THE PROCESS OF CARE DELIVERY IN TELEPHONE NURSING PRACTICE:
A GROUNDED THEORY APPROACH

by
Mary Elizabeth Greenberg

Copyright © Mary Elizabeth Greenberg 2005

A Dissertation Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

2005
As members of the Dissertation Committee, we certify that we have read the dissertation prepared by Mary Elizabeth Greenberg entitled *The Process of Care Delivery in Telephone Nursing Practice: A Grounded Theory Approach* and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

Joyce A. Verran, PhD, RN, FAAN

Gerri S. Lamb, PhD, RN, FAAN

Marylyn Morris McEwen, PhD, APRN, BC

Judith A. Effken, PhD, RN

Final approval and acceptance of this dissertation is contingent upon the candidate’s submission of the final copies of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

Dissertation Director: Joyce A. Verran, PhD, RN, FAAN
STATEMENT BY AUTHOR

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at the University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the library.

Brief Quotations from this dissertation are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation form or reproduction of the manuscript in whole or in part may be granted by the copyright holder.

MARY ELIZABETH GREENBERG:____________________
ACKNOWLEDGEMENTS

Without the help and support of the nurse participants and clinical nurse managers, my family, faculty, friends and colleagues this dissertation would not have been possible. Although it would be impossible to name individually all of the people and the events that contributed to the success of this project and the accomplishment of a remarkable educational and experiential milestone, I know and value and appreciate each and every one.

To my family who made many sacrifices to help me accomplish my goals. Jeff, my husband, my world, you shared each and every step of the journey. This is our accomplishment! Jonathan and Camila, you loved, supported, and encouraged me and I am grateful, thank-you.

Dr Joyce Verran, there are no words to express the esteem, affection, and appreciation I hold for you. You are an awesome leader, mentor, advisor, teacher, and dissertation chair, and my role model. Thank-you.

Dr. Gerri Lamb, Dr, Judith Effken, and Dr, Marylyn McEwen you challenged me intellectually and helped me grow professionally. I have learned a lot from each of you and consider myself extremely fortunate to have worked with you in faculty/student roles and in completing this dissertation. I am also grateful to the outstanding faculty at the College of Nursing and particularly to Dr. Pam Reed, Dr. Carrie Braden, Dr. Julie Erickson, and Jan Saulpaugh for providing excellent opportunities for growth and development.

To my colleagues Beth and Dianna, thank-you for the valuable contributions you made to this research project. During the doctoral program meaningful friendships formed that I will continue to cherish. For adventures past and those yet to come I am grateful to you all: Jan, Patty, Judy, Drs Caroline Ellermann, Barb Brewer, and Mary Doyle, and those soon to be Beth, Micki, Donna, Dianna, and Edith.

I would like to acknowledge the Scholarships received which helped to complete this research. From the University of Arizona College of Nursing: the Nurse Set-Aside Scholarship (2004) and the Beverly McCord Doctoral Scholarship (2005); and, from the American Academy of Ambulatory Care Nursing: the 2005 Research Award.
TABLE OF CONTENTS

LIST OF FIGURES ...............................................................................................................11
ABSTRACT .........................................................................................................................12
CHAPTER 1: INTRODUCTION ......................................................................................14
  Problem Statement .........................................................................................................14
  Research Question .........................................................................................................15
  Purpose of the Research .................................................................................................16
  Background ....................................................................................................................16
  Qualitative Research Method .........................................................................................20
  Significance for Nursing .................................................................................................21
  Chapter Summary ..........................................................................................................22
CHAPTER 2: LITERATURE REVIEW .............................................................................23
  Literature Review in Grounded Theory ...........................................................................23
  Theoretical Context .........................................................................................................25
  Nursing Context .............................................................................................................27
    Context as Organizational Structure ............................................................................28
    Context as Practice Environment ................................................................................29
  Decision-Making and Context .......................................................................................30
  Research on Telephone Nursing Practice ......................................................................34
    Outcome Research .......................................................................................................35
    Context .........................................................................................................................36
    Practice Environment .................................................................................................38
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision-making</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>Nursing Process</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>CHAPTER 3: RESEARCH METHODS</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Introduction to Grounded Theory</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Rationale for Selecting Grounded Theory</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Methodological Background</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Methodological Outcomes</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Methodological Source</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Method Described</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Getting Started</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Sampling</td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
<td>57</td>
</tr>
<tr>
<td>Coding</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>Memos</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Theorizing and Researcher Bias</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Strengths and Limitations</td>
<td></td>
<td>64</td>
</tr>
<tr>
<td>Evaluative Criteria</td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>Credibility</td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>Plausibility and Value</td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>Adequacy of the Research Process</td>
<td></td>
<td>69</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Empirical Grounding</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>CHAPTER 4: METHOD APPLIED</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Getting Started</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Specific Aim and Study Overview</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Sampling</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Human Subjects</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Recruitment</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Methodological Procedures</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Confidentiality</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>Data Management</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Theorizing and Investigator Bias</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Data Collection and Analysis</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Interview</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Open Sampling</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Open Coding</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td>Theoretical Sampling</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Axial Coding</td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE OF CONTENTS – Continued

