

INTERCOLLEGIATE CANCER COMMITTEE

EDUCATIONAL INITIATIVES TO IMPROVE THE EFFECTIVENESS OF CANCER MULTIDISCIPLINARY TEAMS

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FOREWORD

In the early 1990s services for cancer patients in the UK were characterised by fragmentation. Co-ordination between primary, secondary and tertiary care was often poor. Within the hospital sector surgeons, pathologists, radiologists, oncologists and others frequently did not work closely together and there were few clinical nurse specialists.

In response to this the Calman-Hine report (1995) advocated the need for multidisciplinary teams (MDTs) and Cancer networks crossing organisational boundaries. The importance of MDTs and networks has been re-emphasised both in the NHS Cancer Plan (2000) and the Cancer Reform Strategy (2007). The composition of multidisciplinary teams has been set out for each cancer type in Improved Outcomes Guidance reports, which for the past few years have been developed by the National Institute for Health and Clinical Excellence (NICE). There are now around 1,500 MDTs in England, with approximately 175 for each of the common cancers (breast, colorectal, lung and urological cancers).

Until now, however, little work has emanated from Royal Colleges or professional societies on how MDTs can be made to function most effectively. This may reflect the fact that multidisciplinary team working for cancer inevitably involves clinicians from several different Royal Colleges. It is therefore entirely appropriate that this report has been written by a multidisciplinary (and multi-professional) group convened by the Intercollegiate Cancer Committee.

I warmly welcome this report which reviews the purpose of MDT working and which takes account of the evidence of the effectiveness of teams and the factors which underpin effective team working.

Importantly the report identifies the need for further work to develop measures to assess how team functioning can best be assessed. The need for health professionals to be trained in team working is also emphasised.

Multidisciplinary team working in cancer has become firmly established over the past 10 to 15 years. The task for the next few years is to bring all teams up to the level of the best.

Finally it is important to recognize that MDT working not only applies to cancer management but to the whole of clinical medicine and as such this document provides a model for MDT working across all the disciplines of medicine.



Professor Mike Richards CBE
National Cancer Director

EXECUTIVE SUMMARY

Multidisciplinary team (MDT) working has been endorsed as the principal way of managing the care of patients with cancer in the UK. It has been defined as a 'group of people of different health care disciplines which meets [...] to discuss a given patient and who are able to contribute independently to the diagnostic and treatment decisions about the patient.'¹

The Intercollegiate Cancer Committee (ICCC) was set up in 2006 under the auspices of the Academy of Medical Royal Colleges and the chairmanship of Professor Dame Janet Husband. In May 2007 the ICCC initiated a project to design education and training initiatives which would improve the quality of multi-professional cancer care within the NHS in the United Kingdom. A major reason for carrying out this work was a perception that there is a considerable variation in the effectiveness of multidisciplinary teams and therefore other factors contributing to their performance were also considered.

The purpose of MDT meetings was reviewed. The ICCC recommends that:

- All eligible cases should be noted by an MDT, but discussion should be prioritised to those not covered by a protocol or with unresolved issues around diagnosis, significant co-morbidities or psycho-social factors
- Discussions should not be confined to initial treatment plans, but should also include review cases and relapses
- In addition to clinical meetings, MDTs should hold policy meetings at which protocols and pathways are reviewed and improved
- MDTs should have an important role in research and training.

The evidence about the effectiveness of cancer MDTs was reviewed for the ICCC by Professor Amanda Ramirez and relates to:

- Compliance with peer review measures
- Impact on cancer management and clinical outcomes
- Impact on patients' experience of cancer care
- Impact on team members' well-being.

The key factors supporting effective MDT working have been identified as:

- Active participation of appropriate people
- Appropriate technology
- Management arrangements facilitating collaborative working
- Effective leadership
- Clinical governance
- Appropriate team development.

The ICCC recommends that each MDT has:

- A well-trained and supported MDT co-ordinator
- Cancer and supportive and palliative care specialists with adequate dedicated time to contribute appropriately
- Technology that presents investigation results, contributes to outcome analysis and, where appropriate, facilitates teleconferencing
- Arrangements that facilitate the appropriate involvement of all members
- Clinical governance arrangements that include treatment protocols, research protocols, clinical audits, patient surveys and performance appraisal
- People trained in and able to take management and leadership roles.

The ICCC recommends that a survey be carried out to assess whether the perceived variation between MDTs is real when measured against the recommendations made about team functions and the prerequisites for effective working.

With respect to discipline-specific education, the ICCC recommends that:

- Formal training for MDT co-ordinators should be developed and implemented as a priority
- Cancer nurse specialists and allied health professionals should have access to professional study days about MDT issues
- Cancer nurse specialists and radiographers should be encouraged and given the opportunity to expand their roles into those of independent practitioners within suitable clinical governance arrangements.

With respect to the team as a whole, the ICCC recommends that:

- Generic e-learning application to support members of MDTs should be developed and the functionality required be described
- Further training packages for teams should be developed, such as that implemented for colorectal cancer, in the light of an improved understanding of what constitutes effective team working.

1. INTRODUCTION

Cancer multidisciplinary teams

Multidisciplinary team (MDT) working has been endorsed as the principal way of managing cancer care in the UK. It has been defined as a 'group of people of different health care disciplines which meets [...] to discuss a given patient and who are able to contribute independently to the diagnostic and treatment decisions about the patient.'¹

MDTs deal with one type of cancer or group of cancers. Team composition varies depending on the type of cancer or group of cancers. National advice is contained in a series of documents about improving outcomes for specific cancers published by the NHS Executive from 1996 to 2006.

