

An Australia-Wide Survey of Workforce and Workflow for Cancer Multi-disciplinary Teams

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PREPARED BY:

Dr Christopher Bain
MBBS (Hons), Master Info. Tech, MACS
Information Manager

Ms Tamara Shulman
MSc (International Health Policy), BA (Economics), PMP
Project Officer – Strengthening MDT Meetings Program

Mr Rajesh Sharma
MSc (Computer Sc.), BCA (Hons)
Analyst Programmer



**Western and Central Melbourne Integrated
Cancer Service (WCMICS) –
Directorate Office
7/372 Albert St. East Melbourne
Vic 3002**

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We also wish to acknowledge the assistance and participation of the many organizations who helped with the dissemination of the survey, and all the clinicians and other stakeholders in the field who took time out of their busy schedules to complete the survey.

ABBREVIATIONS

The relevant abbreviations used throughout the document include:

- HREC – Human Research Ethics Committee
- ICT - Information and Communications Technologies
- IT – Information Technology
- MDT – Multidisciplinary team
- MDM – Multidisciplinary team meeting
- MDTM – Multidisciplinary team meeting

EXECUTIVE SUMMARY

Regarding Multi-disciplinary Team Meetings, many participants wrote words to the effect of:

“Numerous patients (have been) spared un-necessary surgery. Numerous patients (are) receiving more appropriately timed surgery. (MDMs are) The greatest advance in standard of care planning in my professional career.”

“I strongly believe that MDT meetings are responsible for the general improvement in the management of cancers in the community. They are now an expected process in the management of an individual's cancer and this expectation is, I hope a reason for their survival.”

But some rightly pointed out:

“So many patients, so little time, so little interest from my colleagues!”

And many strongly felt that

“I do not believe hospital administrators understand how important MDT activities are to patient welfare training and cost effective management.”

“... hospitals must be forced to adequately resource MDT meetings.”

This operational report outlines the findings of an Australia-wide survey of workforce and workflow for cancer multi-disciplinary teams. It has been a priority of the work to deliver an operational and actionable series of outcomes, and possible paths forward in the first instance. A more detailed analysis of the survey findings will also be performed to facilitate subsequent journal publication.

The key findings are as follows:

- This report presents the result of a first ever Australia wide survey on the workforce and workflow implications of participating in MDMs.
- It provides some very useful information that confirms many local anecdotal reports of the difficulties in implementing the MDM model, despite the prevailing strong belief amongst care providers that it is a valuable model in terms its contribution to improved care processes and outcomes for patients.
- As a group, participants in cancer care undoubtedly see the MDM model as best practice in cancer care.
- In practice the MDM model is forced to operate in an environment that provides sub optimal support for its operation.

- The report highlights several key ways in which the implementation of the MDM model can be supported by health services, care providers and government. Such areas of support include:
 - Work reorganization, but preferably greater resource provision
 - The provision of more, and more directly applicable, IT support
 - Improved role recognition
 - Better support in the areas of logistics and infrastructure.

- The findings are consistent with the limited international evidence in this specific area.

- There is certainly the opportunity for a closer examination of the way junior health care professionals work to support the functioning of the model, given the largely hidden role they play in this area.

INTRODUCTION

Overview

This report outlines the results and initial analyses of an Australia-wide survey of workforce and workflow for cancer multi-disciplinary teams. Responses were received from in excess of 330 relevant professionals around Australia in the Jan – March period 2009.

Background

This work investigated the use of Multi-disciplinary Team Meetings (MDMs) in cancer care. Clinicians meet with their colleagues, for instance radiologists and pathologists, and support staff in the form of a team to discuss and make decisions regarding a patient's care. These meetings are MDMs. Various resources, such as radiology films or reports, or pathology samples, are brought to MDMs and discussed by team members. As a result of these discussions, a personalized treatment plan for the patient is decided upon by the treating team. The intent of conducting these meetings is to provide better care for patients, and even to potentially improve patient survival rates.

The broad aims of this work were to:

- determine the issues related to workload that exist in running MDMs, so that we are all better placed to understand what improvements can be made to make it easier to run MDMs.
- understand how information and communications technologies (ICT) currently assist MDMs or may be used to assist MDMs. Technologies may be used in the preparation phase that occurs before the meeting, during the actual conduct of the meeting, and in undertaking the follow-up tasks after the meeting (“the 3 meeting phases”).

The background for this research is straightforward. To our knowledge, there are only two published pieces of research around the workload involved in MDMs for participants. Hence, this work is very new and extremely little has been done on the topic.

Firstly, there is the work of Nouraei and colleagues (Nouraei et al, 2007) who investigated increasing the efficiency of MDMs for head and neck cancer, based at the Department of Ear, Nose and Throat Surgery at Charing Cross Hospital in London, England. These researchers performed a system analysis of the process behind MDMs. From this, the researchers revised the process and a new intranet-based system was developed to support the new MDM process. The MDMs were “increased in efficiency” by 60%.

The second piece of work was by Kane et al (Kane et al, 2007) who investigated work processes and time requirements for participating radiologists and pathologists at St James's Hospital in Dublin, Ireland. The researchers studied MDMs for one month. They discovered various problems associated with conducting MDMs, such as (i) the enormous amount of time required to prepare for, and participate in, meetings; and (ii) difficulty in coordinating the availability of material for review.

Since so little work has been done on this topic, we were interested in investigating workforce and workload issues in conducting MDMs in the Australian context.

The key questions associated with this project are:

- What involvement do clinicians and administrative personnel have in MDMs?
- What can be learnt about use of information and communication technology in preparing for, running or following up a MDM?
- What workload issues are there in carrying out MDMs?
- What are the participants views about MDMs?

We aimed to survey at least 200 MDM participants across Australia, in order to build a useful picture of the current state of play around MDM's, and potential solutions to any problems raised. The survey had Human Research Ethics Committee (HREC) approval from Victoria University. By way of clarification, it should be noted that the acronyms MDT, MDM and MDTM are often used

interchangeably to refer to the concept of Multi-disciplinary Team Meetings. Sometimes these variations have been included in the report as they represent a direct quote from a respondent, but we have endeavored to use the standard acronym MDM wherever possible.

