. Increased CRF is associated with lessened quality of life<sup>6</sup>, disability<sup>6</sup>, increased health care use<sup>7</sup>, and distress<sup>8</sup>.

Reported prevalence rates of CRF range between 45% and 99%<sup>9–11</sup>. Furthermore, CRF has been reported to be the most frequent unmet need in both Canadian and Australian samples<sup>12</sup>. It affects patients who have received diverse treatment regimens including surgery, chemotherapy, hormonal therapy, and radiation therapy<sup>10,11,13,14</sup>. It can develop from diagnosis onward<sup>15</sup> and can persist for several years after completion of treatment<sup>8,14,16</sup>.

### CAPO CRF Guidelines

Comprehensive guidelines developed by CAPO address screening, assessment, and intervention in CRF<sup>1</sup> and have been independently evaluated as the most suitable available guidelines for interdisciplinary teams to use in clinical practice<sup>17</sup>. The CAPO guidelines include an overview

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of evidence-based screening methods, comprehensive assessment recommendations, and intervention strategies for patients reporting mild to severe levels of CRF.

As a first step, the CAPO guidelines recommend that all health care providers (HCPs) use a validated numeric rating scale such as the Edmonton Symptom Assessment System (ESAS)<sup>18</sup> to routinely screen for the presence of CRF from the point of diagnosis onward. Supportive care interventions (for example, psychoeducation, physical activity, counseling about energy conservation strategies), and monitoring of CRF levels are recommended for all patients reporting CRF that is mild (ESAS scores 1–3), moderate (ESAS scores 4–6), and severe (ESAS scores 7–10). Further, the CAPO guidelines recommend pursuing a comprehensive assessment, including an investigation of biologic, psychological, and social factors contributing to CRF, ruling out potential comorbid diagnoses (for example, insomnia, anemia), and providing specific nonpharmacologic interventions (for example, cognitive-behavioural therapy, physical activity, stress management) for patients reporting moderate to severe CRF.<sup>1</sup> Although CAPO offers its guidelines for HCPs, other professionals such as community support providers (CSPs) also play an important role in assisting patients presenting with CRF in the community.

### Knowledge-to-Practice Gap

Although clinical guidelines highlighting evidence-based CRF assessment and intervention strategies are available<sup>1,2</sup>, their implementation shows important practice gaps. Indeed, studies demonstrate low uptake of recommended assessment and intervention strategies for CRF<sup>19–22</sup>. Rather, HCPs often recommend strategies that lack empirical support (for example, resting)<sup>23</sup>. Such strategies might also be offered by CSPs to the detriment of patients.

Previous studies have classified barriers to the implementation of evidence-based CRF assessment and intervention strategies into patient, provider, and systemic barriers<sup>24–26</sup>. Patient-provider communication gaps have been highlighted in qualitative studies demonstrating that patients do not disclose CRF symptoms to HCPs because they assume that nothing can be done to help<sup>23,27,28</sup> or because they do not want to burden HCPs<sup>29</sup>. Provider barriers include a lack of information about the causes of CRF and its management, which in turn prevents adequate assessment and intervention<sup>25</sup>. Indeed, 52% of HCPs reported lack of expertise in assessment and intervention for CRF, and 63%, a lack of awareness of intervention strategies for CRF<sup>21</sup>. Implementation rates for the CAPO CRF guidelines in Australia ranged from 33% to 46% among diverse HCPs (that is, allied health professionals, nurses, doctors, managers)<sup>30</sup>, with similar levels reported in samples of nurses in Jordan and in the United States<sup>19,31</sup>. Systemic issues include lack of time, limited access to assessment tools, lack of knowledge about the resources available, difficulty in making and following up on referrals, and absence of an accessible format for documenting CRF in medical records to properly assess and intervene for CRF<sup>19,21,24,25</sup>.

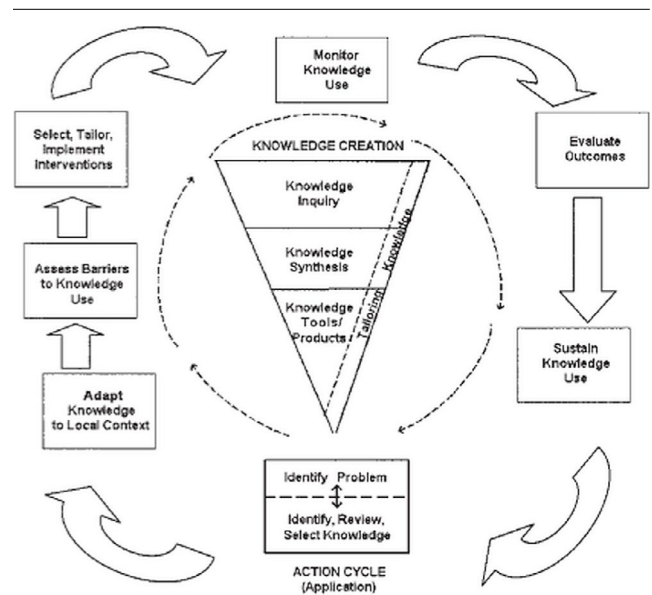
Guidelines for screening, assessment, and management of CRF are ready for implementation<sup>22</sup>. Education and systemic efforts to disseminate and implement evidence-based guidelines are needed<sup>22</sup>. Further education