The terms multi-professional and multidisciplinary sometimes cause unnecessary confusion. This document's emphasis is on team working that brings together people of essential complementary disciplines, who enable effective working of the cancer MDT, whether or not they are members of the regulated health professions.

The professionals commonly involved are medical and clinical oncologists, surgeons, support and palliative care specialists and other physicians, pathologists, radiologists, nurses and radiographers. It is interesting to note that the official guidance about MDT composition does not propose psychiatrists as team members. Although it would be unnecessary and impractical for a psychiatrist to attend each MDT meeting, there will be occasions when psychiatric opinion is sought.

In addition, although general practitioners and members of primary care teams are not seen as part of the formally constituted cancer MDT, they do of course bear ongoing responsibilities for patients in their care and their families. It is crucial to establish and maintain close liaison between them.

The ICCC project

The Intercollegiate Cancer Committee (ICCC) initiated a project in June 2007 with the objective of proposing education and training initiatives which would improve the quality of multi-professional cancer care within the NHS in the United Kingdom. Details of the ICCC are shown in Annex A.

A major reason for carrying out this work was a perception that there is a considerable variation in the effectiveness of MDTs and therefore other factors contributing to their performance were also considered. In addition to the recommendations about training and education contained in sections 5 and 6, this document contains:

- Recommendations about the function of cancer MDTs (Section 2)
- Evidence about the effectiveness of MDTs (Section 3)
- Recommendations about the prerequisites for effective team working (Section 4).

2. FUNCTION OF CANCER MDT MEETINGS

Clinical function of MDT meetings

The prime function of an MDT meeting is clinical and is to ensure that:

- All the relevant information about the patient is made available
- All the relevant treatment options are considered
- Options and decisions about patient care and management are documented.

To ensure that patient-centred decisions about care and management are facilitated, it is essential that:

- Patients' views and circumstances are expressed by those attending who know them, in particular by the non-doctors present who have an important role as patient advocates
- Following discussion, one individual is charged with co-ordinating the delivery of the management plan.

National policy is that all cancer cases are reviewed by an MDT. The depth in which this is undertaken is not specified. As there is only a finite amount of time, patients should be triaged and more time devoted to more complex cases. If an MDT meeting is well organised and there are clear guidelines for the majority of its patients then management for many of them will be according to a protocol.

MDTs should prioritise discussions on individual patients who have:

- Unresolved issues with respect to imaging, histopathology or other investigations
- Co-morbidities that will influence treatment decisions
- Psychosocial issues which may affect their management.

Exceptionally, there may be other issues affecting clinical management to be discussed, but more usually these will be resolved at a clinical consultation with the patient. For these and other reasons, not all MDT recommendations may be implemented as a management plan. This will vary with the malignancy being treated and should be subject to audit.

Discussions at an MDT meeting tend to be confined to initial treatment plans only. For many cancer cases there are several decision nodes. For example, in lymphoma having established a diagnosis and commenced treatment, it is common to review the response on imaging after three and six cycles of chemotherapy and also again to decide whether or not radiotherapy will have a role. This is response-directed therapy and should be a key role for the MDT.

Relapse is usually much more complex to manage with a wider range of options from palliative to radical treatment. The risk-benefit ratio will also be very different from the first attempt at cure. These cases should be discussed at an MDT meeting.

There are specific issues related to teenagers with cancer who currently, if under 16 years of age, are usually discussed at a paediatric MDT. However, a significant number of these patients may have adult type or rare tumours whose management would benefit from the involvement of adult cancer specialists. Local arrangements should be made to ensure that all the relevant expertise is used in developing the management plans for this group of patients.

It is essential that time in clinical meetings is not spent discussing changes to protocols or pathways. However, deviations from protocols should be justified at the meeting and recorded for discussion at separate meetings at which policies are reviewed.

Other functions of MDT meetings

In addition to the direct contribution to patient care, MDT meetings have an important role to play in:

- Cancer research
- Training of cancer specialists.

Research is an essential component of modern cancer care and MDTs should:

- Be aware of all current research studies for the cancers with which they deal
- Seek to increase recruitment into clinical trials.

MDT meetings provide an important educational opportunity for trainees in all the relevant disciplines. At present their educational value is very variable and more consideration should be given to how best to use the presence of trainees to contribute to:

- Discussions about patients whom they know
- Knowledge and skills required by them to be effective team members.

Trainees may attend a lot of team meetings and are thus in an excellent position to appraise the relative effectiveness of the MDT meetings they attend. As with other educational events, arrangements should be made to obtain trainees' feedback about their views of the educational experience. Aggregate information based on these individual reports could then be made available to MDTs.

Recommendations

The ICCC recommends that:

- All eligible cases should be noted by an MDT but discussion should be prioritised to those not covered by a protocol or with unresolved issues around diagnosis, significant co-morbidities or psychosocial factors
- Discussions should not be confined to initial treatment plans but should also include review cases and relapses
- In addition to clinical meetings, MDTs should hold policy meetings at which protocols and pathways are reviewed and improved
- MDTs should have an important role in research and training.

