JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Transfer of Communication Skills to the Workplace: Impact of a 38-Hour Communication Skills Training Program Designed for Radiotherapy Teams

Isabelle Merckaert, France Delevallez, Anne-Sophie Gibon, Aurore Liénard, Yves Libert, Nicole Delvaux, Serge Marchal, Anne-Marie Etienne, Isabelle Bragard, Christine Reynaert, Jean-Louis Slachmuylder, Pierre Scalliet, Paul Van Houtte, Philippe Coucke, and Darius Razavi

A B S T R A C T

Purpose

This study assessed the efficacy of a 38-hour communication skills training program designed to train a multidisciplinary radiotherapy team.

Methods

Four radiotherapy teams were randomly assigned to a training program or a waiting list. Assessments were scheduled at baseline and after training for the training group and at baseline and 4 months later for the waiting list group. Assessments included an audio recording of a radiotherapy planning session to assess team members' communication skills and expression of concerns of patients with breast cancer (analyzed with content analysis software) and an adapted European Organisation for Research and Treatment of Cancer satisfaction with care questionnaire completed by patients at the end of radiotherapy.

Results

Two hundred thirty-seven radiotherapy planning sessions were recorded. Compared with members of the untrained teams, members of the trained teams acquired, over time, more assessment skills (P = .003) and more supportive skills (P = .050) and provided more setting information (P = .010). Over time, patients interacting with members of the trained teams asked more open questions (P = .022), expressed more emotional words (P = .025), and exhibited a higher satisfaction level regarding nurses' interventions (P = .028).

Conclusion

The 38-hour training program facilitated transfer of team member learned communication skills to the clinical practice and improved patients' satisfaction with care.

J Clin Oncol 33. © 2015 by American Society of Clinical Oncology

INTRODUCTION

The promotion of optimal radiotherapy patient care is a priority and can be achieved through improving service quality, professional training, and patient involvement.¹⁻⁵ Studies have shown that patients express numerous concerns regarding radiotherapy, particularly its adverse effects.⁶⁻⁹ Consequently, patients need specific information and appropriate support by radiotherapy team members.⁷⁻¹⁰ Optimal communication requires that radiotherapy team members possess a repertoire of communication skills; however, many radiotherapy team members do not have these skills and have never been taught them.¹¹

Few studies have reported an impact of communication skills training programs on patient outcomes, such as satisfaction,¹² or evaluated the transfer of learned skills to clinical practice.¹³⁻¹⁶ To our knowledge, only one study assessed learned skills transfer to radiation oncologists' clinical practice after a communication skills training program. This study showed that training of radiation oncologists increased patients' participation in the initial radiation oncology consultations.¹⁷ Therefore, randomized controlled studies testing the efficacy of a training program designed for radiotherapy team members in terms of transfer of learned skills to clinical practice are necessary.

The aim of this study was to use a randomized controlled design to assess the impact of a communication skills training program on the transfer of learned skills to clinical practice. The efficacy of learned communication skills was previously

Isabelle Merckaert, France Delevallez, Anne-Sophie Gibon, Aurore Liénard, Yves Libert, Nicole Delvaux, Paul Van Houtte, and Darius Razavi, Université Libre de Bruxelles; Isabelle Merckaert, Anne-Sophie Gibon, Aurore Liénard, Yves Libert, Paul Van Houtte, and Darius Razavi, Institut Jules Bordet, Université Libre de Bruxelles: Nicole Delvaux, Hôpital Universitaire Erasme; Serge Marchal and Jean-Louis Slachmuylder, Centre de Psycho-Oncologie; Christine Reynaert and Pierre Scalliet, Université Catholique de Louvain, Brussels; and Anne-Marie Etienne, Isabelle Bragard, and Philippe Coucke, Université de Liège, Liège, Belgium.

Published online ahead of print at www.jco.org on January 26, 2015.

Supported by the Fonds National de la Recherche Scientifique–Section Télévie of Belgium and the Centre de Psycho-Oncologie (Brussels, Belgium).

Terms in blue are defined in the glossary, found at the end of this article and online at www.jco.org.

Authors' disclosures of potential conflicts of interest are found in the article online at www.jco.org. Author contributions are found at the end of this article.

The study sponsors served no role in study design, data collection, data analysis, or data interpretation, or in the preparation, review, or report approval.

I.M. and F.D. contributed equally to this work and should be considered co-first authors.

Corresponding author: Isabelle Merckaert, PhD, Université Libre de Bruxelles Av F Roosevelt, 50–CP 191 B-1050 Bruxelles, Belgium; e-mail: Isabelle.Merckaert@ulb.ac.be.

© 2015 by American Society of Clinical Oncology

0732-183X/15/3399-1/\$20.00

DOI: 10.1200/JCO.2014.57.3287

© 2015 by American Society of Clinical Oncology 1

Downloaded from jco.ascopubs.org on January 27, 2015. For personal use only. No other uses without permission.

Copyright © 2015 American Society of Clinical Oncology. All rights reserved.

Copyright 2015 by American Society of Clinical Oncology

evaluated in a 38-hour communication skills training program, which demonstrated efficacy in a simulated patient encounter.¹¹

The communication skills training program content tested in this study was designed for an entire multidisciplinary radiotherapy team. In this way, all team members can confront their communication difficulties and better understand the multiplicity of roles and responsibilities within the team via role play in small interdisciplinary groups. Moreover, the transfer of learned patient-centered communication skills into clinical practice might be promoted by positive team attitudes from colleagues toward the skills.¹⁸ Therefore, a communication skills training program designed for an entire team is more likely to promote transfer to clinical practice.

