

What information do general practitioners need to care for patients with lung cancer? A survey of general practitioners perceptions

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Abstract

General practitioners (GPs) are an integral part of the multidisciplinary team that care for patients with lung cancer. It is essential that patient information including results of tests, management plans, treatment, and follow-up arrangements are communicated between hospital-based carers and the community-based GP. The aim of this study was to explore GPs' views about the information they need from hospital-based health professionals in the management of their patients with lung cancer. This exploration is undertaken within the context of a multidisciplinary model of care, a relatively new concept in service delivery for cancer patients. Data were collected using a questionnaire that was distributed to the population of 433 GPs from one Australian regional Division of General Practice. Questions related to from whom, what, when and how GPs would like to receive information from the multidisciplinary hospital-based lung cancer team. GPs reported that they wanted information from all members of the multidisciplinary hospital-based lung cancer team, not just physicians. The key triggers for communication included: any change in the patient's condition; following initial outpatient visit; at admission and discharge; and following treatment milestones. Both medical and social information were seen as important to GPs and there was strong support to receive information electronically. This study illustrates the desire by GPs to receive information from all members of the hospital-based lung cancer team if it is relevant to the ongoing care of their patient. Technology-enabled solutions, such as an electronic multidisciplinary discharge summary, the electronic health record and the person-controlled electronic health record, offer strategies to improve both timeliness and access to information.

Keywords (MeSH):

Communication; Information Dissemination; Interdisciplinary Communication; Physicians, Family; General Practice; Medical Records; Patient discharge; Lung Neoplasms

Introduction

The incidence of cancer in Australia is increasing - in 2005 there were more than 100,000 new cases of cancer diagnosed. This number is projected to grow by over 3,000 extra cases per year in 2006–2010. The largest contributor to the total burden of disease in Australia in 2003 was cancer (19% of the total). Included in the top five cancers for both males and females is lung cancer. Lung cancer is also known to have the highest death rate of all the cancers (Australian Institute of Health & Welfare 2008).

Within the context of cancer management, the best practice model requires a multidisciplinary team-based approach to care (National Breast Cancer Centre 1995). The multidisciplinary team comprises health professionals from the three main clinical streams

including medicine, nursing and allied health with general practitioners (GPs) included with the medical stream. In terms of lung cancer treatment, the majority of care is provided in public and private hospitals with the GP responsible for community-based care, particularly within the terminal phase.

One of the challenges to the effective delivery of care across the hospital-community continuum is to ensure the GP has access to comprehensive information in a timely manner. Within the context of cancer care, this challenge is compounded by the phenomena of multidisciplinary care (Tripathy 2003) and the role of the GP in cancer care. Traditional models of care have been based on the medical model where the medical officers made all the decisions regarding patient care. The medical model was reflected in

communication from the hospital to the GP where information transfer was restricted to doctor-to-doctor. The role of the GP in cancer care is evolving due to the rising incidence of cancer and because of multidisciplinary care where the GP is considered part of the team (Mitchell 2008).

In light of the move to multidisciplinary care for cancer patients, it is important to explore the information needs of GPs in relation to their patients with lung cancer. Do they need information from other health professionals? What information do they need to enable them to effectively treat their patients with lung cancer in the community? How should this information be delivered?

Traditionally, the hospital has determined what information the GP needs in relation to caring for patients with lung cancer. The information supplied by the hospital and the information required by the GP often differs. Many early studies (Calman & Murdoch 1974; Bado & Williams 1984; Adams, Bristol & Poskitt 1993) cite information relating to the social aspects of patient care as being missing from the communications; for example, what the patient had been told about the diagnosis, treatment and prognosis. However, in contrast, a study by Newton, Eccles and Hutchinson (1992) found a parallel between the information provided to GPs and their information needs, including what the patient had been told. Within the Australian cancer care context, two studies (Tattersall et al. 1995; McConnell, Butow & McConnell 1999) examined the preferred information content of letters from consultant physicians to referring doctors (including GPs), and the preferred content of referral letters and reply letters from the consultant physician. Both of these studies were limited to investigating doctor-to-doctor communications. No published studies were identified that explored the information that GPs need from a multidisciplinary hospital-based lung cancer team to manage their patients with lung cancer. Therefore, the aim of this study was to establish the patient information needs of GPs within the context of multidisciplinary care. The results will be available to inform strategies to improve information transfer between the multidisciplinary hospital-based lung cancer team and the GP.

