A NEW CONCEPTUALIZATION
OF OCCUPATIONAL OUTCOME

by

Maria Joan Saary

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for the degree of Doctor of Philosophy
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A thesis submitted by Maria Joan Saary for the degree of Doctor of Philosophy in the Institute of Medical Science, University of Toronto, 2008

ABSTRACT

This thesis presents a new conceptual model of occupational outcome based on the results of input from 5 key stakeholder groups in the field of occupational health including patients, healthcare providers, employers, unions, and insurers. Data from 77 participants who took part in one of either 18 individual interviews or 11 focus groups were qualitatively content analyzed. The goals were to: 1) compare the range of meanings given to the concepts of health, occupational health, and occupational outcome, 2) understand the range of opinions among stakeholders and identify areas of agreement or disagreement and, 3) to develop a framework of occupational outcome incorporating the views of all key stakeholders.

Health, occupational health, and occupational outcome were found to have different and complex meanings that extended beyond those in existing research, and that related to the role a variable is hypothesized to have in a larger framework. Stakeholders differed in the depth, breadth, and qualitative nature of the themes discussed. Natural alignments among some stakeholder groups emerged which varied depending on the context, however a specific focus could be identified for each group. No single stakeholder group alone expressed all the themes and the complexity of the relationships among them; the whole could only be understood in terms of the sum of the stakeholder parts.

A new model emerges in which occupational outcome is encompassed by the interactions of 3 key factors: Function and Ability, Individual Behaviours, and Environmental Factors. These are embedded within larger models of both occupational health that includes both individual health and workplace health, and of quality which is comprised of the interactions between structure variables, system participant factors, and outcome. The new model and the process undertaken to develop it meet two important needs for occupational health; enhancing understanding and conceptualization of occupational outcome, and enhancing understanding of the perspectives of stakeholders in the occupational healthcare system. The findings have implications for research,
and delivery of quality care to patients with occupational disease or injuries. Some next steps include model validation and testing, measurement scale development, clarifying new variables through ongoing stakeholder discussion, and model application.
ACKNOWLEDGEMENTS

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“Out of intense complexities, intense simplicities emerge”

~ Winston Churchill~
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CHAPTER 1
INTRODUCTION

“The issue of ‘what to measure’ remains a challenge for occupational health research” (Greenberg and Leopold, 1998). There has been increasing demand that occupational outcomes research be based upon new conceptual models of outcome that incorporate work-related concepts and the views of a variety of stakeholders” (Pransky and Himmelstein, 1996).

This thesis aims to increase clarity and understanding in the field of occupational outcome research by elaborating ‘what to measure’ from the perspective of occupational stakeholders.

As a clinician with a health service background and experience delivering healthcare to those with work-related illnesses and injuries (hereafter occupational healthcare) in a complex system in which patients, healthcare providers, employers, unions, and insurers are included as stakeholders, firsthand experience suggests that not everyone involved in managing a case of an occupationally ill or injured employee views the situation from the same vantage. As an example:

An employee presents to his physician complaining of a rash which he thinks might be related to a new chemical introduced to his workplace. He files a Workplace Safety and Insurance Board (WSIB) claim with the support of his physician, who thinks that the condition is work-related. But because he uses a similar chemical in his model plane building hobby, adjudication of the case becomes more complicated. The physician prescribes a topical cream and asks to see him again in 3 weeks. During this period, the rash resolves, but the employer makes no changes as there has been no direction from either the WSIB or the physician. The union requests that the employer substitute a different chemical, because other members have come forward with similar complaints, but are afraid to go to their physicians or file a WSIB claim because they don’t want restrictions that would place them in a less desirable lower seniority job. At this point,
the physician and patient are satisfied because the rash has resolved, but the patient and union are still concerned that nothing in the workplace has changed. The employer is unconvinced of the problem with the chemical because there have been no accepted WSIB claims or employees presenting with restrictions, and attribute the problem to the employee’s known hobby. The WSIB, despite resolution of the symptoms, continues to gather information to make its determination of work-relatedness, but is satisfied that there was no lost time.

From the perspective of a clinician, situations such as the one in this vignette make it difficult to deliver high quality occupational healthcare or to enhance occupational health. Patients may present feeling frustrated, lacking understanding, and having been to multiple providers, some of whom may not complete requisite paperwork in a timely manner. As well, employers and insurers may demand information in varying formats and times, sometimes without themselves providing timely information in return. Alliances may develop between various stakeholders who become pitted against others, making communication difficult. Overall the difficulty seems to stem from the possibility that the stakeholders may be focusing their attention on different priorities.

While it makes intuitive sense that all stakeholders profess a desire for a positive outcome in such cases, what this really means is unclear. Considering that each stakeholder could hold entirely different views of what would indicate an ideal outcome, stakeholders may be measuring success completely differently, despite the presumption that they all have interest in the wellbeing of the worker as the basis for their decisions. The vignette brings to light two needs for occupational health: (1) enhancing our understanding and conceptualization of occupational outcome and (2) enhancing our understanding of the perspectives of the different stakeholders in the occupational healthcare system, as well as the basis for those perspectives.

**Enhancing the Understanding and Conceptualization of Outcome**

Enhancing the understanding of outcome in occupational health has been a frequently cited need in the field of occupational health research (Blanc, 2004; Deitchman et al., 2001; Mustard and Hertzman, 2001, Pransky et al., 2005; Pranksy et al., 2001, Young et al., 2002). Just as the
movement toward accountability for health care quality and outcomes has predominated the general medical literature, so has this development gained momentum in occupational healthcare, which is also becoming increasingly quality-conscious (Hulshof et al., 1999; Rudolph, 1998). The use of outcome data is a common basis for the measurement of healthcare quality because such data deal with the ultimate goals of healthcare - improving patients’ health (Palmer, 1991; Williamson et al., 1991). Although high quality healthcare could be expected to result in improved health and therefore good outcomes, other factors aside from the quality of healthcare also affect health. Thus, accurate, meaningful, and practically useful outcome measures depend upon a clear conceptual framework that identifies the various dimensions of outcome, and other factors one might wish to measure.

Although the outcome dimensions chosen for inclusion in any particular study may vary depending on the condition being studied, in the general medical literature the dimensions of outcome have often been delineated into generic categories that could serve as a framework to guide the selection of a comprehensive set of outcomes (Brook et al., 1977; Donabedian, 1966, 1982, 2003; Doerge, 2000; Fries, 1983; Hegyvary, 1991; Nelson et al., 1996; Sanazaro and Williamson, 1968; Spath, 1996, 1997; Starfield, 1974; Tarlov et al., 1989; Ware Jr, 1987, 1991; White, 1967, 1970; WHO, 2001, 2002; Wilson and Cleary, 1995). Such frameworks have historically been based on theories of what defines health.

Developments in the generic conceptualization of outcome can inform more specific areas of health research. At the same time however, it is important to clarify and expand the range of outcome dimensions in specialty areas like occupational healthcare, in order to address the outcomes important for occupational stakeholders. Outcome research in occupational health potentially differs from that of general healthcare. There can be differences in the population, the range of conditions, the setting of care, and the goals of research. Because of these differences, there has been some discussion that outcomes should also vary. Yet, efforts to examine occupational outcomes have not been comprehensive. Early discussions about occupationally relevant outcomes identified outcome dimensions supplementary to commonly used generic dimensions, that were thought to be important, but not yet addressed in most health outcome studies (Pranksy and Himmelstein, 1996; Mustard and Hertzman, 2001). As well,
although general health status measures have been relatively widely used both in working aged
and in occupationally ill populations to evaluate health status, as well as to predict work outcome
in those with illnesses not caused by work (Dean et al., 2005; Elliehausen et al., 2004; Gillen et
al., 2004; Hee et al., 2001; Krousel and McCune, 1994; Stewart-Brown and Layte, 1997) there
have been relatively few attempts to validate such measures in occupationally ill populations
(Kyes et al., 1997).

**Enhancing the Understanding of the Perspectives of the Different Stakeholders**

Critical to the understanding of outcome in occupational health research is the need for greater
understanding of the differing perspectives of system participants and the potential factors that
may relate to those perspectives (Deitchman et al., 2001, Loisel et al., 2005, Pransky et al.,
2005, Young et al., 2005). Historically, medicine has relied heavily on physician judgment.
Outcome variables chosen for evaluation in research studies have often been determined by
physician panels, committees, and consultations, with little consideration of perspectives of
other stakeholders (Brook et al., 1977).

However, the importance of considering the preferences of patients as stakeholders for the
achievement of certain outcomes over others has long been recognized (Brook et al., 1977).
Recently, much research has been done to elaborate the two-stakeholder patient-physician
relationship, and the fact that patient and physician views and opinions often differ (Laine et al.,
1996, Brown, et al., 2000; Johnston et al., 1995). In the case of occupational illnesses and
injuries, there is an even more complex multi-stakeholder situation. As with other areas of
medicine, that stakeholders’ views in occupational health may differ or are not well clarified,
has been well-recognized (Cheng et al., 2002; Franco, 2003; Linton et al., 2005; Shaw et al.,
2000). The stakeholder groups are diverse and include insurer, union, and employer
representatives in addition to the patient and healthcare provider. The complexity of multiple
stakeholder situations is exemplified in the following quote:

“Too often, payers, physicians, and healthcare executives do not share common
insights into the life of the patient. We acknowledge that our common interest is
the patient, but we represent that interest from such divergent, even conflicting,
viewpoints that everyone loses perspective….The problem is our inability to measure and understand the effect of the choices of patients, payers, and physicians on the patient’s aspirations for a better quality of life” ~ Ellwood (1988).

Nonetheless, there has been some acknowledgment of the importance of recognizing stakeholder perspectives specifically in occupational health. It has been suggested that prior to progress on workplace health initiatives, stakeholders need to share a common understanding of what is meant by workplace health (Bachman, 2000). Bachman also noted that while many groups involved in the occupational healthcare system have similar goals, they have different approaches to issues and different strategies for dealing with them. Jones (1993) noted the importance of context in outcome analysis, acknowledging the existence of many differing and possibly competing perspectives between purchasers (employers, insurers), individual providers (physicians, nurses) and patients.

This is illustrated in the example given at the beginning of the chapter. Successful treatment of the employee’s rash was an outcome of interest to all stakeholders. However, changing the workplace to prevent future outbreaks of the rash was not an outcome considered by all stakeholders. It was valued, in this example, by employees and union representatives. The employer felt the need for a greater level of proof before changes should be made. Such proof would include having multiple employees with similar health problems that could not be explained by factors outside the workplace. Changing the workplace may have been of less interest to the family physician, who saw his or her role as treating the individual patient. Because few claims had been filed related to this chemical at this particular workplace, the Workplace Safety and Insurance Board, although interested in changing the workplace as a general measure, may require further information in this particular case. As a result, while some outcomes were important to all stakeholders, contextual factors including disclosure of information and communication, the frequency of health outcomes, and other potential explanations for health outcomes were relevant in varying degrees to other stakeholders.
While outcome measurement has been valued in health research, existing models may be too general or have gaps that need to be filled in order to apply to occupational health. In addition to a scholarly emphasis on the generation and interpretation of new knowledge for the fields of health services research and clinical occupational health, there is a practical and applied interest in producing knowledge that will help constituents understand one another. This thesis therefore aims to address the two previously identified needs for occupational health i.e. enhancing our understanding and conceptualization of occupational outcome and enhancing our understanding of the perspectives of the different stakeholders in occupational healthcare, as well as the basis for those perspectives by: illuminating the meanings occupational health and outcome, developing an understanding of the breadth of occupationally relevant outcomes, and developing a comprehensive framework to guide the conceptualization of the outcomes relevant to occupational health and the diverse stakeholders (e.g. patients, healthcare providers, employers, unions, and insurers) in this field.

Objectives
The objectives of this thesis are three-fold.

1. Understanding Meaning
The first objective is to compare the range of meanings and interpretations given to the concepts of: 1) health, 2) occupational health, and 3) occupational outcome.
   a) By comparing the meanings of health and occupational health it will be possible to discern whether participants consistently identify different themes within the two concepts that need to be incorporated into occupational health research and practice. In other words, what stands out as different when stakeholders talk in the occupational context?

   b) By comparing occupational outcome themes with meanings of health and occupational health, it will be possible to identify the dimensions of health and occupational health that stakeholders consider as occupational outcomes. This will aid in the development of a framework to guide the conceptualization of the occupational outcomes.
2. Stakeholder Perspectives
The second objective is to gain an understanding of the range of opinions among occupational stakeholders about health, occupational health, and occupational outcome and to:
   a) Identify areas of significant agreement or disagreement between separate stakeholder groups.
   b) Identify the key dimensions of occupational health themes and outcomes for each stakeholder.

3. Framework Generation
The final objective is to utilize new-found understanding of occupational health outcomes and synthesize this knowledge with existing health outcome models to develop a framework of occupational outcome that incorporates the views of all key stakeholders. Specifically, data will be discussed in terms of its fit with disability-based frameworks of health outcomes like the International Classification of Function (ICF) and with Donabedian’s quality model (1980, 2003) comprising structure, process, and outcome variables.

To meet these objectives qualitative interviews and focus groups with different stakeholders were conducted followed by qualitative content analysis. A qualitative method was considered optimum in addressing the research objectives because information on occupational health outcomes and the perspectives of different stakeholders is lacking, and because the factors associated with these perspectives are likely to be complex. Using qualitative methods would allow the opportunity to learn from participants what they feel is important, without imposing existing perspectives on them. It also would yield detailed information that could be used to enhance existing conceptual health models for application to occupational health settings.

Implications
The findings of this thesis have implications for research and the delivery of quality care to patients with occupational disease or injuries. By developing a uniquely occupational conceptualization of outcome which assembles the perspectives of key stakeholders, and highlights their distinctive views about outcomes, we gain greater understanding of the dimensions of occupational health and additional themes that represent gaps and areas of future
research. We also learn of the key dimensions of interest for different stakeholders, the areas of consensus and discord, and factors that may relate to their perspectives. This allows for a framework for conceptualizing occupational outcome that is based on stakeholder input. The study also makes a significant contribution to the current literature not only because of the importance of the topic being addressed, but also because of the methodology used. Among the small pool of researchers in occupational healthcare, many have quantititative and/or clinical backgrounds so qualitative studies, which are particularly useful for gaining insight into complex situations, are scarce.

**Overview of the Thesis**

The thesis is presented in a series of 8 chapters, the first 3 of which are introductory in nature. Chapters 2 and 3 summarize the current literature on the topics of outcome conceptualization generally, and in occupational health specifically and serve as background related to objective 1 (Understanding Meaning) and objective 3 (Framework Generation). Chapter 4 addresses the rationale for, and importance of considering stakeholders’ views, and serves as background for the second objective (Stakeholder Perspectives). These chapters are followed by a methodology chapter (Chapter 5) which describes the study methodology and the justification for it. In chapter 6 the findings are presented and discussed. Chapter 7 contains further discussion of the results in light of current models, including the International Classification of Function (ICF) and with Donabedian’s quality model (1980, 2003). It is here that a new framework of outcome for occupational health is presented. The thesis concludes with Chapter 8 which focuses on the practical application of the results of this thesis. This chapter also addresses the study’s limitations as well as the possibilities for next steps for future research.
CHAPTER 2
CURRENT UNDERSTANDING OF THE MEANING
OF HEALTH AND OUTCOME

One objective of this thesis is to gain a greater understanding of the meanings stakeholders, as single group, give to the concepts of health, occupational health, and occupational outcome specifically. Another objective is to appraise the adequacy for occupational health, of various models including the International Classification of Function (ICF) and Donabedian’s quality model (1980, 2003) comprising structure, process, and outcome variables. This chapter will address these objectives by providing the necessary background to frame the concept of outcome. This is accomplished through discussion of the role of outcome in the assessment in healthcare quality, and the evolving meanings of both health and outcome. Models against which the study participants’ views will be compared in order to identify gaps in current understanding are also elaborated, and the relevance of outcome frameworks for outcome measurement is addressed. This chapter will set the stage for the discussion that follows in Chapter 3 about the applicability of existing frameworks to occupational health specifically.

Why Measure Outcome?
Outcomes of care are defined as changes in individuals or populations that can be attributed to healthcare (Donabedian, 2003). Others have referred to outcome data as reflecting a patient’s subsequent health status (Brook et al., 1996) as well as the end-result of treatment and the effectiveness of care (Hegyvary, 1991).

Outcomes are commonly measured to determine the efficacy of medical processes such as therapy, to monitor care, and for comparative evaluation for policy-making purposes (Brook et al., 1977). These types of health indicators are applied in advocacy efforts, accountability decisions, system management, quality improvement, and research (Etches et al., 2006). The application of outcomes research in the United States was most recently spurred by The Medical Effectiveness Program of the Agency for Healthcare Policy and Research in the late 1980’s and early 1990’s with the development of Patient Outcome Research Teams – PORTS (Blumenthal, 1996b). In Canada, the Canadian Medical Association has specifically indicated that the
objective for healthcare providers in Canada’s healthcare system is to provide the best possible care while making the best use of resources. Outcome measures are one of the quality improvement tools endorsed to achieve this goal (CMA, 1995). The Royal College of Physicians and Surgeons of Canada has also championed the need for transformation in the healthcare system in order to attain ideal outcomes, and so developed the CanMEDS project (Helmer, 2004). Other transformation system initiatives in Canada developed for similar purposes include the creation of the Canadian Institute for Health Information (CIHI), the Canadian Medication Incident Reporting and Prevention System (CMIRPS), and the Canadian Patient Safety Institute (Helmer, 2004). As well, although in existence since 1917, in the early 1990’s the Canadian Council on Health Services Accreditation (CCHSA) revised its standards documents to focus on structure and process, and began to look at outcomes. More locally, such discussions also occur at the university medical department level (Levinson, 2004).

**Evolving Meanings of Health and Outcome**

The expanding definition of health has been a key force in shaping the evolution of outcomes research, leading to a more complex taxonomy of outcome dimensions. Given the definition of outcome as a reflection of change in health status, outcome measurement is intimately linked to the definition of health, although not necessarily confined by it. Researchers note that health can neither be measured directly, nor can it be described by a single variable. Rather, its measurement relies on gathering information about an ever-increasing number of indicators, which represent components of the overall concept (McDowell and Newell, 1996). As noted, in the past the prevalence of a condition, and mortality from it, were primary measures used to determine the impact of medical care on a medical condition. Eventually, death rates were no longer accurate indicators of either the burden of illness or the impact of the healthcare system (McDermott, 1981). Additional measures of outcome beyond survival were increasingly considered important (Bergner and Rothman, 1987; Breslow, 1972; Brook et al., 1977; Evans and Stoddart, 1990; Wilson and Drury, 1984; Wright, 1999).

Whereas initially investigators measured outcomes they deemed valuable (e.g. clinical outcomes), new dimensions of outcome measurement have continued to emerge as practice variation and rising healthcare costs come under more scrutiny (Spath, 1996). To make sense
of the variety of possible health outcomes, clinicians and researchers have delineated the range of different dimensions of health outcomes (Brook et al., 1977; Clancy and Bierman, 2000; Doerge, 2000; Donabedian, 1966, 1982, 2003; Fries, 1983; Hegyvary, 1991; Kaplan and Norton, 1992, 1993; Leplège and Hunt, 1997; Nelson et al., 1995, 1996; Sanazaro and Williamson, 1968; Schreifer et al., 1997; Spath, 1996, 1997; Starfield, 1974; Tarlov et al., 1989; Ware Jr., 1987, 1991; White, 1967, 1970; WHO, 2002; Wilson and Cleary, 1995). A dimension (or domain) refers to the area of experience or behaviour one is trying to measure (Guyatt et al., 1993). Currently, outcome dimension frameworks and the resulting instruments for outcome evaluation are highly variable. As noted, this variability partly relates to the increasingly sophisticated frameworks required to express the multidimensional nature of health (Rachlis and Kushner, 1995, McDowell and Newell, 1996). Frameworks describing such dimensions are useful to guide the selection of the outcomes to be measured in various clinical medical situations or research studies.

Historically, much medical literature and practice was conceptually based upon a clinical paradigm which focused on etiology, pathology, and clinical outcome, and assumed disability to be a problem within an individual requiring medical management. This paradigm relied on a naturalistic conception of disability, in that biology is the root of impairment that in turn causes disability (Bickenbach et al., 1999; Hemmingsson and Jonsson, 2005; Imre, 2004; Jette and Jette, 1996; Wilson and Cleary, 1995; Wilson and Kaplan, 1995; WHO, 2002). This is in contrast to social conceptions of disability in which disability is viewed as a social construction, and which will be discussed further in the context of the International Classification of Function (ICF) later in the chapter.

Because of the breadth of frameworks that fit within the medical paradigm, a synthesis of various outcome dimensions from examples of clinical medical-based frameworks was compiled to demonstrate the temporal changes that have occurred in outcome dimensions. This is presented in Table 1. Examination of this table, moving from earlier frameworks on the left to later ones on the right, suggests that the frameworks for classifying outcome dimensions evolved in 3 major stages which will now be presented in order.
<table>
<thead>
<tr>
<th>Table 1: Outcome Dimensions in Medically-Conceptualized Frameworks</th>
<th>Framework by Author Early (1966)</th>
<th>Recent (2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions and Sub-dimensions</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>1. Physical Health Variables</strong></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>1.1 Mortality</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>1.2 Longevity, survival</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>1.3 Recovery</td>
<td>x</td>
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<td>1.4 Presence of Disease</td>
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<td>1.5 Pain, discomfort</td>
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<td>1.6 Physical Function, Disability</td>
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<td>1.7 Presence of Physical Symptoms</td>
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<td>1.8 Presence of Physical Signs</td>
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<td>1.9 Achievement (development, resilience)</td>
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<td>1.10 Biochemical, physiologic abnormalities</td>
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<td>1.11 Physical health</td>
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<td>1.12 Relapse</td>
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<td><strong>2. Psychological</strong></td>
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<td><strong>3. Satisfaction</strong></td>
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<td><strong>4. Social Functioning</strong></td>
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<td><strong>5. Role Function</strong></td>
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<td><strong>6. General Health Perceptions</strong></td>
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<td><strong>7. Quality of Life</strong></td>
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<td><strong>8. Functional Status</strong></td>
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<td><strong>9. Clinical Outcomes</strong></td>
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<td><strong>10. Cost</strong></td>
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<td><strong>11. Interpersonal Interaction</strong></td>
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<td>11.1 Attitudes towards MD care</td>
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<td>11.2 Attitudes toward condition</td>
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<td><strong>11.3</strong> Patient-provider collaboration</td>
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<td><strong>11.4</strong> Service (responsiveness to pt needs)</td>
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<td><strong>11.5</strong> Compliance</td>
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<td><strong>12. Technical Process</strong></td>
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<td><strong>12.1</strong> Diagnosis</td>
<td>x</td>
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<td><strong>12.2</strong> Complications</td>
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<td><strong>12.3</strong> Hospitalization</td>
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<td><strong>12.4</strong> Risks</td>
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<td><strong>12.5</strong> Treatment time</td>
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<td><strong>13. Community Mission</strong></td>
<td>x</td>
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1. Donabedian, 1966
2. White, 1967, 1970
3. Elinson as described by Sanazaro & Williamson, 1968
5. Starfield, 1974
8. Fries, 1983
9. Ware Jr, 1987
10. Tarlov et al, 1989
11. Ware Jr, 1991
16. Doerge, 2000
Stage 1: From Mortality to Morbidity

An original focal interest in proximal outcomes such as survival statistics progressed to a greater concern about measuring freedom from disease. For example in the early stages of outcome conceptualization, Donabedian (1966) proposed 3 key outcome dimensions: recovery, restoration of function, and survival. These were viewed as not only as relatively stable and valid, but also concrete thereby making them “amenable to more precise measurement”. Unfortunately, the rationale for using recovery, restoration, and survival as outcome dimensions is not elaborated, but may relate to historical precedent. Soon after, White (1967, 1970) conceptualized the goal of healthcare as the improvement in functional capacity of individuals, and proposed a “5-D” model of outcome: death, disease, disability, discomfort, and discontent. In this model, death was measured by a reduction in premature mortality; disease reflected the prevalence and incidence of disease and reductions thereof; disability was objectified by the number of activity-limitation days or bed-disability days; discomfort was measured both by asking people about pain or physical discomfort, as well as examining the consumption of drugs, and finally discontent was really a measure of satisfaction. Evaluation methods were primarily epidemiological from administrative databases, but also included social survey and economic analysis. At the same time, Sanazaro and Williamson (1968) cited Elinson as having also proposed a 5-D model (death, disease, disability, discomfort, and dissatisfaction), with Williamson later adding of a sixth D – social disruption.

In 1968, Sanazaro and Williamson commented on the fact that no “systematic comprehensive classification” of medical care outcomes had been devised at that time. Many had proposed partial classifications, but Sanazaro and Williamson presented their own attempt to define “end results” through research by gathering data from internists. This seems to be one of the earliest attempts to develop an empirically based classification scheme for the dimensions of health outcome. They used a modified critical-incident technique in which physicians submitted cases for which specific actions or omissions had consequences for the patient, then words and phrases describing end results (outcomes) were inductively classified. Twelve categories (and 42 subcategories) were divided into 2 domains with six categories each as follows. The Patient End Results domain contained: longevity, physical abnormalities, psychological abnormalities, physical symptoms, psychological symptoms, and function. The latter category (i.e., function)
was a category that included functioning of a patient as an individual, a member of a family, or a member of society. The Process Outcomes domain contained: attitudes toward MD care, attitudes toward condition, compliance, risks, hospitalization, and cost. Sanazaro and Williamson (1968) suggested that patient end results and process are both forms of outcome.

Starfield (1974) identified ambiguous terminology beginning to arise in the outcome measurement discussion. She did not draw as distinct a line between outcome and process as others, but rather used a combined process-outcome method to develop a 7-category model of outcome. Longevity reflected the traditional outcome of mortality. The activity category incorporated functional capacity and activities of daily living. Satisfaction with one’s health was the third category. The fourth was comfort, and was not then considered to be widely accepted as an outcome worthy of measurement attention. The disease category represented morbidity, as opposed to mortality. Achievement, which reflected development stage, and resilience, relating to ability to cope with adversity, were both viewed to incorporate positive aspects of health.

In the early 1980’s when Fries et al., (1980, 1982, 1983) were developing arthritis-specific measures, they noted that “if improvement in outcome for the patient with arthritis is the goal of an arthritis medical care system, then the definition of outcome and the development of some means by which it can be measured is essential” (Fries et al., 1980). Fries (1983) elaborated a classification of patient outcomes that include disability, discomfort, psychological outcomes, death, and cost. He developed the idea of hierarchical structure, in that the dimensions of outcome can have sub-dimensions, which can be broken down into components and then represented with items if the intent was to use a survey instrument. Hence clusters of variables proposed by physicians on possible “outcomes” were found to be naturally (and statistically) associated, and these groups of associated variables represented outcome dimensions. As well, they were proponents of multidimensionality in outcome conceptualization, but had concerns about the clinimetric properties of measures available at the time. They noted that “non-biologic inputs” were likely as important outcomes as biologic activity, thus requiring a broader model of health; to not so consider them, would be contrary to the Hippocratic Oath” (Fries, 1983). Fries also noted that dissatisfaction with traditional end points was creating the impetus for a “drive
toward more comprehensive endpoints.” The next stage in the progression of outcome dimensions represents a move beyond traditional clinical end points to include dimensions of function, perception, and satisfaction.

**Stage 2: Enhanced Psychosocial, Functional, Perceptual, and Satisfaction Dimensions**

In 1948, the definition of health proposed by the World Health Organization (WHO, 1948), was that health is defined as “a state of complete physical, mental, and social well being, and not merely the absence of disease or infirmity”. Thinking about health was moving away from the biomedical model, in which the focus was primarily the absence of physical pathology, to a more comprehensive one which placed greater emphasis on psychosocial issues (Jette and Jette, 1996). In addition to reflecting poor outcomes such as mortality, over time more refined measures of health status permitted degrees of “goodness” to be distinguished in dimensions such as functional status (the capacity to perform tasks and activities), and well-being (the subjective assessment of quality of life and health) which are highly valued by patients and so have become important outcomes in addition to measures of clinical endpoints (Palmer, 1991; Wells et al., 1989).

In his 1987 paper about validating health measures, Ware Jr. discussed the idea that since the goal of the health care system is to maximize health status, measures of health outcome should be defined according to five distinct dimensions of health: physical health, mental health, everyday functioning in social and in role activities, and general perceptions of well being. In the Medical Outcomes Study, designed to identify how components of the healthcare system affect outcomes of care, Tarlov et al. (1989) included functional status, satisfaction, and general well-being as components of outcome. Subsequently, in an address to the American Cancer Society in 1991, Ware, Jr. proposed a “minimum set of generic health concepts” which he divided into 3 categories: functional status, well-being, and general health perceptions. Functional status represented the objective behavioural dysfunction resulting from disease. The well-being category included psychological factors such as psychological distress, psychological well-being, and life satisfaction. The third category, general health perceptions encompassed the personal perspective of the respondent, irrespective of whether they were oriented more toward mental or physical health, themselves being broadly represented by the former two categories.
By the mid-1990’s there was increasing demand for subjective, patient-point-of-view outcome measures in addition to objectively observable measures (Leplège and Hunt, 1997; McDowell and Jenkinson, 1996; McHorney, 1999). In 1995, Wilson and Cleary attempted to re-conceptualize the interrelationships between various types of patient outcomes by merging the clinical-biomedical paradigm with social science’s quality-of-life paradigm into a single taxonomy of patient outcome that “categorizes measures of patient outcome according to the underlying health concepts…” In their model, there were 5 categories of outcome including biological/physiological factors, symptoms, functioning - itself with four domains: physical, social, role and psychological functioning, general health perceptions, and lastly quality of life (Wilson and Cleary, 1995). Measurement of the last category, quality of life, which is usually intended to reflect patients’ values and perceptions, has been challenging due to varied conceptualizations, which have included various domains such as physiologic, psychological, social, and occasionally return to work factors (Anderson and Burckhardt, 1999; Gill and Feinstein, 1994; Leplège and Hunt, 1997; Moon et al., 2006).

Donabedian’s early 3-dimension (recovery, restoration of function, and survival) framework for outcome was subsequently re-conceptualized in 1982 (Donabedian, 1982, 2003). At that time, he believed that a satisfactory classification scheme for outcome dimensions did not exist, but acknowledged that of Brook et al. (1977) to be one of the most comprehensive to that date. Donabedian then used Brook’s 1977 model as a springboard to develop his own modified classification scheme which was much more complex and inclusive classification than his first, with 7-categories, each with multiple indicators therein. The seven categories included: clinical outcomes such as symptoms and disease staging, physiological-biochemical outcomes, physical outcomes which includes functional performance of daily activities, psychological-mental outcomes such as feelings, beliefs, and knowledge related to healthy living and coping, social-psychological outcomes which encompass coping behaviours, as well as marital, family, occupational and other interpersonal role functioning, evaluative outcomes which relate to client opinions and satisfaction, and finally integrative outcomes related to mortality, actual or adjusted longevity, or monetary costing thereof. A focus on cost is a characteristic of typical frameworks in the third stage of outcome evolution.
Stage 3: Reductionism, and Greater Focus on “Value-Related” Variables

The earliest frameworks in stage 1 had approximately 5 dimensions. Through stage 2, the number of dimensions in the models increased. Subsequently in stage 3 there was a reductionist trend as dimensions became more broadly defined subsuming multiple other categories. For example, physical and psychological dimensions became subsumed together under a “clinical outcomes” dimension. As well, many outcome frameworks began to include dimensions historically considered to be outside the realm of outcome as it was typically defined, such as cost. When factors such as cost are added into the conceptualization of quality, the summative concept has been labeled “value” (Hagen, 1996; Ireson et al., 2002; Young et al., 2001). During development of a database for assessing outcomes, Hegyvary (1991) discussed a proposal for four categories of outcome: clinical, functional, perceptual (e.g. perceived wellness), and financial. The rationale for the choice of these outcome measures was to allow multiple perspectives of providers, consumers, and insurers, and as such, it was also suggested that community-based outcomes be considered as well. Then, in the Clinical Value Compass model of Nelson et al. (1995, 1996) four critical indicators were selected as cardinal ‘compass points’ reflecting cost, clinical outcome, functional outcome, and satisfaction such that attention is focused on the dimensions of quality viewed as most vital. The user of the compass is left to operationally define and thus select the measures for each of the four categories. This model was derived from the balanced scorecard earlier described by Kaplan and Norton (1992, 1993) and has been widely used and adapted (Schreifer et al., 1997).

Spath (1997) discussed outcomes from a performance measurement standpoint. Four dimensions are elaborated, each with a variety of behavioural health performance indicators. The first dimension is clinical outcome, which is further subdivided into patient-reported and clinician-reported outcomes; the former including components such as pain, social and emotional functioning, role function, and mental health, and the latter including diagnosis, complications, relapse etc. The second dimension includes utilization measures, which reflect treatment time and associated costs. The third is a measure of technical performance focusing on care delivery process such as adherence to clinical practice guidelines or completeness of documentation. The final dimension is that of patient satisfaction. Because patients are increasing seen as members of the healthcare team, patient-provider collaboration was discussed.
as a key new dimension in outcome measurement (Spath, 1996). Spath (1996) also considered quality of life to be another dimension of outcome measurement, likely subsumed under patient reported clinical outcomes in the typology described previously.

Doerge (2000) discussed the local utilization, in an American tertiary care hospital, of an outcome scorecard modified from the Dartmouth model (Nelson, 1996) which includes six main categories: service, which related to system responsiveness to patient needs, satisfaction as a reflection patient perceptions of courteousness of care, clinical outcomes such as infection rates, fiscal measures such as cost-effectiveness, health status/preventive measures, and a hitherto unmentioned category of “mission” reflecting organization commitment to the community.

Clearly, ideas about ‘what to measure’ have evolved to include a large variety of possible variables from which to choose. The previous section illustrates how the types of variables measured when evaluating outcome have progressed from simpler measures such as mortality through various stages to a point in which cost and value are being considered as outcomes. It is also relevant to comment upon the methods by which those dimensions were identified. Very early models of outcome included dimensions that related to administratively available public health data e.g. mortality. Because outcome is so closely linked to health, not surprisingly, models emerged that were developed by researchers’ extrapolations from various theories of what defines health. Although various drivers such as patient preferences, expanding perceptions of the meaning of health, and fiscal accountability became relevant, still, the method by which frameworks were generated was most commonly by physician committee or panel consensus, with the opinions being almost exclusively those of clinicians and researchers.

