THE ROLE OF THE ECONOMIC ANALYSIS IN THE
DECISION MAKING PROCESS AT THE DRUG QUALITY
AND THERAPEUTICS COMMITTEE OF ONTARIO

By

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A thesis submitted in conformity with the requirements
for the degree of Master's of Science
Graduate Department of Health Administration
University of Toronto

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Abstract

The Role of the Economic Analysis in the Decision Making Process at the Drug Quality and Therapeutics Committee of Ontario

Master’s of Science, Department of Health Administration, University of Toronto, 2000

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This thesis examines the role of the economic analysis in the decision making process at the Drug Quality and Therapeutics Committee of Ontario. This committee reviews data submitted by pharmaceutical manufacturers who are requesting listing of products on the provincial formulary. A case study approach was taken; nine meetings were observed and seven committee members were interviewed. This thesis found that the role of the economic analysis in the decision making process was important but limited by various factors. The product’s clinical merit and the quality of the submission were dominant factors in the decision making process. Interestingly, the type of drug discussed was another key factor that determined the usefulness of the economic analysis. The committee’s membership also shaped the discussions; only one member had extensive training in health economics. Finally, the economic analysis was limited by the context in which it was applied, that of resource allocation.
Acknowledgements

This research would not have been possible without the opportunity given to me by Dr. Allan Detsky. As my supervisor, I found his wisdom and support invaluable. I truly learned a great deal under his supervision. Dr. Peter Singer, the only additional committee member, proved a great resource. His helpful and supportive comments were instrumental in elevating the quality of the research.

I would also like to thank Dr. Gary Naglie. His ‘open door’ policy, friendly manner and insight were much appreciated. Dr. Leisa Babiak was an important contact at the OMH who facilitated my research.

Dr. Maria Bacchus ensured that I had time to complete my research, and Dr. Moira Kapral answered endless questions regarding thesis protocol; for both I am grateful. I am indebted to Mena Cali for all her technical aid and support.

I would like to dedicate this thesis to my husband, Jim Barton, and my family, with thanks for their love and support during my many years of schooling.
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CHAPTER 1

Research Questions

The primary question of this thesis is the following: what role does formal economic analyses play in the decision making process at the Drug Quality and Therapeutics Committee (DQTC) of the province of Ontario? In order to answer this question, first the decision making process itself must be carefully detailed. The decision making process is likely to be quite complex, with many interacting factors. Understanding these factors will be crucial to understanding the role of the economic analysis in the process as it is likely that these factors will influence the role that the economic analysis plays. For this reason the decision making process has to be detailed in full before one can dissect out the role of the economic analysis. For purposes of this research, a formal economic analysis will be defined as the following: “the comparative analysis of alternative courses of action in terms of both their costs and consequences” (Drummond, O’Brien, Stoddart and Torrance 1997).

Sub-questions will also be asked whose answers will be applied to strengthen the conclusions of the primary question. The first of these questions is the following: are the guidelines perceived as useful to the members of the DQTC when making formulary decisions? This clearly is an important question as the perception that DQTC members have towards the economic analysis will affect its role in the decision making process. If the economic analysis is not well perceived by those who employ it, this will likely negate its role in the decision making process. The DQTC members will be asked this
question and moreover asked to explain why or why not economic analysis is useful to the decision making process.

The second sub-question is also important as it tries to assess the impact the economic analysis has on the formulary decision process. It asks the following: does economic analysis alter the type of listing that the drug receives? The answer to this question helps better define the role that the economic analysis has on the decision making process; if it is significant that it should be able to affect the listing decision. If the role of the economic analysis is not important, then it will not be able to change the decision to list a product.

The third sub-question asks what is the quality of the economic analyses submitted by the manufacturer? This question is important for one reason - if the quality of the economic analyses are poor, this will limit the role that the economic analysis can play in the decision making process. The quality of the submitted economic analysis influences all factors that determine the role of the economic analysis in this setting - from how the analysis is perceived to how it affects a listing decision. The quality factor can potentially color the whole process of decision making.

The last sub-question asks what is the most common type of economic analysis performed by manufacturers? There are five types of economic analyses described in the literature. They have different strengths and methodological weaknesses. Some allow for broader views to be taken by the decision-maker while others place the burden of weighing the costs and benefits more squarely on the reviewer of the report. Knowing which type of economic analysis is most commonly employed is important in further defining its role in the decision making process. The type of economic analysis could
influence how the economic analysis is perceived by the DQTC and moreover how able it is to affect a listing decision.

In sum, one can readily see that the primary question and its sub-questions are heavily interrelated. The responses to the sub-questions will help to answer the primary question of this thesis. For sake of reference the questions will be repeated here. The primary question is: what role does formal economic analysis play in the decision making process at the DQTC? The sub-questions are as follows: do the DQTC members perceive the economic analyses as useful to the decision making process? Does economic analysis alter the type of listing that the drugs receive? What is the quality of the analyses submitted to the DQTC? What type of economic analysis is most commonly performed?
CHAPTER 2

Background

In 1991 the Ontario Ministry of Health (OMH) started to request from pharmaceutical manufacturers seeking listing on the provincial formulary a formal economic analysis documenting the product's cost effectiveness. This was done in an attempt to improve the decision making at the OMH. The OMH had always considered cost in addition to clinical efficacy and safety. Therefore the switch from simple unit costs to formal economic analyses was not seen as a new regulation but rather as a call for higher levels of evidence on which to base decisions. The OMH planned to make the economic analysis a formal requirement, and drafted guidelines to outline clearly to the pharmaceutical industry what the OMH expected in each economic analyses. The guidelines underwent substantial revisions between 1991 and 1996 when they were formally implemented. At the time of the policy's implementation the OMH planned to do an early review to assess the role that the economic analysis plays in the decision making process. This thesis will attempt to do just that by detailing the role of the economic analysis in the decision making process at the DQTC.

2.1 Economic Analysis

Microeconomics centres on the concept of opportunity costs: the true cost of a choice is not the dollars spent but the forgone opportunities that could have been achieved had an alternative been chosen. A formal economic analysis requires that relevant alternatives be examined in detail so that the key costs and consequences are explicitly
outlined for each choice. Economic analysis has been applied in many sectors where resources are scarce and must be rationed. Perhaps employing economic analysis is best known in the healthcare sector:

"Cost-effectiveness analysis was invented for the sole purpose of allocating scarce resources in settings where market forces either did not exist or resulted in allocations that were far from optimal...with the growth of the healthcare sector as a predominate force within public expenditures, it is understandable that one of the principle applications of cost-effectiveness analysis in the 1990s is in the healthcare field" (Detsky 1994)

Economists have stated that while economic analysis can be used as a decision aid, one must be careful not to accept conclusions blindly. The conclusions reached by an analysis are not intended to be the one correct answer to a particular question. Conclusions are dependent on many factors, including the perspective taken by the researcher, the costs and benefits included in the analysis, the assumptions made, the valuation of the benefits, the discount rate employed, and more importantly, the question asked. The question asked by the researcher is key as it should dictate which perspective is taken and therefore the costs and consequences included in the analysis. In addition, the question asked should affect the assumptions that are made. One may not agree with the conclusions reached by the primary researcher, but this too is an important outcome; one does not have to agree with the conclusions that are reached for the economic analysis to be a valuable aid in decision making. As Drummond states:

"None of the approaches is intended to be a magic formula for the removal of judgment, responsibility or risk from decision making activities, though each is capable of improving the quality and consistency of decision-making. At root, they are methods of critical thinking, of approaching choices - and often placing difficult choices out in the open for discussion." (Drummond et al. 1987)
2.2 Economic Analysis in Decision Making

There has been a rapid growth in the number of published articles that employ economic analysis. This growth has been most notable in one particular field, that of pharmacoeconomics. One review article clearly demonstrated this by showing that in 1970, 68 articles were published while in 1990 this number had grown to 687 (Eisenberg 1992). A more recent estimate had similar results; in 1995 an estimated 43% of all cost-effectiveness analysis were for pharmaceuticals (Luce 1998). The reason for this growth is not clear, but is most likely multi-factorial. A key factor is the change in important buyers in the pharmacoeconomic market - away from the lone physician to that of the larger third party payers. In the United States the Health Maintenance Organizations (HMOs) are the biggest purchasers of pharmaceuticals, and in Canada the provincial governments are. The new buyers, the HMOs and provincial governments, are more demanding, and they want proof of value for money. They are more likely to ask for evidence as to why they should pay or use a certain product. Physicians are well known not to make cost the primary issue when making prescribing decisions; they are more influenced by issues of clinical efficacy, safety, patient acceptance and past experience with a product (Denig, Haaijer-Ruskamp 1995). Physicians are only likely to make cost an issue when considering interchangeable products (Ryan et al. 1996).

There have been a few studies that have assessed the role that the economic analysis plays in the decision making process at the hospital formulary level. In 1997 a study was undertaken in the United States to see if pharmacy benefit management companies (PBMs) use economic analysis to decide which pharmaceutical products to fund. The survey suggested that the use was quite limited, but was expected to increase
with time. The main reason why the PBMs did not employ the analyses was that there was a perception that the analyses were not generalizable to the patient groups that the companies serve, and as such the companies were unsure if the results were applicable. In addition the companies were also concerned about the reliability of the studies - questions of bias surfaced regarding who funded the research and how the costs were determined. However one of the biggest complaints was that the studies were not completed in a timely matter that allowed for easy inclusion into the decision making process (Grabowski and Mullins 1997). Another study proved similar results - that the use of economic analysis in the decision making process at the hospital formulary level in the United States was limited (Sloan, et al 1997). Similar reasons were given as to why the analyses were not employed: poor timing of the studies, concerns about generalizing the results to the hospital population, and potential for bias given the sponsorship of the studies. Importantly also mentioned was a concern about the inadequate expertise in the reviewers ability to review the studies.

Across the world, many other countries are also employing economic analysis to aid resource allocation decisions. The use in many of these countries has been haphazard; no standard exists as to when to apply the results of economic analyses and when not to. Australia is the only country that has a formal requirement to use economic analysis in the process of formulary listing. This decision was implemented in 1992 amidst much controversy. Recently researchers in Australia have reviewed this policy to see what impact, if any, the economic analysis has had on the decision making process. Clinical factors were found to drive the decision making process (Mitchell 1997) and concerns of equity outweighed economic concerns (Hailey 1997).
2.3 The Ontario Pharmacoeconomic Guidelines

Because the employment of economic analysis in formulary reimbursement decisions was relatively new in the early 1990s, those involved with drafting the guidelines wanted to ensure that industry was aware of what was required in each analysis. The guidelines were fairly specific as to what the reviewers were expecting, and what was needed for a submission to be considered high quality. The guidelines contained information on four main areas: methodological issues, value judgments, formatting issues and conflict of interest. The guidelines outlined in detail how manufacturers should handle different aspects of the economic analysis from the perspective taken to the discount rate employed. Within the field of health economics some controversy exists as to which methodological approaches are stronger and more appropriate for given questions, and those drafting the guidelines recognized this. Flexibility was therefore allowed in certain areas of the analysis in which the controversies were known to exist. Formatting issues were clearly outlined so that manufacturers knew how to present the information to the Ministry. The guidelines were quite detailed in this regard as formatting issues were thought to be vital to the decision making process; poorly presented submissions would be difficult to interpret. The guidelines also detailed how the manufacturers should handle conflict of interest issues. The OMH felt that this degree of specificity was appropriate because the guidelines were directly tied to the process of formulary reimbursement, and were not a general guide (PausJenssen and Detsky 1998).

There has been however much controversy surrounding the guideline’s implementation in Ontario. Criticisms arose from both industry and academics alike.
Industry begrudgingly accepted having to submit a formal economic analysis along with the mounds of clinical data already required. Industry believed the government had a hidden agenda of cost-containment, and that the value for money goal was fuzzy and subsequently not reachable. To this day, industry would like to return to past requirements of simple unit prices. Industry continues to resent having to do formal economic analyses as more information and resources are required. Many companies do not have the resources at hand to do the analyses, and as such are forced to hire external consultants.

Academics were also vocal about their dissent with both the content and employment of the guidelines in the process of formulary reimbursement. The concern most commonly cited was that the economic analysis was pushed to a level where it was expected to deliver one correct answer to the DQTC (Naylor et al 1993). Moreover, as some methodological concerns were not resolved, the academic community was concerned with employing this tool at such an early stage in its development. Academics also agree with industry that the goal of seeking "value for money" was unclear, as there is no consensus on what constitutes value for money.

Because of the controversy surrounding the new requirements for formulary listing in Ontario, it is important to review this area to see what the policy has actually accomplished. Specifically the role of the economic analysis in the decision making process at the DQTC will be examined in this thesis.
CHAPTER 3

Methodology

3.1 Design

To answer the primary question of this thesis – what role does formal economic analysis play in the decision-making process at the DQTC - a case study approach was chosen. Yin has defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 1994). This approach was chosen as determining the use of economic analysis in the decision making process cannot be easily dissected away from the context in which it is used. Any decision making process is influenced by many contextual factors, and that the same would be true for the decision making at the DQTC. The case study approach allows one to detail how economic analysis is used in the context of formulary decision making. This is especially important in this thesis as the context in which the economic analysis is used will influence its usefulness.

3.2 Setting

The setting of this case is the DQTC, which makes recommendations as to the type of listing that a product should receive on the provincial formulary. Decisions made at the DQTC are based on many different factors, of which the economic analysis is but one. Manufacturers who want their products listed on the provincial formulary start this process by submitting clinical and economic data to the Ministry of Health for review.
This material is processed at the ODB, and is initially checked to ensure clerical completeness; i.e., that clinical and economic data have in fact been enclosed. The ODB then asks external expert consultants to assess different aspects of the submission. A clinical reviewer is chosen based on his/her expertise in that particular field of medicine, for example, dermatology. At the same time the economic consultant analyzes the economic part of the submission. No formal interaction is required by the Ministry to take place between the two experts, but they are encouraged to contact each other should questions arise. Ideally the external experts are asked to review the data, make a recommendation as to the listing a product should receive, and then return it to the Ministry within one month.

At that time government employees at the DQTC review these reports and decide which DQTC member is best suited to present the information at the next meeting. This selection process again is usually based on field of study, for example, the infectious disease specialist on the committee presents antibiotic submissions. However members may be asked to form a subcommittee within the DQTC; this is usually reserved for innovative products. The DQTC member is then asked to present a summary of the manufacturer’s submission and both external consultants’ reports at the next DQTC meeting. The amount of time given to the DQTC member to review this material beforehand varies from one week to two days. To ensure that an informed discussion takes place, all DQTC members receive a binder filled with the external experts’ assessments of the products that are to be discussed at the meeting. All members are expected to review the material in advance. The selected DQTC member presents the
data, and then makes a recommendation to the committee as to the type of listing that a product should receive.

There are three types of listings that a product can receive on the provincial formulary: full or general listing, limited use listing, or section 8 listing. The general listing means that any physician can prescribe a product and that there are no limitations to its use. A limited use listing means that the product may be prescribed only if certain criteria are met. A form must be filled out by the physician prescribing the medication stating that the patient meets a set of predetermined criteria. Often medications used by specialists receive this listing. The section 8 listing essentially means that the medication does not have a general or a limited use listing on the formulary. This does not mean however that patients do not have access to these medications. Because of the Medicare Act, government cannot deny access to medications based on age or income. Physicians can access these medications through the section 8 mechanism. In this circumstance a physician must write a letter to the Ministry, and justify why it is required for his particular patient. The Ministry then sends the letter to an expert in the field, who reviews the request and makes a recommendation as to whether the government should pay for it. Each request is handled individually.

After the DQTC member makes a recommendation as to the type of listing a product should receive a general discussion ensues involving other members of the DQTC. The recommendation to list a product is voted on by the DQTC members, or the listing decision is deferred. The listing recommendation is then passed to the Ministry for final approval. The Ministry reviews the recommendation made by the DQTC, and decides to accept or reject the recommendation. How the Ministry comes to its final
decision is not clear - it is not public knowledge as to which factors are the most
influential in this complex process. The decision made at the Ministry level is the final
step in the listing process. The Ministry attempts to make a decision on a manufacturer’s
submission within six months of it being submitted to the ODB. On average a new
formulary is published every year. Figure 1 outlines the listing process.

3.3 Gaining Access

My supervisor, Allan Detsky, served as a member on the DQTC in the late 1980s
and early 1990s. He is a general internist, and has a Ph.D. in economics. He was a key
force in developing the pharmacoeconomic guidelines that were formally implemented in
1996. He is no longer a member of the DQTC, but acts as chair of the
pharmacoeconomic subcommittee. He also serves as a consultant, primarily for
economic submissions. Because he continues to have strong ties to the DQTC, he
quickly arranged access to the DQTC meetings and staff. Dr. Detsky introduced me to
key members of the DQTC, and together we explained the nature of my research. After
the introduction, my presence at the meetings was never in question.

The guidelines were implemented in 1996, and at that time the Ministry publicly
stated that there was to be an early review of the effect of the requirement for a stronger
level of evidence on the listing process. Formulary listing decisions are worth millions of
dollars to both government and manufacturers. It is therefore apparent that the
discussions held at the DQTC are of a sensitive nature. For this reason, I was asked to
sign a confidentiality agreement with the Ministry of Health. The agreement gave me
somewhat limited access to the research material. I was allowed to observe meetings and
interview some of the DQTC members, but not the government employees. In addition I was not given access to formal reports of any kind - not the manufacturers' submissions, nor the external experts' reviews, nor the minutes of the meetings (even the ones that I attended). It was also important to the Ministry that I not identify products in the report. They stressed that no identifiers be employed in the body of the report, so that even an informed reader would not be able to guess the product being discussed. For some products this meant deleting contextual information, for example that the product is used in transplant medicine. This was deemed necessary as some areas of medicine have relatively few new products requesting listing each year, and it would be theoretically possible to trace back a comment to a certain product. In addition I was asked not to identify the names of the interviewed DQTC members. The Ministry also asked to review my final report prior to publication. However it is clearly stated in the agreement that I have final say as to content and place of publication.

