

Improving the effectiveness of multidisciplinary team meetings for patients with chronic diseases: a prospective observational study

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Scientific summary

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Scientific summary

Background

Multidisciplinary team (MDT) meetings have been endorsed by the Department of Health as the core model for managing chronic diseases. The proliferation of MDT meetings in health care has occurred against a background of increasingly specialised medical practice, more complex medical knowledge, continuing clinical uncertainty and the promotion of the patient's role in their own care. In this environment, it is believed that MDT meetings ensure higher-quality decision-making and improved outcomes. However, the evidence underpinning the development of MDT meetings is not strong and the degree to which they have been absorbed into clinical practice varies widely across conditions and settings. In the light of this uncertainty, there have been calls for empirical research on MDT meeting decision-making in routine practice to understand how and under what conditions MDT meetings produce effective decisions.

We conducted a large mixed-methods study of MDTs for a range of chronic diseases to examine and explore determinants of effective decision-making (defined as decision implementation) and areas of diversity across MDT meetings (study 1). We applied a transparent and explicit consensus development method to develop a list of indications of good practice, based on our results, to improve MDT meeting effectiveness (study 2).

Aims

- i. To identify the key characteristics of chronic disease MDT meetings that are associated with decision implementation (whether or not treatment decisions recommended by the team were carried out).
- ii. To derive a set of feasible modifications to the MDT meetings to improve effective MDT decision-making for patients with chronic diseases.

Objectives

- i. To undertake an observational study of chronic disease MDT meetings to identify factors which influence their effectiveness in terms of decision implementation (study 1).
- ii. To explore the influence of patient preferences and comorbidity on any socioeconomic variations in implementation found (study 1).
- iii. To explore areas of diversity in beliefs and practices across MDT meetings (study 1).
- iv. To use the results from study 1 in a structured formal consensus technique to derive a set of feasible modifications to improve MDT meeting effectiveness (study 2).

Study 1

Data collection

We undertook a mixed-methods prospective cohort study of MDT meetings in 12 chronic disease MDTs in the London and north Thames area, England. We examined one skin cancer, one gynaecological cancer, two haematological cancer, two heart failure, two psychiatry of old age (memory clinic) and four community mental health MDTs (including one early intervention service for psychosis).

Quantitative and qualitative data were collected by observation and audiotaping of 370 MDT meetings, a questionnaire on 'team climate' completed by 161 MDT members, interviews with 53 MDT members, interviews with 20 patients and review of 2654 patient medical records. Two patient and public involvement representatives provided in-depth advice throughout the study, from design to dissemination.

Observations

The weekly MDT meetings of 12 teams were observed and audiotaped over 18–55 weeks. For each patient discussed, we collected quantitative data on decisions made, diagnosis and whether or not health behaviours (smoking, drinking, physical inactivity), other clinical factors (including comorbidities and medical and family history) and patient treatment preferences were mentioned.

In addition, qualitative field notes were taken on MDT features (e.g. attendee job titles, presence of an MDT co-ordinator), context (e.g. reference to national policy/guidance and local resource issues) and process (e.g. levels of participation, the role of the chairperson and clarity and documentation of decisions).

Multidisciplinary team member questionnaire

Core MDT members completed the Team Climate Inventory (TCI) during the final month of observation, which assessed members' perceptions across the four domains of 'team vision', 'participative safety' (i.e. a facilitative atmosphere for involvement), 'task orientation' (e.g. with respect to individual and team accountability) and 'support for innovation'. A low TCI score reflects perception of poor team climate.

We added two items to the TCI. The first asked respondents to rate their agreement with the statement 'I believe that the [team name] MDT meetings are an effective use of my time' on a scale of 1 to 5. The second was an open question: 'Is there anything you would change about these meetings?'

Interviews

We conducted semistructured interviews with 53 MDT members and 20 patients/carers. Members were recruited from all the MDTs observed, purposively sampled to include core professional groups and both frequent and infrequent attendees. Patient/carers were recruited across all four disease types from the MDTs under observation, and purposively sampled in terms of sex, age and ethnicity.

Review of medical records

Quantitative data on decision implementation, reasons for non-implementation and patients' sociodemographic and diagnostic details were collected from medical records. Decision implementation was assessed 3 months after the MDT meeting, unless the MDT explicitly noted that implementation should be later (e.g. 'follow up in 6 months').