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Saturation</td>
<td>88</td>
</tr>
<tr>
<td>Selective Coding</td>
<td>88</td>
</tr>
<tr>
<td>Validation of Study Findings</td>
<td>90</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>91</td>
</tr>
<tr>
<td><strong>CHAPTER 5: STUDY FINDINGS</strong></td>
<td>92</td>
</tr>
<tr>
<td>Three Phase Process</td>
<td>97</td>
</tr>
<tr>
<td><strong>Gathering Information</strong></td>
<td>97</td>
</tr>
<tr>
<td>Getting Started</td>
<td>97</td>
</tr>
<tr>
<td>Information Seeking</td>
<td>100</td>
</tr>
<tr>
<td>Secondary Gathering</td>
<td>102</td>
</tr>
<tr>
<td><strong>Cognitive Processing</strong></td>
<td>103</td>
</tr>
<tr>
<td>Determining the Problem</td>
<td>103</td>
</tr>
<tr>
<td>Decision-Making</td>
<td>104</td>
</tr>
<tr>
<td>Planning</td>
<td>105</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>106</td>
</tr>
<tr>
<td>Explicit Output</td>
<td>106</td>
</tr>
<tr>
<td>Dispositions</td>
<td>106</td>
</tr>
<tr>
<td>Implicit Output</td>
<td>107</td>
</tr>
<tr>
<td>Supportive Interventions</td>
<td>107</td>
</tr>
<tr>
<td>Collaborative Interventions</td>
<td>107</td>
</tr>
<tr>
<td>Central Explanatory Categories</td>
<td>109</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS – Continued

Parallel Process .................................................................109

Interpreting ........................................................................111

Influencing Categories .................................................................112

Prioritization .................................................................112

Complexity ........................................................................113

Resources ........................................................................115

Nurse Resources .................................................................115

Organizational Resources ........................................................118

Validation Mechanisms .........................................................122

Process Validation ..............................................................122

Output Mechanisms .................................................................123

Validation of Findings ............................................................124

Chapter Summary ................................................................125

CHAPTER 6: DISCUSSION .........................................................126

Overview of the Conceptual Model ........................................126

From Conceptual Model to Theory ........................................129

Study Findings and Existing Knowledge ................................129

The Gathering Phase ............................................................130

The Implicit Dimension ..........................................................132

Influences Internal to the Call: Prioritization and Complexity ...........................................................................134

External Influences: The Nurse and the Organization ...............134
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS – Continued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process and Output Validation ..............................................................................135</td>
</tr>
<tr>
<td>Nursing Implications ....................................................................................................136</td>
</tr>
<tr>
<td>Strengths and Limitations ............................................................................................138</td>
</tr>
<tr>
<td>Recommendations ........................................................................................................141</td>
</tr>
<tr>
<td>Summary ......................................................................................................................142</td>
</tr>
<tr>
<td>APPENDIX A: University Of Arizona Institutional Review Board Approval ...........144</td>
</tr>
<tr>
<td>APPENDIX B: Subject’s Consent Form .........................................................................146</td>
</tr>
<tr>
<td>APPENDIX C: TpN Sample: Descriptive Information Questionnaire ......................150</td>
</tr>
<tr>
<td>APPENDIX D: Nurse Manager Cover Letter .................................................................152</td>
</tr>
<tr>
<td>APPENDIX E: TpN Setting: Descriptive Information Questionnaire ......................154</td>
</tr>
<tr>
<td>APPENDIX F: Recruitment Statements ..........................................................................157</td>
</tr>
<tr>
<td>REFERENCES ................................................................................................................159</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

FIGURE 1, Summary of study findings.................................................................94
FIGURE 2, Relationships among TpN process concepts......................................95
FIGURE 3, Parallel process and interpreting across the three phases of TpN........ 96
ABSTRACT

Telephone nursing (TpN) care is delivered in a wide range of settings and provides a variety of services to individuals and populations across the age span. Although a viable specialty practice, there is little evidence regarding how the process of care delivery contributes to successful outcomes. To study the effects of TpN care, and to develop appropriate clinical and education interventions, a solid understanding of the process is needed. This study utilized grounded theory method to identify and describe the core concepts of the TpN process, the relationships among these concepts, and the factors influencing the process. Study findings were validated through peer and participant review.

