

## EVALUATION OF THE DECISION-MAKING MODE DURING DIGESTIVE ONCOLOGY MULTIDISCIPLINARY MEETINGS: A PROSPECTIVE STUDY IN A MOROCCAN CENTER

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### ABSTRACT

**Introduction:** The multidisciplinary team oncology meeting (MDT) has become a standard in oncology. The objective of this study was to evaluate the value of a validated tool, the Metric for the Observation of Decision-Making, in the evaluation of the decision-making mode during the digestive cancer MDT in order to reach recommendations for improvement.

**Results:** Eight consecutive MDTs were observed (N = 228 patients). On average, 32 patients were discussed by MDT with an average of 2 min 55 s (interval: 30 s-10 min 16 s) per patient. A decision was reached in 84.6% of the cases. Although the medical information was judged to be of good quality, the psychosocial information (average 1.29) and the patients' point of view (average 1.03) were judged to be of low quality. For teamwork, the contribution of surgeons (average 4.56) and oncologists (average 3.99) was greater than radiologists (3.12), radiotherapists (1.74) and pathologists (1.02).

**Conclusions:** The tool made it possible to identify a disparity in the quality of the different aspects of the information and in the participation of specialists, making it possible to identify specific improvement measures. Its regular use would improve the quality of patient care.

**Keywords:** Decision making, Quality improvement, Multidisciplinary meeting, MDT-MODE, Morocco.

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### BACKGROUND

The cancer care pathway is complex and involves several stakeholders, in order to allow a precise diagnosis and an optimal and personalized treatment for each case. In this context, multidisciplinary team meetings (MDT) have become the cornerstone of the coordination of the care pathway for cancer patients. MDT has been defined as "a group of people from different health disciplines who come together at any given time (whether physically in one place or by video or teleconference) to discuss a given patient, and who are each able to independently contribute to decisions about diagnosis and

treatment for the patient [1]. The described benefits of MDTs are to provide the patient with cost-effective, coordinated, consistent care by experts, improve communication between different disciplines, facilitate decision-making, ensure compliance with decisions and offer a training space for young practitioners [2-4]. For these reasons, MDT has become mandatory in several countries and a dominant decision-making model in cancerology worldwide [5].

It has been observed that multidisciplinary and coherent teamwork during MDTs are associated with their effective functioning [6, 7]. The quality of teamwork in MDTs depends on the relational and

behavioral skills of the participants, including a climate of respect between team members, good communication, inclusive discussion and the availability of reliable and complete information [8–11]. Although several tools were created to assess teamwork during MDTs [2, 12, 13], few studies have assessed the quality of MDTs and how to improve in time.

The objective of this study was to evaluate the value of a validated tool, the Metric for the Observation of Decision-Making, in the evaluation of the decision-making mode during the digestive cancer MDTs and its ability to identify specific measures for improvement.

## METHODS

This is a prospective observational study, conducted at the National Institute of Oncology (INO) in Rabat on 8 consecutive weekly digestive cancer MDTs between May 23, 2019 and July 18, 2019. All the cases discussed during these meetings were included in the study, without exclusion. This study received the agreement of the ethics committee of biomedical research of the Mohammed V University of Rabat (number 5/20) and was registered on clinicaltrial.gov under the number NCT04000802. The physicians participating in the MDTs were informed of the study before its beginning.

## CONTEXT

The National Institute of Oncology in Rabat (INO) is a pioneering national and African center in the treatment of cancer. It is part of the university hospital center of Rabat, Morocco. It offers specialized tertiary services in addition to the regional healthcare network. It provides care for adult solid tumors. It is the only Moroccan public center which has a complete multidisciplinary technical platform including surgery, radiotherapy-brachytherapy, medical oncology, radiology, pathological anatomy, genetics, psychology and dental care. He also provides pain management and palliative care. In 2019, INO recruited 6,302 new cases of cancer, of which 1,310 were digestive. A MDT dedicated to digestive cancers has been taking place regularly every week since 2010, with the aim of presenting all patients suffering from digestive cancer. The hospital protocol specifies that a minimum quorum composed of a surgeon, a medical oncologist and a radiotherapist is required for each MDT. The main members of our digestive oncology RCP are surgeons, medical oncologists, radiotherapists, radiologists, gastroenterologists, pathologists and a geneticist. Since October 2018, a

dedicated module has been added to the hospital information system and has made it possible to facilitate the sharing of information between the electronic medical record and the MDT decisions. In order to ensure the quality of the information for each presentation, recommendations were developed and shared with the hospital doctors specifying how to structure the comorbidities, clinical and para-clinical data and treatments received. The moderation of the meetings is ensured by the surgeons.

