

RESEARCH ARTICLE

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Caring for cancer survivors: perspectives of oncologists, general practitioners and patients in Italy

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Aim: The present survey investigates the views of medical oncologists, general practitioners (GPs) and patients about the various surveillance strategies. **Methods:** An online survey was conducted in Italy on a population of 329 medical oncologists, 380 GPs and 350 patients. **Results:** Most of GPs (n = 291; 76%) claim that follow-up should be provided by the collaboration between GPs and medical oncologists. Most medical oncologists report to have a poor relationship with GPs (n = 151; 46%) or no relationships at all (n = 14; 4%). Most patients believe there is no real collaboration between medical oncologists and GPs (n = 138; 54%). **Conclusion:** GPs, medical oncologists and patients share the idea that the collaboration between oncologists and GPs for surveillance of cancer survivors is poor and should be improved.

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The increasing number of individuals who received a cancer diagnosis and the improvement in survival rates are leading to a growing number of cancer survivors. In Italy, in 2015, 363,000 new cases were diagnosed, almost 1000 each day [1]. On the other hand, the diagnostic and therapeutic advances lead to a decrease in mortality rate that dropped as much as 20% from 1996. This requires maximizing efficacy and efficiency of caring for people living with, and beyond, cancer [2–4]. According to the National Coalition for Cancer Survivorship, a ‘cancer survivor’ is defined as anyone with a history of cancer, from the time of diagnosis and for the remainder of life, whether that is days or decades. It is estimated that in the USA in 2022 the population of cancer survivors will increase to nearly 18 million [5]. In Italy, the estimated number of cancer survivors in 2015 was 3 million [1]. The Cochrane Breast Cancer Group defines ‘follow-up’ as the regular use of laboratory or instrumental tests in otherwise asymptomatic patients to detect distant metastases earlier [6,7]. This interpretation does not include other activities, such as the evaluation of long-term treatment side effects, psychological interventions and lifestyle corrections, that are part of a more comprehensive approach which is usually referred as ‘survivorship care’ [8,9].

KEYWORDS

- cancer survivors
- follow-up
- general practitioners
- oncologists
- patients
- surveillance

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Unfortunately, a gold standard in surveillance management is currently lacking and it is even unclear whether the oncologist or the general practitioner (GP) should provide the follow-up care [4,10–11]. A sequential approach has been largely suggested and consists in a specialist phase, usually carried out by the oncologist, followed by a local phase, managed by the GP [12]. Nevertheless, this approach is not universally adopted, and there are some risks due to poor communication among different physicians that may lead to poor quality of surveillance with underuse of appropriate tests and visits or a duplication of care and abuse of resources [13,14]. The overuse of imaging and laboratory testing may cause anxiety to the patient, because of the risk of false-positive results, and translates into higher costs [15,16]. This approach is often led by the unrealistic belief that more testing might anticipate diagnosis of recurrence, giving a false feeling of reassurance to the patient [17,18].

A Canadian study showed that on a population of breast cancer survivors, 5 years after primary treatment, the mean number of visits was higher than recommended by the guidelines. For example, during the second year patients underwent a mean of 11.2 visits compared with two to four visits recommended. These visits were performed by different physicians such as the medical oncologist, the surgeon and the GP [16]. A questionnaire sent to 562 specialists registered in the Cancer Research Clinical Trials Unit database pointed out that specialists tend to adopt a risk adjusted surveillance strategy. Moreover, the study showed that lack of GPs' cancer expertise concerns significantly medical oncologists [11].

A Canadian randomized study conducted in 2006 on a population of 968 early breast cancer women showed that follow-up could be managed by the GP with no negative relapses on overall survival or quality of life [12]. Patient's preferences should be considered as a key point on the organization of follow-up strategy. Bell *et al.*'s study analyzes the reasons which lead a patient to prefer either the medical oncologist or the GP. Concerns expressed by US cancer survivor about follow-up care from a primary care physician include: lack of cancer expertise, that the GP was not involved in their initial treatment and that there may be lack of continuity of care [19]. Brennan *et al.* reported a closer involvement of the GP resulted in an improvement of patients' logistics and

doctor–patient relationship [20]. These examples provide the message that patients' wishes should be taken into consideration and support the idea that a personalized approach could be considered.

