

## Original Article

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# Practice Patterns Regarding Multidisciplinary Cancer Management and Suggestions for Further Refinement: Results from a National Survey in Korea

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Received October 27, 2016

Accepted February 5, 2017

Published Online February 22, 2017

## Purpose

This study was conducted to explore the process and operation of a cancer multidisciplinary team (MDT) after the reimbursement decision in Korea, and to identify ways to overcome the major barriers to effective and sustainable MDTs.

## Materials and Methods

Approximately 1,000 cancer specialists, including medical oncologists, surgical oncologists, radiation oncologists, pathologists, and radiologists in general hospitals in Korea were invited to complete the survey. The questionnaire covered the following topics: organizational structure of MDTs, candidates for consulting, the clinical decision-making initiative, and responsibility for dealing with legal disputes.

## Results

We collected a total of 179 responses (18%) from physicians at institutions where an MDT approach was active. A surgical oncologist (91%), internist (90%), radiologist (89%), radiation oncologist (86%), pathologist (71%), and trainees (20%) regularly participated in MDT operations. Approximately 55% of respondents stated that MDTs met regularly. In cases of a split opinion, the physician in charge (69%) or chairperson (17%) made the final decision, and most (86%) stated they followed the final decision. About 15% and 32% of respondents were "very satisfied" and "satisfied," respectively, with the current MDT's operations. Among 38 institutional representatives, 34% responded that the MDT operation became more active and 18% stated an MDT was newly implemented after the reimbursement decision.

## Conclusion

The reimbursement decision invigorated MDT operations in almost half of eligible hospitals. Dissatisfaction regarding current MDTs was over 50%, and the high discordance rates regarding risk sharing suggest that it is necessary to revise the current system of MDTs.

## Key words

Reimbursement, Multidisciplinary, Korea

## Introduction

To manage patients with advanced cancer in the most effective way, experts from different disciplines need to be engaged [1]. This need has resulted in introduction of the multidisciplinary team (MDT) approach, in which key professionals discuss a particular patient and contribute independently to clinical decisions [2]. Communication, coordination, and decision making between healthcare profes-

sionals and patients have improved with the implementation of the MDT approach [3].

Because of these advantages, current clinical guidelines recommend discussing the diagnostic and/or therapeutic plan with an MDT for localized or locally advanced non-small cell lung cancer [4], synchronous metastatic/first recurrent metachronous metastatic colon cancer [5], locoregional stomach cancer [6], and most types of head and neck cancer [7]. Although the concepts of the MDT approach are considered good clinical practice in oncology, MDT organi-

zation and implementation take a substantial amount of time and additional efforts by the team's relevant healthcare professionals. In addition, there are practical barriers to active and sustainable implementation of an MDT [3].

To improve patient-centered cancer care by invigorating the MDT approach and to enhance the benefits coverage in recompense for abrogation of the physician surcharge, the Korean Health Authority decided to reimburse the costs of the "Multidisciplinary Care Service" on August 1, 2014. The Korean model of the MDT is provided for patients in superior general hospitals or the Korea cancer center hospitals who have a clinically suspicious or pathologically confirmed malignancy. The MDT includes four or more-expert services and is offered in the outpatient clinic as a face-to-face service between patient and physicians. The hospital can charge 113,210 won (102 US dollars) for the 4-expert service or 141,510 Korean won (128 US dollars) for the 5- or more-expert service up to three times per primary tumor.

This study was conducted to explore the process and operation of cancer MDTs after the reimbursement decision was made in Korea, and to identify ways to overcome the major barriers to effective and sustainable MDTs.

## Materials and Methods

### 1. Development of the survey

Survey Monkey (<https://ko.surveymonkey.com>) was used to create a web-based online survey. The survey consisted of 25 questions about the structure, extent, and functioning of MDTs in Korea. A follow-up questionnaire consisted of four items concerning changes in practice after the reimbursement decision went into effect.