In order to make sense of the range of possible outcomes, some researchers have made use of models. The value of models is that they are useful to help organize an increasing inventory of variables. In addition to their value in providing structure to the organization and interrelationships between variables, models are also useful to guide hypothesis testing. To achieve the objective of developing a framework of occupational outcome that incorporates the views of all key stakeholders, new-found understanding of occupational health outcomes needs to be synthesized with existing models. The two models that were chosen for this purpose are
Donabedian’s healthcare quality model (Donabedian, 1980, 1982, 1988, 2003), and the World Health Organization’s International Classification of Functioning, Disability, and Health (ICF) (WHO, 2002). These models were chosen because they each have a strong focus on outcome but differ in their conceptualization of it. Donabedian’s model is linked most closely with the medical model of health which focuses on etiology, pathology, and clinical outcome, and in which biology is considered to be the root cause of impairment that in turn causes disability (Bickenbach et al., 1999; Hemmingsson and Jonsson, 2005; Imre, 2004; Jette and Jette, 1996; Wilson and Cleary, 1995; Wilson and Kaplan, 1995; WHO, 2002). Much of the clinical medical literature uses Donabedian’s model as a basis for considering and defining outcome, which situates outcome in a relationship with other variables that define healthcare quality such as structure and process. By comparison the ICF offers an alternative perspective based on a social conception of disability. Disability is viewed as a social construction and therefore additional factors such as the interaction of a person with his or her environment are considered. Thus, the models are similar in their potential for inclusion of multiple health-related variables, and in their ability to impart organization and meaning to the concept of outcome, however Donabedian’s model is focused more on distinguishing outcome from other types of variables, compared to the ICF which is focused more on defining the breadth of outcome. Examining the evolution of ‘what to measure’ therefore led to the selection of a model that could help encompass the breadth of outcome meaning (ICF), as well a model that could place outcome in the context of other important and commonly measured variables (Donabedian). Each of the models will now each be examined in greater detail.

**Donabedian’s Model of Quality**

Donabedian’s model organizes variables related to healthcare quality. Thus, outcome is described in the context of quality and its relationship to other measures of healthcare quality, such as structure and process. For much of the history of healthcare delivery, high quality healthcare meant “doing more,” since doing something was viewed as better than doing nothing (Gaucher and Coffey, 1993). Unfortunately, ‘doing something’ did not necessarily equate to doing something that was evidence based or cost effective. The resultant mounting healthcare costs, coupled with lack of evidence that ‘more-means-better’ led to increased scrutiny of healthcare quality.
For this reason, outcome measurement has become increasingly emphasized. Outcome has been given priority in healthcare with improvements therein being indicative of healthcare quality (Bierman et al., 2001, Cleary and McNeil, 1988; Etches et al., 2006; McGrath and Tempier, 2003, Naylor and Guyatt, 1996). Overall, outcomes are considered important for purposes of quality assessment (Brook et al., 1977) and have therefore become, to some extent, a surrogate for it. The manner by which the concept of outcome has gained acceptance as a means of quality assessment is presented next.

The Role of Outcome in the Assessment of Healthcare Quality

The need for approaches to healthcare quality assessment became a high priority due to the demand for quality assurance (AHRQ, 2005; Helmer, 2004; Palmer, 1991). Quality assurance relates to the process of finding and overcoming problems with measured quality (Lohr, 1991). Methods of improving quality in healthcare have evolved, to a degree, from parallel efforts in industry, particularly the manufacturing sector, where the Continuous Quality Improvement / Total Quality Management (CQI/TQM) approach is commonly used (Antti-Poika, 1995; Blumenthal, 1995). In this approach, there is an emphasis on continuous education and self-improvement, with a management style that aims for long-term success by focusing on customer satisfaction, as well as benefits to members and society (Antii-Poika, 1995). When first applied, quality assurance represented a paradigm shift in medical care (Rachlis and Kushner, 1995); it focused on understanding and improving underlying processes and systems and represented the integration of a customer-focused, continuous-improvement philosophy, analytical skills, people skills, and a structure and organization, all within a culture affected by leadership (Gaucher and Coffey, 1993). In order to assure and improve quality, through whatever approach, requires a method of quality assessment.

Description of the Donabedian Model

The most common approach to the conceptualization and assessment of quality in medical care is Donabedian’s model (see Figure 1). This model suggests that quality can be assessed using a triad of structure, process, and outcome (Donabedian, 1980, 1982, 1988, 2003) and evolved from earlier schemes proposed by DeGeyndt (1970), Doll (1974), Makover (1951), Sheps (1955), and Williamson (1971). Methodologically then, this model’s development represents an
evolution of ideas presented by Donabedian as an individual; stakeholders were not involved in its development.

As mentioned, a quality paradigm has dominated the healthcare delivery literature and analyses of the structure-process-outcome relationship have been the cornerstone of quality assessment in medicine (Spath, 1996; Tarlov et al., 1989). This model or ones like it, continue to be applied in many areas of health, and the identification and selection of standardized sets of core quality dimensions is an area of ongoing research in many medical specialties, with outcome as a crucial factor, making it a good choice for comparison in the third objective of this thesis related to model appraisal and framework generation for occupational health.

Donabedian’s three-part classification includes:

1. **Structure** – The conditions under which care is provided, including human and material resources, and organizational characteristics.
2. **Process** – those activities involving the delivery of health services, such as diagnosis, treatment, rehabilitation, prevention, and patient education. It reflects the interaction between the physician and patient and can be broken down in to both the technical and interpersonal domains.
3. **Outcome** – Changes in health or functional status that are attributable to the structure and processes of care. Outcomes of care are primarily changes in individuals or populations that can be attributed to healthcare (Donabedian, 2003). Others have referred to outcome data as reflecting the patient’s subsequent health status (Brook et al., 1996), or the end-result of treatment and the effectiveness of care (Hegyvary, 1991).

In addition to locating outcome within a model of healthcare quality, Donabedian also made specific comments about the classification of outcome. Recall that Donabedian’s early 3-dimension (recovery, restoration of function, and survival) framework for outcome was subsequently re-conceptualized in 1982 (Donabedian, 1982, 2003) to include 7 categories of outcome. The seven outcome categories included: clinical outcomes, physiological-biochemical outcomes, physical outcomes, psychological-mental outcomes, social-psychological outcomes, evaluative outcomes, and finally integrative outcomes.
In this model, there is a unidirectional linear relationship between the variables representing a series of causes and effects such that structure influences process, and process subsequently influences outcome (Donabedian, 2003).

**Early Use of the Model**

Among the early and most influential contributors to the discussion about outcome in quality assessment was the group including Brook et al. (1977) and Ware Jr. et al. (1980). In their paper “Assessing the Quality of Medical Care Using Outcome Measures” Brook et al. (1977) noted that adequately tested methods for quality assessment were lagging behind efforts to increase the quality of care. They proposed that changing the focus of measurement from structure and process variables to outcome measurement would be more valid, but that “there are currently no lists of outcome criteria and standards available.” Subsequently, the National Center for Health Services Research in the US contracted the Rand Corporation to prepare a conceptual overview of the outcome method of assessing quality (as opposed to the previously popular structure or process methods of assessing quality) and to develop outcome measures for 8 disease conditions. The result was an outcome classification that included 4 categories: physical, physiological, psychosocial, and general. As was common at the time, outcome criteria were developed by panels of physicians on the basis of literature review of biomedical information and results of previous health services research.

As well, in the Medical Outcomes Study, which was designed to elucidate how components of the healthcare system affect outcomes of care, Tarlov et al. (1989) commented on the conceptual
framework that includes the structure, process, and outcome dimensions. Within the structure domain they measured system characteristics, provider characteristics, and patient characteristics. Technical style, which includes items such as test ordering and referrals, and interpersonal style, which includes items such as degree of patient involvement and amount of communication, were the main components of the process domain. In terms of outcome specifically, their inclusion of more than traditional clinical end points was viewed as a method to increase the likelihood of detecting consequences of healthcare policy changes. In addition to clinical end points, they also measured functional status, satisfaction, and general well-being as components of outcome.

**Current Evaluation**

It is important to differentiate between structural, process, and outcome dimensions because according to Donabedian, outcomes are assumed to be attributable to the structure and processes of care. For example, improvement in health as an outcome occurs when technical care is expertly executed (process) which is enabled by the presence of needed equipment (structure). Outcomes of care are the end-result of what happens in the structure and process domains. The inability to distinguish these domains may reflect conceptual ambiguity and makes it difficult to identify causal the factors leading to better health outcome – the reason being that structure, process, and outcome are postulated to have important linkages (see Figure 1).

Turning to Table 1, which summarizes the temporal changes that have occurred in outcome dimensions, although the full range of possible dimensions identified as for measurement is large and continues to expand, the items in Table 1 can be distilled down to 13 dimensions which include: physical, psychological, satisfaction, social function, role function, general health perceptions, quality of life, functional status, clinical outcomes, cost, interpersonal interaction, technical process, and community mission. When these variables are examined in relation to Donabedian’s model, several challenges arise. Although the term outcome is commonly used as though its meaning is obvious, it is rarely explicitly defined outside of Donabedian’s model, except in a circular manner, in which outcome is defined by the items chosen to measure it. Furthermore, there has been little in the way of empirical examination of the distinction between the structure, process, and outcome categories. This can lead to the
potential for misclassification; in other words calling a variable an “outcome” when it really reflects a different category of variable such as structure or process. This does not necessarily represent a problem with the model, but rather its application.

Thinking back to Donabedian’s model, in which outcomes were defined as changes in health or functional status attributable to the structure and processes of care, structure reflected the conditions under which care is provided (including human and material resources, and organizational characteristics), and process entailed those activities involving the delivery of health services, such as diagnosis, treatment, rehabilitation, prevention, and patient education, only some of the dimensions in Table 1 reflect dimensions of outcome in the sense that they reflect changes in individual or population health. These include: physical outcomes, psychosocial outcomes, clinical outcomes (may represent an amalgamation of the former physical and psychosocial categories), social functioning, role function, and general health perceptions. According to this model, other dimensions of ‘outcome’ from Table 1 may be misclassified in the literature. For example, the dimensions of interpersonal interaction and technical process from Table 1 are more consistent with “process factors” i.e. those activities involving the delivery of health services, rather than outcome. Indeed, there may be variables for which it is difficult determine whether they should be classified as an outcome, as part of a process leading to an outcome, or as the result of a particular outcome, depending on the circumstance. An example of this might be pain. Pain could be measured as an end result of care (i.e. as an outcome) but also as a process variable in the sense that the delivery of adequate pain management could be a process that leads to improvement in the outcome of social functioning. Another example might be satisfaction, in that one can be satisfied with a particular outcome, while at the same time satisfaction might by some be considered an outcome itself (Hudak et al., 2004). According to Donabedian’s definitions, the distinction would be that the process variable entails an action, as opposed to measurement of a health state. Without the benefit of such explicit definition though, variables could easily be misclassified.

In addition to misclassification, another challenge with use of the Donabedian model is the possibility that other types of variables aside from structure, process, or outcome variables might exist. From Table 1, emerging dimensions such as cost, satisfaction and community
mission are difficult to categorize according to this model as they may not reflect health status, nor are they actions related to delivering care, or a condition under which care is provided. In other words, there may be other types of variables aside from structure, process or outcome in the quality equation.

Thus, the observation that outcome dimensions have broadened substantially over time such that researchers and clinicians have come to use the term outcome to mean more than its original definition has several important implications for the Donabedian model. First, the meaning of the term outcome may not be self-evident, and as a result, the model may no longer be a useful way to classify all the types of variables currently of interest or in use. As well, there may be difficulty identifying whether a particular variable should be considered as an outcome, leading to misclassification.

This is significant because the use of outcome data is often considered a sound basis for the measurement of healthcare quality because such data are believed to deal with the ultimate goals of healthcare - improving patients’ health (Palmer, 1991; Williamson et al., 1991). However, others have argued that outcomes approximate quality best when the measurement effort is more comprehensive. They express concern that a narrow view, focused on selected individual outcomes, could result in significant missing quality elements (Huber and Obermann, 1999).

**The Disability – Rehabilitation Perspective**

Over time, biomedical models have been supplemented and enhanced, and have been used to contribute to more integrated biopsychosocial models such as the International Classification of Functioning, Disability, and Health (ICF) which is gaining prominence. Models of disablement serve as an alternative to frameworks based on the medical model of health, for characterizing the growing number of health-related variables of interest and for considering outcome. These models became popular because they moved away from a focus on an individual’s level of impairment or inability to perform major life activities, to focus instead on the interaction of individuals and their environment, with consideration of disabling political, social, and economic environments that reinforce and perpetuate disablement and dependency. Such

**Early Disablement Models**

Nagi (1991) describes his functional limitation framework, developed in the early 1960’s, as an attempt to build on existing knowledge in an era in which there were differing conceptions of disability as well as unsystematic and interchangeably used terminology. In a separate systematic attempt by the World Health Organization to create an international nomenclature and classification for the consequence of disease, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH) was developed (WHO, 1980). The original intent of the ICIDH was to serve as a framework to organize information about the consequences of disease (Pope and Tarlov, 1991). From a social perspective, disability is seen not as an attribute of a person, but rather a complex collection of conditions, activities, and relationships many created by the social environment (Bickenbach et al., 1999). Both of these frameworks consist of 4 basic concepts, each of which represents a level at which outcome could be measured. Nagi’s includes pathology, impairment, functional limitation, and disability, compared to disease, impairment, disability and handicap in the ICIDH (Fitzpatrick and Badley, 1996; Hemmingsson and Jonsson, 2005; Nagi, 1991; Pope and Tarlov, 1991; WHO, 1980). Wang et al. (2006) comment upon the common element in these models – they each describe a sequence of health condition consequences at the level of body, person, and society.

Problems with the aforementioned frameworks included their focus on “delineating the pathway from pathology to various kinds of functional outcomes” (Verbrugge and Jette, 1994) without enough attention to factors that modify the pathway, particularly social factors. As well, Bickenbach et al. (1999) describe criticism of the ICIDH model because despite efforts to offer a non-medical model, its language prevented full appreciation of the social aspects, in the sense that handicap was still assumed by many to be caused by impairment and disability. Others criticized its lack of conceptual clarity of the ICIDH (Pope and Tarlov, 1991).
Description of the ICF Model
In 2001, the World Health Organization released a revised standard for describing and measuring health and disability (WHO, 2002). Entitled the International Classification of Functioning, Disability, and Health (ICF), it is based on an integrated bio-psychosocial model that synthesizes the medical and social perspectives of health. The model also tries to incorporate personal, social, and environmental factors at each level of health that may contribute to health outcomes (see Figure 2). The ICF represents 9 years of international revision efforts by 8 collaborating centers which comprise the ICF collaborating network, as well as a “persons with disabilities” stakeholder group that was represented by multiple non-governmental organizations (e.g. Disabled Peoples International, European Disability Forum, Inclusion International).

Figure 2. Concepts in the ICF

In the ICF, three levels of outcome (body functions and structure, activity, and participation) are linked to both each other and to contextual factors (environmental and personal factors). Qualifiers are the form of measurement then used to create a classification scheme, which is a
record of the presence and severity of a problem at the body, person, and societal levels. Under *Body Functions* there are 8 categories or domains specified: (1) mental functions, (2) sensory functions and pain, (3) voice and speech functions (4) functions of the cardiovascular, haematological, immunological, and respiratory systems, (5) functions of the digestive, metabolic, and endocrine systems, (6) genitourinary and reproductive functions, (7) neuromusculoskeletal and movement-related functions, and (8) functions of the skin and related structures. There are also 8 domains specified under *Body Structure* which closely parallel the functions categories. The term structure in the ICF model should not be confused with Donabedian’s use of the word structure: the ICF “structure” relates to body composition, construction, or make-up, as opposed to Donabedian’s “structure” which relates to the conditions under which health care is provided. The primary qualifiers for Body Function and Structure describe the extent or magnitude of impairment, on a 5-point scale. Body Structure is also described by a second 9-point scale qualifier for the nature of change in the structure.

*Activities and Participation* include the following 9 domains: (1) learning and applying knowledge, (2) general tasks and demands, (3) communication, (4) mobility, (5) self care, (6) domestic life, (7) interpersonal interactions and relationships, (8) major life areas, and (9) community, social, and civic life. Evaluation of both Activities and Participation involves the use of performance and capacity qualifiers; a performance qualifier describes what the individual does in the current environment, and the capacity qualifier describes the individual’s ability to execute a task or action without assistance. Rating is on a 5-point scale ranging from 0 to 4, where 0 = No problem, 1 = Mild problem, 2 = Moderate problem, 3 = Severe problem, and 4= Complete problem.

*Environmental Factors* are described by domains including: (1) products and technology, (2) natural environment and human-made changes to the environment, (3) support and relationships, (4) attitudes, and (5) services, systems, and policies. The same 5-point scale as is used for the Activity and Participation qualifiers, but with a positive and negative (instead of only a negative scale) is used to denote the extent of barriers (negative scale) and facilitators (positive scale). *Personal Factors* are described as factors that influence how disability is experienced by the individual and include, without being limited to, the following 10 variables:
(1) gender, (2) age, (3) other health conditions, (4) education, (5) profession, (6) social background, (7) coping style, (8) past and current experience, (9) character style and (10) overall behaviour pattern. Although Personal Factors are a component of Contextual Factors as are Environmental Factors, unlike Environmental Factors, they are not classified in ICF because of the large social and cultural variance associated with them (WHO, 2002).

As well, in this model each level of outcome has been associated with a range of social responses. For example, medical responses are most appropriate at the level of impairment, rehabilitation responses are appropriate for activity limitations, and at the level of participation restrictions, removal of environmental barriers is most appropriate (Bickenbach et al., 1999). Its widespread use as a model to classify variables, as well as to summarize diverse variables that can help to understand both the determinants and consequences of factors related to health, makes it currently the most relied-upon model internationally.

Currently, much of the use of the ICF model is as a classification scheme. However, problems have been identified with the ICF when used as an explanatory model. One of these shortcomings is the model’s lack of discussion of the interrelationships among factors in a way that would help one to generate hypotheses. Another shortcoming includes under-development of some key concepts, for example Participation. Participation Restrictions are defined in ICF as “problems an individual may experience in involvement in life situations”, and as noted above, there are 9 domains identified to describe these life situations. Although work – something in which most people between the ages of roughly 18 and 65 participate on nearly a daily basis- is a key component of many individuals’ lives, it is not one of the key domains, but rather is grouped together with education and economic life as a “work and employment” category under the “major life areas” domain. Within work and employment, which also includes apprenticeship, and non-remunerative employment, remunerative employment is such a broad sub-category that how one would measure participation restriction is unclear, given that it is broadly defined as engaging in all aspects of work including seeking employment, doing job tasks alone or in groups, attending work, and supervising or being supervised. Indeed the model contains a large number of variables for which suggestions regarding measurement are lacking. This is also noteworthy for the personal factors, which are not classified at all, although some
are easily-described demographic factors such as age and gender, but others are less straightforward, such as character style, and overall behaviour patterns. Another interesting issue that arises from the model is the need to recognize that, depending on the study being undertaken, certain variables can be categorized differently. For example, Wang et al. (2006) have suggested that contextual variables can be classified into 4 types (moderating, mediating, confounding, and independent factors) depending on how they statistically influence the disability pathway.

The outcomes as described in this model represent a more integrated alternative conceptualization to the various medical-model based conceptualizations presented in Table 1. The model is intended to apply to wide range of diseases and health conditions and allow comparison across them and therefore might be a useful model to help organize our understanding about outcome in the occupational context.

**Conclusion**

This chapter has provided necessary background on the topic of outcome, as well as descriptions of the key models to which the study participants’ views will be compared in order to identify gaps in current understanding of occupational outcomes. This information is necessary background for objectives 1 and 3, which are to gain a greater understanding of the meanings stakeholders, as single group, give to the concepts of health, occupational health, and occupational outcome, and to understand the adequacy for occupational health of various models in the literature, thereby allowing synthesis and development of a framework for occupational outcome.

In summary, outcome measures are an important mechanism for assessing healthcare quality. Outcome models have evolved from simple conceptual models assessing mortality and morbidity to complex models that incorporate positive dimensions of function and well-being. Conceptual models have also become more sophisticated in handling personal, social, and environmental determinants of health, however the process of model development has not typically employed qualitative methods, and with a few key exceptions such as the ICF, has not included input from a range of potentially interested stakeholders.
The next chapter summarizes how existing outcome measures have not performed as well as expected in occupational health research. As a result, efforts have been made to develop more specific measures for occupational health. As well, Chapter 3 extends the background for objectives 1 and 2 by illustrating the breadth of occupational outcome dimensions currently being applied, and exploring the applicability of various frameworks in the context of occupational health.
CHAPTER 3
OUTCOMES IN OCCUPATIONAL HEALTH

The vignette presented in the introduction highlighted two needs for occupational health: (1) enhanced understanding and conceptualization of occupational outcome and (2) enhanced understanding of the perspectives of the different stakeholders in occupational healthcare, as well as the basis for those perspectives. This chapter provides additional background that illustrates the first identified need – better outcome conceptualization in occupational health. This chapter will extend the background for objectives 1 (Meaning) and 3 (Appraisal and Frameworks) by examining possible reasons why existing frameworks may be insufficient in occupational health, as well as examining challenges that remain in our endeavours to address the possible deficiencies in breadth and depth of dimensional content in existing frameworks.

The Need for a Broader Scope in Occupational Outcome Conceptualization
In addition to developments in the generic conceptualization of outcome as described in Chapter 2, clarifying the comprehensive range of specific outcome dimensions continues to be an important goal in specialty-specific medical literature as well as nursing and allied health fields (ANA, 1995; Batterham et al., 1996; Beaton and Schemitsch, 2003; Faust et al., 1997; Fuhrer, 2001; Johnson and Maas, 1997; Johnston et al., 1994; McGrath and Tempier, 2003; Rosenblatt and Attkisson, 1993). It is not surprising then, that enhancing the understanding of outcome in occupational health has been a frequently-cited need in the field of occupational health research (Deitchman et al., 2001; Hulshof et at, 1999; Mustard and Hertzman, 2001; Pranksy et al., 2001). Nonetheless, there has been a lag in the development of outcome conceptualization and measurement in the occupational health field. McHorney summarizes the timeline of development for disease-specific health status measures in 1999, and at that point, no occupational diseases were included. This reflects what Cullen (1999) refers to as a “lesson from history”, in that the broader healthcare delivery system has played a large role in the history and progress of occupational healthcare. As a first step towards appreciating the current stage of the occupational outcome literature, the next section describes the challenges that have been identified when existing general outcome measures are used in the occupational health context.
**Difficulties for Occupational Health with Existing Outcome Measures**

*“Why might existing measures be considered insufficient for occupational health?”*

There are two basic approaches to outcome measurement, and thus two main types of outcome measurement instruments: general/generic or specific, which can be specific to a given condition, function, or population. With generic measurement the goal is to summarize a spectrum of health concepts that apply to many individuals across a range of disease or health conditions. Generic measurement instruments are intended to cover a range of dimensions. For example, in a comparison of the dimensions selected for inclusion in 6 commonly used generic instruments (McMaster Index, Medical Outcomes Study short form, Nottingham Health Profile, Quality of Well-being Scale, Rosser Classification, and the Sickness Impact Profile) summarized by Patrick and Deyo (1989), the dimensions considered included physical/role function/fitness, psychological function, social function, perceptions, opportunity, impairment and death. The strength of generic instruments of outcome is that they are broadly applicable. They are better suited to comparisons across different diseases, different populations, or different interventions.

Specific measures are those designed to assess specific diagnostic groups or populations. Generic tools have some drawbacks compared to specific measures. Compared to specific measures, generic ones are often less sensitive to either treatment effects or to the natural history of disease. As well, generic instruments may not focus on the aspects of health that are important for a specific group, making them less responsive. Generic measures used in condition or population-specific applications may also have low content validity because they contain items of little or no relevance to study participants (Patrick and Deyo, 1989). Finally, generic measures often do not explore a single dimension in as great depth as the corresponding dimension on a specific tool (McHorney, 1999; Wiebe et al., 2003). Although general health status measures have been used to evaluate health status in both working aged and in occupationally ill populations, as well as to predict work outcome in those with illnesses not caused by work (Dean et al., 2005; Elliehausen et al., 2004; Gillen et al., 2004; Hee et al., 2001; Krousel-Wood et al., 1994; Kudielka et al., 2005; Nordlund and Ekberg, 2004; Stewart-Brown and Layte, 1997) several challenges exist with doing so. Some issues that have been identified
that pose challenges for the use of general outcome measures and frameworks in occupational populations including: 1) performance, 2) population, 3) breadth of content 4) depth of content and 5) lack of stakeholder inclusion in framework development. These shall now be examined in turn, with the latter (stakeholder inclusion) being reserved for more detailed discussion in Chapter 4.

1. Adequacy of Performance

Foremost, it should be noted that although general measures of health outcome have been used in occupational populations for various reasons including predicting fitness for work status (Krousel-Wood et al., 1994), measuring health status changes over time among groups with varying severities of musculoskeletal symptoms (Nordlund and Ekberg, 2004), assessing whether emotional health problems interfere with work (Stewart-Brown and Layte, 1997), determining whether workplace characteristics affect quality of life ratings (Kudielka et al., 2005), determining whether those in receipt of workers’ compensation report poorer health (Hee et al., 2001), and examining the relationship between functional limitation and lost time (Gillen et al., 2004); nonetheless, there have been relatively few attempts to validate such measures in occupationally ill populations.

When such measures are used in the occupational context they do not necessarily perform in the same manner as for general medical populations. For example, Jette and Jette (1996) discuss problems with the MOS SF-36 (a commonly used 36-item health survey developed by Ware and Sherbourne, 1992) in the occupational setting, including the fact that the physical function scale is heavily weighted for the lower limb, reducing its usefulness in detecting physical function problems related to the upper limb. They also note floor and ceiling effects for role limitation scales used in the outpatient setting. In their examination of injured workers in Washington state, Kyes et al. (1997) used the SF-36 as the gold standard for comparison to their own newly constructed measures, but did examine its predictive validity and found that the measure was able to differentiate between workers that had returned to work from those who had not, but was limited in its ability to differentiate worker groups on the basis of time since injury at 6 weeks or 6 months.
Another example relating to measure performance comes from the study of Beaton et al. (1996). They administered 5 generic health status measures including the Nottingham Health Profile, the SF-36 Acute, the Sickness Impact Profile, the Duke Health Profile, and Modified Ontario Health Survey Health Status Questionnaire to an occupational sample receiving worker’s compensation for soft tissue injuries of the low back, neck, or upper extremity, in order to identify the best instrument to measure change in that population. They found variations in the clinimetric properties amongst the measures. For example, the Duke Health Profile was unstable in test-retest reliability in this population, but had relatively good responsiveness compared, for example, to the Sickness Impact Profile which was relatively unresponsive, but was reliable. Overall, for their purposes the SF-36 was chosen for use because of its adequate reliability combined with relatively good responsiveness.

In sum, there are suggestions in the literature that general outcome measures may not necessarily perform well in occupational populations, but there is little research available with the specific goal of evaluating their clinimetric properties, or validating their use in this population.

2. Population

Another challenge for existing medical outcome frameworks is that there are a variety of inherent complexities in delivering healthcare to a population with an occupational illness that are rarely considered in the general medical literature, but which affect the conceptualization of outcome. For example, many outcome measures and studies in the general medical literature have focused on general patient populations, chronically ill patients, or those with common or costly medical conditions or treatments (Brook et al., 1977; Ware Jr. and Sherbourne, 1992). They do not adequately represent the working population, nor do they represent the range of concerns likely to be present in the workforce (Linton et al., 2005, Pransky and Himmelstein, 1996). In fact, the “healthy worker effect” is a form of bias in such studies, which reflects the fact that if a sample is drawn from a working population, the baseline health status may be inflated because the chronically ill are often excluded from the workforce. The population of interest to the occupational medicine researcher is essentially a source of bias for others.
3. Breadth of Content
Outcome research in occupational health has some substantive differences from that in general healthcare. There are differences in the population, the range of conditions, the setting of care, and the goals of research studies. Because these factors differ, there has been some discussion that outcomes should also vary. Furthermore, usually the principal agenda of researchers involved in outcome studies is assessment of the effectiveness of therapeutic intervention. Since such studies can be expensive, the research questions can be narrowly focused, so once again, may not include important occupational outcomes (Mustard and Hertzman, 2001; Pransky and Himmelstein, 1996). Early discussions about occupationally relevant outcomes proposed some additional outcome dimensions to commonly-used generic dimensions, that were thought to be important but not yet addressed in most health outcome studies. Such dimensions included work status, occupational role function, job satisfaction, productivity, and absenteeism (Kyes et al., 1997; Pransky and Himmelstein, 1996; Mustard and Hertzman, 2001).

Considering the rehab-disability model specifically, the ICF is considered to be a document in development. While there is considerable use of the ICF to classify variables, research is ongoing in terms of its use as a model to test hypotheses and relationships among variables. Still, Hemmingsson and Jonsson (2005) offer an occupationally-based perspective evaluation of the ICF. They suggest that the value of the ICF from an occupational perspective is its drawing attention to the connection between health and occupation. However they feel it has insufficient breadth in the participation domain. This has been discussed in the context of disabled students, but not in the context of ill or injured workers (Hemmingsson and Jonsson, 2005).

4. Depth of Content
As well, when present, items related to dimensions thought to be important for occupational health such as work role or function may be subsumed under more global role function or social function categories, or as a category of functional status (Keller, 2001; Stewart et al., 1981, WHO, 2002), if considered at all. As previously mentioned, this is the case for work role in the ICF which is grouped together with education and economic life under the Major Life Areas domain of the Activities and Participation constructs. As well, Keller (2001) points out that generic health surveys are imprecise measures of role function because they contain too little
depth about the role function domain, being unable to discriminate levels of function among working workers, or improvement in role function over time.

An example of the problem of inadequate depth in dimensions relevant of occupational health on generic outcome measures comes from the work of Keller (2001). Keller was concerned that general health measures might not measure role function adequately, and might not adequately discriminate between workers with varying levels of function after they return to work. She proposed a variety of dimensions likely to be important for work, such as concentration, social function, emotional well-being etc. and then counted the numbers of items related to these dimensions on each of 5 commonly used generic outcome measures including the Duke Health Profile, the COOP charts (The Dartmouth Primary Care Cooperative Information Project COOP chart system), the Nottingham Health Profile, the SF-36 and the Sickness Impact Profile. She concluded that although the measures differed widely in the degree to which they addressed the social consequences of occupational conditions, for role function in particular, all measures had deficits and some, including the Duke and Nottingham Health Profiles, did not contain any content on work role function. Overall, there is little research on the validity of occupationally important dimensions such as role performance measures or work outcomes per se, probably because they represent an integration of all roles (Amick et al., 2000b).

Although generic measures and frameworks sometimes prove useful in certain subpopulations, there may be insufficient breadth or depth of relevant outcomes for occupational health, and insufficient inclusion of key stakeholders in the framework development (to be elaborated in Chapter 4). Recognizing these difficulties, the next section will expand further upon how the occupational health research community has responded to the identified insufficiencies in breadth and depth of content, as well as the ongoing challenges.

**Challenges that Remain in Addressing the Existing Deficiencies**

*What has been the response to identified insufficiencies, and what still needs to be done?*

Having identified several possible deficiencies with existing outcome measures, this section will highlight how occupational health researchers have responded to the need for greater breadth
and depth in outcome dimensions by describing in greater detail the proposed breadth of outcomes as well as the challenges that exist as dimensions expand, including: 1) the degree of heterogeneity in outcomes without an overarching framework, 2) inadequately operationalized dimensions, 3) blurred boundaries between outcome, structure, and process variables, and 4) study designs and methodological issues.

1. Heterogeneity in Proposed Occupational Health-Specific Outcome Dimensions

Because of the possibility of inadequate breadth of dimensions, researchers have begun to incorporate additional outcomes into their research that they propose are relevant for occupational health. Yet, efforts in this regard have not been systematic. It is common for researchers to independently propose new occupationally relevant outcomes using a variety of methods, and the result is large variation in the types of outcomes measured between studies.

For example, Kyes et al. (1997) constructed a survey instrument by modifying existing scales or constructing new scales that they thought would evaluate medical outcomes and satisfaction in a work-injured population. In addition to scales from existing measures such as the SF-36 and Health Assessment Questionnaire (HAQ), they added items to evaluate outcomes such as access to care, satisfaction with care and physician, and job satisfaction in the form of an Injured Worker’s Satisfaction Survey. Unfortunately the questionnaire development is not well-described, and the basis for inclusion of items is also unclear.

Another example of a study that included occupationally-relevant outcome dimensions was that of Pransky et al. (2000) who developed a questionnaire to assess outcome after low back or upper extremity injury. On the basis of literature review of outcome in work-related injuries, focus groups (participants not identified), and patient interviews, they suggested 3 main outcome domains: work outcomes, functional outcomes, and economic and social consequences. They also commented that outcomes such as long-term job retention, productivity, quality of work life, job satisfaction, relationships with supervisors and co-workers, economic consequences or lost work time and medical expenses, would also be important outcomes in addition to physical and emotional well-being but that such outcomes are
rarely collected, nor are they usually available from either claims data or medical records (Pransky et al., 2000, Pransky et al., 2002).

A further study gathering data on outcomes relevant for occupational health was that of Rudolph et al. (2002), which described a survey instrument developed for use in California’s workers’ compensation system to assess patient satisfaction with medical care and patient perceptions of health and functional outcome after work injury. The survey draft was reviewed by physicians and other health professionals, academics, union representatives, and injured workers’ advocates prior to use. The final survey included 4 dimensions in addition to demographic characteristics of the sample, including post-injury health (activity limitation, pain, general health), patient reports and evaluation of care (satisfaction with provider, information on avoiding future work injuries, provider knowledge of patient’s work), utilization of services (satisfaction with compensation claim handling, number of office visits), and return to work (duration of disability, employer role in facilitating return to work).

In an effort to determine which existing measurement instrument to use in studies of workers with musculoskeletal disorders of the neck and upper limb, Stock et al. (1996) identified relevant domains of functional status and quality of life through review of the literature, existing instruments, clinical experience, and subsequent patient interviews. Twelve domains were identified, and included: work, household and family responsibilities, self-care, transportation/driving, sexual activity, sleep, social activities, recreational activities, mood, self-esteem, financial effects, and iatrogenic effects of assessment and treatment including cost and discomfort. These dimensions were specifically identified for their relevance for neck and upper extremity conditions, as opposed to occupational health concerns in general, and did not include input from all key stakeholders, but otherwise this is the only study in which an attempt was made to examine the breadth of dimensions relevant for an occupational health condition.

The previous examples reveal the heterogeneity and inconsistency in the types of outcome dimensions examined. These studies alone proposed numerous different occupational-specific dimensions including: job satisfaction, work outcomes, economic consequences, social consequences, long-term job retention, productivity, quality of work life, relationships with
supervisors and co-workers, lost work time, medical expenses, post-injury health, patient reports and evaluation of care, utilization of services, return to work. More recent work has started to gather this information together and summarize the accumulating studies utilizing various individual occupational outcomes.