First, transfer was measured through assessment of radiotherapy team members' communication skills during a radiotherapy planning session. This highly technical, informational, and emotional session⁸ was chosen because it is the first patient encounter with different radiotherapy team members. We hypothesized that the training program would increase team members' use of communication skills in terms of assessment, providing information, and support. Second, transfer was measured through the assessment of satisfaction with care of patients with breast cancer at the end of radiotherapy, because it facilitated assessment of patient satisfaction regarding all treatment sessions. We hypothesized that the communication skills training program would increase patient satisfaction with team members' interpersonal skills and provision of information.

METHODS

Study Design and Assessment Procedures

Four multidisciplinary radiotherapy teams were randomly allocated before the first assessment time to either a 38-hour training program (training group) or a waiting list (waiting list group). To be included, team members had to speak French and be willing to participate in the training program and its assessment procedures. Although some team members did not agree to participate in the training program (as a result of a lack of time or interest, leaving the team between the assessment and training periods, concerns with role play, or being already involved in another training), all team members agreed to participate in the assessment procedure. Among the 217 recruited members, a total of 96 team members took part in the training program; 68% of these participants (n = 65) were members of the teams allocated to the training group, and 32% (n = 31) were members of the teams allocated to the waiting list group (Table 1). Assessments were scheduled after random assignment (T1) and after the training program (T2) for the training group and at T1 and 4 months after T1 (T2) for the waiting list group (Fig 1). Two different cohorts of patients with breast cancer were recruited at 4-month intervals, one for the T1 assessment and one for the T2 assessment. The whole radiotherapy planning session was audio recorded for each patient in both cohorts starting with their arrival in the radiotherapy unit and ending with their leaving of the unit.

Communication Skills Training Program

The 38-hour communication skills training program included the following two modules: a 16-hour patient-oriented communication skills training module, followed by a 22-hour team resource–oriented communication skills training module. Sessions were spread over a 4-month period, which allowed team members to practice their newly acquired skills, and were organized in small groups (five to nine participants). Training was learner centered, skills focused, and practice oriented. It included cognitive, behavioral, and modeling components.^{19,20}

The patient-oriented communication skills training module included the following five sessions. The first 4-hour session was organized for the entire

Team Members (n = 96)			
	Train Gro (n =	ing up 65)	Waiting Gro (n =	g List up 31)
Characteristic	No. of Members	%	No. of Members	%
Age, years				
Mean	39.	0	41.	3
SD	10.	6	8.9	9
Sex				
Male	19	29.2	9	29
Female	46	70.8	22	71
Marital status*	_			
Single	5	/./	8	25.8
Living with partner or living with children	n 60	92.3	23	/4.2
	40	66.2	25	90 G
Puil time Other	40	22.0	20	10.0
Work experience in oncology years	22	55.0	0	13.4
Mean	12	1	13	2
SD	9.9	Э	8.9	9
Work experience on the team, years				
Mean	10.	5	8.9	9
SD	9.9	5	8.8	3
Previous patient-oriented training				
Yes	7	10.8	2	6.5
No	58	89.2	29	93.5
Previous team-oriented training				
Yes	12	18.5	6	19.4
No	53	81.5	25	80.6
Team members†				
Secretaries	10	15.4	3	9.7
Nurses	30	46.2	19	61.3
Physicians	14	21.5	9	29
FHYSICISUS	11	10.9	U	0

Table 1 Demographic and Socioprofessional Characteristics of Badiotherapy

Abbreviation: SD, standard deviation.

*A statistically significant difference was found between groups (χ^2 P = .015).

†Physicists took part in the training program but had no exchange with patients during the recorded radiotherapy planning sessions.

radiotherapy team and focused on information about patients' distress in radiotherapy and practical exercises on communication in oncology. The other four 3-hour sessions (12 hours total) were organized in small monodisciplinary groups and were designed to improve team members' abilities to communicate with patients according to their own professional roles. Team members were invited to practice communication skills through role playing based on patient communication problems arising in radiotherapy.

The team resource–oriented communication skills training module included seven sessions. Six 3-hour sessions (18 hours totals) were organized into small interdisciplinary groups, including at least one team member from each discipline, and included 1 hour of information, summarizing different forms of collaboration, and 17 hours of role-playing exercises. These sessions were designed to improve each team member's ability to communicate with both patients and colleagues. Role-playing exercises were based on communication problems arising in radiotherapy. At the end of the training program, the entire radiotherapy team took part in the last 4-hour session, which provided a summary of the previous sessions, assessed the participants' satisfaction, and facilitated a discussion about the training program. A more detailed description of this training program is available in a previously published article.¹¹

Downloaded from jco.ascopubs.org on January 27, 2015. For personal use only. No other uses without permission. Copyright © 2015 American Society of Clinical Oncology. All rights reserved.



Fig 1. Patient recruitment procedure, study design, training, and assessment procedures. CS, communication skills; RT, radiotherapy; T1, assessments scheduled before the training program; T2, assessments after the training program for the training group and 4 months after T1 for the waiting list group.

Radiotherapy Planning Session

Transfer was assessed at the radiotherapy planning session. To participate in this study, the following criteria had to be met: patients spoke French, were at least 18 years old, were diagnosed for the first time with nonmetastatic breast cancer, and were receiving a first radiotherapy session after surgery. Patients were free of cognitive impairment and provided written informed consent after receiving a written information sheet about the study. Two different cohorts of patients were recruited, one at T1 and one at T2. Patients in both cohorts completed demographics before their radiotherapy planning session and documented satisfaction at the end of their radiotherapy.

The radiotherapy planning session audiotapes included any interaction of the patient with any staff member on that day. The majority of these interactions were formal (eg, at the reception desk, during radiotherapy simulation, during the appointment with a social nurse). Others were informal (eg, in the waiting room and corridors).

