Chapter 3 - Research strategy, study design and data collection

This chapter will describe the research strategy used in the study. The reasons for choosing the research methods will be explained, and the issues that arose discussed. The design of the study will be described, including ethical considerations and how the project was managed. The method of data collection and analysis will be described.

3.1 Research Strategy and Design

The aim of the study was to explore the workings of the head and neck cancer MDM in a particular centre. Specifically, the study was undertaken to explore the contributions of specific members of the MDM, their role within it and their opinions about it.

Before designing the study, the strategy to be used in the research was decided. The research strategy was chosen on the basis of the research question and which strategy would provide a framework within which to answer it. The main decision was whether a quantitative or qualitative research strategy was to be employed. The philosophical underpinnings of each research strategy were reviewed and the differences between them considered. Issues such as bias, objectivity, subjectivity, reliability and validity were also considered.
3.1.1 Philosophical underpinnings

Quantitative research is based on observations that are converted into discrete units that can be compared to other units by using statistical analysis. Qualitative research generally examines people's words and actions in narrative or descriptive ways more closely representing the situation as experienced by the participants (Maykut & Morehouse, 1999). The differences between the two philosophical perspectives were pivotal in choosing this study's research strategy. Whereas quantitative research is based on a natural scientific model, qualitative research is based on an interpretivism position. Ontology raises questions about the nature of reality, whereas epistemology is interested in the origins and nature of knowing and the construction of knowledge (Maykut & Morehouse, 1999). Positivism is an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality. Positivism is synonymous with science or observable facts (Stromberg, 1986), implying that positivist research should be able to explain and predict observable events (Kincheloe, 1991). The interpretivism position is focused on understanding the meaning events have for persons being studied (Patton, 1991). Qualitative researchers study things in their natural settings and attempt to interpret phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 1994). In quantitative research a hypothesis is usually tested, and is accepted or rejected based on the results of analysis of the data. In qualitative research themes and patterns that emerge from the data are studied. It has been recognized that qualitative researchers often test pre-existing theories as in
quantitative research, and this is an acceptable strategy to use (Silverman, 1993). However, emphasis is given to testing new theories that emerge during the process of data collection, termed grounded theory.

The aim of the study was to examine the MDM and its members in the specific setting of the MDM. It was not necessary to explore the working practices of each of its members outside the MDM (unless this had any direct impact on it). Since this is a relatively unresearched topic, with little other published work available from which to generate hypotheses, identifying patterns and themes emerging from the data would be an essential component of the study. It was concluded therefore that the most appropriate strategy needed to fulfill the aims in this study would be a qualitative one.

3.1.2 Issues arising from using the qualitative approach
Qualitative methods of data collection are subject to criticism regarding the assessment of the quality of the research. Qualitative research is often depicted as being too specific on a particular social setting to be generalizable to the wider world. Qualitative research is criticized for not using statistical analysis or sample size calculation as are key components of quantitative research. Since qualitative researchers are very close to their research subjects, issues of bias and subjectivity in interpretation of the results are raised. The main issues identified during the study were reliability and validity, objectivity, subjectivity and
bias and sampling all of which had to be addressed prior to beginning the research.

3.1.3 Reliability and Validity

These terms have traditionally been used to assess the quality of quantitative research but it is not clear whether they are appropriate to be used in qualitative research. Some authors have tried to adapt these quantitative measures to qualitative research (Mason, 2002; LeCompte & Goetz, 1982); others replace them with what they deem to be more appropriate criteria to qualitative research (Guba & Lincoln, 1994). Others suggest criteria should come from both paradigms (Hammersley, 1992).

Reliability and validity can be interpreted differently if used for qualitative research (Le Compte & Goetz, 1982). External reliability describes whether the study can be replicated by others. It may be difficult to replicate the same social setting, so it is recognised that the researcher must adopt a similar social role to the original researcher. Internal reliability refers to inter-observer consistency i.e. members of the research team agree with each others’ findings. Internal validity is achieved when the researcher’s and the subjects’ observations are similar which, given the prolonged interaction of the researcher with the subjects is achievable with qualitative research. External validity refers to whether the findings can be generalized across social settings. This has been recognised to be a problem with qualitative research given the small sample sizes usually
studied (LeCompte & Goetz, 1982). Qualitative researchers overcome this problem by producing social explanations which are transferable in some way, or which have wider resonance (Mason, 2001).

The terms trustworthiness and authenticity have been used in place of reliability and validity for qualitative research (Guba & Lincoln, 1994). Trustworthiness itself is made up of four criteria which can be paralleled to the equivalent criteria in quantitative research: credibility (internal validity), transferability (external validity), dependability (reliability) and confirmability (objectivity) (Bryman, 2001).