Quantitative analysis

The influence of MDT and patient-related factors on treatment plan implementation was investigated using random-effects logistic regression models, allowing for clustering by MDT. We also descriptively analysed responses to the statement 'I believe that the [team name] MDT meetings are an effective use of my time'.

Qualitative analysis

Interview transcripts and field notes were thematically analysed using a combination of inductive and deductive coding. Findings from the different qualitative data sets were integrated to explore possible explanations for the quantitative findings, and to identify areas of diverse beliefs and practice across MDT meetings.

Results

Of the 3184 patient discussions observed, 2654 culminated in a treatment plan. There was considerable variation among the 12 teams in the number of patients discussed at each meeting, with the mean

ranging from 4 to 49. The median number of meeting attendees ranged from 5 to 17, and the median number of professional disciplines represented ranged from two to six.

Characteristics of chronic disease multidisciplinary team meetings that are associated with treatment plan implementation

Implementation varied by disease category, and was highest in gynaecological cancer (84%) and lowest in mental health (70%). High-implementing teams tended to have clear goals, and members shared the view that the main purpose of the MDT meeting was to make treatment recommendations for patients. In contrast, in lower-implementing teams, members identified a range of diverse objectives and some stated that meetings lacked clarity of purpose. Lack of implementation was commonly due to patient or family choice, and to difficulties in engaging patients with the service.

Implementation also varied according to patients' socioeconomic circumstances; the adjusted odds of implementation were reduced by 40% for patients in the most deprived areas compared with those in the least deprived areas [odds ratio 0.60, 95% confidence interval (CI) 0.39 to 0.91]. This could not be explained by consideration of patient preference, comorbidities or other health related factors in team meetings. We found no association between discussion of patient preferences or comorbidities and treatment plan implementation.

We found that the adjusted odds of implementation were reduced by 25% for each additional professional group represented at the meeting (odds ratio 0.75, 95% CI 0.66 to 0.87). This trend was mostly accounted for by mental health and memory teams. In these teams, when meetings were attended by more professional groups there was a tendency for more diverse issues to be raised in an ad hoc manner, with abrupt changes of subject.

Implementation was also more likely in MDTs with a good team climate (adjusted odds of implementation increased by 7%; 95% CI 1% to 13% for a 0.1-unit increase in TCI score).

Areas of diversity in beliefs and practices across multidisciplinary team meetings

There was considerable variation among the 12 teams in terms of meeting characteristics. We identified 16 key themes within five domains where there was substantial diversity in beliefs and practices across MDT meetings. This diversity was apparent both within and across specialities. Variation related to the purpose, functions, structure and processes of the MDT meetings, as well as the role of the patient and content of discussions.

The purpose and functions of multidisciplinary team meetings

Overall there was considerable variation between teams in the purpose and functions of MDT meetings. These included decision-making, information-sharing, peer support and education. There was evidence of teaching in some teams, but not all, and there was wide variation between MDT meetings in how frequently recruitment to clinical trials was considered.

The structure of multidisciplinary team meetings

Attendance and participation in discussions also varied considerably, with evidence of status hierarchies and medical dominance in some specialities. There was also wide variation in how MDT meetings were organised. All cancer teams had dedicated MDT co-ordinators, while, in heart failure, memory and mental health, administrative duties were undertaken by managers, health-care professionals and general administrators.

Multidisciplinary team meeting processes

There was variation in the chairing arrangements. Most meetings were formally chaired by a member of the team, several teams had a rotating chairperson system and in some teams there was no predefined chairing system and different senior members took the lead on different occasions. Teams also differed in

how they selected patients to be discussed and in how cases were presented. The process, completeness and accuracy of documentation also varied widely across teams. This ranged from typing decisions directly into patients' electronic records to handwritten records that were not subsequently filed in patients' notes.

Content of discussion in multidisciplinary team meetings

There was variation across teams in how frequently they referred to scientific evidence and research, and in whether or not patient psychosocial issues were discussed. There was also variation across teams in the extent to which patient comorbidities and patient preferences were mentioned during case discussions. Overall, MDT members and patients considered discussion of comorbidities and patient preferences to be important; however, this information was not always available in advance of the meeting, and some MDT members believed that it was more appropriate to discuss patient preferences after the meeting when treatment options had been evaluated.