and practical training related to CRF that is designed to accommodate the busy schedules of HCPs might enhance knowledge of CRF guidelines and practice uptake by HCPs and other professionals (for example, CSPs)<sup>21,31,32</sup>. That supposition is supported by a recent Delphi survey conducted with patients and HCPs (that is, allied health professionals, nurses, doctors, managers) that revealed the need to promote uptake of CRF guidelines through HCP training and to develop tools that facilitate knowledge translation (KT) of the guidelines into practice<sup>30</sup>. The first step in moving toward implementation and adoption of CRF guidelines is to develop and test the effectiveness of such dissemination and implementation strategies<sup>33</sup>.

### Knowledge-to-Action KT Model

In the field of health care, KT strategies are commonly used, and they represent a vital process to ensure that scientific knowledge and clinical guidelines are used in practice<sup>34–37</sup>. The development and availability of education interventions, tools, and resources are essential to ensuring guideline implementation<sup>38</sup>. The present pilot study applied the Knowledge-to-Action model<sup>37,39</sup> to promote the KT of the CAPO CRF guidelines into practice. The Knowledge-to-Action model is a dynamic and fluid model divided into two different stages: Knowledge Creation and the Action cycle. We focused on the Action cycle, which comprises 7 steps<sup>37,39</sup> (Figure 1), and in the present study, we report on 4 of the 7 steps, namely

- identification of the problem and knowledge selection;
- selection, tailoring, and implementation of a KT intervention;
- monitoring knowledge use; and



**FIGURE 1** Knowledge to action framework. Reproduced from Graham *et al.*<sup>39</sup> with permission from Wolters Kluwer Health, Inc. The Creative Commons license does not apply to this content. Use of the material in any format is prohibited without written permission from the publisher, Wolters Kluwer Health, Inc. Please contact permissions@lww.com for further information.

- outcome evaluation to describe the development and evaluation of a CAPO CRF guideline training for HCPs and CSPs, which is the focus of the present study.

Data relating to 2 of the 3 remaining steps (that is, adaptation of knowledge to the local context and identification of barriers to knowledge use) will be presented in a separate publication. To our knowledge, no research has evaluated KT strategies in relation to training HCPs and CSPs in the CAPO CRF guidelines.

### Objectives

Education interventions in health care settings yield outcomes on various levels, such as participation, satisfaction, learning, performance, patient health, and population health<sup>37</sup>. The main objective of the present pilot study was to develop and evaluate the acceptability and feasibility of a one-time training session for HCPs and CSPs about the CAPO CRF guidelines. A secondary objective was to evaluate the learning outcomes of the training session, including CAPO CRF guidelines knowledge, and self-efficacy and intent to apply CAPO CRF guidelines in practice.

The research hypotheses were that the training session would

- increase knowledge about CRF and the CAPO CRF guidelines for HCPs and CSPs.
- increase self-efficacy on the part of HCPs and CSPs to assess and intervene in CRF.
- increase the intention of HCPs and CSPs to apply CAPO CRF guidelines in practice.
- be acceptable (as evidenced by high HCP and CSP satisfaction) and feasible (as evidenced by acceptable recruitment time, participation rate, and post-training interviews).

## METHODS

### Procedures

The present pilot study consisted of a small-scale evaluation of a CRF training session offered to an interdisciplinary group consisting of HCPs and CSPs who were recruited from 2 local hospitals and 1 community support centre for cancer patients in Ottawa, Ontario. Approval was obtained from the institutional research ethics boards of all affiliated investigators. Inclusion criteria were age 18 years or older, fluency in English or French, and experience working with cancer patients. Participants completed quantitative measures within 1 week before the training (pre-training assessment) and again within 1 week after the training (post-training assessment). A 3-month post-training interview was also conducted to further assess feasibility, acceptability, and learning outcomes.

### Training Session

The first phase of the project involved focus group interviews with stakeholder groups—patients, HCPs, and CSPs—to fulfil the “adaptation of knowledge to the local context” and “identification of barriers to knowledge use” steps of the Knowledge-to-Action model (Table 1 presents the semi-structured interview questions used for the focus

groups). The focus groups highlighted a lack of knowledge of CRF guidelines and inconsistent application of recommended screening, assessment, and intervention strategies in practice. Those practice gaps appeared to be linked to patient–professional communication challenges (that is, patients feeling misunderstood, lack of knowledge and tools for professionals to assess CRF), which resulted in patients no longer reporting their symptoms to their health care team and turning to community resources for support. A complete description of the focus group results will be presented in a separate publication.