Patients must have communicated with at least one trained team member during the radiotherapy planning session to be considered for inclusion in the data analysis. All of the exchanges between the included patients and any members of the teams (whether they agreed to participate in the training program or not) were included in the analysis. Interactions among professionals were not taken into account. This was done to be as close as possible to the patients' experience.

Communication Content Analysis

Audiotapes of the radiotherapy planning sessions were transcribed. Transcripts were analyzed by a French communication content analysis software, LaComm (Centre de Psycho-Oncologie, Brussels, Belgium; http://www.lacomm.be/). This software analyzes verbal communication (in medicine in general and in oncology in particular) utterance by utterance and identifies turns of speech and the type and content of utterances. The explanation of how this software works has been detailed in a previous publication.²¹ Utterances were categorized into the following three main types: assessment, support, and information. Regarding utterance content, four categories of the dictionaries were constructed; these were medical, emotional, social, and radiotherapy (Table 2). The dictionaries' contents were built based on empirical knowledge derived from actual and simulated patient consultations in oncology.¹⁴ A new dictionary was created to adapt LaComm for the radio-oncology setting. LaComm provided counts of turns of speech, utterance types, and content. LaComm was used because it is sensitive to change (unpublished data)²² and avoids inter-rater reliability problems. A validation study (unpublished data)²² has shown that the sensitivity to change of the LaComm is similar to the sensitivity to change of the Cancer Research Campaign Workshop Evaluation Manual.²³

3

Utterance Type or Content	Definition	Example
Utterance type		
Assessment		
Open questions	Assessment of a wide range of issues, concerns, or feelings.	How are you? Tell me.
Open directive questions	More focused assessment of issues, concerns, or feelings.	What do you think of the treatment? Tell me what has occurred since the last treatment.
Support		
Acknowledgment	Support by listening to the patient. Acknowledgment of the patient's emotional state or of the member's emotional state.	Mmm, hmm. Right. That should not be easy. I'm worried about your results. You are angry/sad/anxious.
Empathy	Support by showing an understanding of the patient's emotional or physical state.	I understand that you are distressed. I realize that you are in severe pain.
Reassurance	Support by reassuring the patient about a potential threat, discomfort, or uncertainty.	Don't worry. It's not very serious. Medicine has made progress.
Information		
Setting information	Introduction. Information about orientation and transition of talk in the consultation. Closure.	I'm Doctor X. It's the first time we are meeting each other
Negotiation (assessment)	Proposal to the patient taking his/her point of view into account.	I suggest we talk about it with your husband. Does it suit you?
Utterance content		
Medical words	Words related to oncology and other medical specialties, such as diagnosis, prognosis, techniques, and biologic terms.	Cancer, lesions, palliation, chemotherapy, blood, breast, exams.
Radiotherapy words	Words related to radiotherapy such as irradiation, techniques, adverse effects, precautions, and planning.	Radiation planning, gray, warm, radiation oncologist, Clinac.*
Emotional words	Words related to positive and negative emotions.	Fear, sad, happy, anxious, comfort, disgust, stress, collapsed.
Social words	Words related to relationships and daily life (eg, hobbies, clothes, food, conveyance).	Partner, work, hobby, driving, children, shopping.

Questionnaires

A 38-item scale adapted from the European Organisation for Research and Treatment of Cancer Cancer Outpatient Satisfaction With Care Questionnaire in Ambulatory Radiotherapy²⁴ was administered on the last day of treatment to assess patients' satisfaction with physicians, nurses, and secretaries based on technical and interpersonal skills, provision of information, and availability, as well as specific aspects of the organization, including care and services. The questionnaire was adapted to add three questions regarding secretaries, a profession not represented in the original version. The three added questions covered three of the four subscales investigated by the questionnaire for the other professionals (interpersonal skills, availability, and provision of information). Items were rated on a five-level Likert scale from poor to excellent. Three total scores, one each by profession, and a total score including all professions have also been added to the original scale to allow analysis by professions. The internal reliability of these four total scores is high including the new subscale with the three added questions (Cronbach's α scores range from .91 to .97).

Statistical Analyses

Data generated from LaComm are in counts of utterance types and contents. The LaComm data were considered as the dependent variables, and group-by-time effects were tested with generalized estimating Poisson regression models. The models tested time effects, group allocation effects, and group-by-time effects using the training group at baseline and the waiting list group as the reference group. Results were presented as relative rates (RRs) with 95% CIs. Training effects were controlled for the number of team members' turns of speech.

Statistical analyses of patients' sociodemographic data were comparative analyses of both groups (patients interacting with team members of the training group *v* with team members of the waiting list group) using appropriate nonparametric tests (χ^2 and Kruskal-Wallis tests). Group-by-time differences in satisfaction with care in radiotherapy were examined using a two-way analysis of variance (ANOVA) as appropriate when data are not normally distributed but variances are homogeneous (tested with the Levene's test).²⁵ An a priori significance level of P = .05 was applied for all tests. Analyses were performed with SPSS software (version 20.0 for Windows; SPSS, Chicago, IL).

RESULTS

Patient Recruitment and Sociodemographic Data

Of the 246 patients who accepted or participated in the study, we excluded nine patients for the following reasons: recording problems (n = 6), second radiotherapy simulation (n = 1), and lack of contact with trained team members (n = 2). Of the 237 patients who took part in the study, 120 encountered members of the trained teams (62 patients at T1 and 58 patients at T2), and 117 encountered members of the untrained teams (58 patients at T1 and 59 patients at T2). Recruitment of patients by each team was similar (Fig 1).