Method

This research is part of a large multi-method study combining qualitative and quantitative methods to explore communication within the multidisciplinary hospital-based lung cancer team and information flow between the team and the GP. Data were collected from members of the multidisciplinary hospital-based lung cancer team and GPs from the associated Division

of General Practice. Only results from the GPs' survey will be reported in this paper.

Ethics

Ethics approval for the study was obtained from the Human Research Ethics Committees of the study hospital and The University of Sydney, New South Wales.

Research design and setting

The study utilised a cross-sectional survey design with the administration of a questionnaire to all members of one Division of General Practice within the catchment of an Australian public teaching hospital¹. Both the hospital and the Division were located within the same geographic area of regional Australia and provided services to the same population group. The catchment area of this geographic region is approximately 210,000.

Study instrument

The questionnaire was developed by the researchers based on interviews with the hospital-based lung cancer team ($n=22$), interviews with a sample of GPs from the Division ($n=8$) and a review of relevant literature (Tattersall et al. 1995; Solomon, Maxwell & Hopkins 1995; Stalhammar et al. 1998; McConnell, Butow & Tattersall 1999). The original questionnaire was piloted with one member of the Division of General Practice and modified based on feedback. The final questionnaire consisted of eight questions. Seven questions were closed ended and aimed at establishing: the members of the multidisciplinary hospital-based lung cancer team from whom GPs would like to receive information; events or occasions when they would like to receive information; the timing of receipt of information; the usefulness of information; and how they would like to receive the information. The respondents were required to check the boxes of their preferred responses to all of the closed ended questions; three questions allowed more than one response. The final question was open ended, providing an opportunity for the GP to provide additional comments in relation to their information needs.

Population

Four hundred and seventy five (475) GPs were registered in the catchment area of the Division of General Practice. A list of GPs including names and addresses was obtained from the hospital. The list of GPs was culled to exclude those GPs who provided services

¹ To protect confidentiality of respondents, the location of the study has not been identified.

from skin clinics and other specialist clinics (e.g. women's health). The study population comprised 433 GPs.

Data collection

The questionnaire was mailed out to the 433 members of the Division between February and April 2009. The initial mail-out was followed up by a second mail-out to the non-respondents that included a personal note from one of the researchers. Of the 433 questionnaires distributed, 13 questionnaires were returned incomplete as the GP had left out the address, four were returned blank with no explanation given for non-completion, and two were returned blank as the GP had retired. Two hundred and forty two questionnaires from a population of 414 were returned complete giving a response rate of 58.5%.

Data analysis

The completed questionnaires were coded and entered into the Statistical Package for the Social Sciences (SPSS) (GradPack 17.0 for Mac). Descriptive statistics were calculated and chi-squared analyses was used to test for significant differences between the characteristics of respondent and non-respondent groups variables ($p < 0.01$).

Results

Profile of respondents

The profile of survey respondents is depicted in Table 1. Two-thirds of the respondents were male and one third female. The majority (85%) of respondents practiced in the urban area. Only a small number (5%) of GPs had referred patients to the hospital with lung cancer in 2008. A comparison is made between the profile of respondents and non-respondents in order to determine whether or not those GPs who responded to the survey were different from those who did not. This comparison was conducted using available information, gender, practice location and referral pattern of respondents and non-respondents. No significant difference ($p < 0.01$) was found between the profiles of the respondents versus the non-respondents.

