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# Multidisciplinary team working in cancer: what is the evidence?

Cancer care is increasingly delivered by multidisciplinary teams. **Cath Taylor and colleagues** argue that stronger evidence is needed of their effectiveness

Multidisciplinary team working has been implemented in cancer care systems throughout much of Europe, the United States, and Australia, without any clear evidence for its effectiveness. In the UK, multidisciplinary teams have more recently been recommended for the management of other conditions including diabetes,[1] stroke and neurological rehabilitation,[2] chronic obstructive pulmonary disease,[3] and coronary heart disease.[4] The rationale for introducing multidisciplinary teams is that as the management of disease becomes more complex, it is important to involve all key professional groups in making clinical decisions for individual patients. The widespread introduction of these teams illustrates a recurring paradox in the modern UK National Health Service: we demand an evidence base for individual clinical decisions but not for overall organisational decisions. Here, we describe the implementation of multidisciplinary teams in cancer services in England and review the international evidence for their effectiveness.

**Implementation of multidisciplinary teams**

Multidisciplinary teams were introduced to overcome several shortfalls in UK cancer care and as such are multifunctional. They aim to ensure that all patients receive timely treatment and care from appropriately skilled professionals, that there is continuity of care, and that patients get adequate information and support. The teams also facilitate communication between primary, secondary, and tertiary care as well as collection of reliable data for the benefit of individual patients and for audit and research. Teams can monitor adherence to clinical guidelines and can promote the effective use of resources. They may also improve participants' working lives, not least by providing opportunities for learning and development.

The implementation of multidisciplinary team working in cancer was given impetus by the launch of the NHS breast screening programme in 1988, but by the mid-1990s team working was still patchy.[5 6] The main driver for implementation has been publication of national guidance on improving clinical outcomes for specific tumours, starting with breast cancer in 1996[7] and most recently for brain and central nervous system tumours in 2006.[8] This guidance details the composition of teams (defining core and extended members, including surgeons, radiologists, histopathologists, oncologists, clinical nurse specialists, allied health professionals, and multidisciplinary team coordinators), as well as specifying that each team has a designated lead clinician. The guidance also defines some of the working practices (such as meeting regularly to discuss all new cases and having protocols for referral and treatment).

**Table 1 | Adherence of cancer teams in England to national standards (from national peer review data 2004-7)**

| National standard | Mean % of teams adhering to standards* |
|---|---|
| Team leadership | 96 |
| Team criteria | 95 |
| Participation in approved clinical trials | 90 |
| Treatment planning decisions | 88 |
| Team structure | 85 |
| Team nurse specialist | 84 |
| Operational policy | 78 |
| Pathology guidelines | 75 |
| Clinical guidelines | 74 |
| Imaging guidelines | 72 |
| Referral guidelines | 68 |
| Extended team membership | 66 |
| Data collection | 60 |
| Service improvement | 59 |
| Network audit | 58 |
| Team meetings (eg, attendance) | 56 |
| Providing patient centred information | 56 |

*Mean percentage is presented because standards may comprise several individual measures.

The national cancer peer review programme, launched in 2001, provides measurable standards to assess teams' adherence to the guidance.[9] The standards reflect best practice drawn from a combination of research evidence, national consensus, and expert opinion. All multidisciplinary teams submit self assessments to a national database and a sample is validated by an external peer review team (clinicians, users, commissioners, and managers), who may also visit the teams.

Analysis of data collected in the second round of peer reviews, conducted during 2004-7 and including over 1000 teams across six cancer types (breast, colorectal, lung, gynaecological, upper gastrointestinal, and urological cancer), showed considerable variability in performance.[10] Adherence was generally higher among teams in the cancer types for which guidance was published earliest (breast, colorectal, and lung cancer). This may partly reflect the perceived readiness of specific cancer services to change their working practices but also suggests that teams' performance improves as they become more established.

Across all tumour types, teams generally adhered well to standards concerning their composition, organisation of meetings, and having treatment guidelines and protocols in place. They performed less well in aspects of working that require additional resources, expertise, and time (such as audit and conducting surveys of patients' experiences). Attendance at meetings, clearly a core requirement for effective multidisciplinary teams, is

**There is no consensus about how best to involve patients in the clinical decision making process in team meetings**



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**bmj.com** In a rapid response to this article, Mitzi A J Blennerhassett says: "Far from needing evidence of the effectiveness of MDTs, we need to ensure every cancer patient has access to them. We need nurses to have more authority to raise concerns about patients' welfare, stop inappropriate procedures and ensure adequate levels of pain relief are in place. We need to bring GPs into the equation, so there is all-round communication and understanding of treatment side effects and patients' needs." Have your say on bmj.com.

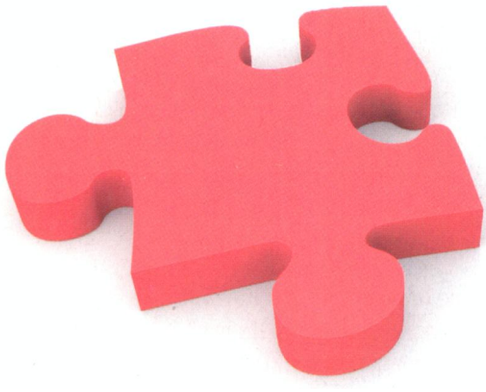
problematic, with less than 60% achieving the standard (table 1). This reflects the shortage of some core staff, particularly oncologists and clinical nurse specialists.[11 12] Some teams also lack a coordinator to prepare and organise meetings, which may reflect lack of investment in their training and development. Membership of several teams may prevent attendance at all relevant meetings—this is a particular problem for oncologists, radiologists, and histopathologists.