In 2001, Pransky et al. summarized often-cited outcomes of interest in occupational health, generating a list of similar length and heterogeneity which included: duration of disability, time to return to work, symptom resolution, residual symptoms, generic functional status, condition-specific functional status, work-specific functional status, re-injury rates, employment stability, case closure, lump sum awards, number of adverse events, treatment dropout rates, and overall satisfaction.

In their systematic review of the literature, Franche et al. (2005b) identified 10 studies of sufficient quality for inclusion in their study of the effectiveness of workplace-based return-to-work interventions. Because they were interested only in studies examining return to work interventions, the results represent a subset of occupational outcome dimensions. They were able to identify that the key outcomes considered in studies on return to work interventions were of three types: 1) work disability duration (e.g. time to return to work, time on benefits, duration of lost time, point-prevalence of status), 2) costs (e.g. healthcare costs, wage replacement costs, intervention costs), and 3) quality of life outcomes (e.g. mental health, functional status, quality of work life, medication taken). Work disability duration was identified as the most commonly used outcome in return-to-work research. In their discussion, they identify some needs for future research which include expanding the range of outcome considered, because studies did not adequately consider quality of life, medication use, and social role participation.

In sum, there is substantial heterogeneity and breadth in outcomes proposed to be relevant for occupational health. Indeed, such breadth may be appropriate, but what is lacking is a framework to guide conceptualization. What would be useful is a better understanding of the categories that would help to organize these heterogeneous outcomes so that there can be more consistency among researchers in how to measure specific outcomes.
The importance of standardizing outcome measurement in occupational health has indeed been suggested (Keller, 2001). The advantages of standardized outcome measurement include greater ease in between-study comparisons, which in turn allows data pooling, more complete reporting of outcomes, greater facilitation of multi-centre trials, more easily accessible instruments, and simplified processes for designing and reviewing research (Deyo et al., 1998). However, without first identifying the key dimensions of outcome for measurement, such advantages are lost.

2. Lack of Dimensional Definition / Operationalization

In addition to the heterogeneity of dimensions currently in use, another difficulty in the occupational-specific literature is the lack of clear definitions for many dimensions. Work outcomes, work role, return-to-work, and employment status are all examples of outcome categories that are variably defined. “Work-related outcomes” is a case in point. Work-related outcome is an inconsistently-defined catch-all category. In one model of work-related outcomes in low back pain, the work outcome dimension was conceptualized according to a phase model of work disability such that outcomes were divided into 2 domains: short-term and long-term work-related outcomes (Pransky et al. 2002a). More typically though, the term ‘work outcome’ is used as a descriptor for a wide variety of possible outcomes often without conceptual underpinning, including among others: claim costs, duration of work loss, total number of compensated days (Atlas et al., 2004), work absence greater than 1 week, return to same job/employer, re-injury, change in work capacity, future work concerns (Pransky et al., 2002a), return to pre-injury job (Cheng et al., 2002), return to work and employment status (Kyes et al., 2001), quality of work, job satisfaction, satisfaction with the condition, motivation to work (Pransky et al., 2002b), ultimate job/activity after return, (Mitchell, 1996), complete recovery, return to pre-pain functional status, work status, functional status), injury incidence (Carey et al., 1995), restricted duty rate, restricted duty duration (Derebery et al., 2002), or economic difficulties due to the work injury (Pransky et al., 2005a).

On the basis of their review of the literature on work outcomes, Amick et al. (2000b) note the lack on consensus on what the most appropriate work outcome measures should be. They classify work outcomes into 4 key domains: labor force status, economic consequences, impact of health on role function, and impact of health on work role function. Although perhaps
consensus may be difficult to achieve in the complex multi-stakeholder milieu of occupational healthcare delivery, the rationale for the choice of outcome dimensions included for measurement in studies should still be described, as opposed to selection of a variety of items, with little attention to conceptual framework.

In terms of work role, Kopec and Esdaile (1998) developed an 8-item Occupational Role Questionnaire specific for back pain. Their goal was to better understand the impact of back pain in the workplace. Six conceptual domains of occupational role were proposed including: (1) amount of time spent on occupational activities, (2) productivity, (3) quality of work, (4) job satisfaction, (5) job security, and (6) co-worker relations. These were grouped into 2 scales: productivity and satisfaction. One of the shortcomings of this conceptualization is that it is unclear whether the six conceptual domains proposed are actually domains of occupational role function per se. Other occupational health researchers have typically considered most of these to be independent outcomes, not domains of role function. Amick et al. (2000b) share similar concerns noting unclear role conceptualization. Another shortcoming of this conceptualization of role function is that the domains were researcher-generated, and the rationale for selecting these domains as components of role function as opposed to any other was not described.

Further conceptualization of work role as an outcome dimension stems from the work of Lerner et al. (2001) and Amick et al. (2000b) who developed the Work Limitations Questionnaire. This tool was developed with physician and patient input to evaluate the impact of chronic medical conditions on work limitation. It was therefore developed as a dimension-specific measure, not as an occupational-specific outcome measure, having been developed on samples of people with non-occupational illnesses such as rheumatoid arthritis, chronic daily headaches, and epilepsy. Nonetheless, on the basis of input from patients and physicians, work role was conceptualized as having 5 work demand categories including work scheduling demands, physical demands, mental demands, social demands, and output demands. Whether these demand categories would remain the same has it been developed in an occupationally ill or injured population with input from occupational stakeholders is unclear.
There has also been substantial interest in the literature specifically about a return-to-work dimension, although Pransky et al. (2005b) suggest that there is not substantial agreement about what constitutes a successful return to work outcome. Young et al. (2005) note that return to work outcomes have typically been narrowly focused on labour force status or time off work, but that such outcomes have been measured in terms of productivity, time contribution, responsibility level, pay received, and receipt of specific benefits.

Disability and employment status is another inconsistently defined outcome category which might be determined, for example, by whether the patient was receiving any form of compensation, was employed on a job for pay, if employed, whether it was their usual job, and the number of hours they were working (Atlas et al., 1996), or by disability incidence or duration (Amick et al., 2000a). In their review, Franche et al. (2005b) indicate that disability duration was measured in various studies by self-reported time to return to work, time on benefits, total duration of lost time, recurrences, or by a categorical point status (i.e. at work vs. not at work).

Thus, our understanding of occupational outcome dimensions is based on the examination of studies in which such outcomes are included and measured, mostly without conceptual basis. One exception is Pransky and Himmelstein’s (1996) proposal that the underlying conceptual framework for occupational outcome dimensions should be ‘the same as that in the general literature with additional work-related features’. In sum, a solid framework classifying and operationalizing the dimensions of occupational outcome is lacking. This confirms that a gap exists, in that generic conceptualizations of outcome dimensions do not generally include enough detail about outcomes of interest in occupational health, while at the same time the specific dimensions of occupational outcome also generally lack conceptual framework, and require further elaboration.

3. Differentiating Outcome from Structure and Process
As discussed in Chapter 2, misclassification of variables may result when the meaning of ‘outcome’ is assumed, without explicit definition. Thus, another challenge for occupational health is the lack of clarity around which of the multitude of variables and dimensions proposed
for occupational health, are actually outcomes. Although the dimensions typically used in occupational health research are usually proposed to be dimensions of outcome, many may be more appropriately classified as dimensions of structure or process. Although structure, process, and outcome are proposed dimensions of quality, there has been little research on the topic of conceptualizing quality per se, as opposed to outcome, for occupational healthcare. For the most part, Donabedian’s model of structure, process, and outcome has been accepted, and research has focused primarily evaluating one or more of the components.

However, it is important to differentiate between structure, process, and outcome dimensions because outcomes are assumed to be attributable to the structure and processes of care. This has been illustrated by the example previously presented in Chapter 2, in which improvement in health as an outcome occurs when technical care is expertly executed (process) which is enabled by the presence of needed equipment (structure). Outcomes of care are the end-result of what happens in the structure and process domains. The inability to easily distinguish these domains in occupational healthcare introduces the risk of being unable to effectively identify the factors leading to better health outcome – the reason being that structure, process, and outcome are postulated to have causal linkages (see Figure 1).

One of the only studies that examined the concept of quality, as opposed to outcome, in occupational healthcare was by Hulshof et al. (1999). In their review of evaluation research in occupational health services, Hulshof et al. (1999) acknowledge Donabedian’s model, but note that occupational healthcare activities often have only an indirect influence on the ultimate outcomes for work and health. Since much of occupational health activity is the provision of advice, they view advice as an essential ink between the process and outcome components in Donabedian’s model. The result is a conceptualization that includes structure, process, output (ie advice) and outcome. However, this conceptualization may not be adding clarity to the field, because according to Donabedian’s view, (2003) the provision of advice would actually be a component of the process domain, which includes variables such as patient education. Nonetheless, it does indicate the importance of process variables to occupational health, in addition to outcomes.
4. Methodological Issues

As previously noted, researchers have begun to incorporate additional outcomes into their research using a variety of methods, and the result is large variation in the types of outcomes measured between studies. Looking back upon the studies described in the preceding sections, the methods used to formulate our current understanding of occupational outcomes include primarily examination of existing scales (Kyes et al., 1997; Stock et al., 1996) and literature review (Amick et al., 2000b; Franche et al., 2005b; Hulshof et al., 1999; Pransky et al., 2000). Sometimes researcher-developed surveys and questionnaires evaluating outcome have included subsequent limited stakeholder review (Amick et al., 2000b; Lerner et al., 2001; and Rudolph et al., 2002), or focus group input (Pransky et al., 2000). Surveys do have some advantages in that they are inexpensive, and can be useful in describing the characteristics of a large population. However, there are concerning weaknesses such as the requirement to generate the response options in advance, which may miss factors that are most appropriate to many respondents. Furthermore, such methods can seldom deal with "context”. Many existing studies have been deductive in nature rather than inductive, and have used existing definitions rather than examining the meaning of occupational outcome terminology in depth. As a result, the critical features of a concept may be overlooked (e.g., pain vs. intensity of pain, frequency of pain etc). On the whole, most of the literature on occupational outcome is in the form of lists, rather than models to explain the full breadth of occupational outcome and the relationships between the variables. These issues lend support to the choice of a qualitative method, which is elaborated in greater detail in Chapter 5.

Summary

Although suggestions are beginning to emerge about additional dimensions to be considered in the conceptualization of outcome in occupational health, as well as ideas about how specific dimensions might themselves be conceptualized, challenges that remain as dimensions expand include the degree of heterogeneity in outcomes without an overarching framework, difficulty operationalizing dimensions, differentiating outcome from structure and process variables, and methodological issues. These deficiencies support the need for enhancing the understanding of outcome in occupational health. This will be addressed by the first objective of the thesis.
The focus of the next chapter is an examination of the remaining identified challenge, yet to be discussed: significance of including, and consequences of not including stakeholder perspectives in the occupational outcome discussion, as well as whether this has been successfully achieved for occupational health. Historically the identification and selection of outcome dimensions used in research and practice has been determined by physician panels, committees, and consultations, but there is no assurance that the judgments of physicians validly reflect those that might be made by other stakeholders (Brook et al., 1977). This is particularly salient in occupational healthcare, which includes stakeholders such as the workplace and insurer, not typically involved in other medical interactions.
CHAPTER 4
THE IMPORTANCE OF CONSIDERING STAKEHOLDER PERSPECTIVES

“There is a growing sense that the physician community is self-absorbed and insensitive to patient needs. There is, further, a sense that the system -at the level of the physician’s office, the clinic, and the hospital; at the level of insurance; and at the federal level- simply does not respond to the needs of either individuals or their families” (Thier, 1992).

Chapter Overview
The vignette presented earlier in Chapter 1 underscored the different perspectives that various stakeholders including patients, healthcare providers, employers, unions, and insurers may adopt in occupational health cases. Once again thinking back to this vignette, the second of the identified needs for occupational health included enhancing our understanding of the perspectives of the different stakeholders in occupational healthcare, as well as the basis for those perspectives. This chapter describes the value of including, and the potential consequences of excluding stakeholder perspectives. As well, this chapter illustrates that stakeholders’ views are often discrepant. What is known of the differing views of stakeholders in the multi-stakeholder occupational healthcare system are elaborated with description of the methods used, although the views of such stakeholders have rarely been incorporated into occupational outcome studies. The conclusion is that an adequate collective account of occupational stakeholder views about the dimensions of occupational outcome does not exist. Also lacking for occupational outcome research is an understanding of the areas of consensus and disparity among stakeholders.

The Importance of Considering Stakeholders’ Views
The term stakeholder can be defined in many ways (Becker and Potter, 2002; Keele et al., 1987) but is often considered to mean individuals or groups (or organizations) who have a stake in decisions and actions and who may attempt to influence those decisions or actions (Blair and Buesseler, 1998). That stakeholder views are important to consider, but often aren’t, is well recognized both for outcome measurement (Battista and Hodge, 1995; Connell et al., 1998;
Cott, 2004; CMA, 2002; Emanuel, 1999; Etches, 2006; Gaucher and Coffey, 1993; Hernandez et al., 1998; Ray, 1999; Ware Jr, 1991) and for quality assessment in general (Bradley et al., 2002; Palmer, 1991; Young et al., 2001). In their review of indicators of population health, Etches et al. (2006) note that “few studies have quantified the intelligibility of different indicators for different stakeholders”. As well, Linton et al. (2005) considered different models of work disability related to back pain, and commented that such models “give little attention to the role of the employer as an influence on outcomes”. Although the reasons why stakeholder views are not often considered in the selection of concepts for inclusion in models remains unclear, there has been considerably more discussion about the value of doing so.

**The Value in Considering Stakeholder Views**

There are many benefits to understanding stakeholder views which provide justification for their inclusion in studies such as this. This section will expand upon the value in including stakeholder views, and the following section describes some of the consequences of failing to be inclusive. The significance and impact of understanding stakeholder perspectives has long been known in the field of business management where different stakeholders are “strategically managed” depending on whether they are viewed as being supportive or unsupportive. From this vantage, the consequence of involving supportive stakeholders is enhanced cooperation. Not involving supportive stakeholders represents missed opportunity, and involving non-supportive stakeholders increases risk (Blair et al., 1996).

Similarly in the field of medicine, with its growing demands for accountability, there are a variety of reasons why understanding or including stakeholder views is important. For example, in their paper describing ten principles for outcome accountability for the development and utilization of outcome information in systems of care, Hernandez et al. (1998) postulate that outcomes derived from multi-stakeholder input are more relevant, useful, and accessible, thereby enhancing opportunity for corrective action in programs of care. They suggest that involving stakeholders and clarifying the language of outcomes are initial tasks in building outcome accountability. McGrath and Tempier (2003) discuss the value of stakeholder input in the broader context of a psychiatric outcome management system and consider efficient communication flow between stakeholders to be the catalyst in a process by which treatment
practices are continually measured, reviewed, tested, and redefined toward greater efficiency, effectiveness, and value. They also consider that regular feedback to stakeholders is the most important part of an outcome management system. Another reason that the views of various stakeholders are valuable is that the appropriateness of medical treatments can be evaluated through stakeholder input. For example, Gartland (1988) found that insurers, employers and public policy makers identified medical treatments as inappropriate if they had little impact on working ability or job retention even if they provided symptomatic improvement.

Lastly, improving our understanding of the consensus and tensions among stakeholders has been described not only as an avenue for assisting them to collaborate in planning and action (Young et al., 2005), but also as a way to provide valuable input into setting priorities (Rosenstock et al., 1998), as well as way to empower stakeholders (Melchior et al., 2000).

In sum, the benefits of including stakeholder perspectives include enhanced cooperation and collaboration, empowerment, as well as enhanced evaluation of treatment practices and priorities. Most important for this work though is the fact that outcomes derived from multi-stakeholder input are more relevant, useful, and accessible, and can thereby lead to enhancements in programs of care.

**Consequences of Failing to Consider Stakeholder Views**

Thus, there is general agreement that consideration of various stakeholders’ views is valuable. To extend the case that stakeholder perceptions are valuable, others have focused discussion on the consequences of failing to consider the breadth of stakeholder perceptions. Brook et al. (1977) suggested that standards derived by professionals based upon what they consider optimal quality of care may not reflect public priorities and values, and may prove to be too expensive in terms of public willingness to pay for the achievement of such standards. Similarly, Gaucher and Coffey (1993) suggest that definitions of concepts such as quality and outcome vary based on who is defining the term. Pransky et al. (2005) suggest that failure to measure outcomes in a way that is meaningful to a particular stakeholder may diminish the ability to influence change.
Another example of the consequences of not including stakeholder views is from a paper by Sauerborn et al. (1999). In their discussion of the reasons why research is not used to its full potential, they indicate the importance of stakeholder involvement in 4 out of the 6 reasons cited, including poor communication of results to stakeholders, lack of ownership of the research agenda by key stakeholders, inappropriateness of data for use by stakeholders, and an inappropriate institutional framework linking researchers and stakeholders. Furthermore, a problem discussed by Ray (1999) is that public stakeholders have been denied access to “direction-setting discourses” through their exclusion from discussions about categories for inclusion in research. She goes on to comment that when clinicians deprive patients [but the same could apply to any other stakeholder] of control over what is classified as clinically significant, then significance essentially comes to denote significance for the clinician. Finally, in their review of the literature, Loisel et al. (2005) note that when a return to work strategy requires action from various stakeholders each with their own values, objectives, interests, and training, the implementation may be hindered by unique barriers for each group.

The preceding sections indicate that understanding stakeholders’ perspectives is valuable. The next section lends credence to the assertion that understanding stakeholder viewpoints has value by demonstrating that when stakeholders’ views are available, they often don’t coincide, and by discussing the significance of this. Disparity between stakeholders is common in medicine generally, and in occupational settings specifically. However, in the occupational literature, although numerous hypotheses and discussions about such differences exist, there is little direct evaluation of those views, particularly as they relate to the topic of outcome dimensions.

**Disparity in Stakeholder Viewpoints**

When stakeholder views are actually measured, the fact that they often differ is well recognized, and lends credence to the value in systematically assessing stakeholder perspectives. Often healthcare delivery involves 2 stakeholders: the patient and the physician. Much research has been done to elaborate the dual-stakeholder, patient-physician situation, with substantial support for the fact that patient and physician views and opinions often differ (Brown, et al., 2000; Johnston et al., 1995; Laine et al., 1996; Nelson et al., 1983; Rosendal et al., 2005, Sampogna et
al., 2003; Sprangers and Aaronson, 1992). For example, Laine et al. (1996) compared patient and physician opinions on the importance of 125 different elements of office-based healthcare divided into 9 domains including clinical skill, interpersonal skill, information, office support staff, patient involvement, non-financial access, coordination of care, finances, office environment, and coordination of care on a 4 point scale. Ratings of patients and physicians differed significantly for 58% of the 125 elements within these 9 domains. As well, in terms of relative ranking for the importance of the 9 domains, although patients and physicians agreed that the most important domain was clinical skill, they disagreed on the relative importance of others.

Other evidence supporting the idea that patient and physician perspectives often differ is offered in Sprangers and Aaronson’s (1992) review of the literature on proxy ratings in health-related quality of life literature. They found that physicians’ abilities to rate their patients’ quality of life is limited, and that physicians tend to underestimate patients’ quality of life and pain intensity. As well, physicians were inaccurate raters of changes in health status, tending to overrate, as compared to relatives, who tend to underrate. Nelson et al. (1983) suggested a need for in-depth qualitative information to explain discrepancies such as these.

Disparity in stakeholder views can be also found in studies of more complex stakeholder situations aside from the patient-physician interaction, as well as in a variety of medical milieux and about a variety of topics, including both outcome and quality (Agulnik et al., 2006; Bedregal and Ferlie, 2001; Blair and Buesseler, 1998, Eyles et al., 2001; Fischer et al, 2002; Fuhrer, 2001; Garland et al., 2004; Gerrish, 2001; Grimmer et al., 1999; Hermann and Palmer, 2002; Hermann et al., 2004; Ireson et al., 2002; Ledwidge et al., 2004; Lynn and Moore, 1997; Martin, et al., 2003; Melchior et al., 2000; Piat et al., 2004; Tregunno et al., 2004; Young et al 2001).

Clearly, disparity between groups is common, however consensus may not even exist within a single stakeholder group, such as physicians. For example, in a study in which general physicians and specialists were asked independently to establish outcome criteria for different groups of patients, not only were significant differences found between the physician groups,
but the differences were inconsistent between the three groups studied (Brook, 1973). For the same proposed care, in some cases the specialists thought there would be better outcomes than generalists expected, and for other conditions, the same care was thought by generalists to result in better outcomes than specialist predicted. This suggests a need to examine within group as well as between group characteristics.

**Significance of Understanding Discrepancy**

The significance of understanding such discrepancy comes from studies such as that of Starfield et al. (1981). In their study of the influence of patient-practitioner agreement on the outcome of care, Starfield et al. (1981) found that if both stakeholders (patients and physicians) identified a particular problem at an initial meeting, 49% of patients had resolution of the problem at follow-up compared with only 27% of a group for which only the practitioner had identified a problem. They concluded that stakeholder agreement was associated with greater expectations for improvement and with better outcomes as perceived by both stakeholders. In the occupational context, key stakeholders such as insurance boards or workplaces might not use the same model to define a “good outcome”. Because a particular outcome may be neither consistently deemed important, nor commonly measured, it might rarely be used to guide practice in the occupational setting.

Clearly stakeholders’ views are valuable, but often differ. As previously noted, Hernandez et al. (1998) postulate that outcomes derived from multi-stakeholder input are more relevant, useful, and accessible, thereby enhancing the opportunity for corrective action in programs of care. Consideration of only one stakeholder’s perspective in a complex system in which many participate may negate such benefits to healthcare delivery. Occupational healthcare is one such complex system in which many stakeholders participate, and therefore one in which understanding stakeholders’ perspectives is particularly important.
The Multi-Stakeholder Milieu in Occupational Healthcare

In the current Canadian healthcare system, the delivery of occupational healthcare involves multiple stakeholders in addition to patients and healthcare providers, all of whose decisions can potentially affect the outcome of an occupational disease case. These include employer representatives such as managers or line supervisors who may make decisions about accommodated work, insurance representatives such as claim adjudicators who make decisions about paying claims or supporting retraining, and union representatives who may attempt to facilitate the best job placement available for an ill or injured worker within the confines of a ratified collective agreement.

A fundamental challenge in measuring and improving quality in occupational healthcare (and hence the development of quality standards) is the differing perspectives of system participants (Deitchman et al., 2001). This is a particular issue of relevance for the delivery of occupational healthcare, because of the multiplicity of stakeholders with decision-making power. As with other areas of medicine, that stakeholders’ views in occupational health may differ or are not well clarified, has been well-recognized (Cheng et al., 2002; Franco, 2003; Linton et al., 2005; Shaw et al., 2000). As well, there has been some acknowledgment of the importance of recognizing stakeholder perspectives specifically in occupational health. For example, in its Injury/Illness and Return to Work/Function Practical Guide for Physicians, the Physician Education Project in Workplace Health (2000) recognizes that the relationship of the physician with other stakeholders can have an impact on both recovery and return to work and so encourages physicians to interact and communicate with the varied stakeholders involved. The Conference Board of Canada (an independent not-for-profit research organization) also recognized the importance of stakeholder collaboration and undertook a study in partnership with Health Canada to identify the elements of an integrated approach to workplace health, as well as the barriers preventing the achievement of such an integrated approach (Bachmann, 2000). Participants in the study suggested that prior to progress on workplace health initiatives, stakeholders needed to share a common understanding of what is meant by workplace health (Bachman, 2000). Bachman also noted that while many groups involved in occupational health have similar goals, they have different approaches to issues and different strategies for dealing with them. Jones (1993) noted the importance of context in outcome analysis, acknowledging
the existence of many differing and possibly competing perspectives between purchasers (defined as employers, insurers), individual providers (defined as physicians, nurses) and patients.

**Stakeholder Viewpoints In Occupational Health**

There has been agreement that stakeholder views are important in occupational health, but what are those views? This next section elaborates in greater detail what is known about occupational stakeholders’ perspectives, and are presented according to the methods used to identify those views.

**Viewpoints Derived from Opinion or Experience**

Many authors have proposed ideas on the basis of their own experience or opinion, about what various stakeholders’ differing views may be. Ray (1999) discusses stakeholder agendas within a healthcare system as a combination of 5 categories including: fiscal accountability, risk and liability, quality care, social and moral responsibility, and professional effectiveness, as well as personal need which is unique to the public stakeholders. Hegyvary (1991) suggests that providers may focus on changes in overall or global health status, whereas consumers may be more interested in a specific aspect of health status such as level of function. Kazimirski (1997) perceives that the employer’s interest lies in the employee’s prompt return to work, and that the insurance provider is driven to keep the costs of benefits as low as possible. Similarly, Feuerstein et al. (1993) suggest employers may be primarily interested in return to productive work as an outcome. LaDou (2005) proposes that employers want their injured workers back at work as soon as possible, but that insurance companies are interested in cost containment as well as in reducing employees’ time away from work.

A final example of individual authors’ positions on stakeholders’ divergent views is from Emanuel (1999). In his commentary about representation in the healthcare system, and his comparison of representation in the political and healthcare systems, Emanuel concludes that in the healthcare system all parties may share an interest in ensuring high quality healthcare services, but that their specific interests are divergent. He proposes that patients favour confidentiality, coverage when seriously ill, minimization of out-of-pocket expenses, and broad
benefits. Healthcare providers give preference to decision-making autonomy, the minimization of administrative hassles, good income, and reputation. Profit maximization, reputation, and minimization of adverse information are seen as priorities for employers. Finally health plan providers (i.e. insurers) are presumed to favour profit/surplus, reputation, and innovative solutions.

Undoubtedly there is recognition that views amongst occupational stakeholders may differ. As well, the above discussion hints that stakeholders may identify preferences not only for different specific outcomes, but also non-outcome, process or structure variables such as cost. Although some authors have commented upon what these differing views may be, recognition that differences in viewpoints between stakeholders may exist is not enough; the occupational stakeholders’ views must be specifically elaborated to confirm this suspicion. Much of the preceding commentary is derived from opinion or experience rather than objective examination of stakeholders’ views. Nonetheless, some objective data exists to define occupational stakeholders’ views on certain topics.

**Objectively Determining Occupational Stakeholders’ Views**

Evaluation of stakeholder perspectives through direct assessment is starting to provide some data that identifies such viewpoints among occupational stakeholders on a variety of occupational health issues, including customer satisfaction, competencies, biological monitoring, as well as perceptions and expectations of return to work. For example, Antti-Poika (1995) instituted a program of care that included participation, training, and guidelines based upon customer satisfaction. The quality expectations of physicians delivering occupational healthcare and insurance company physicians as assessed by survey, indicated that these parties were interested in reliable diagnosis, a well-written consultation note, and fast access to examinations. Although not asked directly, patients were assumed to be most interested in effective communication of their examination and lab results, polite physician attitude, and accurate diagnosis.

Reetoo et al. (2004) also directly assessed occupational stakeholders’ views by using a modified Delphi technique in which employers, employees, and unions were asked to indicate their
priorities for occupational physician competency. Although there was relatively strong agreement amongst these groups about the training priorities, there were substantial differences in the ratings and ranking of relative importance between these stakeholders and physicians, for whom pre-existing information was available for comparison. Focus groups were the method used by Musham et al. (1999) to examine perceptions related to the industrial application of biological monitoring among stakeholder groups including workers, health professionals, managers, insurers and attorneys. Although there was consensus on some general ethical, legal, and social issues, stakeholder groups viewed biomarker issues from unique and self-serving perspectives. Plomp (1993) studied perceptions of work-relatedness of health problems in employees and occupational physicians with a survey. Employee and physicians’ beliefs that a particular condition was work-related were examined in two situations: when the visit to the physician was initiated by the employee, or when it was initiated by the physician. Although agreement was higher in the latter situation when the visit was at the request of the physician, in each case the percentage agreement was low at 35.2% and 42.4% respectively, each with non-significant Kappa statistics.

Kapoor et al. (2006) also used a survey, but to directly compare patient and clinician expectations about return to work after the acute onset of work-related low back pain. In this study 300 workers with acute work-related low back pain who were unable to resume full work duties, completed a questionnaire about work, injury, and psychosocial disability risk factors, then rated their likelihood of returning to work within 4 weeks on a five-point scale ranging from definitely to definitely not. Clinicians also completed a questionnaire in which they provided an independent estimate of the numbers of days before return to work without restrictions. Patients were then followed up in 3 months time. Clinician and patient expectations were found to be weakly correlated. While only 17% of patients indicated they would definitely be returning by 4 weeks, clinicians estimated that the majority of patients (64%) would need no more than 2 weeks until they could return. The authors suggested that the discordance in expectations may be related to lack of communication between patient and provider. This explanation was based on the results of previous studies which had shown that proactive provider communication was associated with improved return to work outcome (Dasinger et al., 2001).
To this point, it has been shown that there is value in considering stakeholder views, and that in a variety of circumstances such views differ. Although objective evaluations of occupational stakeholder views on a variety of occupational health issues are becoming more common through the use of a variety of methodologies, that what is known about stakeholders’ views on outcome is, to date, often derived from experience, opinion or literature review. Stakeholder perspectives have not been collected using in-depth qualitative methods. Furthermore, relatively few studies have directly evaluated the perspectives of stakeholders as they relate to the topic of interest for this thesis, that being the dimensions of outcome in occupational health. The next section focused specifically on stakeholders’ views on the topic of outcome.

**Stakeholders’ Views on the Topic of Outcome**

One study, previously described in Chapter 3, was identified that did include a breadth of stakeholder perspectives specifically related to the topic of occupational outcome. Rudolph et al. (2002) describe a survey instrument developed for use in California’s workers’ compensation system to assess patient satisfaction with medical care and patient perceptions of health and functional outcome after work injury. The survey draft was reviewed by an ad hoc advisory committee that included physicians and other health professionals, academics, union representatives, and injured workers’ advocates prior to use. Unfortunately, because the purpose of the paper was the survey, the stakeholder perceptions of outcome were not discussed in depth, but only mentioned as having been included in the topics covered related to patient satisfaction.

Although studies that directly evaluate stakeholders’ views on outcome are not widely available, several literature reviews have been used to draw together stakeholder views. For example, a study that considered occupational outcome domains (Stock et al., 1996) utilized primarily literature review and clinical expertise to identify the items included in various domains, with subsequent input from 2 stakeholder groups: patients and clinicians. Although the patients themselves had varied employment backgrounds, and the clinician group included a variety of healthcare workers, representatives from workplaces, unions, and insurers did not participate in the identification of the relevant domains.
In a review of the literature on workplace-based return to work interventions, Franche et al. (2005a) derived the perspectives of stakeholders in that context through the amalgamation of various studies. As well, Young et al. (2005) summarize the literature regarding what is known about stakeholders’ views around return to work outcomes. Although the actual number of studies examined is not listed, Young et al. (2005) note limited research to draw upon for their review and that much speculation remains; therefore explicitly advocated for research to determine what outcomes matter to stakeholders.

**Methodological Considerations for Determining Stakeholder Views on Outcome**

Having determined that: 1) there is value in including stakeholder viewpoints, particularly because such views often differ, 2) that little is known about the views of occupational stakeholders as they relate to outcome, and 3) that what is known about stakeholders’ views on outcome is, to date, often derived from experience, opinion or literature review, but not in-depth qualitative methods; what then, is the best way to determine which outcomes matter to the stakeholders in this thesis?

Decisions about what to consider an outcome of interest are often determined by the availability of instruments, data bases, or statistical requirements (Ray, 1999). Researchers and clinicians often set about the task of evaluating outcomes by asking “What instruments exist that I can use?” (Ray, 1999). However, the boundaries of the definition of health depend both on why one is measuring health, as well as the particular concerns of patients, clinicians, and researchers (Guyatt et al., 1993), not on the existence of a measurement instrument. Beginning the process of outcome evaluation with instrument selection is atheoretical because concepts and variables are essentially being selected according to the availability of instruments as opposed to a conceptual framework.

Referring back to chapter 2, it is clear that over time there have been numerous ideas about how best to classify outcome dimensions. Of particular relevance is the method by which those dimensions were identified. Very early models of outcome included dimensions that related to administratively available public health data e.g. mortality. Because outcome is so closely linked to health, not surprisingly, models emerged that were developed by researchers’
extrapolations from various theories of what defines health. Although various drivers such as patient preferences, expanding perceptions of the meaning of health, and fiscal accountability became relevant, still, the method by which frameworks were generated was most commonly by physician committee or panel consensus, with the opinions being almost exclusively those of clinicians and researchers. As Brook et al. (1977) noted, outcome criteria have been determined by physician panels, committees, and consultations, but there is no assurance that the judgments of physicians validly reflect those that might be made by other stakeholders. Sanazaro and Williamson’s (1968) method of outcome classification is a notable exception. Rather than developing a classification scheme based on the “gestalt feeling on the part of physicians as to whether and to what extent medical care can affect these types of outcomes” as noted by Brooks (1977), Sanazaro and Williamson (1968) describe their more stringent methods for collecting and classifying information on outcomes. To gather information, they used a modified critical incident technique in which physicians generated written episodes describing effective and ineffective performance. Words and phrases representing “end results” were then inductively combined into a classification scheme. Twelve categories (e.g. physical symptoms, psychological symptoms) were divided into 2 domains including patient end results and process outcomes. In the end, they concluded that the scheme they developed had face validity as it incorporated outcomes used in previous studies. What is unique about this study is its use of an inductive technique, however what is lacking is the inclusion of various stakeholders.

As noted earlier, common methods of determining stakeholder views include surveys, focus groups, and Delphi techniques. This thesis incorporates focus group methodology with an inductive classification method in the form of content analysis to achieve the objectives of clarifying meaning, understanding stakeholder perceptions, and generate a framework for occupational outcome derived from as assessment of the views of all stakeholders, as opposed to a researcher-generated model. Thus, comments and conclusions in this thesis are stakeholder-derived views, directly assessed for the specific purpose of use in model generation. The next chapter (Chapter 5) provides greater detail about the methodology.
**Conclusion**

This chapter has described the value of including, and the potential consequences of excluding stakeholder perspectives. Discrepant views lend credence to the need to better understand stakeholder perspectives. What we know of the differing views of stakeholders in the multi-stakeholder occupational healthcare system is limited, particularly on the topic of outcome. In conclusion, a comprehensive account of occupational stakeholder views about the dimensions of occupational outcome does not exist. Also lacking for occupational outcome research is an understanding of the areas of consensus and disparity among stakeholders. An inductive analysis of lexical (non-numerical, word-based) data would be an ideal method to gather the information to fill this gap.
CHAPTER 5
METHODOLOGY

The general purposes of this study are to describe and understand how various stakeholders conceptualize outcome in occupational health, to compare those views, and to discover a classification framework for occupational outcomes. Disparity between the stakeholder-generated classification scheme and existing schemes in the literature allows commentary about possible missing or under-developed elements/categories, such as work-related elements, in existing schemes. Furthermore, previous chapters have identified that occupational health research delineating and conceptualizing the range of dimensions of occupational health outcome has typically not used in-depth qualitative methods, neither have they been used in the development of models, nor are they commonly used in stakeholder studies. The use of content analysis to understand the views of multiple stakeholders is a novel approach to the examination of outcome in occupational health.