The practice gaps and their consequences revealed a need to provide further education for HCPs and CSPs about CRF and the evidence-based strategies for its assessment and intervention. Thus, it was decided to adapt the CAPO CRF guidelines to the Ottawa context and to provide training to HCPs and CSPs about the CAPO CRF guidelines to promote KT of the guidelines into practice.

An advisory committee of 1 CSP (a cancer coach, ML) and 1 HCP (a nurse, CSG), and a pedagogy expert, were consulted to develop the content and format of the training session and KT tool (an erasable flipchart). A total of 3 consultations were conducted with the advisory committee, aiming to ensure that the training content, format, delivery method, and length corresponded to the realities of HCPs and CSPs working in oncology. The consultations with the

**TABLE 1** Focus group semi-structured interview for health care professionals and community support providers

1. What is your understanding of the components of cancer-related fatigue (CRF), or how would you define CRF? <i>Probe: What is your understanding of the impact of CRF?</i>
2. In your experience, how often and at what point do patients report CRF? <i>Probe: When do you feel CRF is more prevalent?</i>
3. How often do you actively assess patients for CRF in your practice, and how do you do that? <i>Probe: Do you ask questions? Do you run specific tests? Which ones?</i>
4. What do you want to rule out in patients with CRF before you recommend self-care strategies?
5. What treatment or treatments for CRF do you recommend to your patients? <i>Probe: Why do you recommend them? What informs your recommendations?</i> <i>Probe: Do you recommend physical activity, cognitive behavioural therapy, energy conservation strategies?</i>
6. Can you describe your level of familiarity with the CAPO/NCCN/CCO/COSTaRS guidelines on CRF?
7. What barriers do you experience in practice for the assessment and intervention for CRF? What barriers to you think patients experience? How could they be avoided?
8. What could be done to ensure that the assessment and management of CRF is sustainably done in the future?

CAPO = Canadian Association of Psychosocial Oncology; NCCN = (U.S.) National Comprehensive Cancer Network; CCO = Ontario Health (Cancer Care Ontario); COSTaRS = pan-Canadian Oncology Symptom Triage and Remote Support.

pedagogy expert aimed to refine the training's learning objectives and to ensure that the training offered could reach the selected objectives. The pedagogy expert met with the researchers in person on 3 occasions, reviewed all the training material, and provided pedagogy coaching to the training facilitators.

The training session was divided into two 1-hour parts, for a total of 2 hours per training session. The first part consisted of a presentation that provided participants with an overview of knowledge and practice gaps reported in the literature, the CAPO CRF guidelines, effective patient-practitioner communication skills, and motivational interviewing principles. The second part was interactive and involved role-play and group discussions. Participants were also provided with the flipchart (bilingual, English and French) which was erasable and reusable, and which summarized the screening, assessment, and intervention algorithm from the CAPO CRF guidelines in a checklist format. During the session, participants had an opportunity to use the flipchart to role-play CRF assessment and intervention vignettes and to receive feedback from the trainers and other participants. The training session was facilitated by a 5th-year graduate student in clinical psychology (GJ) and a clinical psychologist with 15 years' experience in psychosocial oncology (SL).

## Measures

### CRF Knowledge

Knowledge about CRF was assessed using a questionnaire developed in Australia<sup>21</sup> that was adapted to the Canadian context. The questionnaire assesses a participant's work experience in oncology; frequency of contact with cancer patients; and level of knowledge about the causes of CRF, assessment and intervention strategies for CRF in practice, and barriers to implementing CRF assessment and intervention strategies. Self-assessment of CRF knowledge (1 item) and clinical experience (1 item) were also included, using a numeric visual analog scale ranging from 0 to 100, where 0 represents low knowledge and experience and 100 represents high knowledge and experience.

### Self-Efficacy

Self-efficacy on the part of a participant to assess and intervene for CRF was measured using 2 items developed for the present study in accordance with Bandura's ability probabilistic estimate concept<sup>40</sup>: one was related to a participant's estimation of success in assessing for CRF, and the other was related to providing recommendations for CRF. The items were rated on a 5-point Likert-type scale. Responses were averaged, and higher scores reflected higher self-efficacy.

### Behavioural Intentions

The intention of a participant to implement CRF assessment and intervention strategies in practice was assessed using 18 items developed for the present study based on prior studies that had good fidelity coefficients ( $\alpha = 0.84, 0.97$ ) with respect to measuring intention to adopt a new behaviour<sup>41,42</sup>. Specifically, participants were asked to rate their level of intent for performing each of the 18

CRF assessment and intervention recommendations presented in the CAPO CRF guidelines<sup>1</sup>. Each item was rated on a 7-point Likert-type scale. Responses were averaged, whereby higher scores reflect higher intention to apply the recommendations. The Cronbach alpha for those items in the present sample was 0.93, indicating good reliability<sup>43,44</sup>.