3. EVIDENCE ABOUT CANCER MDT EFFECTIVENESS

Introduction

The evidence about the effectiveness of cancer MDTs was reviewed for the ICCC by Professor Amanda Ramirez. Her report including all references will be published separately and this section contains a summary of the work which includes evidence related to:

- Compliance with peer review measures
- Impact on cancer management and clinical outcomes
- Impact on patients' experience of cancer care
- Impact on team members' well-being.

Peer review measures

Measurable standards for the management of cancer were published by the Department of Health in 2004. Adherence to these measures is assessed using a peer review process whereby each MDT submits relevant documentation and participates in a site visit by an independent team of peer assessors. Teams are assessed against measures relating to:

- Structure including membership of the team, such as having named core members and a named lead clinician with agreed responsibilities
- Function including the way in which the team works together, such as having protocols for referral and treatment and achieving a certain level of attendance at team meetings
- Outputs of working including the extent to which the team produce outcomes, such as those related to the patient experience, or contribute to audits
- Research including the studies discussed.

The research includes an analysis of data on the Cancer Quality Improvement Network System database, which shows that compliance with the peer review measures is higher for the tumour types for which cancer-specific guidance was published first, namely breast in 1996, colorectal in 1997, and lung in 1998. The sequential development of the guidance over a period of years, at least in part, reflects the perceived readiness of the practitioners associated with specific tumour types to change their working practices. However, the data suggests that the effectiveness of cancer teams in relation to the peer review measures may improve over time as resources are directed towards them consequent on national guidance. This allows teams to become more established and to function more effectively.

MDTs comply:

- Well with aspects relating to the team structure and organisation of the team and meetings, and also in relation to the functions of the team in terms of having guidelines and protocols in place
- Poorly with one of the basic requirements of team working, which is meeting attendance
- Least well with aspects of working that require additional resources, expertise and time such as participating in audits, conducting patient experience surveys and service improvement.

Cancer management and diseases outcomes

There are few studies directly examining the impact of providing patient care through teams on disease management and clinical outcomes. The best evidence currently, albeit indirect, has arisen from research within bowel cancer where the management of patient care by MDT has been found to relate to:

- Improved five year survival after adjusting for case mix factors of age, stage of disease, socio-economic status, and year of diagnosis
- Increased implementation of treatment strategies known to reduce recurrence of bowel cancer
- Implementation of a pre-operative strategy proven to significantly reduce the incidence of positive circumferential margins in colorectal patients.

The impact of MDT working on clinical outcomes in breast cancer has been assessed and although there is a paucity of results to support a positive impact of MDT working, evidence is available to support relationships between:

- Specialist surgeon caseload and improved survival
- Multidisciplinary care and more evidence-based decisions and reduced time from diagnosis to treatment.

Patients' experience of cancer care

The 2005 Picker Institute review of national surveys of NHS patients showed that patients' reports of their experience across all specialities remained remarkably static over a five year period. In contrast, the experience of care for cancer patients improved over the same time period. Multiple factors are likely to have played a part in the improvements observed for cancer patients and these include:

- Profile given to patient experience in national policy
- Leadership at national and local levels
- Influence of charities including funding
- Introduction of cancer standards/measures and the peer review process.

However, the most important changes which have improved patients' experience of care are likely to have been the introduction of:

- Multidisciplinary teams
- Cancer nurse specialists and allied health professionals, such as therapeutic radiographers, who have a critical role in the delivery of information and support and in ensuring continuity of care throughout the cancer journey.

Further support for this argument arises from the differential improvements in the experience of patients with different cancer types. At the time of the first survey, breast cancer patients reported a better experience of care than patients with other cancers. By the time of the second survey, there were marked improvements for patients with bowel and lung cancer and some further improvement for patients with breast cancer.

However, patients with prostate cancer continued to report a worse experience than those with other cancers. This was most likely related, at least in part, to the timing of the publication of the cancer-specific guidance and thereby the differing length of time that patient care had been managed by formalised MDTs.

Team members' well-being

Team working constitutes one of the main changes to the working lives of cancer professionals and thereby its impact on the well-being of staff warrants attention. However, few studies have attempted to investigate the relationship between participation in an MDT and the well-being of team members.

MDT working has been reported as beneficial to mental health in a study of breast cancer teams where the prevalence of poor mental health was considerably lower than that reported in other studies of the NHS workforce.² Recent surveys have shown that:

- Three quarters of the surgical, medical and clinical oncologists that were interviewed reported that providing patient care within MDTs contributed significantly to their overall job satisfaction.³
- 17% of cancer consultants that were interviewed reported that providing patient care within MDTs contributed significantly to their overall job stress and over 40% requested further training in team working and team leadership, suggesting that teams are not yet working optimally.³

4. PREREQUISITES FOR EFFECTIVE MDT WORKING

Introduction

The prerequisites for effective MDT working are:

- Active participation of appropriate people
- Appropriate technology
- Management arrangements facilitating collaborative working
- Leadership
- Clinical governance
- Appropriate team development.

People

It is essential that every MDT has:

- Consultants with expertise in specific cancers (ie medical oncologists, clinical oncologists, surgeons, radiologists, pathologists)
- An MDT co-ordinator
- A Nurse specialist
- Cancer and support and palliative care specialists devoting the requisite time.

The peer review standards do not currently state that every MDT should have a co-ordinator and this deficiency must be remedied when they are revised.

The core responsibilities are to:

- Arrange meetings
- Ensure availability of all necessary patient information for a meeting
- Record decisions made in the meeting about patient management
- Facilitate communication between MDT and other professionals such as GPs
- Enter the data required for outcome assessment including clinical audit.

