

Multi-disciplinary Team Meetings for Cancer Care: Results of an Australian Survey

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Abstract Multi-disciplinary team meetings (MDMs) are a model employed in the health area, particularly in cancer care. Teams consist of a variety of health care professionals, such as medical oncologists, radiologists, pathologists and nurses as well as allied health professionals including occupational therapists, physiotherapists, dieticians, etc. A diversity of pertinent professionals aims to provide far better care and support to a cancer patient than possible by a handful of such professionals. Meetings are carried out with the above professionals as participants to discuss the care of a given patient. The work reported in this paper involved the authoring of an online survey to determine views of MDM participants in Australia with regard to issues of workforce and workflow. This is the first ever Australia-wide survey of these issues. The authors are interested in understanding these issues in the Australian context in which they work. The survey, consisting mainly of closed-ended questions, applied a convenience sampling method and was completed by 339 respondents around the nation. The authors report the findings from analysis of the responses of this large number of respondents. Findings include those such as: MDMs being overwhelmingly useful in Australia and that their uptake should be promulgated to settings where they are not used; excessive number of patients being discussed or insufficient time allocated to patients, in some cases; the dire need for consistency in aspects such as documentation and commitment from participants.

Keywords: Australia, multi-disciplinary teams, multi-disciplinary team meetings, MDM, MDTM, online survey

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1. Introduction

The National Breast Cancer Centre of Australia defines multi-disciplinary care as "an integrated team approach to health care in which medical and allied health care professionals consider all relevant treatment options and develop collaboratively an individual treatment plan for each patient" [1]. With regard to cancer care, Multidisciplinary Team Meetings (MDMs) may be utilised to discuss treatment plans of sufferers of cancer by dealing with their different types of needs (e.g., physical and emotional needs).

A diversity of health care professionals (HCPs) participate in MDMs, contingent upon the type of cancer the patient experiences. HCPs can include those such as medical oncologists, radiologists, pathologists, nurses, etc. and allied HCPs such as occupational therapists, physiotherapists, dieticians, etc. Different resources will be tabled at meetings to discuss a patient's care, for instance, radiology-related resources such as films or reports or pathology-related resources such as samples or reports.

Undoubtedly, a number of gains have been achieved by using the MDM model for patient care. Survival rates of patients have improved [2,3], patients have experienced greater satisfaction [4,5], reduced waiting time to treatment has been achieved [6], and so forth. Evidence that different tumour streams have been positively impacted by MDMs has been published in the literature; for instance, the breast cancer stream [5,7] and the head and neck cancer stream [6].

Despite the upsides to the use of MDMs for cancer care, there is however an undeniable increase in workload for those involved in them. Much is required in organising meetings, preparing discussion of patient cases and in applying results and findings in meetings and actioning outcomes of meetings in further care of the patient. The authors are interested in discovering such workforce and workload issues in MDMs. Working within the Australian context and having an understanding of MDMs in that context, the authors pursue knowledge of workforce and workload issues related to implementation of MDMs in this context. Given that the authors' online survey received 339 responses nationally, this indicates that not only is there a large number of HCPs involved in MDMs in Australia, but there is a large number of HCPs in

Australia who are enthusiastic to share their views and experiences (or vent their frustrations) on this matter.

1.1. Literature Review

Some limited research has been carried out on MDMs and workload or workforce issues. This handful of studies is covered at this point.

Reference [8] describes Haward et al's systematic evaluation of the effectiveness of breast cancer teams. The researchers conduct this evaluation with regard to workload, team constitution and working methods. Workload, which they define as "new cancer annual caseload of the team related to the actual time committed by each breast team member" [8], was one of two input variables used in their multivariate analysis applying a two-stage regression model. It was found that team workload predicted clinical effectiveness of the team positively. Their results reinforced British guidelines that sufficient workload is required for viability and effectiveness of breast cancer teams.

Nouraei et al [9] studied heightening of the efficiency of the multidisciplinary team process in the head and neck tumour stream at Charing Cross Hospital in England. After conducting a systems analysis of this process, the researchers revamped the process and created a new data management solution was implement the process. Efficiency on-the-whole was improved by 60% as found from another evaluation of the process.

Kane et al [10] studied work processes and determined time demands for radiologists and pathologists at a hospital in Ireland. Their method was documentation and analysis of all work connected with MDMs involving pathology and radiology and clinical staff in a particular month. Results of their study included [10]:

- "Time spent at meetings, and in preparation for MDTMs is significant"
- "Issues of timing and the coordination of materials to be reviewed are sometimes irreconcilable"
- "The exchange of patient materials with outside institutions is a cause for concern when full data are not made available in a timely fashion."

The most recent and most closely related work to the authors of this paper is that of Walsh et al [11]. These researchers investigate cancer care in a more general manner, subsuming MDMs. They address barriers to cancer care and employ a qualitative survey in Australia. However, their study only involves participants from the single Australian state of New South Wales. Also, of the 53 participants interviewed, 24 of them are not HCPs (they are patients and carers), whereas the study in this paper only involves HCPs because it pursues study of MDMs from the HCP point of view and their issues with MDMs. Walsh et al state as a finding: "High workload and a lack of time available was another workforce issue reported by most clinicians which hindered their ability to devote appropriate amounts of time to individual patients.". However, in the study of the authors of this paper, workload and workforce are expanded upon as a focus and therefore delved into deeper. This is why the barriers found by Walsh et al, such as "Managing scarce resources", "Recognising health professional roles and responsibilities" (which includes patient and carer views), etc. are different from ours.

From the reports of the above related work, it is clear that the work covered in this paper is separate from other work that has been conducted on workload and workforce associated with MDMs. The results in this paper, as well as being applicable to the Australian context, may also inform those outside this context about lessons that can be applied generally to MDMs.