At T2, patients who encountered professionals from the trained teams communicated on average with five team members. All patients communicated with at least one trained team members; 93% of patients communicated with at least two trained team members; 78% communicated with at least three trained team members; 47% communicated with at least five trained team members; 34% communicated with at least five trained team members; 12% communicated with at least six trained team members; and 2% communicated with at least nine trained team members.

Patient Sociodemographic Characteristics

Significant group-by-time differences were not detected between patients of both groups, except in occupational status and number of lumpectomies (P = .038). In the waiting list group, fewer patients had

Downloaded from jco.ascopubs.org on January 27, 2015. For personal use only. No other uses without permission. Copyright © 2015 American Society of Clinical Oncology. All rights reserved.

	Tra	aining Gro	oup (n = 120)	Waiting List Group (n = 117)						
	T1 (n = 62	2)	T2 (n = 58	3)	T1 (n = 58) T2))		
Characteristic	No. of Patients	%	No. of Patients	%	No. of Patients	%	No. of Patients	%		
Sociodemographic characteristics*										
Age, years										
Mean	56.5		55.0		55.3		57.2			
SD	10.7		11.6		11.2		11.6			
Living with partner										
Yes	47	75.8	45	77.6	43	74.1	39	67.2		
No	15	24.2	13	22.4	15	25.9	19	32.8		
Children										
Yes	55	88.7	52	89.7	48	82.8	48	82.8		
No	7	11.3	6	10.3	10	17.2	10	17.2		
Occupational status†										
Working part or full time	17	27.4	22	37.9	12	20.7	9	15.5		
Invalid or incapacitated	10	16.1	12	20.7	18	31.0	26	44.8		
Unemployed, homemaker, or retired	35	56.5	24	41.4	28	48.3	23	39.7		
Educational level										
High school graduation or less	36	58.1	35	60.3	30	51.7	39	67.2		
College or university graduation	26	41.9	23	39.7	28	48.3	19	32.8		
Medical characteristics‡										
Lumpectomy§										
Yes	49	80.3	49	84.5	38	66.7	51	86.4		
No	12	19.7	9	15.5	19	33.3	8	13.6		
Mastectomy										
Yes	14	23.0	9	15.5	17	29.8	10	16.9		
No	47	77.0	49	84.5	40	70.2	49	83.1		
Chemotherapy										
Yes	30	49.2	28	48.3	34	59.6	29	49.2		
No	31	50.8	30	51.7	23	40.4	30	50.8		
Hormone therapy										
Yes	47	77.0 42 72.4 44 77.2		40	40 67.8					
No	14	23.0	16	27.6	13	22.8	19	32.2		
Monoclonal antibody therapy										
Yes	5	8.2	8	13.8	9	15.8	3	5.1		
No	56	91.8	50	86.2	48	84.2	56	94.9		

Abbreviation: SD, standard deviation; T1, assessments scheduled before the training program; T2, assessments after the training program for the training group and 4 months after T1 for the waiting list group.

*Missing data for one patient.

†A statistically significant difference was found between groups ($\chi^2 P = .004$).

‡Missing data for two patients.

§A statistically significant difference was found between groups ($\chi^2 P = .038$).

a lumpectomy at T1 and fewer patients at T2 worked at least part time (P = .004; Table 3).

Training Effects on Team Members' Utterances During Radiotherapy Planning Sessions

The generalized estimating equation for Poisson regression analyses showed significant group-by-time effects on the number of team members' turns of speech (RR, 1.32; P = .009). Generalized estimating equation analyses showed significant group-by-time effects on the utterance type counts made by team members (Table 4). At T2 compared with baseline, analyses showed a significant increase in the rate of open questions (RR, 3.92; P = .020), open directive questions (RR, 1.88; P = .009), and total questions (RR, 1.99; P = .003) for members of the trained teams compared with members of the untrained teams, which were used as the reference group. At T2 compared with baseline, analyses showed a significant increase in the rate of acknowledgments (RR, 1.15; P = .032), total support (RR, 1.13; P = .050), and setting information (RR, 1.34; P = .010) for members of the trained teams compared with members of the untrained teams. Changes were not observed in the radiotherapy planning session contents.

Training Effects on Patients' Utterances During Radiotherapy Planning Sessions

Generalized estimating equation for Poisson regression analyses showed a significant group-by-time effect on the number of patients' turns of speech (RR, 1.29; P = .020). The generalized estimating equation analysis showed a significant increase in the open question rate (RR, 3.41; P = .022), and compared with the baseline, at T2, regression analysis showed a significant increase in the emotional word count (RR, 1.67; P = .025) for patients interacting with members of the trained teams compared with patients interacting with members of the untrained teams (Table 4).