METHODS

Overview

The methodology of this project was straightforward. An online survey of Australian participants was used to collect data pertaining to MDMs. The Web-based survey was developed using the specialist online survey creation tool, Survey Monkey. The survey principally contained closed-ended questions asking participants about demographics, their experience of MDMs, and views on MDMs. Participants were able to fill in survey responses from any web enabled computer to which they have access. At no stage were participants able to be individually identified. The data was automatically stored electronically by Survey Monkey, and then exported to MS Excel for subsequent initial analysis.*

In terms of recruitment, a range of means were used including public advertisements, such as at the COSA-IACR (Clinical Oncological Society of Australia and International Association of Cancer Registries) 2008 Joint Scientific Meeting in mid-November 2008. Potential participants were also notified of the opportunity via email to relevant groups such as cancer networks, health services and health professional bodies and colleges.

* More detailed analyses will be performed as part of several journal submissions

RESULTS

Overview

MDM Attendees versus Non-MDM Attendees

An initial distinction was made between respondents who had attended at least 1 MDM in the last 6 months (MDM Attendees), and those who had not (non-MDM Attendees). This distinction was made to delineate the group of responses (the MDM Attendees) that would be examined in more detail in relation to the issues being examined, as these individuals were, by definition, more likely to provide insight into those issues.

Table 1 – Numbers of MDM Attendees versus non-MDM Attendees

Yes	267
No	51
Invalid Response	21
Total	339

Demographic and Descriptive Features of Respondents

In terms of the age distribution of respondents, the pattern of responses for both the attendee and non- attendee groups is outlined below.

Table 2 – Respondents by age group

My 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

In terms of gender balance – 66% of respondents were female and only 32% male – 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.

Most respondents were from Victoria (58%) and hence by deduction 42% were from states other than Victoria – but responses were dominated by those from the eastern seaboard (77%). Most respondents worked in a metropolitan setting (74%) and in a public hospital (83%) (mainly large (>=200 IP beds); 63% vs small 20%). This may be reflective of the pattern of MDM practice, at least in terms of numbers of meetings held.

In relation to the disciplines represented by respondents, most were nurses (19%), surgical oncologists (15%) or allied health professionals (12%). Notably, very few GPs, mental health professionals or haematologists replied (although 10 GP's were in the non-MDT group). It is also noteworthy that only 1.5% of respondents were from a primary data management or data coordination role.

Overall respondents were of a more senior level - 65% were in the 41+ y.o. age groups. Of those from a medical background, 81 % (n=96 of 118) are at a consultant level, therein lies both a strength and a weakness of the survey.

Respondents were involved in MDMs in all of the commonly identified tumour streams. Distinctly fewer were involved in CNS (3.48 % of responses) and musculoskeletal (2.38%) streams, arguably this may also partially reflect current case volumes and practice patterns. In 60% of cases, both public and private patients are discussed in meetings, although clearly, as mentioned, most responses are from those predominantly working and conducting MDMs in the public sector.

Key Themes

This section of the report outlines both the quantitative (Questions 1-31) and Qualitative (Question 32) responses to the survey under the heading of key themes that were identified. The following results are those from the “Yes” (MDT attendees) group, revealing some fascinating insights. These have been categorised into eleven themes.

1. Benefits

MDMs provide tremendous benefits to the patients by enabling the opportunity to improve the management of cancer treatment.

MDMs were described as “vitaly important” as they bring a whole team of care givers together while putting the patient in the centre. These meetings provide the opportunity for collaboration and sharing of information to ensure the best treatment plan is selected for a patient. MDMs “help to see the patient as a ‘whole’ person.” Some benefits outlined by respondents include the ability to ‘trouble shoot’ for challenging patients, encourage appropriate discharge opportunities, provide safer management for those patients with complex issues, support evidence based decision making, spare patients unnecessary surgery, ensure appropriate timed surgery and to advocate on behalf of patients. It is clear from the data below how strongly the respondents feel about MDMs and their ability to improve patient care.

Table 3 – Respondents opinions on whether MDMs improve the quality of care

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped	TOTAL
MDTs improve the quality of care received by patients	num n = 267	1	4	13	116	117	16	267
	%	0.37	1.50	4.87	43.45	43.82	5.99	100.00

In addition to the benefits outlined for patients, 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 successfully run a Unit. 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.

2. Uptake of the MDM Model

The MDM model uptake is often met with scepticism since implementing a change in a care process can be challenging.

Getting others to buy into the MDM model is often challenging. “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 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. Some may have the mindset

that MDMs are a temporary fad and do not need to be taken seriously, but it is clear from the results below that this is not true for the majority of the respondents.

Table 4 – Respondents opinions on whether they see MDMs as a passing fad

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped	TOTAL
I do not believe MDTs are a passing fad	num n = 267	3	5	20	121	100	18	267
	%	1.12	1.87	7.49	45.32	37.45	6.74	100.00

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” 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 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 recognize the value they can bring to improved patient outcomes.

3. Effectiveness and Efficiency

Lack of evidence around the *effectiveness* of MDMs is perceived by some; however, even cynics acknowledge the benefits in some dimensions with improved *efficiency*.

A few remarks were made around the need to assess the cost and clinical effectiveness of MDMs. One respondent commented “It is interesting in an era of evidence-based medicine that MDTs have become accepted as an inevitability when the evidence in terms of clinical-effectiveness and cost-effectiveness remains unproven.” Respondents noted the high number of individuals involved in running and participating in MDMs and questioned the cost effectiveness of these meetings. This individual was further sceptical 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 the comments above, 51% of respondents either agreed or strongly agreed with the statement that “MDTs are cost effective”.