There is little evidence about patients' perception about follow-up care and little is known about the point of view of both medical oncologists and GPs [19–22]. There are studies showing that a large percentage of oncologists do not believe GPs have the skills to conduct appropriate testing for cancer recurrence [23,24]. Also patients often have an unfavorable view regarding a central role for GPs in cancer follow-up [25]. Some GPs are willing to assume responsibility in cancer follow-up and their willingness seems to vary according to prior involvement with cancer survivorship [26,27]. Opinions may be related to the specific health-care system of a country. Italian data about this topic are currently lacking. Aim of the study is to describe patients', medical oncologists' and GPs' perspectives on the follow-up management in the Italian setting. Furthermore, it focuses on factors that could influence medical oncologists' answers.

Methods

A questionnaire has been available online for 45 days (from the 16 July to 1 September 2014) and questions were differentiated for each subset of respondents. Perceptions of follow-up, opinions on surveillance strategy and quality of relationship with colleagues were investigated. Questionnaires could be filled online or sent by e-mail. The oncologists' survey was sent to the 2210 members of the Italian Association of Medical Oncology (AIOM). Patients were involved thanks to the Italian Federation of Voluntary Work Associations in Oncology and the Italian Association of Cancer Patients through online media and informational desks in the Hospitals and in the Research Institutes involved in the study. A total of 2736 GPs were invited by mail to fill the online questionnaire by the Italian College of General Practitioner (SIMG).

The demographic data of the survey sample were summarized through descriptive analysis (Table 1). All the questions and answers provided are reported in Table 2.

We further analyzed the oncologists' subset in order to explore the association between specific characteristics and answers given in the

Table 1. Baseline characteristics by group.

Characteristics	n	%
General practitioners (n = 380)		
Gender:		
– Male	266	70%
– Female	114	30%
Age:		
– More than 55 years	294	77%
– Between 40 and 55 years	82	22%
– Less than 40 years	4	1%
Years of profession:		
– More than 20 years	305	80%
– Between 10 and 20 years	60	16%
– Between 5 and 10 years	7	2%
– Less than 5 years	8	2%
Number of patients:		
– More than 1000	337	89%
– Between 500 and 1000	36	9%
– Less than 500	7	2%
Region of activity:		
– North	247	65%
– Center	49	13%
– South and Islands	84	22%
City of activity:		
– Less than 15,000 inhabitants	151	40%
– Between 15,000 and 50,000	91	24%
– More than 50,000 inhabitants	138	36%
Distance from cancer center:		
– Less than 10 km	246	65%
– Less than 30 km	104	27%
– Less than 50 km	30	8%
Daily activity:		
– Alone	154	40%
– With a dedicated staff	70	18%
– With others GPs	41	11%
– With a dedicated staff and other GPs	185	49%
Medical oncologists (n = 329)		
Gender:		
– Male	163	50%
– Female	166	50%
Age:		
– Younger than 40 years old	113	34%
– Between 40 and 55 years old	120	36%
– Older than 55 years old	96	30%
Years of profession:		
– Less than 5 years	77	23%
– Between 5 and 10 years	36	11%
– Between 10 and 20 years	79	24%
– More than 20 years	125	38%

GM: General practitioner.

Table 1. Baseline characteristics by group (cont.).		
Characteristics	n	%
Medical oncologists (n = 329) (cont.)		
Institution:		
– General hospital	243	73%
– Research institute	48	15%
– Private clinic	3	1%
– Other	35	11%
Area of activity:		
– North	167	51%
– Center	76	23%
– South and Islands	86	26%
Professional position:		
– Medical manager	69	21%
– Full-time consultant	175	53%
– Fellow	41	12%
– Resident	44	14%
Area of interest:		
– Medical oncology	316	96%
– Radiation oncology	1	0%
– Surgery	2	1%
– Pneumology	2	1%
– Internal medicine	1	0%
– Other	8	2%
Patients (n = 350)		
Gender:		
– Male	224	64%
– Female	126	36%
Age:		
– Younger than 40 years	40	11%
– Between 40 and 55 years	154	44%
– Older than 55 years	156	44%
Years from diagnosis:		
– Less than 2 years	106	30%
– Between 2 and 5 years	110	31%
– Between 5 and 10 years	68	19%
– More than 10 years	58	17%
Cancer therapy in progress:		
– Yes	122	35%
– No	226	64%
Time from beginning of follow-up:		
– 6 months	88	25%
– 1 year	36	10%
– 2 years	88	25%
– 5 years	40	12%
– More than 5 years	98	28%

GM: General practitioner.

survey. Chi square test or Fisher's exact test was used as appropriate. Significant associations ($p \leq 0.05$) between social-demographic features and answers provided by medical oncologists are shown in [Table 3](#).