Table 4. Training Effects ((group-by-: Train	time) M ing Grot	easured i.	n the Co 20)	Waitin	adiothera g List Gr	apy Plann Cont oup (n =	ng Appo ients (n = 117)	intment: = 237)	Team Membe	ers' and Pa:	tients' Tu General	irns of Speech, L ized Estimating E	Jtterance T	ypes, ar	nd Utterance	
	T1 (n =	= 62)	T2 (n	= 58)	T1 (n =	= 58)	T2 (n =	= 59)		Group Effect	s		Time Effects			Training Effects	
Communication Measure	Mean	SD	Mean	SD	Mean	SD	Mean	SD	RR	95 % CI	٩	RR	95% CI	٩	RR	95% CI	P
Turns of speech																	1
Patients	191.8	87.4	187.9	63.6	322.7	151.6	244.5	107.6	0.59	0.50 to 0.70	< .001	0.76	0.64 to 0.89	.001	1.29	1.04 to 1.61	.020
Team members	222.9	95.8	217.7	69.1	379.2	163.2	280.9	126.4	0.59	0.51 to 0.69	< .001	0.74	0.63 to 0.87	< .001	1.32	1.07 to 1.62	600.
Physicians	81.5	70.2	59.9	55.7	72.2	58.9	45.4	47.9	1.13	0.84 to 1.52	.425	0.63	0.45 to 0.88	.007	1.17	0.73 to 1.86	.512
Nurses	104.0	68.7	111.2	64.1	298.6	134.6	227.6	121.2	0.35	0.29 to 0.43	< .001	0.76	0.64 to 0.91	.003	1.40	1.06 to 1.86	.018
Secretaries	52.8	63.1	44.6	34.1	8.9	12.0	8.2	16.4	5.95	3.78 to 9.36	< .001	0.93	0.50 to 1.70	.804	0.91	0.45 to 1.85	.912
Team member utterances																	
Types																	
Assessment																	
Open questions [†]	0.2	0.4	0.4	0.7	0.5	0.8	0.2	0.5	0.57	0.22 to 1.48	.249	0.66	0.31 to 1.40	.280	3.92	1.24 to 12.38	.020
Open directive questionst	1.7	2.1	2.6	2.4	4.1	3.9	2.6	2.5	0.67	0.46 to 0.96	.028	0.89	0.66 to 2.00	.430	1.88	1.17 to 2.30	600.
Total†	1.8	2.1	3.0	2.5	4.5	4.0	2.8	2.6	0.66	0.46 to 0.94	.020	0.87	0.65 to 1.17	.359	1.99	1.27 to 3.12	.003
Support																	
Acknowledgment	68.6	31.0	70.2	26.8	143.5	76.3	95.1	47.1	0.82	0.74 to 0.91	< .001	0.93	1.01 to 1.30	760.	1.15	1.01 to 1.30	.032
Empathyt	0.0	0.1	0.1	0.4	0.1	0.3	0.1	0.5	0.35	0.02 to 5.00	.440	2.20	0.35 to 13.99	.404	1.98	0.10 to 39.25	.654
Reassurancet	2.7	2.6	3.0	3.1	5.0	5.0	4.9	4.3	0.82	0.58 to 1.16	.258	1.28	0.92 to 1.79	.147	0.93	0.58 to 1.50	.772
Total	71.4	32.6	73.3	27.7	148.6	78.4	100.1	49.2	0.82	0.74 to 0.90	< .001	0.94	0.86 to 1.03	.174	1.13	1.00 to 1.28	.050
Information																	
Setting information	14.4	5.5	19.5	10.5	22.6	10.7	20.1	8.5	0.80	0.68 to 0.94	.007	1.02	0.87 to 1.20	.787	1.34	1.07 to 1.68	.010
Negotiation (assessment)†	0.2	0.6	0.2	0.5	0.2	0.6	0.2	0.5	1.32	0.44 to 3.99	.617	0.93	0.30 to 2.92	.903	1.00	0.25 to 4.06	666.
Contents																	
Medical words	59.0	27.0	66.8	25.6	100.7	52.4	81.8	42.6	0.89	0.76 to 1.05	.161	1.06	0.92 to 1.22	.429	1.10	0.91 to 1.32	.323
Radiotherapy words	69.3	23.4	74.8	23.8	86.1	24.8	75.1	27.6	1.05	0.95 to 1.16	.353	1.03	0.93 to 1.14	.561	1.06	0.93 to 1.22	.372
Emotional words	6.8	5.0	7.5	5.2	12.7	6.8	10.1	5.8	0.83	0.68 to 1.00	.053	1.04	0.88 to 1.23	.639	1.11	0.85 to 1.45	.439
Social words	38.6	15.2	43.1	20.3	74.1	32.1	62.3	32.5	0.79	0.70 to 0.90	< .001	1.09	0.97 to 1.23	.149	1.05	0.88 to 1.25	.577
Patient utterances																	
Types																	
Assessment																	
Open questions†	0.1	0.4	0.4	1.0	0.4	0.7	0.3	0.5	0.60	0.24 to 1.49	.270	0.97	0.51 to 1.86	.930	3.41	1.19 to 9.76	.022
Open directive questions1	0.3	1.0	0.3	0.5	0.8	2.0	0.3	0.6	1.06	0.43 to 2.65	.897	0.78	0.38 to 1.60	.495	1.01	0.50 to 4.03	.519
Total†	0.5	1.3	0.7	1.2	1.3	2.2	0.6	0.8	0.82	0.39 to 1.71	.591	0.83	0.48 to 1.43	.505	2.15	0.93 to 4.99	.073
Contents																	
Medical words	18.1	18.1	17.3	11.9	44.3	37.2	31.9	26.4	0.86	0.65 to 1.13	.265	1.15	0.94 to 1.42	.170	0.88	0.63 to 1.22	.434
Radiotherapy words	16.3	9.7	16.3	9.5	28.0	16.2	21.2	14.5	0.93	0.77 to 1.12	.421	1.00	0.83 to 1.23	.925	1.02	0.79 to 1.31	.898
Emotional words	2.9	3.4	3.9	4.1	8.7	10.0	4.5	4.4	0.81	0.58 to 1.13	.221	0.85	0.62 to 1.16	.314	1.67	1.07 to 2.60	.025
Social words	15.2	9.4	19.4	13.9	42.6	32.5	36.5	25.9	0.69	0.58 to 0.83	< .001	1.30	1.11 to 1.54	.002	1.03	0.80 to 1.32	.838
Abbreviations: RR, relative rate; SD), standard	ł deviati	on; T1, as	sessmel	nts schedu	uled befo	re the tra	ining pro	gram; T2	, assessments	s after train	ing for th	ie training group	and 4 mon	iths afte	r T1 for the waiti	ng list
group.	-			-	-				-	-			-				
* Estimated KK based on generalize	ed linear r	I UOSSON	egressior	n models	: adjustea	tor tne n	iumber or	turns or	speecn	excepted tor 1	the turns o	t speecr	variable).				
וואפטמנועה טוויטוווומו מוסנווטמניטוו.																	