Study Design

Qualitative vs. Quantitative

Qualitative methods are the best way of addressing certain research purposes. These are described by Morse and Richards (2002) as situations in which the study purpose is to: (1) understand an area where either little is known, or that which is known in inadequate, (2) to make sense of complex situation in which preemptive data reduction will prevent discovery, (3) to learn from participants such that the integrity of their perceptions is maintained, (4) to construct a theory that reflects reality rather than prior research results hence has a need for discovery of theory in data, and (5) to understand phenomena in detail hence requiring methods for discovery of themes. Janesik (2000) also lists types of questions suited to qualitative inquiry, which includes questions regarding the meaning or interpretation of some component of the context under study. Finally, qualitative studies are useful when the situation requires acceptance of the emergent nature of the course of inquiry.

Qualitative study designs aim to build theory, in which data is collected with neither a theoretical base nor a hypothesis, and then used to generate categories as well as statements of
relationships between them. Qualitative approaches are usually inductive, reasoning from particular facts to a general conclusion, whereby observations and data are collected with the assumption that relationships will become apparent. By comparison, quantitative methods are more suited to situations in which the approach is not wholly inductive, when generalizability of findings to a larger population is important, and when explanation of a phenomenon avoiding investigator biases is preferred (Neuendorf, 2002). The goal of quantitative study designs is usually to test theory. A theoretically based hypothesis exists, and data is collected within previously established categories to test the viability of that hypothesis through deductive reasoning. In this process, conclusions can be reached based on valid premises, through a series of logical steps.

Aspects of this study which make it suitable for qualitative methodology include the assertions that the current knowledge about outcome is inadequate, that preemptive data reduction will prevent discovery, that it is important to understand the perceptions of each stakeholder group, that there is a need for discovery of theory in data, and that discovery of new themes is important to build theory.

**Rationale for Qualitative Content Analysis**

The design for this study is classified as qualitative content analysis and is chosen as the design three main reasons: (1) because the research goals support its use, and because it is more suited to both (2) the type of coding and (3) the analytic style, which needed more than purely quantitative content analysis.

1. **Research Goals**

The research goals for this study make content analysis an ideal study design. Content analysis has many purposes including the auditing of communication content against objectives, revealing foci of attention, describing trends in communication content, or for coding open-ended questions in surveys, among others (Weber, 1990). Since the basis of this study is to reveal foci of attention from open ended responses, content analysis is appropriate.
Morgan (1993) indicates that qualitative content analysis specifically is well suited to comparative analysis because its process allows counts to explicitly identify patterns in data, as well as interpretation of counts, which also coincides with the needs in this study.

Krippendorff (1980) expands upon the uses of content analysis in a discussion of the forms of inferences content analyses might make. A content analysis might result in inferences about: (1) trends, patterns, or differences in systems, (2) “goodness” in comparison to a standard, (3) less easily measured phenomenon by virtue of measuring an index, (4) linguistic representations (5) communications, and lastly (6) institutional processes, in which messages serve function.

The specific goals of the study, as identified in Chapter 1, correspond well to each of these identified uses of content analysis. Once again, the specific goals of the study are: (1) to gain an understanding of meaning by comparing the range of meanings and interpretations given to the concepts of health, occupational health, and occupational outcome; (2) to gain an understanding of the range of opinions among occupational stakeholders, and (3) to utilize new-found understanding of occupational health outcomes and to compare and synthesize this knowledge with existing health models to develop a framework of occupational outcome that incorporates the views of all key stakeholders.

Such goals reflect the need in this study to make many of the types of inferences for which content analysis is ideal. Clearly, patterns and differences particularly between different stakeholder groups will be needed. Because the newly derived dimensions will be compared to existing frameworks, the second type of inference (i.e. comparison to a standard), is also needed. Examination of the concepts of both health and outcome reflects the need for the third type of inference, index measurement. With regard to the fourth type of inference, linguistic representation, Krippendorff (1980) notes that a form of understanding of what language may convey involves classifying words or expressions by the references (denotations, connotations) they make. The nature of classification of participants’ comments into categories representing dimensions of health outcome therefore reflects the need for inferences about linguistic representations. The reasons for understanding communications are described by Krippendorff in a variety of ways, including explanation of behaviour, explanation of the consequence of
behaviour, transformation of culture, and most relevant for this study, identifying the emergence of conflict and consensus. Lastly, by conveying content, messages may serve functions in an organization. In this study such inferences are to be made in the context of the various organizations represented as stakeholders. In summary, qualitative content analysis is an ideal design choice for this type of study because the study goals correspond well to the identified uses of content analysis.

2. Use of Coding
Two key features distinguish qualitative from quantitative content analysis (Morgan, 1993). First is the coding procedure. In qualitative studies, the data is the primary source of the codes, and pre-existing codes are viewed as a modifiable starting place. By comparison, quantitative designs define immutable codes ahead of time, and often subsequently use search algorithms to automatically apply such codes. The second distinguishing feature is the use of counts. In quantitative content analysis, code tabulations are viewed as representing the entirety of the data, whereas in qualitative content analysis, code tabulations are the first step, with a second pattern interpretation step to follow. For this study, qualitative content analysis is most appropriate since the literature review will produce a set of preliminary codes, however the data is anticipated to generate new, possibly unanticipated codes. As well, the final goal is not solely to count the codes, but to identify patterns and further interpret them.

3. Analytic Style
Purely qualitative content analysis is consistent with a “quasi-statistical analysis style” in which data is summarized numerically in an effort to confirm by counting the description of patterns discovered in the data (Sandelowski, 2000). Therefore, one of the advantages of content analysis is the capability to combine “what are usually thought to be antithetical modes of analysis” by utilizing both qualitative and quantitative operations on texts (Weber, 1990). This acceptance of quantitative operations represents another reason why qualitative content analysis is deemed a suitable design.

As an additional point, several authors have called attention to the importance of complimenting the traditionally used quantitative methods with qualitative methods, specifically in occupational
health studies (Gordon et al., 2005, Griffiths, 1999, Mergler, 1999). Recognizing that occupational health has lagged behind other disciplines in the inclusion of qualitative methods (Gordon et al., 2005), it is anticipated that qualitatively examining the perspectives of the different stakeholders will provide valuable additional insight for the field and foster interdisciplinary cooperation in future research.

**Data Collection**

In this study both semi-structured individual interview and focus group data were gathered to explore the opinions of the different stakeholder groups. Numerous studies have used a combination of focus groups and interviews for data gathering (Gerrish, 2001; Kidd and Parshall, 2000; Morgan, 1996; Sargeant et al; 2004; Simington et al., 1996). Morgan (1996) indicates that the value in this blend is the combination of breadth and depth that results.

**Advantages of Focus Groups**

Focus groups can be considered the qualitative counterpart to the quantitative survey (Sandelowski, 2000) and in terms of qualitative data collection, occupy a position intermediate between participant observation, and open-ended interviews (Morgan, 1997). However, because focus groups were originally developed outside qualitative research traditions, they are “relatively agnostic in terms of the methodologies attending them” (Kidd and Parshall, 2000).

Focus groups not only enable the participants to describe their perceptions, but also to create new understanding through reflection and responding to others (Sargeant et al., 2004). Thus an advantage of focus groups is that group synergism can reveal new information (Gordon et al., 2005, Kitzinger, 1995, Morrison-Beedy et al., 2001). Another advantage of focus groups is that they are a milieu of security for freedom of expression unencumbered by the need for contextual explanation (Morgan and Krueger, 1998). Furthermore the group atmosphere can be empowering and allow greater spontaneity (Sim, 1998). On a more pragmatic level, focus groups are an economical way to gather the views of many participants compared to interviews (Morrison-Beedy et al., 2001).
Advantages of Interviews
Interviews allow greater depth of exploration of individual views, and in addition provide a more comfortable format (Sargeant et al., 2004). Semi-structured interviews in particular have the advantage of providing in-depth content while allowing easier comparison across respondents (Gordon et al., 2005). Lastly, Fern (1982) found that the quality of ideas generated from individual interviews was higher than that for focus groups.

Constraints in Data Collection
Ideally both focus group and interview data would have been gathered for all stakeholder groups. However, due to constraints around patient scheduling in the clinic, focus group data collection was not possible for patients. Patients were initially contacted on the day of the clinic appointment. Because they would often be traveling long distances to attend the clinic, and sometimes had multiple appointments at different sites in the same day, it was necessary to either interview them individually on that date or arrange for a subsequent phone interview. It was not possible however, to request that patients return long distances for a focus group that might force them to miss time from work, and for which travel costs could not be reimbursed due to limited funds. Therefore, as much as practicable, focus group data was combined with additional interview data, although this was not achieved for the patient group.

Question Guide Book
A question guide was developed in a questioning route style in which specific questions and optional probes were developed, as opposed to a “topic guide” in which the topics to be addressed are identified without specified questions (Morgan and Krueger, 1998). This approach was taken in order to minimize subtle difference in questions that could alter intent. This was deemed essential given the moderator’s non-medical background. For this study, a professional educational consultant with a Master’s degree in education and experience in facilitating focus groups was hired as a moderator. This approach was taken in order to maximize consistency and minimize bias, as well as to allow the principle investigator to concentrate and take notes on the focus group discussions.
Of the three types of commonly used interview styles (structured, semi-structured, and in-depth) this study utilizes semi-structured interviews. This choice fosters consistency of data collection when multiple groups or interviews are being conducted (Morrison-Beedy et al., 2001), which is particularly useful when the goal is to compare the responses of different categories of participants (Morgan, 1996). Nonetheless, the style remained conversational, as the guide was intended to be a template, but not restrict the natural course of the conversation.

Specific attention was paid to the categories of question (e.g. introductory, transition, key questions etc), the phrasing (short, no jargon, memorable), and the sequencing (initial provision of background information, uncued questions first). Probes were included in the guide, and the moderator requested clarification as needed, and to summarize the group’s discussion requesting affirmation of her remarks after each question. Questions were open-ended and all participants were encouraged to provide comments for each question. In order to avoid having less self-confident or minority group members acquiesce to the majority, prior to moving along to the next question the moderator ensured that every member had spoken (see Appendix A for a copy of the Moderator Guide).

Questions were pilot tested for comprehensibility and clarity with both a researcher and non-researcher as suggested by Morgan and Krueger (1998), as well as with the moderator who would be actually asking the questions in the groups and appropriate revisions made. Some questions were subsequently re-worded to make them simpler to understand (i.e. layperson’s language), and multiple reworded options were provided for the moderator.

Although the goal was to discuss occupational health generally, at the beginning of the study some probes were included about the care of occupational contact dermatitis specifically, to confirm that stakeholders were able to speak broadly about the topic, and not be confined by perceptions of a single condition. Thus, the possibility that a specific occupational disease might be discussed differently than occupational health in general was considered. Occupational contact dermatitis was chosen because this was a common occupational disease and also a common condition seen at the Occupational Health clinic at St. Michael’s hospital. However an emergent theme was that participants from the various stakeholder groups felt the issues were similar across conditions, and preferred not to be condition-specific in their commentary.
Participant interviews and focus group data suggested that focusing on a specific condition added nothing new to the discussion. As a result, probes asking to clarify or differentiate condition-specific answers were not regularly included in the discussions after the 11th session. Any condition-specific comments or comments reflecting the lack of desire to comment upon a specific disease entity were retained, and coded separately, but not included in the analysis.

The Questions
In total 8 questions were included in the study (see Appendix A). In an effort to obtain stakeholders’ ideas about outcomes in occupational health, and the broader framework within which those ideas are situated, stakeholders were asked to discuss their meanings of health, occupational health, and occupational outcome. In particular, in order to understand how participants describe the general dimensions of health outcome, participants were asked to describe what their ideas of health were. Then, to understand whether participants would identify any additional dimensions related to occupational health, they were asked to talk about the health of workers, and having already discussed their thoughts about health generally, whether there were additional features they considered for workers. Because outcomes are related to changes in health status, participants were asked to talk about their ideas of occupational outcome through 2 questions relating to measuring outcomes and getting better. Additional participant commentary about outcome dimensions was derived from supplementary questions related to occupational healthcare goals, as well as barriers to and suggestions for achieving them.

Demographic Measures
Participants also completed a brief 1 page demographics questionnaire (see Appendix B) that collected data on gender, age, race, presence of occupational disease, length of employment and size of employer. The questionnaire included one additional question in which participants were asked to rate their knowledge or experience of occupational disease, workplace, and insurance issues on a 5 point scale (0 = none, 4 = a lot). The original rationale for including a question such as this was to gain a better description of participants, and to ensure that the final cohort of participants included stakeholders with a diversity of perspectives. Because much the wording was vague (e.g. “insurance issues”), and may have been asking about 2 distinct issues
(knowledge, experience) within the same question, this data was viewed as flawed and therefore was excluded.

**Ethics and Funding**
The study was reviewed by the Peer Review Committee for Health Research Training at CIHR (Canadian Institutes of Health Research) and the author was supported by a CIHR Postgraduate Fellowship. The study protocol was submitted for ethical review to the St. Michael’s Hospital Research Ethics Board (REB) and was approved, as were annual reviews and minor protocol variations (e.g. changing to a global consent from separate but very similar consents for each group) until study completion. Prior to beginning either a focus group or interview, the study was described and participants were provided with the consent form. Specific aspects of the consent were verbally reviewed including the fact that the interviews would be taped and transcribed. Participants were told that they should expect the results of this study will be presented at research conferences, and will be published, and that quotes from the transcript, if published, would be done without identifying the speaker. Prior to signing the consent there was an opportunity to ask questions. All participants were satisfied with the information provided and gave their informed written consent.

**Sampling and Recruitment**

**Stakeholder Identification**
The term stakeholder can be defined in many ways (Becker and Potter, 2002; Keele et al., 1987) but is often considered to mean individuals or groups (or organizations) who have a stake in the decisions and actions of an organization and who may attempt to influence those decisions or actions (Blair and Buesseler, 1998).

In the case of occupational health, care is delivered through a multi-stakeholder model. Although the list of possible stakeholders is lengthy (Polanyi, 2001), except for the exclusion of “society”, the choice of stakeholders in this study closely parallels those used in the literature review by Young et al. (2005) and derived from a systems theory perspective which describes the variety of influences on people with disabilities and their life outcomes. The inclusion of the
patient/worker, healthcare providers, employers, union/labour representatives, and the insurer as primary stakeholders is consistent with, and well-supported in the literature. (Emanuel, 1999; Franche et al., 2005; Franke et al., 1996; Greenberg, 1989; Ireson et al., 2002; Keele et al., 1987; Young et al., 2005). Therefore, five stakeholder groups were targeted for this research, including workers/patients, healthcare providers, and union, employer, and insurer representatives.

**Sampling Strategy**

The sampling strategy was stratified purposive sampling. The ultimate goal of purposive sampling is to obtain cases deemed information-rich for the study (Sandelowski, 2000). Stratification illustrates the subgroups (Miles and Huberman, 1994). Purposive sampling would maximize the potential to elicit detailed information relevant to those involved in the occupational healthcare system. Because several stakeholder groups were structured with provincial boundaries (for example, workers’ compensation insurers are provincially organized and physicians are provincially licensed), the goal was to obtain participants from Ontario, but for logistical reasons primarily in the Toronto area, that would reflect a spectrum of possible participants in each stakeholder group including variety in gender, race, age, experience with the occupational healthcare system, as well as representing various possible subgroups within stakeholder groups. The exclusion criterion for all groups in the study was the inability to articulate in the English language. The study did not include pediatric (<age 18) or older (≥age 65) or retired individuals, although no such individuals were either anticipated or encountered.

**Patients:** All patients had a diagnosed occupational illness. For patients, it was ensured that each patient was from a different employer, and that various employment sectors from various sized workplaces, having a range of durations of their condition, and a range of experience with the occupational healthcare system were included.

**Healthcare Providers:** Among the healthcare provider group, both generalist and occupational medicine specialist physicians, as well as various non-physician provider groups were represented including nursing, physiotherapy, and hygiene.

**Employers:** For the employer group, both small and large-sized companies were included, as well as unionized and non-unionized workplaces. Employer representatives were primarily managers, placement coordinators, or human resources personnel.
**Union:** For the union group, representatives from 5 major unions in the province as well as representatives from the Ontario Federation of Labor (a federation of labour unions) participated.

**Insurers:** For the insurer group, all participants were drawn from the Workplace Safety and Insurance Board of Ontario (WSIB), the main provider of insurance coverage for work-related conditions in the province. Within this group, the opinions of adjudicators, nurse case managers, and managers were solicited, as these were deemed the key informants likely to have direct involvement with case management.

**Focus Group Composition**

In terms of group composition, although group diversity can be advantageous to explore potentially different perspectives (Kitzinger, 1995), members of groups which are more homogeneous in terms of social background, education, experience etc, are thought to have more confidence in expression. As such, homogeneous groups are generally considered preferable to heterogeneous groups (Kitzinger, 1995; Musham et al., 1999; Sim, 1998).

For this study in particular, confidence in expression was viewed as paramount in importance, therefore the focus groups were composed of individuals of common background in the sense that they represented the same stakeholder group. Mixing membership from various stakeholder groups might lead to suppression of certain groups views, recognizing that, on the basis of the topics and questions, there would likely be situations in which groups would want to comment upon other stakeholders actions or role. Inadvertently putting stakeholders in a position of feeling powerless or intimidated might also be a barrier to further studies, whereas the hope was that research participation would be empowering and enlightening for participants.

For this study, several of the groups occur rather naturally, for example the insurer subgroups (adjudicators, nurse case managers, and managers) and the workplace groups. Kitzinger (1995) comments that such groups are valuable because the data are more likely to be “natural”. This would lend support to the decision to maintain homogeneous groups, rather than having mixed groups.
The ideal number of participants for an individual focus group is not clearly defined (Fern, 1982; Morgan, 1996). Eight to 12 is often cited as ideal number (Sim, 1998), although smaller numbers such as 4-8 participants are often recommended (Kitzinger, 1995; Morgan, 1996; Wilkinson, 1998). Thus during planning, a focus group size of 8 was the aim. This number was thought to balance various recommendations about group size with the desire to allow each respondent adequate response time, knowing that many groups members would be constrained by a total time commitment of less than 2 hours over lunchtime.

**Recruitment**

*Patients:* Patients seen at the Occupational Health Clinic at St. Michael’s hospital in Toronto volunteered to participate after having viewed a recruitment poster or flyer describing the study, or after having been informed of the study by clinic staff. The nature of practice at the Occupational Health Clinic at St. Michael’s hospital is that of a tertiary care outpatient practice with a special interest in occupational diseases, including but not limited to occupational skin and lung disease, hand-arm vibration syndrome, and possible toxic exposures. Although originally contact dermatitis patients were asked to participate, the final group included a variety of patients from the Occupational Health clinic because as the study progressed it became apparent that participants discussed the issues in a general manner. In other words, rather than having a disease-specific focus, there was a general focus on occupational health. All patients had confirmed occupational disease at the point they joined the study.

*Healthcare Providers:* Initially the principle investigator identified several points of contact that included the Heads of the Departments of both Occupational Health and Family and Community Medicine at St. Michael’s hospital, who agreed to forward an e-mail introducing the study and asking for volunteers. The project was briefly described as part of a PhD thesis in the area of occupational health, and one in which the viewpoints of 5 key stakeholder groups would be compared on several health-related topics. Interested parties were invited to contact the principle investigator directly, and contact information was provided.
More specifically, occupational specialists and other providers involved in occupational healthcare were recruited through a request for volunteers appended to a regularly scheduled e-mail announcing the time and location of biweekly Occupational Medicine rounds, and sent through an administrative assistant in the Occupational Health clinic at St. Michael’s hospital. The distribution list for these rounds included both hospital-based and community-based physicians, nurses, and hygienists, most of who practice in the Toronto area. A subsequent e-mail reminder was also sent.

In order to recruit family physicians, the College of Family Physicians was contacted by telephone to request that the invitation be distributed to Ontario family physicians, but because of the confidentiality of member distribution lists, preferred not to be involved. As mentioned, the Chief of the Department of Family and Community Medicine at St. Michael’s hospital served as a point of contact. After the study was approved by the department research director, the invitation for volunteers was presented at the Medical Staff Meeting. Arrangements for the final location and date of the focus group were made through a physician representative of the group who volunteered to participate.

**Employers:** The employer group was derived from representatives such as managers or other administrators making “return-to-work” or “availability of modified work” decisions from employers of various types (unionized, non-unionized) and sizes. Employers were not paired directly with participants in the patient focus group for ethical reasons. For large employers, volunteers received an e-mail introduction to the study similar to the process for insurers (see below) from a senior manager with whom the author had previously discussed the study in person. Participants volunteered directly for the study such that senior managers did not have access to the names of those who did or did not choose to participate. Focus groups occurred on site at the workplace, over lunch which was provided. For small employers, because of their size, and the fact that there were not multiple people involved in return to work decisions, the most senior person with job responsibility for decisions relating to occupational health matters was individually interviewed.
**Union:** To identify representatives from various unions to participate, the study was introduced to the Occupational Disability Response Team Project Coordinator at the Ontario Federation of Labour (OFL), who suggested working directly with Director of Organization Services as a point of contact. Once again, a group e-mail introducing the study was sent by the Director. Interested parties contacted the principle investigator directly. A focus group was held at the central OFL office and lunch was provided. Those unable to attend the focus group were interviewed by phone.

**Insurers:** For the insurance group, individuals with varying job roles, but not physicians, who are employed by the WSIB including Occupational Disease and Survivor Benefits adjudicators (ODSB adjudicator), Advanced Practice Nurse Case Managers (APNCM), and managers were invited to participate. The role of the adjudicators is to adjudicate claims and administer benefits for all occupational disease and work related fatality claims for the province of Ontario. The nurse case managers co-ordinate the development, implementation and clinical evaluation of workers and families. Each manager supervises a team of employees responsible for delivering integrated specialized programs and services which include prevention, adjudication, nurse case management, return to work, customer service, revenue issues and special needs counseling.

Permission to conduct the study at the WSIB was granted verbally through the office of the Vice-President (Health Services) with direction for subsequent face-to-face meetings with both the Director of the Occupational Disease and Survivor Benefits Program, and the Chief Nursing Officer / Director of Professional Practice to make specific arrangements. An initial invitation to participate in the study was sent by each Director via group e-mail to their entire group. Interested parties contacted and administrative assistant to one of the Directors who was asked, and agreed to be the key contact, such that responses from volunteers were not addressed back to the Directors, nor did they have access to which employees participated. The principle investigator then made arrangement through the administrative assistant. Focus groups were scheduled on site at the WSIB over lunch, which was provided.
Additional participants for the healthcare provider, union, and employer groups were successfully recruited through a snowballing process in which key administrators at various organizations including the IAPA (Industrial Accident Prevention Association), the HCHSA (Healthcare Health and Safety Association), CREOD Advisory Committee (Centre for Research Expertise in Occupational Disease) forwarded the invitation to participate, and interested parties contacted the study author to volunteer. Other organizations that were invited to have members participate, but who chose not to, included HRDC Canada (Department of Human Resources and Social Development) and CFIB (Canadian Federation of Independent Business).

Respondents were not paid for participating, however a small honorarium ($10.00 value) was offered to all participants in the form of a gift certificate for either Chapters bookstore or Second Cup Coffee after the session was completed. In some cases, the honorarium was mailed if the interview had occurred by phone. In addition, because many of the focus groups occurred at participant’s lunch break, a meal was provided for focus group participants.

Groups were strategically planned to occur in temporal proximity to other key events such as Rounds, and geographic proximity to the participants’ places of employment. Those who were interested, but unable to attend a focus group due to timing or location, were interviewed individually at the participant’s convenience either by phone, or in person by the principle investigator attending their office location.

**Interview and Focus Group Procedure**

Informed, written consent was obtained from all participants after the study was described and after they had an opportunity to ask any questions they might have. Focus groups were conducted as much as was practically possible, at the site where participants worked. Groups were moderated by an experienced focus group moderator following the process described by Morgan and Krueger (1998) and Krueger and Casey (2000). A second individual (the primary researcher) took notes, recorded the seating plan, kept a speaker log, and conferred with the group leader after the session to debrief about the most important themes that emerged, degree of content saturation, any unexpected findings, the group dynamic, and general impressions.
Individual interviews were conducted either in person in a private room, or by telephone at a pre-arranged time. Conscious attention was paid to ensuring the interviewing technique was non-directive (Britten, 1995), while remaining reflective in order to ensure rigor.

Individual interviews were conducted by the primary researcher. This was purposeful for a variety of reasons. Because individual interviews are apt to provide greater depth of information than a focus group, they are an ideal opportunity to explore and confirm emerging and theoretical issues in depth with additional probes, while still asking the same questions posed in the focus groups. Because the moderator had a non-medical background and was not familiar with the theoretical background in great detail, it was most appropriate for the primary researcher who was also present at focus groups, to conduct the individual interviews. Furthermore, it was impractical for the moderator to be present at all of the needed clinic times in order to enroll patients, or to accommodate participants’ needs for flexibility in the time they were able to grant interviews.

All interviews and focus groups were recorded on two separate audio tape recorders. Notes were taken during the interviews that reflected key themes as well as verbatim comments. These notes were used for purposes of triangulation, and in the case of poor audio quality, which occurred occasionally when ventilation fans resulted in increased background noise on the tape(s), they were available to confirm the transcription.

Although not feasible for all groups, as much as possible data collection continued until the point where both the researcher and the moderator agreed that the point of redundancy or saturation had been reached for each stakeholder group. This is the point at which further data no longer contributed to the emergence of new core categories (Dey, 2004, Morgan and Krueger, 1998).

**Participants**

Participants were 77 volunteers from 5 stakeholder groups who participated in one of 18 semi-structured individual interviews or 11 focus groups. Further detail is presented in Table 2. Focus group ranged in size from 3 to 8 participants with a mean of 5 and a median of 6 participants. Typically, individual interviews lasted for about one hour, and focus groups usually lasted about 2 hours.
Table 2: Numbers of Participants by Stakeholder Group

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Interview Participants</th>
<th>%</th>
<th>Focus Group Participants</th>
<th>%</th>
<th>Total Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>8</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Insurer</td>
<td>3</td>
<td>14.3</td>
<td>18</td>
<td>85.7</td>
<td>21</td>
</tr>
<tr>
<td>Nurse Case Managers</td>
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<td></td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Adjudicators</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Managers</td>
<td>0</td>
<td></td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Employer</td>
<td>3</td>
<td>21.4</td>
<td>11</td>
<td>78.6</td>
<td>14</td>
</tr>
<tr>
<td>Healthcare Provider</td>
<td>2</td>
<td>7.6</td>
<td>24</td>
<td>92.3</td>
<td>26</td>
</tr>
<tr>
<td>Occupational MD</td>
<td>0</td>
<td></td>
<td>7</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Family MD</td>
<td>1</td>
<td></td>
<td>8</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Non-physician*</td>
<td>1</td>
<td></td>
<td>9</td>
<td></td>
<td>10</td>
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<tr>
<td>Total</td>
<td>18</td>
<td>23.4</td>
<td>59</td>
<td>76.6</td>
<td>77</td>
</tr>
</tbody>
</table>

* e.g. physiotherapist, nurse, hygienist

Data Management and Analysis
Audio tapes were transcribed verbatim by one of two experienced transcriptionists. To ensure accuracy, transcribed tapes were proof-read and compared to the tape by two separate individuals, one familiar with the study, and one independent of it.

Transcripts were analyzed by the study author using a content analytic strategy. Transcribed and proof-read data were entered into NVivo 7, a qualitative data analysis program. The process of creating and applying a coding scheme was approached in a stepwise manner similar to those described by Burnard (1991), Down-Wamboldt, 1992, Miles and Huberman (1994), and Weber (1990, pg 23). The approach was iterative, and generally inductive.

First, the unit of analysis was defined. In this study the unit chosen was the line of text. This size of text unit is not so small as to have loss of meaning, and not so large as to contain a multiplicity of topics, and to reduce reliability. Next, the codes that could be identified a priori
on the basis of the literature review presented in Chapters 2 and 3 were represented by “tree node parents” in the NVivo program. The a-priori definition of codes does not prohibit the addition of further codes as they emerge from the data. Template codes are provisional, because emergent aspects of the text cannot be authentically coded ahead of time. In fact, although typically quantitative content analysis entails the systematic application of pre-existing codes, and qualitative content analysis entails data-derived codes, it is common in the latter for the researcher to start with pre-existing codes, which are then modified in the course of the analysis (Nandy and Sarvela, 1997; Priest et al., 2002; Sandelowski, 2000). Once defined, codes were assumed to be mutually exclusive. The advantages of having mutually exclusive codes include enhanced conceptual clarity, avoidance of confounding, and greater ease in data reduction (Cavanagh, 1997).

To ensure clarity of category definitions and identify any ambiguity, text samples were coded, and codes were revised as necessary. Emerging themes not present in the a-priori scheme were also freely generated in a manner akin to open coding (Burnard, 1991). Such themes were coded either as free nodes or as child nodes in NVivo and facilitated analysis of data not readily fitting into pre-existing analytic categories (Priest et al., 2002). This process allows for revisions and clarification of the coding scheme.

The initial coding scheme was reviewed with another researcher experienced in content analysis (MG), and revisions were incorporated. Subsequently, in order to ensure credibility of the coding scheme, 2 researchers independently reviewed a subset of the transcripts including some from both focus group and individual interviews that appeared to be category-rich, and particularly detailed or complex, in order to maximize potential coding variability. As well, for thoroughness, all the codes were re-reviewed once the final coding scheme was created to ensure that early codes should not be changed in light of the final coding scheme. In sum, the approach to coding and analysis incorporated initial coding developed on the basis of a priori literature review with a more inductive approach following this, as themes emerged from the data. Such an approach is supported in the literature (Weston et al., 2001).

Thirty five hours of recorded conversation yielded 579 pages of verbatim transcripts. While the question guide which was developed for the study helped to keep the group discussions focused
on definitions of health, occupational health, and occupational outcome, it was not uncommon for groups to drift off-topic at times, and to discuss issues like the specifics of the current occupational healthcare system. Codes were developed and these discussions were analyzed. However, because they were not relevant to the thesis, they are not included in the results or discussion sections. Out of the relevant material, 72 different codes emerged to capture the stakeholder discussion relating to participants views about the dimensions of health, occupational health, and occupational outcome.

**Study Rigor**

Morrow (2005) discusses criteria for trustworthiness as they apply to qualitative research. She elaborates upon the concept of parallel criteria in which the benchmarks of rigor in qualitative research are logically attached to conventional quantitative standards of inquiry. This approach is ideal for a study such as this one which bridges quantitative and qualitative inquiry. Thus, (1) internal validity corresponds to credibility, (2) external validity/generalizability corresponds to transferability, (3) reliability corresponds to dependability, and (4) objectivity corresponds to confirmability. The steps taken to ensure rigor in this study are discussed next.

1. **Credibility** (cf internal validity) relates to the communication of the process of ensuring rigor in the research process, and the level of confidence in the truth of the data (Morrison-Beedy et al., 2001; Morrow, 2005). In this study credibility was achieved by conducting multiple focus groups, using a detailed interview guide, thoroughly describing source data, ensuring that each individual in the focus groups answered every question, and using a peer debriefer (JT- the moderator, JS – principle investigator).

Kidd and Parshall (2000) suggest that since reconvening a focus group at a subsequent time is often impractical, member checking must be done in real time while each group is conducted. For this study, participant checks were conducted during, and at the end of each interview and focus group by reiterating and summarizing participants’ comments, then directly asking about the accuracy of the summary, and providing participants an opportunity to further clarify. This helped to ensure that participants’ comments were interpreted accurately during coding.
Due to the need for balance in moderator involvement in the focus group compared to group discussion, Hague (1993) suggests that moderator input should constitute approximately 5-10% of the transcript. In this study, all transcripts were examined to determine the percentage of discussion attributable to moderator comments. On average, moderator commentary comprised approximately 13% of the transcript, however this includes the welcoming comments therefore the amount of moderator commentary in the body of the focus group discussion would be less than this.

Triangulation refers to the deliberate collection of data from different sources for purposes of safeguarding validity (Mays and Pope, 1995). Although multiple sources of data were not collected from the same individual, the inclusion of multiple stakeholders discussing the same topic brings added credibility to the findings. Some authors also talk about triangulation of researchers (Lohfeld et al., 2000). Again, although data was not collected from the same individual by multiple researchers, the fact that two researchers (JS and JT) were present at each focus group ensured good quality data collection. Finally, the use of both focus group and interview data has been considered a form of triangulation of data (Grimmer et al., 1999), and although individual participants were not present for both an interview and focus group, both focus group and individual interview data was collected for most stakeholders groups (see page 67 for a discussion around constraints in data collection), which also imparts credibility.

2. Transferability (cf external validity) relates to the degree to which a reader can generalize the study to his/her own context (Morrow, 2005). Sim (1998) describes two perspectives from which to address generalizability. The first perspective views generalization as a legitimate goal in which the data viewed as being sampled from, and thus representative of a larger population. The second perspective holds that generalization is inappropriate given the idiographic role and production of “situated accounts” in focus groups. To resolve these incompatible views, Sim (1998) reframes the generalization discussion to one of theoretical generalization from the more positivist empirical generalization concept, suggesting that comparability between two contexts is rather more logical and conceptual than statistical, and is therefore appropriate. Although transferability is ultimately the reader’s decision, authors can give suggestions (Graneheim and Lundman, 2004). Transferability is achieved in this study by providing sufficient presentation of
information about the context, process, and participants to enable the reader to make transferability decisions.

3. **Dependability** (cf reliability) reflects consistency across time and analysis of research process (Morrow, 2005). This was accomplished through maintaining a chronology of research activities, tracking of emerging themes, consistent use of the interview guide with each interview and focus group, as well as by reviewing the coded transcripts for a second time once all the codes had been developed to ensure that changes were not required.

4. **Confirmability** (cf objectivity) is based on the idea that the integrity of the findings is derived from the data, rather than the biases of the researcher (Morrison-Beedy et al., 2001; Morrow, 2005), and is supported with the emergence of the themes in the audit trail, and by the practice of coding all lines of text. In other words, no segments of text were left un-coded, which reduced subjectivity or researcher bias. Verification of the coding scheme by a second researcher also ensured confirmability. As previously noted, transcribed tapes were proof-read and compared to the tape by two separate individuals with near-perfect agreement.