2. Materials and Methods

The method used by the authors was an anonymous, online (Web-based) survey of HCPs, including allied health, working in Australia. The set of questions collected data from respondents to capture their experience and views in relation to MDMs. The set of questions are contained within the Appendix of this paper.

Survey Monkey © (www.surveymonkey.com) was the survey creation tool used to generate the online survey. It contained mainly closed-ended questions. Questions asked respondents about demographic matters and their experience and views of MDMs. All that was required of a respondent in answering survey questions was any available web browser. Survey Monkey stored all respondents' data electronically, which was exported to Microsoft Excel for analysis purposes.

Respondents were unable to be identified in any way, for instance, Internet Protocol (IP) addresses of computers used to answer survey questions were not tracked or recorded. Human Research Ethics Committee approval from Victoria University was given for the survey.

In order to recruit respondents in Australia, techniques used included email invitations sent to pertinent groups in Australia such as cancer networks, professional bodies, health services, and colleges, and advertisements at the Clinical Oncological Society of Australia and International Association of Cancer Registries 2008 Joint Scientific Meeting.

3. Results

The authors defined an *MDM Attendee* as a HCP who had participated in at least one MDM in the last six months and a *non-MDM Attendee* as one who had not done so. Of the 339 respondents, 267 were MDM Attendees. Thus, the results presented account mainly for those who had attended a MDM in the last half of a year before responding to the survey.

Table 1 presents a breakdown of respondents by age group. The percentages in each group reflect what would be expected of those working in the health area.

Table 1. Respondents by age group

Age group	Yes (n=267)		No (n=51)	
	Num	%	Num	%
<30	27	10.11	6	11.76
31-40	64	23.97	15	29.41
41-50	89	33.33	12	23.53
51-60	68	25.47	14	27.45
60+	18	6.74	4	7.84
Skipped	1	0.37	0	0.00
TOTAL	267	100.00	51	100.00

Females accounted for 66% of respondents. This was a pleasing result for discovering women's views and experiences of MDMs, but it is unclear if this is responder bias (given the strong response rates from allied health and nursing professionals) or representative of the broader cancer care community.

The results of the survey from the 267 MDT attendees are categorised into a set of themes. These themes are presented as follows where a sub-section represents a single theme. Brackets (“[...]”) are used to insert text into respondents' comments to clarify their comments to the reader. Errors in written responses are maintained in quotes.

Table 2. Respondents' opinions on whether MDMs improve the quality of care

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped
MDTs improve the quality of care received by patients	n =267	1	4	13	116	117	16
	%	0.37	1.50	4.87	43.45	43.82	5.99

3.1. Benefits of MDMs

It is clear from [Table 2](#) how strongly the respondents feel about MDMs and their ability to improve patient care. Over 86% of respondents agreed about this, with only less than 2% having any form of disagreement.

Respondents also noted the positive contribution MDMs make to their work and knowledge. One response stated “(MDMs) are very informative and educational for me, giving a greater understanding of pathology and its impact on treatment options.” A deeper and more fulsome understanding results in improved patient outcome.

There were also comments mentioning the dependency on MDMs to run a Unit successfully. A suggestion was made to mandate MDMs for all public and private tumour patients as some saw them as “the greatest advance in standard of care planning in my professional career.”

Many of the comments provide tremendous support for the use of MDMs in the care of patients with cancer. One respondent suggested “MDT meetings are responsible for the general improvement in the management of cancers in the community.” Many believe this coordinated approach to care should be provided for all significant diseases in the future.

3.2. Uptake of the MDM Model

Table 3. Respondents' opinions on whether they see MDMs as a passing fad

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped
I do not believe MDTs are a passing fad	n =267	3	5	20	121	100	18
	%	1.12	1.87	7.49	45.32	37.45	6.74

Inducing some HCPs to a buy-in of the MDM model is often challenging. One of the respondents stated: “Change is always difficult in large institutions, I believe that MDTs are the way forward, but sometimes feel like I am hitting my head against the wall even trying to get people to understand how they enhance pt [patient] care, little own commit to improving the MDT meeting- that is what leads to low morale for the “believers.” It was evident from the responses it is often the chair or organiser of the MDM and their level of enthusiasm and commitment to the meeting that will enhance uptake of the model. Some may possess the mindset that MDMs are a temporary fad and do not need to be taken seriously, but it is clear from the results in [Table 3](#) that this is not true for the majority of the respondents. 82% of respondents agreed that

MDMs are not a passing fad, and 3% believed they are such a fad.

A suggestion made to improve uptake in one setting was to increase the frequency of meetings from monthly to fortnightly so as to “increase the number of prospective cases vs retrospective [cases]” discussed. It was also noted there needs to be a stronger authority to drive MDMs and for organisations to show further support by recognising the time and effort required by participants.

Some respondents expressed an inherent belief that “MDTMs are essential to provide quality patient care”, hence the thought was that with time and perseverance they will become part of the standard of care, and more people will recognise the value MDMs can bring to improved patient outcomes.

3.3. Effectiveness and Efficiency

Respondents noted the high number of individuals involved in running and participating in MDMs and questioned the cost effectiveness of these meetings. One respondent showed further scepticism by noting that in fact there are only a few management plans that actually change as a result of the MDM process and that “... actions taken by clinical staff on ward are in relation to patient care eg referrals, are sometimes all that is needed.”

Despite such a view, 51% of respondents either agreed or strongly agreed with the statement that “MDTs are cost effective” as shown in [Table 4](#).