3.4 Sample

The first meeting attended was the one in which I was introduced to the key members of the DQTC. I did not take notes at that meeting, nor at the meeting that followed. After observing these two meetings I estimated that I would have to attend meetings for about a year before I could adequately describe the decision making process at the DQTC. The meetings attended between the months of December 1997 and August 1998 (in total 9 meetings) were the ones used for the collection of data. The sampling technique that I employed was typical case sampling, wherein typical cases (DQTC
meetings) are used to describe the phenomenon under study (economic analysis in the
decision making process at the DQTC) (Patton 1987).

The membership of the DQTC is predominately physician based. At the time of
this project, eight out of twelve members were physicians. They represent different areas
of medicine - from infectious diseases to dermatology. There was also a community
pharmacist and a government pharmacokineticist. Two other government employees,
both serving as liaisons between the DQTC and the Ministry of Health, rounded out the
committee membership. These latter two members did not vote at the meetings however.

I intended to interview all members of the DQTC, believing that all would have
important insights into the decision making process. This type of sampling is referred to
as theoretical sampling. However, the government would not allow the two government
liaisons to be interviewed, and this definitely had a negative effect on my ability to recruit
and interview some DQTC members. One physician said no because of this, and further
commented that he had confidentiality concerns. Another physician left the committee
part way into her term, and then refused to answer my calls. Yet another went on
sabbatical and could not be contacted. I did however interview the remaining physicians
(5) and the community pharmacist. In addition I interviewed my supervisor as a past
member of the committee. I thought this was an important inclusion given his role in the
implementation of the pharmacoeconomic guidelines. In total I interviewed seven past
and present members of the DQTC. Six of the seven were physicians, and one was a
pharmacist. Two of the seven had formal training in health economics, and were
currently serving as external pharmacoeconomic consultants to the Ministry of Health.
3.5 Data Collection

Case studies use three means of data collection - observation, interviews and document analysis. In this case study the first two means of data collection were employed. Nine meetings were observed to see how the economic analysis influences the decision making process, and seven DQTC members were interviewed and asked the same. Unfortunately I was denied access to such key documents as the manufacturers' submissions, the consultants' reports, and lastly the official minutes of the meetings.

Meetings were observed for one year in total. The first two meetings I attended allowed me to get familiar with the setting, the terminology used in the decision making process, and the structure of the meetings. I did not take field notes during that time as I felt that a gradual introduction of my presence in the meetings was important. This time also allowed for further acceptance by the group.

Because of legal concerns, I was not allowed to videotape or audiotape the meetings. I was however allowed to take down notes of the meetings. I used a form of short hand to help me keep up with the discussions. The meetings' agendas helped me to keep clear and complete records. The meetings were on average three hours long with one fifteen-minute break. Two meetings were extended by one hour.

In the day that followed the meeting I transferred my notes in point form to a computer to allow for easy access and retrieval. The products were labeled first by the month in which it was discussed, second by a letter, and third by a number that corresponded to each line of the discussion. Examples of the identification labels are Dec.A.5, or July.D.25. For confidentiality purposes, the name of the product does not appear in the label, or in any of the transcribed notes.
When I started to feel confident about the emerging patterns in the data from the meetings, I turned my attention to the interviews. I started the interview process after I had attended seven meetings, and completed the interviews shortly after I stopped attending the DQTC meetings. The seven interviews were either done in person, or over the phone. All were audiotaped. The tapes were transcribed to a computer. The interviewees' names were replaced with a number, and each subsequent paragraph was also given a number. The sentences within each paragraph were numbered too. An example of this is as follows - Int.2.4.27. This refers to the second interview, paragraph four, and line number 27.

A semi-structured approach was taken in all the interviews as this allowed me to explore certain key areas in all interviews. For example, in all interviews I asked the interviewee to describe the important factors in the decision making process, and what role the economic analysis played in the process. In addition I asked each to comment on their own background training, believing that this may influence their perception of role that the economic analysis plays in the process.

In total, the data contained 112 single spaced pages of meeting notes and 67 single spaced pages of interview transcripts.

3.6 Data Analysis

After the transcription was completed, I began the coding process by reading over each months' notes in their entirety to see if any patterns emerged. I did this twice before analyzing each product individually. As a result of my background reading I knew that several concepts were likely to be important in the formulary listing process, and so I
started to look for these first. These concepts are as follows: clinical efficacy, safety and importance; drug acquisition costs; the economic analysis; the impact analysis; and the quality of the data. Reading through the notes confirmed these factors were important in this case study. This type of analysis is referred to as pattern matching; empirical based patterns are compared with that predicted. This type of analysis is strong in that it helps strengthen the internal validity of the case study (Yin 1994). Other concepts however emerged as being important too. These concepts are: the type of drug being discussed; consistency of decision making; politics; potential for abuse of a product; limitations of the DQTC; and finally the members' own set of values.

The codes were defined during the analytic process, and once set, remained fairly stable. The codes will be defined here, but for ease of reference a complete list is attached in the appendices. The code termed ‘clinical’ was used to describe any reference to a product's clinical effects in terms of both efficacy and safety. Cost was defined as a direct reference to the unit price of the product (i.e. drug acquisition costs). The code ‘impact’ was defined as a reference to a product's economic impact analysis. Multiplying the drug acquisition cost by the estimated number of prescriptions written in a year and then subtracting the costs associated with the decreased use of competitive products approximate this potential cost to the Ontario Drug Budget. The code ‘economic analysis’ was used in those instances where the submitted economic analysis was referred to, or in less formal terms when the product was discussed in terms of whether its benefits were worth its costs (i.e. value for the money). The abuse potential code was given to discussions where there was a reference to the possibility that a product be used in a population for which it was not intended. The quality code was defined as the
'believability' of the manufacturers' clinical and economic claims. Consistency defined those circumstances when the DQTC emphasized the need to have current decisions fit with past decisions. If concerns were raised at meetings as to what influence current decisions would have on future decisions - this too received the consistency code. The code labeled 'politics' was used to describe those situations when the DQTC recognized factors other than clinical importance or economic value to be central to the final listing decision made at the Ministry level. The limitations of the DQTC referred to those situations when the DQTC did not feel that they had the expertise to question either the manufacturers' claims or the consultants' assessments. The value code was attached to discussions when DQTC members used their personal standards and estimated worths as a guide to what was important to the decision.

The discussion around each product was read over several times to see what factors played a role in the decision to list a product. A line or a grouping of lines received a code but, depending on the discussion, multiple codes were assigned. The codes were then reviewed to see which were the most important in the decision making process for each drug. This was done using the 'weighting' concept in qualitative analysis; a code receives more 'weight' the more often it is raised or emphasized in the discussion (Miles and Huberman, 1994). Again, depending on the discussion, one or more codes were identified as being most important to the decision itself.

I coded each meeting before the next took place. This was important as it allowed me early on to see patterns in the decision making process overall, and in turn look for similar patterns in the meetings that followed. All the coded material was grouped together in sections - for example a clinical code section, an economic analysis code
These groups of coded data were also reviewed for patterns, similarities and differences. Negative cases were sought as a means to check the emerging patterns, and to consider new previously unrecognized ones. A summary of the information that each code brought to light was made for quick reference and the key emerging concepts were highlighted. This was updated after each meeting. As well the codes were scrutinized to see how they interrelated, and this was also noted in the summary pages.

At the end of the collection period I went back to the initial meetings to see if I would code the data in the same manner. The reason I did this was because I wanted to ensure that the analysis was stable and would not change significantly despite the learning process that occurred during data collection and analysis. The correlation between the two codes was very high at 89%.

I coded the interviews much in the same way that I coded material from the meetings. I coded each one before going onto the next, again allowing me to confirm results in subsequent interviews. Again I arranged the emerging concepts into groups, and summarized this data after each interview. The sequence of the interviews was arranged according to availability of the interviewee. In addition to the codes used in analyzing the meetings, one other code surfaced, that of context. This code denotes the importance of looking at the circumstances surrounding the entire decision making process.

In addition to using the interviews as a primary data source, I also felt that this would be an ideal forum to help confirm my ideas through the use of member checks. Member checks are well established in qualitative analysis to be important in helping to establish validity (Miles and Huberman, 1994). Essentially this entails discussing
findings with interviewees and asking for their comments. If they agree with the ideas this is equated to mean that the findings are internally valid - i.e. that they are in congruence with what is actually occurring.

The results from both sources were then reviewed together to see how they might compliment or contradict each other. From there a schemata was organized to describe the decision making process, and more importantly the role of the economic analysis (Figure 2). Another figure outlines the factors that influence the usefulness of the economic analysis (Figure 3). In addition, a separate group of tables details the key factors in each decision observed in the nine months (Tables 1-9), and two summary tables organizes the results based on drug type (Tables 10&11).

3.7 Sample Size

After attending seven meetings I felt certain that no new patterns were emerging, thus using the concept of saturation of qualitative analysis. The concept of saturation involves the researcher observing only as many cases as needed to ‘saturate’ the category being developed (Bryman, 1988). However, because I had estimated that I would need to attend more in my initial proposal, I went to two more. The data analysis is therefore based on notes taken from nine meetings in total.

I had intended to interview all the members of the DQTC, but as previously stated was able to only interview 6 current members, and one past member.
CHAPTER 4

Results

This thesis asks the following question – what role does formal economic analysis play in the decision making process at the DQTC? In this case study the cases are the DQTC meetings and the use of the economic analysis at these meetings. The context of this case study is fuzzy, but entails many outside influences that affect the decision making process. Understanding the context in which the economic analysis is applied is crucial to understanding its role in the decision making process. For this reason the context of this case study will be outlined first. The history of the DQTC is important to the context, as are the group dynamics at the meetings; this will be discussed secondly. Thirdly the factors that emerged as being important to the overall decision making process will be detailed, with particular attention paid to how they affected the economic analysis. These factors include: type of drug, the clinical value of the product, the quality of the data, the need for consistent decision making, the unit cost of the product, the impact analysis and value judgments. It is important to note that some of the factors that emerged as codes during the coding process did not turn out to play an important role in the overall decision making process. The reasons why some factors were more or less important will also be explained. Finally, after both the context in which economic analysis is employed and the factors that influence its usefulness are detailed, the focus will shift to the role that the economic analysis plays in the overall decision making process at the DQTC.
4.1 The Importance of Context to the Decision Making Process

Context is defined by the Webster dictionary as that which comes immediately after or before a passage or word, and therefore helps to explain it. In this case study understanding the context of the decisions is vital to understanding the decisions themselves and hence the role of economic analysis. The original mandate of the DQTC was to assess products’ clinical efficacy and safety profile prior to being listed on the provincial formulary. These clinical roots are influential, as this is still the committees’ strength. Five of the DQTC members interviewed agreed with this sentiment, saying that they really only felt comfortable reviewing the clinical data (two of the seven interviewed had health economics training):

the committee is mainly made up of people who do not have formal training in economics, and cannot scrutinize the report and the reviewers assessment in the same way that we are able to do with the clinical data. Often as a group we reverse the recommendation of the clinical reviewer - because we have enough expertise in the room to do that. The same is not true for the economic reviewer. We are so much more dependent on that single reviewer - and often have to take his word as the final one as to whether the drug is in fact good value for the money ... Interviewee#5 : 3.26.10.-13

This idea is strengthened by looking at the current make-up of the committee: the majority of the members are clinicians, and only one current member has additional training in health economics. Because of the lack of training in health economics, the DQTC members felt their role in the decision making process was weakened:

I think in some ways our roles are less important than the reviewers. I think we place a tremendous reliance on the reviewers which I myself am uncomfortable... Interviewee # 4 : 16.19.2 - 3.

Those interviewed did however acknowledge that a certain amount of learning had taken place by simply noting issues raised by both the external economic expert and the
committee member with training in health economics. The amount ‘learned by osmosis’ was not, however, felt to be sufficient to criticize the expert’s recommendations, but rather to be familiar with basic principles of health economics.

The need for the guidelines highlights another issue that is important to grasp for contextual purposes - that one is really observing a working market. The pharmaceutical industry is trying to sell products to their biggest buyer in the Ontario market, the Ontario government. With this relationship, as of any of its kind, the seller is trying to make the biggest possible profit while the buyer is trying to get the best value for the money. At first glance it appears that these goals are mutually exclusive, but this is not the case. However, it does lead the buyer to ask for as much information as possible on which to base decisions. This environment has contributed to the development of the pharmacoeconomic guidelines, which ask for the highest level of costing information available. Concurrently the manufacturers will try to make his product as attractive and sellable as possible.

The DQTC members that I interviewed were keenly aware of this interaction between the government and industry:

Well, here in one of the issues - as a group - you have to think well why are we here, who do we serve? We are there because the provincial government has asked us and has given us a mandate. And the mandate is to assure that the pharmaceuticals that are available to people in this program are good value for money for the taxpayers in the province, which includes those in the program… Interviewee #3 : 16.65.2 - 5.

Interestingly however only four mentioned the influence that this may have on the DQTC, given that it is itself a government committee. One directly commented on the level of evidence that is requested by the Ministry:
Cause really, in general, as you know, because the committee realizes that the cost for paying for medications is huge and trying to have consideration for the fact that our job is trying to ensure that the government spends its moneys well and that the consumers get what they need - is that we tend to be hard on medications that are being presented ... Interviewee #2: 46.5.2.

Another agreed, and added:

So when they (the DQTC) look at the overall impact, that is an important issue so their standards of evidence and requirements for economic attractiveness would be much stricter if its a $20 million per year drug than let’s say a $300,000 per year drug ... Interviewee #7: 30.3.3.

All four referred to the government’s goal of seeking good value for the money. It was recognized as important:

So indeed we have a fiscal responsibility that says if you are going to make a decision it should be the fiscally soundest that you can make given the alternatives ... Interviewee #3: 16.65.26.

Moreover, one interviewee, a key informant, felt strongly that the government adheres to this principle and does not have a hidden goal of cost containment:

The economic analysis is often looked at more in those circumstances where the drug costs and impact are suspected to be large, but these latter factors always take a back seat to the economic analysis. There has never been a circumstance where a drug that was found to be good value for the money - i.e. economically attractive - was reversed or not listed because the potential impact was too large. The economic analysis is viewed by the government as being that important of a factor ... Interviewee #5: 3.26.14-16.

Another agreed with this idea, stating that the only time the Ministry reverses recommendations made by the DQTC is when other factors beyond a product’s clinical value and cost effectiveness enter into the decision. These other factors were labeled
'politics'. In the process of formulary listing, there are many possible political factors that may come into play, but the one most commonly identified had to do with equity; if the perception arose that those on welfare were being denied access to medications the possibility for political fallout emerged. Patient advocacy groups are known to be vocal if it appears that the less fortunate in society are denied access to treatment. The concept of equity is however much larger than this, and will be dealt with in more detail later.

The DQTC is set-up so that the political factors are removed from the decision as much as possible:

We continue to make the recommendations based on other factors - the clinical importance or the economic value. The government has at times reversed the recommendations because of other factors - especially political ones. That is the only reason why they have ever reversed a decision. They get too much heat from very vocal groups, and they reverse recommendations ...Interviewee # 5 : 3.26.26 - 4.5.1-3.

The stance that the DQTC takes on political factors is strong: the members believe their goal is to make recommendations based on the best possible evidence available and to leave political considerations to the politicians. In at least three meetings this stance was firmly taken. In these discussions, the DQTC identified political issues, beyond clinical and economic issues, that could influence the final position taken by the Ministry. The DQTC felt however that they need not factor these issues into their recommendation to the Ministry:

"the political is the Ministry of Health's job, the clinical and economic decision is for the DQTC"...Feb.G.50

And:
"should throw this decision back to the Ministry of Health to make a political decision if need to...politics are separate from DQTC decisions"...Feb.G.21&54

And:

"this is a political decision - have to weigh the political fallout from the impact on the budget"...Dec.A.6

On three occasions the DQTC made recommendations that they felt certain would be reversed by the Ministry because of political issues. However, their stance was unwavering; they did not change the recommendation just to be in line with the Ministry:

"why make a decision just to be in line with the Ministry of Health?"...Mar.M.22.

Importantly one interviewee was a key informant who had extensive knowledge of the interaction between the DQTC and the ODB. He therefore was in an unique position to comment on the role of politics in the decisions made at the DQTC level. He commented that the politics can be removed from the DQTC because they do not have interactions with interest groups other than the manufacturers. Moreover he pointed out that the DQTC itself does not operate under a budget. This frees the DQTC:

The committee operates in an unique situation in that it does not have an over-riding budget. Now the ODB may have a budget, or a cap on what the Ministry would like to spend, but the committee itself does not operate directly under this. Certainly we are aware that the Ministry would like to keep costs down, but this has been done globally, and has not affected the listing of one drug in particular. A drug has never been rejected in an attempt to keep the budget down. The government has never operated in this way. Instead it has issued caps on the budget, or co-pays, or has delayed issuing a new formulary - but cost containment has never affected one particular drug listing ... Interviewee # 5 : 3.26.19.25.
Four interviewees identified the context in which the DQTC operates as an important factor influencing the decision process. However, two of the four stated that a larger factor to consider was that of values. Both stated that values enter every step of the decision making process. This will be discussed in detail in subsequent section.

4.2 Group Dynamics and the Importance of the Presenter

Attendance at meetings varied from meeting to meeting. At some meetings during the observation period there was barely enough members to make quorum (60% attendance). At the seventh meeting there was a change in the committee membership. The chair of the committee was replaced by another member as the chair had been a member for the six year maximum term. One other member left for the same reason. Three other members left prior to the six year maximum - one went on sabbatical, one took a different job, and one left for unknown reasons. All were replaced by new physicians to the committee. The general make up of the committee remained the same, ensuring that areas of medicine for which the majority of new products are produced were represented, for example cardiology and infectious diseases.

The change of members at the seventh meeting had an interesting effect on the group dynamics. The new members appeared to struggle initially to understand all the variables that are involved in the listing process. They were not given any products to present to the committee during the time that I observed them. Moreover they were not allowed to vote and hence rarely involved themselves in the discussions. This occurred because their appointments to the committee had not yet been approved by the Ministry
during the observation period. The remaining members thus formed a small group within the group and made the decisions.

The effect of having a new chair was interesting. Without question there was a familiarization process that had to occur in both directions - the chair had to get used to his new role, and the committee had to get used to his new style. An interesting example of this occurred around what normally is an easy process - that of counting votes. The outgoing chair had adopted fairly standard meeting convention in that people voted in the affirmative whereas the incoming chair thought it more expedient to only raise your hand if you disagreed with the recommendation. This caused confusion, and the members were so unhappy that they asked the new chair to revert back to the standard approach. This helps to highlight the importance of the individual on the decision process.