This core role is being developed in some MDTs to include:

- Data analysis, providing the MDT with both short term information about the effectiveness of its processes and long term information about outcomes
- Development and monitoring of the patient pathway including identification of potential outliers that are not seen within the requisite time periods.

Clinical nurse specialists and allied health professionals with the requisite skills, such as therapeutic radiographers, are essential for the effective management of patients with cancer. They have an important role in acting as an advocate for patients.

Two important issues relate to the participation of cancer specialists:

- Availability of adequate dedicated time
- Number of doctors from the same speciality attending.

Consultant job plans must recognise that participation in an MDT is not solely confined to attendance at the meeting. For specialities such as radiology and pathology a major part of the work is done before the meeting when the investigation results are collated and reviewed. For therapeutic professions the time to undertake the actions following the meeting may need to be taken into account. Some of this clinical activity, such as telephone calls, may be difficult to quantify.

Some MDTs are extremely large with up to five surgeons and five oncologists. Whilst attendance at meetings may have an educational value, the issue of value for money also arises. The challenging of professional opinion by peers is valuable but much of cancer management should now be determined by local or national guidelines and protocols and disagreements should be resolved at review meetings outside regular MDT meetings. It may be desirable for specialists to be present at an MDT meeting if they are involved in the management of cases being discussed, but this will not always be possible, nor is it necessary. Part of the MDT culture should be reliance on and collaboration with colleagues.

Technology

The availability of appropriate technology is essential for the effective operation of an MDT and consideration needs to be given to implementing IT which facilitates:

- Presentation of the results of investigations
- Data collection for outcome assessment including clinical audit
- Video conferencing.

It is essential that all the relevant results of investigations are available when a patient is discussed at an MDT. The results of investigations can be presented using new technology, for example, Picture Archiving and Communicating Systems (PACS) now allow all members of an MDT immediate electronic access to a range of images.

IT applications are available for collecting data and analysing information about many cancers. National clinical audits are to be enhanced and have been implemented or are under consideration for:

- Colorectal cancer (NBOCAP)
- Head and neck cancer (DAHNO)
- Lung cancer (LUCADA)
- Oesophago-gastric cancer
- Mastectomy and breast reconstruction.

The use of video conferencing has been introduced to improve communication between team members working on different sites. Preliminary results are encouraging as:

- Video conferencing applications are simple to use
- Close professional relationships can be established quickly
- It can dramatically reduce time key personnel spend travelling between sites, this may also save money.

Management arrangements and leadership

Individual roles within an MDT must be clear, meaningful and rewarding. It is essential that all participants know:

- How the meeting will run
- What they are expected to contribute
- How decisions will be recorded and disseminated.

Good leadership is a prerequisite for teamwork and MDTs need a leader who:

- Ensures full participation of all team members
- Encourages mutual respect among team members
- Promotes good communication between team members
- Clarifies the shared objectives of the team
- Provides feedback about achievements and failures
- Promotes patient-centred, evidence-based management decisions.

Educational opportunities should be provided for MDT leaders to enhance and improve their skills.

Clinical governance

Clinical governance is the system through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care. It is an essential component of modern care and all MDTs should:

- Use evidence-based protocols consistent with NICE guidance
- Have governance arrangements in place to cover education and research
- Measure process and outcomes through clinical audit
- Measure the patient experience through surveys
- Consider adopting tools for appraising team functionality.

The vast majority of cases initially presented to an MDT should be able to be managed according to a protocol. Where inadequacies of the protocol are identified during meetings of an individual case, or the case management falls outside existing management protocols then a recommendation should be made for the individual patient and the issue to be flagged for resolution at a review meeting outside the normal MDT process.

All MDTs should collect data for clinical audit. Experience of the national clinical audits has shown the importance of the MDT co-ordinator capturing data at the meeting and entering it as soon as practical in the system. As well as long-term risk-adjusted survival measures, it may be useful for teams to analyse short-term outcomes such as that relating to:

- Proportion of MDT recommendations actually carried out
- Communication between team members
- Consistency of information given to patients.

MDTs should regularly survey the patients they have treated to obtain data about their experience. This will include information that will enable the planning of care pathways that:

- Minimise delays
- Reduce visits to hospital
- Ensure that patients are informed appropriately.

Teams should consider adopting methods to appraise their performance such as self appraisal. This would be as well as the periodic assessment by external peer review.

Team development

Team development is required if MDTs are to operate with maximum efficiency. The ICCC recommendations about the most rewarding educational approaches are included in the following sections.

Recommendations

The extent of implementation of the key factors supporting effective MDT working varies. Many of them, such as the involvement of specialist nurses, are commonplace. However, others are still poorly implemented.

The ICCC recommends that particular attention must be given to ensuring that each MDT has:

- A well trained and supported co-ordinator
- Cancer, support and palliative care specialists with adequate dedicated time to contribute appropriately
- Technology that presents investigation results, collects audit data and, where appropriate, facilitates teleconferencing
- Arrangements that facilitate the appropriate involvement of all members
- Clinical governance arrangements that include treatment protocols, research protocols, clinical audits, patient surveys and performance appraisal.
- People trained in and able to take management and leadership roles.

The ICCC recommends that a survey be carried out to assess whether the perceived variation between MDTs is real when measured against the recommendations made about team functions and the prerequisites for effective working.