JOURNAL OF CLINICAL ONCOLOGY

6 © 2015 by American Society of Clinical Oncology JouRNAL OF Downloaded from jco.ascopubs.org on January 27, 2015. For personal use only. No other uses without permission. Copyright © 2015 American Society of Clinical Oncology. All rights reserved.

Merckaert et al

Training Effects on Patients' Satisfaction With Care at the End of Radiotherapy

Ten patients in the training group (eight at T1 and two at T2) and 10 patients in the waiting list group (six at T1 and four at T2) did not answer the patient satisfaction with radiotherapy care questionnaire. Two-way ANOVA showed no significant group-by-time effects on satisfaction with physicians, secretaries, and organization of the service. Compared with patient interactions with members of the untrained teams, interactions with members of the trained teams exhibited a higher satisfaction level with nurses (P = .028), particularly interpersonal (P = .015) and technical skills (P = .047; Table 5). Two-way ANOVA showed no significant group-by-time effects on overall satisfaction.

DISCUSSION

To our knowledge, this is the first study to assess the impact of a 38-hour training program using a randomized controlled design on the transfer of learned skills by radiotherapy team members to their clinical practice in general and more specifically to radiotherapy planning sessions. Results of this study demonstrated that this training program allowed transfer of learned communication skills to clinical practice and improved satisfaction with care regarding the interactions of patients with breast cancer with members of the trained teams.

Regarding communication skills, we hypothesized that the training program would lead to increased use of assessment, information, and support in the trained teams. As expected, higher rates of open questions, open directive questions, acknowledgments, and setting information provision were applied in the trained teams compared with untrained teams. Moreover, patients interacting with members of the trained teams asked more open questions and used more emotional words than patients interacting with members of the untrained teams. The increased use of open questions by both team members and patients indicates more openness toward each other. These differences indicate that communication becomes more patient oriented in the trained teams. The result that more emotional words were used by patients speaking to members of the training group is used in favor of the intervention, although it is not contextualized because it is an indication that patients are left some room to express themselves in this highly technical moment.

Regarding patients' satisfaction with care at the end of treatment, we hypothesized that communication skills training would lead to an

 Table 5. Training Effects on the Satisfaction With Radiotherapy Care Expressed by the Treated Patient Assessed With EORTC Cancer Outpatient Satisfaction

 With Care Questionnaire in Ambulatory Radiotherapy (n = 217)

		Training Group (n = 110)			Waiting List Group (n = 107)				Two-Way ANOVA		
	T1 (n	= 54)	T2 (n	= 56)	T1 (n	= 52)	T2 (n =	= 55)	Group	Time	Training
Satisfaction Measure	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Effects P	Effects P	Effects P
Satisfaction with physicians											
Technical skills	88.7	15.3	87.2	17.0	89.9	13.9	83.5	19.5	.573	.079	.280
Interpersonal skills	84.9	21.8	84.1	21.9	84.3	21.0	73.8	27.0	.084	.072	.123
Provision of information	84.0	22.2	85.9	19.8	82.9	19.7	78.6	23.9	.156	.694	.295
Availability	81.0	21.1	78.1	23.5	78.1	20.7	70.5	26.2	.093	.093	.446
Total	84.6	18.9	83.8	15.9	83.8	15.9	76.6	21.9	.117	.119	.216
Satisfaction with nurses											
Technical skills	82.6	20.4	90.0	15.3	89.7	14.8	87.5	18.8	.337	.279	.047
Interpersonal skills	81.6	20.8	89.3	15.3	87.5	16.7	83.1	19.8	.950	.513	.015
Provision of information*	75.6	27.3	82.4	19.4	81.7	19.9	77.4	24.9	.863	.691	.079
Availability	82.6	21.2	85.9	18.5	87.0	16.8	80.5	22.3	.838	.545	.069
Total*	80.4	21.0	86.5	15.4	86.5	15.4	82.1	19.8	.791	.662	.028
Satisfaction with secretaries											
Interpersonal skills	71.3	25.0	70.1	25.9	59.1	32.5	55.5	31.8	.001	.535	.753
Provision of information	74.1	22.8	71.4	26.3	61.1	30.3	56.8	31.7	< .001	.366	.834
Availability	71.3	25.4	71.4	25.7	61.1	33.0	57.3	30.7	.002	.642	.618
Total	72.2	23.3	71.0	24.9	60.4	30.8	56.5	30.8	.001	.493	.723
All professions total*	79.5	18.04	81.4	15.7	78.4	15.8	73.1	18.6	.045	.480	.120
Satisfaction with the organization											
Exchange of information between caregivers†	77.2	19.2	77.8	20.8	75.5	17.2	71.4	21.2	.131	.520	.381
Other professionals' interpersonal skills and provision of information†	72.2	24.4	76.6	19.7	72.5	21.4	69.8	23.1	.286	.784	.233
Waiting times‡	75.0	21.8	75.6	19.6	72.1	19.6	67.9	23.0	.067	.527	.402
Physical environment	64.7	24.0	71.4	22.2	60.3	22.7	66.5	24.5	.143	.041	.936
Overall satisfaction	83.8	20.1	87.9	15.8	88.9	13.5	84.5	18.3	.708	.958	.068

NOTE. Questionnaire information is missing for 10 patients in the training group and for 10 patients in the waiting list group.