The importance of the presenter was also illustrated at other times, by other members. For example, in the fifth meeting, a member had been asked to present a product, and during his presentation it became clear that he had not reviewed the material beforehand. He flipped his papers back and forth during his presentation, misinterpreted the external reviewers’ comments, and had to be corrected by his colleagues. He was unable to make a clear recommendation and was asked by the chair to review the material at the break and clarify his comments. While this is an extreme case, it does illustrate the effect the presenter has on the meetings and in turn the recommendations made.

The importance of the presenter to the decision making process was also highlighted in the decisions made by the government employees regarding which DQTC member should present the material to the committee. One member on the committee had background training in health economics, and there was a definite trend that he was
asked to present products for which the economic analysis was vital to the listing decision. There was also appeared to be a correlation between the use of subcommittees to review the material and the complexity of the issues involved in the listing decision. Subcommittees were employed on four occasions, all of which involved innovative products that had the potential for high total costs to the drug budget.

I initially noted the effect of the presenter during the observation component of this case study. Importantly this factor was also recognized in the interviews, being raised without prompting in three but commented on in all seven interviews. All interviewed thought that the knowledge of the presenter was key, and had an influence on the decisions made. The ‘knowledge’ of the presenter is perhaps better labeled as ‘preparedness’, as time to prepare for the meetings was raised as an important issue by four interviewees. One complained about the times when the binder arrived only two days beforehand, stating that left insufficient time to do a thorough review of the area. This interviewee went on to claim that this contributed to ‘skimpy’ and superficial assessments. This claim was strengthened by noting that some consultants’ reports come in too late to be included in the binder that is issued before the meetings. This leaves the presenter in the awkward position of trying to incorporate last minute data into the discussion and moreover the recommendation.

In addition, the DQTC members were concerned about their own ability to do a high quality presentation when they were asked to present a product either that they did not commonly use or that was from a highly specialized area of medicine. Given these particular circumstances the DQTC members felt somewhat reliant on the clinical consultants’ assessments:
I think you can always get consultants, but probably one of the problems that we have, and that has come up several times, is that often people who are asked to present the case at the meeting have not had anything to do with the reviews and I find that to be a major weakness. And I have had to do that, and I find it to be very difficult. Unless it is extremely clear cut, you do not have a good feel for any of the papers or anything, and you are literally reading someone’s review, whatever that is worth ... Interview # 2 : 26.10.6-8.

This frustration was raised by five interviewees, all of whom felt that this ‘over reliance’ could result in poor decisions. Essentially this allows the consultants’ assessments and recommendations to go unquestioned prior to adoption at the DQTC. This is of concern to the DQTC members because they recognize that the clinical consultants usually are positive in their reviews and recommend listing. The clinical consultants are perceived as patient advocates in that they usually see value in having more products available for their patients. A clear example of this occurred in one meeting:

“As the clinical expert, I am uncomfortable with the statements made. We have to be careful not to exclude simply because the economic analysis is absent. The costs of this disease is very high, especially at the end of life, and therefore it is very difficult to do trials. If we demand an economic analysis, this will not be achieved. We must take a broader view. If evidence becomes available - then it would be helpful to determine if secondary endpoints are useful. But as a reviewer, I find it uneasy to dismiss this drug outright”...Feb.G.27-33.

While the consultants are educated as to the different types of listing that a product can receive, rarely do they recommend putting up any type of barrier to a product’s use. Because the DQTC members have the perception of the clinical consultants as primarily patient advocates, one can readily recognize that they are uncomfortable with accepting recommendations carte blanche.

The concern of over reliance on clinical consultants was highlighted further in three products that were discussed in the meetings observed. All three products were for
highly specialized areas of medicine, and therefore were used by a small number of sub-specialists. In all three discussions comments were made by DQTC members as to their lack of knowledge about the subject matter, their inability to question the claims and their resulting dependence on the consultants. They felt they had no way to disagree with the clinical consultant:

"This is a highly specialized area, and who are we to question this - we have to give them leeway to make those decisions especially when they will do this anyway"...Jan.C.12

And:

"We are way out of our league to comment on the use in such a disease area"...Mar.C.23

It is true that these account for only three products discussed out of a total of 134, but they are important outliers to note. Usually clinical claims of efficacy and safety are carefully dissected for validity by the DQTC members and the external experts' recommendations are only one factor in the decision making process. The DQTC members recognized this shortfall too:

"Just because the area is super-specialized does not mean that the rules do not apply"...Jan.C.13

These discussions were labeled with the ‘limitations of the DQTC’ code. The decision making process will be more fully detailed in the next section, but these three cases further serve to illustrate the importance of the DQTC presenter on the decisions made.

4.3 The Type of Drug and its Effect on the Decision Process

In nine meetings observed, one hundred and thirty four drugs were discussed. 53 of the 134 were generic products, 49 were me-toos and 32 were innovative products. A
generic product is one that is essentially a copy of a product that is already in use; it has to be bio-equivalent and interchangeable to receive this label. A me-too is a product that has similar modes of action, benefits and side-effects as other products within a well defined class. The extent to which the product achieves the clinical target varies, and hence the products are not exact replicas - they are not bio-equivalent and therefore are not generics. Innovative products are those which have a totally new mechanism of action for a given disease process; by definition they are the first of a class of new products.

The type of product that was discussed - generic, me-too or innovative - had a substantial effect on the discussion that took place. This became evident early on in the data collection period. In the subsection that follows this influence on the decision making process will be detailed for each drug type in turn. In addition, examples will illustrate how the drug type influences the relative importance of the other key factors. Each remaining key factor - clinical merit, quality of data, consistency, cost and impact analyses and the economic analysis - will also be discussed in separate sections later in the body of this thesis.

The number of products discussed at each meeting varied from 10 to 30. Tables 1 through 9 detail each decision made at the monthly meetings. The type of drug, the key factors important to the recommendation and recommendation itself are outlined in each table. By looking at the tables it is clear that the decisions differ in complexity based, to a large extent, on the type of drug discussed. Because of this early observation, I isolated this variable in subsequent meetings to see if this observation remained true, and it did.
Moreover, I questioned the interviewees about this, and all 7 agreed that this is an important factor to consider when explaining the decision process.

4.3.1 Generic Products

The amount of time that was allotted to product discussion differed greatly. For example the generic products were often discussed ‘en bloc’. Up to 12 generic products were discussed at one time if they all met the criteria for bio-equivalence. Only if concerns were raised about a product’s submission would a more detailed discussion ensue. An example of the block vote occurred in March 1998; please see table 4, March F. Because there were no concerns about the submission, all 11 were discussed and voted on together:

"the block vote is the easiest thing to do"...Mar.F.3

The manufacturers and the government have an agreement whereby generic products of reference products listed on the provincial formulary will be added as long as they are chemically interchangeable. This agreement was reached because by regulation the unit cost of the generic drug is considerably less than the original (anywhere from 60-75%).

This being the case, the decisions are cost driven:

If it is a generic all they need to think about is price, and me-tooos that are therapeutically equivalent. They only need to think about price and showing equivalence. That’s an economic analysis ... Interview # 7 : 26.6.3-6.

The generic products that were not approved for listing in the observation period appeared to fail for four main reasons. The first, and most common reason was a clinical one. Either the product failed to prove chemical equivalency or other clinical concerns were raised. This occurred with ten submissions. The second reason was closely tied to the first, and had to do with the quality of the submission. This concern surfaced on eight
occasions because either insufficient data was submitted by the manufacturer or questions regarding the conduction of the bio-equivalence study were raised. The third reason was that the product did not have a reference product listed on the formulary (i.e. consistency factor). Consistency was a key factor on four occasions for generic products. The fourth reason why generic products were rejected emerged when the manufacturers sought a price premium over the reference product (i.e. impact factor). This happened three times.

Table 10 quantifies my impression of the relative importance of each factor - clinical, quality, consistency and impact - on the decision making process with respect to generics. Each of the key factors will be discussed in more detail in subsequent sections. It is apparent from first glance that discussions surrounding generic products are more straightforward than those involving me-toos or innovative products. One can readily see that in the vast majority of generics that were submitted for review (41/53), cost was the most important factor. This table contrasts the relative importance of the coding factors based on the type of drug discussed. Table 11 is similar in that it contrasts the complexity of the decisions, again based on drug type. It does not quantify the factors, but rather points out key interactions between them.

4.3.2 Me-too Products

Me-too products are those that belong to a well established class of products. Many of the discussions at the DQTC involved this type of product - 49 out of a total 134. The discussions of the me-too products were divisible into two camps depending on whether the manufacturer had asked for a price premium. Given a me-too product met standards of clinical efficacy and safety, those me-toos not seeking a price premium were
well received at the DQTC and often succeeded in their bid to be listed on the provincial formulary. Those me-too products that did however seek a price premium were handled in much the same way as the innovative products (see below). All aspects of the submission were more carefully reviewed, and the relative importance of proving the claims increased. More factors came into play in these decisions too; they were not so clearly driven by unit costs as the first camp of the me-too products were. This is also illustrated in tables 10 and 11.

An example of a me-too product not requesting a price premium occurred in March 1998. The product (Mar.D) was discussed quickly at the DQTC meeting. Because there were no clinical concerns, the discussion turned quickly to economic issues. Again the discussion was brief because the manufacturer had priced the product to be less expensive than its competition:

"hope that this drug, which is cheaper, will cause a spiraling down of drug costs in this area"…Mar.D.10

In this discussion the cheaper cost was attractive to the DQTC members because potentially the overall impact to the drug budget could be reduced. Thus for this product there were really only two key factors - the unit cost of the drug and the overall impact to the drug budget. The discussion was allowed to be that focused because there were no concerns regarding the product’s clinical efficacy and safety. Because there were no clinical concerns, the discussion paralleled that of a generic submission.

The discussion surrounding a me-too product requesting a price premium was, by necessity, more complex as the manufacturer had to justify the increased cost. An example that illustrates this well occurred in the June meeting. In this example, the class of product has wide spread applications in a rapidly growing market. The provincial
formulary had previously given several drugs from the class a general listing. A large amount of time was spent reviewing the clinical data, as this served as the basis upon which the manufacturer sought a price premium. The manufacturer claimed that the product was more potent than its competitors, and therefore would require a smaller dose to achieve the same goal. The manufacturer had therefore priced its product so that if this were true, it would be at the same price as its competitors. However, if this were not true, and higher doses were required, than the drug would actually cost more than its competitors. The crux of the argument therefore became the clinical efficacy, and more specifically the effect size. Much time was spent dissecting this data at the meeting, and the quality of the submission soon came into question:

"no comment was made as to whether this was an important difference. Wonder if it is statistically different, but not reported because it is in favor of the other drug (the competition)"...June.A.33,34.

And:

"think that the company overestimated potency and underestimated the potency of the other drug companies products. Have to use care, this may add too many products to the formulary"...June.A.37,38.

The DQTC members came to the conclusion that there was insufficient data upon which to make a decision regarding listing. They were suspicious of the manufacturer’s claims, and felt that data had been carefully chosen to portray the product in its most positive light. The DQTC was left with the concern that if the claims were not valid that the potential costs would outweigh any benefit:

"if this does not do a good job, then the dose will have to be increased which will markedly increase the price and then the drug will cease to be attractive. Marketing will push the use of this drug"...June.A.43,44

And:
“Have they underestimated the competitors? How would this impact or translate into the drug’s cost benefit ratio?”…June.A.52,53.

From the discussion it was clear that this had to be clarified before a decision could be made. The key factors influencing the decision to defer were clinical efficacy, cost, impact analysis and data quality. By contrasting this example with the previous example of the me-too not seeking a price premium, it becomes clear that the price premium itself increases the complexity of the decision.

4.3.3 Innovative Products

The discussions involving innovative products were often the most complex with the most factors surfacing. This is understandable given that innovative products are the first of a new class of product. They may even be the only treatment option available for a disease process. This in itself creates difficulty for the decision process. Most obvious is the problem that this creates in terms of defining the appropriate comparator - if there is no other treatment option - how does one fairly evaluate the product both in terms of its’ clinical efficacy and its’ cost effectiveness? This clearly has repercussions in that the data available are limited, and analyses stemming from poor quality data may consequently suffer. Because the decision making process at the DQTC is so evidence driven, insufficient data was a source of frustration for four interviewees.

The more subtle problem that was created was of a political nature. In this sensitive situation where there were no other treatment options available, the committee felt pressure not to deny any possible treatment that may have some clinical value. These situations challenged each committee member to state their value system, and thus some became patient advocates:
“This disease process has not had an innovative product for a long time, and therefore it is important to recognize this and promote this drug”…Feb.G.33

And:

“Should we list this because it is an innovative drug”…Feb.F.7

These situations were rare, but lead to important insights into the role of values in the decision making process. Again, this will be discussed in a subsequent section.

The complexity surrounding decisions for innovative products is best illustrated by an example. In the example the focus was initially on one innovative product (A), but at the end of the discussion it enlarged to encompass another similar product (B) that is used to treat the same disease process. While this helped to promote consistency of decision making, the focus of the discussion remained on the initial product (A). The data submitted by the first manufacturer was carefully reviewed, and again much time was spent analyzing the validity of the clinical claims. Concerns raised in the discussion centered on the submission’s heavy reliance of unpublished clinical data that was not peer reviewed. The DQTC felt that the important clinical claims could not be clearly supported. The overwhelming sentiment was clear; the manufacturer supplied too much unimportant clinical information and not enough important information:

“The manufacturer is concerned with minutia. It is difficult to sort through these new concepts to see if they are clinically important. But these are really side issues - the overall evidence here is poor. There is no good evidence to support this claim”…Feb.A.31-35.

The clinical claims were central to the case that the manufacturer was making as to why this product should receive general listing. The manufacturer had some theoretical evidence to suggest that the product may in fact be economically attractive. However, as
the economic arguments were based on the clinical claims, they too were poorly supported. This had clear repercussions on how the economic analysis was perceived:

"The economic analysis here is flimsy. I am skeptical that it represents the truth. The economic analysis is less than clear"...Feb.A.17-18&21

And:

"The problem is that if the clinical data stinks then you cannot do an economic analysis"...Feb.A.79

The DQTC members felt that they could not however dismiss the product outright, despite the fact that the data were poor, because the product was already the favored product of specialists in the field. The product had strong supporters, who pointed to the difficulty of doing studies in this disease. This concern was raised not just by the clinical consultant, but by DQTC members who used the product. Personal experiences were used as testimony to support the product's request for general listing. The DQTC was split on the issue of whether the data submitted were enough to support the product's bid for general listing. The supporters felt that there was enough theoretical evidence to suggest that the product could have an attractive cost-effectiveness ratio. The other members however were not convinced. They pointed to the growing market as the reason why stronger evidence was required; the potential impact on the drug budget was considerable. Despite the fact that the focus of the discussion was on product A, the vote was held for both products. Both were not approved for general listing. Some members were very vocal about their disapproval about the outcome.

The DQTC sent letters to both manufacturers asserting the decision to deny general listing. In response to the criticism of insufficient data, the manufacturer of product B sent in four supporting studies. The new data forced the discussion to be
reopened, and the decision to be questioned. At the next meeting the DQTC again carefully scrutinized the validity of the clinical claims. All four studies were published, and felt to be of high quality. This time the DQTC conceded that the theoretical arguments made by both manufacturers may be valid; both products may reduce costs in other health sectors and therefore be good value for money.

The focus of the discussion then turned to the difference in the unit costs of the two products. Product B, which now had good data to support its request for general listing, was more expensive than product A. The DQTC did not however believe that the price difference was justified. As both products had similar mechanisms of action and side effects, the DQTC did not believe that the products would be different in achieving clinical goals. Because the estimated impact on the drug budget was large, the concern over high unit costs was even more at issue. The DQTC perceived itself to be in a very difficult position: Product B was more expensive, but had strong supporting data; product A was less expensive, but had questionable data. The DQTC asked the chair to consider deferring the decision so that the manufacturer of product B could justify the higher costs, but the chair strongly discouraged this move. He pointed out that the manufacturer could simply point to the evidence as reason enough to justify the price difference. In addition he stated that a motion to defer would not likely result in a lower unit cost. At the discussion's end, the DQTC felt that they had no choice but to give both general listing. They recognized that the manufacturer of product A slipped by with a poor submission, and was rewarded with a general listing. The DQTC members reconciled this however by focusing on the one positive aspect of having both receive
general listing - that by allowing for competition in this area the overall impact to the
drug budget may be lower than it might have otherwise been.

This example is complex, with many factors playing a role in the final decision to
list the product. The important factors included the clinical merit of the product, the
quality of the data, the need for consistent decision making, the unit cost, the impact
analysis, and finally the economic analysis. All these factors were important to the
decision at different steps in the process; it is hard to say that one was clearly more
important than another.

Figure 2 outlines the decision process, and which factors are important at each
different stage. One can appreciate that the type of drug is an important factor early in
the process as it dictates which factors will later surface. The next important factor in the
decision making process is the clinical data; all subsequent factors are affected to some
degree by the product’s clinical merit. This idea will be expanded upon in later sections.
The quality of the data is also important to the decision process; it affects the believability
of both the clinical and economic material. The economic data are tightly tied to the
clinical data. If the clinical data are strong it is likely that the economic data are too; the
converse is also true however. The impact analysis and unit costs act as magnifiers: if
both are high then all aspects of the submission are more closely reviewed. Values enter
the decision process at all levels, not just in the economic analysis. They are more likely
to play a significant role, however, in decisions related to innovative products. All these
ideas will be addressed in more detail in later sections.
4.4 The Importance of the Clinical Factor

Despite the importance of the drug type in shaping the discussions that took place, it was not as important as the clinical factor. The clinical factor was clearly the driving force in the decision making process. Proportionately more time was spent addressing the clinical claims than any other aspect of the submission. The studies submitted by manufacturers were reviewed initially by the clinical consultant and later by the DQTC members. The studies were assessed in strict terms for clinical efficacy and validity (this will be discussed in more detail in the next section). The clinical efficacy was at the forefront of discussions, and was referred to again and again. The strength of the clinical claim was key in that it affected all aspects of the manufacturer's submission. If the clinical claims were not supported, then the discussion ended. The DQTC felt that if the clinical data were not strong enough to support listing then there was no point to discuss the submission further. The product had to have some clinical merit.