Table 5 – Respondents opinions on whether they see MDMs as cost-effective

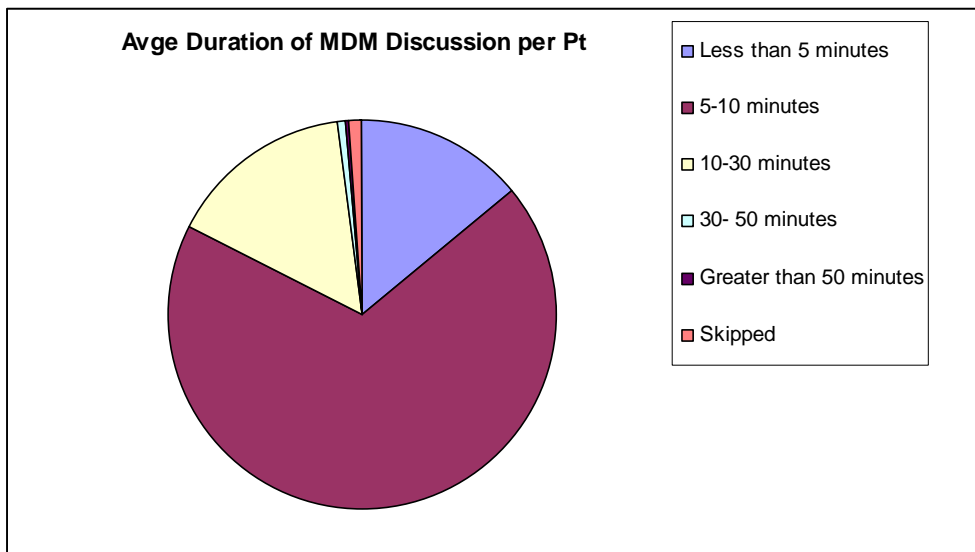
		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped	TOTAL
MDTs are cost effective	num n = 267	5	25	83	94	42	18	267
	%	1.87	9.36	31.09	35.21	15.73	6.74	100.00

Another concern raised was the variability amongst MDMs. “The variety of ways in which MDT is practised is testimony to the lack of evidence for or against them.” Generalisations become very difficult. This theme is discussed in more detail in a later section. 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 comment was around the fact that too many patients were being discussed at a MDM not giving adequate time to any one patient’s treatment plan. “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.”

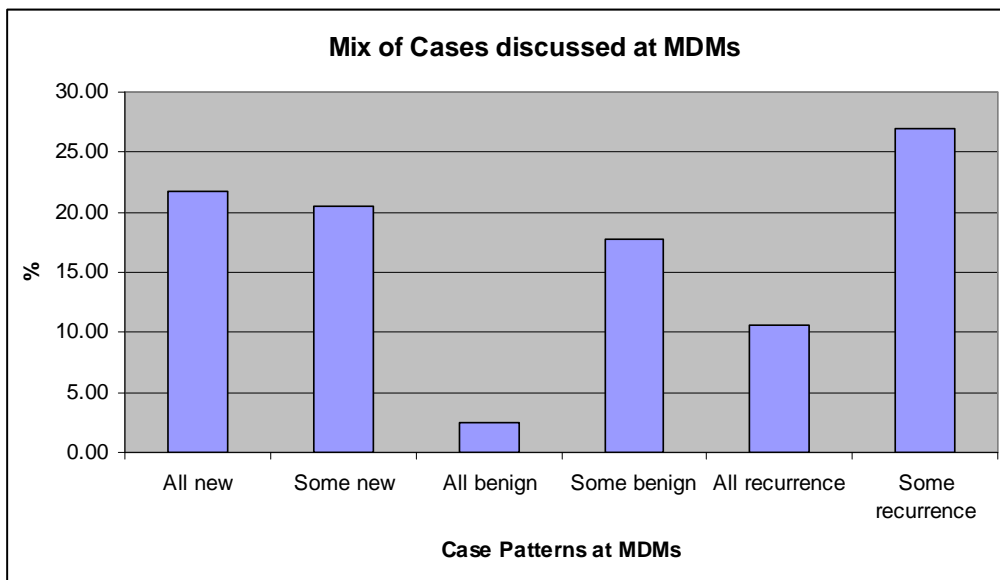
The data below illustrates that based on the replies to the survey, most patients are only discussed for between 5-10 minutes. This is not inconsistent with the observation above that there is not enough time available to discuss any given patients treatment plan.

Chart 1 – Average length of time each patient is discussed



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 data illustrates that a wide range of patient types is presented at meetings:

Graph 1 – 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 above there is significant variation in the mix of types of cases (new malignant, recurrent (inc. metastatic) malignant or benign) 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.

Related was the discussion 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)." Other comments around the effectiveness and efficiency of MDMs are covered in other themes discussed in this section and include: workload, communication, chairing MDMs, documentation and most notably, support. 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 Question 28 makes an interesting counterpoint to the above results. When asked to comment on the statement: "There is an excessive number of patients who require an additional or re-discussion at the MDT meetings I attend (eg - 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 respondents and the objective data collected in the sampled population demonstrated there is strong support for the idea and potential utility of MDMs. "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 see the scientific evidence that proves the value of MDMs and see decreases in the inefficiencies that have been noted.

4. Participation

The mix and involvement of the MDM participants are not optimized.

The chart below illustrates the variety of professions represented at the MDMs. It is clear from the responses that not everyone is supportive of the process.

Table 6 – Primary professional grouping of respondents

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 (eg 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

“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.” Unfortunately, in some cases, allied health staff are generally excluded from the discussions and often sit at the back of the room. One registered nurse remarked they “... do not have the opportunity to participate verbally at all and are often made feel we should not be there.” Another 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.

To truly reap the benefits of a coordinated and comprehensive care model, patients need more than nursing and medical support. It is clear from the responses, more attention during the MDM should be given to the inclusion of allied health staff.

Another issue regarding attendance at the MDMs was that medical staff are sometimes seen to be inappropriately represented by more junior doctors. Another respondent remarked “I do not believe hospital administrators understand how important MDT activities are to patient welfare training and cost effective management.” The comments submitted around participation and support, indicate a need to re-assess the participants in these meetings and how they are involved. One respondent went so far 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 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.”