**Addressing Additional Possible Sources of Error**

Crabtree and Miller (1999) discuss several sources of error arising specifically from the interpretation phase of the study that are reduced by the use of templates. Discounting evidence is avoided by the intentional analysis of the gaps or un-coded text. In this study all text was coded, so there were no gaps remaining from which to draw possible unrecognized new interpretation. Fabricating evidence (the “seeing” of data we expect to be there, even though it’s not) (Crabtree and Miller, 1990) was avoided in this study by the having multiple researchers involved in the data gathering, proofing, and coding phases to prevent this unintentional source of error.

**Summary**

In sum, accepted systematic procedures for data collection, handling and analysis were employed. As well, detailed descriptions of context, and rationale for choices made were elaborated. Participants’ views were clarified when not clearly understood, and debriefing, proofing and coding were team approaches. Because these procedures were used there is
confidence that the findings presented in the next chapter (Chapter 6: Results) accurately reflect the views of the study participants.
CHAPTER 6
FINDINGS

Through a content analysis of the interview transcripts derived from focus groups and individual interviews with 77 participants in 5 stakeholder groups, this study examined the range of meanings and interpretations given by participants to the concepts of: 1) health; 2) occupational health; and 3) occupational outcome.

Sample Description
In order to be able to describe the stakeholder groups, demographic information about gender, age, and race were collected, as was information about the length participants were employed at their current job, the number of years they had interacted with the occupational healthcare system, and whether they had themselves experienced an occupational illness. This section commences with a brief description of each stakeholder group. Additional demographic and descriptive information is then presented Table 3.

Stakeholder Group Descriptions

Patients: Participants in the 8 interviews included 6 males and 2 females who ranged in age from 28 to 63. All had diagnoses of occupational disease. Most were Caucasian, with one person of Asiatic and one of Hispanic origin. They all worked for different employers from across Ontario, from small companies with as few as 3 employees to large companies with thousands of employees.

Healthcare Providers (HCP): The healthcare providers that participated in 4 focus groups and 2 individual interviews ranged in age from 27 to 56 years. Eleven were male and 15 were female. Their racial origins included East Indian (3), Asiatic (2), and Hispanic (2) in addition to Caucasian. Providers were geographically located in Southern Ontario in a variety of employment situations including self-employment, contract, group practice, hospital or academic affiliation.
Table 3: Additional Demographics and Descriptors

<table>
<thead>
<tr>
<th>Group</th>
<th>Age in Years Range (Mean± SD)</th>
<th>Years at Current Job (Mean ± SD)</th>
<th>Years of OH Experience* (Mean ± SD)</th>
<th>History of Occup Illness (% yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>28-63 (42 ± 12)</td>
<td>16 ± 13</td>
<td>7 ± 13</td>
<td>8/8 = 100%</td>
</tr>
<tr>
<td>HCP</td>
<td>27-56 (41 ± 9)</td>
<td>5 ± 4</td>
<td>10 ± 7</td>
<td>7/26 = 27 %</td>
</tr>
<tr>
<td>Employers</td>
<td>32-60 (47 ± 8)</td>
<td>7 ± 6</td>
<td>6 ± 7</td>
<td>1/14 = 7%</td>
</tr>
<tr>
<td>Union</td>
<td>26-50 (44 ± 8)</td>
<td>6 ± 5</td>
<td>10 ± 10</td>
<td>2/8 = 25%</td>
</tr>
<tr>
<td>Insurer</td>
<td>30-61 (46 ± 9)</td>
<td>8 ± 7</td>
<td>9 ± 9</td>
<td>2/21 = 10%</td>
</tr>
</tbody>
</table>

* Duration of Involvement with the Occupational Healthcare System

HCP = Health Care Provider

**Employers:** Participants in the 3 focus groups and 3 individual interviews included 14 representatives from 8 different employers from within the province of Ontario. Large and small employers were represented – the number of employees in each company ranged from 9 to 30,000. As well, employers from various industry sectors were represented including automotive, construction, healthcare, municipal, and ‘schedule 2’ (companies involved in federally regulated industries such as telephone, airline, shipping and railway) sectors. There were 6 male and 8 female participants, all Caucasian, ranging in age from 32 to 60.

**Union:** Participants in the 1 focus group and 2 individual interviews representing the union perspective were 3 males and 5 females ranging in age from 26 to 50, all Caucasian except one person of East Indian origin. Groups represented by these participants included 4 unions representing a variety of sectors, as well as a central labour body that represents 700,000 organized Ontario workers.

**Insurer Representatives:** Participants in the 3 focus groups and 2 individual interviews were 6 males and 15 females all of Caucasian origin except one person of East Indian origin. Ages ranged from 32 to 60. Nurse case managers tended to be older, most in their 50’s or 60’ with managers all in their 40’s and adjudicators with proportionately more individuals in their 30’s.
The group with the greatest number of participants affected by occupational disease was the patient group (NB this was an inclusion criteria for this group). Many union representatives had also been affected by occupational disease. More physicians than any other group except patients had themselves experienced an occupational disease. Employers had the fewest years of involvement with the occupational healthcare system.

Confidence in the Data
Several comments regarding confidence in the data are appropriate. The first relates to comparability between the data derived from focus groups and interviews. The number of nodes and the number of references (i.e. distinct topics or themes) coded in NVivo for each group and individual interview was examined. Finding the numbers of nodes and references similar, there is confidence the data obtained from focus groups or interviews was equally informative.

A second comment relates to the homogeneity of views expressed in the various groups. Within a given focus group, there was often consensus overall, with a few exceptions. One of the 3 insurer representative groups included a participant who had strong opinions about the topic of individual acceptance of responsibility. This was balanced out by another of the 3 insurer representative groups in which there was increased breadth of discussion overall. Looking also at stakeholder groups, which comprised multiple focus groups and interviews, some variation in content between the focus groups and interviews comprising a given stakeholder group was expected, the degree of which determined the point of saturation in sampling. However overall, the commentary from participants in a given stakeholder group, irrespective of the particular focus group or interview in which the comments were made, was relatively homogeneous. In other words, most of the focus groups and interviews comprising a given stakeholder group contained a similar range of comments. Two exceptions include occasional differences in the thrust of comments from family practitioners and occupational specialists in the healthcare provider group, and from nurse case managers and adjudicators in the insurer representative group. In the healthcare provider group, some family physicians made more comments suggesting frustration with employers, compared to occupational medicine specialists, who expressed more frustration with the medico-legal system. In the insurer representative
stakeholder group, adjudicators sometimes paid more specific attention to the psychological components of health than did nurse case managers who were more focused on an integrated approach to health and healthcare, of which psychological health was a component. Taken together there is confidence both that the choice to utilize homogeneous groups was sound, and that across-stakeholder differences are real. With a mixed group, overall stakeholder group difference may not have emerged, and some stakeholders may have been at a disadvantage.

Lastly, some stakeholders had ideas about what other groups’ thoughts, attitudes and expectations might be, and they highlighted their own perspectives by placing them in contrast to their thoughts about others. This will not be discussed further, because there was consensus in the main themes.

**Overview**
Recall that in an effort to obtain stakeholders’ ideas about outcomes in occupational health, and the broader framework within which those ideas are situated, stakeholders were asked to discuss their meanings of health in general, occupational health, and occupational outcome. The next sections present and interpret the findings from these discussions in a sequence that parallels the objectives of the thesis. In Part 1, the first objective *Understanding Meaning* is addressed. The range of meanings and interpretations given to the concepts of: 1) health; 2) occupational health; and 3) occupational outcome, when all stakeholders are considered together, are examined. To further illustrate participants’ views about occupational outcome, findings that demonstrate how participants locate occupational outcome in the broader context of occupational healthcare delivery are presented in conjunction with the findings about occupational outcome.

Then in Part 2, the second objective of *Stakeholder Perspectives* is addressed. Stakeholders’ views on health, occupational health, and occupational outcome themes are presented. The focus is on identifying the key dimensions of health and outcome for each stakeholder group and highlighting areas of overlap and divergence among separate stakeholder groups. To further illustrate participants’ views about occupational outcome and they relate occupational outcome
to the broader concept of healthcare quality, findings from the responses to the question about the features of successful occupational healthcare delivery are presented.

The final objective of Framework Generation which entails synthesizing the above new-found understanding of occupational health outcomes with existing health outcome models to develop a framework of occupational outcome that incorporates the views of all key stakeholders, is addressed separately in Chapter 7. There, data will be discussed in terms of its fit with disability-based frameworks of health outcomes like the International Classification of Function (ICF) and with Donabedian’s quality model (1980, 2003) comprising structure, process, and outcome variables.

**OBJECTIVE 1: UNDERSTANDING MEANING**

Overall, 12 key themes emerged to encompass stakeholder views about the concepts of health, occupational health, and occupational outcome (see Table 4). There were a number of themes that arose repeatedly across all 3 discussions of health, occupational health, and occupational outcome. These included physical health, role function, psychological health, acceptance of responsibility, overall health, lifestyle choice, the healthcare system, and the environment. They will be presented first. Other themes were question-specific; they arose in the context of only one or two questions. These question-specific themes included financial stability, which was discussed in relation to health and occupational health, but not occupational outcome; spirituality which was only discussed in the context of general health; and basic needs and workplace health which were unique to the discussion of occupational health. Discussion of question-specific themes follows that of the commonly repeated themes. Findings related to individual themes are then further organized with meta-themes, and differences between the health, occupational health and outcome questions overall are summarized. At this point additional findings that help us to understand how participants situate occupational outcome in the broader context of healthcare delivery are also presented.
Table 4: Themes Identified for Each Question

<table>
<thead>
<tr>
<th>Themes</th>
<th>Questions in Which Each Theme Was Discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health</td>
</tr>
<tr>
<td>Repeated Themes</td>
<td></td>
</tr>
<tr>
<td>1. Physical</td>
<td>x</td>
</tr>
<tr>
<td>2. Role Function</td>
<td>x</td>
</tr>
<tr>
<td>3. Psychological</td>
<td>x</td>
</tr>
<tr>
<td>4. Acceptance of Responsibility</td>
<td>x</td>
</tr>
<tr>
<td>5. Whole-Health Perceptions</td>
<td>x</td>
</tr>
<tr>
<td>6. Lifestyle Choices</td>
<td>x</td>
</tr>
<tr>
<td>7. Healthcare System</td>
<td>x</td>
</tr>
<tr>
<td>8. Environment</td>
<td>x</td>
</tr>
<tr>
<td>Question-Specific Themes</td>
<td></td>
</tr>
<tr>
<td>9. Financial Stability</td>
<td>x</td>
</tr>
<tr>
<td>10. Spiritual</td>
<td></td>
</tr>
<tr>
<td>11. Basic Needs</td>
<td></td>
</tr>
<tr>
<td>12. Workplace Health</td>
<td></td>
</tr>
</tbody>
</table>

The themes that emerged across all questions included physical health, role function, psychological health, general health, lifestyle choice, accepting responsibility, healthcare system, and the environment. Some of these repeated themes were discussed in similar ways across the questions, and for others, participants’ comments varied depending on whether they were talking about general health, occupational health, or occupational outcome. The repeated themes with qualitatively different commentary across the questions are presented first, followed by those which were discussed in a similar manner for all questions.

Repetition Themes with Qualitatively Different Comments Across Questions

Physical Health

Physical health was a theme common to all 3 questions asking about health, occupational health, and occupational outcome. It was discussed with the greatest breadth in the context of general
health. When discussing general health and occupational health, participants consistently talked about physical health in a variety of ways including: 1) the absence of disease or pathology, 2) function, and 3) pain control, with 4) physical well-being being an additional feature discussed related to general health that was not mentioned for occupational health.

In terms of general health, physical health was most often conceptualized as an absence of disease or pathology as illustrated by the following quotes:

I guess the absence of physical maladies, skin irritations with me personally, skin irritations joint pains, stiffening muscles [Pt007].

The definition that comes to mind is the freedom of injury or disease [Employer J9].

By comparison, when discussing occupational health, the physical dimension was most often described in terms of function.

I think workers are people and I think, in my opinion anyway the health of, you know the idea of health of a worker would be the same idea, you know, functioning at one level capacity [Insurer NCM FG.25N04].

I think that when you talk about the health of worker that you think about somebody with intact structure and function [HCP FG Specialist.20J05].

Physical health was also discussed in terms of measuring occupational outcome. In this context, participants discussed physical health in terms of the degree of physical recovery from a condition that would represent an ideal outcome, as opposed to a dichotomy of presence or absence of a condition, as it was discussed for general health. For example, in terms of pathology, participants not only considered complete absence of pathology, but also partial recovery enabling a person to function, to be an acceptable outcome. As well, there was more detailed segregation of the pain sub-dimension such that freedom from pain was differentiated
from controlled pain. Finally, in this context, the absence of recurrence was also considered an ideal outcome.

And then when it comes to restoring that’s jumping ahead a little bit but I don’t think you necessarily are going to restore somebody to total wellness again to totally where they were before their illness happened you know it might be a percentage of where they were before but you know they were told a while ago they were 100% but they might be as well as they’re even going to be considering what they’ve done [HCP FG.22Jun05].

Well it is about control. Sometimes the symptoms do not go away. It is better to be control with you know, wonderful cream or something like that. And getting back to you know, close to normalcy before [Insurer Mgr FG.21Sept05].

Thus, for these stakeholders, physical health was primarily thought of in terms of the complete absence of pathology and total regaining of function overall, however it was discussed differently for general health, occupational health, and occupational outcome, being conceptualized in terms of the absence of disease or pathology, function, or degree of physical recovery respectively.

**Role Function**

The ability to function in various roles was another theme mentioned across the discussions of general health, occupational health and occupational outcome, and was a particularly prominent feature of the discussion about occupational health and occupational outcome. Overall, the specific roles mentioned included: (1) home, family role (2) work role, (3) social role, (4) recreational roles, and (5) role in the community, although the latter was not included in the occupational outcome context.

Of the 5 roles that emerged through various discussions, the family and work roles were most often discussed, and the juxtaposition between the work and the family roles in particular was emphasized in discussions of general health and occupational health. Participants discussed the idea of role function differently in general health than they did for occupational health. For
general health, they said it was important to be able to *fulfill multiple roles*. In other words, to be healthy one should be engaged in a variety of roles, which represents a positive contributor to health.

To function well in both your professional and personal life [Family MD.26J].

By comparison, in relation to occupational health, roles were discussed in terms of *balance*. Prioritization of roles was also discussed. To these stakeholders, being well requires a balance of different important roles. Being unwell can result in not all roles being maintained or engaged in to participants’ satisfaction.

I think there is an unbalance too, with workers who spend much more time at work than in their family life [Insurer NCM FG.25N04].

But I think that you have to recognize that the person who is at a workplace also has a life outside and so being able to function outside of that place is also, it is also important in terms of their definition of what health is [Family MD.26J06].

…the whole person doesn’t just mean that one person; it means the person in the family [Insurer NCM FG.25N].

In the general and occupational health questions, the work role was discussed in terms of its contribution to identity, the importance of maintaining the ability to work over time, and in terms of an individual’s ability to meet the demands of one’s job.

…Yes, but sometimes getting back to work is part of the process to become healthier (Family MD.26J)

…when you think about how important and how substantial and core work is to an individuals identity its shocking when you really stop and think about that and think about how little as healthcare professionals we pay attention to their, to the work that
they do. When you meet someone socially the first thing you often ask them is what do
you do for a living and if you’ve got someone who is unhealthy and their work life is
disruptive they have a very, very hard time dealing with that answer and so it’s really
truly shocking when you think just about how essential and core it is but we just don’t
pay attention to it [HCP interview.20J].

Well good health means being on the job as much as possible and not losing any time for
accidents and safety problems [WP Emp Small.23A05].

Health defined by health for the worker I see as being a) to be able to reach the demands
of their job but also to not secondarily b) to not sustain any physical or emotional
damage from that job such that they can continue over a career. So, to be able to do the
job - but also not to be ill-affected by the job [HCP FG Specialist.20J05].

In the context of occupational outcome, roles were generally discussed in terms of participation
restriction, rather than balance, or the need to fulfill multiple roles, as they were for the other
questions.

I guess social activities too. They want to be able to go to their son’s baseball game and
be able to sit on that hard bench and not come and be in bed for the next two days
because they did it [Union intE.26Sept05].

There were responsibilities that I needed, there were entertaining things, social things
that I would have liked to have done that I could not do [Pt007.01Jun05].

Like, I’ve got two young children, you know, I can’t even change their diapers. I can’t,
they’re in daycare today because I can’t look after them [Pt002.29Nov04].

It was when discussing occupational outcome that the work role in specific was elaborated upon
in the most detail. Ideas often related to return-to-work capacity. In general, stakeholders
differentiated work role outcomes in terms of an individual’s capacity to return to one of three
types of work duty: 1) return to one’s own job or to full duties, 2) return to any job or restricted / accommodated duties, or 3) return to a meaningful job that is equivalent to, but different from the original own job.

Overall, social, community, and recreation roles were discussed in less detail and were not elaborated upon. However, there was some emphasis on the idea that people should be able to continue participating in the roles typical for them.

…and the other big thing that we talked about the need to consider is culture and I think that in many ways that’s social, in some ways. So from my perspective I think that’s pretty much [Insurer NCM FG.25N].

Being able to do any normal tasks that anyone else could, like being able to be involved with your community [Pt002].

…the time that you can devote to the community and volunteer work that you can do [Insurer Adj FG.2D]

I look at it from a more active perspective. You are following the activities you’ve grown up to, accustomed to, well from a personal standpoint - recreational sporting activities [Insurer Mgr FG.21S05].

Thus, like physical health, role function was discussed in a qualitatively different way between the contexts of general health, occupational health and occupational outcome, reflecting the ability to fulfill multiple roles; role balance; and participation restriction respectively. As well, the work role specifically was discussed in terms of its contribution to identity, the importance of maintaining the ability to work over time, and in terms of an individual’s ability to meet the demands of one’s job in general and occupational health contexts, but for occupational outcome was conceived in terms of return-to-work capacity.
Psychological Health

This theme was discussed in less depth than the preceding themes, but nonetheless the psychological health theme was discussed across all questions, and was discussed with greatest complexity in the context of general health, where it was characterized in 4 ways: (1) positive perceptions or attitude, (2) coping, (3) cognitive/intellectual function, and (4) emotional, mental health. Thus psychological factors were discussed not only as a component of health, but as well, psychological perceptions/cognitions (e.g. positive attitude and coping) were discussed as a mechanism that facilitates or determines good health and recovery.

I think it also goes to your mental state of health and lack of, even though you may have issues with other health if your mental state of health is good too [WP Emp FG.9J05].

What does it mean to be healthy? Emotional stability is possible [Emp Small int.27S05].

Well I’m sort of saying the same thing but I see health as sort of coming from within the person’s perception and just like Cynthia has said, you know, you could be severely disabled and but yet see yourself as being quite healthy because you know, you feel well, you might be able to cope physically, and spiritually and socially and psychologically and so you would see yourself as being healthy. Whereas some other people with far less disability would see themselves as being quite unhealthy [Insurer NCM FG.25Nov04].

I believe that it, that health also has a lot to do with our mental outlook, attitude. There are countless examples that we see every day where we have two people with that exact same diseases but slightly different circumstances and one might be way worse off in terms of the medical health but a positive outlook makes a huge difference in their quality of life and perhaps, perhaps in their longevity also I don’t know [Insurer Adj int#2.7Apr05].

In the context of occupational health and occupational outcome, participants discussed psychological factors as they had for general health, including it as a component of health and a
mechanism facilitating good health or recovery. However in these contexts they also discussed it as a *cause* or as a *consequence* of having an occupational illness or injury.

Such as, unfortunately many people are unhappy in their circumstances and, you know, that leads to a lot of stress in that we would be open to more injuries, you know, not, not sort of concentrating, that’s when you’re working on a line and, you know, you could have a crush injury, something like that and in dealing with the stresses of getting things done, you know, piece meal, you know we deal with you do 500 pieces, you know, an hour. I think that really affects the health of workers when driving productivity [Insurer NCM FG.25Nov04].

And mental and again mental health, you know, well being. But we have a lot of workers who develop psychological conditions after their workplace injuries [Union int.26S05].

I think a lot of emphasis is placed on what she is saying the emotional aspect of sustaining the injury at work and also that the impact on your coworkers. A perfect example is sports stars like a person who gets a serious injury, sustains a serious injury in sports, physically the base doctor states this guy is perfectly fit to go back on the field but yet he cannot perform the way he performed before and it’s all emotional. The same sort of thing once you’ve been taken out of your comfort zone its tough to go back and you must basically sit the test of time. When a person is better come back, do your job for six months, and ask how are things going at work and so on [HCP FG.22Jun05].

Overall, the characterization of psychological health as a variable indicated that psychological factors were considered in several ways – as **independent components** of health or outcome, as **facilitators** of good health (e.g. positive attitude, coping), as **causes** of other illnesses or injuries, or as **consequences** of having an occupational health problem, and this varied with the context, such that psychological health as a cause or consequence was discussed only for occupational health and outcome. This finding suggests that the same variable may play more than one role in a model, an idea that will be elaborated upon later in the thesis.
Acceptance of Responsibility

Although accepting responsibility was discussed across all questions, it was not a key topic in terms of amount of time stakeholders devoted to it. The meaning of this theme shifted as the discussion changed from health to outcome. For example, in the general and occupational health discussions, the comments focused on taking control and responsibility for one’s health, such as:

For me it is always keeping up-to-date on what is, what, what things are available to you. Like I knew what was available to my mother because of who I work with. So I was able to access doctors and other nurses and you know we talked about my mother’s care and you know, so I was always up on the latest test, whatever. Most people, you know, the common public would not know to ask for a VQ scan or you know what I mean [Union int.26S05].

…really it’s the ability to take full responsibility for health. So what you’re saying some of the frustrations are around the absence of that in a sense [Insurer Adj FG.2D04].

So I guess employees are workers that have to understand, you know, their own health and what they can do in terms of maintaining and improving their health and restoring it I guess [Insurer Adj int2.7A05].

There is also the personal perspective involved. They get a worker sometimes who believes that their health has been compromised by the workplace and they may not have taken responsibility in terms of their own personal lifestyle so the distinction between the workers’ health from a workplace perspective as opposed to their personal life perspective in our area you get a lot of terminal or life threatening illnesses, cancers, and in a lot of instances the workers attribute their illnesses to the workplace and they attribute their cancer, possibly lung cancer to a workplace exposure that following investigation and extensive of humans from occupational hygienists and from doctors we will have found that the person would have had significant smoking history and the distinction between the worker just being sick or not healthy and then attributing that
condition to the workplace. It’s as if they absolve themselves of all responsibility and just attribute it to the workplace. Regardless of what their personal lifestyle is. You find that in a lot of cases for lung cancers and for COPD due to the personal lifestyles [Insurer Adj FG.2D04].

In the context of occupational outcome, the content of this theme changed to reflect coping strategies, like acceptance of limitations, positive framing, and managing difficulties.

So maybe the measure of whether it has worked, it’s, it’s sort of there to go back to. What’s, what’s healthy in the environment. Like it is, a worker who can face the challenges of their workplace and not feel that their tank is complete depleted every time that they go to work. So it might not be nirvana, but it might not be dying to get up in the morning to go to work, but they can actually find something positive and they can cope with the demands. And not feel like it is just eating away at them. I think that that would be a measure of fairly successful intervention [HCP FG Family MD.26J06].

And I think that to be better to be totally better you have to have accepted what you have now so you have to have found a way to live with it so that just doesn’t mean going back to work and being put wherever you are. It’s a lot more involved [WP Union FG.20J05].

Some conditions do not get better, I mean, I guess. Well you are not going to get better; you are just going to get worse. I think that there might be ways to help you cope with what you have [Insurer Mgr FG.21S05].

Thus, accepting responsibility was seen either as a way to take control and responsibility for one’s health, or as a coping strategy, depending on the context.

One of the advantages of using a qualitative method is that examination of data goes beyond the identification of emergent themes, to distinguish qualitative differences in content of quotes within a single theme. The findings of this study indicate that multiple themes emerged in which the nature of participants’ comments varied depending on whether the participants were
discussing it in the context of general health, occupational health, or occupational outcome. This was the case for comments about physical health, role function, psychological health, acceptance of responsibility, and financial stability (discussed under the question-specific themes), which are summarized in Table 5.

Table 5: Variation in Qualitative Nature of Comments on Themes Across Questions

<table>
<thead>
<tr>
<th>Themes</th>
<th>General Health</th>
<th>Occupational Health</th>
<th>Occupational Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Health</td>
<td>Absence of disease</td>
<td>Function</td>
<td>Degree of recovery</td>
</tr>
<tr>
<td>Role Function</td>
<td>Ability to fulfill</td>
<td>Role balance</td>
<td>Participation restriction</td>
</tr>
<tr>
<td></td>
<td>multiple roles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Role</td>
<td>Contribution to identity</td>
<td></td>
<td>Work capacity</td>
</tr>
<tr>
<td></td>
<td>Maintaining the ability to work over time</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Ability to meet the demands of one’s job</td>
<td></td>
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<tr>
<td>Psychological Health</td>
<td>Independent component</td>
<td></td>
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<tr>
<td></td>
<td>Facilitator of good health and recovery</td>
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<tr>
<td></td>
<td>Cause of illness, injury</td>
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<tr>
<td></td>
<td>Consequence of illness, injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceptance of Responsibility</td>
<td>Taking responsibility for one’s health</td>
<td></td>
<td>Coping strategy</td>
</tr>
<tr>
<td>Financial Stability</td>
<td>Facilitator of good health and recovery</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Consequence of illness, injury</td>
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</tbody>
</table>

The remaining themes that were repeated across question contexts were discussed in a qualitatively similar manner, and are presented next.

**Repeated Themes With Qualitatively Similar Comments Across Questions**

**Whole Health Perceptions**

Across all contexts, the discussion about whole-health was uniform, and consistently included comments about a holistic nature of health, about balance, and about quality of life.
The first thing that comes to mind is the feeling of well, being well and I look at the holistic approach to this. The mind, the body, the spirit, they all have to have operate “in sync”. That’s my perception of being healthy is trying to keep everything in line [Insurer Adj FG.2D04].

[When] the customer elected to recommend a bonus, a lot of employees came back at the cycle: “I don’t need that money, I don’t want that money. I want the time off. I want my half lunch back. Shorten my day by that half hour”. They want the time. So they are looking for the work-life balance rather then money. They are not in to it [WP Emp FG.21J05].

I guess if were some other disease, it is the quality of life [Pt006].

**Lifestyle Choices**

Lifestyle choice was another theme that came up in response to all 3 questions. Comments about lifestyle choices consistently described the individual behaviours related to health or the impact of lifestyle choices on health.

Eating a well balanced diet, getting a lot of sleep, not drinking too much Chardonnay, exercise [Insurer Mgr FG.21S05].

Food, oh I don’t know. Apart from nutrition I guess, exercise [Pt006].

**The Healthcare System**

Comments about the healthcare system arose in all discussions and described the idea that access to, and use of health services plays a role in health and occupational health, and is a measurable outcome.

Well, I guess not having to live with any medications or follow-ups, doctor’s appointments [Pt002].
You did not have to run to the doctor as much. As often [Pt006]

I think something else that is involved in health is the access, the issue of access to care, when some part of that health picture isn’t present [Insurer NCM FG.25N04]

Bring a note to work saying you are fine. Employers have been doing that forever. Bring a note to work saying you were sick but you’re okay now [HCP FG HCHSA.22J05]

Because when they are coming in every day and they are not, they are not needing time off to go to the doctor anymore [Union intE.26S05]

The Environment

Overall there were comparatively few comments on this theme, but they did occur across all discussions. The comments were consistently related to the safety and cleanliness of the physical environment, both at work and in the community at large.

…having good indoor air quality [WP Emp Small.23A05].

Pollution in Sudbury here [Pt006].

And also there may be an environmental issue. People who live in Chemical Valley may be subject to a lot more carcinogens than people in farm or rural area and that’s not taking into consideration either. We take into the personal lifestyle in consideration and the work related consideration but there is also environmental. The air and the water and we have no way of judging how significant that is [Insurer Adj FG.2D04].

…one good way of knowing that they are better is that they are back at work and the work has been accommodated or the environment has been cleaned up [Union FG.20J05].
**Question-Specific Themes**

**Financial Stability**

Financial stability was a theme mentioned in the general health and occupational health discussions. It was not mentioned in discussions of occupational outcome. Similar to the way the psychological health variable was discussed as either a *facilitator of good health* or a *consequence* of an occupational illness, financial stability was also talked about in these ways. Some of the comments suggest that being able to work contributes to good health or a sense of health and well-being.

…and I would also include things like economic wellbeing. I think that is key criteria [HCP FG SM.12Jan05]

I don’t think health limits is something you should link strictly to your body. I think that when you start speaking about health you can use the financial aspect of your life [Insurer Adj FG.2D04].

Other comments focus on the consequences of work-health problems for people’s finances.

But then again, the financial implications impinge on the, on the family situation and you find that victims that are injured is they’re looking for, the family is looking for not only cause but also a strong support. Once the employee is no longer healthy or no longer able to support as he would, he or she would as a healthy worker, so someone has to replace that source of income and we’re a very likely source [Insurer Adj FG.2D04]

*Speaker:* …You know the last five years I have seen prior to [comment unintelligible], the economy and various things that have happen in the country, recessions, people losing houses marriage breakdowns.

*2nd Speaker:* The worry of security for a job. Job security [WP Emp FG.21J05].
Spiritual Health

Spirituality as a component of health was only discussed in terms of general health.

…even spiritual wellbeing and that’s much harder to achieve and if you can achieve that that’s wonderful but it’s almost like an unattainable goal [HCP FG Spec.20J05].

Basic Needs

Several themes emerged that were unique to the occupational health context, including basic needs and workplace health. Unlike the discussion of general health where basic needs did not arise as a theme, in the discussion of occupational health, several stakeholder groups commented on the importance of having basic needs be met.

…shelter, um, sanitation for infection control, same thing, communication and medical care and time to do all those things [WP Emp Small int.27S05].

…Even to provide the basics of food, shelter, clothing [Insurer Adj int1.7A05].

This was not a key theme based on the small number of comments, unlike workplace health which represented the majority of the discussion for all stakeholders in the discussion of occupational health.

Workplace Health

Workplace health itself was described in a multi-dimensional manner. Eight sub-dimensions emerged to encompass participants’ ideas about workplace health and included: (1) safe/controlled (2) clean, (3) the nature of the work (e.g., reasonable job demands), (4) the availability of programmes (e.g., accommodation or modified work programmes, fitness and wellness programmes), (5) provision or availability of information, education, or training, (6) positive workplace interpersonal relations, (7) a supportive, nurturing, positive environment or culture, and (8) freedom from stress. Of these 8 dimensions overall, workplace health was primarily conceived in terms of safety, education, and a positive workplace culture.
The environment that they work in, for instance, what kinds of, what kind of things are they exposed to, uh, from a toxic level, what kind of ergonomic things are exposed to [Emp FG HC.21S05].

For me in my dealings with the workers that I speak to, really I think what influences their health in the workplace is their knowledge of the awareness of the hazards in the workplace so not necessarily to their level of education but what is the education and training being provided to them by the employer. That is one thing [HCP FG SM.12J05].

In my opinion I think that the companies that you’re work inside they should be provide the whole information about um what you going to do, what are things you are going to handle. The main thing when you see something is not coming right you gotta speak out about the things the company can provide to better health protection for the workers in this case [Pt001].

And also working for, being able to work for somebody that has knowledge and that you respect and that treats people with respect and dignity. If you don’t have that you…it is a bit of a waste [Insurer Mgr FG.21S05].

In order to help organize participants’ ideas about workplace health, the 8 sub-dimensions of workplace health that emerged were grouped together depending whether the dimension described either environmental or personal characteristics of the workplace. Environmental characteristics included: (1) safe/controlled (2) clean, (3) the nature of the work (e.g., reasonable job demands), (4) the availability of programmes (e.g., accommodation or modified work programmes, fitness and wellness programmes). Personal characteristics included: (5) provision or availability of information, education, or training, (6) positive workplace interpersonal relations, (7) a supportive, nurturing, positive environment or culture, and (8) freedom from stress. Given that workplace health was primarily conceived in terms of safety, education, and a positive workplace culture, for these participants, personal characteristics of the workplace were more prominent than environmental characteristics in determining workplace health.
In sum, the findings indicate that participants’ comments about the topics of general health, occupational health, and occupational outcome were encapsulated within 12 key themes, some of which were present across all questions, and some of which are unique to specific questions. Of those that were present across questions, only some were conceived similarly across questions, others were qualitatively different.

Knowing the variables that emerged, broader meta-themes were considered to help organize this information into meaningful groups. Some of the themes addressed variables that are often associated with the concept of health status in quantitative research. These include physical health, role function, psychological health, and whole health perceptions. The remaining emergent variables are more closely associated with factors outside the health system that can affect health, and so might be considered determinants of health. These could themselves be subdivided further into variables that reflect a) individual behaviours, b) the physical environment, c) the socio-economic environment, as well as d) health system performance. The way in which the emergent variables from this study fall into these broader meta-themes is presented in Table 6.

Overall, all the themes that fit under the health status meta-theme (e.g. physical health, role function etc.) were commented upon for all three questions. As well, across questions, individual behaviours, and health system performance as determinants of health were commented upon for all three questions. Key differences emerged between the questions when the remaining determinants of health are considered. For general health, the social and economic environment as a determinant of health was also important, although all categories of health determinants arose in discussions of general health. By comparison, there was a much greater emphasis on the physical environment as a determinant of occupational health. This was the result of a considerable amount of discussion on the part of all stakeholder groups about “workplace health” as a dimension of occupational health. For occupational outcome, fewer themes were discussed overall. Of these, the majority of the conversation related to the health status themes physical recovery and role function. The social and economic environmental determinants were not mentioned in the occupational outcome context.
Table 6: Themes Re-Organized by Meta-Theme Across Questions

<table>
<thead>
<tr>
<th>Themes</th>
<th>Health Status</th>
<th>Determinants of Health</th>
<th>Social and Economic Environment</th>
<th>Health Services – Health System Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Status</td>
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<td></td>
<td></td>
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<tr>
<td>Physical</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Role Function</td>
<td>x</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>Psychological</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td>Whole-Health Perceptions</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td><strong>Determinants of Health</strong></td>
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<tr>
<td>Individual Behaviours</td>
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<tr>
<td>Lifestyle Choices</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Acceptance of Responsibility</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td><strong>Physical Environment – Living and Working Conditions</strong></td>
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<td></td>
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<tr>
<td>Basic Needs</td>
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<td>x</td>
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<tr>
<td>Environment</td>
<td>x</td>
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<tr>
<td>Workplace Health</td>
<td>x</td>
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<tr>
<td><strong>Social and Economic Environment</strong></td>
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<tr>
<td>Financial Stability</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Spiritual Health</td>
<td>x</td>
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<tr>
<td><strong>Health Services – Health System Performance</strong></td>
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<tr>
<td>Healthcare System</td>
<td>x</td>
<td>x</td>
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</tbody>
</table>

**Understanding Occupational Outcome as a Component of Quality**

Recall that a question was included that asked stakeholders to discuss what represented measures of success for occupational healthcare delivery. The reason for this was to determine whether stakeholders differentiated between health outcomes from other dimensions of quality of the healthcare system or service delivery (e.g. structure, process). Findings indicate that participants in this study adopted a substantially broader perspective when talking about the
occupational healthcare system, as compared to occupational health or outcome specifically, and did identify some factors that they considered to be features of quality of the healthcare system, rather than occupational outcome per se. When discussing the relationship between outcome and quality, occupational outcome was specifically conceptualized with descriptors of the health condition including the rate of occurrence, type and severity of the condition, and recurrence rate. Thus outcome reflected only one dimension of quality for occupational health care delivery for these stakeholders. Although occupational outcome is an important feature of quality occupational healthcare, it is not the only one.