Table 1: Profile of survey respondents from the Division of General Practice (n = 242)

PROFILE OF RESPONDENTS		RESPONDENTS (n = 242)	
		n	(%)
Gender	Male	159	(65.7)
	Female	83	(34.3)
Practice Location	Urban 1	73	(30.2)
	Urban 2	48	(19.8)
	Urban 3	47	(19.4)
	Urban 4	22	(9.1)
	Urban 5	18	(7.4)
	Rural 1	31	(12.8)
	Rural 2	3	(1.2)
Number of GP respondents who referred patients to the study hospital with lung cancer in 2008		13	(5.4)

Members of the hospital team from whom GPs would like to receive information

The majority of GPs (97.4%) indicated that they would like to receive information from a medical officer, although a large percentage (71%) also wished to receive information from a palliative care nurse. Forty percent indicated they would like to receive information from a psychologist or social worker (Table 2). A number of comments were made by GPs in relation to this question, namely that they did not mind whom they received information from if it was relevant to the ongoing management of their patient.

Interestingly, the most significant additional comment made by a number of GPs to the open-ended question was their desire for a point of contact (name/telephone number) from the multidisciplinary hospital-based lung cancer team so that they could initiate contact with the team themselves.

Table 2: Members of the multidisciplinary hospital-based lung cancer team from whom GPs would like to receive information (n = 235#)

DISCIPLINE	* RESPONSE % (n = 235#)	
	n	(%)
Medical Officer	229	(97)
Palliative care nurses	168	(71)
Psychologist	95	(40)
Social Worker	94	(40)
Oncology nurses	92	(39)
Pharmacist	76	(32)
Dietitian	64	(27)
Other	13	(6)

n = 242 with 7 missing responses

* Respondents were able to choose more than one response; thus, percentages do not add to 100.

Events when GPs would like to receive information

The events or occasions when GPs would like to receive information from the multidisciplinary hospital-based lung cancer team included: changes in the patient’s condition (80.8%); following initial outpatient consultation (76.7%); at time of admission and discharge (75%); and at treatment milestones (71.7%).

Timing of discharge summaries and outpatient letters

The majority of respondents (58%: 133/227) indicated that they would like to receive the discharge summary on the day of discharge or the next day. Three-quarters (76%: 171/224) of respondents indicated they would like to receive an outpatient letter within three days of the patient’s visit (Figure 1).

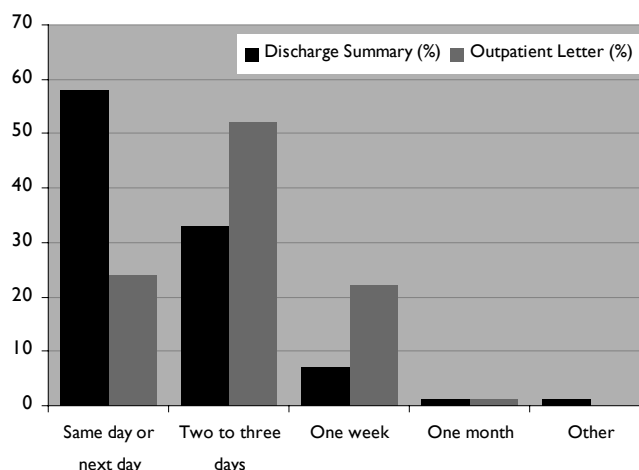


Figure 1: Comparison of when GPs would like to receive the discharge summary versus the outpatient letter (% of respondents)

Table 3: GPs assessment of the usefulness of information they would like to receive from the hospital team by category of information