### 2. Participants

To complete the survey, we invited approximately 1,000 members of the Korean Association for Clinical Oncology, Korean Society of Surgical Oncology, Korean Society for Radiation Oncology, Korean Society of Pathologists, and Korean Society of Radiology including medical oncologists, surgical oncologists, radiation oncologists, pathologists, and radiologists, as well as trainees, nurses, and clinical research coordinators. The follow-up survey was only sent to representative medical oncologists in each hospital as part of the Survey of Medical Oncology Status in Korea (SOMOS-K) [8].

From October 2014 to January 2015, e-mail invitations including a link to the survey were sent to participants after approval from the relevant society. Repeated invitations after

the initial distribution were sent to non-responders 8 weeks and again 12 weeks later. Responses were automatically collected by the online server.

### 3. Statistical analysis

"Respondent" refers to an attending physician who is the institutional representative that completed the questionnaire. Fisher exact test with a significance level of  $< 0.05$  was used to compare differences in binary variables. All statistical analyses were performed using the Stata ver. 13.0 software (Stata Corp LP, College Station, TX).

## Results

### 1. Responses

Included in the study were 179 responses from physicians at institutions where an MDT approach was active (Table 1). Of these 179 respondents, 70 (39%) were internists (58 medical oncologists, 12 pulmonologists), 23 (13%) surgeons, 22 (12%) radiation oncologists, 41 (23%) radiologists, and 23 (13%) pathologists. A total of 38 institutional representatives responded to a follow-up questionnaire.

### 2. Structure and functioning of MDTs

The MDT meetings were regularly attended by surgical oncologist (91%), an internist including a medical oncologist and pulmonologists (90%), radiologist (89%), radiation oncologist (86%), pathologist (71%), and trainees including residents or fellows (20%) (Table 2). A total of 86% of the MDTs had a designated (56%) or rotated (30%) chairperson. Overall, 55% of the respondents stated that their MDTs met regularly, 30% every week, 19% more than once a week, 4% every 2 weeks, and 1% every month.

A total of 60% of MDTs discussed cancer patients in all stages, and the majority (98%) of MDTs meetings were held to determine the therapeutic plan after the pathological diagnosis.

### 3. Clinical decision making

In case of a split opinion, the physician in charge (69%) or chairperson (17%) made the final decision and there was a majority vote (15%) (Table 3). About 90% of respondents indicated that it was not mandatory for the treating physicians to implement the final recommendation of the MDTs; however, most (86%) indicated that they did follow the rec-

**Table 1.** Characteristics of the 179 respondents with an MDT at their center

Characteristic	No. (%)
<b>Age group (yr)</b>	
30-40	49 (27)
40-50	78 (44)
> 50	52 (29)
<b>Clinical career (yr)</b>	
< 5	24 (13)
5-10	49 (27)
10-20	60 (34)
> 20	46 (26)
<b>Department</b>	
Internal Medicine	70 (39)
Medical Oncology	58 (32)
Pulmonology	12 (7)
General Surgery	23 (13)
Radiation Oncology	22 (12)
Radiology	41 (23)
Pathology	23 (13)
<b>Specialty (multiple)</b>	
Stomach	59 (33)
Colon	60 (34)
Lung	78 (44)
Breast	51 (28)
Hepato-biliary	56 (31)
Genitourinary	40 (22)
Head and neck	49 (27)
Rare malignancy	36 (20)
	179 (100)

MDT, multidisciplinary team.

ommendation. Regarding the hypothetical question of a lawsuit being brought by a patient who underwent treatment according to the decision of the MDT, 37% of respondents stated that the treating physicians are responsible, while 38% replied that all members of the MDT should share the responsibilities. In terms of the aforementioned risk-sharing issues, experts from different disciplines had significantly different opinions ( $p=0.039$  between groups). Specifically, internists, surgeons, and radiation oncologists were more likely to share their responsibility, while radiologists and pathologists were less likely to accept responsibility for the decision.