Results

The national survey was conducted on a population of 1059 participants: 329 medical oncologists (31%), 380 GPs (36%) and 350 patients (33%).

Table 2. General practitioners', medical oncologists' and patients' perspectives.

Items	n (%)
GPs' questionnaire	
How many cancer patients do you have?	
– Less than 30	35 (9)
– Between 30 and 60	115 (30)
– More than 60	230 (61)
Which physician takes charge of their follow-up?	
– A collaboration between medical oncologists and GPs	286 (75)
– Medical oncologist	24 (6)
– GP	13 (3)
– Different physicians (medical oncologists, surgeons, radiation oncologists...)	57 (16)
What's your opinion on follow-up investigation?	
– Patients undergo an excessive number of laboratory and instrumental tests	339 (89)
– Testing is adequate	25 (7)
– Testing is insufficient	16 (4)
Provide a percentage to each statement (total sum = 100%)	
The patient feels to be reassured by laboratory tests and imaging:	
– From 0 to 25%	56 (13)
– From 26 to 50%	187 (44)
– From 51 to 75%	112 (26)
– From 76 to 100%	73 (17)
The patient is worried and has anxiety due to clinical visits and tests:	
– From 0 to 25%	46 (10)
– From 26 to 50%	142 (32)
– From 51 to 75%	193 (42)
– From 76 to 100%	74 (16)
The patient, when close to diagnosis, is reassured from tests, after he becomes worried	
– From 0 to 25%	53 (11)
– From 26 to 50%	151 (32)
– From 51 to 75%	202 (43)
– From 76 to 100%	68 (14)
After 2–3 years of disease-free survival, who should take charge of patients' follow-up?	
– GPs and medical oncologists in collaboration and it should be personalized	291 (76)
– GP	73 (19)
– Medical oncologist	6 (2)
– Others	10 (3)
What is your opinion on collaboration with medical oncologists?	
– It is very important	177 (47)
– It is quite important	143 (38)
– It is of little importance	59 (14)
– It is not important	1 (1)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care).</p> <p>The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

Table 2. General practitioners', medical oncologists' and patients' perspectives (cont.).	
Items	n (%)
GPs' questionnaire (cont.)	
How much help could be provided by administration offices and a dedicated staff in GPs' follow-up management?	
– Very much	181 (48)
– Enough	136 (36)
– A little	51 (13)
– Not at all	12 (3)
Medical oncologists' questionnaire	
How is your relationship with GPs?	
– Absent	14 (4)
– Poor	151 (46)
– Good	141 (43)
– Excellent	23 (7)
Which is the best role of GP in cancer patients' care? Indicate a priority order in the following activities:	
Promotion of prevention:	
– Priority level 1	88 (27)
– Priority level 2	23 (7)
– Priority level 3	23 (7)
– Priority level 4	82 (25)
– Priority level 5	104 (31)
– Did not answer	9 (3)
Risk individuation:	
– Priority level 1	35 (11)
– Priority level 2	57 (17)
– Priority level 3	42 (13)
– Priority level 4	92 (28)
– Priority level 5	83 (25)
– Did not answer	20 (6)
Follow-up management:	
– Priority level 1	25 (8)
– Priority level 2	39 (12)
– Priority level 3	107 (33)
– Priority level 4	97 (29)
– Priority level 5	40 (12)
– Did not answer	21 (6)
Therapies' side effects management:	
– Priority level 1	36 (11)
– Priority level 2	64 (19)
– Priority level 3	91 (28)
– Priority level 4	79 (24)
– Priority level 5	39 (12)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care).</p> <p>The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

Table 2. General practitioners', medical oncologists' and patients' perspectives (cont.).

Items	n (%)
Medical oncologists' questionnaire (cont.)	
Therapies' side effects management (cont.):	
– Did not answer	20 (6)
Palliative care:	
– Priority level 1	32 (10)
– Priority level 2	46 (14)
– Priority level 3	86 (26)
– Priority level 4	94 (29)
– Priority level 5	56 (17)
– Did not answer	15 (4)
Do you think there is a proper integration between hospital and local care?	
– Yes	130 (40)
– No	187 (57)
– Do not know	12 (3)
After how long GPs may replace medical oncologists in follow-up management?	
– 3 years	8 (2)
– 5 years	87 (26)
– 10 years	27 (8)
– Never	15 (5)
– It depends on the patient	91 (28)
– It depends on pathological features	101 (31)
Indicate a priority order in the following statements related to GPs as follow-up providers	
It depends mainly on cancer type:	
– Priority level 1	68 (21)
– Priority level 2	44 (14)
– Priority level 3	57 (17)
– Priority level 4	72 (22)
– Priority level 5	57 (17)
– Did not answer	31 (9)
Cancer therapies in progress or not:	
– Priority level 1	54 (16)
– Priority level 2	46 (14)
– Priority level 3	48 (15)
– Priority level 4	78 (24)
– Priority level 5	67 (20)
– Did not answer	36 (11)
Patient's wish:	
– Priority level 1	32 (10)
– Priority level 2	50 (15)
– Priority level 3	93 (28)
– Priority level 4	76 (23)
– Priority level 5	26 (8)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care).</p> <p>The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