## MODE TOOL

We used the "Metric for the Observation of Decision-making (MODE)" tool for the evaluation of RCP teams [5, 8, 14–18]. The tool is based on the 5-point Likert scale ranging from "high performance" (coded by 5) to "poor performance" (coded by 1). The MDT-MODE takes into account the following parameters (19): 1) the quality of the information presented on the patient, which includes six variables, namely the patient's history, radiological images, histopathology, psychosocial problems, co-morbidities and the quality of information on the patient's perspective and preferences. The sum of the scores of the six variables represents the overall quality of the information presented for a patient, the highest scores indicating better quality; 2) the quality of the contribution of the different specialists to the discussion, which includes six individual variables scored on a five-point scale, representing the contribution of the surgeons, oncologists, radiologists, pathologists, nurses and the meeting moderator. However, there was no involvement of nurses, so this variable was not analyzed. The sum of the scores of the six variables represents the overall quality of the team contribution; the highest scores indicate better quality; 3) the ability of the team to arrive at a recommendation for care for a patient which is a categorical variable (yes, no, reported).

## DATA COLLECTION

An independent observer physician was responsible for collecting the data. She was trained to use the MDT-MODE tool in simulation on MDTs videos and then by attending a live MDT before the start of the study. The tool was used in its original version in English. Data collection was done on an electronic form (Google Form).

## STATISTICS

Quantitative values are presented as average (with standard deviation) or median (and quartiles), as appropriate. Qualitative data are presented in number and percentage. IBM SPSS Statistics version 23.0 was used for the statistical analyzes.

## RESULTS

### Characteristics of the MDTs and participants:

A total of 228 cases were evaluated during 8 consecutive weekly MDTs, including 67% of the cases in the pre-therapeutic phase, 24% of the post-therapeutic phase, and 8% of the cases of surveillance or recurrent cancer cases. Four MDTs discussed more than 32 patients per meeting. The average duration of MDT was 90 min with an average of 2.55 minutes per patient (**Table I**)

**Table I: Characteristics of SPC observed**

	Median	Mean	Minimum	Maximum	Total
<b>Cases by MDT</b>	32	28.5	13	44	228
<b>Pre-treatment Phase</b>	21	19.25	7	31	154
<b>Post-treatment Phase</b>	6	6.85	1	14	55
<b>Monitoring or recurrence</b>	1	2.37	0	8	19
<b>Duration of MCT</b>	1h 44 min	1h 30 min	27 min	2 h 07 min	-
<b>Discussion time per case</b>	2 min 30 s	2 min 55 s	30 s	10 min 16 s	-
<b>Number of specialists per MDT</b>	9	9	5	12	-

During the 8 MDTs, the team was composed of specialists in surgery, medical oncology, radiology, radiotherapy, gastroenterology, and oncogenetic as well as internal physicians and residents in these different disciplines. On average 9 specialists were present by MDT. It is noted that a pathologist was present at only one CPR.

### Quality of patient information

As shown in Table 2, the disease history (mean = 4.25; SD = 1.11), radiological data (mean = 3.61; SD

= 1.40) and the comorbidities (mean = 3.12; standard deviation = 1.78) were of good quality in the MDTs observed. In 150 (65.8%), 101 (44.3%) and 97 (42.5%) cases, history, radiological information, and comorbidities, respectively, received a score of 5.

Psychosocial information (mean = 1.29; standard deviation = 0.94) and patient views (mean = 1.03; standard deviation = 0.37) had the lowest scores. In 206 (90.4%) and 226 (99.1%) cases, psychosocial information and patient perspectives, respectively, were scored 1, indicating that no such information was received (Table II).

**Table II: Descriptive statistics of the quality of information presented during MDTs**

	Average	Standard deviation	Median	Min-Max
History	4.25	1.11	5	1-5
Radiology	3.61	1.40	3	1-5
Pathology	2.41	0.92	3	1-3
morbidities	Co-3.12	1.78	3	1-5
Psychosocial information	1.29	0.94	1	1-5
Patient's point of view	1.03	0.37	1	1-5

### Quality of the contribution of the various specialists to the discussion

On average, the quality of the moderator's behavior was judged to be good (average = 4.32; standard deviation = 0.94). For quorum members, surgeons (mean = 4.56; standard deviation = 0.98) and oncologists (mean = 3.99; standard deviation = 1.57)

obtained higher scores, compared to radiotherapists (mean = 1.74; standard deviation = 1.43). A disparity in the contribution of other specialists was noted. Radiologists contributed with a (mean = 2.36; standard deviation = 1.81) and pathologists contributed with a (mean = 1.02; standard deviation = 0.26). (Table III).

Table III: Descriptive statistics of the quality of contribution of specialists

	Average	Standard deviation	Median	Min-Max
Moderator	4.32	0.94	5	3-5
Surgeons	4.56	0.98	5	1-5
Oncologists	3.99	1.57	5	1-5
Radiologists	2.36	1.81	1	1-5
Radiotherapists	1.74	1.43	1	1- 5
Pathologists	1.02	0.26	1	1-1

### Team capacity to reach a decision

A treatment recommendation was made in 84.6% of the patients (N = 193), while 9.2% (N = 21) received a delayed decision due to lack of radiological or histopathological data or because other investigations were needed. For 6.1% of patients (N = 14), no decision was made during the MDT.