Abbreviations: ANOVA, analysis of variance; EORTC, European Organisation for Research and Treatment of Cancer; T1, assessments scheduled before the training program; T2, assessments after training for the training group and 4 months after T1 for the waiting list group.

*Missing data for one patient.

†Missing data for three patients

‡Missing data for two patients.

increase in patients' satisfaction with team members' interpersonal skills and information provision. Results showed that patients interacting with members of the trained radiotherapy teams were more satisfied with their care than patients interacting with members of the untrained radiotherapy teams. More precisely, it should be noted that satisfaction increased in regard to interaction with nurses (regarding their interpersonal and technical skills) but not physicians and secretaries. The score difference can be considered clinically relevant.^{26,27}

It should be noted that we assessed satisfaction with care at the end of radiotherapy and not just after the radiotherapy planning session. The lack of effect for physicians and secretaries might be a result of the fact that during radiotherapy for nonmetastatic breast cancer, patients encountered nurses more frequently than physicians or secretaries. Therefore, care provided by the nurses was more salient. Consequently, even if physicians and secretaries improved their communication skills, important parts of the interactions are led by the nurses in these specific patients.

We recognize that this study had specific limitations. First, only four radiotherapy teams were included, with different histories, leadership types, and organizational backgrounds. It should be noted that the team member participation rate was different between groups and was higher for teams allocated to the training arm of the study.¹¹ Second, LaComm assessed the impact of training on verbal communication and does not take into account the different communication contexts and sequences. Third, this study only examined patients' satisfaction with care at the end of radiotherapy treatment. Fourth, the analysis does not completely control for potential confounders or for clustering effects between teams.

The transfer of learned communication skills reported in this study should be considered clinically relevant. The radiotherapy planning session is the first encounter between the patient and team members, which implies numerous radiotherapy team members, and is a highly technical session. In this context, enhanced communication skills, including assessment, acknowledgment, and information pro-

REFERENCES

 Slotman BJ, Leer JW: Infrastructure of radiotherapy in the Netherlands: Evaluation of prognoses and introduction of a new model for determining the needs. Radiother Oncol 66:345-349, 2003

2. Nijman JL, Sixma H, van Triest B, et al: The quality of radiation care: The results of focus group interviews and concept mapping to explore the patient's perspective. Radiother Oncol 102:154-160, 2012

3. Eriksen JG, Beavis AW, Coffey MA, et al: The updated ESTRO core curricula 2011 for clinicians, medical physicists and RTTs in radiotherapy/radiation oncology. Radiother Oncol 103:103-108, 2012

4. Brown AM, Atyeo J, Field N, et al: Evaluation of patient preferences towards treatment during extended hours for patients receiving radiation therapy for the treatment of cancer: A time trade-off study. Radiother Oncol 90:247-252, 2009

5. Adler J, Paelecke-Habermann Y, Jahn P, et al: Patient information in radiation oncology: A crosssectional pilot study using the EORTC QLQ-INFO26 module. Radiat Oncol 4:40, 2009

6. Stiegelis HE, Ranchor AV, Sanderman R: Psychological functioning in cancer patients treated with radiotherapy. Patient Educ Couns 52:131-141, 2004 7. Halkett GK, Kristjanson LJ: Patients' perspectives on the role of radiation therapists. Patient Educ Couns 69:76-83, 2007

8. Halkett GK, Kristjanson LJ, Lobb E, et al: Meeting breast cancer patients' information needs during radiotherapy: What can we do to improve the information and support that is currently provided? Eur J Cancer Care (Engl) 19:538-547, 2010

9. Halkett GK, Kristjanson LJ, Lobb E, et al: Information needs and preferences of women as they proceed through radiotherapy for breast cancer. Patient Educ Couns 86:396-404, 2011

10. Douma KF, Koning CC, de Haes HC, et al: Do radiation oncologists tailor information to patients needs? And, if so, does it affect patients? Acta Oncol 51:512-520, 2012

11. Gibon AS, Merckaert I, Liénard A, et al: Is it possible to improve radiotherapy team members' communication skills? A randomized study assessing the efficacy of a 38-hour communication skills training program. Radiother Oncol 109:170-177, 2013

12. Kissane DW, Bylund CL, Banerjee SC, et al: Communication skills training for oncology professionals. J Clin Oncol 30:1242-1247, 2012

13. van den Eertwegh V, van Dulmen S, van Dalen J, et al: Learning in context: Identifying gaps in research on the transfer of medical communica-

vision, certainly have clinical utility. The results reported in this study that examined the impacts of a training program on patients' satisfaction and communication support this idea.

To conclude, this type of training program is efficient, facilitates the transfer of learned communication skills to the workplace, and results in more satisfied patients. Moreover, this study shows that the training program is acceptable (regular participation to training session) and feasible (if training is adapted to the time constraints of the radiotherapy unit).

However, further research is needed to assess training impacts on long-term maintenance of learned communication skills transfer in clinical practice. To maintain and improve communication skills, organizational support must be further investigated. For example, it is important to ensure that health care professionals are endorsed by management to use new communication skills at work.^{15,28}

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Disclosures provided by the authors are available with this article at www.jco.org.