5. DISCIPLINE SPECIFIC EDUCATION AND TRAINING

Introduction

The remit of the ICCC Multi-professional Group was to propose education and training initiatives to improve the quality of multi-professional cancer care within the NHS in the United Kingdom. A number of disciplines currently attend MDTs and, if the meetings are to consider patients beyond their first treatment, this is likely to increase. This section contains recommendations relating to three of the professions most commonly represented, namely:

- MDT co-ordinators
- Specialist nurses
- Radiographers.

MDT co-ordinators

As teams have developed, the role of the MDT co-ordinator has increasingly been recognised and valued. Historically, the posts have been filled by a variety of disciplines such as medical secretaries, nurses and medical records staff. However, now MDT co-ordination is seen as a discipline in its own right and this has been recognised by the establishment of:

- National MDT Co-ordinators' Forum
- National MDT Co-ordinators' Taskforce
- Annual MDT Co-ordinators' Conference.

Key educational and training issues which urgently need to be addressed are:

- Agreement about a national job description
- Establishment of a national training qualification
- Development of the role of cancer networks in supporting MDT co-ordinators
- Cancer peer review standards to include the presence of a trained co-ordinator.

Work is being done to:

- Develop a national job description and a knowledge and skills framework
- Develop MDT specific competencies as part of a NVQ for support workers
- Explore the possibility of a NVQ for MDT co-ordinators.

NHS trusts and cancer networks have a responsibility to support co-ordinators if their role is to extend beyond the simple administration of MDT meetings. Components that are likely to be part of the national job description are:

- Collection and use of national data sets
- Pro-active management of patient pathways to meet waiting time standards
- Assistance to the chair of the meeting to use meeting time more effectively by prioritising cases that need discussion.

Activities currently carried out by some cancer networks include:

- Establishing co-ordinator forums
- Co-ordinating training
- Training co-ordinators in the collection and use of cancer data.

Cancer networks with examples of good practice in supporting co-ordinators include:

- Avon, Somerset and Wiltshire Cancer network
- Pan Birmingham Cancer Network
- Surrey, West Sussex and Hampshire Cancer Network.

It is essential that the new cancer peer review standards include one relating to a properly trained co-ordinator being a member of all MDTs.

Cancer nurse specialists

Cancer nurse specialists are:

- Taking a more task-focussed approach and, where appropriate, carrying out procedures of increasing complexity
- Providing more diagnostic, treatment and follow-up support across the patient pathway.

Many cancer nurse specialists have the competencies and skills to be advanced practitioners. Defined as a highly experienced, knowledgeable and educated member of the health care team, able to diagnose and treat health needs or refer to an appropriate specialist if needed.

The skills and training required for optimal input to an MDT include:

- Development of expert clinical knowledge in the specialist site area
- Leadership skills including assertiveness training and chairing meetings
- Team dynamics
- Advanced communication skills training including putting oneself in the patient's shoes thus providing advocacy in an MDT setting
- Key worker implementation
- Holistic assessment using locally agreed tools
- Training in management of psychosocial concerns
- Liaison with other health and social care providers outside the MDT
- Inputs to service improvement such as pathway mapping and redesign
- Using and sharing clinical datasets
- Understanding commissioning in a patient-led NHS
- Presentation skills.

In addition to the whole team training initiatives recommended in this report, there should be specific training for cancer nurse specialists such as that which has already been provided through nationally organised study days.

Radiographers

Diagnostic and therapeutic radiographers are valuable members of MDTs. The skills and training required to ensure their optimal input will require them to enhance their core skills further and are very much in line with those identified for clinical nurse specialists in this report.

Therapeutic radiographers have their entire education based upon the management and treatment of patients with cancer and can thus offer considerable expertise in relation to the delivery of the radiotherapy component of the treatment protocol.

Therapeutic radiographers, many of whom are taking masters level accredited modules relating to their area of clinical practice, can in particular:

- Utilise their skills to make MDTs more efficient and effective by developing their role in improving the patient pathway and allowing flexibility in roles so that clinicians can free up time to prepare for and attend meetings
- Be advanced or consultant site-specific practitioners with expert knowledge of the care pathway and associated imaging and treatment protocols for each cancer type with which they are associated
- Lead the treatment pathway for patients who require radiotherapy treatments and, where appropriate, manage as independent practitioners the entire pathway following referral from the MDT.

To ensure that radiographers can contribute effectively, the core curriculum for radiography includes team working and inter-professional practice which covers:

- Organisation of health and social care
- Individual and team working practices
- Team dynamics and structure
- Inter-professional communication and consultation
- Task and role delegation
- Role development including legal implications
- Working effectively with the team
- Workload analysis
- Clinical supervision
- Models of decision making
- Referral.

Recommendations

The ICCC recommends that:

- Formal training for MDT co-ordinators should be developed and implemented as a priority
- Cancer nurse specialists and allied health professionals should have access to professional study days about MDT issues
- Cancer nurse specialists and radiographers should be encouraged and given the opportunity to expand their roles within suitable clinical governance arrangements.

6. GENERIC EDUCATION AND TRAINING

Current position

There is no shortage of opportunities for health care professionals involved in the management of cancer patients to obtain education and training. There are over 65 Masters Degree courses dealing with cancer care on offer in the UK. The more courses there are, the more choice there is for those who wish to be educated and trained. However, this richness of choice is not the most efficient use of the available resources because:

- Resources are finite
- Education and training cost money
- Money is scarce
- Education and training are time consuming for those who are being educated and, to a far greater extent, for those who are delivering the training
- There are few people around who have both the aptitude for, and any inclination towards, organising and delivering education and training.