### DISCUSSION

The MDT-Mode tool allowed us to evaluate the decision-making process during the digestive cancer MDTs. It showed a disparity in the quality of the different aspects of the information presented as well as a great disparity between the specialists' participation.

Compared with other studies that have used the MDT-MODE, reported history and radiology data are usually of good quality. An observational study from Germany found that the history (mean = 4.9) and the radiological information (mean = 4.5) were presented with high quality [20]. The same result is found in another study from the United Kingdom (history of the disease 3.91; radiological information 3.62) [5]. Our study joins the results of these studies showing a high performance in the presentation of history and radiological information. This may be due to the presence of clear and disseminated recommendations to all participating physicians about the clinical and paraclinical information to be included in each presentation.

Our study showed an average quality in comorbidities presentation during MDTs (average = 3.12] but it remains higher when compared with other studies. The average in the other studies varies between 1.36 and 2.83 [5, 20]. In the local MDT recommendations, each presentation must contain the American Score of Anesthesiologists score (ASA), performance status and nutritional grade scores to assess the patients. The standardization of the mode of presentation of comorbidities could explain the good score in this study.

Psychosocial information was most likely presented with low quality as psychosocial information is not mentioned in the local recommendations. Regarding the patient point of view, the results of most studies evaluating the quality of MDTs have shown that it is often or almost always absent [5,10,11,15,18,21] . In our study, it was discussed during the 8 MDTs only in two cases. For the rest, the decision was communicated to patients during a scheduled consultation after the MDT, and if the patient refuses treatment, the case was discussed again in a future MDT to reassess and reach a new adequate decision.

Regarding the contribution of the team members, the surgeons obtained an average of 4.56, followed by the meeting moderator (average of 4.32) and oncologists (average of 3.99). The high score of the surgeons' participation can be explained by the fact that most of the cases presented are from the surgical oncology department, and especially that the meeting moderator was always a surgeon, which

must have certainly amplified the surgeons' score. Although a radiologist was present at all meetings, the radiologists obtained a lower score (average of 2.36). This is not necessarily due to a lack of participation by radiologists but rather to a lack of systematic presentation of radiological images. During the study period, there was a technical problem to access remote imaging exams. In addition, even when imagery was available, it was most often X-ray films, which is not optimal. The contribution of pathologists obtained a low average explained by their absence.

Our MDT almost exclusively discusses digestive cancer cases, where radiotherapy plays a key role in the management of cancers of the esophagus and rectum. Apart from these cases, radiotherapy is generally not indicated, and this explains the low score for the contribution of radiotherapists (1.74 on average). However, in the other studies the radiotherapists do not systematically participate in the MDTs. In addition, the inconsistent presence of pathologists at the RCP and the absence of an image digitization system integrated into the computerized management system of the laboratory explains the low score of the pathology information. This result was low compared to other studies [5, 15].

One of the main strengths of this study is that it is the first prospective study which has examined the decision-making processes during MDTs in Morocco using a validated tool which allows comparison with other international studies. It included 228 cases which allowed us a reliable analysis. It made it possible to identify precisely the strengths and the weaknesses of MDTs in our context.

Probably, the main weakness of the work is the Hawthorne effect [22]. MDTs members were informed that they were being assessed during these eight weeks, and as a result, this could have influenced their behavior and therefore biased the results. Second, in most studies there were two independent observers to limit the risk of bias. It would have been interesting to have a second observer to compare the results and study the agreement between them.

The purpose of this evaluation is to propose specific improvement measures, using the MDT-MODE tool. Following our results, our main recommendations are to strengthen the quorum by other specialists; especially radiologists because of their important role in discussion and decision-making in patients with digestive cancer. To allow a more effective presentation of radiological information and a clear contribution from radiologists, the implementation of a PACS (Picture Archiving and Communication System) and a double projection system would allow

accessibility of images and observation simultaneously with all stakeholders and would facilitate decision-making. We also propose to make doctors aware of the importance of psychosocial information in the patient-centered therapeutic approach, and to integrate this point in the local MDT recommendations.

## CONCLUSIONS

The use of the MODE tool made it possible to methodically identify the strengths and weaknesses of the decision-making mode during MDTs in our context. The main improvements proposed through this work are to widen the quorum to include radiologists, to facilitate access to and display of medical imagery and include psychosocial information and patient perspective. Regular and standardized evaluation would identify areas for development and continuous improvement.

## List of Abbreviations:

MDT: Multidisciplinary team oncology meeting.  
MODE: Metric for the Observation of Decision-Making tool.  
PACS: Picture Archiving and Communication System.  
INO: National Institute of Oncology in Rabat

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