### Feasibility

Recruitment time, training session participation rate, and rate of participation in the post-training interviews were documented by the research team to report on the feasibility of implementing the training session and data collection methods.

### Satisfaction with Training

Satisfaction with the training session was assessed after training using a questionnaire that measured 3 aspects of participant satisfaction:

- The objectives and the content
- The methods and the context
- The relevance of the training to their practice

The reliability of the questionnaire has been demonstrated with a Cronbach alpha of 0.88<sup>45</sup>. The Cronbach alpha for the present sample was 0.97. Responses were averaged, and higher scores reflect higher satisfaction.

### Qualitative Post-Training Interviews

A semi-structured interview guide developed for the study assessed CRF knowledge, CAPO guidelines knowledge, intention to implement the guidelines, change in practice, use of the flipchart, obstacles, areas for improvement, and training satisfaction. Telephone interviews were conducted by 2 independent interviewers, an undergraduate student and a 2nd-year graduate student (GT, French; NR, English), with participants who had indicated an interest in sharing their impressions of the training at a 3-month follow-up.

### Quantitative Analyses

Statistical analyses were performed using the IBM SPSS Statistics software application (version 23; IBM, Armonk, NY, U.S.A.), and statistical significance was set at  $p \leq 0.05$ . Frequencies, means, and paired-samples *t*-tests were used to describe and compare scores on the knowledge, behavioural intentions, and self-efficacy scales before and after training. Cohen standardized effect sizes (Cohen *d*) were calculated and interpreted for before-and-after mean differences as follows: small ( $\leq 0.20$ ), medium ( $\approx 0.50$ ), and large ( $\geq 0.80$ )<sup>46</sup>.

### Qualitative Analyses

Qualitative analyses (performed by GJ) used summative content analysis methods<sup>47</sup> in which participant responses to the interview questions were categorized by key themes and quantified.

## RESULTS

### Participants

The 18 female participants who completed the training were, on average,  $43.06 \pm 12.44$  years of age, had diverse

professional backgrounds, and had, on average, 18.53 ± 13.09 years of work experience in their respective fields. All participants reported working in Ontario; most described their workplace as metropolitan, in a hospital setting; and most described working with cancer patients daily or weekly. Table II presents complete statistics concerning the sociodemographic and professional characteristics of the sample.

**Quantitative Outcomes**

**Before-and-After Training Comparisons**

**Descriptive Statistics:** In terms of the first primary outcome (CRF knowledge), participants were more familiar with the CAPO CRF guidelines, better able to correctly identify the prevalence of CRF, more familiar with the use of a 0–10 numeric scale and the ESAS to screen for CRF after completion of training than before. After training, participants also identified more CAPO assessment guidelines as being appropriate to assess for CRF and more CAPO intervention guidelines as being appropriate to intervene for CRF. Similarly, after training, participants less frequently identified both acupuncture and pharmacotherapy (not recommended by CAPO) as appropriate intervention strategies. Finally, after training, participants less frequently identified 3 CAPO intervention guidelines—sleep optimization, use of complementary and alternative medicines, and

stress reduction—as appropriate intervention strategies, suggesting a possible misunderstanding of those interventions. Table III presents the full before- and after-training descriptive statistics.

**Mean Comparisons:** Before-and-after comparisons revealed significant increases on the part of participants in

- perceived level of CRF-related knowledge ( $t = -3.959(14)$ ,  $p = 0.001$ ) with a large effect size ( $d = 0.98$ ).
- self-efficacy in assessing CRF ( $t = 2.621(13)$ ,  $p = 0.021$ ) with a large effect size ( $d = 0.88$ ).
- self-efficacy to intervene for CRF ( $t = 2.924(13)$ ,  $p = 0.012$ ) with a large effect size ( $d = 1.13$ ).
- intent to apply CAPO CRF guidelines in practice ( $t = 4.786(13)$ ,  $p = 0.000$ ) with a large effect size ( $d = 1.35$ ).

No change was observed for perceived level of clinical experience on the part of the participants in assessing and managing CRF ( $t = -0.427(14)$ ,  $p = 0.676$ ) with a small effect size ( $d = 0.09$ ). Table IV presents before- and after-training descriptive statistics and comparisons.

**Feasibility Indicators**

The recruitment time for the sample of 18 participants was less than 1 month. The participation rate was 90%: 2 participants were recruited and cancelled before the session (1 breast cancer surgeon, 1 nurse). All attendees participated in the presentation part of the training (participation rate: 100%), but 2 left before the interactive part (reasons cited: had to leave early; participation rate: 88.89%). Finally, the mean satisfaction score was high ( $52.27 \pm 6.97$  out of 60 points maximum).