In addition the DQTC assessed the submission carefully to see what the product could accomplish at different doses. While products are often available in different strengths on the formulary, it is commonly understood that different doses achieve clinical benefits to differing degrees. The effect of product strength on the ability to achieve clinical targets is referred to as 'effect size'. The choice of product strength allows physicians to have flexibility in clinical practice, and therefore is desirable. However, the DQTC members had to ensure that the product could actually achieve clinical benefit throughout the dose range. Moreover this concept of effect size has clear ramifications on the economic data submitted by the manufacturer. Products have a range of unit costs, which clearly can influence conclusions drawn in both the impact and
economic analyses. Different product strengths with different prices have different cost-effectiveness ratios; at one dosage a product may be economically attractive, while at another dosage it is not. The perception at the DQTC meetings was that the manufacturers were well aware of this, and used the dosage that made the product the most economically attractive in the submission:

"the economic and impact analysis uses the cheapest dose to make it look more attractive"…Dec.G.2.

And:

"it depends on the drug dose used to determine cost - motion is to reject until the dose is clarified and clear up how much of an impact this will have"…Dec.G.1&4

And:

"when increase the dose it will be very costly because there is no bigger tablet - will have to take two and double the cost"…Feb.I.17

Unfortunately it was not uncommon that the dose used in the analyses was not always the most clinically relevant. Assessing the value of a product over its complete dosing range was a key part of the assessment made at the DQTC meetings. It was integral to the clinical merit ascribed to a product.

The product’s side effect profile was also a concern for the DQTC members. The possibility of severe and devastating side effects often resulted in denial of general listing. In these circumstances the DQTC wanted to ensure that the product would be used safely, and therefore recommended restriction to use by a specialist only. If side-effects were common to a class of drugs then suggestions would be made to review the entire class rather than only restrict the one drug:
“There should be a concern that may have inappropriate use because one of the drug components...therefore recommend deferring this decision until we can review the entire class of drugs”...Feb.E.4&9.

Products were also reviewed carefully at the DQTC to ensure that abuse of product was minimized. Often products are used in populations that have a similar but unrelated condition than that of the target population. This was of concern to the DQTC for one of two reasons: clinical or economic. Because the ‘abuse potential’ code appeared to be part of two larger codes -clinical and impact - it was dissolved, and information went to the relevant code. The clinical concern was paramount if there was any concern about the product’s side effect profile. Under these circumstances the DQTC wanted to reduce the population at risk for developing problems:

“May have special benefits in a certain part of the population, but will have abuse in the elderly where the side effects could be dangerous. Therefore I recommend rejection based on the cost and the potential abuse problem in the elderly”...Feb.J.8,9&13.

And:

“May be used in patients for whom this drug was not intended - should we limit the use of the drug to a certain group of patients and therefore decrease the abuse potential that exists?”...Feb.A.61&66.

The concern that a product would be abused in wrong patient populations also had economic concerns. Impact analyses are based on prescription projections; clearly the manufacturer’s estimates would be wrong if the product was used more widely than intended. The overall cost to the drug budget could be much higher than projected, and therefore make a product less attractive economically. Under these suspicions products were often rejected.
The effect of the clinical data on the economic analysis is obvious. The economic analysis is based on, and therefore dependent on, the clinical data. This inter-play between the clinical and economic analysis was noted in all the interviews:

Oh, I think it is still primarily efficacy and safety. Cost is an issue, but the first that even economic analyses hinges on is effectiveness. So I think it is much more an important issue initially to look at issues of efficacy and safety ...Interview #4: 6.8.1-3.

And:

The most important thing is to carefully evaluate the products benefit, the clinical benefit. You have to carefully look over the clinical data to ensure that the product does what it says it will do, especially in the most used dose range. The committee’s strength is really clinical, and it has to ensure that the reported benefits are worthwhile and attainable at the given dose range. The economic analysis is secondary to this ...Interview #5: 1.8.1-5.

And:

If people are not convinced, lets just say on the effectiveness side, for example, then its mute what the cost-effectiveness is, so it (the economic analysis) will not get discussed in that circumstance ...Interview #2: 10.10.3.

In addition, the strength of the clinical claim also influenced the degree to which cost and impact were discussed - products with clear clinical advances were perceived more favorably than those that did not. If the product was clinically important, then all other factors became secondary.

4.5 The Importance of the Quality Factor

The quality of the data is another important factor in the decision making process at the DQTC. It definitely had an effect on the decisions made. Issues of quality are important to both the clinical and economic claims. If either aspect of the submission had
poor quality data, the entire submission was poorly perceived. This was especially true for the clinical part of the submission as this challenged the product’s clinical merit. The DQTC members also felt more comfortable critiquing the clinical claims made by the manufacturer than they did the economic claims. The DQTC members therefore reviewed the clinical claims in detail, are were often critical:

“The small changes in the data are meaningless”…Mar.A.17

And:

“Have surrogate data but not good quality data to support this claim”…Feb.I.5

And:

“data given is hard to interpret, had to know if it is valid”…Mar.X.67,68

Moreover, the DQTC members recognized that the manufacturers were trying to present products in the best possible light so that the products would be favorably listed. This too lead the DQTC to review the submission in great detail. Any hint that data presented were skewed to reveal only the positive resulted in heavy criticism:

“The questionnaire was specifically designed to the product, possibly manipulated the questions to get positive responses”…Mar.W.12,13.

At times the DQTC felt that the manufacturer was trying to slip something by the committee, or was being less than fully honest:

But one has to ensure that the manufacturers have not sufficiently manipulated the data in these circumstances to get something by …Interview #5 : 3.26.5.

Moreover, the external consultants had similar impressions:

Sometimes you will find stuff in the binder if you are willing to play detective. Sometimes you can find things hidden away that contradicts
Everything else that they said. It makes you wonder if their conclusions are valid … Interview #1: 73-75.

The external consultants often complained about poor organization of the submissions. Three interviewees stated that they often had to spend one to two hours organizing submissions before they could start to review them. This definitely increased frustration levels, and made these interviewees more critical of the submission in general.

Poor clinical data most often resulted in the dismissal of the rest of the submission. The economic data would not be reviewed in detail if the manufacturer had failed to make a case for the product’s clinical merit. In these circumstances the DQTC would commonly reject the product for listing, or would defer the decision until the data were clarified by the manufacturer:

“cannot give a reasonable motion because the data is fuzzy”…Mar.S.39

And:

“motion is to reject until this is cleared up by the manufacturer”…Apr.I.9

The quality of the economic analysis was also important to the decision process, but was less crucial than the quality of the clinical data. The economic consultants are required by the Ministry to comment on the quality of the economic submission in their reports. However the presenter at the DQTC meetings did not have such a requirement; it is up to their discretion to mention it at the meetings. I noted that extreme cases were presented; if the economic analysis was of poor quality there was a greater chance that it would be mentioned by the presenter:

“the worst case was not presented, the sensitivity analysis was not complete, there was no quality of life data. We should not approve until direct comparisons are made to the competitor”…Dec.K.7-9.
And:

"this is the most disorganized and inefficient economic analysis ever seen"…Feb.F.3

And:

"the economic analysis is grossly flawed and misleading"…Dec.C.3

I had hoped to review the economic consultants’ reports to get a more complete assessment of the quality of the economic submissions. However access to these reports was denied because of the confidential nature of the material in them. My general impression is that the overall quality of the economic analysis is fair to poor. The importance of this observation on the role of the economic analysis will be discussed further in the section entitled ‘The Role of Economic Analysis’.

4.6 The Importance of Consistency

Another important factor that came up frequently related to consistency of decision making. The DQTC felt strongly that in order to make good decisions, one had to ensure that the decisions were consistent with those made in the past. That meant treating like products alike, and for this reason the consistency factor was most relevant to generic and me-too products. In the generic arena, for example, a product could not be listed if the reference product was not listed. For me-too products the DQTC considered past ‘decision rules’ that were applied to products in the same class:

"how can we reject this drug when the other was listed just six months ago”…Dec.K.10

And:

"it is hard to defend why we reject one and list another”…Mar.I.23
In addition, when the DQTC dealt with me-too products they often considered the median unit price when making a listing recommendation. There was pressure to ‘protect the median’, and any decision to list products well above the median were deemed inconsistent with the philosophy of attaining good value for money:

“This product is cheaper compared to alternatives in the same class but it is more expensive than others used to treat the same condition. Concern that a general listing will erode at the proper use of other cheaper drugs and therefore increase the overall cost in this class of drug”...Jan.F.2.4.

And:

So most of the time the committee’s mindset is ‘we don’t need yet another and we certainly don’t need yet another more expensive and we certainly don’t need another when the old one is going to be genericized very soon. So we think ahead a bit, you know... Interview # 7 : 32.9.3-5.

Consistency was also important in the decisions made regarding innovative products. The DQTC considered the effect of current decisions on future ones, and so as much as possible they grouped like products together to discuss at one meeting. Subcommittees were often assembled to assist this process. Grouping the products together helped to ensure that equal attention was paid to important factors for all the products, and thus the decisions were consistent and fair.

4.7 The Role of the Unit Cost and the Impact Analysis

While the clinical factor was the key factor in most decisions, regardless of the type of drug, economic information was also important in the decision process. The unit cost of the drug, the impact analyses and the economic analyses all had a role to play. At the DQTC meetings it was apparent that those variables are heavily dependent on each other. The unit cost of the drug, for example, drives the impact analysis. The impact
analysis is estimated by multiplying the unit cost by the expected number of prescriptions written per year and finally subtracting the cost of the competitive products that it is expected to replace. The relationship is therefore quite straightforward: a higher unit cost results in a higher potential impact to the drug budget. A similar relationship exists between the unit cost and the economic analysis. In simple terms, value for money is estimated by looking at the ratio of incremental health benefits to incremental costs. A higher unit cost means that the benefits cost more, which in turn means that the resulting ratio increases too. Therefore, higher unit prices equate to higher impact estimates, and less favorable cost-effectiveness ratios.

Any product with a high unit cost was carefully assessed before it was listed because of the associated large impact to the drug budget. The DQTC members easily understood this relationship, as it was referred to time after time:

"problem is the cost - it is very high when compared to its competitors, and therefore the potential impact is huge"…Feb.J.12

Many sections of data were labeled with both the cost and impact codes because they were discussed together so often.

Costing tables were provided at DQTC meetings that listed all products available on the formulary for a given disease process, and the associated dosage and price ranges. These tables appeared to assist decision making and were used most frequently in the decisions pertaining to me-too products. Given that a me-too product had succeeded in making its case on clinical merit, simple unit costs provided adequate economic information; from this either a cost comparison or cost consequence analysis could be performed.
The impact analysis, despite its dependence on the unit cost, appeared to also have
an independent influence on the decisions made at the DQTC meetings. It was referred to
most circumstances, both when the expected impact was large and small:

"the impact will be small on the ODB because there are so few patients
that the decision of whether to list the drug, or where (general, limited
use or section 8) does not really matter"... Mar.B.13.

Much time was spent dissecting two important aspects of the impact analyses: effect size
and which competitive product was projected as having the largest reduction in
prescriptions written. Both aspects strongly influence the overall impact that an
additional product on the formulary will have. This was quickly recognized by DQTC
members:

"some products will be used less if this drug is listed - this may reduce
costs to the government if it takes away from more expensive drugs, but
may be more expensive to the government if it takes away from cheaper
drugs"...Dec.H.5

And:

"drug A is more expensive than drug B, therefore we should list drug B
as a general listing to decrease the use of drug A"...Mar.X.31

The impact analysis was therefore important to all decisions made at the DQTC. It acts
as a magnifier to the entire process; if the estimated impact is high, then all aspects of the
submission are more carefully scrutinized.

4.8 The Role of the Economic Analysis

Initially it was unclear whether the DQTC members understood the importance of
looking beyond the unit costs and impact analyses to the value for money. Economic
analysis is thought to give a more complete picture of the true costs associated with a
decision; it looks beyond simple unit prices and beyond the impact on the drug budget. Done well, an economic analysis explicitly outlines the true cost of a product by contrasting gains against losses. All important health outcomes and health care costs are to be recognized in an economic analysis. In this way the true costs of the competing benefits are clearly detailed so that an informed decision can be made regarding what the benefits actually cost. This means that outcomes that could have been achieved had another choice been made also has to be acknowledged. Because economic analysis is designed to explicitly outline what different choices entail, it is theoretically the ideal decision aid in the health care sector.

This is especially true in Canada as the Canadian Health Care system has been fractured into 'parallel silos' that have different leaders with different goals and different budgets. The resulting streams of health care historically have not been very responsive to one another, and have operated independently. They have not had to consider what repercussions actions have on other sectors. This has resulted in problems in the past, as costs have been shifted from one area to another. Economic analysis however forces one to consider the whole picture - not just the gains and losses to the drug budget, but to other areas as well. For example, a drug that decreased admission rates would have to be seriously considered, even if the unit price initially appeared unreasonable. The DQTC made such a decision at one meeting:

"will have a huge impact to the ODB but may save in other areas. The drug branch is OK with this, and is willing to accept the shifts in costs to them and away from hospitals"...Mar.X.109

Despite the theoretical basis for the application of economic analysis to the formulary listing process, the submitted economic analysis provided by the manufacturer
and the consultants' assessment of these were not commonly discussed at each meeting. At first I thought it was either because the analysis itself was not understood by the committee members or because the economic analysis itself was not important to the decision process. To sort this out, I contrasted the situations where the economic analysis was routinely discussed with those in which it was not, and found that it appeared to be related to the type of drug discussed. Generic products and me-toos not requesting a price premium are typical of decisions that are not dependent on a sophisticated economic analysis. In both situations all that is required to make a decision is a simple cost comparison because the clinical benefits are the same. It is therefore quite appropriate that the discussion revolve around unit costs. The same however can not be said about innovative products or me-toos requesting a price premium. In these circumstances the manufacturers are required to provide documentation as to what the costs are per unit of clinical benefit, and moreover to justify the costs. A simple cost comparison cannot be enough in these circumstances. More detail is needed to make a decision; a cost-effectiveness, cost-benefit, cost-utility or even a cost-consequence analysis suffices. The Ontario Pharmacoeconomic Guidelines outlines this clearly to the manufacturers so that these requirements are clear.

However, the economic analysis was not commonly discussed even when discussing me-too products with a price premium or innovative products. Again that observation was puzzling. After careful investigation it was clear that the economic analysis was not being discussed for one of three reasons. The first, and most easily understood, was that it was not provided by the manufacturer. This occurred once for an innovative product. In this situation the manufacturer claimed that both the benefits and
costs were too difficult to estimate for a given disease. This was not well received at the DQTC, and the stance taken by the DQTC was clear:

"in the absence of the economic analysis the manufacturers leaves it to the subjective opinion of the Ministry of Health and the DQTC"...Feb.G.34

The second reason why economic analysis was not mentioned was because the clinical data on which it was based were not strong. Usually the DQTC discussed the clinical merits of a product before going on to discuss the economic aspect of the submission. It was felt to be unnecessary to discuss the economic submission if the product had failed to make its clinical case, as the clinical merit is the key aspect of the submission. Again this is a logical reason not to formally discuss the economic analysis in detail at the meetings: the decision not to list had already been determined by the lack of strong clinical evidence.

The third reason why the economic analysis was not discussed in detail had to do with the quality of the economic analysis itself. As stated previously, the economic analysis is only as strong as the clinical evidence on which it is based. If the clinical data were not strong, or were based on a short period of time, then this requires the economic analyst to make certain assumptions about the products long term effects. The quality of the assumptions made during the economic analysis has a strong influence on its credibility. The weaker the basis for the assumptions, the more likely the economic analysis will not be believed:

I think that in many instances there are other reasons why the discussion of the cost effectiveness is rather moot - because the analysis is poor, or the assumptions are too great or there is no good evidence that it actually reduces other utilization ...Interview #2: 10.10.7.
Again, it makes sense that if the economic analysis was not believable then it would not be discussed in detail at the meetings. Three of those interviewed thought that it was the role of the economic consultant to make it clear to the committee whether or not the economic analysis was of good quality and therefore could prove useful in the decision making process. One interviewee felt this was his primary role as an economic consultant.

The economic analysis was only discussed in detail in a handful of discussions. However I discovered that the committee was doing its own cost-consequence analysis during the meetings. If the submitted economic analysis was less than helpful, the committee would compare unit costs of alternative products to estimate cost effectiveness ratios. This was most easily done when discussing me-toos requesting a price premium as costing tables were provided at the DQTC meetings. The incremental costs and benefits are then estimated easily:

There are some that are so absolutely clear that you do not have to read an economic analysis to come up with the answer. You look at twelve dollars a day versus three dollars a day for (two products in a class) - and you know that the studies are not so compelling that there is so much a difference - so there is no contest ...Interview # 3: 23.52.1-2.

The members use the costing information to estimate a product’s cost effectiveness. Less information is available about innovative products and their appropriate comparators.

Nevertheless, the DQTC could still perform its own cost consequence analyses in these circumstances:

So when you say that people focus on price - the price of a drug - they’re incorporating in their minds the benefits based on the effectiveness...so people do a back of the envelope analysis without the formal stuff. The economics group looks at the formal stuff but when it comes to the Committee they look at that recommendation and see it is comparable to other interventions and it is believable - but they always revert back to
their own way of thinking about it, which is safety, effectiveness and
effect size - and then they’ll look at the cost of the drug. And they’re not
just looking at the cost of the drug, they’re incorporating what they think
the economic differences are on the benefit side ...Interview #7: 2.25.22-25.