Most of the discussion about successful occupational healthcare delivery focused factors which participants did not consider as components of health outcome, but rather features of quality. These additional factors could be summarized according to the following themes: 1) employment factors, 2) employee factors, 3) employer factors, 4) healthcare provider factors, 5) health care system factors, 6) insurer factors, and 7) cost. Interestingly, past literature has grouped these types of variables into the “outcome” category, perhaps incorrectly. In fact, most of these factors relate to the actions of system participants, and so suggests the emergence of a new ‘System Participant’ type of variable. Because the focus of this thesis is on understanding outcome specifically, rather than quality factors, these factors will only be expanded upon very briefly.

The types of issues that arose during discussion of employment factors included job status, lost time, and return to work factors.

…and that would be one of the measurables, in how much time would they take to return to work, how much time did it take them to return to regular work in cases of accommodation - a measure I would look for [Emp FG.9Jun05].

Participants discussed productivity, awareness, employee health, employee perceptions about such issues as morale, as well as lag times in reporting as employee factors worth measuring to determine the effectiveness or quality of occupational healthcare delivery.
Productivity is one that they’re always measured on. So what we need to think about is how is that productivity measured and does it make sense [HCP int.20Jan05].

Participants commented on both proactive and reactive management strategies as employer factors.

The other thing you can look at is whether any preventive strategies are in place as well, rather than looking at the outcomes. That ought to be more difficult to measure but to look at potential preventive strategies and see if they’re in place or they need to be in place [HCP FG Spec.20Jan05].

The healthcare provider factors theme included comments on healthcare provider education, provider satisfaction and healthcare delivery.

Well if you could go to the proper people, and your family physician would send you to the proper people to get the proper attention [Pt 006.05May05].

Healthcare system factors were described in terms of access and timeliness, and effective communication and collaboration.

So access to the right kind of specialist [HCP FG Spec.20Jan05].

Um, I would say communication is a big part [Pt 004.01Dec04].

Insurer factors included factors such as the number of claims and referrals to the labour market re-entry (LMR) programme.

Well as you said about LMR many times when we think we restore, on paper we’ve restored their earnings, we’ve restored their financial, equivalent to what they were making before but they don’t feel secure in the job that they do and they’re very happy they didn’t obtain a job but we consider them restored on paper [Insurer Adj FG.2Dec04].
Lastly, participants spoke about *cost* as a component of an effective occupational health care system.

You could also look at health care costs although that alone wouldn’t really provide a clear picture [HCP FG Spec.20Jan05].

When you say cost, what are the OHIP costs associated with someone goes and sees six different doctors on their journey of occupational health or injury on that quest what’s actually been billed against OHIP for injury to a patient, the average cost of handling an occupational health claim. It could even be another method we could look at [Emp FG.9Jun05].

Clearly, when the discussion is expanded to include concepts akin to healthcare quality, as opposed to focusing specifically on occupational outcome, participants’ comments include a much broader range of themes, expanding to include topics not previously discussed in any of the preceding conversations on general health, occupational health, and occupational outcome. Also of importance is another finding: these stakeholders do not spontaneously situate outcomes among structure or process variables. Rather, from their discussion, dimensions emerged that seem to relate best to the healthcare system and its participants. This helps to identify occupational outcome as one component in the broader complex picture of quality in occupational healthcare and to identify the types of variables included in that context.

**OBJECTIVE 2: STAKEHOLDER PERSPECTIVES**

Up to this point, discussion has focused on understanding participants’ combined interpretations of the meanings given to general health, occupational health, and occupational outcome themes. This next section presents the findings that relate to the second objective of the thesis - understanding the opinions of the various stakeholders, and identifying areas of overlap and divergence among them. Because some themes had limited commentary overall, stakeholder similarities and differences were more easily identified for some themes than for others. A summary of the themes for which each stakeholder group made comments for each of the three
questions (i.e. health, occupational health, and occupational outcome) is presented in Table 7. This table contains a lot of information which will be elaborated in the following manner.

First, stakeholders’ comments for the individual themes are highlighted. In Table 7, this corresponds to examining each row individually for stakeholder similarities or differences, for the 3 questions. Second taking all themes together, similarities and differences in the way stakeholders conceptualize the concepts of general health, occupational health, and occupational outcome are examined, which in Table 7 equates to an examination of columns. Also included is a discussion of how the various stakeholders situate occupational outcome in the context of other variables related to healthcare quality, as well as a discussion of which stakeholder groups were of the closest and most disparate opinions for each question context (i.e. alignment). Then finally, each stakeholder group is considered individually, and the dominant theme that emerged for each group is identified.

**Stakeholders’ Comments About Individual Themes**
In the previous section on Understanding Meaning, the themes that participants used to express their ideas about health, occupational health, and occupational outcome were discussed. However, not all stakeholders talked about each theme in the same way. This section will highlight the different ways stakeholders commented upon individual themes. For most of the themes, stakeholder differences did emerge, with the exception of the workplace health theme for which there was the most agreement amongst stakeholders. Thus, the theme with consensus will be discussed first, followed by themes in which stakeholder differences emerged.
Table 7: Themes on which Stakeholders Commented for All Questions

<table>
<thead>
<tr>
<th>Question Context •</th>
<th>Stakeholder Groups that Discussed Theme</th>
<th>General Health</th>
<th>Occupational Health</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Themes •</td>
<td></td>
<td>H  P  U  E  I</td>
<td>H  P  U  E  I</td>
<td>H  P  U  E  I</td>
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### Health Status

<table>
<thead>
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<th>H  P  U  E  I</th>
<th>H  P  U  E  I</th>
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<tr>
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<td>x x x x x x</td>
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<tr>
<td>Role Function</td>
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<td>x x x x x x</td>
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<td>Psychological</td>
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<td>Whole Health</td>
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### Determinants of Health

#### Individual Behaviours

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<tr>
<th>Themes</th>
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<th>H  P  U  E  I</th>
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<tbody>
<tr>
<td>Lifestyle Choices</td>
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<td>Accept Responsibility</td>
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#### Physical Environment – Living and Working Conditions

<table>
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<tr>
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<th>H  P  U  E  I</th>
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</thead>
<tbody>
<tr>
<td>Basic Needs</td>
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<tr>
<td>Environment</td>
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<tr>
<td>Workplace Health</td>
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#### Social and Economic Environment

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<tr>
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<th>H  P  U  E  I</th>
<th>H  P  U  E  I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Stability</td>
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<td>x x x x x x</td>
<td>x x x</td>
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<tr>
<td>Spiritual</td>
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</table>

#### Health Services – Health System Performance

<table>
<thead>
<tr>
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<th>H  P  U  E  I</th>
<th>H  P  U  E  I</th>
<th>H  P  U  E  I</th>
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</thead>
<tbody>
<tr>
<td>Healthcare System</td>
<td>x x x</td>
<td>x x x x x x</td>
<td>x x x x x</td>
</tr>
</tbody>
</table>

H= Healthcare Provider, P=Patient, U=Union, E=Employer, I=Insurer

**Stakeholder Consensus on Individual Themes**

**Workplace Health**

Although the workplace health theme did not arise in either discussions of general health or occupational outcome, all of the stakeholder groups identified workplace health as a key
component of occupational health. As previously noted, a healthy workplace itself was described in a multi-dimensional manner, and to organize this information, the dimensions were further classified as either environmental or personal characteristics. Table 8 presents a summary of which dimensions of a healthy workplace each stakeholder commented upon.

Table 8: Dimensions of a Healthy Workplace

<table>
<thead>
<tr>
<th>Aspects of a Healthy Workplace</th>
<th>Stakeholder Groups that Discussed Topic (x)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HCP</td>
</tr>
<tr>
<td>Environmental Characteristics</td>
<td></td>
</tr>
<tr>
<td>1. Safe, controlled</td>
<td>x</td>
</tr>
<tr>
<td>2. Clean</td>
<td></td>
</tr>
<tr>
<td>3. Nature of Work</td>
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<tr>
<td>4. Provision of Programmes</td>
<td>x</td>
</tr>
<tr>
<td>Personal Characteristics</td>
<td></td>
</tr>
<tr>
<td>5. Education / training</td>
<td>x</td>
</tr>
<tr>
<td>6. Positive Interpersonal Relations</td>
<td></td>
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<tr>
<td>7. Positive Culture</td>
<td>x</td>
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<tr>
<td>8. Freedom from Stress</td>
<td></td>
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</tbody>
</table>

HCP = Healthcare Provider

As previously noted, the most important features of healthy workplace included safety, education, and a positive workplace culture, by virtue of the fact that all stakeholders agree that these are key features. Nonetheless, some stakeholders commented more strongly or in greater detail about one of the features. Although all stakeholders agreed that the most important feature of a healthy workplace is a safe and controlled environment, most of the comments came from the patients.

Being able to do your job before having to deal with consequences and exposure to various chemicals, to heat or to cold and also to feel healthy, I guess, an employee needs
to know that everything is done to ensure that, like, every measures are taken for this person to remain healthy, I guess [Pt005].

Provision of education and training was another aspect defining a healthy workplace mentioned by all stakeholders, but most often by insurer representatives.

    Fully trained-no risk to self or others [Insurer Adj int#3.7Apr05].

Finally having a positive culture was an often-discussed topic amongst all stakeholder groups, particularly among healthcare providers.

    I think you have to feel that an organization that cares about their health [HCP FG Spec.20J05]

When considering the broader environmental and personal characteristics, insurer representatives had the broadest views and commented equally on environmental and personal characteristics. Healthcare providers, employer representatives, and unions tended to focus more on the personal characteristics, whereas patients tended to focus more on the environmental characteristics when describing a healthy workplace.

**Individual Themes in Which Stakeholder Differences Emerged**

**Physical Health**

When considering the commentary from individual stakeholder groups on the physical health theme, healthcare providers and insurer representatives spoke with the greatest breadth when discussing general health and occupational health, whereas union representatives spoke with the least breadth about this theme.

When discussing occupational outcome, for the physical health theme, patients’ comments focused on pathology, healthcare providers focused on function, and union, workplace and insurer representatives spoke in similar ways about both the absence of pathology and about
function. When healthcare providers focused on function, this included partial restoration of function when discussing occupational outcomes:

…I don’t think you necessarily are going to restore somebody to total wellness again to totally where they were before their illness happened you know it might be a percentage of where they were before but you know they were told a while ago they were 100% but they might be as well as they’re even going to be considering what they’ve done [HCHSA FG.22Jun05].

After a period of illness they may have a different baseline so their, their capability, pre-illness maybe different from their capabilities post-illness so their degree of happiness or healthiness total different, have a different [HCP FG FamMD.26J06].

Patients however, tended to focus primarily on the complete absence of pathology, as opposed to partial restoration of function, controlling pain, or learning to live with chronic symptoms.

…When they’re cleared up or whenever they’re ailment is cleared up [Pt004].

*Patient:* I think, one of the things I looking for in this kind of program is to get my health back. That is one of the things I want to know. (Okay) I want to hear from the doctors. I know it’s hard to find out what I have [Pt001].

*Interviewer:* So when you say get your health back what does that mean? …you want to get back to what?

*Patient:* To be like uh - normal [Pt001].

Pain as a physical sub-dimension was discussed less frequently across all 3 questions, and not mentioned by patients in the context of occupational outcome. Healthcare providers commented on both pain resolution and pain control, compared to employer representatives who only discussed pain in terms of control, and insurer representatives who discuss freedom from pain. Freedom from recurrence of the condition was a physical outcome sub-dimension only mentioned by employers.
Thus, pain resolution and physical recovery appear to be two separate and key components of the physical health dimension of occupational outcome. Healthcare providers and patients had the most divergent views about physical recovery. Employers and insurers had the most divergent views about pain resolution.

**Role Function**

Overall, it was the patients who spoke most about role function. Patients also had the broadest view of role function when discussing general health issues. When talking about occupational health, it was insurer representatives had the broadest view of role function, and patients tended to focus only on home and recreational roles. Healthcare providers, employer representatives, and union representatives had more intermediate views about the breadth of role function across all discussions. Healthcare providers, however, made the most detailed comments about the value of the work role for general health, but also noted that despite the value, it is not sufficiently addressed by providers.

Absolutely, when you think about how important and how substantial and core work is to an individual’s identity it’s shocking when you really stop and think about that and think about how little as health care professionals we pay attention to their, to the work that they do. When you meet someone socially the first thing you often ask them is what do you do for a living and if you’ve got someone who is unhealthy and their work life is disruptive they have a very, very hard time dealing with that answer and so it’s really, truly shocking when you think just about how essential and core it is but we just don’t pay attention to it [HCP int.20Jan05].

Able to respond in positive fashion to the various demands that are put upon us by work, family, recreation. Can I say work again? [HCP FG.22Jun05].

When specifically discussing occupational outcome, patients were the only stakeholder group to emphasize all the different types of roles. This is in contrast to employer and insurer representatives’ discussions, which were entirely focused on the work role.
But to be honest very few patients will come right out and say, well I’m all better. Even if they say “Well, I’m about 80-85% better” because as long as that issue is that its their perception is that if they come clean with us that that it their file is closed and people have to leave a little bit of an opening in case something were to happen in the future and I think that’s where you get discrepancies. I would like to measure it by their own perception but unfortunately I think we have to use other tangible measurements such as return to work, and you know closure accompanied you [Insurer NCM FG.25N04].

Healthcare providers and union representatives spoke about more than work role, but not all roles, thus had intermediate breadth in their commentary about roles.

When talking specifically about work role, of the three types of work capacity that emerged in the discussion of work role in occupational outcome ie 1) own job with full duties, 2) any job or restricted / accommodated duties, or 3) meaningful equivalent; healthcare providers and patients talked about all three categories of return-to-work capacity. Union and insurance representatives, however focused on return to accommodated duty, as is seen in the following quotes:

Well I guess the first thing is if the health situation has prevented them from any work then obviously the ability to return to some sort of work would be an indication [Union intG.S2605].

You know, they want to be able to get back to some kind of gainful employment versus not having anyone wanting to employ them. Because they need to lie down eight times a day because that is the only relief that they get from their back pains [Union intE.26S05].

From an adjudicator’s standpoint: work increase, is able to return to some sort of employment with limited impact on finances [Insurer Adj int1.7A05].
In contrast, employer representatives focused on return to full duties.

I think being able to perform their full duties expected as performing an inspection. Climbing ladders, carrying equipment, you know, if you’re thinking carpal tunnel syndrome, being able to use the computer as much as they wanted to produce a report [WP Emp Small int.23A05].

Probably being able to return to their regular job [WP Emp FG.9J05].

Return to full duties [WP Emp FG.21J05].

In sum, patients had the most to say about role function, discussing the greatest breadth of roles across discussions. Moreover, specifically within the work role, there were stakeholder differences - unions and insurer representatives focused on return to accommodated work, but workplaces focused on return to full duty. For this theme, healthcare providers were the most like patients because of the breadth and depth of their comments. Views of patients were most at odds with the employer and insurer perspective for occupational outcome since patients considered all roles and insurer and employer representatives limited their comments to the work role. The union representatives’ comments were consistently intermediate on this topic.

**Psychological Health**

Insurer representatives spoke the most about psychological health overall, compared to union representatives who spoke the least about this topic. Insurer representatives talked with the greatest breadth for the general health question, mentioning positive perceptions and attitude, coping, cognitive/intellectual function, and emotional, mental health. Other stakeholders discussed mainly emotional/mental health with an occasional reference to other psychological health aspects.

…so I think when you are dealing with workers you are dealing with a lot more psychological issues nowadays [Insurer NCM FG.25N04].
…you look at how much the body is affected - the restrictions and activity would be literally minimal, but it has taken over the person’s life. Emotionally, psychologically, everything that is happening now to the person because of the …condition [Insurer Mgr FG.21S05].

When discussing occupational health specifically, once again insurer representatives had the most to say. This is in contrast to the occupational outcome discussion in which healthcare providers and patients had the most to say about psychological health, insurer representatives had less to say, and union and employer representatives didn’t mention it at all.

It’s depressing, like it really is like a battle of depression. I’m glad I have a really good optimistic and you know, I always believe that. I’m a joker, like I laugh you know, I’m afraid if I didn’t have my kids here, you know, the days that my wife’s not working and they’re home from daycare I’d be having a real problem, you know, but they keep me you know, happy like, you know [Pt002].

Thus overall, insurer and union representatives were most different in terms of the amount of commentary on psychological health. When considering the other stakeholders, differences emerged between the questions, with insurer representatives making more comments about psychological health in the context of occupational health, compared to patients and healthcare providers who considered it more in the context of occupational outcome.

Acceptance of Responsibility
Insurer representatives stood out as the group that discussed acceptance of responsibility more extensively than any other group.

We would have to have certain responsibilities to ourselves, our body, our health. [Insurer Adj FG.2Dec04].

I think something else that probably shows the individual is better is if they starting to really paying attention to whatever safety features there are in their work environment.
they can use to reduce the probability they’re going to contact that allergen again and if they don’t find that resource they start making noise about it [Insurer NCM FG.25Nov04].

**Whole-Health Perceptions**

When discussing general health, healthcare providers and insurer representatives were similar in their comments, making the most comments about whole health in the context of general health, with fewer comments in the occupational health and outcome questions. For this theme, union representatives and patients were the most disparate, because union representatives included whole health as a component of general health but not occupational health or outcome, whereas patients only commented on their perceptions of whole health in the occupational contexts (health and outcome) but did not mention it as a component of general health.

I think its very holistic approach to someone who denotes mind and body as you would want them to be …. and have a sense of sort of wellbeing about you [Union interview G.Sept26].

So, I guess when this condition does not affect my life in any way, adversely or whatever then I, then that would be the real measure of better, when it does [Pt 007.01Jun05].

**Lifestyle Choices**

The stakeholder that focused most on lifestyle choice across all contexts was employer representatives, who were the only group that mentioned lifestyle as a component of outcome.

J: Change lifestyle that prevents recurrence.
B: Exactly. Exactly [WP Emp FG.21J05].

Healthy to me is acquainted with being fit as well, so keeping your body in good physical condition. I probably monitor that more than most people because I’m a Type 2 diabetic so I’m monitoring my blood sugar about four times a day. So that’s one criteria
but I’m also going every three months for blood tests, some blood tests and urine tests and also I get an annual physical religiously because they’re doing an H1AC blood hemoglobin, glucose to monitor my blood sugar levels but I also do the lipids so they keep a pretty close eye on me and I’m also going for a stress test next week because just they needed, my doctor suggested that they should have a baseline and monitor that every 4-5 years. So I think I’m probably monitored better or more than most people as far as my health. That wasn’t exactly what your question was. Health is feeling good to me and its also lifestyle choices, not smoking, having good indoor air quality, getting regular exercises every day plus cardiovascular fitness and so on as well [WP Emp Small 23A05].

In addition to employer representatives, insurer representatives and patients also mentioned lifestyle choices as components of both general and occupational health, putting these 3 stakeholders’ views (employer, insurer, patient) in contrast to those of union representatives and healthcare providers, who almost never comment on lifestyle choice in any context.

For the remaining themes, stakeholder differences were less apparent because of the smaller number of comments overall. Nonetheless, several general observations can still be made. For several themes, the union representatives stood apart from other stakeholders by virtue of their lack of commentary; these included the Healthcare System for which all stakeholder groups discussed the healthcare system across all 3 discussion areas with the exception of union representatives who did not mention this theme in relation to occupational outcome. As well, Financial Stability was discussed by all groups except union representatives. Comments about spiritual health came from healthcare providers and insurer representatives, not other stakeholder groups. Lastly, in the discussion of occupational health, both employer and insurer representatives comment on the importance of having basic needs be met.

In sum, of the themes that emerged to describe health, occupational health, and occupational outcome, this study indicates that most themes were described differently not only depending on the question context as described in Part 1, but also depending on the stakeholder group who is commenting. The workplace health theme had the greatest stakeholder consensus, but even so,
some stakeholder differences emerged in the dimensions identified to describe a healthy workplace. Looking at the findings about stakeholder differences as they emerged for individual themes, there was not consistent alignment of stakeholders’ views. For some themes, certain stakeholders agreed, but for other themes, they did not. One trend that did emerge looking at the findings for individual themes, was that the views of union representatives were often different from those of all other stakeholders. Examining the patterns of stakeholders’ comments from the broader perspective of the question context provides additional insight into how each stakeholder’s views fit with the views of the others.

**Stakeholders’ Comments About Each Question**

The above section highlighted how stakeholders were similar and how they differed when each theme was considered independently. Now, examining the patterns in all themes together, similarities and differences in the way stakeholders conceptualize the larger concepts of general health, occupational health, and occupational outcome are examined, which in Table 7 equates to an examination of columns. Also included is a discussion of which stakeholder groups were of the closest and most disparate opinions within each question context. In other words, groupings of stakeholders who commented on similar themes are identified. How those patterns changed from one question to the next is also examined.

**General Health Discussions**

In the discussion of general health, there were 3 themes about which all stakeholders made comments: physical health, role function, and psychological health. Generally though, the different stakeholders held different views about general health. Healthcare providers expressed the most limited number of themes and were primarily focused on physical health. By comparison, insurance representatives expressed the most themes, with a focus on psychological health. Patients, unions and employer representatives discussed an intermediate number of themes, with the focus on physical, emotional, and family role function amongst patients, role function amongst union representatives, and lifestyle choices among employer representatives. When the patterns of themes upon which each stakeholder commented are examined, there were 3 patterns of stakeholder alignment in which patients, employer representatives, and insurer
representatives were most similar to one another, but different from union representatives and healthcare providers, each with their own unique pattern of comments.

**Occupational Health Discussions**

In terms of agreement between stakeholders, compared to general health where the themes mentioned by all stakeholders were physical health, role function, and psychological health, for occupational health, the themes all stakeholders commented upon were workplace health and psychological health. When discussing occupational health, healthcare providers and employer representatives focused on work role and physical health, patients focused on lifestyle choices, and insurer representatives focused on psychological health and family roles. Union representatives did not comment substantively on any other aspect of occupational health except workplace health.

Like the general health discussion, 3 patterns of stakeholder alignment emerged, in which employer and insurer representatives commented on similar themes, patients and healthcare providers commented on similar themes, and the union representatives had a third unique pattern.

**Occupational Outcome Discussions**

Although no stakeholders commented on themes related to the social and economic determinants of health, all stakeholders reported that physical recovery and role function were important themes to consider for outcome measurement. When discussing these health status components of occupational outcome, stakeholders focused on different themes. Insurer and employer representatives focused on physical recovery, whereas union representatives focused primarily on role function. Healthcare providers and patients often spoke about both the physical and role function dimensions.

Also recall from the comments above, that within the physical recovery theme, patients focused on absence of pathology, compared to the healthcare providers who were more interested in function. As well, in the role function theme, patients’ views were most at odds with the insurer perspective since patients considered all roles and insurers limited their comments to the work
role. Moreover, within the work role, there were stakeholder differences - unions and insurers focused on return to accommodated work, but employers focused on return to full duty. In sum, within occupational health discussion there was a surprising degree of consensus among stakeholders, whereas within occupational outcome discussions many differences between stakeholders emerged.

Once again, 3 patterns of stakeholder alignment emerged, different from the patterns for general health and occupational health. Here, for occupational outcome, patients, healthcare providers, and insurer representatives commented on similar themes, compared to union and employer representatives who each had unique patterns in the individual themes about which they spoke.

**Further Understanding Occupational Outcome**

How stakeholders differed in the factors they felt were important to bear in mind when considering successful occupational healthcare delivery are summarized in Table 9. Discussion of all the details of this table is beyond the objectives of this thesis but is presented here to illustrate a key piece of information. The important finding of interest from this table is the fact that for all stakeholders, health outcomes are a very minor constituent of this discussion about health delivery success, being reflected primarily in condition factors. As well, in the broader context of healthcare delivery, employer and insurer representatives were well aligned, as were patients and healthcare providers. Once again, union representatives considered fewer factors and were not aligned with other stakeholders.
Table 9: Stakeholders’ Views on Measuring Occupational Healthcare Delivery

<table>
<thead>
<tr>
<th>Components of Successful Occupational Healthcare Delivery</th>
<th>Stakeholder Groups that Discussed Topic (x)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HCP</td>
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<tr>
<td>1. Employment Factors</td>
<td>x</td>
</tr>
<tr>
<td>2. Condition Factors</td>
<td>x</td>
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<tr>
<td>3. Employee Factors</td>
<td>x</td>
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<tr>
<td>4. Employer Factors</td>
<td>x</td>
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<tr>
<td>5. Health Care Provider Factors</td>
<td>x</td>
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<tr>
<td>6. Health Care System Factors</td>
<td>x</td>
</tr>
<tr>
<td>7. Insurer Factors</td>
<td>x</td>
</tr>
<tr>
<td>8. Cost</td>
<td>x</td>
</tr>
</tbody>
</table>

Stakeholder Alignment Changes Between Questions
Alignment between stakeholders varied between the different questions. The commentary of employer and insurer representatives was similar for both discussions about health (general and occupational) but diverged when discussing occupational outcome. Similarly, patients and healthcare providers commented on similar themes in both occupational contexts (occupational health and occupational outcome) but diverged in the discussion of general health. The union representatives’ commentary was not well-aligned with any other stakeholder group in any of the questions. Of note, the uniqueness of union comments also arose repeatedly during the consideration of individual themes.

Dominant Perspectives of Each Stakeholder Group
Now, each stakeholder group is considered individually, and the dominant theme that emerged for each group is identified.

Patients
Considering all themes together, across the various discussion contexts, role function was the dominant theme for patients. Patients also had a lot of comments about the physical theme, and
focused primarily on complete absence of pathology. Workplace health was also discussed in depth by this group.

If this person can carry on with her normal activities outside of the work without being affected. Another example, my boyfriend and I we love canoeing. We go on long trip canoeing. In the summer we had a trip planned and because my hands were falling in pieces eventually we had to cancel all this. So there is a loss of, time loss of money there and if the health, if the person is treated well, this person should be able to carry on with her activity outside work. That would be a measure of success [Pt005.07Dec04].

**Healthcare Providers**

Healthcare providers discussed fewer themes than other stakeholders when asked about health in general. They divided their focus between views of physical health, role function, and health perceptions.

Well when I think of health I think that it means to have good health means more than to have an absence of disease. Um and it means to have an absence of disease but even more than that to um have a quality of life that you can enjoy and part of that is to be able to function in all of your different roles...social, occupational. [HCP FG Spec.20J]

In the context of occupational health, workplace health was discussed most frequently followed by role function and physical health, with a particular focus on the work role:

Health for the worker I see as being a) to be able to reach the demands of their job but also to not secondarily b) to not sustain any physical or emotional damage from that job such that they can continue over a career. So, to be able to do the job but also not to be ill-affected by the job [HCP FG Spec.20J05].

When discussing occupational outcome, once again healthcare providers talked most about physical and role function themes.
After a period of illness they may have a different baseline so their, their capability, pre-illness maybe different from their capabilities post-illness so their degree of happiness or healthiness total different, have a different. The roles may be different and they can still be happy and health in those new roles [HCP FG FMD.26Jan06].

Overall, healthcare providers were the only stakeholder in which the *physical health* theme was elaborated in detail in all discussion contexts, and thus for this group it is the dominant theme.

**Union Representatives**

The main focus of the union representatives, when all themes across question contexts are considered was workplace health. However, union representatives had a relatively broad perspective about general health dimensions, and in this context they focused most intensely on role function (in particular family and social roles). There was also commentary about whole health as seen in the following quote:

> So in answer to what it means to be healthy: I think its very holistic approach to someone who denotes mind and body as you would want them to be and that allows you to function in day to day, you know, work life, home life, social life and have a sense of sort of wellbeing about you [WP Union intG.S26].

There was also considerable discussion by a few individuals that added to the full range of themes for this stakeholder group. For example, although mentioned by others, there was one person in the union group that spoke in great detail about the nature of healthcare system. Similarly, a different person spoke at length about lifestyle choice:

> Physical activity I think, just because I was always one of those people who never worked out a day in her life. And I put on the extra 20 pounds and said I have got to do something about this. I am a strong believer now in going to the gym three times a week, eating healthier, but not dieting so that you cannot eat. So, thinking about that as we age, that we do need more physical activity [Union intE.26S05].
Nonetheless, all themes and contexts considered, the dominant theme for this group was workplace health.

I think health is also dependent on how advanced the factory is or the unit or employment is in health and safety in the workplace. You know like how ergonomically sound is that workplace or how attuned is it to meet the workers needs because most of the places I think will think of efficiency in terms of production and, I don’t know, where its all about meeting certain standards and there’s an account for this [Union FG.20July05].

But I mean initially the first things are certainly physical controls over the workplace such as in regards to safety for instance having safeguards on equipment, you know, trip wires, safety stop devices, that sort of thing. Containing you know inch points and dangerous situations where people can be pulled into equipment that sort of stuff [Union intG.Sept26].

…it’s about having a workplace where safety is everywhere. It is thought about, it is everywhere in the workplace. There is polices, there is procedures in place, and in the workplace, there is programs in the workplace that address the very issues and the hazards that are injuring our members right now [Union intE.26Sept05].

**Employer Representatives**

*Lifestyle choice* stood out as a dominant theme for employer representatives, with comments from both small and large employers.

Healthy to me is acquainted with being fit as well, so keeping your body in good physical condition…Health is feeling good to me and its also lifestyle choices, not smoking, having good indoor air quality, getting regular exercises every day plus cardiovascular fitness and so on as well [WP Emp Sm-intR23A.05].
Employer representatives spoke with greater breadth when the discussions were about occupational health or occupational outcomes. After workplace health, physical health, especially the physical function sub-dimension, as well as the work role were relatively more important than other themes.

They know what they are hired to do and they have researched, they have chosen this, I will speak for the mechanics, they have chosen this field, they know what it is about, they know they cannot pull the plane over at 35,000 feet up and fix something, so they know what it is all about. So for them they have to be able to come and do the job that we are paying them to do, do it correctly, do it safely. And do all the things that are required. And then go home. And then come back in the next day and do the same thing over. That’s all that they can do [WP Emp FGA.21J05].

However, compared to other stakeholders, employer representatives had less elaborate views of role function and occupational outcome in general. In addition to lifestyle choice, physical health and psychological health dominated most discussions.

**Insurer Representatives**

Insurer representatives were the group that expressed the greatest breadth of views about health and occupational health, but by comparison had relatively narrower views of occupational outcome, which was dominated by discussions about physical recovery and role function. As a group, insurer representatives spent a great deal of time talking about psychological health with emphasis on a need for a positive attitude. The emphasis on attitude was unique to this stakeholder group and came mostly from comments from adjudicators:

I believe that it, that health, also has a lot to do with our mental outlook, attitude. There are countless examples that we see every day where we have two people with that exact same diseases but slightly different circumstances and one might be way worse off in terms of the medical health but a positive outlook makes a huge difference in their quality of life and perhaps, perhaps in their longevity also I don’t know [Insurer Adj int2.7A05].
…to them they would claim that they’re not healthy and you know it would be something that would really affect them where someone else would say “No I can move on past this and I’m not going to be able to do that any more but I’m still now a healthy person”. So I think it is a mental thing and an individual on the worker and how they rate certain things in their life [Insurer Adj FG.2D04].

As well, this stakeholder group commented most extensively about accepting responsibility, and did so in all 3 discussion contexts.

Lastly, all three types of insurer representatives - managers, nurse case managers, and adjudicators - commented on the need for the medical system to work effectively as part of health. One nurse case manager noted:

I think something else that is involved in health is the access, the issue of access to care, when some part of that health picture isn’t present…And part of that model is for the individual to have access to whatever resources they need to maintain whole health [Insurer NCM FG.25N04]

In sum, while healthcare providers, patients, and insurer representatives concentrated their discussions on health status factors overall, their focus varied. Healthcare providers had a physical focus, whereas patients focused on role function, and insurer representatives frequently discussed psychological issues. Employer and union representatives paid more attention to determinants of health, albeit different ones, and were concerned with workers’ lifestyle choices, and the “healthy workplace” respectively.
SUMMARY OF KEY FINDINGS

Recognizing the large amount of new information generated by this study and presented above, the purpose of this last section is to consolidate and summarize the key findings that emerged overall.

Key Finding Related to Objective 1: Understanding Meaning

A key finding overall is that health, occupational health, and occupational outcome have different meanings that extend beyond the list of variables compiled in reviews of existing research. Meaning is complex and related to the role a variable is hypothesized to have in a larger framework. As well, inclusion of a variable as a component of health does not automatically mean that stakeholders consider it a component of outcome. Therefore, it is essential to conceive of outcome within larger models which include occupational health and quality. More specifically:

1. While themes like physical health, role function, and psychological factors, among others, were repeated across several questions, qualitative differences emerged in the a) emphasis given to the theme in each question; and b) the substantive content of the comments. The focus of previous research on theme labels ignores the subtleties that are important within a theme. For example, when considering physical health, previous occupational outcome research has focused on activity limitations and functional outcome. However, for participants in this study although physical health was conceived in terms of function for occupational health, when discussing occupational outcome they were more interested in the degree of physical recovery. The idea of recovery, as an outcome distinct from functional ability, is not a focus in the occupational outcome literature to date.