Table 4. Respondents' opinions on whether they see MDMs as cost-effective

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped
MDTs are cost effective	n =267	5	25	83	94	42	18
	%	1.87	9.36	31.09	35.21	15.73	6.74

Some comments highlighted the fact that many MDMs become “talk fests” and time should be more effectively used actually seeing patients face-to-face. On the contrary, others have noted that “occasionally for a complex problem they [MDMs] are useful” and there were a tremendous number of comments outlining the benefits of MDMs outlined above.

There were a variety of reasons mentioned as to why MDMs were perhaps not as effective or efficient as they could be. A common remark was that too many patients were being discussed at a MDM, and adequate time was not given to any one patient's treatment plan. For instance, “This trend (is) exacerbated by meeting cancellations (due to 'key' people not being able to attend), with cases

stacked onto the next meeting.” Another respondent commented that “I suspect the volume of cases is so great, and done so rapidly, the junior staff and students learn little. I do not see them as being time effective, either for patient management, or teaching.”

An analysis of replies to the question, “At these meetings, how long is each patient discussed for on average?” is provided in Figure 1. The results illustrate that most patients are only discussed for between 5-10 minutes, and that rarely is a patient discussed for more

than half-an-hour. This is not inconsistent with the observation above that there is not enough time available to discuss any given patients treatment plan.

An analysis of replies to the question, “At our MDT meetings we discuss the following patient groups – please circle all answers that are relevant” is shown in Figure 2. Another view of this issue is available from an examination of the kinds of cases discussed in MDMs, based on the responses to the survey. This result illustrates that a wide range of patient types is presented at meetings.