CATEGORY OF INFORMATION	TOTAL RESPONSES <i>n</i>	ESSENTIAL %	USEFUL %	LITTLE OR NO USE %
History				
Lifestyle risk factors	232	21.1	65.1	13.8
Family history of cancer	234	35.0	58.5	6.4
History of presenting problem	235	65.5	31.1	3.4
Past medical history	235	55.7	40.9	3.4
Social history	234	27.4	65.0	7.7
Current drugs, drug reactions and allergies	236	86.0	14.0	Nil
Functional ability (activities of daily living) (ADLs)	236	50.4	48.3	1.3
Examination and investigations				
Test / findings on investigation	238	82.4	17.6	Nil
Clinical / findings on examination	237	71.4	28.2	0.4
Further tests / investigations	237	70.9	28.3	0.8
Explanation of symptoms / signs	235	41.7	49.4	8.9
Management plan				
Treatment recommendations and rationale	237	90.3	9.7	Nil
Aim of treatment e.g. curative or palliative	236	87.3	12.7	Nil
Diagnosis / provisional diagnosis	238	94.1	5.9	Nil
Likely prognosis	236	67.8	31.8	0.4
Chemotherapy protocol and associated drugs	236	35.6	60.6	3.8
Side effects and their management	230	50.0	48.7	1.3
Information regarding any formal clinical trials discussed with the patient	235	20.4	67.2	12.3
Follow up				
Arrangements made for treatment – where and when	238	76.5	22.3	1.3
Follow up arrangements	238	74.9	24.7	0.4
Community services arranged	239	56.5	42.7	0.8
Advice given to the patient about when to contact the hospital	237	30.8	65.0	4.2
Caring and psychosocial				
What the patient has been told	238	66.4	32.4	1.3
What the family has been told	238	53.4	43.3	3.4
Recommended life style changes	236	21.2	71.6	7.2
Psychosocial support	236	29.2	69.1	1.7
Pain alleviation	238	80.7	19.3	Nil
Nutrition	236	27.1	69.9	3.0
Alternative medicine	234	9.8	69.2	20.9
Palliation	236	61.4	38.6	Nil
Support to relatives	235	19.1	75.7	5.1
Religious / cultural conceptions about disease and death	233	14.2	73.8	12.0

The usefulness of information

The results indicating *usefulness of information* are presented in broad categories relating to the information type: history; examination and investigation findings; management plan; follow-up; and caring and psychosocial information, with further sub-categories relating to specific aspects of the information type (Table 3).

Eighty percent or more of GPs considered the following information to be *essential*: diagnosis/provisional diagnosis (94.1%); treatment recommendations and rationale (90.3%); aim of treatment (e.g. curative or palliative) (87.3%); current drugs, drug reactions and allergies (86.0%); test/findings on investigation (82.4%); and pain alleviation (80.7%). Also ranked highly were: follow-up arrangements for treatment (76.5%); follow-up arrangements generally (74.9%); clinical findings on examination (71.4%); and further tests/investigations (70.9%). Similar numbers of GPs considered the following information to be *useful* but not essential: support to relatives (75.7%); religious/cultural conceptions about disease and death (73.8%); recommended lifestyle changes (71.6%); and nutrition (69.9%). In contrast, low numbers of GPs considered the following information *least useful* (of little or no use): alternative medicine use (20.9%); lifestyle risk factors (13.8%); information regarding any formal clinical trials discussed with the patient (12.3%); and religious/cultural conceptions about death and disease (12.0%).

How GPs want to receive information

The majority of GPs (88.8%) indicated that they would like to *receive information* electronically by encrypted e-mail (Table 4).

Table 4: Method of communication by which GPs would like to receive information from the hospital (n=240#)

METHOD	* RESPONSE % (n = 240#)	
	n	(%)
Electronically – encrypted e-mail	213	(88.8)
Facsimile	90	(37.5)
Post	59	(24.6)
Telephone	43	(17.9)
Web-based portal - internet	13	(5.4)
Other	2	(0.8)

n = 240 with 2 missing responses

* Respondents were able to choose more than one response; thus, percentages do not add to 100.

While the majority of GPs preferred information communication electronically, GPs were able to make more than one response to this question. Of those

who requested information electronically, 33% also preferred information by facsimile, 20% by post, 17% by telephone and 4% by web-based portal (Table 5).

Table 5: Cross-tabulation of GPs who wished to receive information electronically by other modes (n = 213)

ELECTRONICALLY:

FACSIMILE	POST	TELEPHONE	WEB-BASED PORTAL
70 (33%)	43 (20%)	37 (17%)	9 (4%)

Discussion

Who GPs need information from to treat their patients

Our study found that within the context of a multidisciplinary model of care GPs not only wished to receive information from medical officers but also from other members of the multidisciplinary hospital-based lung cancer team including palliative care nurses, psychologists, social workers, oncology nurses, pharmacists and dietitians. GPs reported being open to receiving information from any member of the team if it was relevant to the management of the patient. This finding is important, as there have been no previous studies that have asked GPs whether or not they would like to receive information from all members of a multidisciplinary hospital-based lung cancer team. A multidisciplinary discharge summary as used in other areas of health care (e.g. rehabilitation) could meet the information needs of the GP. Computerised information management systems such as the Electronic Health Record (EHR) and the Personal Health Record (PHR) also offer opportunities for the GP to source patient information directly from the patient health record as maintained by all members of the multidisciplinary team.