Table 2. General practitioners', medical oncologists' and patients' perspectives (cont.).	
Items	n (%)
Medical oncologists' questionnaire (cont.)	
Patient's wish (cont.):	
– Did not answer	52 (16)
Year of diagnosis:	
– Priority level 1	52 (16)
– Priority level 2	9 (3)
– Priority level 3	29 (9)
– Priority level 4	17 (5)
– Priority level 5	26 (8)
– Did not answer	196 (59)
What do you think about GPs' commitment in informing patients about screening?	
– It is adequate	33 (10)
– It is not adequate	162 (49)
– Do not know	134 (41)
Are you used to write a patient's discharge letter for GPs?	
– Yes	312 (95)
– No	7 (2)
– Did not answer	10 (3)
What kind of strategy may improve relationship with GPs?	
– Institution of common desks	139 (42)
– Conferences about follow-up and consensus conferences	68 (21)
– Formation programs	62 (19)
– Common guidelines	60 (18)
What do you think about the relationship between AIOM and SIMG?	
– It's absent	20 (6)
– It's poor	219 (67)
– It's good	89 (27)
– It's excellent	0 (0)
– Did not answer	1 (0)
How much time do you spend to inform patients about relapse prevention?	
– Always	133 (40)
– Enough	120 (36)
– It's a priority	70 (22)
– Very little	6 (2)
How would you improve prevention promotion?	
– Mass medias	124 (38)
– Leaflets	128 (39)
– Websites and social networks	48 (15)
– Other	29 (8)
Patients' questionnaire	
Which physician provides your follow-up?	
– Medical oncologist	206 (59)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care). The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

Table 2. General practitioners', medical oncologists' and patients' perspectives (cont.).

Items	n (%)
Patients' questionnaire (cont.)	
Which physician provides your follow-up? (cont.)	
– GP	90 (26)
– Several physicians (medical oncologist, surgeon, radiation oncologist...)	30 (9)
– Do not answer	24 (6)
Do you consult your GP for small symptoms related to cancer?	
– Yes	88 (25)
– Sometimes	112 (32)
– No	150 (43)
Is GP's opinion useful?	
– Yes	60 (68)
– Sometimes	22 (25)
– No	6 (7)
Do you trust your GP?	
– Yes	222 (63)
– No	128 (37)
Do you consult your GP?	
– Yes, regularly	102 (46)
– Sometimes	68 (31)
– Never	46 (21)
– Do not answer	(2)
If not, explain why:	
– GPs lack of availability	60 (47)
– GPs lack of cancer expertise	60 (47)
– I had bad experiences in the past	6 (4)
– Do not answer	(2)
Have you ever talked with your GP about cancer therapies' side effects?	
– Yes	134 (38)
– Sometimes	84 (24)
– No	132 (38)
Do GPs provide information about clinical visits after treatment?	
– Yes	94 (27)
– No	254 (72)
– Do not answer	2 (1)
In your opinion, collaboration between medical oncologists and GPs is:	
– Useful	256 (73)
– Not useful	40 (11)
– Sometimes useful	24 (7)
– Do not know	30 (9)
Nowadays, the above-mentioned collaboration is:	
– Excellent	24 (9)
– Good	12 (5)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care). The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

Table 2. General practitioners', medical oncologists' and patients' perspectives (cont.).