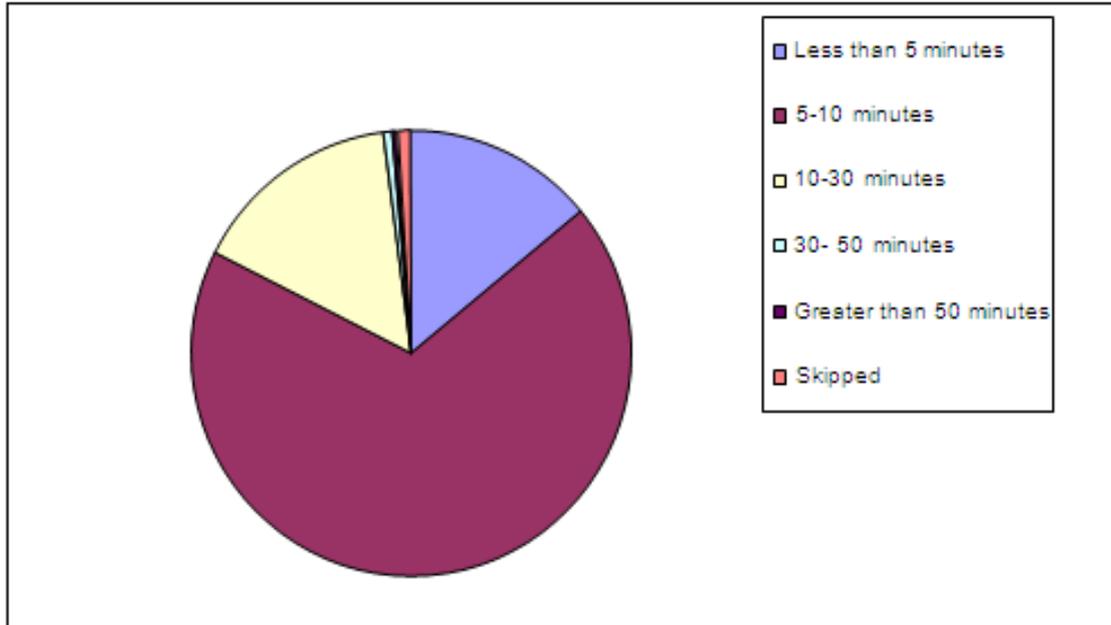


Figure 1. Average length of time each patient is discussed

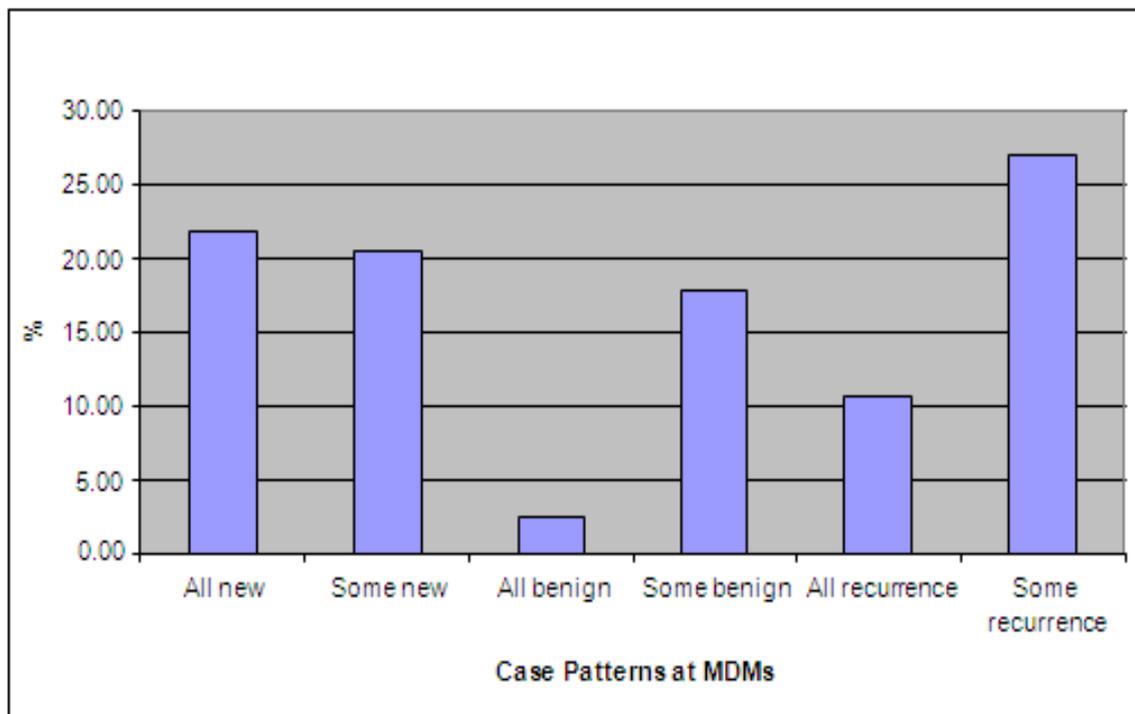


Figure 2. Mix of cases discussed at MDMs. Participants could select more than one option, hence number of participants (n = 267) < total answer (n= 557).

It can be seen from the graph in Figure 2 that there is significant variation in the mix of types of cases (new malignant, recurrent malignant or benign) that are

discussed in MDMs across the country. Given the aforementioned load placed on services and meeting participants by MDMs, and the inevitable growth in the

load that will be placed on them in the future, services and clinicians need to ask the question as to whether MDMs should be reserved for presentation of key subpopulations of patients rather than all patients who *may have* a malignancy.

Also arising was the point that "... too many patients discussed in MDT's in Australia following surgical intervention and not prior to surgery at initial diagnosis." Another obstacle to improving effectiveness is ensuring participation with "adequate scheduling and the provision of adequate time (with appropriate cover)." There are of course some participants that do not believe in the need for improved effectiveness or efficiency. In response to comments like this others have written that "this is evident until they experience a well run meeting with all information and business rules to follow. It is then realised that efficiency is beneficial."

One of the findings from another survey question makes an interesting counterpoint to the above results. When asked to comment on "There is an excessive number of patients who require an additional or re-discussion at the MDT meetings I attend (e.g., because the right staff were not present, the right information was not present)", only 25% of respondents agreed or strongly agreed whereas 48% *specifically disagreed or strongly disagreed*. This result would suggest that at least in this dimension, MDMs are not seen as inefficient.

Despite some negative comments, most of the objective data collected in the sampled population demonstrated there is strong support for the idea and potential utility of MDMs. As one respondent claimed, "They (MDMs) often lead to delay in decision making, even though an incorrect decision is less often made." It is clear that participants would like to view the scientific evidence that proves the value of MDMs and view decreases in the inefficiencies that have been noted.

3.4. Participation

Table 5 illustrates the variety of professions represented at the MDMs. It is clear from the responses that not everyone is supportive of the process. One respondent stated, "Generally allied health and nursing staff are very supportive of MDMs and the medical staff are not".

Medical staff would often move quickly through the list of patients, whereas allied health staff such as physiotherapists, occupational therapists, social workers and psychologists are keen to use these meetings to think about and treat "the whole person not just the cancer."

A nurse remarked they often lose interest at the meetings as some of the information 'goes over their head'. This has caused some to question the role of these staff; however, it was noted that some MDMs have very active and vocal nurses. Some nurses attend to ensure a nursing profile is present at the meeting and they are "kept in the loop".

A respondent remarked, "I do not believe hospital administrators understand how important MDT activities are to patient welfare training and cost effective management." The comments provided in relation to participation and support indicate a need to re-assess the participants in these meetings and how they are involved. One respondent went so far as to suggest that "... hospitals must be forced to adequately resource MDT meetings."

The issue of professional relations and mutual respect was an important one for some respondents who were frustrated by the late arrival of other staff at planned. For instance, meetings: "Some medical staff have the expectation that nursing staff will wait around for them to arrive at their leisure without bothering to inform other participants of their delay. This does not promote good interdisciplinary relationships."

Table 5. Frequency of attendance at MDMs

My primary professional group is:	Yes (n=267)	
	Num	%
Medical Oncology	23	8.61
Haematology	5	1.87
Radiation Oncology	10	3.75
Surgical Oncology	40	14.98
Organ specific non-surgical discipline (e.g., Respiratory Medicine, Dermatology)	6	2.25
Palliative Care	12	4.49
Nursing	50	18.73
Allied Health (including Social Work)	32	11.99
Administrative	12	4.49
GP	2	0.75
Radiology (including Nuclear Medicine)	10	3.75
Pathology (including Haematology)	12	4.49
Psychiatry	0	0.00
Psychology	5	1.87
Supportive Care	3	1.12
Data Manager / Data co-ordinator	4	1.50
Care co-ordinator	18	6.74
Other	22	8.24
Skipped	1	0.37
TOTAL	267	100.00

Table 6. Respondents’ assessment of how patient-related information is commonly documented in MDMs

In the MDT meetings you predominantly attend, how is patient related data and information documented during the meeting most commonly:	n=267	%
Written by hand for subsequent use	123	46.07
Written by hand for subsequent (after the meeting) manual entry into an electronic medium	62	23.22
Written by hand for subsequent (after the meeting) scanning by scanning software	5	1.87
Entered directly into a relevant electronic vehicle by a member of the administrative or data management staff	14	5.24
Entered directly into a relevant electronic vehicle by a member of the clinical staff	33	12.36
Other (please state)	20	7.49
Skipped	10	3.75
TOTAL	267	100.00

3.5. Documentation

“Documentation of MDT discussion and outcome is very poor in most institutions.” This was a reoccurring response from the survey. Many reflected upon the need for a standardised template to document MDM outcomes, which would also help to generate letters to GPs or other consultants as required. Ideally, documentation would occur electronically, which “would reduce paperwork, ensure no info is lost and make it easier to track info needed later for eg. - audits of MDT meetings and/or patients or GP’s.” Table 6 illustrates minimal direct entry use of electronic systems for documentation at MDMs (17% of respondents versus 71% conducting primary data recording by hand).