5. Workload

The workload imposed on MDM participants is significant and should not be underestimated.

It was clear from the comments that many of the same staff attend multiple MDMs, which can result in quite a heavy workload. “For small departments like NM (nuclear medicine) this can be very onerous on limited staff.” As illustrated from the data below, the majority of participants attend an MDM at least once per week, with nearly 30% attending at least 2 per week.

Table 7 – Frequency of attendance at MDMs

How often have you attended MDT meetings for the discussion of cancer patients in the last year?	Num n=267	%
Once every 6 months or less	10	3.75
Between once every 6 months and once every 2 months	19	7.12

About once per month	31	11.61
About once per fortnight	35	13.11
About once per week	89	33.33
Twice per week	43	16.10
Between 3 and 5 times per week	35	13.11
More than 5 times per week	2	0.75
Skipped	3	1.12
TOTAL	267	100.00

The table below also highlights the typical duration of MDM's, although clearly this varies from context to context. Based on the collected data, attending MDMs' (let alone the preparation for them, and follow up after them) may typically require up to several hours of the respondents time each week.

Table 8 – Average length of MDMs

How long do these meetings last on average (tick one of the following)?	Num n=267	%
Less than 30 minutes	2	0.75
30-60 minutes	156	58.43
60-90 minutes	97	36.33
More than 90 minutes	8	3.00
Skipped	4	1.50
TOTAL	267	100.00

In addition to the attendance and participation in these meetings, there is also a commitment to prepare and follow up. Much of the preparation and follow up work is done before or after hours and can run over, interfering with clinical duties. This work is neither reimbursed nor recognized by the hospital in many cases. Many attend MDMs after their regular working hours and during their personal time. Such comments align well with the findings of Kane et al. "Radiology and pathology specialties especially need adequate prep and meeting time if MDTs are to work." The data below illustrates most participants are spending some time preparing and following up from these meetings; however, from the comments it is likely that a lack of recognition or respect for the importance of MDMs diminishes with time.

Table 9 - Average time to prepare for MDMs

How much of your time is involved in preparatory activities for the meetings you attend on average?	Num n=267	%
Less than 30 minutes per meeting	190	71.16
30-59 minutes per meeting	29	10.86
60 -119 minutes per meeting	15	5.62
2hrs-2hrs 59 minutes per meeting	5	1.87
3hrs-3hrs 59 minutes per meeting	6	2.25
More than 4hrs per meeting	8	3.00
Skipped	14	5.24
TOTAL	267	100.00

Table 10 - Average time involved in follow up activities for the meetings attended.

How much of your time is involved in follow up activities for the meetings you attend on average	Num n=267	%
Less than 30 minutes per meeting	126	47.19
30-59 minutes per meeting	73	27.34
60-119 minutes per meeting	28	10.49
2hrs-2hrs 59 minutes per meeting	15	5.62
3hrs–3hrs 59 minutes per meeting	5	1.87
More than 4hrs per meeting	5	1.87
Skipped	15	5.62
TOTAL	267	100.00

It was recommended a number of times that in order to run MDMs effectively, reimbursement of participants should be considered. This topic is discussed further under the theme of Support.

Throughout the responses, there is little doubt about the value these meetings bring to patients and clinicians. As illustrated in the table below, it is clear some participants do not feel that the hospitals and government truly understand and appreciate how much of a commitment it is to participate and run an effective MDM. It can be seen in Table 11, however, that feelings are split amongst respondents as to whether they have adequate time provided to them to attend MDMs: 44% agreeing they do, and 37% saying they don't. It would be very interesting to have had more respondents from the junior workforce given they have a significant role in helping prepare for, run and follow up these meetings.

Table 11 – Respondents opinions on whether they have sufficient time to attend MDMs

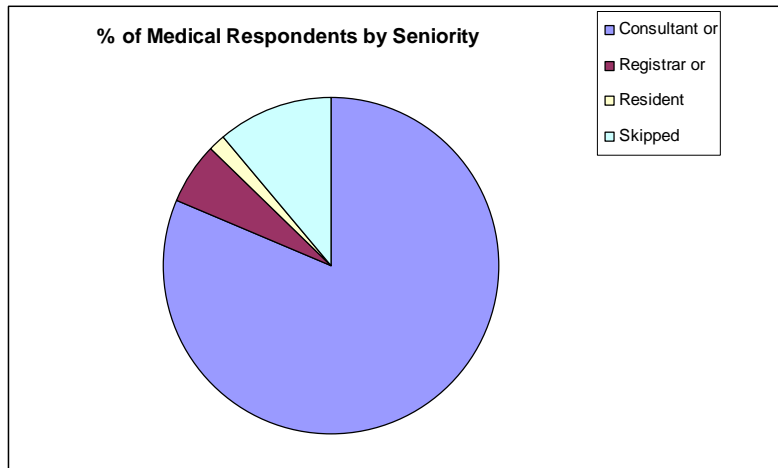
		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped	TOTAL
My job plan ('role') contains adequate time to attend MDT meetings	num n = 267	39	62	29	88	30	19	267
	%	14.61	23.22	10.86	32.96	11.24	7.12	100.00

This was most evident around the involvement of radiologists and pathologists who are in demand to participate in multiple MDMs. A radiologist responded by stating: "The major problem for radiologists is increasing demand from clinical subspecialties for more of these meetings as they value our input." A remark from a pathologist included: "There is a general lack of understanding and appreciation of how long it takes for a pathologist to prepare for a MDT meeting when there is a heavy pathology load at the meeting. Here I am thinking of breast, lymphoma, genitourinary and gynaecological streams in particular." Respondents noted little attention is provided to the consideration of increased consultant or support staff numbers.