Work role is another example of a theme in which previously unrecognized subtleties emerged that indicate the significance of context for understand its meaning. In the occupational outcome literature, work role has been variously conceptualized in terms of “demand” categories, productivity and satisfaction domains, and as a domain upon which health has an impact (i.e. health consequence). By comparison, in this study, work role was discussed in terms of its
contribution to identity, the importance of maintaining the ability to work over time, and in terms of an individual’s ability to meet the demands of one’s job for general and occupational health contexts, compared to return-to-work capacity in the occupational outcome context. As well, in previous occupational literature, return-to-work capacity has been considered separately from work role.

2. The focus on occupational outcome resulted in fewer themes, suggesting that individuals don’t see all variables or factors as outcomes. In other words, some themes only emerged in certain contexts. For example, this was particularly striking for the concept of workplace health, the dimensions of which (e.g. interpersonal relations, nature of work) have typically been considered outcomes in previous studies. However, in this study, although all stakeholders identified workplace health as a key component of occupational health, it was not considered by participants to be an occupational outcome. For the most part, although participants did not generally articulate where a variable would be located in a model of outcome, there were instances when they clearly had ideas about the role of a given variable. For example financial stability was seen to be either a facilitator of good health or a consequence of an occupational illness, but was not discussed in the context of outcome.

3. A final message related to meaning was that some themes were seen as being outcomes and as part of a larger model. The cyclical or causal paths discussed were often complex. For example psychological factors were considered in several ways – as independent components of health or outcome, as facilitators of good health, as causes of other illnesses or injuries, or as consequences of having an occupational health problem, and this varied with the context, such that psychological health as a cause or consequence was discussed only for occupational health and outcome. Furthermore, occupational outcome reflected only one measure of success for occupational health care delivery, which was not spontaneously situated among structure or process variables. These findings reinforce the idea that variables may play more than one role in a model.
**Key Findings Related to Objective 2: Stakeholder Perspectives**

The first message related to stakeholder perspectives is that stakeholders differed in the depth and breadth of the themes they discussed across the different questions, and at times, there appeared to be qualitative differences in the way a theme was discussed (i.e. the labels used in previous research seem to mean something different to different stakeholder groups). In fact, there seemed to be natural alignments among some stakeholder groups, which varied depending on the context (e.g. patient, health care provider, insurer vs. employer vs. union for outcome). At the same time, each provided a more individualized focus suggesting all of their points of view were important. The way stakeholder discussed the role function exemplifies these differences. In terms of differences in the breadth/depth of commentary, patients considered all of the 5 identified roles whereas insurer representatives limited their comments to the work role. Further examination of the work role reveals qualitative stakeholder differences - unions and insurer representatives focused on return to accommodated work, but employer representatives focused on return to full duty.

The second key message is that no single stakeholder group alone expressed all the themes and the complexity of the relationships among the themes. The whole could only be understood in terms of the sum of the stakeholder parts. Only by hearing the views of all stakeholders was it possible to build a comprehensive model. For example, union representatives often did not focus on outcome, differentiating it from other important dimensions of health such as the healthy workplace, which is essential in understanding the “big picture” of outcome. Employer and insurer representatives also had a lot to say about non-outcome variables related to healthcare delivery, helping to place the concept of outcome within a bigger picture of healthcare quality. In sum, many perspectives are needed to build a comprehensive understanding of occupational outcome. There was resistance among stakeholders to focus on a reactive model that confined outcome to health status and determinants of health variables, and a clear emphasis on building a workplace model that encompasses other non-outcome variables that would help promote and prevent health problems.
The next chapter will address the third study objective which entails utilizing this new-found understanding of occupational health outcomes and synthesizing this knowledge with existing health models to develop a framework of occupational outcome that incorporates the views of key stakeholders. Specifically, data will be discussed in terms of its fit with Donabedian’s quality model (1980, 2003) comprising structure, process, and outcome variables and with disability-based frameworks of health outcomes like the International Classification of Function (ICF).
CHAPTER 7
A NEW FRAMEWORK FOR OCCUPATIONAL OUTCOME

Having now identified the key themes that incorporate stakeholder views about the topics of health, occupational health, and occupational outcome, as well as stakeholder differences therein, in this chapter the study findings are re-examined in terms of their congruence with Donabedian’s quality model (1980, 2003) comprising structure, process, and outcome variables, and with the disability-based framework of health outcomes, the International Classification of Function (ICF). The chapter begins with a brief review of the key features of the 2 models of interest, then moves on to evaluate each model against a set of criteria. Additional insights from stakeholder comments are then highlighted. Finally, a new conceptual framework is proposed that reflects the results of the model evaluation as well as the results of the study.

Review of Models
Recall that the third objective of the thesis entails utilizing new-found understanding of occupational health outcomes and synthesizing this knowledge with existing models to develop a framework of occupational outcome that incorporates the views of all key stakeholders. The two models that were chosen for this purpose each have a strong focus on outcome but differ in their conceptualization of it. First, Donabedian’s model of healthcare quality (see Figure 1) (Donabedian, 1980, 1982, 1988, 2003) places outcome within the context of other quality variables such as structure and process which are important considerations for occupational healthcare, but which are often misclassified as outcome. By comparison, the ICF (see Figure 2), elaborates upon the concept of outcome per se, and does so with a focus on the interaction of individuals and their environment, with consideration of disabling political, social, and economic environments, making it a more integrated and enhanced conceptualization than traditional biomedical models. In the ICF, three levels of outcome (body functions and structure, activity, and participation) are linked to both each other and to contextual factors (environmental and personal factors).
**Evaluation of Models**

**Criteria for Model Evaluation**

The criteria against which the chosen models will be evaluated relate to the general benefits of any model. In general, a useful model is one that has a clearly defined purpose, and has \textit{sufficient breadth and scope} indicated by the inclusion of the different types of relevant factors. It should also have \textit{sufficient depth} that it gives guidance not only on the specific components needing to be measured, but also potential ways of measurement. Furthermore, it should provide guidance in terms of the \textit{relationships among variables} and potential links and causal pathways between them. In this way it can guide hypothesis testing.

**Evaluation of the Donabedian Model**

Overall, the Donabedian model fared better in terms of its breadth than depth. As well, it can account for some, but not all relations between variables. In terms of breadth, Donabedian’s model is useful because of the distinction it makes between outcome and other types of variables. Like Donabedian, participants in this study also made a distinction between outcome and other types of variables, identifying that some variables are not ‘outcomes’ but are important nonetheless. However, one of the challenges for the Donabedian model mentioned earlier was the possibility that other types of variables aside from structure, process, or outcome variables might exist in the quality equation. Indeed, the findings of this study indicate that, like Donabedian, stakeholders distinguished 3 types of variables, but with new and different meaning: Outcome (which encompasses the meaning of both Donabedian’s outcome and process variables), Structure, and a new variable called ‘System Participant Factors’.

To elaborate in greater detail the 3 types of variables that emerged in this study that relate to the quality equation, first recall that to help organize the study’s emergent themes into meaningful groups, broader meta-themes were proposed that included “health status” and “determinants of health”. Some determinants of health were considered outcomes (the individual behaviours and health services categories), others weren’t (social and economic). All that were considered outcomes have an action component to them, in the sense that a person must “do something” such as make a referral, make a lifestyle choice, or opt to accept responsibility. Such action-type variables might be considered process variables in Donabedian’s model, but these stakeholders
did not differentiate process and outcome. On the other hand, non-outcome determinants of health in this study were more akin to resources that enable or facilitate outcome, but are not outcomes themselves, similar to Donabedian’s structure variables. In a broad sense then, these participants considered both health status and process-like determinants of health variables to be a part of ‘outcome’, specifically distinguishing them from resources or structure-like variables.

To understand the emergence of the System Participant Factors variable, recall that participants identified a number of factors related to successful healthcare delivery that they did not consider as outcomes. Participants distinguished amongst dimensions that were, for the most part, classified according to the system participant (e.g. employee factors, employer factors, healthcare provider factors etc) in a way that paralleled stakeholder groups. Similar to Donabedian’s definition of process, System Participant factors reflect activities involved in the delivery of occupational healthcare, but unlike Donabedian, they do not solely reflect the interaction between physician and patients, but rather include other system participants as well. As an aside, this finding supports the choice of stakeholders chosen for inclusion in the study, as participants verified these as the key players in the system. Therefore, in terms of system participants, Donabedian’s model is too limited because it only considers the physician’s actions while interacting with the patient. In this study however, stakeholders identified more closely with multiple system participants involved in the healthcare system which indicates that participants believe healthcare quality is not only determined by the actions of healthcare providers, but also by the actions of other system participants as well, however these are outside the scope of outcome. Thus, when situating outcome in the broader context of healthcare, stakeholders do not spontaneously identify Donabedian’s structure, process and outcome variables.

In terms of depth, and guidance on measurement, the Donabedian model does not fare as well, because it provides little insight into either the specific factors that might be encompassed as occupational outcome or how such factors might be measured. For example, Donabedian confined the definition of outcome to the healthcare context, whereas these participants extended the meaning to include factors outside the healthcare system. Let us examine the rationale for this comment in greater detail. Again recall that to help organize the study’s
emergent themes into meaningful groups, broader meta-themes were proposed that included “health status” and “determinants of health” i.e. factors outside the health system that affect health (CIHI, 2007). Determinants of health are themselves classified in various but similar ways in the literature (CIHI, 2007; WHO, 2007) and often reflect the meta-themes that emerged in this study including a) individual behaviours, b) the physical environment, c) the socio-economic environment, as well as d) health system performance. Variables identified as outcomes included all the health status variables, as well as some determinants of health. Recognizing that determinants of health are considered to be factors outside the health system that affect health, it appears that these participants have different, broader conceptualization of the meaning of outcome that extends beyond the healthcare system compared to Donabedian’s conceptualization of outcomes of care as being changes in individuals or populations that can be attributed to healthcare (Donabedian, 2003; Brook et al., 1996; Hegyvary, 1991). In sum, occupational outcome includes variables both within and outside the healthcare system which relate specifically to health status, and action-related determinants of health akin to Donabedian’s process variables.

Finally, in terms of relationships between variables, using the Donabedian model we also might have a clear, causal link among a number of factors that, in part, matched what some stakeholders envisioned. For example, financial stability was theme aligned with Donabedian’s structure variable by virtue of it being a material resource. According to the Donabedian model, structure can affect outcome, and participants in this study agreed, indicating that financial stability can be a facilitator of good health. At the same time, certain factors could not easily be encompassed within the model and certain relationships among variables were not easily described. For example Donabedian’s model does not easily accommodate variables that are thought to have more than one role in a model, such as psychological health, which in the general health context was considered an outcome per se, but in the occupational context was also perceived to be a facilitator of good outcome.

Evaluation of the ICF
Overall, although not without its problems in this regard, the ICF model fares much better in terms of depth, compared to the Donabedian model for which the greatest strength was breadth.
Like the Donabedian model, the ICF does not fare as well in terms of explaining the relationships between variables. As noted, in comparison to the Donabedian model, the ICF has relatively good depth, in that one can identify “locations” for most of the emergent occupational outcome variables in the existing ICF framework, with the exception of whole health perceptions and lifestyle choices. However, concerns about conceptual underdevelopment and insufficient depth in the participation domain have been borne out. Study participants placed a great deal of emphasis on role function as an outcome, but the in terms of models, the ICF is inadequate and does not incorporate participants views about either the importance of, or the meaning of occupational role function.

For example, participants in this study elaborated the meaning of work role in great detail. It was specifically discussed in terms of its contribution to identity, the importance of maintaining the ability to work over time, and in terms of an individual’s ability to meet the demands of one’s job in the general and occupational health contexts, and for occupational outcome was conceived in terms of return-to-work capacity. In the ICF however, the work role is under-conceived. It is not independently represented by an activity or participation domain, but rather is subsumed under the Major Life Areas domain as a subsection (d850 - remunerative employment).

As well, participants in this study also discuss the relationship of different roles to one another. Role balance is not addressed in the ICF, but its importance is beginning to be recognized. Gignac et al. (2006, 2007) examined the reciprocal influences of different roles amongst arthritis patients, and finding this concept to be important, included it on their newly developed job strain scale, which also included the concept of role balance. Balancing multiple roles was found to be associated with greater job strain; a finding that underscores the importance of a role-based focus when considering outcome in an occupational population.

However, the ICF model lacks sufficient depth to give guidance on potential ways of measurement. For example, in the ICF, work role would not be evaluated in terms of maintaining the ability to work or to meet the demands of one’s job or in terms of return-to-
work capacity as was proposed by these participants, but rather on with the vague 0-5 performance qualifier scale that ranges from ‘no difficulty’ to ‘complete difficulty’.

This finding highlights the need to understand what constitutes meaningful change for occupational stakeholders and is supported by the work of others such as Beaton et al. (2001). In their qualitative study of people with work-related disorders of the upper extremity, Beaton et al. (2001) identified that three different health states were described in response to being asked about “being better” indicating that underlying constructs can vary between individuals. Here, findings also varied depending on the context of the discussion, which highlights the added complexity of not only needing to understand meaningful change, but also to recognize that what constitutes such change for participants may vary depending on the situation or context.

Another example of inadequately defined measurement relates to the fact that contextual factors are not classified in ICF because of the large social and cultural variance associated with them (WHO, 2002). This causes difficulty when considering themes such as psychological health and accepting responsibility which include a component of coping in their meaning, which can be either an effective facilitator of health, or if ineffective, a cause of further health problem. As noted, in the ICF coping strategies are included as personal contextual factors that are unclassified, which is problematic.

A final example of ICF’s difficulty with measurement is seen in the fact that stakeholders do not necessarily use the same classification systems as do the developers of models. This study demonstrates that ICF’s task-based classification scheme is not consistent with the way in which participants describe their activities and participation, which is role-based instead. It is conceivable that because of ICF’s task-based classification, a single role might be reflected under several activity and participation domains. Furthermore, whereas the ICF has traditionally emphasized impairment and activity restriction, participants in this study are emphasizing participation. The distinction between a classification system based on the negative effects of health condition is in contrast to one focused the positive features of how activity and participation is maintained.
Compared to its depth, the ICF is more limited in terms of breadth. Although the ICF does distinguish between different types of variables (e.g. outcome, contextual variables), these distinctions do not always match how study participants classified the emergent variables. Only some of the outcome variables identified by these participants would be considered outcomes per se in the ICF model i.e. health status variables. Some variables, such as environment, that participants considered outcomes would instead be classified as contextual variables in the ICF.

Nonetheless, although perceptions of the types of outcome themes in this study remained dominated collectively by a medical-style classification scheme (i.e. physical, psychological), participants did incorporate features consistent with a more biopsychosocially derived conceptualization (i.e activity and participation). As well, when the emergent variables are considered in comparison to the ICF, the distinction between the health status and determinants of health meta-themes that emerged in this study does parallel a distinction between outcomes and contextual factors in the ICF.

Overall, the ICF lacks discussion of the interrelationships among factors in a way that would help one to generate hypotheses. Participants in this study were not asked to specifically elaborate the mechanism through which various factors are presumed to have their various effects, however the ‘arrows’ as they are currently presented in the ICF cannot sufficiently describe all the effects intended by these stakeholders. For example, psychological factors can be considered either as a functional impairment or as a contextual factor (personal factor) in the ICF. Some researchers have noted (Wang et al., 2006) that contextual factors can play various roles in a model depending on the framework used and the goals of the research. Consistent with this, is the finding in this study that psychological factors have greater meaning than the ICF’s personal factor category would encompass (i.e. coping strategies and behavioural patterns). Psychological factors were considered in several ways: psychological health as an independent component of health status, or psychological factors as facilitators of good health, as causes of other illnesses or injuries, or as a consequence of having an occupational health problem. These findings suggest that the same variable may play more than one role in a model, an idea not handled well by either the ICF or Donabedian models. Other research has supported the notion that a variable may have more than one role in a model (Saary, 1993; Wang et al., 2006). For
example, Wang et al. (2006) describe 4 roles that a given contextual factor could play in a model such as the ICF, and these include an independent role, a moderating role, a mediating role, or a confounding role. When specifically examining the relationship between disability and depression in arthritis, Saary (1993) found that perceptions of illness severity could play either a moderating or mediating role in the relationship. Such considerations are relevant given that some researchers have criticized models that focus on “delineating the pathway from pathology to various kinds of functional outcomes” (Verbrugge and Jette, 1994) without enough attention to factors that modify the pathway. Psychological factors appear to be a possible ‘pathway modifier’. As well, there is a need for a separate additional psychological factor to be added to the list of personal contextual factors.

**What Do Individual Stakeholder Views Contribute?**

Because of the previously mentioned benefits of including stakeholder perspectives in projects such as this, which include improved cooperation and collaboration, empowerment, as well as enhanced evaluation of treatment practices and priorities, consideration of stakeholder comments would serve to enhance existing models of outcome and quality. Most important for this work though, is the fact that outcomes derived from multi-stakeholder input are more relevant, useful, and accessible, and can thereby lead to enhancements in programs of care. The views of the various occupational stakeholders have already been considered in a global manner to identify emergent themes. The focus here is the consideration of stakeholder differences specifically within the context of occupational outcome that have implications for the models of interest. Although a different dominant theme could be identified for each stakeholder group, and stakeholder alignment was found to change between discussion contexts, overall no new themes were introduced during the discussion of occupational outcome. As a result, findings such as these have more implication for clinical practice than for model development, and will be addressed further in Chapter 8.

Overall, although stakeholders had different foci of attention, for the most part all views would be incorporated into a model that included health status variables, as well as determinants of health that reflect individual behaviours, the environment, and the healthcare system. Therefore, the main impact of identifying stakeholder differences for models of outcome is the additional
clarity such comments add to understanding the scale of measurement required to accommodate stakeholder views.

Recall that in the occupational context compared to general and occupational health, physical health was conceived in terms of recovery, as opposed to impairment in the ICF. Patients tended to focus on the complete absence of pathology, as opposed to healthcare providers whose focus was partial restoration of function, controlling pain, or learning to live with chronic symptoms. Union, employer, and insurer representatives spoke in similar ways about both the absence of pathology and about function. A dichotomous scale in which physical health is defined as the absence of pathology, and physical ‘unhealthiness’ is represented by the presence of pathology is clearly inadequate for this theme. The measurement scale needs to include absence of pathology as an end point, but also needs to include additional points on a scale of partial recovery. The implications of these findings serve to further highlight the need to understand what constitutes meaningful change, and therefore has implications for the type of measurement scale used to evaluate the outcome.

When specifically discussing occupational outcome, patients were the only stakeholder group to emphasize all the different types of roles. This is in contrast to employer and insurer representatives’ discussions, which were entirely focused on the work role. Healthcare providers and union representatives spoke about more than work role, but not all roles, thus had intermediate breadth in their commentary about roles. When talking specifically about work role, the three types of work capacity emerged as outcome ie 1) own job with full duties, 2) any job or restricted / accommodated duties, or 3) meaningful equivalent work. Healthcare providers and patients talked about all three categories of return-to-work capacity. Union and insurance representatives however, focused on return to accommodated duty, and employer representatives focused on return to full duties. Here again, failure to consider the range of stakeholders’ views could have resulted in inadequate or biased measurement of the work role concept.
Summary
In summary, what has been learned by examining Donabedian’s model in the context of stakeholders’ comments on occupational outcome is that stakeholders do differentiate outcome from other types of variables, but with new and different meaning from Donabedian’s structure and process variables. The resulting 3 variables are labeled Structure, Outcome, and System Participant Factors, with a causal link between structure and outcome. Furthermore, participants’ conceptualization of outcome per se includes factors typically thought to be outside the healthcare system but that affect health nonetheless (i.e. determinants of health).

What has been learned by examining the ICF model in the context of stakeholders’ comments on occupational outcome is that the ICF can accommodate most, but not all emergent outcome variables (whole health perceptions and lifestyle choice), although the importance of some factors such as role function, and in particular work role and role balance warrants that they be separately represented. Examination of the ICF teaches us much about measurement of outcomes; work role is inadequately represented by a 0-5 performance scale, and physical health would be better represented by a scale measuring improvement than by a 5 point impairment scale. Some variables such a psychological health should be afforded multiple roles in the final model, and adding a scale by which personal contextual factors can be measured would enhance our understanding of factors that can have multiple roles in a model with both positive and negative impact. As well, changing from a task-based to role-based description of activities and participation more appropriately represents these stakeholders’ views. The main impact of identifying stakeholder differences for models of outcome is the additional clarity such comments add to the scale of measurement required to accommodate stakeholder views.

Thus, although each model makes important contributions to understanding stakeholder’s views about occupational outcome, neither model alone is adequate to encompass their views adequately. As a result, in the next section I will present how a new model was generated which expands upon the 2 existing models.
The New Conceptual Model

Drawing on the results of this research, combined with the evaluation of the findings as they relate to other models, a new conceptual model of occupational outcome emerged that has greater breadth and depth than either Donabedian’s model or the ICF model. Occupational outcome can now be defined as the combination of interrelated factors which include function and ability, individual behaviours, and environmental factors, upon which stakeholders rely to judge the current status or changes in the course of a case of occupational illness or injury. Outcome variables are distinguished from other types of variables such as structure and system participant factors which parallel Donabedian’s structure and process variables. However, now the definition of structure is expanded to include the combination of system and personal resources, and system participant factors extends the activities of healthcare delivery beyond the interaction between physician and patients, to include other system participants as well.

Based on the results of this study, the themes stakeholders identified as components of occupational outcome can be represented by 3 main factors: an individual’s function and ability, individual behaviours, and the environment, all of which contribute to perceptions of whole health which represents the more complex backdrop within which the emergent occupational outcome themes are present. The new model of occupational outcome that includes these factors is presented in Figure 3. The dashed arrows suggest proposed relationships between the factors that would benefit from future hypothesis testing studies.

Figure 3. Proposed Conceptual Model of Occupational Outcome
As noted, the model consists of 3 main factors which will be discussed in turn, starting with the Function and Ability factor. Because many of the themes identified by stakeholders in this study are present within the ICF conceptualization of functioning and disability in some form, it was used as the starting place for the development of this portion of the new model. Recall that in the ICF, body functions and structure, activities, and participation are linked to each other and to contextual factors. Although the themes in this study remained dominated by a medical-style terminology (i.e. physical, psychological), the participants also incorporated features consistent with a biopsychosocially derived conceptualization such as the ICF by commenting on their participation in various roles. Therefore, the Function and Ability factor in this model is broken down into 3 components that parallel ICF components. The physical and psychological health components parallel ICF’s body structure and function domain. Rather than measure health status in terms of impairment, occupational stakeholders suggest measuring recovery instead. Recall that stakeholders considered psychological factors in several ways: as an independent component of function, as a facilitator of good health, as a cause of other illnesses or injuries, or as a consequence of having an occupational health problem. Although psychological health as an independent component is well represented within the Health Status component of Ability and Functioning, in contrast, the role of psychological factors as a facilitator or inhibitor of recovery and a consequence of occupational illness or injury is not present in ICF. In this model, therefore the multiple roles of Psychological Health as both a cause and a consequence is represented by the dashed arrows between it and other components of Function and Ability.

Role function parallels ICF’s activity and participation domains. For occupational stakeholders, the focus was on role function rather than activities, which were not included in the new model as a separate outcome variable. Role function itself is complex and is comprised of both capacity, and role balance. In this model, capacity in roles replaces the ICF’s task-based concept of participation restriction. Capacity rather than restriction needs to be measured in 4 keys roles including the home/family role, social role, recreational role, and work role. Of these, work role can also be further elaborated extending the work of other researchers such as Amick et al. (2000b); Kopec and Esdaile (1998); Lerner et al. (2001); and Pransky et al. (2005b). It encompasses the idea of return-to-work capacity which can be described by 3 categories, but
does not include concepts related to demand as proposed by Amick et al. (2000b) and Lerner et al. (2001).

In addition to Function and Ability, the model also includes Individual Behaviours and Environmental Factors. Although identifying the relationships between emergent factors was not the primary objective of this thesis, this model hypothesizes that these factors are likely to affect Function and Ability. Each of these factors (Individual Behaviours and Environmental Factors) can be broken down to include several themes identified by stakeholders. In this model, Environmental Factors encompass 2 stakeholder themes: the environment and the healthcare system themes, which is consistent with the ICF conceptualization of Environmental Factors that are described by domains including: (1) products and technology, (2) natural environment and human-made changes to the environment, (3) support and relationships, (4) services, systems, and policies, and (5) attitudes.

In addition to Environmental Factors, Individual Behaviours are also likely to affect Ability and Functioning. The Individual Behaviours factor incorporates stakeholders’ comments about accepting responsibility and lifestyle choice. The theme Accepting Responsibility was seen either as a way to take control and responsibility for one’s health, or as a reflection of various coping strategies such as acceptance of limitations, positive framing, and managing difficulties. In their description of types of coping strategies, Folkman and Lazarus (Folkman and Lazarus, 1980, 1988; Schwartz and Schwartz, 1996) however, use the term accepting responsibility to describe a specific type of coping strategy in which one acknowledges one’s own role in the problem, with a goal of rectification. Thus, although an adequate label for the essence of the theme as it is described in the general and occupational health questions, it only reflects one particular strategy among many different coping strategies identified for occupational outcome. Thus perhaps the entire theme would have been better labeled “Coping” and although participants differentiated between this theme and psychological health, there was overlap in meaning particularly as it relates to facilitation of positive health. Taken together, the common thread among accepting responsibility and coping, and lifestyle choice is that they reflect individual behavioural choices or strategies that can either positively or negatively affect health. In the new model, they are included together as components of the Individual Behaviours factor.
Moving on to elaborate where possible upon measurement, participants views on physical health help to identify the range of the measurement for the recovery scale for Function and Ability. This scale cannot be dichotomous, and needs to include absence of pathology as the end point representing complete recovery, and additional points representing partial recovery. As well, in the ICF contextual factors are not classified because of the large social and cultural variance associated with them (WHO, 2002) so there is no way to clarify whether the impact is positive or negative.

At this point, the only theme about which stakeholders’ commented that has yet to be incorporated into the model is the whole health theme. Stakeholders viewed whole health as a global assessment of health, quality of life, and the various factors they felt contributed to these concepts which included the aforementioned outcome themes among others. Such perceptions represent a complex amalgamation of other factors and therefore provide the backdrop in which the outcome model is situated. Thinking back to Donabedian’s model, which was useful for situating outcome in the context of other variables, this study also supports the notion that occupational outcome is a factor embedded within several larger models. First, it is a component of occupational health, a concept that includes both individual health and workplace health. As well, occupational outcome is also embedded in a larger model of quality that is comprised of the interactions between structure variables, system participant factors, and outcome.

Although participants were not asked to generate entire models of outcome, in discussing the different questions presented to study participants, broader features of outcome arose which help us to understand how the stakeholders interpreted the emergent variables, and how they are reflected in the models of interest. In order to develop a more occupationally-relevant understanding of outcome, outcome is placed within the larger contexts of occupational health and quality. These findings are valuable, and help to address one of the identified problems with the literature in which more and more variables are measured and simply named ‘outcomes’. By identifying the relationship between outcome and other key variables, the scope and meaning of outcome is further clarified and circumscribed. This is significant because the use of outcome data is often considered a sound basis for the measurement of healthcare quality because such data are believed to deal with the ultimate goals of healthcare - improving patients’ health.
(Palmer, 1991; Williamson et al., 1991). However, others have argued that outcomes approximate quality best when the measurement effort is more comprehensive. They express concern that a narrow view, focused on selected individual outcomes, could result in significant missing quality elements (Huber and Obermann, 1999).

Recall that participants in this study were asked to comment upon occupational outcome, but also on occupational health. The variables falling within the scope of occupational outcome for the participants of this study encompassed a subset of factors included in the concept of occupational health. Thus it makes sense to expand upon stakeholders’ conceptualization of occupational health, and identify the relationship of occupational outcome to it. To participants in this study, the concept of *occupational health* is comprised of two components: individual health and workplace health. Participants described workplace health in terms of environmental and personal characteristics of the workplace which extends the work of others such as Hegney et al., 2006; Karasek and Theorell, 1990; Peterson, 2004; Polanyi and Tompa, 2004; Robson et al., 2005; and Siegrist, 1996 which is discussed in greater detail in Chapter 8. Workplace health is thought to affect individual health, and vice versa as seen in Figure 4.

**Figure 4. Relationship of Outcome to Occupational Health**

![Diagram](image)

Now, examining *individual health* in more detail, outcome factors and personal resources are included in the conceptualization of individual health. Personal resources include the financial stability and basic needs themes which stakeholders identified as components of occupational
health but not outcome. These themes are associated with material resource and, thinking back to earlier comments about models, parallel Donabedian’s ‘structure’ variable. Such personal resources are thought by participants to have a reciprocal relationship with outcome in that resources can either facilitate or be a consequence of a health condition. Note that like Donabedian, participants separate outcome from resource variables, but for Donabedian, structure related to resources in the healthcare system whereas for these stakeholders personal resources are a dimension of individual health. As a result, Donabedian’s concept of structure can be expanded to include 2 components: system resources, and personal resources, but only the latter is considered to be a component of health. Thus, stakeholders provided additional ideas about concepts related to the context of healthcare quality.

Recall that most of the discussion about successful occupational healthcare delivery focused on factors which participants did not consider to be components of health outcome, but rather as features of quality. These factors included employment factors, employee factors, employer factors, healthcare provider factors, health care system factors, insurer factors, and cost. As previously noted, a new variable labeled System Participant factors has been proposed to incorporate many of these factors, and it is located, along with structure, as a variable that comprises quality and affects outcome (see Figure 5).

Figure 5. Components of Quality

Equally important to the findings identifying emergent variables, is the finding that certain variables commonly measured as outcome in the medical literature such as cost and satisfaction did not emerge. Reflecting back to Table 1 which summarizes examples of outcomes over the
years, one might have expected to see a variable related to satisfaction. Recall from Chapter 2 that the frameworks for classifying outcome dimensions evolved in 3 major stages. Satisfaction was a variable that emerged at Stage 2, when psychosocial, functional, and perceptual variables became commonly measured. Satisfaction is a term whose meaning is not always self evident (Hudak et al., 2004). Is satisfaction to be presumed when one’s specified ideal outcomes are achieved? Can satisfaction with an outcome be an outcome itself? Participants in this study didn’t think so. Satisfaction seems more analogous to a rating of worth than to an evaluation of health or functional status. In this study all the variables identified by participants as outcomes fell into either the health status or the determinants of health meta-themes. As noted, determinants of health are themselves classified in various but similar ways in the literature (CIHI, 2007; WHO, 2007), but do not include satisfaction. Thus the exclusion of satisfaction as an outcome is consistent with some classification schemes in the literature, although not with practice. A possible explanation for this has been identified earlier as one of the problems with users of Donabedian’s model; although the term outcome is commonly used as though its meaning is obvious, it is rarely explicitly defined outside of Donabedian’s model, except in a circular manner, in which outcome is defined by the items chosen to measure it. Indeed this may represent another different non-outcome type of variable.

Furthermore, in the evolution of outcome classification, cost emerged in Stage 3 when many outcome frameworks began to include dimensions historically considered to be outside the realm of outcome as it was typically defined, including cost. For occupational stakeholders, cost did not emerge as a component of outcome, but arose only in the context of discussions about successful occupational healthcare delivery indicating that for this variable, occupational stakeholders do not concur with researchers who consider cost an outcome.

Do satisfaction and cost have anything in common? When factors such as cost were added into the conceptualization of quality, the summative concept has been called “value” (Hagen, 1996; Ireson et al., 2002; Young et al., 2001). Indeed, the concepts of satisfaction and cost are both consistent with an overarching evaluative component, of appraisal. Thus, these variables will be classified as components of ‘value’, and so can be used as ratings of quality.
Summary

The findings from this study illustrate the types of variables to be measured when evaluating occupational outcome, and related concepts, which should also be measured at the same time. In order to make sense of such ranges of possible outcomes, researchers have made use of models, the value of which is that they are useful to help organize an inventory of variables. The occupational health and outcome situation, as stakeholders describe it, is complex enough that neither of the existing models considered is sufficient to incorporate all the types of variables that emerged in this study. Situating outcome amongst other relevant variables helps to clarify the scope of outcome and avoid misclassification of variables. Indeed the scope of outcome as these stakeholders see it is much broader than the way either model defines of outcome. Perhaps it is time to adopt a new broader definition that includes the measurement of determinants of health in addition to health status. This issue will be further addressed in Chapter 8.

Challenges that had developed for occupational health as the dimensions of outcome expanded, that this new framework addresses include: 1) the degree of heterogeneity in outcomes without an overarching framework, 2) inadequately operationalized dimensions, and 3) blurred boundaries between outcome, structure, and process variables. This study has delineated the scope of occupational outcome as seen through the eyes of occupational stakeholders, and through an examination of meaning, helped to operationalize those emergent dimensions. Finally, the boundaries between structure, process, and outcome variables have been defined, resulting in the emergence of a new type of variable, and a proposal to redefine the term outcome.

Thinking not only about the themes that emerged, but the manner in which they were classified, this study provides evidence that stakeholders do not necessarily use the same classification systems as do the developers of models. Acknowledging that from a group of items, several classification mechanisms are possible, the issue of selecting between them is not commonly discussed as part of the process of model development. However, having awareness of the benefits of including stakeholder opinions, it would make sense to suggest that a model developed after specifically asking stakeholder views on the topic would be more relevant than
one that did not seek their input with the result being that the users do not naturally think according to that classification scheme.
CHAPTER 8
DISCUSSION

This thesis highlights two needs for occupational health: (1) enhancement of our understanding and conceptualization of occupational outcome and (2) enhancement our understanding of the perspectives of the different stakeholders in the occupational healthcare system, as well as the basis for those perspectives. Content analytic methodology was used to accomplish three objectives. The first objective is to compare the range of meanings and interpretations given to the concepts of: 1) health, 2) occupational health, and 3) occupational outcome. The second objective is to gain an understanding of the range of opinions among occupational stakeholders. The final objective is to utilize new-found understanding of occupational health outcomes and synthesize this knowledge with the International Classification of Function (ICF) and with Donabedian’s quality model (1980, 2003) to develop a framework of occupational outcome that incorporates the views of all key stakeholders. The key finding related to meaning overall is that health, occupational health, and occupational outcome have different and more complex meanings that extend beyond the list of variables compiled in reviews of existing research. The messages that relate to stakeholders are that stakeholders differed in the depth and breadth of the themes they discussed across the different questions, and although there seemed to be natural alignments among some stakeholder groups, which varied depending on the context, each group provided a more individualized focus suggesting all of their points of view were important. The second key message is that no single stakeholder group alone expressed all the themes and the complexity of the relationships among the themes. Lastly, a model of occupational outcome emerged that includes the interactions between Ability and Function, Individual Behaviours, and Environmental Factors, which contribute to perceptions of whole health. It was also possible to situate outcome in the context of both occupational health, which includes workplace health, and of quality, which also includes structure and system participant factors. The focus of this final chapter of the thesis is to further address the key messages related to each of the three objectives, and their meaning for future research, practice and/or policy. The study’s limitations are also addressed.
Objective 1: Understanding Meaning
Health, occupational health, and occupational outcome have different and complex meanings, with fewer themes being identified as outcomes than for either general or occupational health. In the literature, occupational outcome is often described by the term ‘work outcome’ – a term used as a descriptor for a wide variety of possible outcomes often without conceptual underpinning. Such breadth may be appropriate, but what is lacking is a framework to guide conceptualization. What this study adds is a better understanding of the categories that help to organize heterogeneous outcomes so that there can be more consistency among researchers in how specific outcomes are discussed and measured.