It would therefore be unfortunate if the limited resources were to be expended on unnecessary duplication of effort, the likely cost of which will be deterioration in the quality of the teaching and learning.

Educational need

There are at least 1,500 cancer MDTs in the UK. Even allowing for the fact that many individuals work with more than one team, there are probably between 12,000 and 20,000 individuals who might require educational support for their role as members of MDTs. These needs are not a one-off requirement, in which people learn once and never forget, but part of a continuing process of personal and professional development.

Some individuals will need a superficial knowledge of a variety of different tumour types, others will need in-depth knowledge concerning only one particular type of cancer. These problems of depth and breadth mean that generic clinical material is unlikely to prove a satisfactory solution. In addition, all participants in MDT working need to have some support in acquiring, consolidating and developing the generic skills associated with effective team-working.

The ICCC has reviewed three approaches to obtaining the generic skills required by MDT members:

- Web-based learning
- Other e-learning approaches
- Training packages.

Web-based learning

Web-based learning offers an appealing solution to the educational dilemmas. Having developed a central repository of knowledge, this is then distributed via the web to those who wish to learn. The effort is concentrated at the centre and duplication is thereby avoided.

Web-based teaching and distance learning are often regarded as the solution to all our educational problems. However, a study of the history of distance learning in oncology shows:

- Although relatively well funded, there is little evidence of consistently high product delivery
- Relative success in obtaining funding but far less at delivering products
- The need to communicate information has not always taken priority, and technological considerations have often been considered more important than educational ones.

The Academy of Medical Royal Colleges published a document in September 2007, 'Development of e-learning for doctors', which includes a section on the benefits, risks and constraints of e-learning. Annex C to this document supplements this work and shows the advantages and potential constraints of e-learning with particular respect to the generic education of cancer MDT members. The functionality of an e-learning application to support MDT members can be divided into those functions that are essential and those that are desirable.

The essential requirements are:

- Assessment tools including tests and quizzes for self assessment and appraisal
- Authentication, an administration tool that controls access to the system by means of user names and passwords
- Authorisation, a component of authentication that controls an individual's access to different levels of function and content in the system
- Chat, text-based communication amongst participants that takes place almost instantaneously
- Community working, tools that enable learners to build and maintain their own on-line communities
- Content sharing, which allows material to be compiled using a standard such as SCORM that ensures that it can be re-used or exported to other e-learning programmes
- Discussion forum, supporting topic-based on-line discussion which is not necessarily instantaneous
- Help, through on-line help and technical support
- Registration, the facility to add or remove users from a course or module.

Desirable functions are:

- Accessibility compliance, ensuring standards for people with disabilities are met
- Automated assessment, a feature that schedules tests and assessments for individual learners or groups
- Automated assessment tools, which automatically collate and analyse test results
- Blogs, on-line journals that can be kept by an individual member of the learning community and whose contents may or may not be shared with others
- Bookmarks, a facility that enables learners or course organisers to place identification tags within a course so that they can quickly return to a specific topic

- Course management, which gives the ability to control the schedule according to which course materials are made available to learners
- Diary/calendar, facility to enable learners to schedule tasks and assignments
- Discussion management, tools to help with scheduling and maintaining a discussion
- File exchange, a feature that allows learners to upload their own files (e.g. essays, presentations) on to the system so that they can be shared with others
- Grade book, an on-line tool that keeps track of the progress of individual learners
- Group work, tools that enable groups of learners to work together on the same task or assignment
- Hosting, the software supplier also supplies and maintains the servers that are used to run the course
- Internal e-mail, an e-mail facility that works within the learning environment so that participants can communicate by e-mail without exiting from the system
- Off-line working with re-synchronisation, so that learners are able to download files, work on them off-line and when they log back on to the system the corresponding files held on the server are automatically updated
- On-line marking, allowing assessors and instructors to mark learners' work on-line
- Open source, allowing software to be available free of charge
- Search, allowing users to search for specific terms within course materials, file titles or within free text
- Templates, which are empty course shells that instructors can then fill with appropriate content (rather than having to start each time from scratch)
- Tracking, the automatic capture of data on learners' usage of the system
- Whiteboard, an electronic version of the boards or flip-charts used in face to face teaching
- Wiki, a co-operatively written document that can be rapidly updated by anyone with access rights to it.

An e-learning application with these functions will support three types of content:

- Nationally approved policy on cancer management
- Specially commissioned educational material
- Locally developed content uploaded by cancer MDTs.

A major feature of the application should be the facility for members of cancer MDTs to upload material, which can then be reviewed and rated by colleagues in terms of its usefulness.

Other e-learning approaches

There are other approaches that could be used to deliver e-learning for members of cancer MDTs. Video conferencing is one such approach but:

- It is heavily dependent on expensive technology
- It requires that those teaching and those being taught have access to the relevant equipment at the same time
- There is no permanent record of the session and distribution of supportive materials would simply rely on e-mail.

Web-based conferencing is another possible means of distributing knowledge but it should be noted that:

- There is still the constraint imposed by all participants needing to be on-line at the same time
- Files can be downloaded during the session and it is comparatively straightforward to archive and re-use materials
- Commercial software packages are available but are often priced on a per-seat basis, and given the potential clientele involved in e-learning for MDTs, this could be a prohibitive limitation.