There was an overall theme of additional support required to lessen the workload on participants and ensure the meetings are being set up and run effectively. "At my institution organization, preparation, presentation, documentation and follow-up are all left to the registrar to do. This is a highly time-consuming and onerous task which most of us do not have adequate time for." Several comments like this act as a useful counterpoint to our observation of respondents being non-junior

staff and hence a skewed sample as seen in the graph below.

Chart 2 – % of Medical Respondents by Seniority



For instance: “Our interns/reg are the ones who spend the most time in preparation for the meeting.” The topic of MDM administration support is covered under the theme of Support.

6. Documentation

Documentation of MDM discussions and decisions are poor.

“Documentation of MDT discussion and outcome is very poor in most institutions.” This was a reoccurring comment. Many reflected upon the need for a standardized 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.” The graph below illustrates minimal direct entry use of electronic systems used for documentation at MDMs. (17% of respondents versus 71% doing primary data recording by hand)

Table 12 – 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:	Num 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

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 GI”

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.”

The results reveal an interesting paradox (see the table below) 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.

Table 13 - Respondents opinions on how much time is required in documentation around 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 (eg – the patients’ consent for the treatment plan, the fact that certain recommended investigations occurred and what the results were) after MDT meetings I attend	
	Num n =267	%	Num 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

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 around 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.

7. Communication

Good communication is critical for an effective MDM; however, it is not always executed effectively.

Another theme of the feedback obtained from respondents regarding MDMs was around 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 collected in the table below 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 14 - 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 (eg – referring external specialists, or GPs) as a result of the MDT meetings I attend	
	Num 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.

8. Supportive Care

Little attention is provided to supportive care during MDMs.

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."

9. Chairing MDMs

An effective chair is instrumental to the success of a MDM.

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 the table below.

Table 15 - 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	Num n =267	37	94	49	60	13	14	267
	%	13.86	35.21	18.35	22.47	4.87	5.24	100.00

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 summarizes 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 people would like to see training for chairs to eliminate many of the issues described above. "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."

10. Meeting Variability

There is considerable variation across MDMs.

The comments around MDM variability revealed differences in facilities, productivity, quality, support, participation, commitment, operations and documentation. Many of these themes have been covered. 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. “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 practise. “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.”

11. MDM Support

Poor support has been a barrier to effective MDMs and threatens the sustainability of the model.

Administrative Support

The lack of, and need for, administrative (admin) support for MDMs was one of the most common topics documented throughout the comments. One response provides a helpful summary: “lack of understanding of resources needed to support these meetings particularly in rural regional areas, not efficient to use highly skilled nurses to prepare for mdt meetings, more efficient models are available using admin support combined with a multidisciplinary team.” The MDMs that do have admin support, were not complimentary as their contributions are limited to typing up notes. The critical need for admin support is in organising the meeting, booking the room, ensuring participants are aware of the meeting details, ensuring all preparatory work is complete, documenting the discussion of the meeting and following up appropriately. For some MDMs, this type of work “relies entirely on (the) goodwill of participants.” Other meetings have fantastic admin support staff who organise all aspects of the meetings. For these clinical participants, there is minimal work to do in preparation for the MDM. “Much of our time is involved in contacting patients prior to the meeting to ensure we are up to date on their progress or issues prior to the meeting.” It was recommended that the admin support is well versed medically to allow for more independent work with minimal involvement of the participants.

From the table below, it is evident that there is indeed a low level of administrative and data management support at these meetings based on the responses provided. This is not inconsistent with the earlier observation (from the descriptive statistics around demographics) identifying very few respondents were from a primary data management or data coordination role.

Table 16 - Respondents job roles (as opposed to job titles) in the MDMs they attend

Your job role in relation to the MDT meetings you attend is predominantly (tick as many as apply)	Num n=267	%
Meeting support – eg - administrative role	45	11.66
Data management – eg - data manager, data collection	29	7.51
Clinical expertise – regarding patient management – medical and nursing	156	40.41
Clinical expertise – regarding patient management – allied health	36	9.33
Diagnostic service expertise including radiology, pathology, haematology and nuclear medicine	22	5.70

Information recipient – eg – to understand more about the patients you care for or will be required to assess	69	17.88
Other (please state)	29	7.51
TOTAL	386	100.00

Total Participants	267
Skipped	2

The urgent need for admin support also brought comments about the need for appropriate remuneration for these staff. Most argued how vital these positions are to the success of a MDM.

Meeting Organisation and Infrastructure

In addition to concerns about proper admin support, there was a surplus of comments regarding the organisation of meetings and poor infrastructure available. Some of the concerns noted included sourcing of diagnostics being time consuming, difficulty in obtaining imaging from metropolitan hospitals for review, varying formats of films, limited access to telemedicine facilities and the challenge in agreeing on a time/day for the MDMs meetings. One respondent commented their radiologist “is constantly annoyed by films not being available and stops coming to meetings.”

Other noteworthy comments that are frustrating MDM participants were poor sound quality, bad seating arrangements or no seats at all, extensive travel time required to attend the meeting and “turf” issues across health sites.

It seems that the way MDMs are run could also use some improvement. “Meetings are also chaotic, badly organised by clinical teams.” Respondents would like to see a more disciplined approach to these meetings. “Their disorganisation also means they think they can come and interrupt my reporting time any time of the day to look at additional cases outside of the meeting.” It was also noted the planning and running of the meetings is often “delegated to junior staff who do not feel comfortable telling their bosses to be more efficient (or shut up).” Frustrated, this respondent also asked “why does a junior pathology registrar need to turn up and read the reports to the surgeons, who don't listen anyway?” The organisation of the meeting needs to incorporate increased preparation time so that people are prepared to discuss the treatment plan at the MDM and the outcomes can be obtained quicker, and be more clear. It was suggested there is a need for an “audit system to ensure plans are enacted.” Despite these negative comments, when respondents were asked to comment on whether there was a clear process for discussing patients during the MDM, the majority (51%) thought there was, as evident in the chart below; with only 23% clearly in disagreement.