**Qualitative Outcomes at Follow-Up**

Of the 18 participants, 7 (38.89%) were interviewed 3 months after the training session. All interviewees ( $n = 7$ ) reported being satisfied with the training. All reported that the content and length was appropriate, that they enjoyed the combination of didactic presentation and practical session (role-play), and that they would recommend the training to their peers. Further, all interviewees reported having learned new information about CRF and the CAPO CRF guidelines. Two interviewees reported that the training offered a refresher on the CAPO CRF guidelines, and two reported that it was their first time learning about the guidelines. All interviewees reported that they incorporated changes in their practice that aligned with the guidelines.

Of the 7 interviewees, 5 reported having used the flipchart since the training; 6 of the 7 reported feeling sufficiently trained to use the flipchart; and all reported having appreciated the format and content of the flipchart. Interviewees reported feeling more confident in their ability to assess and intervene for CRF since their participation in the training. Obstacles to applying the guidelines in practice and to using the flipchart included lack of time, other acute patient needs to address before fatigue, patient barriers, and systemic medical team barriers (for example, being unsure of their role in the assessment of CRF).

Areas for improvement in the training session included having more role-play practice, hosting a 3- to 6-month

**TABLE II** Sociodemographic characteristics and professional experience

Variable	Value
Mean age (years)	43.06±12.440
Mean practice duration (years)	18.53±13.09
Sex [ <i>n</i> (%) women]	18 (100)
Profession	
Nursing	9 (50)
Social work	2 (11.1)
Dietetics	1 (5.6)
Kinesiology	1 (5.6)
Psychology	1 (5.6)
Cancer coach	1 (5.6)
Other	1 (5.6)
Province [ <i>n</i> (%) Ontario]	18 (100)
Work location [ <i>n</i> (%)]	
Metropolitan	17 (94.4)
Rural	1 (5.6)
Hospital	12 (66.7)
Community	4 (22.2)
Palliative care	1 (5.6)
Rehabilitation centre	1 (5.6)
Contact with cancer patients [ <i>n</i> (%)]	
Daily	10 (55.6)
Weekly	5 (27.8)
Monthly	1 (5.6)
Occasionally	1 (5.6)
Rarely	1 (5.6)

**TABLE III** Knowledge comparison: before and after training in cancer-related fatigue

Variable	Value [n (%)]	
	Before (n=18)	After (n=16)
Knowledge of guidelines		
Yes	6 (33.3)	15 (93.8)
No	12 (66.7)	1 (6.3)
Professional guidelines		
Ontario Health (Cancer Care Ontario)	1 (5.6)	4 (25)
CAPO	4 (22.2)	12 (75)
NCCN	4 (22.2)	8 (50)
NCCN	1 (5.6)	3 (18.8)
Other	2 (11.1)	1 (6.3)
Prevalence		
Incorrect	2 (11.1)	1 (6.3)
Correct	12 (66.7)	13 (81.3)
No answer	4 (22.2)	2 (12.5)
Systematically assess patients		
Yes	18 (100)	16 (100)
Knowledge assessment measures		
Numeric scale (0–10)	4 (22.2)	7 (43.8)
ESAS	6 (33.3)	8 (50)
Brief Fatigue Inventory	2 (11.1)	1 (6.3)
Multi-Symptom Inventory	0 (0)	1 (6.3)
Quality of Life Scale	2 (11.1)	2 (12.5)
Visual Analog Scale	1 (5.6)	0 (0)
Other	0 (0)	2 (12.5)
Not applicable	7 (38.9)	3 (18.8)
Assessment strategies to be used		
Informal interview	7 (38.9)	10 (55.6)
ESAS	9 (50)	11 (68.8)
Comprehensive fatigue assessment	10 (55.6)	11 (68.8)
Medical exam	5 (27.8)	7 (43.8)
Functional exam	6 (33.3)	7 (43.8)
Referral	2 (11.1)	5 (31.3)
Systematically provide recommendations		
Yes	16 (88.9)	16 (100)
No	2 (11.1)	0 (0)
Recommendations offered		
Psychoeducation	10 (55.6)	13 (81.3)
Energy conservation	14 (77.8)	14 (87.5)
Distractions	3 (16.7)	9 (56.3)
Monitoring of fatigue	11 (61.1)	12 (75)
Physical activity	16 (88.9)	15 (93.8)
Cognitive Behavioural Therapy	6 (33.3)	10 (62.5)
Sleep optimization	14 (77.8)	11 (68.8)
CAM	15 (83.3)	12 (75)
Stress reduction	16 (88.9)	13 (81.3)
Pharmacotherapy	4 (22.2)	3 (18.8)
Acupuncture	4 (22.2)	2 (12.5)

CAPO = Canadian Association of Psychosocial Oncology; NCCN = (U.S.) National Comprehensive Cancer Network; ESAS = Edmonton Symptom Assessment System; CAM = complementary and alternative medicine.

review session to address questions and review the content, and integrating the flipchart more throughout the training. Areas of improvement for the flipchart included condensing the tool into a shorter format and developing a patient-friendly version.