#### 4. Satisfaction

About 15% and 32% of respondents were "very satisfied" and "satisfied," respectively, with how the current MDTs

**Table 2.** Structure of the MDT for cancer care in Korea

Structure	Percentage <sup>a)</sup>
<b>Participants</b>	
Internal Medicine	90
Radiology	89
General Surgery	91
Radiation Oncology	86
Pathology	71
Trainees (residents or fellows)	20
<b>Chairperson</b>	
No	14
Yes	-
Designated	56
Rotating	30
<b>Schedule</b>	
Irregular meeting (in case)	45
Regular meeting	55
More than one meeting a week	19
Every week	30
Every 2 weeks	4
Every month	1
<b>Stage in discussion</b>	
All stages	60
Localized stage	39
Recurrent or metastatic stage	27
<b>Reasons for an MDT</b>	
To diagnose cancer	2
To decide therapeutic plan after diagnosis	98
To decide palliative care plan after recurrence	0

<sup>a)</sup>We calculated the proportion of answers based on 70 multidisciplinary teams (MDTs) of 179 respondents.

functioned. Regarding the degree of satisfaction among experts from different disciplines, there was no significant difference between experts ( $p=0.196$ ). In particular, internists and surgeons were more satisfied with MDTs than other doctors were ( $p=0.027$ ) (Fig. 1).

#### 5. Changes after the reimbursement decision

Among 38 institutional representatives, 34% (13/38) responded that MDT operations became more active and 18% (7/38) stated that an MDT was newly implemented after the reimbursement decision.

#### 6. Barriers to improvements

More than half of respondents (56%) replied that the current costs of reimbursement should be raised (the current

**Table 3.** Responses to various questions in the survey, especially pertaining to clinical decision making

Question	Percentage <sup>a)</sup>
<b>Who makes the final decision/ recommendation in case there is more than one opinion?</b>	
Physician in charge	69
Chairperson	17
Majority vote	15
<b>Is it mandatory for the treating doctor to implement the decision/ recommendation of the MDT?</b>	
Yes	8
No, but follow the decision/ recommendation	86
No, decide regardless of the decision/recommendation	6
<b>In case of a lawsuit brought on by a patient who underwent treatment according to the decision of the MDT, who do you think is/are legally responsible?</b>	
All members of the MDT	38
Treating doctor	37
Hospital	18
Chairperson	3
Others	3

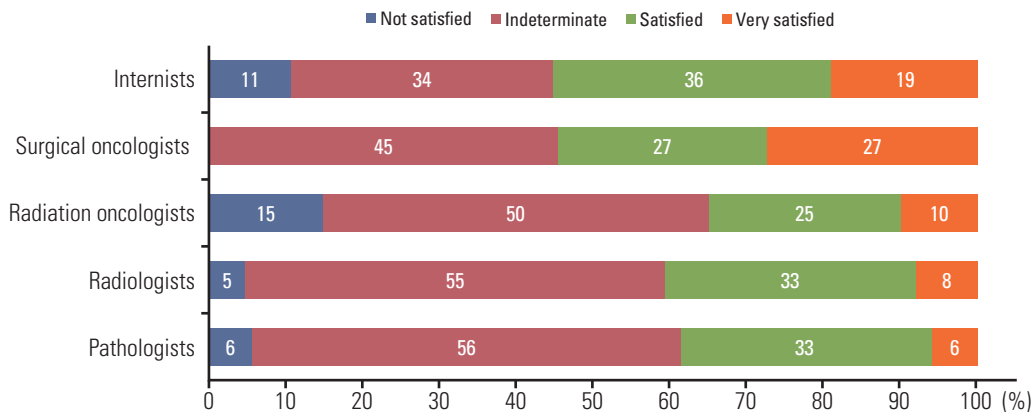
<sup>a)</sup>We calculated the proportion of answers based on 70 multidisciplinary teams (MDTs) of 179 respondents.

cost is 113,210 Korean won/102 US dollar for 4-expert services, and 141,510 won/128 US dollar for 5- or more-expert services). About 42% insisted that multidisciplinary care service should be expanded to include inpatient MDTs. Moreover, 30% demanded that the option of face-to-face meetings should be eliminated and the number of experts who participate in MDTs should be regulated. Finally, 12% of respondents noted that prerequisites regarding the institutions allowed to have an MDT should be relaxed from superior general hospital to general hospitals.