In addition, the variability in the level of support for documentation was noted in a number of comments such as:

- “varies between meetings - some hand, some electronic entering by clinical staff and sometimes by data management staff”

- “varies according to tumour group”
- “Each meeting is different. Some written by hand, some entered directly into database”
- “One meeting entirely electronic recording, one meeting written by hand, two meetings no formal record made.”
- “All units vary some have electronic data bases others are hand written into the notes”
- “entered electronically @ Colorectal, hand written in meeting for Upper GP”.

No doubt this lack of consistency of approach would be an additional frustration for those involved in the MDM process at the relevant sites. Even more worryingly, a respondent noted that in some meetings, everyone is taking their own notes and act very privately. In contrast, other MDMs are “trying to devise an appropriate format for recording the outcomes of the meetings so that the treatment plan and associated discussion is easily accessible by all.”

Table 7. Respondents’ opinions on how much time is required in documentation regarding MDMs

	There is too much time involved in having to document all the relevant patient data and information (including proposed treatment plans and needs) during the MDT meetings I attend		There is too much time involved in having to document all the relevant patient data and information (e.g., the patients’ consent for the treatment plan, the fact that certain recommended investigations occurred and what the results were) after MDT meetings I attend	
	n=267	%	n=267	%
Strongly disagree	11	4.12	8	3.00
Disagree	101	37.83	87	32.58
Neutral	73	27.34	77	28.84
Agree	55	20.60	62	23.22
Strongly agree	13	4.87	16	5.99
Skipped	14	5.24	17	6.37
TOTAL	267	100.00	267.00	100.00

Table 7 shows respondents’ beliefs regarding an excessive amount of time in documentation during and after meetings. The results reveal an interesting paradox where only 25% of respondents agree or strongly agree that documentation in the MDMs requires too much time. A plausible explanation for this however, is that the largest groups of respondents are senior staff who perform “non-administrative” job roles, and hence may not be the ones actually performing this documentation in the current paradigm around MDMs.

There were also some medico-legal concerns raised regarding documentation as one respondent commented about their concern of “being misquoted by a clinician scribbling down my opinion of imaging he or she brings in on a patient who had their imaging elsewhere. I do not know what has been written, there is no electronic database.”

Another concern raised about documentation was that it was being done by “junior staff who do not understand the complexity of treatment discussions and this is reflected in

the documentation which often does not reflect the outcome of the meeting.” This is congruous with the observation above about who seems to be completing this predominantly manual documentation of MDM discussions and plans in the current paradigm.

3.6. Communication

Another theme of the feedback obtained from respondents regarding MDMs was about the importance of communication. In some cases this was positive feedback, for example, acknowledging that “...generally the use of a MDT is extremely important to ensure that ALL team members are on the same page in terms of documentation, discussion with pts (patients), and d/c (discharge) planning.”

Other respondents noted the deficiencies of communication processes. For example, one comment noted there is “currently no communication with GP from the meeting itself.” The data provided in Table 8 indicates only 25% of respondents think this currently takes too long—again perhaps reflecting the aforementioned paradox: many of the respondents are not the ones performing this work. This finding may, however, also point to insufficient support for those who do perform these tasks, and hence the risk of poor communication with GPs.

Table 8. Respondents' opinions on how much time is required in preparing correspondence as a result of the MDMs they attend

There is too much time involved in preparing correspondence to relevant organizations or individuals (e.g. referring external specialists, or GPs) as a result of the MDT meetings I attend	n=267	%
Strongly disagree	11	4.12
Disagree	78	29.21
Neutral	92	34.46
Agree	55	20.60
Strongly agree	14	5.24
Skipped	17	6.37
TOTAL	267	100.00

There was also a concern raised around communication within the meeting often being focused between surgeons and not involving other participants.

This feedback paints a somewhat mixed picture of the importance of communication in and around MDMs from the perspective of the pool of surveyed respondents.

3.7. Meeting Variability

The comments with regard to MDM variability revealed differences in facilities, productivity, quality, support, participation, commitment, operations and documentation. One comment notes a variety of

differences across MDMs they attend: “One has an electronic pre-completed record which is displayed during the meeting and accessible after the meeting. One has a printed sheet with some clinical details and space for each attendee to document a management plan. One has a written list of new patients on a whiteboard and no record is kept of decisions. Another is an inpatient MDT meeting which is not tumour specific, again no record kept but minimal preparation.”

The differing levels of commitment produce different aims and objectives for the meetings. For instance, “One meeting is run as a surgical review with token involvement of med onc/rad onc staff and no input from allied health. Others are much more balanced.” Productivity and success were generally felt to result from meetings where all members participate and follow up in the required timeline.

The comments reveal differences in the amount of funding support a MDM receives either directly or indirectly. While some have funding available for an electronic meeting record, this is not standard practice. “Central funding is necessary to create and maintain such a sophisticated system.” In addition to funding, some suggestions made to reduce the variability included the need for a standard definition for MDMs and the “need to create some way of evaluating meetings against best practice, i.e. benchmarking or the like.”

3.8. Supportive Care

The time spent at a MDM is highly valued by participants. These were mixed responses when it came to assessing the best use of the time. Some responses clearly expressed the concern MDMs are too medically driven and not enough of a focus or importance is provided to supportive care. “Focus quickly becomes too medical ignoring important patient and family psychosocial issues until they become crises.” Comments noted some dominating behaviour by radiologists, pathologists and surgeons. It also appears some respondents are frustrated by the schedule of MDMs that appear to be early in the morning before working hours begins. “The pre-existing schedule has not been adjusted to allow for multiple disciplines to attend at an hour at which they will actually be awake.” Other comments attribute lack of focus on supportive care to the resource shortage and lack of recognition of allied health.