Credibility is the feasibility of the findings of the study, specifically if the researcher's own interpretations of the findings are what the subjects had meant during data collection. There are two ways to ensure credibility which were considered for the study—respondent validation and triangulation. Triangulation involves using more than one method or source of data in the study (Bryman, 2001). Data is then compared and contrasted to each other. The method of collecting data can also be done by two or more researchers e.g., two interviewers interview subjects individually. The researcher looks for patterns of convergence to develop or corroborate an overall interpretation. In this respect, triangulation can be seen as an effective way of making a study more comprehensible, or of encouraging a more reflexive analysis of the data (Pope & Mays, 2000). This can cause some difficulties, as it may not be possible to compare different data sources when different social settings are being studied.
The other method to ensure credibility is respondent validation. This involves feeding back subjects' interview transcript or interpretations of the findings and confirming the findings between researcher and subject are the same. This method has been used by researchers in healthcare before, even once when ENT Consultants were the subjects (Bloor, Venters & Samphier, 1978). The main drawbacks with this approach can be censorship and defensive reactions on the part of the subjects, or a “fondness and mutual regard” toward the researcher leading to reluctance to be critical (Bloor, 1997). Also, participants may not fully understand the interpretations as made by the researcher.

Transferability refers to whether the study's findings can be applied to other situations. One of the criticisms of qualitative research is the relative lack of breadth of discovery from the research. Instead researchers tend to study small groups intensively. Researchers are therefore encouraged to produce descriptions as full of detail as possible, in order to give other researchers a database from which to decide whether the findings can be transferred to other situations (Guba & Lincoln, 1994).

Dependability is the process by which qualitative researchers ensure all phases of the research process is documented and accessible to other researchers, in order to ensure proper procedures have been followed. This can be undertaken by “auditors” (Guba & Lincoln, 1994). This can be quite an arduous task, given the vast amounts of data generated during qualitative research, and is generally
not a popular choice for validation in qualitative research (Bryman, 2001). Confirmability is the need to ensure the researcher has conducted the research with as complete objectivity as possible, and this may be one of the roles of the auditors (Guba & Lincoln, 1994).

Authenticity is concerned with the wider political impact of research (Guba & Lincoln, 1994). It can be categorized into fairness (fair representation of the views of the participants), ontological (increasing understanding), educative (perspectives of other members of social group are better appreciated), catalytic (the research has influenced the group to change) and tactical (the research group has been empowered by the research to change). The emphasis with authenticity is on the practical outcomes of the research, and has been considered relevant to research concerned with organizational studies (Bryman, 2001).

If further studies were to be undertaken to reproduce the findings of this study, external reliability could be achieved if other MDMs were similar to the one in this centre. Since there is evidence that the composition and content of discussion is similar in MDMs nationwide (Bradley et al., 2005) it was concluded that the study could be reproducible. To reduce the problems with generalizability given the relatively small sample size, it was decided to recruit as many subjects as possible into the study. To ensure transferability of the study's findings, interviews would be employed as the method of data collection; transcription of
the interviews would make for detailed and rich data production. It was decided that respondent validation would be the most practical approach to ensure the study's credibility. It would have been too impractical to employ triangulation given there was only one researcher available to undertake the data collection, and it was unlikely that the participants would have any difficulty in understanding the data, given the intelligence level of the group to be studied. The researcher ensured all taped interviews and transcripts, along with interview schedules and documents required for ethical approval were kept and would be available if required for auditing. Since the working of an actual MDM was to be studied it was felt the research could be applied practically and so authenticated.

3.1.4 Bias, subjectivity and objectivity
Qualitative researchers are often criticized by quantitative researchers over the amount of bias and subjectivity in their research. This is one of the fundamental differences between quantitative and qualitative researchers, in that the former tries to be as objective as possible, whilst the latter always has some level of subjectivity in the research. By reducing objectivity in their research, the quantitative researcher ensures that bias is kept to a minimum. This emphasis of objectivity has been the focus of some criticism, particularly when the findings of such research are applied to the wider population. Quantitative research can sometimes be too detached, to the point of becoming meaningless. Beck and Bonß (1989, p.31) pointed out that research findings were often taken out of context and that "science no longer produces 'absolute truths', which can be
uncritically adopted". It can sometimes be difficult to remove all the influences from cultural and social backgrounds when designing research questions, and all too often research that tries to be as objective as possible becomes less influential in everyday life (Flick, 2006). Qualitative researchers often use the terms involvement and detachment in place of subjectivity and objectivity, to help describe the researcher's position with regards to bias (Elias, 1965). Rather than seeing objectivity and subjectivity as being separate research entities in research, Elias stated that there will always be an element of bias. Researchers should regard themselves as being more involved or detached from their subject matter and in this way improve the quality of data collected. Involvement with their subjects allows the researcher to truly understand what the subject is saying and meaning, especially within the specific context in which they were said. This can facilitate a greater understanding of the research setting.