The role of the patient in multidisciplinary team meetings

We found that not all patients were aware that their cases were being discussed at MDT meetings. In line with previous research, most patients and staff believed it would be impractical for patients to attend the meetings. Patients varied in their preferences regarding the format and content of the information they would like fed back to them after the meeting.

Study 2

Methods

In study 2, we applied a modified formal consensus technique to derive a set of indications of good practice for improving the effectiveness of MDT meetings for patients with chronic diseases. We used the qualitative and quantitative findings from study 1 to generate potential recommendations to be discussed and rated by an expert panel.

We recruited an expert panel of health-care professionals, policy-makers and patient representatives with experience of MDTs in each of the disease types under study: cancer, heart failure and mental health (including memory clinics). The formal consensus technique was based on the RAND/UCLA appropriateness method, a technique developed by the RAND corporation and clinicians at the University of California, Los Angeles. It involved two stages:

Round 1: postal questionnaire

We developed a questionnaire which was divided into 16 sections. Each section summarised relevant policy and guidance, published research literature, and our quantitative (where appropriate) and qualitative findings. This was followed by a series of statements regarding potential ways that MDTs could be modified on the basis of the information provided. Each statement was accompanied by a Likert scale (1–9). Panellists received and returned this questionnaire via post.

Round 2: expert panel discussion and second-round ratings

The ratings from round 1 were used to develop a personalised version of the questionnaire for each panel member. For each item, it showed the participant's own round 1 response and the distribution of responses for all panellists. We convened a consensus development meeting where panellists reviewed, discussed and rerated the statements. The meeting was audiotaped and field notes were taken.

In analysing the round 2 ratings, we examined:

- the *strength* of agreement with each recommendation and
- the *variation in extent* of agreement among panellists.

The final list of indications of good practice included those for which there was both strong agreement and low variation in extent of agreement.

We transcribed the meeting in full and conducted a thematic analysis, coding the panellists' comments to identify the range of views about each item discussed and to examine possible explanations for differences in ratings.

Results

The synthesis of the qualitative and quantitative findings from study 1 produced 68 potential recommendations for improving the effectiveness of MDT meetings.

At the end of the consensus development process, there were 21 statements for which there was both strong agreement (median ≥ 7) and low variation in the extent of agreement (MADM score of < 1.11) among the expert panel. These indications for good practice related to the purpose of the meetings, meeting processes, the content of the discussion and the role of the patient, as detailed below.

Indications of good practice: improving the effectiveness of multidisciplinary team meetings for patients with chronic diseases

The purpose and functions of multidisciplinary team meetings

1. The primary objective of MDT meetings should be to agree treatment plans for patients. Other functions are important but they should not take precedence.
2. MDT discussions should result in a documented treatment plan for each patient discussed.
3. MDT meeting objectives should include locally (as well as nationally) determined goals.
4. The objectives of MDT meetings should be explicitly agreed, reviewed and documented by each team.
5. Explaining the function of the MDT meeting should be a formal part of induction for new staff.
6. There should be a formal mechanism for discussing recruitment to trials in MDT meetings (e.g. having clinical trials as an agenda item).

Multidisciplinary team meeting processes

7. All new patients should be discussed in an MDT meeting even if a clear protocol exists.
8. All chairpersons should be trained in chairing skills.
9. Teams should agree what information should be presented for patients brought for discussion in an MDT meeting.
10. All new team members should be told what information they are expected to present on patients they bring for discussion in an MDT meeting.
11. The objectives of the MDT meeting should be reviewed yearly.
12. Once a team has established a set of objectives for the meeting, the MDT should be audited against these goals (e.g. every 2 years).
13. All action points should be recorded electronically.
14. Implementation of MDT decisions should be audited annually.
15. Where an MDT meeting decision is changed, the reason for changing this should always be documented.
16. There should be a named implementer documented with each decision.

Content of discussion in multidisciplinary team meetings

17. Comorbidities should be routinely discussed at MDT meetings.
18. Patients' past medical history should routinely be available at the MDT meeting.