## DISCUSSION AND CONCLUSIONS

In the present study, we applied elements of the Knowledge-to-Action cycle (that is, implementation of a KT intervention, monitoring knowledge use, and outcomes evaluation<sup>37,39</sup>) to pilot a training session for HCPs and CSPs that aimed to fill gaps in HCP or CSP knowledge, resources, and patient-provider communication previously identified in our focus groups (unpublished data) and the literature<sup>19,20,23–29,31,32</sup>. Overall, results suggest that offering a brief one-time training for HCPs and CSPs about CRF guidelines could be effective in increasing knowledge, self-efficacy, and intent to apply guidelines in practice. Similarly, KT tools are appreciated by HCPs and CSPs, and might be used in practice to supplement and sustain the knowledge and skills gained in training. Guideline developers should therefore consider developing HCP and CSP training strategies and KT tools that help to translate clinical guidelines into practice<sup>38</sup>.

A recent report highlighted the need to equip HCPs to implement CRF guidelines in practice by promoting education and systemic knowledge dissemination and implementation strategies<sup>22</sup>. A Delphi survey highlighted areas of improvement for the CAPO CRF guidelines, including streamlining the format and content to produce a user-friendly format for HCPs, identifying the roles and tasks specific to each health care profession that integrates referral pathways, developing pilot HCP training sessions, and developing decision-support systems for HCPs that are endorsed by local and statutory bodies and integrated into current practice and consumer needs<sup>30</sup>. The development and piloting of our training session and KT tool represent a first step in evaluating the feasibility and acceptability of a user-friendly summary of the CAPO CRF guidelines and in promoting a discussion of roles for interdisciplinary HCPs and CSPs through practical role-play.

The results of the present study also corroborate results obtained by an Australian team<sup>30</sup> by indicating that HCPs want even more streamlined tools (1-page summaries), with clear steps to implement them in their practice. Strategies to increase interprofessional communication in the assessment and intervention of CRF are needed to ensure effective implementation of the CAPO CRF guidelines. Further, CRF training should be delivered systematically to HCPs to ensure optimal knowledge dissemination and implementation<sup>22</sup>.

## Limitations

Our study has limitations that should be taken into account when interpreting results. Those limitations include the use of self-report measures, which in some cases were developed or adapted specifically for the study, and whose validity and fidelity have not been evaluated. Changes over time are limited to immediate before- and after-training measurements and a 3-month after-training follow-up with a subsample of participants that did not measure

**TABLE IV** Results of *t*-tests before and after training in cancer-related fatigue

Variable	Mean value		<i>t</i>		Significant ( $p < 0.05$ )
	Before	After	Value	df	
Perceived knowledge	53.93±23.89	72.40±11.84	-3.959	14	Yes
Perceived clinical experience	60.07±22.02	62.07±20.35	-0.427	14	No
Self-efficacy assessment	3.57±1.16	4.36±0.50	2.621	13	Yes
Self-efficacy intervention	3.64±0.75	4.36±0.50	2.924	13	Yes
Intentions	72±16.89	93±14.04	4.786	13	Yes

behavioural changes. However, behavioural intentions have been shown to be indicative of future behaviours<sup>48</sup>. Interpretation standards for feasibility indicators (that is, recruitment time, participation rate) were not set *a priori*, which renders their interpretation subjective. The cost-effectiveness of the training session was not evaluated in the present study. In terms of the sampling method, the nature of convenience sampling limits the generalizability of the results to the overall population of interest; male HCPs and CSPs were not represented. Furthermore, specific professions were not represented in our sample: oncologists, family physicians, radiation oncologists, surgeons, and occupational therapists. It is also possible that the results of the study were influenced by geographic or cultural factors, given that participants worked exclusively in the Ottawa region; the training should therefore should be assessed in other jurisdictions in Canada.

### Future Directions and Sustainability

Future research should assess for performance, patient health, and population health outcomes of HCP and CSP training about the CAPO CRF guidelines. Such assessments could use observational methods to measure practice-level changes associated with training and maintenance of skills learned in training. Indicators such as number of patient follow-ups, duration of appointment times, and overall health care use could form the basis for an assessment of the cost-effectiveness of the training<sup>37</sup>.

The development of methods to sustain the training of HCPs and CSPs about the CAPO CRF guidelines and the use of a KT tool to promote a more user-friendly format of the guidelines is essential. The sustainability of the training session should be pursued by integrating the session into regular training activities in hospitals, health centres, and community organizations (for example, rounds, continuing education, staff meetings). Moreover, a self-directed online training session could help to promote the sustainability of the training and to increase its accessibility<sup>37</sup>.