There are therefore some advantages of being involved during qualitative research. The researcher in this study works as a Specialist Registrar in the Department of Head and Neck Surgery and has a working relationship with most of the potential recruits for the study. This would obviously make complete objectivity a problem, however as mentioned above, this is not entirely disadvantageous. By having attended MDMs previously, the researcher had understanding of the purpose of the MDM from the point of view as an ENT surgeon. This would help formulate questions to be posed at interview, as well as being helpful to recruit subjects into the study – it was expected that
healthcare workers would be more willing to participate in a study conducted by someone familiar to them rather than by an outsider. The researcher was still at a relatively junior level compared to most of the subjects and had only a limited experience of MDM workings on a day to day basis. This was considered an advantage as it meant the researcher did not have preconceived ideas of the MDM which may be detrimental when trying to generate new ideas and theories from the collected data.

3.1.5 Research Design
This was to be a case study of the MDM in head and neck cancer at a large teaching hospital in the UK. Case studies can be broad ranging from studying a single person to an institution. Even amongst an institution, there may be several cases to study. Case studies can be classified as intrinsic, instrumental or collective (Denzin & Lincoln, 1994). An intrinsic case study is undertaken to understand a particular case better. This type of case does not represent other cases but forms the basis of interest itself. An instrumental case study is one which studies an issue. In this study, the case itself is not of interest, but rather the understanding of the issues that is associated with it. A collective case study is one where several cases are studied together in order to understand the common characteristic. These cases do not have to be similar to each other, but are chosen because understanding them will help interpret a larger collection of cases. There are strengths and weaknesses of case studies. Case studies may not be generalizable because of their tendency to report on a particular case.
This may be considered to be both a strength and a weakness of case studying. Qualitative researchers are interested in exploring unusual cases, as these can be used to develop theories. Cases can help in knowledge transfer from researcher to reader, as well as being used to compare to other cases.

These were the main reasons for choosing a case study as this study's research design. The case to be studied was the MDM at this particular centre, which could be used to develop theories and issues that may be compared to other MDMs. The next issue to be discussed was that of sampling, which involved subjects from within the case study.

3.1.6 Sampling

With quantitative research statistical sampling methods such as random sampling is quite frequently used to generate data. Although this can be used with qualitative research this tends to be too time consuming and impractical to be of much use. Also qualitative researchers do not need to recruit a certain number of participants into their study to reach statistical significance. This is a key difference between quantitative and qualitative paradigms. Instead qualitative researchers can use purposive sampling. This does not produce a random or representative sample from a population, but instead identifies participants with specific characteristics that are of research interest. By identifying such characteristics, qualitative researchers may be seen as using bias to guide the research. However purposive sampling reduces bias by ensuring that
participants are selected on the basis only of specific research material and not on the basis of other considerations such as convenience or locality.

Purpose sampling was used in the study. Using the IOG guidelines, all the core members of the MDM were identified and asked to participate in the study. Extended members who attended regularly were also asked to participate. At least one representative from each healthcare group was selected. In order to produce rich and detailed data, more than one professional from each healthcare group was recruited (if there was more than one). The sample size was not calculated prior to commencing the study, as unlike in quantitative research statistical analysis does not need to be performed. Instead, it was decided that all the relevant members of the MDM should be interviewed or until the saturation point had been reached. The saturation point is the level at which newly collected data is redundant with previously collected data (Glaser & Strauss, 1967). It was also decided that an emergent and sequential design of sampling should be employed, maximum variation sampling (Lincoln & Guba, 1985). This method would allow the researcher to decide to recruit other subjects if preliminary data had suggested they might be relevant in the study.

3.2 Data collection

Conducting interviews was determined to be the most effective way of ensuring rich and detailed data collection, as well as allowing the opportunity to generate new hypothesis and ideas. Interviews are conversations with a purpose (Lincoln
& Guba, 1985). In order to maximize generation of new ideas from the initial interviews an emergent design was chosen. An emergent design is one that begins with an initial focus of enquiry and an initial sample which is then refined as the ongoing process of data collection and analysis proceeds (Lincoln & Guba, 1985). A brainstorming session was undertaken to identify as many salient points as possible that should be raised in the initial interviews - these were described previously as the objectives of the study. It was then decided whether to use an unstructured interview, an interview guide or an interview schedule as the framework for the interviews. In the unstructured interview, the interviewer poses one question and then allows the interviewee to lead the rest of the interview; the interviewer listens closely to the responses for clues as to what question to ask next (Maykut & Morehouse, 1999). Using an interview guide involves asking a series of broad questions which the interviewer can explore and probe with the interviewee (Patton, 1990). An interview schedule consists of a detailed set of questions and probes and is the most rigid structure of the three. Interview guides and unstructured interviews are more useful in situations where there is little known on the subject, and interview schedules are best used when there is more than one interviewer, ensuring the same topics are being asked. Therefore an interview guide was produced (see Appendix) which incorporated general and open-ended questions based on the study's objectives, but which still allowed new ideas emerging from the interviews to be explored subsequently.
3.3 Ethical considerations

Since the setting of the study was in the NHS involving NHS staff, it was necessary to seek approval from the Local NHS Research and Ethics Committee (LREC).