Training packages

The ICCC was impressed with the experience of those who had attended the training for members of colorectal cancer MDTs organised by the Pelican Cancer Foundation. Further packages of this type should be developed and implemented. Work being carried out by Professor Lesley Fallowfield in Wales is currently evaluating a training package for teams to improve recruitment to clinical trials. To maximise the effectiveness of training packages for teams, it will be essential to commission complementary work on:

- Improving the understanding of what constitutes effective MDT working
- Developing an approach to assessing team functioning as proposed in the section in this report on clinical governance.

Recommendations

The ICCC recommends that:

- A Generic e-learning application to support members of teams should be developed with the functionality described in this section
- Further specific training packages should be developed for teams, such as that implemented for colorectal cancer, in the light of an improved understanding of what constitutes effective team working.

ANNEX A: INTERCOLLEGIATE CANCER COMMITTEE

Intercollegiate Cancer Committee

The Intercollegiate Cancer Committee (ICCC) was set up in 2006 under the auspices of the Academy of Medical Royal Colleges and the chairmanship of Professor Dame Janet Husband.

The members were:

- Professor Dame Janet Husband: Royal College of Radiologists (Chair)
- Professor Sam Ahmedzai: Supportive and Palliative Care
- Dr Cathy Amos: Faculty of Occupational Medicine
- Professor Nigel Baber: Faculty of Pharmaceutical Medicine
- Dr Peter Clark: Royal College of Physicians
- Dr David Fennelly: Royal College of Physicians of Ireland
- Dr Philip Haji-Michael: Royal College of Anaesthetists
- Dr William Hamilton: Royal College of General Practitioners
- Mrs Kate Love: Radiographer
- Professor Mark McGurk: Faculty of Dental Surgery
- Professor Alastair Munro: Royal College of Physicians of Edinburgh
- Mr William Nicklin: RCP Patient and Carer Network
- Professor Niall O'Higgins: Royal College of Surgeons of Ireland
- Dr Archie Prentice: Royal College of Pathologists
- Professor Amanda Ramirez: Royal College of Psychiatrists
- Professor Ian Rennie: Royal College of Ophthalmologists
- Professor Mike Richards: National Cancer Director
- Dr Hugh Sanderson: Faculty of Public Health Medicine
- Dr Daniel Saunders: Representative of trainees
- Mrs Erica Scurr: Royal College of Radiologists
- Professor John Shepherd: Royal College of Obstetricians and Gynaecologists
- Professor John Smyth: Royal College of Physicians of Edinburgh
- Professor Robert Steele: Royal College of Surgeons of Edinburgh
- Professor Irving Taylor: Royal College of Surgeons of England
- Mr David Thomson: British Oncology Pharmacy Association
- Mr James Wardrope: College of Emergency Medicine
- Professor John Welsh: Royal College of Physicians and Surgeons of Glasgow
- Dr Michael Williams: Faculty of Clinical Oncology of the Royal College of Radiologists
- Dr Denise Williams: Royal College of Paediatrics and Child Health
- Ms Annie Young: UK Oncology Nursing Society.

The project manager was Dr Alastair Mason.

MDT Multi-professional Group

The MDT multi-professional group was set up by the ICCC in May 2007 with a remit to propose education and training initiatives to improve multi-professional cancer care within the NHS in the United Kingdom.

This group was led by Dr Alastair Munro.

The Group included the following members of the ICCC:

- Professor Alastair Munro (Chair and clinical oncologist)
- Professor John Shepherd (surgeon)
- Dr Archie Prentice (pathologist)
- Professor Sam Ahmedzai (palliative care)
- Dr William Hamilton (GP)
- Professor Dame Janet Husband (radiologist)
- Dr Mike King (radiologist)
- Dr Cathy Amos (occupational medicine)
- Professor Amanda Ramirez (psychiatrist)
- Dr Denise Williams (paediatric oncologist)
- Dr Daniel Saunders (trainee representative)
- Mr William Nicklin (patient representative)
- Mrs Kate Love (radiographer)
- Miss Erica Scurr (radiographer)
- Mrs Charlotte Beardmore (radiographer)
- Mr David Thomson (pharmacist)
- Ms Annie Young (oncology nurse).

Members additional to those from the ICCC were:

- Kim Ainsworth (physiotherapist)
- Jackie Turnpenney (physiotherapist)
- Yvonne Victory (oncology nurse)
- Debbie Fenlon (oncology nurse)
- Clare Shaw (dietician)
- Juanita Asumda (MDT co-ordinator).

Important contributions to the work came from:

- Review by Professor Amanda Ramirez of existing research about:
 - What makes some MDT's more effective than others?
 - What interventions improve the effectiveness of MDTs?
- Presentation by Mr Chris Beagley about the English project to improve colorectal cancer MDT working carried out by the Pelican Cancer Foundation
- Presentation by Mrs Irene Borgardt of the results from a semi-structured survey of Group members.



ANNEX B: SOURCE DOCUMENTS

References

1. Department of Health 2004. Manual for cancer services.
2. Haward R, Amir Z, Borrill C, et al. Br J Cancer 2003. Breast cancer teams: the impact of constitution, new cancer workload, and methods of operation on their effectiveness.
3. Taylor and Ramirez, commissioned by ICCG 2007. Report on the effectiveness of team working in cancer and proposed next steps.