### Discussion

We found that the reimbursement decision made by government health authorities invigorated MDT operations in almost half of eligible hospitals, suggesting that the reimbursement decision could affect our practice considerably. Moreover, dissatisfaction of over 50% regarding current MDTs and high discordance rates regarding risk sharing were observed. Given the absence of specific guidance for MDTs, the implementation and organizational structure were variable across institutions.

The reimbursement to the “Multidisciplinary Care Service” has changed the practice patterns of healthcare professionals in Korea considerably. Approximately one third of institutional representatives stated that the MDT operation became more active and 18% responded that an MDT was newly implemented. Despite these changes, a few important issues concerning regulations remain. Specifically, 56% of respondents stated that the cost of MDTs is not sufficient.



**Fig. 1.** Satisfaction with how the current multidisciplinary team functioned.  $p=0.196$  between groups.  $p=0.027$  between internists/surgical oncologists versus radiation oncologists/radiologists/pathologists.

Currently, the MDT operation costs 102 US dollars for 4-expert service, which is approximately 25 US dollars per individual expert's consultation. In cases in which participation in MDT requires considerable time and extra effort (in our survey, more than half of respondents noted that), the current cost of reimbursement should be raised. Additionally, 42% of respondents stated that a restriction to outpatient consultation in MDT is not rational. According to the rule of outpatient consultation, the hospital cannot charge a service fee for inpatient MDT consultation. Our respondents were concerned that restriction to outpatient consultation will eventually discourage the experts' willingness to participate in MDT. Additionally, the current regulations do not accept the non-face-to-face form of MDT, including discussions in conference and tumor boards. Finally, 12% of respondents expressed concern that the prerequisites regarding eligible institutions (reimbursement for only 43 superior general hospitals or one Korean cancer center hospital) could limit the chance to join MDTs by patients as well as healthcare professionals. These barriers expressed by healthcare providers might limit the expansion of MDTs and cause perfunctory meetings to be held only to collect payments. Therefore, standard guidelines and the establishment of a flexible MDT model are necessary.

MDTs could improve clinical outcomes and patient satisfaction by shortening the time to diagnosis and therapeutic intervention, improving adherence to guidelines, and greater inclusion in clinical trials [9-11]. However, evidence for survival benefit and efficiency are not strong [3,12,13]. Therefore, future investigations regarding the effectiveness of MDT operations in Korea are warranted. Additionally, participation in a discussion between experts from different disciplines will help improve physicians' practical knowledge beyond theoretical information. Our survey showed that only 20% of MDT meetings invited residents or fellows. Therefore, we actively recommend that our trainees partici-

pate in MDTs.

Some limitations must be noted. First, our study had a low response rate. This was primarily because we did not send our questionnaire to active members with current clinical activities, but rather to all members of corresponding academic societies, which include faculties, trainees, nurses, and clinical research coordinators. To overcome this limitation, we sent a follow-up questionnaire concerning changes in practice after reimbursement decision only to representative medical oncologists in each hospital. Second, the retrospective nature of our survey is subject to recall bias of all respondents. Because there is a paucity of data regarding MDT before the reimbursement decision, we directly asked our respondents about the actual changes in clinical practice between pre and post reimbursement, which might have caused recall bias.

The start of the "Multidisciplinary Care Service" is an important step in optimal cancer care in the Korean health system. The unceasing efforts to establish the best model and the proper rewards are necessary to expand MDTs across the country. Moreover, investigation of the outcome after the reimbursement decision is warranted to revise regulations and influence the regulatory body.

#### Conflicts of Interest

Conflict of interest relevant to this article was not reported.

#### Acknowledgments

This study was supported by a 2014 Academic Awards grant from the Korean Association for Clinical Oncology (KACO) and presented in part at the 2015 Annual Meeting of the KACO. The authors express our appreciation to all doctors for participation in the questionnaire and their valuable support.

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