Another response indicates the need to use the time and focus on the treatment options; this comment did not describe a place for the discussion of supportive care during these meetings. “Time allowance is a huge factor. Our MDT's are treatment focused as there is insufficient time to spend on supportive care issues.”

Table 9. Respondents opinions on how much time is lost from suboptimal meeting leadership in the MDMs they attend

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Skipped	TOTAL
There is an excessive amount of time lost in the MDT meetings I attend because of sub optimal leadership of the meeting	n=267	37	94	49	60	13	14	67
	%	13.86	35.21	18.35	22.47	4.87	5.24	100.00

3.9. Chairing MDMs

The importance of an effective MDM was included in many of the respondents' comments. "The success of a MDTM depends mostly on the leadership of the meeting." The majority of respondents felt that the leaders of their meeting were effective at not wasting time in MDMs as seen from [Table 9](#).

When given the opportunity for 'free text' comments, many respondents raised concerns about ineffective chairs and the impact they have on MDMs. Many commented that MDMs are "not chaired strongly." Issues with the chairs included: not being strong and committed, not inclusive of other participants (especially non-medical members), not adhering or advocating for meeting protocols (e.g., the chair remains the same), lacking facilitation skills, being biased in decision making processes and not respecting other colleagues. One comment summarises many of these points: "In my experience, it does not matter how clear the meeting protocols are. Our meetings that are most successful have a dedicated chair that advocate that these protocols are adhered to ensure the smooth running of these meetings. It is imperative that the chair also supports the team in ensuring all information is available at these meetings. This is vital so the discussion, conclusion and recommended treatment plan is not compromised."

Many respondents would prefer training for chairs to eliminate many of the issues described above. For instance, "My experience in observing a number of different meetings over the past twelve months is that there is a great need for training of some of the meeting leaders."

4. Discussion

The authors use of this survey revealed that MDMs are without doubt beneficial to the types of HCPs who responded to our survey. The results from both section 3.1 and 3.2 indicate that MDMs are "here to stay" in the Australian context and imply that improvements to the MDM model will only further justify their use in this context.

Along with this, the uptake of MDMs in cancer care settings where they are currently not used should be promoted, and at least trialled to determine their effectiveness. As found from our study, approaches such as instituting frequent MDMs or utilising committed and enthusiastic chairs should be applied so as to induce success of MDMs in these settings.

Half of the large number of respondents was in agreement that MDMs are cost effective. However, it has been discovered that in some cases, MDMs have been more about talk rather than action. There are various techniques used in the area of group meetings over the years that can be applied to influence MDMs to be more productive and effective (e.g., a chair that adheres to time limits and brings participants back to the agenda at hand).

Results showed that an excessive number of patients may be discussed in some instances and that insufficient time is allocated to their cases. Like the previous point, an effective chair is required to efficiently run the MDM; to allot appropriate amounts to time to patients and to terminate discussion of their cases when exceeding their

time limits. Certain contexts that use MDMs also have to work out if they will use them for important subpopulations of patients or for all malignancies; this is to prevent the possibility of MDMs from deteriorating to an unworkable model in those contexts. It was surprising that in response to the survey question, "There is an excessive number of patients who require an additional or re-discussion at the MDT meetings I attend ...", that half of the respondents disagreed. Since in some cases there were an excessive number of patients discussed at MDMs, it would follow that discussing patients again or needing even further discussion of patients would be at least fairly common, it is an unexpected result. However, this result suggests that the overall situation regarding efficiency of MDMs is quite far from the worst case scenario.

The qualitative responses to our study with regard to participation were quite perturbing. To discover that some nurses were exposed to information that was beyond their training or professional capacity, that there was lack of mutual respect amongst staff or that different types of staff had incongruity in their purpose or use of a MDM was concerning. These findings do not reflect negatively on MDMs – there is no inherent weakness in MDMs regarding these problems. These are issues that mostly need to be sorted out outside of the MDM model. With regard to addressing these problems with the MDM model, relevant information that nurses can use in order to contribute at MDMs can be pursued or a chair whose authority must be submitted to can be utilised.

Consistency was another obvious theme from the results. Consistency in the method of documentation of MDMs is undoubtedly required. It is unhelpful if some meetings have no record of proceedings, some are recorded manually, some are recorded into a database, and so forth. Using standardised templates and meeting recording processes will go a long way in achieving consistency.

Consistency in participation by and commitment from HCPs was also found to need addressing in this Australian context. Consistency in the definition of the MDM and funding were also suggested for inducing success in the MDM model.

Supportive care was an aspect that needs more work in our region. Time was the major factor needing addressing to provide this type of care. If time can be used more efficiently, for instance, discussing treatment options, then supportive care can be engendered during MDMs.

Our investigation raises the seriousness of communication problems occurring in certain MDMs. It is extremely concerning if medico-legal issues exist that should by all means be prevented, such as the one found from the survey where a respondent was "misquoted by a clinician scribbling down my opinion of imaging he or she brings in on a patient who had their imaging elsewhere". Should any action be taken against HCPs as a result of errors from MDMs, this could unnecessarily taint the image of MDMs in the sight of some HCPs who may wish to avoid utilising them. Additionally, given the central importance of GPs in the care of patients in general, the lack of communication with them from MDMs (as occurring in some situations) is a tremendous deficiency in urgent need of addressing. Improvements such as this can enhance the care of cancer patients.