The following are key documents that were used in the preparation of this Report and which contain the detailed references to the research findings noted in it.

Academy of Medical Royal Colleges 2007. Development of e-learning for doctors.

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College of Radiographers 2007. Learning and development framework.

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NHS Executive 2000. Manual of cancer services standards.

NHS Executive. Series of documents published 1996-2002. Improving outcomes in specific cancers.

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National Institute for Health and Clinical Excellence 2006. Published cancer service guidance.

ANNEX C: ADVANTAGES AND CONSTRAINTS OF E-LEARNING

ADVANTAGES
<p>GEOGRAPHICAL INDEPENDENCE Participants do not need to travel. The teaching materials can be used, or developed, anywhere that there is internet access.</p>
<p>FLEXIBILITY Course structure and content can be changed rapidly and simply by anyone with the requisite competencies and permissions. In contrast to textbooks, there is no time-lag between generating material and making it freely available. This facilitates topicality and avoids the use of obsolete information.</p> <p>Learners can move at their own pace, and in their own time. Learning thus becomes a continuous, rather than an episodic, activity. By using a modular structure, it is easy to provide materials that fulfil specific demands, such as conversion courses that enable members of one profession to develop knowledge and skills more usually associated with a different profession.</p>
<p>RESPONSIVENESS Incorporating immediate feedback from course users means that the structure and content can be rapidly adapted to their requirements and concerns.</p>
<p>CAN ACCOMMODATE THE LEARNING NEEDS OF PEOPLE FROM A VARIETY OF BACKGROUNDS The resources can easily be structured so that people who require only superficial knowledge of a topic can easily acquire it (they need never visit the more detailed content) whilst those who require more specialised, in-depth knowledge can acquire it by drilling down deeper into the available material.</p>
<p>LOWERS PROFESSIONAL BARRIERS The relative anonymity of the web means that participants can contribute to the learning and teaching without their professional affiliations being immediately obvious. This is in contrast to classroom-based teaching in which tribal affiliations are often all too obvious. As a result, web-based learning will tend to blur, rather than reinforce, boundaries between professions.</p>
<p>LOWERS CULTURAL BARRIERS Once again, the anonymity of web-based learning can be useful. Overt signifiers such as accent, dress and gender are absent – it is easier for the less privileged and the less articulate to find their voices, and for those voices to be heard.</p>
<p>LEARNERS' MISTAKES ARE MADE IN PRIVATE There is no risk of public humiliation (through ignorance or misunderstanding) when learning takes place in private. This may encourage learners to be more adventurous and exploratory.</p>
<p>DATA CAPTURE Most web-based learning systems will capture a considerable amount of data automatically: who used the system, when, and for how long; did they complete self-assessments, how did they score and so on. This information can be used, potentially, for giving credit for taking and/or “passing” a course or a module.</p>
<p>SOCIAL NETWORKING The on line communication facilities that are built-in to many e-learning programmes can be used to facilitate web-based social networking. Just as geographically dispersed individuals can form communities with a common interest so, via e-learning, can members of MDT’s form online communities of interest.</p>

POTENTIAL CONSTRAINTS

HARDWARE

There needs to be a reliable and efficient server upon which to host the system. This is not a trivial issue and the system should be available whenever trainees need to use it and screens and files should load rapidly. Any problems with hardware that cause users to become frustrated will simply result in the system not being used.

Any attempt to implement e-learning within the NHS has to rely on learners having access to suitable computers in the workplace. The computers available to member of the NHS workforce vary widely in their technical specifications and, given that teaching materials will often make substantial demands upon machine performance, this may be an important source of inequity of access to e-learning materials.

FIREWALLS

NHS computer systems are, quite rightly, concerned with security and confidentiality. This can create problems. NHS firewalls can prevent one part of the NHS from communicating with another, encrypted or password-protected files can cause particular problems. Recent publicity concerning lost data is unlikely to ease this difficulty.

COPYRIGHT

The copyright laws prohibit the wide-spread distribution of materials, such as key scientific papers, that may be used in teaching packages. Password protection is one way of restricting distribution and thereby staying within the law, but if NHS firewalls prevent the distribution of such files then it will be difficult to make such material available to trainees in the workplace.

CONTENT GENERATION, MAINTENANCE AND UPDATING

This is a labour-intensive enterprise and can only work if there are people with the motivation, time and enthusiasm to make it succeed.

DATA OVERLOAD

The automatic capture of data by e-learning programmes is both a blessing and a curse. The problem is if the data are never analysed, they are worthless. If e-learning is to be used to support participants in MDTs then there needs to be a clear sense of what data are stored and what will be done with it. If academic credits are to be given then there needs to be an 'awarding body'. This route is not to be recommended. Reliance should be placed on self assessment and the incorporation of individual data from e-learning into individuals' professional development portfolios.

TECHNOPHOBIA

Both learners and educators may be unfamiliar with the web and it's potential. Technology may be seen as alienating people from, rather than involving them with, the learning process.

LOST IN CYBERSPACE

Unsupported e-learning will not work. Web-based learning cannot entirely substitute for face-to-face teaching and learning. Learners will simply become bewildered if they are let loose on the web with only generic guidance. There is still a need for individual support and teaching. Some, but not all, of this may be web-based.

EXPENSE

Although software can be obtained free of charge there are still costs associated with developing e-learning. These include paying for the infrastructure (hardware, personnel), paying for permissions to use copyrighted material and other costs associated with developing and preparing materials.

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