Items	n (%)
Patients' questionnaire (cont.)	
Nowadays, the above-mentioned collaboration is (cont.):	37 (14)
– Poor	
– Absent	138 (54)
– Do not answer	45 (18)
How many tests are usually required by your GP in a clinical visit?	
– One	120 (34)
– Two	78 (22)
– Three	56 (16)
– More than three	96 (28)
<p>At the fourth point of GPs' questionnaire, GPs were asked to provide an agree percentage to each of three statement (statement 1: the patient feels to be reassured by laboratory tests and imaging; statement 2: the patient is worried and had anxiety due to clinical visits and tests; statement 3: the patient, when close to diagnosis, is reassured from tests, after he becomes worried). The total sum had to be 100%. The second point of medical oncologists' questionnaire aimed to figure out the best role of GPs in cancer patient care. Medical oncologists had to indicate a priority order in some tasks provided (promotion of prevention, risk individuation, follow-up management, therapies' side effects management, palliative care).</p> <p>The table shows the percentage of oncologists providing a certain priority level for each task (from most important – number 1 – to least important – number 5). The fifth point of medical oncologists' questionnaire is related to GPs as follow-up providers. Medical oncologists were asked to order by relevance some factors that influence the possibility for a GP to become the main follow-up provider. These factors were: cancer type, cancer therapies in progress, patient's wish, year of diagnosis. The table shows the percentage of oncologists providing a certain level of relevance for each factor.</p> <p>AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.</p>	

• GPs' perspectives

GPs' questionnaire pointed out the proportion of patients which had a diagnosis of cancer: 230 GPs (61%) declare to have more than 60 cancer patients. When asked which clinician takes charge of their follow-up, 286 (75%) GPs declare that the follow-up management is provided by the collaboration between GPs and medical oncologists. With regard to follow-up investigation, 339 (89%) GPs believe that patients undergo an excessive number of laboratory or instrumental tests, and only 25 (7%) assume that testing is adequate. A question of the survey focused on follow-up strategy. After 2–3 years of disease free survival, 291 (76%) GPs claim that follow-up should be provided by the collaboration between GPs and medical oncologists and that it should be personalized. Only 73 GPs (19%) state that GP can take charge of patients' follow-up independently. When asked about their opinion about the value of collaboration with medical oncologists, more than a half (n = 177; 47% of GPs) considers it very important and 143 (38%) GPs consider it quite important. The last point of the questionnaire investigated how much help could be provided by administration offices and a dedicated staff in GPs' follow-up management: 181 (48%) GPs answer very much, 136 (36%) GPs answer enough. Complete data are shown in [Table 2](#).

• Medical oncologists' perspectives

Medical oncologists were asked about their relationship with GPs: 151 (46%) report to have a poor relationship with GPs, 141 (43%) to have a good relationship; for 23 (7%) it is excellent, 14 (4%) have no relationships. One hundred eighty-seven (57%) oncologists deny the existence of a proper integration between local and hospital care. When asked how long after diagnosis GPs may replace medical oncologists in follow-up management, 101 (31%) oncologists state that it depends on tumor characteristics, for 91 (28%) of them it should depend on patient characteristics, for 87 (26%) after 5 years. As regard to the oncologists' perception of GPs' commitment in informing patients about screening, 162 (49%) oncologists believe it is not adequate. Communication between GPs and medical oncologists was also investigated. Three hundred twelve (95%) medical oncologists assure to write a patient's discharge letter for GPs. One hundred thirty-nine (42%) oncologists suggest establishment of common desks as a strategy to improve communication, 68 (21%) conferences about follow-up and consensus conferences, a lower percentage suggest training programs and common guidelines. The last question was about prevention promotion: 128 (39%) oncologists suggest leaflets as a strategy of prevention promotion, 124 (38%) mass media, 48 (15%) websites and social network ([Table 2](#)).

Table 3. Significant associations (p < 0.05) between social-demographic features and answers provided by medical oncologists.