Table 17 - Respondents opinions on how much time is lost from a lack of clear process 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 the lack of a clear process for discussing patients	Num n =267	32	105	50	53	11	16	267
	%	11.99	39.33	18.73	19.85	4.12	5.99	100.00

IT Support

IT support is critical to an effectively run and productive MDM as suggested by the table below.

Table 18 - Respondents opinions on the potential benefits of increasing the efficiency of MDMs by increasing the amount of ICT support for their roles

	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.	
	Num n=267	%
Strongly disagree	5	1.87
Disagree	31	11.61
Neutral	76	28.46
Agree	93	34.83
Strongly agree	54	20.22
Skipped	8	3.00
TOTAL	267	100.00

It is important to note this is on a background of low levels of support reported by respondents for all 3 phases of the MDM process: pre-meeting, meeting and post meeting. Respondents felt ICT was supportive or extremely supportive in only 30%, 44% and 30% of case respectively.

Many commented about the need for more technical support. Some comments are extreme suggesting a “dire need to improve electronic communication.” In addition to more technical support, one respondent mentioned specifically with “respect to data entry funding” and the need for “surgical synoptic reporting to be included in the data set.” Another recommendation for improving the efficiency of MDMs was the implementation of “a relational database and real time care plan updates” as many patients are transferred between settings. Yet another suggestion was made to have a central database of cases discussed, which would also benefit trainees. It was also noted increased IT support would assist in the often time consuming preparation (50% agreed, 13% disagreed) and follow up (56% agreed, 11% disagreed) for these meetings as seen in tables 19 and 20.

Table 19 - Respondents opinions on the potential benefits of increasing the efficiency of preparation for MDMs by increasing the amount of ICT support for their roles

	Increasing the amount of information and communications technology support for your role could reduce the time taken per patient in meeting preparation.	
	Num n=267	%
Strongly disagree	5	1.87
Disagree	31	11.61
Neutral	84	31.46
Agree	91	34.08
Strongly agree	43	16.10
Skipped	13	4.87
TOTAL	267	100.00

Table 20 - Respondents opinions on the potential benefits of increasing the efficiency of follow up after MDMs by increasing the amount of ICT support for their roles

Increasing the amount of information and communications technology support for your role could reduce the time taken per patient in meeting follow up.		
	Num n= 267	%
Strongly disagree	4	1.50
Disagree	27	10.11
Neutral	69	25.84
Agree	107	40.07
Strongly Agree	44	16.48
Skipped	16	5.99
TOTAL	267	100.00

An interesting paradox on the result is in Question 28, on the issue of respondents support for the statements:

- “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” - only 29% agreed or strongly agreed with this statement,
- “There is too much time involved in tracking down or preparing the pathology (including haematology) results required for discussion in the MDT meetings I attend” – only 24% agreed or strongly agreed; and
- “There is too much time involved in having to document or collate all the relevant patient data and information (eg –clinical history, referral letters, previous meeting discussions) before the MDT meetings I attend” – only 30% agreed or strongly agreed.

These findings would again point to the mismatch between work most probably done by junior staff in meeting preparation and the nature of the respondent group.

Financial Support

It is evident from the comments that the workload for MDM participants can be quite high and many feel this goes unrecognised and unsupported. “I currently attend two regular MDT’s and this year will have a third to do, and other members of my department do other meetings. I am committed to the MDTs and spend a lot of time preparing for them so I can give my best contribution to my colleagues, but it largely goes unrecognised ie. there is no specific time set aside for me to do this preparation, and it is not recompensed.” The recommendation for remuneration for those that are committed to MDMs was consistent across many respondents’ comments. “Time, suitably reimbursed is the major limiting factor, especially for those staff with multiple hospital appointments. Radiology and pathology specialties especially need adequate prep and meeting time if MDTs are to work. This is where \$ could be best channeled rather than clever elec.(tronic) gadgets”

Considerations and Limitations

There are several important points to note in considering the methods used in conducting this survey and its findings.

We used a convenience sampling approach in this survey. Clearly, with such an approach, there is always the risk of sample bias. For instance, it may be that only the most “visible” or opinionated (in one way or another) stakeholders have replied to the survey, thus we may have missed “more quiet” or less visible members of the cancer care community. Equally, penetration into certain sub sections of the cancer community, particularly give the intended nation wide reach of the survey,

may have been sub optimal in some cases, despite rigorous efforts to ensure that this did not occur. For example, penetration into the ranks of junior healthcare staff.

Other limitations include the fact that respondents from the following key stakeholder groups were under represented. The degree to which the results can be extrapolated to these groups is debatable:

- junior clinical staff
- remote and rural staff
- GP's
- Staff from private hospitals
- Haematologists
- Psychiatrists and Psychologists
- Organ specific non-surgical staff (eg- Respiratory physicians, dermatologists, endocrinologists)

Another minor limitation, was in the classification of professional groupings used to categorize responses, in particular for rural professionals. For example, a rural general surgeon not identifying themselves or being seen as a specialized surgical oncologist, certainly would take that role in the modern cancer care delivery model.

DISCUSSION

Objective

This section of the report seeks to examine the previously presented results in terms of some practical streams of activity that can be undertaken in the future. It is envisaged that these possible streams of activity represent some practical steps that can be taken to further support the functioning of MDMs, together with attracting further resources in support of them.

The possible streams of activity are presented as follows:

1. Best practise for preparing, running and following up from MDMs
2. Best practise ICT support
3. Techniques and methods to reduce workload
4. Effectiveness review (including an economic analysis)
5. How to involve allied health and supportive care staff ?
6. Guide to chairing MDMs

Streams of Activity

Best practice for preparing, running and following up from MDMs

There are tremendous amounts of time and energy that goes into the preparation, running and follow-up of MDMs. From the survey results it is evident there is great variability in these practices. Some expressed extremely poor practices while some suggested the MDMs they attend run very smoothly. Improving the effectiveness and efficiencies of MDMs is an ongoing goal and therefore a best practice model for preparing, running and following up from MDMs would help those hospitals that are in need of improvements. Every hospital and their MDMs are unique. Providing a variety of best practices will help hospitals select the best option for improving their MDMs. This would also help decrease the meeting variability that was commented on by many survey respondents.