All interviewed members of the DQTC thought that the economic analysis was
important to incorporate into each decision. They perceived it as a powerful tool that
could aid their decisions. However, they also mentioned some aspects of the economic
analysis that limit its usefulness. Mentioned most often were methodological problems
that are not readily fixable when one employs economic analysis to help with formulary
listing decisions. The interviewees had concerns about the reliance on assumptions in
economic analyses. Three interviewed however recognized that the assumptions will
always be greater when the economic analysis is done early in drug development as not a
lot of long term information is known:

I think one of the things that I have found a bit frustrating reviewing
many of the economic analyses is that the nature of what we are doing
means that the product is in a relatively early stage in terms of its
development, at least in terms of clinical trials and clinical practice. And
so many of the economic analyses that I read I find it very difficult to be
able to make any firm judgment of the cost-effectiveness because studies
have been very short, a tremendous number of assumptions have to be
made about long term effects, or side effects, so a lot of things that I find
a bit frustrating, I think, is realizing that probably it is only the minority
of economic analyses that are new that I can really say at the end of
reading it that this product is going to save us money ...Interview #2:
38.16.4.

This problem is unlikely to resolve quickly as manufacturers seek listing relatively early
in product development. The assumptions will be always more numerous at this stage
which will continue to influence the ability of the economic analysis to serve as a
decision aid.
The other way in which those interviewed thought the economic analysis was limited had to do with the value judgments that are made in such an analysis. Again this is a methodological problem: value judgments enter economic analysis at every stage - from the perspective taken, to the benefits and costs included in the analysis to the way in which the benefits are counted. Moreover the researcher's values also affect the assumptions that are made in the analysis. The conclusions drawn by the analyst are also driven by value judgments - if you do not agree with the values that were emphasized, then you ignore the analysis. This has long been viewed as a weakness of economic analysis right from the beginning of its development. But the economic analysis was never intended to give one correct answer - what one believes to be valuable will always be a personal decision. The intention of economic analysis is to make the decision making process more explicit by detailing what was seen as important enough to be included in the analysis, and what was ignored. It was intended to be used as a means of critical thinking, not as the way to the one correct answer.

Two interviewees recognized the importance of values in each step of the decision process at the DQTC, and stated that its influence is not limited to the economic analysis. They recognized that this occurs because each member has their own set of values that influence the decision process:

So people bring a whole world view of their societal principles ... Interviewee # 3: 8.44.34

In addition they both felt that values are pervasive to the entire process; one cannot readily isolate this factor from either the end result or the process leading to it:

and then you come down to values, you can never get away from values ... Interviewee # 7: 8.8.2-3.
One’s value system will determine how one views each aspect of the entire submission. Importantly it can influence even the most basic factor of the decision making process - clinical merit. Different physicians have different perspectives as to what disease processes are important to treat. For example, one member suffered from seasonal allergies; he was vocal about the importance of having allergy medications on the formulary. Having different values and perspectives however can aid the decision making process as it ensures that different viewpoints are recognized by the committee. This was well stated by one interviewee:

   It is better to have opinionated, vocal people who speak up and bring up issues, whatever they may be. It broadens the decision. When member A and member B were on the committee they functioned as complete opposites. Besides being interesting, it also made sure that all views were represented. It is a problem if there is no discussion, which happens at times…Interviewee #5:9.7.2-4.

In addition, one’s values play a role in how carefully one scrutinizes the data; if one strongly believes in a product, then one may not look for reasons not to list it. The opposite is also true. This phenomenon was commented on at different meetings when it appeared that the consultants gave positive recommendations despite a paucity of data.

   Value judgments also are very important to how one views the economic data. Different costs will be acceptable to one member, but not to another. Different members will think that different costs should be included in an economic analysis, while others will disagree. One of the interviewees stated that the government’s goal of seeking value for money can be interpreted differently by different committee members:

   Now, what does it mean to be fiscally responsible? Depending on your interpretation means ‘I never spend anyone’s money’, or ‘I think I’m getting good value for the money, but I’ll always spend that money to get it’ …Interviewee # 3: 16.65.7-8.
This however relates back to the original intention of economic analysis - it was intended to provoke discussion, not to give one correct answer. The goal of attaining 'value for money' can therefore have different interpretations.

Figure 3 outlines the many different factors that influence the usefulness of the economic analysis to the decision making process. The most alterable is the presenter at the DQTC meetings; if the presenter was well versed in health economics this could aid the decision process by ensuring that important issues central to the analysis were raised. The other factors that affect the usefulness are not as easily changed. The context in which the economic analysis is applied will always be rich with politics and value judgments. Moreover, because the economic analysis is required early in product development, other methodological problems will persist. Most importantly, the strength of the clinical data will always determine the outcome of the economic analysis.

Those interviewed generally spoke well of the concepts of economic analysis and of its application to the process of formulary decision making in Ontario. Economic analysis was therefore generally well perceived by those who use it, despite the fact that its use appeared to be limited in the decision making process. The reasons for this paradox are unclear, and could be the focus of future research. Whether the economic analyses actually altered any of the listing recommendations is also difficult to assess; it is clear that the overall decision making process is quite complex.

Unfortunately I was unable to review the official documents containing information as to the quality and type of economic analysis most commonly used. My perception is that the overall quality of the submitted economic analysis was poor; this further limited the usefulness of the economic analysis. I can only speculate that the
economic analysis provided are of a simple nature given that the majority of products that seek listing are generic and me-toos.

In sum, the data gathered in this thesis point to one conclusion: the economic analysis plays an important, but limited, role in the decision making process. This hypothesis was first generated in the observation phase of the thesis; observing how economic analyses were used in practice was invaluable to the generation of this hypothesis. Overall the economic analyses were infrequently mentioned during the decision making process, and the relative importance of each economic analysis to each recommendation was clearly influenced by many other key factors. The interview process was also important to the development of this hypothesis. The interviews helped to confirm why the economic analysis played a limited role in the decision making process. During the interviews the importance of the interaction between the economic analysis and the context in which it is applied became apparent. This was an important insight as to why the economic analysis has a limited role overall in the decision making process. This will be discussed in more detail in the next chapter of the thesis.
CHAPTER 5

Discussion

The main question of this thesis was to study the role of the economic analysis in the decision making process at the DQTC. Four sub-questions were developed to help reach the answer to the main question. For ease of reference, these sub-questions are as follows: how did the DQTC members perceive the economic analysis? Did the economic analyses alter product's listing? What was the overall quality submitted by manufacturers? What type of economic analysis was most commonly performed?

The decision making process at the DQTC is quite complex. Many factors were important to the process, but the relative importance of each key factor varied from discussion to discussion. It was not easy to isolate one factor from another in this process because the factors and the resulting interactions were so intertwined. (Please refer to figure 2.) This was clearly true of the role of the economic analysis in this decision making process. The economic analysis was influenced by several key factors: the product's clinical merit; the quality of the manufacturer's submission; the presenter's grasp of basic principles of economic analysis; the impact analysis and the unit price of the product; the context of the decision making process; and lastly by various methodological issues pertaining to economic analyses, especially that of values. This interaction is displayed in figure 3. Because these interactions between factors were strong and numerous, it is not possible to isolate the importance of the economic analysis to the decision making process without making reference to these other factors.
In this last chapter of the thesis, the key findings will be summarized in turn, and particular attention will be paid to how the findings relate to current literature. In addition, the results are explored to see if there are possible policy implications for the DQTC. Each of the six main findings is explored in this same manner, with subheadings pertaining to contributions to literature and policy recommendations. Importantly this chapter also contains a section that outlines possible limitations to the findings of this thesis.

5.1 The Role of the Economic Analysis

The role of the economic analysis in the decision making process at the DQTC was important but limited. The economic analysis played a limited role for several reasons, some of which will be discussed in more detail in subsequent sections of this chapter. The majority of products submitted by manufacturers for review were either generic products or me-toos with no price premium. In these circumstances only the unit price of the product is required to make a recommendation regarding listing. Known as a cost comparison analysis, this is the most basic form of economic analysis. A more detailed form of economic analysis is not required for this type of listing decision given that the product has the same clinical merit and safety profile as its comparator. Because these submissions dominated the products reviewed during the observation period, this limited the economic analysis to a comparison of costs.

I expected the economic analysis to be a more important factor in decisions pertaining to me-too products with a price premium and innovative products. However,
here too the submitted economic analysis appeared to play a limited role in the decisions made. Some reasons for this observation were obvious: the economic analysis was not submitted; the economic analysis was based on weak clinical data; or the economic analysis itself was of poor quality and provided little important information to the discussion at hand. Another reason why the economic analysis was not mentioned in discussions was initially less obvious, but related to the committee's membership. Only one member had extensive training in economic analysis – this meant related discussions were limited in scope. This effect was further felt by the procedural decision not to have the members of the economic subcommittee (the external economic consultants) attend meetings, or be involved in discussions by way of phone conferences.

Value judgments are an inherent part of economic analyses. The researchers' values determine which questions are asked, what assumptions are made, and what costs and consequences are included in the analysis. Because the economic analysis asks the reader to compare his/her own values to that of the researcher, one may not necessarily agree with the conclusions reached. Moreover, the economic analysis may become suspect because of the perception that it is overly reliant on value judgments. It is seen as less scientific than the process used to determine clinical merit. While this perception is false, it is pervasive - the determination of clinical merit is also based on personal values of what makes a product worthwhile and important. However, the DQTC members did appear to perceive the economic analysis to be less scientific than the clinical studies. This perception also limited the role that the economic analysis played in the decision making process.
While the formal economic analysis submitted by the manufacturer was not often discussed in detail at the meetings, the DQTC appeared to perform its own cost consequence analysis during the discussions. The committee would discuss the clinical merit of a product at some length, and would compare the claims against competitive products. The unit cost of the product was also compared to that of its competition. By comparing the products in this manner, the DQTC quite unknowingly completed their own economic analysis. These discussions thus reached the key goal behind any economic analysis: are the additional benefits worth the additional costs?

Interestingly all members of the DQTC that were interviewed stated that the economic analysis was very important to the decision making process. This is in spite of the observation that the submitted economic analysis appeared to play a minor role in most decisions. The reason for this paradox is not clear, and at this time I can only speculate as to possible reasons. Perhaps those interviewed were keenly aware of their lack of knowledge that contributed to the paucity of discussion, and felt that in the interview they would make up for this by stressing the importance of the economic analysis in the decision making process. Perhaps the members were simply stating the 'party line' and reiterated statements made in the Ontario Pharmacoeconomic Guidelines. Perhaps I was wrong and the committee was aware that they were performing a cost comparison analysis during the discussion; this was, after-all, mentioned by one interviewee.
5.1.1 Contribution to Literature

The role of the economic analysis in the decision making process has been assessed by researchers across the world. The findings of this thesis are consistent with previous studies that employed survey techniques. This thesis however is the first case study that examined the role of the economic analysis in a formulary listing decision. In the late 1980s and early 1990s several studies were conducted that looked at the use of economic analysis in hospital formularies. Most of the studies were completed in the United States, and found that the use and usefulness of economic analysis was limited. One main concern that surfaced in these studies (Grabowski and Mullins 1997, and Sloan et al 1997) related to the poor timing of the economic analyses (i.e. not available at the time of decision making). In both studies, the economic analysis was not a required part of the submission, but rather was used when easily available to the decision-makers. Obviously employing analyses in such an ‘ad hoc’ fashion played a role in limiting its usefulness. Concerns about generalizing the findings of the economic analysis to the hospital populations were also raised; decision-makers were not certain that the same results could be achieved in their own patient population. Another issue that was raised by decision-makers pertained to the potential for bias in the studies given the sponsorship by pharmaceutical manufacturers. Those surveyed were suspicious of overly positive results, and this suspicion also limited the role of the economic analysis in the decision making process. The last issue that was raised related to a concern that the hospital pharmaceutical board did not have the expertise required to adequately assess and critique the economic reviews (Grabowski and Mullins 1997, and Sloan et al 1997).
Because the DQTC has made economic analysis a required part of the submission, poor timing of economic analysis did not influence the usefulness of economic analysis in this setting. However, the other concerns that surfaced in both studies by Grabowski and Mullins, and Sloan et al, are relevant to the DQTC setting. The DQTC members did often wonder if results generated in other countries or models could be replicated here in Ontario. The DQTC members were also concerned about the potential for bias in the studies given that pharmaceutical manufacturers sponsored the studies. The Ontario Pharmacoeconomic Guidelines tries to tackle this issue directly by asking manufacturers to submit a letter addressing issues of conflict of interest. Despite this attempt at curtailing bias, the DQTC members remained suspicious of economic analyses. This perception of bias limited the usefulness of the economic analysis in the decision making process at the DQTC. In addition, the DQTC members felt that their lack of knowledge about economic analysis meant that as a group they were overly reliant on the external consultant. The DQTC members felt that they did not have the training to question the results of the economic analysis or the external consultants’ assessment of the analysis. This certainly contributed to the lack of discussion of the economic analysis at the DQTC meetings.

Recent work suggests that the type of economic analysis may be an important factor in its ability to influence the decision making process (Mauskopf et al 1998). This research suggests that cost-consequence analysis may be the ideal economic analysis as it is easily understood, replicable and adaptable. Because the reviewer can select out the costs and consequences he/she is most interested in, it may be more able to reflect
different perspectives and values. Interestingly, the DQTC performed a type of cost-consequence analysis during the discussions. As such, the results of this thesis help to confirm the work done by Mauskopf et al.

Economic analysis has been applied extensively to assess pharmaceutical products; this is probably its most common application. However economic analysis can be used in other areas of plagued by problems of resource allocation. In the 1980s and early 1990s, there was a belief held by many in the field of health economics that if economic analysis was correctly done and correctly applied to a decision making process that it would be a useful decision aid. It was thought that the economic analysis could simplify the decision making process, as it explicitly contrasts the choices available in terms of both costs and consequences. Economic analysis came to the forefront of many resource allocation discussions, and was widely applied with varying results. The state of Oregon, for example, used economic analysis to help define what medical services should be available to those on welfare benefits. It was employed in an attempt to achieve a laudable goal - ensuring more people had coverage to the most important and basic health services. Unfortunately, however, the list of services that was generated was flawed, and in places nonsensical. Some experts who reviewed Oregon's process felt that it was deemed to fail from the onset as the steps taken by the decision makers appeared to oversimplifies the process of resource allocation (Brown 1991 and Tengs et al 1996). Other countries have had similar results when using economic analysis alone in this manner (Ham 1997).
While economic analysis was not designed to give one correct answer to a resource allocation question, this is the context in which it has been most widely employed. When used in this manner, it most certainly will fail the resource allocation process. Singer (1997) states that economic analysis can help to clarify difficult choices that decision-makers are faced with. However, he cautions that when employed in isolation, economic analysis is not sufficient for the difficult task of resource allocation. No one tool alone can solve the difficult and political task of resource allocation.

This thesis result confirms Singer's work. Economic analysis can be an important tool, but it alone does not sufficiently answer which product should be listed on the provincial formulary. The decision making process at the DQTC is much more complex. In general, the economic analysis currently plays a limited role in the decision making process. Other factors are as important as the economic analysis to the decision making process, and some are more important to the process overall.

5.1.2 Policy Recommendations

The finding that economic analysis plays a limited role in most decisions at the DQTC has some important policy recommendations. Sophisticated economic analyses were not useful to discussions pertaining to generic products or me-toos with no price premium. These submissions do not require such detailed information given that the clinical claims are established. Simple unit prices suffice in these circumstances. Adopting such a policy could benefit both industry and government. Industry could then focus its resources on doing high quality economic analyses for submissions of innovative
products and me-toos with a price premium. It is with these types of submissions that economic analysis has potential to add to and influence the decision making process. Industry would most certainly be happy with this shift in policy, as the first group of products account for the majority of submissions to the DQTC. This may also result in higher quality analyses produced by manufacturers. Industry may also want to consider focusing on the cost-consequence model of economic analysis. Government too could benefit from this policy requesting economic analysis only for me-too products seeking a price premium and innovative products. They too could make better use of available resources. There is a rather small and select group of academics that have the qualifications to serve as external economic consultants to the DQTC. By paring down the number of submissions to review, there are some possible positive spin-offs. If given less work, the external consultants may be able to complete reviews sooner, may do a more complete review, and may be more available to DQTC members to answer questions related to their review.

5.2 The Role of Other Economic Factors

Both the unit price of the product and the impact analysis were important factors in the decision making process. High unit costs usually result in a high potential impact to the drug budget. When the impact analysis was large, this acted as a magnifier to all stages of the decision making process. All factors were more carefully scrutinized, and more time was taken to review the data. These important discussions often were first on the meeting agenda. The clinical claims were more closely examined for validity, and the
external economic assessment also became more important to the decision. In these circumstances there also appeared to be a greater reliance on the use of subcommittees drawn from within the DQTC. The subcommittee would be asked to examine issues relating to the product's listing before it was brought to the general committee. At a minimum, the DQTC member with training in health economics seemed to be more involved with submissions having a large potential impact than were other members. Overall, the DQTC appeared therefore to approach listing decisions that had a large potential impact with more caution.

5.2.1 Contribution to Literature

This finding suggests a third role for the total cost impact to the decision making process- that of caution or due diligence. This is clearly the effect that the impact analysis had on the recommendations made by the DQTC; when the potential impact on the drug budget was high, the DQTC was more careful. Two previous roles for impact analyses have been described in the literature. Drummond (1993) identifies the first role for impact analysis as a budget cap. The impact analysis can be used to estimate the highest acceptable costs for decision-makers. A second role was identified by Nord (1995) and Ubel (1996) – one that highlights the tradeoff between efficacy and equity. Impact analyses can be used by decision-makers to outline what is actually achievable given a certain budget. Ideally decision-makers want to implement decisions that are both equitable and efficacious. However, budget caps often make decision-makers chose between these two goals.
5.2.2 Policy Recommendations

A simple recommendation stems from this finding – the DQTC does not have a policy for how it approaches products with high potential total costs, and it needs to adopt one. Employing subcommittees in these situations is useful so that more than one member has an in-depth knowledge of the important issues at hand. This does enable better discussions, and could ensure more discussion on any product identified as having large potential total costs. Having the external economic consultant present at meetings that involved large costs could also help ensure better discussion and better decisions. Moreover, it is important to have adequate time to make decisions that have the potential for high costs. Important data pertaining to the decision should be available to the DQTC members well before the meetings. Some of those interviewed did complain of inadequate preparation time as data often was sent out 2-3 days before meetings.