When GPs need information

The current triggers for when communication from the multidisciplinary hospital-based lung cancer team to the GP should occur were: following presentation of the patient’s case and the development of a management plan at the Multidisciplinary Team Meeting; following an outpatient appointment; and at discharge following hospitalisation. These triggers are set by the hospital. Information on current communication between the hospital and the GP was established during the interviews with the team and the GP as part of the broader study. The information needs of GPs in the management of their patients with cancer have been shown to be determined by their role

or the functions the GP will perform in relation to the patient with cancer (Mitchell 2008, Farquhar et al. 2002, Farquhar et al. 2005, Anvik, Holtedahl & Mikalsen 2006; Hickner et al. 2007; McAvoy 2007; Hanks, Veitch & Harris 2008). Examples of the role of the GP in cancer care include: assist in pain management; terminal care; coordination of referrals; general care; involved in the beginning and the end; help with decisions; provide emotional support; explain; work with sub-specialities; and handle complications and follow-up (Hickner 2007). The GPs in our study cited a change in the patient's condition and the achievement of a milestone in treatment as the triggers for communication. The desire for information at these times may be attributed to the role of the GP in helping with decisions including explaining and providing emotional support to the patient. The GPs in our study also expressed a desire to be notified of both the patient's admission and discharge. Current communication patterns from hospital to GP consist of the generation of a discharge summary only at, or following, discharge and it is only at this point that the GP would be made aware of the patient's hospitalisation. The GP is not routinely notified of the admission of their patient to hospital. However, given the results from our study, consideration to the feasibility of notifying the GP, perhaps electronically, of their patient's admission should be investigated.

GPs also requested information following initial outpatient consultation. The desire to obtain information at this time is consistent with the findings from a study by Johansson et al. (2000). The desire to obtain information at this time may be two-fold. Johansson et al. (2000) cited the desire for information as being based on the need to make the correct judgement regarding the patient's symptoms and difficulties. However, there is also the educational feedback loop that occurs when the patient is referred to a specialist and in the subsequent response.

So far we have described one-way communication – hospital to GP. Yet a number of GPs expressed a desire to be able to initiate communication back to the hospital by requesting a point of contact within the team (name/telephone number). There are benefits for both the multidisciplinary hospital-based lung cancer team and the GP if a two-way dialogue commences, as both parties will be able to provide information that will assist in treatment planning and patient management. For example, the GP in contacting the team regarding the treatment plan may be able to provide information on the patient's social circumstances that may influence the plan. It could also be anticipated that better communication between GPs and the hospital team would reduce the demands placed on

patients to be the conduit of information between the two parties.

Other studies have found that if information transfer is not timely it is of limited value to the GP (Calman & Murdoch 1974; Long & Atkins 1974; Mageean 1986; Harding 1987; Adams et al. 1993; Bolton et al. 1998; van der Kam et al. 1998; Farquhar et al. 2002; Farquhar et al. 2005). We found that GPs expressed a desire to receive information on the same day or the next day post discharge via the discharge summary. This short timeframe is likely to be due to GPs' desires to be able to provide appropriate immediate follow-up of patients, particularly if they experience relapse of symptoms. At the time of our study, the discharge summary was created manually at the hospital, where medical officers are required to either dictate or personally type the discharge summary into a template; the discharge summary is then transmitted electronically to the GP using encrypted email. The implementation of an electronic discharge summary has been shown to lead to an improvement in timeliness of receipt of the discharge summary by the GP (Alderton & Callen 2007). Electronic discharge summaries, when compared with handwritten discharge summaries, result in the completion of more free text items (Callen, Alderton & McIntosh 2008), and this may be of particular value for health professionals relaying information to GPs about patients with lung cancer. Thus, additional information created by non-physician health professionals and timeliness of information transfer for cancer patients could be achieved with electronic multidisciplinary discharge summaries. The EHR and the proposed person-controlled electronic health record (National Health and Hospitals Reform Commission 2009) also offer potential solutions for the improvement of timeliness and access to information by GPs in the future.