Some results about chairing of MDMs have been presented. To reinforce the importance of effective chairing, chairs must be well-trained and accountable for achieving MDM success, whether it be in being committed to effective MDMs, allowing equal opportunity in contributing to meetings, executing meeting processes correctly or in other matters.

An obvious area from the survey needing improvement is that of documentation. For instance, as shown in Table 6, almost half of respondents reported that data and information are hand-written, devoid of any use of technology for their recording; one respondent stated documentation, "would reduce paperwork, ensure no info is lost and make it easier to track info needed later". A suggestion offered by the authors is that wikis can be used for addressing this problem. Wikis, such as Google's wiki creation system, Google Sites¹, are extremely easy to use and very rapid at storing and presenting information to users as web pages. Wikis are intended to be used by groups for collaboratively storing information for collective use, which means they are pertinent for MDM members. Users do not require programming knowledge, but minimal training only, to develop wikis for their use. Therefore, they are a very relevant solution to the problem of documenting meeting-related data. Wikis can also be set so only members of a group have access to them, thereby ensuring privacy of sensitive health data.

5. Conclusions

This paper presents the authors' survey of over 300 Health Care Practitioners in Australia that have participated in multi-disciplinary team meetings for cancer care. Results for themes such as communication in meetings, documentation in meetings and effectiveness and efficiency of meetings have been covered. Various improvements that may be made to the model have been discussed.

It would be of great interest to study these individual themes further by undertaking more research of them, whether through surveys, interviews, focus groups or such. Further study would enable discovery of additional improvements to the multi-disciplinary team meeting model, so as to establish universal effectiveness in the goal of caring for patients with cancer.

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Appendix

Section 1. Demographics and Background

My age group

- <30
- 31-40
- 41-50
- 51-60
- 60+

My gender

- Male
- Female

My state (Tick more than one if applicable, for e.g. if you work in the border area)

- QLD
- SA
- VIC
- NSW
- NT
- TAS
- WA
- ACT

The geographic setting in which I predominantly work is:

- Regional/Rural
- Inner metropolitan
- Outer metropolitan
- Remote

¹ <http://sites.google.com>

The healthcare delivery setting in which I predominantly work is:

- large public hospital (≥ 200 inpatient beds)
- smaller public hospital (< 200 inpatient beds)
- large private hospital (≥ 100 inpatient beds)
- smaller private hospital (< 100 inpatient beds)
- primary care
- Other

My primary professional group is: {skips to specific questions for medical disciplines and nursing disciplines, e.g., consultant, registrar, resident, etc.}

- Medical Oncology
- Hematology
- Radiation Oncology
- Surgical Oncology
- Organ specific non surgical discipline (e.g., Respiratory Medicine, Dermatology)
- Palliative Care
- Nursing
- Allied Health (including Social Work)
- Administrative
- GP
- Radiology (including Nuclear Medicine)
- Pathology (including Hematology)
- Psychiatry
- Psychology
- Supportive Care
- Other

Skip Questions

(Medical discipline)

I am

- *Consultant or*
- *Registrar or*
- *Resident*

(Nursing discipline)

My primary discipline is

- *Ward Staff*
- *Outpatient Staff*
- *Chemotherapy Day Unit*
- *Clinical Nurse Consultant*
- *Nurse practitioner*

(Allied Health)

My primary discipline is

- *Social Work*
- *Occupational Therapy*
- *Physiotherapy*
- *Speech pathology*
- *Audiology*
- *Pharmacy*
- *Other*

(GP)

I am

- *Fully qualified*
- *Registrar*

What tumor group(s) or stream(s) do you predominantly work with?:

- Genitourinary
- Lung
- CNS
- Hematology
- Breast

- Skin (including Melanoma)
- Musculoskeletal (including Sarcoma)
- Upper GI
- Colorectal
- Gynaecological
- Head and Neck (including Thyroid)
- All of the above

Do you attend MDT meetings (**at least 1 in the last 6 months**) for the discussion of cancer patients in “your” or “other” organization?

No

Yes (please specify 1 for private, 2 for public or 3 for both)

If no to both, thank you for participating, otherwise please continue with survey.

Section 2. MDT Meeting Involvement

The geographic setting in which you **predominantly** attend MDT meetings is:

- Regional/Rural
- Inner metropolitan
- Outer metropolitan
- Remote

The healthcare delivery setting in which you **predominantly** attend MDT meetings is:

- large public hospital (≥ 200 inpatient beds)
- smaller public hospital (< 200 inpatient beds)
- large private hospital (≥ 100 inpatient beds)
- smaller private hospital (< 100 inpatient beds)
- collaborative, across multiple organizations (entirely virtual)

Your job role in relation to the MDT meetings you attend is **predominantly (tick as many as apply)**

- Meeting support, e.g., administrative role
- Data management, e.g., data manager, data collection
- Clinical expertise – regarding patient management – medical and nursing
- Clinical expertise – regarding patient management – allied health
- Diagnostic service expertise including radiology, pathology, hematology and nuclear medicine
- Information recipient, e.g., to understand more about the patients you care for or will be required to assess
- Other – please state

How often have you attended MDT meetings for the discussion of cancer patients in the last year?

- Once every 6 months or less
- Between once every 6 months and once every 2 months
- About once per month
- About once per fortnight
- About once per week
- Twice per week
- Between 3 and 5 times per week
- More than 5 times per week

How long do these meetings last on average?

- Less than 30 minutes
- 30-60 minutes
- 60-90 minutes
- More than 90 minutes

At these meetings, how long is each patient discussed for on average?

- Less than 5 minutes
- 5-10 minutes
- 10-30 minutes
- 30- 50 minutes
- Greater than 50 minutes

Please indicate on the scale below, the extent to which you concur with the following statement:

The extent to which information and communications technologies currently support **your role** in relation to **the conduct of the meetings**.