5.3 The Roles of the Clinical and Quality Factors

This thesis found that the clinical factor was the most important factor that drove the decision making process. The clinical merit that was ascribed to the product had a large influence on all other factors that the DQTC considered when making a listing decision. The clinical merit determined how the DQTC perceived the unit costs, the economic analysis and the impact analysis. This interaction makes sense however, given that the cost effectiveness of any product is largely determined by how well the product achieves its clinical goals. The economic analysis is therefore dependent on the product’s
clinical worth, as are the unit costs and impact analysis. A product that is deemed to have clinical merit has passed the most important hurdle in the decision making process.

Another reason why the clinical factor was the dominant one in this setting relates back to the history of the DQTC. The original mandate of the DQTC was, in fact, clinical; the original mandate was simply to consider a product’s clinical benefits and safety profile. To this day the membership is predominately composed of clinicians and pharmacists. This clearly influenced the discussions that took place. The interviewees admitted that they felt most capable of dissecting the merits of the manufacturer’s clinical claims. The meetings were often dominated by such discussions, and the general make-up of the committee might well have contributed to this observation.

In order for a product to achieve the status of having clinical merit, the submission must be of high quality. The data must support the claims made. There must be little question of whether the product can achieve its clinical targets, and moreover that these targets are important to reach. When any amount of the data quality was poor, it allowed the clinical merit to come into question. Perhaps more importantly, it also cast doubt on the entire submission, even those parts that were well done. The manufacturer fell under suspicion, and DQTC members scrutinized the data more carefully to see if there were other reasons to reject the product for listing. The DQTC members often saw poor quality data as an indication that the manufacturer was trying to manipulate data in order to receive a favorable listing. Poorly organized submissions were similarly viewed. Both poor quality data and poorly organized submissions usually resulted in a recommendation to reject the product, or delay the decision.
5.3.1 Contribution to Literature

Finding that the clinical factor was the most important factor in the process of formulary reimbursement confirmed results from other studies. Australia is the only other country that currently has the same formal requirement for the economic analysis to be submitted by the manufacturer at the time of submission for formulary listing. Researchers have studied the role of the economic analysis in this process. Mitchell (1997) reviewed how the Australian pharmacoeconomic guidelines have worked in practice since they were implemented in 1992. He states that the clinical comparison dominates the economic one in the decision making process, and that comparatively more time is spent reviewing the clinical merits of the submission than the economic merits. He goes on to state that this has led the decision makers to focus more on the health outcomes than on costs. The same is true for the decision-makers at the DQTC; here too the focus is on clinical outcomes.

A similar result was found in a recent study done in the United States. Lyle et al (1997) sample 51 Health Maintenance Organizations (HMOs) to assess what were important influences on the decision making process. The HMOs were asked to comment on what tools they most often employed to aid decision-making. The response was definite - far more stated that they relied on references that pertained to clinical effectiveness than those that related to economic effectiveness. While the HMOs did not have any formal requirement to use the economic analysis in the decision making process, finding that the clinical information is most important to decision makers is consistent with the results of this thesis.
5.3.2 Policy Recommendations

Finding that the clinical factor is the most important factor in the decision making process has important policy implications. If the DQTC were to stress this finding to manufacturers, this could go a long way to assuage fears by industry that the government is more interested in costs than clinical outcomes. This could enable a more positive relationship between industry and the DQTC. Currently it is adversarial, and hence is limiting. Better relations could help achieve a smoother review process too. During the observation period there were a few letters of complaint sent to the DQTC by manufacturers regarding the review process. Time had to be taken to draft letters of response, which meant that less time and energy was put into reviewing new submissions. Manufacturers should be conscious of the importance of having good quality data that are presented in a clear and organized format; this has an important influence on how the submission is initially perceived. DQTC members were wary of having to sort through poorly organized material. Perhaps more importantly, if the government were to stress to the public that clinical importance is the key factor in the listing decision, and not the cost, this too could elevate the public’s perception of the Ministry of Health.

5.4 The Role of the Type of Drug

It was clear from the onset of the observation period that a drug taxonomy existed, and that this had an influence on how the drugs were discussed at the meetings. The generic products were often reviewed ‘en-bloc’, and only problems with the submission were discussed in detail. The resulting recommendations were also voted upon together.
The reference product for the generic had to be listed on the provincial formulary for a
generic product to be considered for listing; this meant that the DQTC had already
ascribed some level of clinical importance to the product. Moreover, the price of the
product was also not at issue because generic products are under firm price control
legislation. All the manufacturer had to prove was that the product was bio-equivalent.
Discussing and voting for generic products en bloc allowed the committee to focus its
time and energy on more difficult issues. This system worked well because the key issues
of clinical merit and economics were clearly defined in the discussions and because there
was an easy to follow ‘decision rule’ in place.

The me-too products also had distinct patterns of discussion that depended on
whether the manufacturer was seeking a price premium. Those products that were not
asking for a higher price than its competition were discussed in much the same manner as
generic products. If the product could demonstrate that it was clinically effective, then it
was usually listed because the unit cost was less than the competition. Listing a less
expensive me-too on the provincial formulary was generally expected to lower overall
costs to the Ministry for this class of drug, and hence the submission was usually viewed
favorably. Discussions involving me-too products that were seeking a price premium fell
into a pattern similar to innovative products. This group of me-too products had to prove
that the additional benefit was worth the added costs.

The innovative products were the most difficult products for the DQTC to assess.
Subcommittees were often used in an effort to enable broader and more in-depth
discussions when these submissions were brought before the DQTC. More time was
spent sorting through all aspects of each submission in this group. The clinical importance became paramount to the discussion, especially when no other treatment options were available for the disease. Under these difficult circumstances, issues relating to personal values were more likely to surface. Value statements were made that related both to clinical importance and economic attractiveness. The innovative products were also more likely to have high associated unit costs and impact analyses, which again served to magnify all aspects of the decision making process.

5.4.1 Contribution to Literature

While it makes sense that the type of drug should influence the decision making process, this has not been previously described in the literature. The type of drug determined what factors were important to the recommendations made at the DQTC meetings.

5.4.2 Policy Recommendations

Understanding that drug taxonomy influences the shape of discussions at the DQTC has clear policy implications. One could structure both submissions and meetings to take this factor into account. Submissions for generic products should be focused on proving bio-equivalence. Submissions for me-too products with no price premium could also be streamlined to focus primarily on clinical data. Submissions for me-too products with a price premium and innovative products would however have to be as detailed as they are presently.
During the observation period, the DQTC began to discuss the generic products ‘en bloc’, which was very favorably received. The DQTC could further structure meetings along the drug taxonomy by having more time devoted to innovative products and me-too products with a price premium. Because these latter discussions are, by necessity, more detailed they should be given a priority time slot. Unless problems are identified beforehand, me-too products with no price premium could also be handled as a group.

5.5 The Importance of Structure and Process

The structure and process behind the decision making process at the DQTC also was important to the decision that was made. This was demonstrated by many events that took place during the observation period. A clear example of the importance of structure relates simply to the general make-up of the committee itself. Care was taken to ensure that each committee member represented a different and important field of medicine. In this way the DQTC had their own internal clinical consultant who could put the product’s submission into context. Moreover, this member was in a better position to critique the external experts’ recommendations. Another example that highlights the importance of structure to the decision making process occurred when the DQTC membership changed and the chair was replaced. In a simple way this transformed the process at the meetings as the new chair tried to count the votes differently. In a subtler manner the impact of replacing the chair influenced the nature and content of the discussions. The new chair
had a different focus as a specialist, and referred much more to his area of interest than was done previously.

Perhaps the most important example of the importance of process to the DQTC decisions was, however, the need for consistent decision making. The DQTC members were constantly looking to ensure that past, present and future decisions made sense when compared to each other. The members wanted to look back at past decisions to see what 'decision rules' were used to come to a particular decision. The DQTC sought out this consistency, and when recommendations were made that were inconsistent with past decisions, the new recommendations were challenged. Several times during the observation period subcommittees were formed to look at a grouping of drugs together. This helped to ensure that the products were referenced against each other when decisions were made. Discussing the products in this manner went far to add consistency to the decisions that were made. Thus some aspects of structure were key to the decision making process.

5.5.1 Contribution to Literature

A simple way to add strength and credibility to the decision making process is to add more structure to the meetings. Australia has adopted a very structured approach to their meetings (personal communication with A. Mitchell, 1997). They have four clear steps to the decision making process, and if the product fails to pass one step the discussion is halted at that level; the product is simply rejected for listing. Initially the context of the product’s submission is discussed - what is the clinical issue at hand, and
what other treatment options are available. The second step examines the clinical evidence. In this segment the health benefits and side effect profile of the product are discussed in detail. The evidence for the claims is also carefully scrutinized to ensure validity. If the product's claims are rejected, then the discussion ceases at this step, and the product is rejected. If however the product does prove its clinical claims, then the discussion moves to the third step - that of examining the economic evidence. At this stage the committee reviews a detailed one-page review of the economic claims made by the manufacturer. The economic subcommittee prepares this review, and a member of this subcommittee is present to help answer questions and help aid the discussion. The forth and last step to the formal presentation involves discussing the product’s overall value. It is at this stage that the presentation opens up to general discussion by the entire committee, the members of which are expected to review information beforehand. Because executive one-page summaries are made for each of the first three stages of the discussion, the members are usually sufficiently prepared which enables good discussions. The Australians believe that this structured format helps to ensure that important aspects of the submission are not missed. Moreover they claim that the structure is a time saver as discussions end at any stage where the product fails to substantiate its claims.

Recent research however suggests that simply adopting an organized approach to any resource allocation problem is not enough to ensure a credible and legitimate decision making process (Ham 1997, and Holm 1998). Decision-making that involves resource allocation is complicated, and can not be easily stripped down to simple steps. Many
different factors are important to each listing decision, and some factors dominate depending on the circumstances. This will be discussed in more detail in section 5.6 that outlines the importance of context to the decision making process.

5.5.2 Policy Recommendations

Despite the fact the structured and organized approaches to resource allocation problems does not always result in better decisions, Ontario would do well to adopt an approach similar to Australia’s. Indeed interviewed members did recognize the value in proper process. During the observation period the DQTC did adopt a very structured approach to the discussion of generic products. The same is not true however for the other products. Each member had his or her own style of presentation and there was little uniformity to the structure of the presentations. This did cause problems at times during the observation period. In fact, one member of the committee was replaced as his/her presentations were thought to be lacking in focus and clarity. The quality of the DQTC meetings could be much improved by adding more structure to each product discussion.

5.6 The Importance of Context

The results of this thesis suggest that the context in which the DQTC operates is important to the final decision that is made. The DQTC is a committee that reports its recommendations to the Ministry of Health. Recommendations are based on issues of clinical importance, merit, safety and cost-effectiveness. However each issue is in turn influenced by values, both those of individual members and those of the committee at
large. Individual members may have, and did, place different emphasis on different aspects of the submission that fit with their own value system. If a member were to ascribe high clinical importance to a product, he or she may have been more willing to accept higher economic costs, or less rigorous data. This did tend to occur for products that were deemed to have ‘life-saving potential’ – oncology products and products for HIV stand out as examples. Members may have also subconsciously ascribed higher clinical relevance for products used in their own field of practice. One’s values clearly shaped how one perceived and reviewed the submission.

There were also values that were common to the DQTC as a group. All members interviewed placed an importance on the need to ensure that products recommended to the Ministry for listing on the provincial formulary were good value for the money. The members did want to ensure that the government spent its money wisely. While the DQTC did not directly operate under a drug budget, it was clear from observing the discussions that they were aware of a budget, and were aware of its importance to the final listing decision. Moreover, the DQTC members were also keenly aware of the fact that their recommendations were simply that – there was no guarantee that the Ministry would accept and implement the recommendations. The DQTC was aware of the importance of politics to the final listing decision. As much as the DQTC tried to avoid the influence of politics in their decision-making, politics could not be avoided entirely. The DQTC tried to base its decision strictly on the available evidence, and not enter into political discussions. A few recommendations were rejected at the final stage during the observation period. No explanations were given to the DQTC as to why this occurred.
Interestingly however the DQTC was often able to anticipate the rejections. The members speculated that the rejections were based on issues of fairness, equity or political pressure. The DQTC was therefore keenly aware of both the pressures of the drug budget, and that the final step of the decision making process was in fact political.

5.6.1 Contribution to Literature

Finding that context is important to the decision making process at the DQTC helps to confirm work by other researchers. Hailey (1997) described in detail the formulary decision making process in Australia. He found the importance of the economic analysis to the formulary decision was often influenced not just by the quality of the economic analyses, but also by the goals and objectives of the decision-makers. Because the goals of the Australian guidelines were initially unclear - both value for money and cost containment goals were referenced - they were criticized. Members of both industry and academia questioned the true spirit behind Australian’s application of cost effectiveness analysis to the process of formulary listing.

Criticisms also surfaced in Ontario when it was made public that cost-effectiveness analyses would be applied to the decision making process. Many academics were concerned with this application of economic analysis (Naylor 1993). Of particular concern was the possibility that the conclusions made by the economic analysis would be accepted without question. Moreover, it was feared that employing economic analysis would give false confidence to the decision-makers that they were making the one and only correct decision. While economic analysis was not designed to give one correct
answer to a resource allocation problem, its application in the late 1980s and early 1990s suggest that it was expected to solve this difficult task. Researchers have suggested that policy makers, especially politicians, have been eager to apply a ‘technocratic solution’ to the problem of resource allocation as economic analysis can help disguise inherent ethical issues in such problems (Holm 1998). Political responsibility becomes diluted by such an approach. Ultimately resource allocation is a political process, for which there is no easy solution (Holm 1998, Smith 1998 and Klein 1998). Just as economic analysis is plagued by value judgements, so too is the entire process of resource allocation (Williams 1992 and Ham 1997). As Ham (1997) states “the answer (to a resource allocation problem) involves a series of value judgments which will vary depending on the individuals and groups involved.”

5.6.2 Policy Recommendations

It is important for both the DQTC and Ministry of Health to recognize the influence of the context to the decision making process. Stating that context matters and that final listing decisions are ultimately influenced by politics adds needed credibility to the decision making process. The players in the decision making process - industry and government - already recognize the importance of politics. While this would not make the process more transparent, it may make it more acceptable to both sides.

Also important to improving the decision making process at the DQTC would be to clarify the goals of the Ministry of Health. What exactly does government mean by ‘value for money’? As this goal can not be easily defined, perhaps another goal should
targeted. Perhaps the goal should simply be to make the best possible decision given the available evidence — both clinical and economic.

The government could further add legitimacy to the decision making process by adding public representation. This would help to ensure that society’s values and viewpoints are represented and heard in the listing process. Many researchers in the field of resource allocation believe this to be crucial (Ham 1997 and Holm 1998).

5.7 Limitations

There are several limitations to this thesis. The first limitation, and perhaps largest, stems from my own personal biases. As a Masters Student in Health Administration, I have taken courses in health policy and economics. I started this thesis with the viewpoint that the economic analysis, when used properly, could aid decision making. This ‘positive’ bias may have lead me to see the role of the economic analysis in this decision making process as being larger and more important than it actually was. This concern was brought more to a head by recognizing that my supervisor likely had the same bias. I believe this assumption to be true as Dr. Detsky was instrumental in developing the Ontario Pharmacoeconomic Guidelines that made the economic analysis a formal part of the manufacturer’s submission. In order to have taken this initiative, he must certainly believe the economic analysis to be useful to the formulary decision making process. With both he and I having the same bias, I had to take extra care when coding the data to ensure objectivity. I read and reread the data several times before making any conclusions. Two months after I had collected all the data I also re-coded the
data to see if I had been initially too positive in my coding decisions. The correlation between these two coding periods was very high at 89%, suggesting that I had not been overly swayed by this ‘positive’ bias in my initial attempts at coding.

I was also concerned with how this ‘positive’ bias might effect my interview questions; I was afraid that I could inadvertently frame questions in such a way that I would only receive the answer that I wanted to hear. Because of this concern, I reviewed the general content of the questions at proposal meetings and with a large group of few students. I also read extensively on the framing effect, and I made a conscious effort during the interviews to monitor the frames I used. To avoid leading the interviewee, I attempted to sound both positive and negative about the use of economic analysis in the decision making process.

I also made the conscious decision to wait to do the interviews until after I had collected the majority of the data. I thought that this would be important to do for two reasons. The first reason was related to my concern of the ‘positive’ bias. My bias was in part related to inexperience; my knowledge of economic analysis as a decision aid was from a classroom, not derived from real-world experience and application. I thought the observation would be important and could temper my enthusiasm for economic analysis as I would see first hand how economic analysis worked in practice. From my background reading on the subject, I knew that there were some practical limitations to the use of economic analysis as a decision aid. My suspicion was correct; at the end of the observation period I clearly was less certain about the role of economic analysis in this setting then when I started the study. The second reason why I waited to do the
interviews was the more important reason – I wanted to be able to use the interviews to check my findings from the observation period. Referred to in qualitative analysis as member checks, this is a useful tool for assessing the results for reliability.

I was also concerned about the possible effect that my presence at the DQTC meetings would have on the meetings themselves. I was right to have this concern; a clear example of the Hawthorne effect occurred in the very first meeting. One member presented a product's clinical and economic claims, and inadvertently confused two economic terms. The sole member of the DQTC with extensive training in health economics promptly corrected him, and then turned to me and smiled. At that moment, both members were keenly aware that they were being observed. During my observation period this was the only time that members corrected each other, despite the fact that the same mistake was repeated in subsequent meetings.

My results are also limited by the fact that I was denied access to certain key documents. I was unable to review these documents because of confidentiality concerns. I was therefore not able to fully answer the last two sub-questions of this thesis: what was the overall quality of the economic analyses submitted by the manufacturer, and what was the most common type of economic analysis performed? Answering these two questions would have provided interesting information. Finding poor quality analyses or the wrong choice of analyses would have further explained the limited role that economics played in certain discussions. In addition, access to the documents would have allowed me to reference my notes of the meetings against the official minutes of the meetings. This would have been a useful way to check the reliability of my data. I would have also liked
to review the economic consultant's reports to see if there was any insight as to how to further improve the role of the economic analysis in the decision making process.