Key information categories that GPs need

The results of our study identified several clinical aspects of patient care judged as essential for the GP management of patients with lung cancer. These included diagnosis, recommended treatment and whether the aim of treatment was curative or palliative. These results are consistent with the findings of Barnes et al. (2000) and Tanner and Myers (2002) who undertook studies in relation to the information needs of GPs from medical officers, and Allgar and Neal (2005), who studied the role of the GP in cancer care. The information that the GPs found useful, but not essential, centred around the social aspects of care: support to relatives; religious/cultural conceptions of disease and death; and recommended lifestyle

changes. The implementation of a multidisciplinary discharge summary as previously discussed would assist in ensuring the social aspects of care are communicated to the GP.

How GPs want to receive information

The majority of GPs surveyed would like to continue to receive communications electronically. The strong desire to receive information electronically is in contrast to an Australian study published in 2004 where GPs reported no preference for email communications over communication by post, telephone or facsimile (Samers et al. 2004). Our result may have been influenced by the high level of uptake of electronic messaging (email) in the study Division of General Practice. While electronic communication was strongly supported, some GPs would also like to receive information by facsimile, post and telephone. The telephone was the communication channel of preference for urgent issues; these results are consistent with the desires of GPs as reported in a study by Farquhar et al. (2005). This is most likely to relate to the importance of synchronous communication when communicating urgent information and also ensuring in such instances that full and accurate information is obtained. This has been identified as a reason for not using electronic systems in such instances (Georgiou et al. 2009).

In our study, GPs indicated little support for patient information to be received via a web-based portal. A web-based portal was defined in the questionnaire as 'internet access via a password'. The limited support for a web-based portal may be related to the limited exposure of the GPs in the Division of General Practice to such a mechanism for the sharing of patient information. Within the context of Australia there are few examples of information sharing via a personal health record between the GP, the hospital and the patient themselves. Within the context of this study it is also worthwhile noting that the web-based portal may have been better described as a 'personal health record' and that the description used may have led to some misunderstanding of the concept.

The support for the receipt of information electronically is encouraging in terms of the introduction of both the EHR and PHR as it indicates the GP is ready to move away from the paper-based methods of communication. However, as indicated by the low level of support for information sharing via a web-based portal, further education may be required to provide GPs with better information about the potential such communication tools may provide them in receiving timely information about their patients.

Limitations of the study

The response rate of 58%, while reasonably high for a self-administered mail questionnaire, could potentially have been increased by further follow up of non-respondents including personal telephone calls. However, a comparison of the profile of respondents and non-respondents showed no statistical difference ($p < 0.01$) for three broad characteristics, suggesting that the respondents were similar to those who did not respond. It is possible that there were differences between the groups that we were unable to measure. The restriction of the study to one Division of General Practice may limit the generalisation of the results. This is perhaps particularly evident in relation to the preference for the receipt of electronic communications from the Hospital, which may be influenced by the already widespread uptake of encrypted e-mail in the Division of General Practice.

Conclusion

This study provides new information about the information needs of GPs in the management of their patients with lung cancer. In particular, the study illustrates the desire by GPs to receive information from all members of the multidisciplinary hospital-based lung cancer team if it is relevant to the ongoing care of their patient. These results are particularly important to the hospital, as a benchmark for evaluating whether they are meeting the information needs of the GP in the management of their patient with lung cancer and generally in relation to all cancer types. Technology-enabled solutions such as electronic multidisciplinary discharge summaries, the EHR and the person-controlled electronic health record may offer opportunities to improve both timeliness and access to information and to meet these information needs.

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