- Extremely unsupportive
- Unsupportive
- Neither supportive nor unsupportive,
- Supportive
- Extremely supportive

Please indicate on the scale below, the extent to which you concur with the following statement:

Increasing the amount of information and communications technology support for **your role** could reduce the **time taken per patient in the conduct of the meetings**

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

In the MDT meetings you predominantly attend, how is patient related data and information documented during the meeting most commonly:

- Written by hand for subsequent use
- Written by hand for subsequent (after the meeting) manual entry into an electronic medium
- Written by hand for subsequent (after the meeting) scanning by scanning software
- Entered directly into a relevant electronic vehicle by a member of the administrative or data management staff
- Entered directly into a relevant electronic vehicle by a member of the clinical staff
- Other – please state

Section 3. MDT Meeting Preparation

Participants in MDT meetings **may** be involved in a range of **preparatory** activities to be ready for MDT meetings. Such activities could include:

- documenting information to be presented at the meeting
- booking facilities (including rooms and video conferencing links)
- collating information (including investigation results) from multiple sources
- notifying patients so that may attend
- informing participants of meeting arrangements

How much of **your** time is involved in preparatory activities for the meetings you attend on average?

- Less than 30 minutes per meeting
- 30-59 minutes per meeting
- 60-119 minutes per meeting
- 120-179 minutes per meeting

- 180-239 minutes per meeting
- More than 240 minutes per meeting

Please indicate on the scale below, the extent to which information and communications technologies currently support **your role** in relation to **meeting preparation**. (1 = extremely unsupportive, 3 = neither supportive nor unsupportive, 5 = extremely supportive)

1 2 3 4 5

Increasing the amount of information and communications technology support for **your role** could reduce the **time taken per patient in meeting preparation**. Please indicate below the extent to which you agree with this statement: (1 = strongly disagree, 3 = neutral, 5 = strongly agree)

1 2 3 4 5

Section 4. MDT Meeting Follow Up

Participants in MDT meetings **may** be involved in a range of **follow up** activities after the completion of MDT meetings. Such activities could include:

- documenting information to be presented at the meeting (on paper or electronically)
- booking investigations and following up results
- notifying patients of the meeting recommendations
- filing paperwork (e.g., in the patient's paper record)
- sending letters to participants or GPs

How much of your time is involved in follow up activities for the meetings you attend on average?

- Less than 30 minutes per meeting
- 30-59 minutes per meeting
- 60-119 minutes per meeting
- 120-179 minutes per meeting
- 180-239 minutes per meeting
- More than 240 minutes per meeting

Please indicate on the scale below, the extent to which information and communications technologies currently support **your role** in relation to **meeting follow up**. (1 = extremely unsupportive, 3 = neither supportive nor unsupportive, 5 = extremely supportive)

1 2 3 4 5

Increasing the amount of information and communications technology support for **your role** could reduce the **time taken per patient in meeting follow up**. Please indicate below the extent to which you agree with this statement: (1 = strongly disagree, 3 = neutral, 5 = strongly agree)

1 2 3 4 5

Section 5. Opportunities to Examine the Workload on MDT Participants

Please indicate the extent to which you concur with the following statements on the 1 to 5 scale (1 = Strongly disagree, 3 = neutral, 5 = Strongly agree). All questions are in relation to the MDT meetings you predominantly attend.

- There is an excessive number of patients who require an additional or re-discussion at the MDT meetings I attend (e.g., because the right staff were not present, the right information was not present)

1 2 3 4 5

- There is an excessive amount of time lost in the MDT meetings I attend because of sub optimal leadership of the meeting
1 2 3 4 5
- There is an excessive amount of time lost in the MDT meetings I attend because of the lack of a clear process for discussing patients
1 2 3 4 5
- There is too much time involved in tracking down or preparing the radiology (including CT) and PET results required for discussion in the MDT meetings I attend
1 2 3 4 5
- There is too much time involved in tracking down or preparing the pathology (including hematology) results required for discussion in the MDT meetings I attend
1 2 3 4 5
- There is too much time involved in having to document or collate all the relevant patient data and information (e.g., clinical history, referral letters, previous meeting discussions) **before** the MDT meetings I attend
1 2 3 4 5
- There is too much time involved in having to document all the relevant patient data and information (including proposed treatment plans and needs) **during** the MDT meetings I attend
1 2 3 4 5
- There is too much time involved in having to document all the relevant patient data and information (e.g., the patients' consent for the treatment plan, the fact that certain recommended investigations occurred and what the results were) **after** MDT meetings I attend
1 2 3 4 5
- There is too much time involved in preparing correspondence to relevant organizations or

individuals (e.g., referring external specialists, or GPs) as a result of the MDT meetings I attend

1 2 3 4 5

At our MDT meetings we discuss the following patient groups (Macaskill 2006) – please circle all answers that are relevant:

- all new
- some new
- all benign
- some benign
- all recurrence
- some recurrence

Section 6. Participant Support for MDT meetings

The following questions address the level of participant support for the MDT meeting concept.

For each of the following questions, please indicate on the 1 to 5 scale (1 = absolutely disagree, 3 = unsure, 5 = absolutely agree) the extent to which you concur with the following statements

- MDTs improve the quality of care received by patients
1 2 3 4 5
- The advent of the MDT has had a positive effect on my morale
1 2 3 4 5
- The advent of the MDT has had a positive impact on training
1 2 3 4 5
- MDTs are cost effective
1 2 3 4 5
- I **do not** believe MDTs are a passing fad
1 2 3 4 5
- My job plan ('role') contains adequate time to attend MDT meetings
1 2 3 4 5