Again because of confidentiality concerns, I was not allowed to interview the government employees that serve on the DQTC. This had far reaching implications to the findings of my thesis. I believe that these employees, with no clinical background, might well have had a different perspective on the process of decision making, and on the role of the economic analysis. They could well have commented on how they choose which DQTC members should present a product, and on the structure of the meetings. Moreover, they might have had useful insight as to the politics that take place in the final stage of the decision making process – that being when the recommendations of the DQTC are reviewed at the Ministerial level. Unfortunately, the decision that I could not interview the government employees also made some DQTC members wary of speaking to me; I somehow became suspicious because of this decision. I am certain that this had a negative effect on my ability to persuade DQTC members to talk with me.

Because I could not interview all the DQTC members, I also was concerned about being overly influenced by key informants. I interviewed my supervisor because I thought that he would have important insights as to the decision making process in general, and the use of economic analysis in particular. Because I thought his influence could be pervasive, I interviewed him last. For obvious reasons I had to be careful when interviewing the only current member with training in health economics. While he had important insights, I realized that his viewpoint was influenced by his training, and therefore might not represent that of the average DQTC member.
5.8 Conclusions

There are six main findings of this thesis, which for sake of reference, will now be summarized. Economic analysis plays an important, but limited, role in the decision making process at the DQTC. Its application to the process is valued in principle, but appears to be limited in practice. The reasons for this limitation are many, and are outlined in Figure 3. This work confirms other research in the field of health economics.

There are important policy recommendations that stem from the finding that economic analysis plays a limited role in the decision making process; one could recommend that manufacturers submit analyses strictly for me-too products with a price premium and for innovative products. Manufacturers should also be encouraged to perform cost-consequence analyses.

The role of the other economic factors were also important to the decision making process. Both the unit cost of the product and its estimated impact to the drug budget functioned as a magnifier; decisions that involved large potential costs to the drug budget were approached far more cautiously than were products with minimal impact. This finding again supports recent research as it suggests that the impact analyses can be used to mark important decisions. Recognizing the importance of the impact analysis to the decision making process can also be used to direct policy. For example, the DQTC could easily employ sub-committees in these circumstances.

The clinical factor was the most dominant factor in the decision making process at the DQTC. The quality of the data that was submitted by the manufacturers had a large influence on how the product was received; poor quality submissions were frequently
viewed suspiciously. The importance of the clinical factor to formulary listing decisions has long been realized in the literature. The government of Ontario should stress the importance of clinical effectiveness to manufacturers who seek listing on the provincial formulary. This may result in higher quality submissions and perhaps a better relationship between the Ministry and manufacturers.

The type of drug reviewed at DQTC meetings had an important influence on the discussions. Different patterns emerged as to which factors were important to listing decisions, and the type of drug discussed largely influenced these patterns. Generics and me-toos with no price premium shared roughly the same ‘decision rule’; the same was true for me-toos with a price premium and innovative products. This result has not been previously described in the literature. This has important policy implications in that one could streamline the data that is required from the manufacturers. In addition, one could also structure the meetings differently to further streamline the decision making process.

This thesis also found that the structure and process behind the DQTC meetings was important to the decision making itself. The importance of the presenter, the use of sub-committees, and the need for consistency demonstrate the importance of process to the decision making process. Current literature recognizes the importance of process to the decision making process, but also recognizes that it in itself does not ensure legitimate decision-making. The DQTC could, however, strengthen its decisions by adopting a more structured and transparent approach to the decision making process.

The context in which the DQTC makes its recommendations also influences the final recommendation that is reached. Ontario’s formulary listing is a form of resource
allocation, and as such is influenced by values and politics. The DQTC could not remove itself entirely away from this fact; each recommendation made was influenced to some degree by value judgments. This finding confirms work in the field of resource allocation, and has important policy implications. The government could add public representation to the meetings to add needed credibility and legitimacy to the decision making process.
**Table 1: December Meeting**

<table>
<thead>
<tr>
<th>DRUG TYPE</th>
<th>KEY FACTORS</th>
<th>DECISION</th>
<th>QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec.A</td>
<td>Innovative Clinical Impact Politics</td>
<td>Section 8</td>
<td>&quot;a political decision - have to weigh the impact on the drug budget against the political fallout&quot; Dec.A.6</td>
</tr>
</tbody>
</table>
| Dec.B     | Innovative Clinical Quality Economic Analysis | Limited Use | "economic review - concerned with the assumptions made" - Dec.B.6  
"underestimated true drug costs and the impact analysis" Dec.B.8  
"CEA study estimated to be $9000/QALY, this is a reasonably good level when consider that usually look for cut off of around $20,000" Dec.B.9,10. |
"decision comes down to cost - alternatives cost less" Dec.C.5  
"problem - this decision affects past decisions about other drugs previously listed" Dec.C.8 |
| Dec.D     | Me-Too +PP Cost                   | Reject    | "less expensive are other first line agents, if the company wants this listed, they will have to decrease the price" Dec.D.5 |
| Dec.E     | Generic Cost Consistency          | General Listing |                                                                                                                                           |
| Dec.F     | Generic Cost Consistency          | General Listing |                                                                                                                                           |
| Dec.G     | Generic Cost Quality              | Deferred  | "the economic analysis uses the cheapest dose to make it more attractive" Dec.G.2  
"reject until clarify the dosage to clear up the impact analysis" Dec.G.4 |
| Dec.I     | Generic Cost                       | General Listing |                                                                                                                                           |
| Dec.J     | Me-Too -PP Cost                   | General Listing |                                                                                                                                           |
| Dec.K     | Innovative Clinical Cost Consistency Quality | Limited Use |                                                                                                                                           |
| Dec.L     | Me-Too +PP Cost Impact            | Reject    | "concern that median price goes up and therefore costs more to the government" Dec.L.4 |
| Dec.M     | Generic Cost                      | General Listing |                                                                                                                                           |
| Dec.N     | Me-Too +PP Impact                 | Reject    |                                                                                                                                           |
| Dec.O     | Me-Too +PP Cost                   | Reject    |                                                                                                                                           |

Note: Dec = December  
PP = price premium; -PP means no price premium; +PP means price premium
### Table 2: January Meeting

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DRUG TYPE</th>
<th>KEY FACTORS</th>
<th>DECISION</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Jan.A</td>
<td>Me-Too +PP</td>
<td>Clinical Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.B</td>
<td>Me-Too -PP</td>
<td>Cost Values</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.C</td>
<td>Innovative</td>
<td>Clinical Quality</td>
<td>Section 8</td>
<td>&quot;because this is a highly specialized area - who are we to question its use? We have to give them the leeway to make those decisions especially when they will do this anyway&quot; Jan.C.12</td>
</tr>
<tr>
<td>Jan.D</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.E</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.F</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.G</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.H</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.I</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.J</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Jan.K</td>
<td>Me-Too -PP</td>
<td>Cost, Impact</td>
<td>Limited Use</td>
<td>&quot;concern that listing will erode at the proper use of other cheaper, better drugs and therefore increase the overall cost in this class of drug&quot; Jan.K.4</td>
</tr>
<tr>
<td>Jan.L</td>
<td>Innovative</td>
<td>Clinical</td>
<td>Limited Use</td>
<td></td>
</tr>
<tr>
<td>Jan.M</td>
<td>Me-Too -PP</td>
<td>Clinical</td>
<td>Limited Use</td>
<td></td>
</tr>
</tbody>
</table>

Note: Jan = January
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<table>
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<tbody>
<tr>
<td>Feb.A</td>
<td>Innovative</td>
<td>Clinical Economic Analysis Impact Cost Quality Consistency</td>
<td>Reject</td>
<td>&quot;simple drug cost are not enough to consider&quot; Feb.A.22 &quot;up to the manufacturers to prove that is cost effective&quot; Feb.A.59 &quot;problem - if the clinical data stinks then can't do economic analysis&quot; Feb.A.79</td>
</tr>
<tr>
<td>Feb.B</td>
<td>Innovative</td>
<td>Clinical Impact</td>
<td>Limited Use</td>
<td></td>
</tr>
<tr>
<td>Feb.C</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>Reject</td>
<td>&quot;if within price categories are approved&quot; Feb.C.2</td>
</tr>
<tr>
<td>Feb.D</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>Limited Use</td>
<td></td>
</tr>
<tr>
<td>Feb.E</td>
<td>Me-Too -PP</td>
<td>Clinical Impact</td>
<td>Defer</td>
<td>&quot;initially thought rubber stamp because decreases expense&quot; Feb.E.2</td>
</tr>
<tr>
<td>Feb.F</td>
<td>Innovative</td>
<td>Clinical Impact</td>
<td>Reject</td>
<td>&quot;most disorganized and inefficient economic analysis ever seen&quot; Feb.F.3 &quot;question - should we list it because it is an innovative drug&quot; Feb.F.7</td>
</tr>
<tr>
<td>Feb.G</td>
<td>Innovative</td>
<td>Clinical Impact Economic Analysis Quality Consistency</td>
<td>Reject</td>
<td>&quot;do not think should list because not make the grade - not value for money and the potential impact is huge&quot; Feb.G.20 &quot;may be a multimillion dollar expenditure without strong evidence&quot; Feb.G.40 &quot;DQTC should be consistent too and reject it&quot; Feb.G.52</td>
</tr>
<tr>
<td>Feb.H</td>
<td></td>
<td></td>
<td>Defer</td>
<td>data not received</td>
</tr>
<tr>
<td>Feb.I</td>
<td>Me-Too -PP</td>
<td>Clinical Impact</td>
<td>General</td>
<td>&quot;extend the life span of the patent&quot; Feb.I.1</td>
</tr>
<tr>
<td>Feb.J</td>
<td>Generic</td>
<td>Cost Impact Consistency Clinical</td>
<td>Reject</td>
<td>&quot;concern for abuse in the elderly as would be heavy market, but the side effects include dizziness which would be bad in elderly&quot; Feb.J.9</td>
</tr>
<tr>
<td>Feb.K</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Feb.L</td>
<td>Generic</td>
<td>Quality</td>
<td>General</td>
<td>&quot;manufacturers clarified poor data that had been given before&quot; Feb.L.2</td>
</tr>
<tr>
<td>Feb.M</td>
<td>Me-Too -PP</td>
<td>Cost Impact</td>
<td>General*</td>
<td>&quot;will ask the manufacturer to pay if costs/impact higher than what imagined&quot; Feb.M.10 &quot;DQTC wants to minimize risk to the budget&quot; Feb.M.13</td>
</tr>
<tr>
<td>Feb.N</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>General</td>
<td></td>
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Note:  Feb = February  
PP = price premium; -PP means no premium; +PP means price premium
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<tbody>
<tr>
<td>Mar.A</td>
<td>Innovative</td>
<td>Impact Quality</td>
<td>Reject</td>
<td>&quot;the small changes in the data are meaningless&quot; Mar.A.17</td>
</tr>
</tbody>
</table>
| Mar.B     | Innovative| Clinical Economic An. Impact      | Section 8| "drug is 10 times as much as the comparator with no evidence that is clinically better, therefore why would you approve this drug?" Mar.B.5  
|           |           |                                  |          | "impact will be small on the ODB because there are so few patients that the decision of where to list the drug and if to list it not really matter" Mar.B.13  |
| Mar.C     | Me-Too    | Clinical Quality Consistency DQTC Limitations | Reject   | "need to review the entire area, and potentially change the listing that the other drugs received" Mar.C.17  
|           | Unknown PP|                                  |          | "way out of our league to comment on the use post cataract" Mar.C.23  
|           |           |                                  |          | "if concern about safety, then should contact the entire lot asking for more information" Mar.C.32  |
| Mar.D     | Me-Too +PP| Cost Impact                       | General  |                                                                         |
| Mar.E     | Generic   | Cost                             | General  |                                                                         |
| Mar.F     | Generic - 11| Cost                           | General  | "block vote easiest thing to do" Mar.F.3                               |
| Mar.G     | Me-Too +PP| Cost Impact Quality              | Defer    | "expert recommends a conditional rejection as need to address wastage issue because is very expensive" Mar.G.3 |
| Mar.H     | Generic   | Quality                          | Reject   | "company admits to sparse data in the submission" Mar.H.8  
|           |           |                                  |          | "need data clarified to see how data is manipulated" Mar.H.15          |
| Mar.I     | Me-Too +PP| Cost Quality Consistency Other- presenter | Limited Use | "nothing to substantiate claim other than gut feeling" Mar.I.11  
|           |           |                                  |          | "hard to defend why reject one and list another" Mar.I.23  
|           |           |                                  |          | "other 2nd line agents are much cheaper" Mar.I.41                  |
| Mar.J     | Generic   | Cost Clinical                    | General  |                                                                         |
| Mar.K     | Generic   | Cost                             | General  | "many drugs are outdated and are questionable about their usefulness" Mar.K.4  
| Mar.L     | Generic   | Cost                             | General  | defer b/c missing data                                               |
| Mar.M     | Generic   | Cost Impact Consistency          | Reject   | "motion reject b/c have less expensive products on the formulary" Mar.M.14  |
| Mar.N     | Me-Too +PP| Cost Impact                      | Reject   | "problem - this drug works for a lot of indications therefore may have increasing demands asking for it" Mar.N.27,28  |
| Mar.O | Generic Clinical Reject | Mar.P | Generic Clinical Reject | Mar.Q | Generic Cost General | Mar.R | Generic Clinical Defer | Mar.S | Innovative Clinical Cost Quality Consistency Defer “cost is fairly expensive”Mar.S.16 “question - there are a series of newer agents, should they be reviewed together?”Mar.S.23 “could save money if re-look at decision and make cheaper and better drug a general listing”Mar.S.29 “can not give reasonable motion because the data is fuzzy”Mar.S.39 | Mar.T | Innovative Clinical Reject | Mar.U | Innovative Cost Impact Limited Use “company has promised to promote the low dose, which is also the cheaper one”Mar.U.5 | Mar.V | Generic Quality Defer “not enough data submitted”Mar.V.4 | Mar.W | Me-Too +PP Cost Clinical Quality Economic An. Limited Use “price a concern for all provinces across Canada, the company has decreased the cost form $30 to $23”Mar.W.1,2 “possibly manipulated questions to get a positive response”Mar.W.13 | Mar.X | Innovative Clinical Impact Economic An. Consistency Quality General “economic issues - acquisition costs are different - pennies a day with x as compared to these drugs which are $6 a day”Mar.X.49 “the non drug costs are huge and outweigh the costs of the drug”Mar.X.52 “now make a judgment - stop looking at drug acquisition costs”Mar.X.82 “trouble for OMH - will have a huge impact to ODB but may save in other areas”Mar.X.108 “utilization will go considerably higher”Mar.X.115 |

Note: Mar = March  
PP = price premium; -PP means no price premium; +PP means price premium
Table 5: April Meeting

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DRUG TYPE</th>
<th>KEY FACTORS</th>
<th>DECISION</th>
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</thead>
<tbody>
<tr>
<td>Apr.B</td>
<td>Generic</td>
<td>Cost Impact Consistency</td>
<td>Reject</td>
<td>&quot;but because this drug is a generic, it should be cheaper&quot; Apr.B.8 &quot;have rejected drugs before on the basis of cost&quot; Apr.B.12</td>
</tr>
<tr>
<td>Apr.D</td>
<td>Me-Too +PP</td>
<td>Cost Impact Consistency</td>
<td>Limited Use</td>
<td></td>
</tr>
<tr>
<td>Apr.E</td>
<td>Me-Too -PP</td>
<td>Impact Cost</td>
<td>General</td>
<td>&quot;comes in under the median price&quot; Apr.E.6</td>
</tr>
<tr>
<td>Apr.F</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>General</td>
<td>&quot;priced accordingly - is one half the price of the bigger dose&quot; Apr.F.5</td>
</tr>
<tr>
<td>Apr.G</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Apr.H</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Apr.I</td>
<td>Me-Too UK</td>
<td>Quality</td>
<td>Defer</td>
<td>&quot;but from the study generated two sets of data&quot; Apr.I.2</td>
</tr>
<tr>
<td>Apr.J</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Apr.K</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
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<tr>
<td>Apr.L</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Apr.M</td>
<td>Generic</td>
<td>Clinical</td>
<td>Defer</td>
<td></td>
</tr>
<tr>
<td>Apr.N</td>
<td>Me-Too -PP</td>
<td>Cost Impact Consistency Clinical Quality</td>
<td>Section 8</td>
<td>&quot;this one is the cheapest&quot; Apr.N.26</td>
</tr>
</tbody>
</table>

Note: Apr = April
PP = price premium; -PP means no price premium; +PP means price premium
Table 6: May Meeting

<table>
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<tr>
<th>DRUG</th>
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<th>KEY FACTORS</th>
<th>DECISION</th>
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</tr>
</thead>
<tbody>
<tr>
<td>May.A</td>
<td>Me-Too -PP</td>
<td>Cost Impact</td>
<td>Limited Use</td>
<td>&quot;priced the same as compared to the vials in terms of cents per unit&quot; May.A.4</td>
</tr>
<tr>
<td>May.B</td>
<td>Generic</td>
<td>Clinical</td>
<td>Defer</td>
<td></td>
</tr>
<tr>
<td>May.C</td>
<td>Generic</td>
<td>Clinical</td>
<td>Reject</td>
<td></td>
</tr>
<tr>
<td>May.D</td>
<td>Me-Too +PP</td>
<td>Clinical Cost Impact Consistency</td>
<td>General</td>
<td>&quot;if general list then will triple the costs guaranteed&quot; May.D.44 &quot;do move some to limited use to control costs but other times do for choice of treatment ensure that more than one treatment option is available&quot; May.D.75 &quot;my opinion - support because need choice in treatment options, it is not a matter of cost&quot; May.D.116</td>
</tr>
<tr>
<td>May.E</td>
<td>Generic</td>
<td>Quality</td>
<td>Defer</td>
<td></td>
</tr>
<tr>
<td>May.F</td>
<td>Me-Too +PP</td>
<td>Cost Impact</td>
<td>General</td>
<td>&quot;agree with reviewer - there is no problem with the efficacy - it comes down to cost&quot; May.F.24</td>
</tr>
<tr>
<td>May.H</td>
<td>Me-Too +PP</td>
<td>Cost Impact</td>
<td>Defer</td>
<td>&quot;problem then becomes that two 10mg tablets are much more expensive&quot; May.H.10</td>
</tr>
<tr>
<td>May.I</td>
<td>Me-Too +PP</td>
<td>Cost Clinical</td>
<td>Section 8</td>
<td>&quot;on strict basis of cost - reject this drug&quot; May.I.8</td>
</tr>
<tr>
<td>May.J</td>
<td>Me-Too +PP</td>
<td>Cost</td>
<td>Reject</td>
<td>&quot;has to decrease the price to be more competitive&quot; May.J.5</td>
</tr>
<tr>
<td>May.K</td>
<td>Generic</td>
<td>Quality</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>May.L</td>
<td>Me-Too +PP</td>
<td>Cost</td>
<td>Reject</td>
<td>&quot;if look at the chart, can see that this is a cost issue&quot; May.L.2</td>
</tr>
</tbody>
</table>