Relationship between GPs and medical oncologists	Absent, n (%)	Good, n (%)	Excellent, n (%)	Poor, n (%)
Institution (p = 0.0003):				
– General hospital	9 (10.44)	102 (97.7)	17 (16.41)	107 (110)
– Research institute	5 (2.177)	13(20.3)	0 (3.42)	31 (23)
– Private clinic	0 (0.933)	12 (8.73)	1 (1.466)	8 (9.86)
– Local service	0 (0.444)	4 (4.15)	4 (0.698)	2 (4.69)
Age (p = 0.0110):				
– Younger than 40 years	7 (4.9022)	41 (46.571)	3 (7.7035)	60 (51.823)
– Older than 55 years	1 (4.0189)	47 (38.18)	11 (6.3155)	32 (42.486)
– Between 40 and 55 years	6 (5.0789)	45 (48.249)	8 (7.9811)	56 (53.691)
Area (p = 0.0301):				
– Center	6 (3.1356)	25 (29.789)	4 (4.9274)	36 (33.148)
– North	2 (7.1546)	80 (67.968)	12 (11.243)	68 (75.634)
– South and Islands	6 (3.7098)	28 (35.243)	6 (5.8297)	44 (39.218)
Professional position (p = 0.0015):				
– Medical manager	3 (2.959)	37 (28.11)	8 (4.6498)	19 (31.281)
– Full time	4 (7.3312)	71 (69.647)	11 (11.521)	80 (77.502)
– Fellow	3 (1.8107)	17 (17.202)	2 (2.8454)	19 (19.142)
– Resident	4 (1.8991)	8 (18.041)	1 (2.9842)	30 (20.076)
Perception of a proper integration between hospital and local care				
	Yes, n (%)	No, n (%)	Do not know, n (%)	
Institution (p = 0.0129):				
– General hospital	92 (90.27)	135 (136.52)	8 (8.2063)	
– Research institute	23 (18.822)	26 (28.467)	0 (1.7111)	
– Private clinic	3 (8.0667)	17 (12.2)	1 (0.7333)	
– Local service	3 (3.8413)	5 (5.8095)	2 (0.3492)	
Habit to write a discharge letter for the GP				
	No, n (%)	Yes, n (%)		
Age (p = 0.0349):				
– Younger than 40 years	10 (5.6025)	101 (105.4)		
– Older than 55 years	1 (4.5931)	90 (86.407)		
– Between 40 and 55 years	5 (5.8044)	110 (109.2)		
Strategies suggested to improve prevention in the population				
	Mass media, n (%)	Leaflets, n (%)	Internet, n (%)	Do not know, n (%)
Age (p = 0.0305):				
– Younger than 40 years	50 (41.669)	30 (43.42)	27 (16.457)	1 (0.3502)
– Older than 55 years	35 (34.161)	37 (35.596)	6 (13.492)	0 (0.2871)
– Between 40 and 55 years	34 (43.17)	57 (44.984)	14 (17.05)	0 (0.3628)
After how long GPs may replace medical oncologists as follow-up providers				
	10 years, n (%)	5 years, n (%)	3 years, n (%)	Never, n (%)
Area (p = 0.0006):				
– Center	8 (5.5994)	24 (19.038)	3 (1.7918)	1 (3.3596)
– North	10 (12.776)	46 (43.438)	5 (4.0883)	3 (7.6656)
– South and Islands	7 (6.6246)	15 (22.524)	0 (2.1199)	11 (3.9748)
According to pathological features, n (%)				
Personalization according to the patient, n (%)				
Area (p = 0.0006):				
– Center	17 (21.726)		18 (19.486)	
– North	58 (49.571)		40 (44.461)	
– South and Islands	22 (25.703)		29 (23.054)	

AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.

Table 3. Significant associations ($p < 0.05$) between social-demographic features and answers provided by medical oncologists (cont.).

Perception of GPs' commitment in informing patients about screening	Yes, n (%)	No, n (%)	Do not know, n (%)
Area ($p = 0.0002$):			
– Center	3 (6.9432)	28 (35.164)	40 (28.893)
– North	23 (15.842)	73 (80.233)	66 (65.924)
– South and Islands	5 (8.2145)	56 (41.603)	23 (34.183)
Perception of the relationship between AIOM and SIMG	Absent, n (%)	Good, n (%)	Poor, n (%)
Professional position ($p = 0.0208$):			
– Medical manager	7 (4.2271)	15 (17.965)	45 (44.808)
– Full time	10 (10.473)	36 (44.511)	120 (111.02)
– Fellow	3 (2.5868)	16 (10.994)	22 (27.42)
– Resident	0 (2.7129)	18 (11.53)	25 (28.757)

AIOM: Italian Association of Medical Oncology; GP: General practitioner; SIMG: Italian College of General Practitioner.

• Patients' perspectives

Patients were asked if they used to consult their GPs for small symptoms, defined as all adverse events that are perceived by patients as not being important enough to generate strong concerns that are not worth to be referred to the physicians. For such cancer related symptoms 150 (43%) deny consulting their GPs, 88 (25%) do it, and 112 (32%) declare only sporadic consultations. When asked which physician provides their follow-up, 206 (59%) indicate medical oncologists, 90 (26%) several physicians (medical oncologist, surgeon, radiation oncologist) and only 30 (9%) GPs. Two hundred twenty-two (63%) patients trust their GPs, but 46 (21%) never consult it (68 [31%] do it sometimes and only 102 [46%] do it regularly). The reasons why patients do not consult their GPs were examined: 60 (47%) patients refer to GPs' lack of availability, 60 (47%) lack of cancer expertise, six (4%) had bad experiences in the past. One hundred thirty-four (38%) patients have never talked with their GPs about cancer therapies' side effects. When asked if GPs provide information about clinical visits after treatment, 254 (72%) patients deny it. On the other hand, collaboration between medical oncologists and GPs is perceived as useful by 256 (73%) patients, even if, nowadays, the above mentioned collaboration is considered absent by 138 (54%) patients (Table 2).