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### CONFLICT OF INTEREST DISCLOSURES

We have read and understood *Current Oncology's* policy on disclosing conflicts of interest, and we declare that we have none.

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### REFERENCES

- Howell D, Keshavarz H, Broadfield L, et al. *A Pan Canadian Practice Guideline for Screening, Assessment, and Management of Cancer-Related Fatigue in Adults*. Ver. 2. Toronto, ON: Canadian Association of Psychosocial Oncology; 2015.
- National Comprehensive Cancer Network (NCCN). *NCCN Clinical Practice Guidelines in Oncology: Cancer-Related Fatigue*. Ver. 1.2013. Fort Washington, PA: NCCN; 2013. [Current version available online at: [https://www.nccn.org/professionals/physician\\_gls/pdf/fatigue.pdf](https://www.nccn.org/professionals/physician_gls/pdf/fatigue.pdf) (free registration required); cited 28 August 2015]
- Bower JE. Cancer-related fatigue—mechanisms, risk factors, and treatments. *Nat Rev Clin Oncol* 2014;11:597–609.
- Cella D, Davis K, Breitbart W, Curt G on behalf of the Fatigue Coalition. Cancer-related fatigue: prevalence of proposed diagnostic criteria in a United States sample of cancer survivors. *J Clin Oncol* 2001;19:3385–91.
- Schmidt M, Chang-Claude J, Vrieling A, Heinz J, Flesch-Janys D, Steindorf K. Fatigue and quality of life in breast cancer survivors: temporal courses and long-term pattern. *J Cancer Surviv* 2012;6:11–19.
- Borneman T. Assessment and management of cancer-related fatigue. *J Hosp Palliat Nurs* 2013;15:77–86.
- Wu H-S, Harden JK. Symptom burden and quality of life in survivorship: a review of the literature. *Cancer Nurs* 2015;38:E29–54.
- Jones J, Olson K, Catton P, et al. Cancer-related fatigue and associated disability in post-treatment cancer survivors. *J Cancer Surviv* 2016;10:51–61.
- Cella D. The Functional Assessment of Cancer Therapy–Anemia (FACT-An) scale: a new tool for the assessment of outcomes in cancer anemia and fatigue. *Semin Hematol* 1997;34(suppl 2):13–19.
- Hoffman AJ, Given BA, von Eye A, Gift AG, Given CW. Relationships among pain, fatigue, insomnia, and gender in persons with lung cancer. *Oncol Nurs Forum* 2007;34:785–92.
- Karthikeyan G, Jumrani D, Prabhu R, Manoor UK, Supe SS. Prevalence of fatigue among cancer patients receiving various anticancer therapies and its impact on quality of life: a cross-sectional study. *Indian J Palliat Care* 2012;18:165–75.
- Hall A, Campbell HS, Sanson-Fisher R, et al. Unmet needs of Australian and Canadian haematological cancer survivors: a cross-sectional international comparative study. *Psychooncology* 2013;22:2032–8.
- Ahlberg K, Ekman T, Gaston-Johansson F, Mock V. Assessment and management of cancer-related fatigue in adults. *Lancet* 2003;362:640–50.