The study raised several ethical issues. Firstly, confidentiality would be important as many members may not wish to have their thoughts and feelings publicized, especially if they were critical of their colleagues. Secondly, raising issues of team working may be detrimental to the group dynamics, and may damage working relationships. These were the main issues raised by the ethics committee when the application for the project was initially submitted. Assurances were given that participants would be recruited in a suitable manner so as to guarantee anonymity from other participants. A participant information sheet was produced (see Appendix) which clearly stated that only the researcher would be aware of the identity of the participant. Participants were also informed about the potential for the study to do harm in terms of damaging team relationships. However, it was acknowledged that the study had more potential to improve working lives of the participants than to cause detrimental effects. As patients were not directly involved in the study, there would be less possibility of patient care being harmed (nonmaleficence). A consent form was designed that all participants were required to sign (see Appendix).
The ethics application form, along with a participant information sheet and consent form were submitted online on 19th September 2005, and were reviewed by the committee in a meeting on 2nd November 2005 (note that the study was initially designed to include several centres nationwide, but for the purpose of this dissertation only the interviews from one centre are included). The researcher attended the meeting and answered questions on the issues of confidentiality and anonymity. The LREC gave ethical approval for the study on 6th December 2005 (see Appendix).

3.4 Research Protocol

Once LREC approval was granted, approval from the Department of Research and Development (R & D) at the University Hospital was sought and granted. They would act as the sponsor of the study and so permission was required prior to commencing the study. Using purposive sampling participants were identified who would be recruited. All three ENT and maxillofacial surgeons and both clinical nurse specialists were asked to participate in the study. Two SLTs and two oncologists, one dietician, one anaesthetist, one radiologist, and one pathologist were also invited to take part. During the interviews with the nurse specialists it emerged that the physiotherapist played a vital role in the MDM and so was also recruited. They also mentioned that other nurses from surrounding hospitals occasionally attended MDMs and so these were considered to be potential participants also.
It was decided to request an appointment to meet with each potential participant to explain the purpose of the study and the methods. A participant information sheet was produced and given to each participant. If they agreed to take part in the study the consent form was signed which included a statement to say they had read and understood the information sheet. A meeting room was hired in the ENT Department in which to conduct the interviews. A tape recorder was loaned from the University of Chester library on which the interviews were recorded. After the interviews the tapes were sent to a transcriber at the University of Chester for transcription. In order to ensure confidentiality, the identity and job title of the interviewee was not recorded onto the tapes. Instead, each subject was given a sequential number which was recorded onto tape; the researcher was the only one who had access to the identity of each subject's corresponding number. The transcriber was not aware of where the subjects' place of work was, only that the research was based in a local hospital.

All transcriptions were read by the researcher and any unknown words were identified by listening through the tapes. A copy of the interview transcript was then issued to each subject and they were instructed to amend the document in any way they saw fit. They were also reminded that if they wanted to withdraw all or any part of their interview they were free to do so.
3.5 Data Analysis

After the respondent validation process had been completed, the collected data were analyzed. Each transcript was examined and initially summarized to aid analysis. As the data were analyzed themes were identified and categorized for each transcript. If the same themes were identified in other transcripts, they were categorized together. In the cases where two members of the same healthcare group were interviewed, any similar themes were categorized together, and any differences were categorized separately. The reasons for discordance within the same group were specifically looked for.

The inductive constant comparative method of data analysis was employed in the analysis (Glaser & Strauss, 1967). As each new theme was selected for analysis, it was compared to all other themes and subsequently grouped with similar themes. If there were no similar themes, a new category was formed.

Once the categories were identified they were then coded to make it easier for interpretation. Coding (or indexing) helps encourage the researcher to develop lines of speculation and hypothesis formation, so is not simply a process of summarizing the data (Strauss, 1987).

There are several available methods of coding data, including using data cards and computer software programmes (e.g. Ethnograph, Qualis Research Associates). One of the problems with coding is that by breaking down data into
smaller units, the overall meaning of what has been said may be lost. In order to avoid this, the methods used in this study were to manually identify themes in each paragraph of each transcript, group the themes together and then analyze the meaning of each theme, without altering the data excessively from its natural form.