Table 3 reports significant associations observed by analyzing data collected from medical oncologists' questionnaire (threshold of statistical significance $p \leq 0.05$). The relationship between oncologists and GPs is significantly associated with oncologist's age ($p = 0.0110$), type of institution ($p = 0.0003$), area of activity ($p = 0.0301$)

and professional position ($p = 0.0015$). The perception of a proper integration between hospital and local care is associated with the type of institution ($p = 0.0129$). The habit to write a discharge letter for the GP and the strategies suggested to improve prevention in the population present a significant association with oncologist's age ($p = 0.0349$ and 0.0305 , respectively). Answers to the question about after how long GPs may replace medical oncologists as follow-up providers are associated with the area of activity ($p = 0.0006$). There is also a significant association between the perception of GPs' commitment in informing patients about screening and the area of activity ($p = 0.0003$) and between the perception of the relationship between AIOM and SIMG and the professional position ($p = 0.0208$).

Discussion

The present study analyzed the results obtained thanks to a national survey that involved 380 GPs, 329 medical oncologists and 350 patients. More than 60% of GPs declared to have a high proportion of cancer patients. This suggests that surveillance is a daily practice issue that demands a tight multidisciplinary integration, in accordance with literature [28]. 75% of GPs stated that follow-up should be provided by the collaboration between GPs and medical oncologists. Oncologists, on the other hand, point out that this collaboration is lacking (57%). This view is supported also by the quality of relationship between medical oncologists and GPs, perceived as poor (according to 46% of oncologists) or absent (according to 4% of oncologists).

Personalization of follow-up is another hot-spot [29]: the absolute majority of GPs (76%)

shares the idea that after 2–3 years of disease-free survival, surveillance should be personalized and decided in collaboration with medical oncologists. Only 28% of oncologists share this point of view, stating that follow-up strategy should vary according to patients' characteristics. Among the remaining respondents, 26% state that GPs may replace oncologists after 5 years from diagnosis and 31% believe that follow-up strategy should depend on disease features.

However, the survey is consistent with the literature data on medical oncologists and GPs views about the value of a mutual collaboration [30]. Namely, 85% of GPs consider a shared patient care very important or quite important and 95% of medical oncologists are used to write a discharge letter for the GP. This relationship could be improved even further: common desks might enhance communication between GPs and medical oncologists.

Interestingly, our data differ from those presented by previous studies, especially when pointing out that patients usually prefer their own GPs to medical oncologists [12,19–20,31]. In these studies, although the reasons of choice are the same, up to 67% of patients prefer GPs to medical oncologists and more than half of them felt to be adequately followed by the referring physician. In our survey 43% of interviewed patients do not consult their GPs also for small symptoms related to cancer; 59% of patients' follow-up is provided by medical oncologists and only in 9% of cases by GPs. 37% of patients do not trust their GPs and 21% never consult them. The reasons for such behavior include the lack of GPs' availability to support patients' needs, and a perceived poorer cancer expertise in respect to medical oncologists. The differences in choice among Italian patients and other countries patients are difficult to interpret due to the heterogeneity of survey methodology and could be only partially explained by local sociocultural and demographic characteristics as well as specific healthcare systems. One possible explanation, certainly speculative and not based on evidence, could be the different ease in accessing hospital of Italian patients compared with patients who live in America or Australia, thus conditioning the different preferences between GPs and oncologists.

The association analysis performed on the answers given by the medical oncologist offers some interesting insights. The type of institution where the oncologist works seems to be strictly connected with the quality of relationship

between oncologists and GPs ($p = 0.0003$). Medical oncologists based in a General Hospital tend to have a better relationship with GPs compared with those who work in a research institute (observed frequencies vs expected: 107, 31 and 110.41, 23.022, respectively). Similarly, medical oncologists based in a local service have a good relationship with GPs. This difference is probably due to closer contacts and similar workflows. Moreover, the type of institution is also associated with the oncologists' perception of the integration between local and hospital care ($p = 0.0129$). Medical oncologists who work in a private clinic deny the above-mentioned integration (observed frequency = 17, expected frequency = 12.2). Those who are based in a general hospital or in a research institute gave more positive feedbacks than expected.