Recent clinical consensus gained from a UK national survey completed by over 2000 members of cancer multidisciplinary teams[13] provides a platform for defining optimal ways of working. At least 90% of team members agreed with a wide range of criteria that define effective team working.

There is no consensus about how best to involve patients in the clinical decision making process in team meetings. The extent to which it is desirable or indeed practical for patients to attend meetings (as they do in UK meetings to plan mental health care[14]) is subject to debate. Health professionals are less keen generally than patients, primarily because of concerns that the fast moving explicit discussions about risk and prognosis may be inhibited or may distress patients.[13 15 16]

Team meetings use up a considerable amount of resources. There are about 1500 teams in England. This corresponds to over one million person hours of attendance at meetings each year. In addition, some members have to spend considerable amounts of time preparing materials for meetings. It has been estimated to take a radiologist 2 hours and a pathologist 2.4 hours to prepare for each hour of a team meeting, reviewing all relevant images, samples, and reports in line with royal colleges' best practice guidelines.[17] Using these figures we estimate that multidisciplinary team meetings cost the NHS around £50m (€57m; $79m) a year for preparation and a similar amount for attendance time.

**The treatment recommendations made by multidisciplinary teams ~ do not always take into account the patients' preferences**



## Evidence of benefit

Evaluations of multidisciplinary teams have had to rely on weak study design, typically before and after studies. These are subject to confounding by concurrent changes to cancer care such as increased specialisation of the cancer workforce, improved adherence to evidence based guidelines, improvements in staging at diagnosis, and more effective treatments. Nevertheless, evidence is growing that multidisciplinary teams are associated with improved clinical decision making, clinical outcomes, patient experience, and working lives of team members.

### Clinical decision making

A multidisciplinary approach to clinical decision making aims to ensure that tumours are accurately staged and treatment recommendations are evidence based, patient centred, and reached by consensus. Two observational studies in breast cancer found that multidisciplinary teams resulted in more evidence based recommendations and more timely treatment.[18 19]

The treatment recommendations made by multidisciplinary teams do not always take into account the patients' preferences and their wider psychological and social issues. Analysis of decision making within upper gastrointestinal and colorectal cancer teams in the UK showed that 10-15% of treatment recommendations were not implemented.[20 21] Typically, patients received more conservative treatment than originally planned because the teams had not considered patient based information such as comorbidity and patient preferences.

### Clinical outcomes

In the UK, multidisciplinary working is associated with improved five year survival in colorectal[22] and oesophageal cancer[23] and improved two year survival in head and neck cancer.[24] A recent systematic review also reports limited evidence of improved survival in lung cancer.[25] In Sweden, introduction of multidisciplinary care was associated with improved seven year relative survival from breast cancer.[26] Differences in survival rates within one healthcare region were eliminated once they established multidisciplinary teams and adhered to regional treatment guidelines.

A key objective of multidisciplinary teams is to ensure that patients are managed by a specialist team. The relation between specialist surgery and improved survival in breast cancer and oesophageal cancer is now well established.[27 28]

An agreed policy and commitment to team discussion of diagnostic and staging investigations is associated with improved staging (as shown for oesophageal cancers[28]), better preoperative treatment (eg, in bowel cancer[29]), and improved management (eg, for lung cancer patients[25]).

### Patient experience

Evidence for multidisciplinary teams improving patient experience of care can be inferred from the results of national surveys of patient experience conducted in England. The experience of care reported by cancer patients improved between 2000 and 2004.[30] Although multiple factors are likely to have played a part (including the profile given to patient experience in national policy, leadership at national and local levels, and the provision of funding and influence of charities), the improvements were greatest in cancers for which multidisciplinary teams were more established (breast, colorectal, and lung cancer) than for those, such as urological cancers, where guidance that included providing care within multidisciplinary teams was not published until 2002.

### Team member experience

The impact of multidisciplinary teams on team members is not well understood. In the national survey of team members most respondents (90%) agreed that working in multidisciplinary teams is beneficial to the wellbeing of members, and 81% agreed that it improves job satisfaction.[13] There is, however, anecdotal evidence of professional enmities, autocratic practice, and hierarchical boundaries making teams dysfunctional and participation stressful.[31]



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## Conclusions

The accumulating evidence for benefits of multidisciplinary team working is supported by strong clinical consensus arising from the UK national survey. At least 90% of respondents agreed that effective team working results in improved clinical decision making, more coordinated patient care, improvement to overall quality of care, more evidence based treatment decisions, and improved treatment.[13] However, given the time and resources that multidisciplinary working requires, stronger evidence seems necessary. It is too late to consider randomised trials to evaluate the effectiveness of multidisciplinary teams in the UK: they are so firmly woven into the fabric of clinical practice that it is beyond unpicking. But trials could be conducted in countries that have yet to formalise the introduction of multidisciplinary teams. Lessons learnt from cancer should also be applied to the implementation of team working in other diseases.

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