The role of the patient in multidisciplinary team meetings

19. The MDT should actively seek all possible treatment options, and discuss these with the patient after the meeting.
20. Patients should be given verbal feedback about the outcome of the MDT meeting.
21. Where it would be potentially inappropriate to share the content of an MDT discussion with the patient (e.g. where it may lead to unnecessary anxiety or disengagement from services), the decision not to give feedback should be formally agreed and noted at the meeting by the team.

Panellists from all specialties agreed that these were desirable and feasible.

The panel as a whole was uncertain about 17 statements. However, every one of these was rated 'agree' or 'disagree' by at least one disease group. For example, whereas the need to be prescriptive about MDT membership was supported for cancer MDTs, local flexibility was deemed appropriate for heart failure MDTs. Similarly, mental health panellists considered it imperative for someone with personal knowledge of a patient to be present when a patient is discussed by the MDT, but this was believed to be unnecessary in cancer and heart failure MDT meetings.

There were 13 recommendations that the panellists disagreed with. Most disagreements centred on the role of the patient in MDT decision-making. For example, panellists argued that it was unfeasible to always obtain patients' treatment preferences before discussing their case. They also pointed to practical and cognitive barriers to asking patients before the MDT about how much they wished to be involved in decision-making.

Conclusions

As the largest study of its kind, and the first to examine and compare MDT meetings for different chronic diseases, this study enabled identification of factors associated with good outcomes that are generalisable across health care. We found that 78% of treatment plans were implemented overall, though this varied across teams from 65% to 94%. Greater multidisciplinary was not necessarily associated with more effective decision-making. Implementation was more likely in MDTs with clear goals and processes and a good team climate. Finally, despite policy initiatives to reduce inequalities, we found that MDT decisions were less likely to be implemented for patients living in more deprived areas.

The use of a diverse range of qualitative and quantitative data has allowed an unprecedented breadth and depth of data to be explored. This allowed us, first, to identify key characteristics of chronic disease MDT meetings that are associated with decision implementation, and, second, to identify 21 feasible and desirable indications for good practice to improve the effectiveness of MDT meetings using a formal consensus development technique involving key stakeholders.

No single team from the 12 teams that we observed in study 1 met all of the recommendations agreed on by the expert panel. Our findings illustrate that there is scope for learning between specialties and the potential to make a significant number of recommendations that are applicable in the varied contexts within which MDTs operate. This is important because MDT meetings are resource-intensive, and their value to the NHS and patients should be maximised.

Summary of key findings

- We found that greater multidisciplinary is not necessarily associated with more effective decision-making (defined as MDT decision implementation). Rather it is mediated by having a clear purpose, agreed processes and a team atmosphere that facilitates inclusion and improvement.
- Overall, 78% of MDT decisions across the 12 chronic disease MDTs studied were implemented.
- Community mental health teams implemented fewer decisions than did other teams (70%). Staff in these teams reported a wide array of functions of MDT meetings in addition to decision-making; however, some reported that meetings lacked clarity of purpose.
- Teams differed widely in relation to the format and structure of meetings, documentation and audit procedures, the choice of patients for discussion, the content of discussions and the use of technology.
- Some teams were characterised by a strong medical dominance in terms of attendance and participation. While these teams typically made and implemented high numbers of treatment plans, those plans were less likely to have incorporated the full range of disciplinary and professional perspectives.
- Patients from more deprived areas were less likely to have their treatment plans implemented and this occurred despite the routine reference to treatment guidelines by cancer teams. Consideration of patient preference, comorbidities or other health-related factors did not seem to explain this, and we were unable to account for these findings.
- Stakeholders with expertise in cancer, mental health and heart failure agreed on 21 indications of good practice, which were applicable to all the chronic diseases considered. They included indications relating to the purpose of the meetings (e.g. that agreeing treatment plans should take precedence over other objectives); meeting processes (e.g. that MDT decision implementation should be audited annually); content of the discussion (e.g. that information on comorbidities and past medical history should be routinely available); and the role of the patient (e.g. concerning the most appropriate time to discuss treatment options). Panellists from all specialties agreed that these recommendations were both desirable and feasible.
- No single team from the 12 teams that we observed in study 1 met all of the recommendations agreed on by the expert panel. Our findings illustrate that there is scope for learning between specialties and the potential to make a significant number of recommendations that are applicable in the varied contexts within which MDTs operate.

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