Interestingly, the quality of relationship between medical oncologists and GPs seems to be influenced also by the oncologists' age ($p = 0.0110$). Younger oncologists (under 40 years) tend to be more negative especially compared with over 55-year-old colleagues. These data might reflect the heterogeneous age distribution among the GPs' subset. A total of 77% of GPs, at the time of the survey, were older than 55 years old. It is likely that older oncologists have a better relationship with GPs of the same age, rather than younger oncologists.

The oncologist's age seems to influence also the workflow organization. Older professionals tend to provide discharge letters more often ($p = 0.0349$). This trend that is similar to quality in relationship with GPs. It suggests a key role of communication, in relationship quality.

The communication strategy differs also when it comes to patients' management. Medical oncologists aged less than 40 years focus mainly on mass media, web sites and social network, whereas their over 55-year-old colleagues suggest leaflets' distribution ($p = 0.0305$). The interpretation driven from these data reflects a different familiarity with technological devices by professionals of different age.

The area of activity seems to be also crucial in influencing GPs' relationship ($p = 0.0301$) and follow-up management. In the north of Italy, the relationship seems to be better and more integrated than in the south. Notably, a higher proportion of oncologists in the north state that GPs may replace medical oncologists as follow-up providers ($p = 0.0006$). Among southern oncologists, 13% state that a GP can

never replace a medical oncologist. Among northern oncologists, the majority state that it depends on pathological features (observed frequency = 58, expected frequency = 49.571). The same interpretation can be provided on considering the association between area of activity and oncologists' perception of GPs' commitment in informing patients about screening ($p = 0.0002$). Northern oncologists have a better opinion of GPs' commitment than southern colleagues do.

The last association found was between the quality of relationship between medical oncologists and GPs and oncologist's professional position ($p = 0.0015$). Medical oncologists who work as medical managers or full-time consultants declare a better relationship with GPs rather than fellows and residents. Usually, professional positions as medical manager or full-time consultant are held by older people than those who are fellows or residents: that could confirm the direction of the association between age and quality of relationship between oncologists and GPs.

Due to the exploratory intent of the survey, some results should be interpreted with caution. Most of the patients interviewed were very close to the time of diagnosis, a phase when the relationship with the oncologist is stronger, or even exclusive. Furthermore, GPs, medical oncologists and patients were invited to fill an online questionnaire. This method could select participants who share some characteristics as familiarity with technology or tendency to constantly update, leading to a potentially unbalanced population. Last, the answers provided

were not verified by objective medical observations, as all participants referred to their own self-reported behavior.

In conclusion, follow-up is certainly an important challenge of modern oncology. Similarly to the phase focused on active treatment, it demands a multidisciplinary approach, but on the other hand its organization cannot rely on the common frameworks that characterize the workflow of different units of the same cancer center. Analyzing the feedback coming from all the actors that take part in this process, patients included, is precious in order to design common guidelines that are focused in optimizing both resources and efficiency in cancer survivorship. These feedback may vary according to different systems in different countries. Exploration of Italian setting might provide good practical targets for medical personnel to take, such as the need of a better communication among health providers (between GPs and medical oncologists, in particular) and the need of a more trustworthy relationship between patients and their GPs.

Disclosure

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EXECUTIVE SUMMARY

- There are a growing number of cancer survivors but a gold standard in surveillance management is currently lacking.
- We conducted a national survey: an online questionnaire was filled by 329 medical oncologists, 380 general practitioners (GPs) and 350 patients.
- The questionnaire included demographic information, adherence to guidelines, continuity and coordination of care, opinion on follow-up strategy and patients' satisfaction.
- Most GPs claim that follow-up should be provided by the collaboration between GPs and medical oncologists, after 2–3 years of disease-free survival.
- The majority of medical oncologists report to have a poor relationship with GPs.
- Patients tend to trust their GPs, but collaboration between medical oncologists and GPs is perceived as poor.
- According to answers provided, the collaboration between oncologists and GPs is considered poor and needs to be improved.
- Analyzing the feedbacks coming from all the actors that take part in this process could help in designing common guidelines that optimize both resources and efficiency.

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Ethical conduct of research

The authors state that they have obtained appropriate institutional review board approval or have followed the principles outlined in the Declaration of Helsinki for all human or animal experimental investigations. In addition, for investigations involving human subjects, informed consent has been obtained from the participants involved.

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