Note: PP = price premium; -PP means no price premium; +PP means price premium
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<thead>
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<tbody>
<tr>
<td>Jn.A</td>
<td>Me-Too +PP</td>
<td>Cost Impact Quality Clinical</td>
<td>Defer</td>
<td>&quot;marketing will push the use of this drug&quot; Jn.A.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;have they underestimated the competitors? How would this impact/translate into the drugs cost benefit ratio?&quot; Jn.A.52,53</td>
</tr>
<tr>
<td>Jn.B</td>
<td>Me-Too -PP</td>
<td>Economic An.</td>
<td>Limited Use</td>
<td>&quot;because save on hospital costs is competitive&quot; Jn.B.5</td>
</tr>
<tr>
<td>Jn.D</td>
<td>Me-Too -PP</td>
<td>Cost</td>
<td>Limited Use</td>
<td></td>
</tr>
<tr>
<td>Jn.F</td>
<td>Innovative</td>
<td>Clinical Impact Quality</td>
<td>Section 8</td>
<td>&quot;no clear evidence that the drug works&quot; Jn.F.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;concern - those who review the section 8 - depending on how they feel about the disease and the ability of the drug to work - it may well be rejected - there will be no uniformity to the decisions&quot; Jn.F.26</td>
</tr>
<tr>
<td>Jn.G</td>
<td>Me-Too +PP</td>
<td>Cost Impact</td>
<td>Reject</td>
<td>&quot;this is a rapidly growing area for the ODB&quot; Jn.G.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;concern that these drugs will be used first line&quot; Jn.G.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;only told the day before that had to review the submission&quot; Jn.G.28</td>
</tr>
<tr>
<td>Jn.I.</td>
<td>Innovative</td>
<td>Clinical Impact Economic An. Quality Other - politics</td>
<td>Section 8</td>
<td>&quot;took a validated score and modified it for their purpose - it is highly questionable as to how interpretable and meaningful the data is&quot; Jn.I.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;must have fairness as many can not afford it&quot; Jn.I.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;how ensure not deprived so not create 2 tiers&quot; Jn.I.46 (the patients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;the first year may cost up to $30M&quot; Jn.I.89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;new drug, not a lot of convincing data, and has the potential for major expenditures&quot; Jn.I.120</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;social justice issue&quot; Jn.I.128</td>
</tr>
<tr>
<td>Jn.J.</td>
<td>Me-Too +PP</td>
<td>Impact Economic An. Quality Cost Consistency</td>
<td>Reject</td>
<td>&quot;some evidence that there is not enough benefit to offset the cost of the drug&quot; Jn.J.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;willing to pay only certain amount of the market&quot; Jn.J.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;the price is important - will send a clear signal to the company that the cost is an issue&quot; Jn.J.45</td>
</tr>
<tr>
<td>Jn.L</td>
<td>Me-Too +PP</td>
<td>Impact Cost Clinical</td>
<td>Defer</td>
<td>&quot;cost has increased from $5M to $8M&quot; Jn.L.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;actually paying twice as much for no benefit&quot; Jn.L.56</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;is it beyond the ability of this committee to do anything&quot; Jn.L.33</td>
</tr>
<tr>
<td>Jn.M</td>
<td>Innovative</td>
<td>Clinical Impact Economic An.</td>
<td>Section 8</td>
<td>&quot;problem is the potential for overuse&quot; Jn.M.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;it does work - it just is very expensive&quot; Jn.M.15</td>
</tr>
</tbody>
</table>

Note: Jn = June
PP = price premium; -PP means no price premium; +PP means price premium
<table>
<thead>
<tr>
<th>DRUG</th>
<th>DRUG TYPE</th>
<th>KEY FACTORS</th>
<th>DECISION</th>
<th>QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jy.A</td>
<td>Me-Too-PP</td>
<td>Quality</td>
<td>General</td>
<td>&quot;economic review - with ranging use of 10 to 100% of the market share - the range that it would have on the ODB is $100K to $1M&quot; Jy.B.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impact</td>
<td></td>
<td>&quot;is questionable if it is truly cost saving&quot; Jy.B.12</td>
</tr>
<tr>
<td>Jy.B</td>
<td>Me-Too +PP</td>
<td>Clinical</td>
<td>General</td>
<td>&quot;therefore this drug may be abused, question if it will then be good value for money&quot; Jy.C.35,36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impact</td>
<td></td>
<td>&quot;sent irrelevant studies&quot; Jy.E.5</td>
</tr>
<tr>
<td>Jy.C</td>
<td>Me-Too UK</td>
<td>Clinical</td>
<td>Reject</td>
<td>&quot;clearly not have enough evidence&quot; Jy.G.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impact</td>
<td></td>
<td>&quot;is a matter of simple dmg acquisition costs&quot; Jy.G.28</td>
</tr>
<tr>
<td>Jy.D</td>
<td>Innovative- 6</td>
<td>Clinical</td>
<td>General - 2</td>
<td>&quot;there is a sense that there is too much off loading&quot; Jy.H.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality</td>
<td>Limited use - 1</td>
<td>&quot;is cost effective - delays liver transplantation&quot; Jy.I.7</td>
</tr>
<tr>
<td>Jy.E</td>
<td>Me-Too UK</td>
<td>Quality</td>
<td>Reject</td>
<td>&quot;the decrease in cost of treating the rejection episodes offsets the cost of the drug&quot; Jy.L.16</td>
</tr>
<tr>
<td>Jy.F</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;not enough information in this review to make heads or tails of what is happening here&quot; Jy.M.8</td>
</tr>
<tr>
<td>Jy.G</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;reviewer thought that the company did a lousy job and asked that the manufacturer send more information&quot; Jy.M.9</td>
</tr>
<tr>
<td>Jy.H</td>
<td>Innovative</td>
<td>Politics</td>
<td>Reject</td>
<td>&quot;question -should we reject on the basis of price&quot; Jy.Q.16</td>
</tr>
<tr>
<td>Jy.I</td>
<td>Innovative</td>
<td>Clinical</td>
<td>Limited Use</td>
<td>&quot;out of our depth to make the decision&quot; Jy.D.197</td>
</tr>
<tr>
<td>Jy.J</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;is a matter of simple drug acquisition costs&quot; Jy.G.28</td>
</tr>
<tr>
<td>Jy.K</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;there is a sense that there is too much off loading&quot; Jy.H.7</td>
</tr>
<tr>
<td>Jy.L</td>
<td>Innovative</td>
<td>Clinical</td>
<td>Limited Use</td>
<td>&quot;is cost effective - delays liver transplantation&quot; Jy.I.7</td>
</tr>
<tr>
<td>Jy.M</td>
<td>Me-Too UK</td>
<td>Quality</td>
<td>Section 8</td>
<td>&quot;the decrease in cost of treating the rejection episodes offsets the cost of the drug&quot; Jy.L.16</td>
</tr>
<tr>
<td>Jy.N</td>
<td>Generic</td>
<td>Clinical</td>
<td>Reject</td>
<td>&quot;not enough information in this review to make heads or tails of what is happening here&quot; Jy.M.8</td>
</tr>
<tr>
<td>Jy.P</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;reviewer thought that the company did a lousy job and asked that the manufacturer send more information&quot; Jy.M.9</td>
</tr>
<tr>
<td>Jy.Q</td>
<td>Me-Too +PP</td>
<td>Clinical</td>
<td>Limited Use</td>
<td>&quot;question -should we reject on the basis of price&quot; Jy.Q.16</td>
</tr>
<tr>
<td>Jy.R</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td>&quot;there is a sense that there is too much off loading&quot; Jy.H.7</td>
</tr>
</tbody>
</table>

Note: Jy = July  
PP = price premium; -PP means no price premium; + PP means price premium
Table 9: August Meeting

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DRUG TYPE</th>
<th>KEY FACTORS</th>
<th>DECISION</th>
<th>QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug.A</td>
<td>Innovative</td>
<td>Clinical Quality</td>
<td>Section 8</td>
<td>“only 6-18% respond - this is as good as placebo”Aug.A.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>“problem - how define the disease? Does it exist? Some say yes, some no - how do we then decide if we should pay for it or how they should get it?”Aug.A.21</td>
</tr>
<tr>
<td>Aug.B</td>
<td>Me-Too -PP</td>
<td>Clinical Cost</td>
<td>Limited Use</td>
<td>“need to be consistent, let the patches compete with themselves”Aug.B.14,15</td>
</tr>
<tr>
<td>Aug.C</td>
<td>Generic</td>
<td>Quality</td>
<td>Reject</td>
<td>“should have better evidence”Aug.C.9</td>
</tr>
<tr>
<td>Aug.D</td>
<td>Generic</td>
<td>Clinical Impact</td>
<td>Section 8</td>
<td>“this drug could be millions of dollars”Aug.D.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic An.</td>
<td></td>
<td>“economic review - this drug is ridiculously cost ineffective”Aug.D.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consistency</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug.E</td>
<td>Innovative</td>
<td>Quality Impact</td>
<td>Section 8</td>
<td>“economic analysis was well done, but had many assumptions”Aug.E.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>“not sufficient evidence to make more or general listing”Aug.E.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>“the drug company not answer the question”Aug.E.8</td>
</tr>
<tr>
<td>Aug.F</td>
<td>Generic</td>
<td>Cost</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Aug.G</td>
<td>Innovative</td>
<td>Clinical Quality</td>
<td>Reject</td>
<td>“this is a highly specialized area, for reviewers this will be hard to reject”Aug.G.27,28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DQTC limitations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug.H</td>
<td>Me-Too UK</td>
<td>Quality</td>
<td>Reject</td>
<td>“not well done study, economic analysis poorly organized, not meet criteria for review”Aug.H.10,11,12</td>
</tr>
<tr>
<td>Aug.I</td>
<td>Innovative</td>
<td>Quality</td>
<td>Reject</td>
<td>“because no long term data, it is almost like not having data because it is a long term problem”Aug.I.4</td>
</tr>
</tbody>
</table>

Note: Aug = August  
PP = price premium; -PP means no price premium; +PP means price premium
Table 10: Influence of Drug Type on the Frequency of Codes Identified as Important to the Decision

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Clinical</th>
<th>Cost</th>
<th>Impact</th>
<th>Economic Analysis</th>
<th>Quality</th>
<th>Consistency</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>10 (19%)</td>
<td>41(77%)</td>
<td>3(6%)</td>
<td>1(2%)</td>
<td>8(15%)</td>
<td>4(8%)</td>
<td>0</td>
<td>53</td>
</tr>
<tr>
<td>Me-Too-PP</td>
<td>7(33%)</td>
<td>17(52%)</td>
<td>7(21%)</td>
<td>0</td>
<td>2(10%)</td>
<td>1(5%)</td>
<td>1(5%)</td>
<td>21</td>
</tr>
<tr>
<td>Me-Too+PP</td>
<td>6(26%)</td>
<td>23(100%)</td>
<td>14(61%)</td>
<td>2(9%)</td>
<td>6(23%)</td>
<td>5(22%)</td>
<td>2(9%)</td>
<td>23</td>
</tr>
<tr>
<td>Me-Too UK</td>
<td>1(20%)</td>
<td>0</td>
<td>1(20%)</td>
<td>0</td>
<td>4(80%)</td>
<td>0</td>
<td>1(20%)</td>
<td>5</td>
</tr>
<tr>
<td>Innovative</td>
<td>27(84%)</td>
<td>11(34%)</td>
<td>19(59%)</td>
<td>8(24%)</td>
<td>21(66%)</td>
<td>7(22%)</td>
<td>8(25%)</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>92</td>
<td>44</td>
<td>11</td>
<td>41</td>
<td>17</td>
<td>12</td>
<td>134</td>
</tr>
</tbody>
</table>

Note: PP = price premium; -PP means no price premium and +PP means price premium
UK = unknown from discussion whether manufacturer sought a price premium
Other combines political and value codes
Table 11: Interplay of Factors Relating to Drug Type

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Clinical Data</th>
<th>Economic Data</th>
<th>Impact</th>
<th>Quality</th>
<th>Consistency</th>
<th>Presenter</th>
<th>Politics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>equal to reference</td>
<td>has to be cheaper</td>
<td>usually less key</td>
<td>less key</td>
<td>key as reference must be listed</td>
<td>not key as always same presenter</td>
<td>rare</td>
<td>less influence</td>
</tr>
<tr>
<td>Me-Too</td>
<td>how compares to class</td>
<td>if +pp &gt; in depth ea; if -pp &gt; cost</td>
<td>key esp. if +pp</td>
<td>key if asking PP</td>
<td>key - fit with past</td>
<td>+/- can be key</td>
<td>more likely</td>
<td>more influence esp. if asking for pp</td>
</tr>
<tr>
<td>Innovative</td>
<td>efficacy</td>
<td>more in depth</td>
<td>key - increase scrutiny</td>
<td>very key esp. with large impact</td>
<td>key - worry about future</td>
<td>very important</td>
<td>possible role</td>
<td>most influence</td>
</tr>
</tbody>
</table>

Note: PP = price premium; -PP means no price premium; +PP means price premium
Ea = economic analysis
Figure 1. Schemata of the Listing Process

- Manufacturing
  - Goal is profit
  - Seeks listing to profit
  - Tries to package sellable product

- ODB
  - Goal is value for money, and likely budget containment
  - Also politically motivated as seeks re-election

- Consultants
  - Paid by ODB
  - Reports back to ODB
  - Suspicious of industry’s claims

Decides which DQTC member to present data; more complex issues given to senior members, those with economic training, or forms sub-committee

- ODB
  - Reviews consultants’ assessments
  - May do extra work
  - Preparedness key to the flow of discussion, and the final result

Discussion here is very important to end recommendation depends on:
- drug type
- preparedness of presenter
- knowledge of other members
- whether the 2 consultants came to same conclusion
- quality of data
  - believability
- potential impact on budget
- consistency with past decisions
- worry about future decisions

- DQTC Presenter
  - Reviews consultants’ assessments
  - May do extra work
  - Preparedness key to the flow of discussion, and the final result

- DQTC Meeting
  - DQTC very aware of the political issues, but tries to leave this out of the recommendation, instead basing decisions on evidence

- Recommendations
  - Final Decision
  - Here politics can enter the final decision;
    - recommendations can be reversed

Ministry

Final Decision
Figure 2. Schemata of the Decision Making Process at the DQTC

Values

Influences each step of the decision process; at times more obvious than others

Quality

Believability issues

Not believe the submission

Determines the relative strength of the economic analysis

Believability issues

DQTC performs own cost-consequence analysis to determine a product's value

Economic analysis

Unit cost and impact analysis

Believe the submission

DQTC membership to values

Context

Again effects all aspects of decision making; from DQTC membership to values

Clinical Evidence

Determines the amount & type of clinical & economic data required

Type of Drug

Consistency

Acts as a magnifier; increases the scrutiny to all aspects of the submission if both are expected to be large

If possible past decision rules will be applied

Politics

Sent to the Ministry for final approval

Remove from the DQTC recommendation as much as possible

Make a listing recommendation

Sent to the Ministry for final approval

If possible past decision rules will be applied

Sent to the Ministry for final approval

If possible past decision rules will be applied

If possible past decision rules will be applied
As the potential impact to the ODB $I$, so does the importance of the economic analysis.

Economic Analysis

Clinical Effectiveness

Context

Quality

Presenter

Methodological Problems

A believability issue; can render the economic analysis useless

3 Main Problems:
1. early stage in drug development means the economic analysis uses more assumptions, and may have surrogate end points
2. poor comparitors
3. value judgments – from perspective taken, to which costs & benefits are included, to their relative values given

Also important are the personal values of DQTC members – what products do they think are important & should be available on the formulary – i.e. acne medication, etc.
Appendix 1 - Definition of Codes

1. **Clinical** - a reference to a product’s clinical effects, be it context in which it is used, the proposed benefits, or safety concerns.

2. **Cost** - a direct reference to the unit price or drug acquisition price.

3. **Impact** - a reference to the total potential costs to the Ontario Drug Benefit Program. This is estimated by multiplying the drug acquisition cost by the estimated number of prescriptions a year and then subtracting the costs associated with the decreased use of competitive products.

4. **Economic Analysis** - a reference to the submitted formal economic analysis and or a reference to the comparative analysis of alternative courses of action in terms of both their costs and consequences (Drummond et al 1997).

5. **Abuse potential** - refers to the possibility that the drug may be used in populations not intended for - this raises both clinical and economic concerns.

6. **Quality** - refers to the believability of the claims made by the manufacturers in either the clinical or economic submission. This also refers to the organizational effort made by the manufacturers in their submission.

7. **Consistency** - refers to the perceived need to have decisions be coherent / in line with either past or future decisions.

8. **Politics** - refers to those situations when the DQTC recognized factors other than clinical importance or economic value to be central to the final decision made at the Ministry level.

9. **DQTC limitations** - refers to statements where the DQTC did not feel they had the expertise to question either the manufacturers’ claims or the consultants’ assessments - be it clinical or economic.

10. **Values** - refers to discussions when DQTC members used their own personal standards and estimated worths as a guide to what was important to the decision.

11. **Context** - refers to the circumstances that surround the decision making process at the DQTC. Most importantly the issue that the DQTC is a government run committee was raised.
References


Luce BR. Pharmacoeconomics and Managed Care: Methodologic and Policy Issues. *Medical Decision Making* 1998; 18:S4-S11.

Lyles A, Luce BR, Rentz AM. Managed Care Pharmacy, Socioeconomic Assessments and Drug Adoption Decisions. *Social Science and Medicine* 1997; 45:511-521.


Sloan FA, Grabowski HG. Conclusions and Implications. *Social Science and Medicine* 1997; 45:645-647.