The objective of a best practice guideline for preparing, running and following up from MDMs will help improve the effectiveness and efficiency of MDMs as hospitals learn what is working well from other sites.

Techniques and methods to reduce workload

MDM participants commit a lot of time and energy into these meetings. Often the workload is intense, and above and beyond the normal working hours/days. The workload can become manageable if it is not addressed and action taken. Many MDMs have identified workload as a major barrier to success and a variety of implemented and theoretical techniques for reducing workload have been identified. These techniques and methods should be disseminated.

The objective of creating a list of techniques and methods is to reduce the workload of MDM participants and increase the opportunity for a successful meeting.

Best practice ICT support

As mentioned in the analysis section, ICT Support is critical to an effectively run and productive MDM. Many hospitals have implemented effective ICT solutions to support their MDMs. Reviews of these solutions have been documented in the literature. These best practices and key learnings should be shared and disseminated to other hospitals who are looking to establish or improve their ICT policies to support their MDMs. Creating a comprehensive amalgamation of all best practices will help to support hospital's and their MDMs to make the right decisions to select appropriate and effective ICT solutions for their unique situations.

The objective of this work would be to enable evidence based decision making for hospitals in selecting appropriate ICT support for their MDMs.

Effectiveness review (including an economic analysis)

There are many participants involved in MDMs and a lot of effort and money that goes into running them. The survey results indicated some scepticism around the cost and clinical effectiveness of these meetings. This signals the need for an effectiveness review to prove whether these meetings are in fact worth the effort and cost.

The objective of an effectiveness review would provide evidence for or against the use of MDMs to assist in the management of patients' with cancer. If the results prove their effectiveness, this review will strengthen the need for these meetings and their critical role in the management of patient care.

How to involve allied health and supportive care staff ?

Current MDMs are very medically focused and although many allied health and supportive care staff attend the meetings, they are generally not active participants. Rightly so, allied health and supportive care staff have expressed frustration in attending meetings where they are not acknowledged. It is critical that the time of these integral healthcare workers is not wasted and used in the most efficient way to benefit the patients. Further thought and research needs to go into how to best involve these professionals in MDMs.

The objective of further thought and research into the role of allied health and supportive care staff in MDMs will help to determine the most appropriate way to involve them and ensure that their time, and the time of the MDM, is used most effectively for patient care.

Guide to chairing MDMs

As evident from the survey results, an effective chair is instrumental to the success of a MDM. MDMs are complex, involve many participants and must be run efficiently. The role of the chair can be very challenging and should not be undermined. Becoming an effective chair cannot be expected to come naturally to everyone. To assist in ensuring chairs are equipped with the right tools and knowledge to run an effective MDM, the creation of a best practice guide would be

helpful.

A guide would also help reduce the meeting variability that was a common theme raised by survey respondents. The Multidisciplinary Meeting Toolkit created by the DHS outlines some key points about the chair's role; however, a guide would provide more detail around these tasks. Components of the guide may include: protocols for choosing an effective chair, key roles of the chair before, during and post MDM, tools and tips for running an effective meeting, dealing with conflict amongst MDM participants and tools and tips for reaching decisions.

The objectives of the guide would be to assist chairs to run an effective MDM and to reduce meeting variability.

CONCLUSIONS

This report presents the result of a first ever Australia wide survey on the workforce and workflow implications of participating in MDMs. It provides some very useful information that confirms many local anecdotal reports of the difficulties in implementing the MDM model, despite the prevailing strong belief amongst care providers that it is a valuable model in terms of its contribution to improved care processes and outcomes for patients.

The report highlights several key ways in which the implementation of the MDM model can be supported by health services, care providers and government. The findings are consistent with the limited international evidence in this specific area.

REFERENCES

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APPENDIX

This appendix contains other quantitative results from the survey which have not been directly presented in the body of the document.

Question 2 - Gender

My gender	Yes (n=267)		No (n=51)	
	Num	%	Num	%
Male	86	32.21	13	25.49
Female	175	65.54	36	70.59
Skipped	6	2.25	2	3.92
TOTAL	267	100.00	51	100.00

Question 3 - State

(More than one option may apply)

The state where I work is (Tick more than one if applicable, for e.g. if you work in the border area)	Yes (n=267)		No (n=51)	
	Num	%	Num	%
QLD	22	7.94	9	17.31
SA	8	2.89	3	5.77
VIC	160	57.76	25	48.08
NSW	34	12.27	5	9.62
NT	5	1.81	0	0.00
TAS	12	4.33	2	3.85
WA	23	8.30	6	11.54
ACT	13	4.69	1	1.92
Skipped	0	0.00	1	1.92
TOTAL	277	100.00	52	100.00

Question 4 - The geographic setting

The geographic setting in which I predominantly work is:	Yes (n=267)		No (n=51)	
	Num	%	Num	%
Regional/Rural	67	25.09	16	31.37
Inner metropolitan	181	67.79	29	56.86
Outer metropolitan	18	6.74	6	11.76
Remote	1	0.37	0	0.00
Skipped	0	0.00	0	0.00
TOTAL	267	100.00	51	100.00

Question 5 - The healthcare delivery setting

The healthcare delivery setting in which I predominantly work is:	Yes (n=267)		No (n=51)	
	Num	%	Num	%
Large public hospital (>=200 inpatient beds)	167	62.55	18	35.29
Smaller public hospital (<200 inpatient beds)	53	19.85	11	21.57
Large private hospital (>=100 inpatient beds)	11	4.12	4	7.84
Smaller private hospital (< 100 inpatient beds)	3	1.12	0	0.00
Primary care	2	0.75	10	19.61
Other	31	11.61	8	15.69
Skipped	0	0.00	0	0.00
TOTAL	267	100.00	51	100.00