AUTHOR CONTRIBUTIONS

Conception and design: France Delevallez, Aurore Liénard, Yves Libert, Nicole Delvaux, Serge Marchal, Anne-Marie Etienne, Isabelle Bragard, Christine Reynaert, Pierre Scalliet, Paul Van Houtte, Philippe Coucke, Darius Razavi

Collection and assembly of data: Anne-Sophie Gibon, Aurore Liénard, Yves Libert

Data analysis and interpretation: Isabelle Merckaert, France Delevallez, Jean-Louis Slachmuylder, Darius Razavi

Manuscript writing: All authors

Final approval of manuscript: All authors

tion skills to the clinical workplace. Patient Educ Couns 90:184-192, 2013

14. Razavi D, Merckaert I, Marchal S, et al: How to optimize physicians' communication skills in cancer care: Results of a randomized study assessing the usefulness of posttraining consolidation work-shops. J Clin Oncol 21:3141-3149, 2003

15. Heaven C, Clegg J, Maguire P: Transfer of communication skills training from workshop to workplace: The impact of clinical supervision. Patient Educ Couns 60:313-325, 2006

16. Lienard A, Merckaert I, Libert Y, et al: Transfer of communication skills to the workplace during clinical rounds: Impact of a program for residents. PloS One 5:e12426, 2010

17. Timmermans LM, van der Maazen RW, van Spaendonck KP, et al: Enhancing patient participation by training radiation oncologists. Patient Educ Couns 63:55-63, 2006

18. Williams C, Cantillon P, Cochrane M: The doctor-patient relationship: From undergraduate assumptions to pre-registration reality. Med Educ 35: 743-747, 2001

19. Stiefel F, Barth J, Bensing J, et al: Communication skills training in oncology: A position paper based on a consensus meeting among European experts in 2009. Ann Oncol 21:204-207, 2010

20. Merckaert I, Libert Y, Razavi D: Communication skills training in cancer care: Where are we and

JOURNAL OF CLINICAL ONCOLOGY

Downloaded from jco.ascopubs.org on January 27, 2015. For personal use only. No other uses without permission. Copyright © 2015 American Society of Clinical Oncology. All rights reserved.

Transfer of Communication Skills to the Workplace

where are we going? Curr Opin Oncol 17:319-330, 2005

21. Liénard A, Merckaert I, Libert Y, et al: Is it possible to improve residents breaking bad news skills? A randomised study assessing the efficacy of a communication skills training program. Br J Cancer 103:171-177, 2010

22. Gibon A-S, Durieux J-F, Merckaert I, et al: Development of the Lacomm, a French medical communication analysis software: A study assessing its sensitivity to change. Psychooncology 19: 133-134, 2010 **23.** Booth K, Maguire P: Development of a Rating System to Assess Interaction Between Cancer Patients and Health Professionals. London, United Kingdom, Report to Cancer Research Campaign, 1991

24. Poinsot R, Altmeyer A, Conroy T, et al: Multisite validation study of questionnaire assessing outpatient satisfaction with care questionnaire in ambulatory chemotherapy or radiotherapy treatment. Bull Cancer 93:315-327, 2006

25. Larson MG: Analysis of variance. Circulation 117:115-121, 2008

26. Osoba D, Rodrigues G, Myles J, et al: Interpreting the significance of changes in health-related quality-of-life scores. J Clin Oncol 16:139-144, 1998

27. Nguyen TV, Anota A, Bredart A, et al: A longitudinal analysis of patient satisfaction with care and quality of life in ambulatory oncology based on the OUT-PATSAT35 questionnaire. BMC Cancer 14: 42, 2014

28. Uitterhoeve RJ, Bensing JM, Grol RP, et al: The effect of communication skills training on patient outcomes in cancer care: A systematic review of the literature. Eur J Cancer Care (Engl) 19:442-457, 2010

9

GLOSSARY TERMS

patient-centered communication (PCC): communication that helps clinicians provide care according to the patient's values, needs, and preferences and that allows patients to provide input and participate actively in decisions regarding their health and health care. Patient-centered communication has six critical functions: fostering healing relationships, exchanging information, making decisions, responding to emotions, managing uncertainty, and enabling patient self-management.

Poisson regression analysis: a form of regression analysis based on the assumption that the response variable has a Poisson distribution. Poisson regression can be used when the outcome variable comprises counts, usually of rather rare events (eg, number of cases of cancer over a defined period in a cohort of patients).

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Transfer of Communication Skills to the Workplace: Impact of a 38-Hour Communication Skills Training Program Designed for Radiotherapy Teams

The following represents disclosure information provided by authors of this manuscript. All relationships are considered compensated. Relationships are self-held unless noted. I = Immediate Family Member, Inst = My Institution. Relationships may not relate to the subject matter of this manuscript. For more information about ASCO's conflict of interest policy, please refer to www.asco.org/rwc or jco.ascopubs.org/site/ifc.

Isabelle Merckaert No relationship to disclose

France Delevallez No relationship to disclose

Anne-Sophie Gibon No relationship to disclose

Aurore Liénard No relationship to disclose

Yves Libert No relationship to disclose

Nicole Delvaux No relationship to disclose

Serge Marchal No relationship to disclose

Anne-Marie Etienne No relationship to disclose **Isabelle Bragard** No relationship to disclose

Christine Reynaert No relationship to disclose

Jean-Louis Slachmuylder No relationship to disclose

Pierre Scalliet No relationship to disclose

Paul Van Houtte No relationship to disclose

Philippe Coucke No relationship to disclose

Darius Razavi No relationship to disclose

Acknowledgment

We thank the following participating radiotherapy teams in Belgium: the Institut Jules Bordet of the Université Libre de Bruxelles, Brussels (Paul Van Houtte); the Cliniques Universitaires Saint-Luc, Brussels (Pierre Scalliet); the Clinique Saint-Elisabeth, Namur (Emile Salamon), and the Centre Hospitalier Universitaire Sart Tilman, University of Liège, Liège, Belgium (Philippe Coucke).