Increased Breadth and Depth of Themes
Themes common to all question topics included physical and psychological health, role function, whole health perceptions, individual behaviours (acceptance of responsibility and lifestyle choice) and environmental factors (environment and the healthcare system). For the general health question, the social and economic environment (e.g. finances) as a determinant of health was also important, whereas there was a much greater emphasis on the physical environment as a determinant of occupational health. This was the result of a considerable amount of discussion on the part of all stakeholder groups about “workplace health” as a dimension of occupational health. Indeed workplace health is one example of several themes that only emerged in certain contexts, a finding suggesting that stakeholders distinguish between different types of variables, identifying that some variables are not outcomes but are important nonetheless, and possibly explaining why for occupational outcome, fewer themes were discussed overall.

Workplace health was one of only two themes on which all stakeholders commented when talking about occupational health, and for which this study adds depth and breadth. Participants’ ideas about the 8 sub-dimensions of workplace health that emerged could be classified as describing either environmental or personal characteristics of the workplace. Environmental characteristics included: (1) safe/controlled (2) clean, (3) the nature of the work (e.g., reasonable job demands), and (4) the availability of programmes (e.g. accommodation or modified work programmes, fitness and wellness programmes). Personal characteristics included: (5) provision
or availability of information, education, or training, (6) positive workplace interpersonal relations, (7) a supportive, nurturing, positive environment or culture, and (8) freedom from stress. The concept of workplace health has been reviewed in detail elsewhere (Robson et al., 2005), the definition of which is important for the development of performance measures which in turn can be part of a process for improving working conditions. Some researchers have described workplace characteristics in a similar manner to the emergent dimensions here (Hegney et al., 2006). Sometimes however, lifestyle practices are included as another element of a healthy workplace (NQI, 2007), but for these stakeholders, lifestyle choice was not included with workplace health but rather was considered to be an element of outcome. Workplace health was primarily conceived in terms of safety, education, and a positive workplace culture, so for these participants, personal characteristics were more prominent than environmental characteristics in determining workplace health. There is little written in the literature however on whether different stakeholders discuss healthy workplace dimensions in the same way. In this study, insurer representatives discussed all of the dimensions that emerged for workplace health, and their views matched most closely with those of union representatives who also discussed the concept of workplace health very broadly. The narrowest views of workplace health were those of healthcare providers. These differences might be related to level of experience in the workplace setting. If such a suspicion is confirmed it might suggest an area of future educational need for health care providers.

More interesting though is the finding that workplace health was considered a component of occupational health but not occupational outcome. This conflicts with the way it has been conceived in the literature where it is more closely associated with the notion of a causal factor than a feature of health per se, by studies which suggest that characteristics of the workplace can influence health outcomes (Karasek and Theorell, 1990; Peterson, 2004; Siegrist, 1996). Historically, outcome has been thought of in relation to the health of individuals therefore, healthcare delivery aims to have an impact on the health of individuals or populations. By including workplace health as a component of occupational health, these stakeholders seem to be saying that the responsibility for health extends beyond the individual, and beyond the healthcare system.
The implication for healthcare practice and policy of including workplace health as a component of occupational health is that the workplace as an entity should also be considered in parallel to affected individuals. In other words, in a case of occupational illness or injury, it is not enough to think about the affected individual; their workplace also needs to be taken into account. These stakeholders provide ideas about how to do this by commenting on what environmental (e.g. safe, clean) and personal characteristics (e.g. workplace culture, interpersonal relations) make a workplace healthy. Stakeholders appear to be extending accountability for occupational outcome to include all stakeholders, suggesting the importance of a broad team approach to the delivery of occupational healthcare. This would be an area deserving of further research. The team approach is not new in occupational healthcare, particularly in industry settings where legislated approaches to the identification workplace hazards through joint health and safety committees have long existed. However, successful teams require shared vision (Wachs, 2005).

This study suggests that these occupational stakeholders, although not without their areas of overlap, talk about different key themes and therefore fundamentally may not have a shared vision. The goal of this study however was not to build consensus, and therefore a next step might be hold further focus groups, this time specifically with mixed representation, and identify whether there are areas of agreement and disagreement among stakeholders that might allow prioritization of outcomes. Another area for further study would be to identify with which stakeholder/s accountability for keeping the workplace healthy would rest, and whether this is consistent with the roles and actions of stakeholders in the current system. Gaps in healthcare delivery would be indicated by inconsistency between current and expected accountability.

Thinking about the significance participants gave to workplace health, why did stakeholders not want to measure it as an outcome? Stakeholders are likely most familiar with a health care delivery system that is currently designed to assess, investigate, diagnose, and treat individuals, not workplaces. All of the “treatment” is vested in the worker getting better – this worker-centric approach may reflect inaccurate attribution of causality to the worker, given the amount of thematic discussion around the issues of accepting responsibility. There may be a perception that occupational disease is the worker’s fault, it is the worker’s responsibility, and measurement should therefore be of the worker. This possibility would require verification.
through further study by asking questions about the attribution of causality for occupational illness or injury.

Gathering together what is known about occupational health then, the key feature of occupational health is workplace health, and the key feature of workplace health is a safe controlled workplace. Thus, a logical next step for improvement of the provision of occupational healthcare is for the stakeholders to focus their attention on safety in the workplace. Although this may already be a focus amongst employer representatives, it may not be the focus for all occupational stakeholders. Once again the underlying message is that in order to be effective and produce meaningful findings occupational health care needs to have a broad team approach to understand and address important outcomes. From a practical perspective what can any given stakeholder do to assist the team? The simplest practical solution would be to ask the question: “Is the workplace a safe one?” A “no” answer to this question is a red flag or sentinel event identifying an unhealthy workplace, which itself suggests poor occupational health requiring a team-based response.

Even though participants in this study identified fewer outcome themes than occupational health themes, overall their conceptualization of the scope of outcome was broader than Donabedian’s ‘changes in individuals or populations that can be attributed to healthcare’ (Donabedian, 2003), or the World Health Organization’s ‘structural and functional impairment, activity limitation, or participation restriction’ (WHO, 2002). Furthermore, whereas the ICF has traditionally emphasized impairment, reflecting the negative impact of the condition on a person’s life, these participants are emphasizing a more positive interpretation of outcome as it relates to recovery. This nuance appears to represent a subtle difference in the underlying meaning of outcome between the ICF and Donabedian model. In this study, outcome is considered in terms of the positive impact of healthcare on a person’s health, which is more consistent with Donabedian’s interpretation of outcome as a change in health status resulting from healthcare. However, these participants included determinants of health as outcomes (environmental factors, individual behaviours) in addition to health status variables (physical, psychological health). Thus, although perceptions of occupational outcomes are still dominated collectively by health status variables consistent with a medical perspective, stakeholders also incorporate features such as
participation, which are consistent with a more biopsychosocially derived outcome conceptualization. In addition, recognizing that determinants of health are typically considered to be factors outside the health system that affect health, these participants have a broader conceptualization of the meaning of outcome that extends beyond the healthcare system. A useful next step would be the confirmation of such findings with quantitative methods. The findings of this study could be confirmed with other approaches to content analysis that use exploratory or confirmatory factor analysis to identify themes in text. Of course, such a study would require much larger sample sizes which may be difficult to obtain.

As well, for these participants, increased breadth was reflected in the emergence of a new type of variable: system participant factors. One explanation for this is that by including multiple stakeholders in the system as opposed to just the healthcare provider, there is another dimension of factors to consider that did not exist in the dual stakeholder milieu, with a typical patient-physician dyad. The implication of this finding, together with the aforementioned inclusion of determinants of health as outcomes, is once again, that stakeholders appear to be extending accountability for occupational health outcomes beyond the realm of the healthcare provider to include all stakeholders. Accountability was also raised in the discussion about workplace health. Determining stakeholders’ views on accountability for outcomes would be an important next step. Although some authors have made suggestions about the appropriate locus of accountability in some settings (Ballem, 2007; Nerenz, 1998), gaps are identified in the measurement and understanding of stakeholders’ views on accountability in occupational healthcare. Clarifying stakeholders’ views on accountability either through further focus groups or with survey methods could lead to the identification of educational and consensus-building opportunities. Overall, this study focused on the concepts of health and outcome, and made it clear that stakeholders do not necessarily develop their meanings of such concepts by reading the literature on models. Knowing this, further examination of the meaning of some of the non-outcome variables related to quality and value, and all their hypothesized components would also be valuable.

In addition to greater breadth, study participants spoke with greater depth about certain domains of outcome, in particular role function. As noted, multiple themes emerged in which
the meaning of the theme was discussed in a qualitatively different way between questions. Role function was one such theme which was discussed in detail in relation to its meaning for occupational outcome, and its place in existing models. This study builds on the existing shortcomings in the literature, and adds clarity to the occupational role dimension by identifying the specific roles for inclusion as occupational outcomes. These include: (1) home, family role (2) work role, (3) social role, and (4) recreational role. Some work has begun on the development of measures of participation in the rehabilitation setting (Brown et al., 2004; Lenze et al., 2004; Perenboom and Chorus, 2003), however the conceptual complexity of the ICF definition of participation, unrealistic performance qualifiers, and vague criteria for environmental settings have been identified as problems for the development of such measures (Gray et al, 2006). An example of a participation measure is the Participation Survey/Mobility (PARTS/M), developed by Gray et al. (2006). It is a self-report survey of participation in 6 ICF domains by people with mobility limitations. In this measure, the components of participation included frequency, health-related limitations, importance, choice, satisfaction, use of assistive technology, and use of personal assistance. Not all components of participation scales such as the PARTS/M make sense for use in the occupational setting (e.g. use of assistive technology). As well, by comparison, the current study changes the ICF-based thinking about participation from a task-based to a role-based domain structure, thereby making the settings for measurement in occupational health care explicit. Next steps would include soliciting stakeholder input into how to best quantify capacity in each role for occupational health. Consideration would need to be given to both objective and subjective criteria (Brown et al, 2004) as well as to identifying potential confounding factors such as motivation (Lenze et al, 2004).

Furthermore, this study also clarifies the work role specifically for occupational outcome. Stakeholders differentiated work role outcomes in terms of an individual’s capacity to return to one of three types of work duty: 1) return to one’s own job or to full duties, 2) return to any job or restricted / accommodated duties, or 3) return to a meaningful job that is equivalent to, but different from their original own job. Role balance was also identified as important. What is needed now are ongoing studies on how stakeholders view the meaning of role balance, as well
as further consideration of whether work role can be adequately measured with a 3-point Likert scale related to return-to-work categories, or whether additional features might be necessary.

**The Goals of Occupational Healthcare**

Considering the findings that a) the meanings of occupational health and outcome are different, and that b) the meaning of a theme can vary depending on the context, another interesting issue arises. It relates back to the notion discussed in Chapter 2 that outcome measurement is intimately linked to the definition of health, although not necessarily confined by it. Researchers note that health can neither be measured directly, nor can it be described by a single variable. Rather, its measurement relies on gathering information about an ever-increasing number of indicators, which represent components of the overall concept (McDowell and Newell, 1996). However, findings in this study suggest that measuring outcome as stakeholders define it, may not necessarily reflect that stakeholders’ perception of health. Therefore it is not safe to assume that because a particular concept is identified as a dimension of health, stakeholders will be interested in changes in that dimension as a reflection of improved health. Why might this be so? One possible explanation relates to the relationship between outcome and the goals of healthcare.

In the past, although related to health, outcome measures were also related to the goals of healthcare. In his 1987 paper about validating health measures, Ware Jr. identified that the goal of the health case system is to maximize health status, and so outcome should be defined according to dimensions of health status. Similarly, White (1967, 1970) conceptualized the goal of healthcare as the improvement in functional capacity of individuals and so devised a model of outcome that included disability in addition to the typical death and disease measures. Thus stakeholders’ choices of themes to include as outcomes might relate to their goals for the occupational healthcare system as much as they relate to their ideas about health. The idea that stakeholders’ choices of outcomes may relate to their goals for the healthcare system could also help to explain the finding that the dominant theme for each stakeholder group differed, since their different goals might be reflected in the way they focus their discussions about outcome. The possibility that a better understanding of stakeholders’ goals could shed light on several key findings of this thesis (i.e. occupational outcome themes do not reflect the extent of
stakeholders’ perceptions of occupational health, and the dominant theme for each stakeholder group differs), makes it a useful further step for researchers.

**Objective 2: Stakeholder Perspectives**

**Stakeholder Differences in Dominant Theme**

As noted, the dominant themes for each stakeholder group differed, with healthcare providers focusing on physical health, patients on role function, insurer representatives on psychological factors, employer representatives on lifestyle choices, and union representatives on workplace health. Although these findings add to a growing body of research recognizing the importance of understanding the differences that arise between stakeholders, participants were not specifically asked to explain why they focused on a particular theme. Some research that might lead us down a path to greater understanding includes that of Franche and her colleagues. Franche et al. (2005) propose differing paradigms or sets of assumptions under which each stakeholder group operates, and uses these paradigms to predict which return to work interventions will appeal to the various stakeholders. Applying these paradigms to the results of this study, the proposed paradigms are sufficient to explain only the foci of the employer, union representatives, and healthcare providers. Thus, although useful as a starting point to begin to understand stakeholder differences, more research is needed into the underlying causes for stakeholder differences.

**Shifting Stakeholder Alignments**

Although stakeholder differences may be anticipated, and ideas to explain them are beginning to emerge, the finding that stakeholder alignment changes between discussion contexts is a new contribution to our understanding of stakeholder differences. The views of some stakeholders align with other stakeholders only in certain circumstances. For the discussion of occupational outcome, patients, healthcare providers, and insurer representatives commented on similar themes, compared to union and employer representatives who each stood alone, having unique patterns in the individual themes about which they spoke. Alignments changed depending on the question such that the commentary of employer and insurer representatives was similar for both discussions about health (general and occupational) but diverged when discussing occupational outcome. Similarly, patients and healthcare providers commented on similar themes in both
occupational contexts (occupational health and occupational outcome) but diverged in the discussion of general health. Following on the idea that understanding stakeholders’ goals might help to explain group differences, understanding goals may therefore also help to shed light on this new information about shifting alignments.

The finding of shifting stakeholder alignment has practical implications. The significance and impact of understanding stakeholder perspectives has long been known in the field of business management where strategic management depends on whether stakeholders are viewed as being supportive or unsupportive. From this perspective, the consequence of involving supportive stakeholders is enhanced cooperation. Not involving supportive stakeholders represents missed opportunity, and involving non-supportive stakeholders increases risk (Blair et al., 1996). If alignment between stakeholders is continually changing depending on the situation, it becomes difficult to consistently identify supportive stakeholders. A consequence of inaccurate assumptions about another stakeholder’s position on a given topic could lead to miscommunication and misunderstanding. Therefore this unexpected finding underscores the benefits of including stakeholder perspectives which include enhanced cooperation and collaboration, empowerment, as well as enhanced evaluation of treatment practices and priorities. Most important for this work though is the fact that outcomes derived from multi-stakeholder input are more relevant, useful, and accessible, and can thereby lead to enhancements in programs of care.

In addition to discussing areas of alignment, lack thereof was also an important finding. That the views of union representatives were at odds with those of the other stakeholders occurred both when considering stakeholders’ differences for individual themes, as well as when comparing the general health, occupational health, and occupational outcome contexts as a whole. The explanation for why the views of union representatives are often so different from those of other stakeholders is unclear. Given their role as an employee advocate one might expect alignment with the views of patients. However, given that their understanding of the workplace may be greater than that of healthcare providers and insurer representatives, it also might not be surprising to find some overlap with the views of employers. Perhaps being in a position to ‘see both sides’ makes alignment with other stakeholders difficult. As well, whether there are factors
that draw individuals to take on the role of becoming a union representative that also affects their views on the topics discussed is also unclear and worthy of further research.

Another possibility is that these findings can be understood in terms of responsibility. Historically, unions emerged to represent employees, and have shifted responsibility for workplace health to employers. For a case of occupational illness this suggests that union representatives might view the employer as both the problem and the solution. Thinking now to other findings of the study, employers placed a greater emphasis on lifestyle issues. This suggests that employers might think employees have some responsibility for their own problems and need to be a part of the solution. Thinking about possible views of other stakeholders, patients may place responsibility for the problem with the employer, but look to their employers, healthcare providers, or to themselves for the solution. In contrast, healthcare providers may feel responsible for solutions, but not for the problem. In all, a recurring area of need for future study that has been identified from this study is for greater understanding of stakeholders’ attributions of accountability and responsibility for various health and outcome-related themes. Taking this idea one step further, understanding stakeholders’ expectations about the types of actions anticipated from each other stakeholder might identify possible barriers to case resolution if expectations are not being met.

Overall, continued conversation with stakeholders is important to gain a better understanding of areas identified as gaps. For example, in this study, when stakeholders discussed workplace health, insurer representatives discussed all of the dimensions, and their views matched most closely with those of union representatives. The narrowest views of workplace health were those of healthcare providers. These differences might be related to level of experience in the workplace setting. As noted, if such a suspicion is confirmed by additional study, it might suggest an area of future educational need for health care providers. Furthermore, studies which determine whether comments expressed in interviews or focus groups are reflected in the day-to-day routine of occupational healthcare delivery by direct observation of practice would add value by confirming that stakeholders are “walking the talk” and “practicing what they preach”.
Possible Sub-group Differences
Overall, the commentary from participants in a given stakeholder group was relatively homogeneous. However, two exceptions were identified which included occasional differences in the thrust of comments from family practitioners and occupational specialists in the healthcare provider group, and from nurse case managers and adjudicators in the insurer representative group. Such differences would not be entirely surprising, given the different training backgrounds for both dyads. They are practically important to systems or organizations for a variety of reasons. When two stakeholders with different views both interact externally with a single other entity the result could be the distribution of mixed messages. As well, internally, if two workers in key roles have different views on outcome within an organization that markets itself in a certain way to the public, this might again lead to the presentation of mixed messages, making it appear as though the organization lacks unity and/or organizational leadership. As well there may be inconsistent application of policy. The possibility of sub-group differences is deserving of further study.

Stakeholder Perceptions of Each Other
Some stakeholders had ideas about what other groups’ thoughts, attitudes and expectations might be. These emerged when participants highlighted their own perspectives by placing them in contrast to their thoughts about others. Although this study examined stakeholder differences, it did not specifically examine stakeholders’ perceptions of each other. This is worthwhile because it may shed light on the reasons why stakeholders differ in their comments on various topics. As well, bringing to light any inaccuracies in stakeholders’ perceptions of each other serves as a starting place to address and resolve inter-group differences. This would be the ideal mechanism to fill identified gaps around understanding stakeholder attributions of accountability and responsibility, and could be accomplished with further focus groups, or with a rating-scale survey.

Objective 3: Framework Generation
Model Validation
This study represents the proposal of a new framework for conceptualizing occupational outcome (Figure 3) and its relationship to other variables (Figures 4 and 5). The outcome
framework extends current models through its greater breadth and depth and its basis on direct stakeholders’ comments. An important next step now is model evaluation, including validation and model testing. The value of having a model such as this is that now the model can be used to identify the areas that are well covered by existing outcome measurement instruments or instrument scales, as well as gaps therein. As well as being a method of data collection, focus groups have been advocated as a means to identify the appropriate domain of content for the subsequent development of more structured survey instruments (Sim, 1998). This study has therefore provided the background necessary to undertake the development of outcome measurement tools for occupational healthcare that incorporate stakeholders’ views about what content should be represented in such a tool. Alternatively instead of developing a new measure, knowing the dimensions of interest, one might ask whether measures exist to evaluate the themes of interest, and whether they have been validated in the occupational setting. In other words, similar to the process undertaken by Deyo et al. (1998), a core set of generic and specific measures useful for monitoring the range of outcomes identified by stakeholders as important for occupational health might be identified. Once identified such measures could be validated in an occupational population. The benefit of this approach is the level of standardization it adds to the literature.

Thinking back to the factors included in the model and comparing this to the literature and to compendia of existing measures (e.g. McDowell and Newell, 1996), measures exist for themes such as health status and psychological health (e.g. SF-36), however as previously noted in the thesis introduction, such measures require further validation in the occupational health setting. As noted earlier in the discussion, some work has begun on role participation questionnaires mostly in rehabilitation settings and more is needed to make such measures applicable to occupational health, which would require both role function and role balance to be measured. Some existing measures do address role function, (e.g. SF-36), but do not include all the relevant roles. As well, although questionnaires specific for the work role exist (Kopec and Esdaile, 1998), they do not effectively conceptualize work role as these stakeholders do, citing 6 domains (i.e. amount of time spent on occupational activities, productivity, quality of work, job satisfaction, job security, and co-worker relations – see chapter 3), as compared to the 3 work-role categories proposed by these stakeholders (i.e. return to one’s own job or to full duties,
return to any job or restricted / accommodated duties, or return to a meaningful job that is equivalent to, but different from the original own job). Moving on to individual behaviours, instruments exist to measure coping (e.g. Folkman and Lazarus, 1980), but less is available on the topic of measuring attributions of responsibility, especially in the occupational context. Next, considering environmental factors, the physical environment is most accurately measured with hygiene sampling as opposed to survey measures. Evaluation of the healthcare system by stakeholders may occur through public opinion surveys or in the healthcare research setting may be represented by the inclusion of questions related to satisfaction, which was not an emergent theme for these stakeholders, although its role in occupational healthcare may be worthy of further examination. Overall then, instruments exist to enable measurement of some but not all of the themes in this model.

In order to test the proposed model, one might for example, evaluate its effectiveness in predicting differences in outcome variables on the basis of the presence or absence of various system participant factors. The model itself would benefit from further elaboration of several features including the different measurement scales for variables such as physical health and role function, and the relationships between variables and in particular the role of psychological factors as facilitators, causes, or consequences of a given health condition. As well, future research might, through survey or focus groups, seek to further clarify the role of workplace health in the model. Key to future studies in this regard would be asking stakeholders to specifically identify its location in the outcome, occupational health, or quality models.

Discussions about measurement instruments for particular model components raises an issue that is relevant not only for this thesis and the future studies derived from it, but which is also present generally in the literature and therefore deserving of comment. Although stakeholder involvement in studies such as this is widely supported because of its benefits, which include enhanced cooperation and collaboration and empowerment, enhanced evaluation of treatment practices and priorities, and more relevant, useful, and accessible outcomes that can thereby lead to enhancements in programs of care, nonetheless, there is much added complexity from the fact that stakeholders bring with them their own terminology and understanding of concepts. The result is that it becomes hard to communicate without the use of ‘loaded terminology’ – labels,
themes, and concepts etc. that have been used in many ways in different contexts. This not only makes communication difficult, but it also makes it hard to generate a model that is suitable to all stakeholders (since choices about terminology have to be made). Furthermore, it increases the risk of misunderstanding if one stakeholder uses the same term with different meaning than another. The multiplicity of confusing and loaded terms within the literature about health and outcome was well-exemplified in Table 1, and so substantiates the inclusion of various stakeholders in this study, but going forward it will be important to maintain and develop clear definitions of terms that are agreeable and meaningful to all involved stakeholders.

**Translation and Application**

Additional studies might help to determine how to best translate the findings into specific components of either healthcare delivery or policy development. Lohr (1988) commented that for the field of quality assessment, to make progress it is fundamental to have evidence linking process and outcome of care. The same can be said here. Although particular occupationally-relevant factors may be identified as outcomes to measure, it is also important that such factors are evaluated for their relation to other components of quality care delivery in order to avoid making costly errors like the one identified by Baldwin et al. (1996). Using data from the Survey for Ontario Workers With Permanent Impairments, they discovered that return-to-work (when assumed to indicate complete recovery) is a misleading outcome measure partly because it is influenced by other factors not related to health care (e.g. self-employment). Therefore, we must continue to pursue clear definitions of the outcomes we measure, and to objectively confirm their relation to the process of health care delivery.

In terms of healthcare policy, the value of stakeholder input is well-documented. Kirby and Simpson (2007) summarize problems with existing policy making processes, one of which is the tendency for policy to be developed by interest groups, and the bias resulting from that group’s ideology and practice. They suggest that, “policy making is too often characterized by an absence of meaningful input from those social groups that will be directly impacted by the policy under development”. They go on to suggest that inclusiveness of appropriate and diverse stakeholders and engaged participation rather than traditional representation is a key element for optimal policy making. Indeed, Wachs (2005) notes that creating self-sustaining teams requires
cultural change such that team members see themselves as team members before individuals. As well, Cookson (2005) notes that clear understanding of stakeholder opinions may be relevant to predicting policy outcomes. Hoeijmakers et al (2007) reiterates the value of understanding stakeholder perspectives as a mechanism to gauge capacity to participate and contribute to policy development. Therefore, the stakeholders’ viewpoints elicited and presented in this thesis expand the pool of evidence for researchers gathering data in the process of developing evidence-based healthcare policy.

From Outcome Measurement to Outcome Management

Once enabled with the ability to measure outcome, one must consider how that information will be used. Various authors have made useful comments on this topic, which provide suggestions for additional next steps for quality occupational healthcare delivery. McGrath and Tempier (2003) discuss implementing a quality management program and note that efficient communication flow between stakeholders catalyzes outcome measurement into outcome management, which is defined as the process by which treatment practices are continually measured, reviewed, tested, and redefined toward greater efficiency, effectiveness, and value. They also note that regular feedback to stakeholders is the most important part of the outcome management system. Young et al. (2005) agree, noting that “Improving our understanding of the nature of the consensus and tensions among RTW [return to work] stakeholders is an avenue for helping them collaborate in their planning and action”. As well, Hernandez et al. (1988) talk about 10 principles for the development and utilization of outcome information in systems of care, which they label ‘outcome accountability’. Initial tasks in developing outcome accountability include involving stakeholders, and clarifying the language of outcomes. This study has successfully accomplished this step. Next steps would then be assessing current capacity for building an outcome accountability system, and planning for implementation. In sum, a practical next step at the program level might be to build or develop a program that is outcome-responsive based on the new-found information from this study.

Study Limitations

In the discussion of study rigor, as well as the section on constraints in data collection in Chapter 5, the efforts made to avoid shortcomings in this study have been presented, which
support the trustworthiness of the findings. Nonetheless, the study is not without several limitations. Qualitative studies do not produce findings that are absolutely generalizable. The sample was purposive, and the value of this technique for this study is in identifying the meanings held by a diverse group of stakeholders and being able to use that data to identify gaps in existing models. The strength of this approach is that it enables stakeholder participation in the development of models that drive quality and outcome data gathering and possibly program evaluation. Still, it would be useful to replicate the findings from this study while specifically expanding the employment sectors and unions represented, the range of cultural backgrounds, or those with other private insurance carriers would also be an important next step.

Some questions resulted in a larger than expected breadth of commentary. In an effort to avoid “leading” the participants, the questions were intentionally developed such that the preamble was minimal, particularly around possible meanings for health and outcome. It is therefore possible that stakeholder groups interpreted a question differently than its intent. It is also possible that contextual cueing may have created a frame of mind that led to biased responses. An alternative explanation for the breadth of themes that emerged however was that these stakeholders have had little opportunity to discuss such issues in a research context, and were keen to have their voices heard.

In addition to the limitations note above, there are several important additional caveats to consider in this study. First, the domains of outcome identified by participants in this study are not indicative of their views about whether, or how successfully such outcomes are currently utilized in occupational healthcare delivery, but rather indicate which domains are valued by participants. Comments about current utilization are derived primarily from the literature. Second, stakeholder selection was based on the system of healthcare delivery in place in the province of Ontario. Other jurisdictions with different healthcare systems might identify different or additional stakeholders who may hold important yet different views.

**Conclusion**

Having acknowledged this study’s limitations, it extends research on occupational outcome by addressing the two needs for occupational health brought to light by the vignette presented in
Chapter 1, those being: (1) to enhance our understanding and conceptualization of occupational outcome and (2) to enhance our understanding of the perspectives of the different stakeholders in the occupational healthcare system, as well as the basis for those perspectives. The study succeeded in illuminating the meanings occupational health and outcome, developing an understanding of the breadth of occupationally relevant outcomes, and developing a comprehensive framework to guide the conceptualization of the outcomes relevant to occupational health and the diverse stakeholders (e.g. patients, healthcare providers, employers, unions, and insurers) in this field. The study’s findings highlight the importance of considering the perspective of all stakeholders when examining outcome, appreciating that there is currently no single model that adequately encompasses the outcome concept as occupational stakeholders currently conceive of it. The findings of this thesis have important implications for research and the delivery of quality care to patients with occupational disease or injuries. By developing a uniquely occupational conceptualization of outcome which assembles the perspectives of key stakeholders, and highlights their distinctive views about outcomes, we gain greater understanding of the dimensions of occupational health and additional themes that represent gaps and areas of future research. We also learn of the key dimensions of interest for different stakeholders, the areas of consensus and discord, and factors that may relate to their perspectives. This allows for a framework for conceptualizing occupational outcome that is based on stakeholder input. The study also makes a significant contribution to the current literature not only because of the importance of the topic being addressed, but also because of the methodology used. Among the small pool of researchers in occupational healthcare, many have quantitative and/or clinical backgrounds so qualitative studies, which are particularly useful for gaining insight into complex situations, are scarce.
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APPENDIX A:

Moderator Guide and Focus Group Questions

Introduction

1. Welcome and thank you for attending

2. Introduction – Jane

Only if they ask: Joan Saary is currently working on a PhD in the area of Health Services Research at the University of Toronto.

3. Lunch is served, please help yourself

4. Plan of the session
   - please sign a consent form
   - please fill out the questionnaire before you leave
   - expected time will be around 1.5 hours, and a few minutes at the end for questionnaire completion, but timing really depends on how much there is to say

5. Ground rules
   - The session will be audiotaped, and the tape transcribed, and some notes will be taken during the session as well.
   - No names will be used to identify speakers.
   - Please speak loudly and clearly
   - Please try to speak one at a time
   - Everyone should have a chance to speak for each question
   - Anything to add Jane?

6. Introductions of participants (Discuss with Jane re if this relatively standard…):
   - Briefly, tell me your first name, how long you have been involved in the field of occupational health and in what roles, and a bit about yourself.

   Need to have an understanding of their background – where they’re coming from.
This study is about understanding and measuring the effectiveness of health care for occupational disease. There are some general questions, and some of the questions are more specific to occupational contact dermatitis.

In the past we used to measure how the health care system was doing by looking at how many patients lived or died. We aren’t just interested in whether a patient survives anymore. The World Health Organization defines health as “a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity”. In other words, health isn’t just physical health.

Also, diseases and their treatment can affect more than just a person’s health; diseases and treatments can affect other areas of a person’s life as well.

1. Think for a moment about the idea of health. What does it mean to be healthy?

2. In your opinion, when we talk about the health of workers, what are the different components (aspects, factors, parts of) of health for a worker? By that I mean, what are the ingredients that go into good health for workers?

   - Reworded: What are the pieces that together make up “health”?

Possible answer:
- physical health or functional status
- mental health or well being
- general health perceptions
- quality of life: (community, education, family life, friendships, health, housing, marriage, nation, neighbourhood, self, standard of living, work)
- Work-related issues

   Probe: Does work contribute to health? How?
   Probe: How important is work for health?

3. Usually we say the goals of health care are to maintain and restore health. Thinking more broadly and in more detail than this, are these the goals for providing occupational health care, or are there other goals to aim for?

What specifically do we mean by “maintain” health or “restore” health for workers (with an occupational disease)?

What has to happen to restore or maintain health in workers?

Possible answer:
- Help return to work
- Give advice about workplace accommodation
- Help with compensation claim
- Provide education
- Communicate with employer

Probe: Are there other goals that would be specific for occupational contact dermatitis?
If the people involved in a case of occupational illness (such as the patient, physician, insurer, and workplace) want to know how well occupational health care is being delivered, or how the occupational health care system is working, we need to somehow “measure it”.

By measuring the most important outcomes, we have a chance to keep track of how well we are doing. We can collect information or data about many body organs, but this doesn’t always tell us “how well we’re doing”. To know “how well we’re doing”, we would want to measure many different things.

4. In your opinion, to figure out how well occupational health care is being delivered, what do we need to measure; what information should we collect? By that I mean what would be a measure of success?

   Probe: What about for occupational contact dermatitis? What would we need to measure to figure out how well we’re doing in delivering occupational health care to this group?

   *If time and for individual interviews:*
   - What do you think insurers would say? Physicians? The workplace?

5. Which of these things (that we’re collecting and/or measuring) in your opinion would be the most important:

   - in occupational disease?
   - in occupational contact dermatitis?

   (what is less important or least important in your opinion?)

   *(Try to summarize a consensus agreement of the most important item, or maybe top 2 or 3 if no consensus)*

   Probe: Do you think the patients, physicians, insurers, and workplaces will all agree on what is most important?

6. How would you know when a person with an occupational disease is better?

   What does being “better” mean?

   Probe: Is that the same for occupational contact dermatitis? i.e. How will we know when someone with occupational contact dermatitis is better?

7. What makes it hard to reach our healthcare goals, or to get a person better again?

   Probe: Is that the same for occupational contact dermatitis? How will we know when someone with occupational contact dermatitis is better?

8. If you were in charge (if you could be “King For a Day”), what changes would you make?

   *(Clarify: to occupational health care)*

   *What about King for a Year?*

9. Have we missed anything? Is there anything else you want to let us know?
APPENDIX B: Stakeholder Study Demographic Questionnaire

Date: ____________________________________

Gender: Male Female

Date of Birth: ____________________________
Month / Year

Race: Caucasian Black Asiatic Hispanic East Indian
Other: ___________________________

Are you a:

Patient

Nurse Physician Other Health Care Worker: _______________

Adjudicator Other Insurer Representative: __________________________

Union representative Supervisor Management representative

Other Workplace Representative: ___________________________

Employer? ____________________________________

How many people work there? ______________________________

How long have you been doing your current job? ______________

Years of past experience with occupational health care? _____________

On a scale of 0 to 4 where 0 is none, and 4 is a lot, how much knowledge or experience do you have with:

- Occupational diseases in general? 0 1 2 3 4
- Occupational contact dermatitis? 0 1 2 3 4
- Issues arising in the workplace? 0 1 2 3 4
- Insurance issues? 0 1 2 3 4

Have you ever had a work-related (occupational) disease yourself?

Yes  No