14. Reinertsen KV, Cvancarova M, Loge JH, Edvardsen H, Wist E, Fosså SD. Predictors and course of chronic fatigue in long-term breast cancer survivors. *J Cancer Surviv* 2010; 4:405–14.
15. Lawrence DP, Kupelnick B, Miller K, Devine D, Lau J. Evidence report on the occurrence, assessment, and treatment of fatigue in cancer patients. *J Natl Cancer Inst Monogr* 2004;:40–50.
16. Wang XS, Zhao F, Fisch MJ, *et al.* Prevalence and characteristics of moderate to severe fatigue: a multicenter study in cancer patients and survivors. *Cancer* 2014;120:425–32.
17. Pearson EJ, Morris ME, Mckinstry CE. Cancer-related fatigue: appraising evidence-based guidelines for screening, assessment and management. *Support Care Cancer* 2016;24:3935–42.
18. Chang VT, Hwang SS, Feuerman M. Validation of the Edmonton Symptom Assessment Scale. *Cancer* 2000;88:2164–71.
19. Given B. Cancer-related fatigue: a brief overview of current nursing perspectives and experiences. *Clin J Oncol Nurs* 2008;12(suppl):7–9.
20. Hilarius DL, Kloeg PH, van der Wall E, Komen M, Gundy CM, Aaronson NK. Cancer-related fatigue: clinical practice versus practice guidelines. *Support Care Cancer* 2011;19:531–8.
21. Pearson EJ, Morris ME, McKinstry CE. Cancer-related fatigue: a survey of health practitioner knowledge and practice. *Support Care Cancer* 2015;23:3521–9.
22. Berger AM, Mitchell SA, Jacobsen PB, Pirl WF. Screening, evaluation, and management of cancer-related fatigue: ready for implementation to practice? *CA Cancer J Clin* 2015; 65:190–211.
23. Stone P, Ream E, Richardson A, *et al.* Cancer-related fatigue—a difference of opinion? Results of a multicentre survey of healthcare professionals, patients and caregivers. *Eur J Cancer Care (Engl)* 2003;12:20–7.
24. Borneman T, Koczywas M, Sun VC, Piper BF, Uman G, Ferrell B. Reducing patient barriers to pain and fatigue management. *J Pain Symptom Manage* 2010;39:486–501.
25. Borneman T, Piper BF, Sun VC, Koczywas M, Uman G, Ferrell B. Implementing the fatigue guidelines at one NCCN member institution: process and outcomes. *J Natl Compr Cancer Netw* 2007;5:1092–101.
26. Piper BF, Borneman T, Sun VC, *et al.* Cancer-related fatigue: role of oncology nurses in translating national comprehensive cancer network assessment guidelines into practice. *Clin J Oncol Nurs* 2008;12(suppl):37–47.
27. Fitch MI, Mings D, Lee A. Exploring patient experiences and self-initiated strategies for living with cancer-related fatigue. *Can Oncol Nurs J* 2008;18:124–31.
28. Pertl MM, Quigley J, Hevey D. “I’m not complaining because I’m alive”: barriers to the emergence of a discourse of cancer-related fatigue. *Psychol Health* 2014;29:141–61.
29. Carter N, Miller PA, Murphy BR, Payne VJ, Bryant-Lukosius D. Healthcare providers’ perspectives of the supportive care needs of men with advanced prostate cancer. *Oncol Nurs Forum* 2014;41:421–30.
30. Pearson EJM, Morris ME, McKinstry CE. Cancer related fatigue: implementing guidelines for optimal management. *BMC Health Serv Res* 2017;17:496.
31. Abdalrahim MS, Herzallah MS, Zeilani RS, Alhalaiqa F. Jordanian nurses’ knowledge and attitudes toward cancer-related fatigue as a barrier of fatigue management. *J Am Sci* 2014;10:191–7.
32. Magnusson K, Karlsson E, Palmblad C, Leitner C, Paulson A. Swedish nurses’ estimation of fatigue as a symptom in cancer patients—report on a questionnaire. *Eur J Cancer Care (Engl)* 1997;6:186–91.
33. Berger AM, Mooney K. Dissemination and implementation of guidelines for cancer-related fatigue. *J Natl Compr Canc Netw* 2016;14:1336–8.
34. LaRocca R, Yost J, Dobbins M, Ciliska D, Butt M. The effectiveness of knowledge translation strategies used in public health: a systematic review. *BMC Public Health* 2012;12:751.
35. Scott SD, Albrecht L, O’Leary K, *et al.* Systematic review of knowledge translation strategies in the allied health professions. *Implement Sci* 2012;7:70.
36. Straus SE, Tetroe JM, Graham ID. Knowledge translation is the use of knowledge in health care decision making. *J Clin Epidemiol* 2011;64:6–10.
37. Straus S, Tetroe J, Graham ID. *Knowledge Translation in Health Care: Moving from Evidence to Practice*. Hoboken, NJ: John Wiley and Sons; 2013.
38. Gagliardi AR. Translating knowledge to practice: optimizing the use of guidelines. *Epidemiol Psychiatr Sci* 2012;21:231–6.
39. Graham ID, Logan J, Harrison MB, *et al.* Lost in knowledge translation: time for a map? *J Contin Educ Health Prof* 2006; 26:13–24.
40. Bandura A. Recycling misconceptions of perceived self-efficacy. *Cognit Ther Res* 1984;8:231–55.
41. Rise J, Kovac V, Kraft P, Moan IS. Predicting the intention to quit smoking and quitting behaviour: extending the theory of planned behaviour. *Br J Health Psychol* 2008;13:291–310.
42. Wong NC, Cappella JN. Antismoking threat and efficacy appeals: effects on smoking cessation intentions for smokers with low and high readiness to quit. *J Appl Commun Res* 2009;37:1–20.
43. Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika* 1951;16:297–334.
44. Tavakol M, Dennick R. Making sense of Cronbach’s alpha. *Int J Med Educ* 2011;2:53–5.
45. Holgado-Tello F, Moscoso S, Barbero-García I, Sanduvete-Chaves S. Training satisfaction rating scale: development of a measurement model using polychoric correlations. *Eur J Psychol Assess* 2006;22:268–79.
46. Cohen J. Statistical power analysis. *Curr Dir Psychol Sci* 1992; 1:98–101.
47. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;15:1277–88.
48. Ajzen I. From intentions to actions: a theory of planned behavior. In: Kuhl J, Beckmann J, eds. *Action Control from Cognition to Behavior*. New York, NY: Springer; 1985.