Question 8 - Primary discipline: Nursing

My primary discipline is	Yes (n=50)		No (n=11)	
	Num	%	Num	%
Ward Staff	6	2.25	3	27.27
Out patient staff	4	1.50	1	9.09

Chemotherapy	4	1.50	3	27.27
Clinical nurse consultant	33	12.36	4	36.36
Nurse practitioner	3	1.12	0	0.00
Skipped	0	0.00	0	0.00
TOTAL	50	100.00	11	100.00

Question 9 - Primary discipline: Allied Health

My primary discipline is	Yes (n=32)		No (n=4)	
	Num	%	Num	%
Social work	3	9.38	0	0.00
Occupational therapy	5	15.63	1	25.00
Physiotherapy	11	34.38	0	0.00
Speech pathology	1	3.13	0	0.00
Audiology	0	0.00	0	0.00
Pharmacy	3	9.38	0	0.00
Other	9	28.13	3	75.00
Skipped	0	0.00	0	0.00
TOTAL	32	100.00	4	100.00

Question 10 – GP Details

I am	Yes (n=2)		No (n=10)	
	Num	%	Num	%
Fully qualified or Registrar	2	100.00	9	90.00
Skipped	0	0.00	0	0.00
TOTAL	2	100.00	10	100.00

Question 11 – Tumour Stream

Participants could select more than one option, hence number of participants (n) < total answer

What tumour group(s) or stream(s) do you predominantly work with?	Yes (n=267)		No (n=51)	
	Num	%	Num	%
Genitourinary	42	7.69	6	5.94
Lung	57	10.44	10	9.90
CNS	19	3.48	2	1.98
Haematology	27	4.95	11	10.89
Breast	86	15.75	15	14.85
Skin (including Melanoma)	34	6.23	7	6.93
Musculoskeletal (including Sarcoma)	13	2.38	1	0.99
Upper GI	49	8.97	2	1.98
Colorectal	69	12.64	12	11.88
Gynaecological	41	7.51	8	7.92
Head and Neck (including Thyroid)	42	7.69	3	2.97
All of the above	67	12.27	24	23.76
TOTAL	546	100.00	101	100.00

Yes	
Total Participants	267
Skipped	2

No	
Total Participants	51
Skipped	2

Question 12 - Do you attend MDM meetings?

Do you attend MDT meetings (at least 1 in the last 6 months) for the discussion of cancer patients in "your" or "another" organization?	Yes (n=267)		No (n=51)	
	Num	%	Num	%
Skipped	258	96.63	51	100.00
	9	3.37	0	0.00
TOTAL	267	100.00	51	100.00

1 - Private	8
2 - Public	90
3 - Both	160
Skipped	9
Total	267

Question 13 - Geographic setting

The geographic setting in which you predominantly attend MDT meetings is:	Num n=267	%
Regional/Rural	64	23.97
Inner metropolitan	183	68.54
Outer metropolitan	18	6.74
Remote	0	0.00
Skipped	2	0.75
TOTAL	267	100.00

Question 14 - The healthcare delivery setting

The healthcare delivery setting in which you predominantly attend MDT meetings is	Num n=267	%
Large public hospital (>=200 inpatient beds)	185	69.29
Smaller public hospital (<200 inpatient beds)	56	20.97
Large private hospital (>=100 inpatient beds)	11	4.12
Smaller private hospital (< 100 inpatient beds)	4	1.50
Collaborative, across multiple organizations (entirely virtual)	8	3.00
Skipped	3	1.12
TOTAL	267	100.00

Question 19 – The extent to which ICT supports your role in MDMs

The extent to which information and communications technologies currently support your role in relation to the conduct of the meetings.	Num n=267	%
Extremely unsupportive	22	8.24
Unsupportive	44	16.48
Neither supportive nor unsupportive	72	26.97
Supportive	103	38.58
Extremely supportive	17	6.37
Skipped	9	3.37
TOTAL	267	100.00

Question 23 – Extent to which ICT supports your role in preparing for the meeting

The extent to which information and communications technologies currently support your role in relation to meeting preparation.	Num n = 267	%
Extremely unsupportive	18	6.74
Unsupportive	41	15.36
Neither supportive nor unsupportive	114	42.70
Supportive	71	26.59
Extremely Supportive	10	3.75
Skipped	13	4.87
TOTAL	267	100.00

Question 26 - Extent to which ICT supports your role in relation to meeting follow up

The extent to which information and communications technologies currently support your role in relation to meeting follow up.	Num n = 267	%
Extremely unsupportive	22	8.24
Unsupportive	43	16.10
Neither supportive nor unsupportive	106	39.70
Supportive	76	28.46
Extremely Supportive	5	1.87
Skipped	15	5.62
TOTAL	267	100.00

Question 28 - Extent to which you concur with the following statements.

All questions are in relation to the MDT meetings you predominantly attend

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Skipped	TOTAL
There is an excessive number of patients who require an additional or re-discussion at the MDT meetings I attend (eg - because the right staff were not present, the right information was not present)	Num n =267	15	114	56	62	6	14	267
	%	5.62	42.70	20.97	23.22	2.25	5.24	100.00
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	Num n =267	18	79	75	56	22	17	267
	%	6.74	29.59	28.09	20.97	8.24	6.37	100.00
There is too much time involved in tracking down or preparing the pathology (including haematology) results required for discussion in the MDT meetings I attend	Num n =267	20	82	83	54	11	17	267
	%	7.49	30.71	31.09	20.22	4.12	6.37	100.00
There is too much time involved in	Num n =267	13	80	77	55	26	16	267

	%	4.87	29.96	28.84	20.60	9.74	5.99	100.00
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Question 31 - Extent to which you concur with the following statements

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Skipped	TOTAL
The advent of the MDT has had a positive effect on my morale	num n = 267	3	21	74	100	51	18	267
	%	1.12	7.87	27.72	37.45	19.10	6.74	100.00
The advent of the MDT has had a positive impact on training	num n = 267	2	15	44	125	65	16	267
	%	0.75	5.62	16.48	46.82	24.34	5.99	100.00