Based on interviews with ten telephone nurses from four sites, the following components were identified (underlined) and organized into a conceptual model of the TpN process. The process generally proceeds through three phases, gathering information to cognitive processing to output. Throughout these phases, the nurse engages in a goal oriented parallel process focusing on both explicit (e.g., verbal, physical) and implicit (non-verbal, contextual) dimensions. Inherent to this parallel process is a two-way interpreting process in which information from the caller is translated into health care language for processing and then health care information is translated back into the language of the caller to identify and meet their needs. Factors influencing the process include prioritization and the level of complexity of the call, resources of the nurse and the organization, and the nurse’s desire for validation of the service and the appropriateness of the output.
The model highlights the need for research further delineating how implicit information is gathered and processed and how it influences output. Research is also needed on the value of implicit output and on the effects of feedback regarding output on nurse performance and satisfaction. The model suggests that more nursing education should be focused on the sub-processes within the three phases, the interpreting process, and implicit aspects of the process. Finally, the model suggests that formal feedback regarding the quality of call output should be provided and the value of implicit nursing output should be recognized.
CHAPTER 1: INTRODUCTION

In this chapter, a statement of the problem, the research question, and the purpose of the proposed research are presented. Relevant background information describing the research problem is provided followed by a brief discussion of the grounded theory research method and why it is appropriate for this study. Finally, the potential theoretical and practical contributions of this study to nursing are discussed.

Problem Statement

Telephone nursing (TpN) practice is the largest subset of the specialty practice, telehealth nursing. Telephone nursing consists of all nursing care and services delivered over the telephone, including telephone triage, nurse advice or consultation, and disease management (Greenberg, Espensen, Becker, Cartwright, 2003). Currently in the United States up to 100 million people are estimated to have access to TpN services (O’Connell, Stanley, & Malakar, 2001; Turner, et al., 2002). Telephone nursing practice varies exponentially according to the specific services offered, the personnel providing the service, the population served, the organization, and the region. The variations among services have made it nearly impossible to empirically test relationships among familiar concepts, build a body of knowledge, and support the development of interventions in this area. A significant factor contributing to this problem is the lack of knowledge about the process used to deliver care in TpN.

Although research on the process of telephone nursing is limited, regulatory bodies and experts assert that TpN practice is based on the nursing process, a goal oriented process designed to identify and meet the health needs of clients (American
Academy of Ambulatory Nursing (AAACN), 2004; American Nurses Association (ANA), 1999; Larson-Dahn, 2000; National Council of State Boards of Nursing, 1997; Wheeler & Windt, 1993). According to Carpenito (1983), in all areas of nursing practice, successful interventions and health outcomes are dependent on systematic and ongoing attention to and application of each of the five phases of the nursing process (assessment, diagnosis, planning, intervention, and evaluation). Although the nursing process is believed to be a core component of TpN, there is scant information on whether these five phases are actually used, and if so, how the process is implemented when delivering nursing care over the telephone (Chang, Mayo, Omery, 2002; Nauright, Moneyham, & Williamson, 1999; Valanis et al., 2003a). How the nursing process is applied in TpN must be understood before effective progress can be made in empirical testing of the variables involved in the process, the relationships among them, and their contributions to TpN outcomes. Therefore, the purpose of this research is to describe the nursing process utilized in TpN practice.

Research Question

The central research question to be answered by this study is: “What is the process used when delivering nursing care over the telephone?” Although the nursing process is assumed to be the foundation of all TpN interactions, nursing judgment and decision-making play a significant role in the delivery of nursing care over the telephone (Corcoran-Perry & Narayan, 1991; Nauright et al., 1999; Wahlberg, Cedersund, & Wredling, 2003). There is a need to determine whether the nursing process is actually used in TpN practice, and if so, how are nursing judgment and decision-making used in
the application of the process? The goal of the research is to gain an understanding of the process used to identify and meet the needs of individual patients in the context of TpN practice.

Because empirical work about the nursing process in TpN is limited, grounded theory will be used to investigate this phenomenon. In keeping with the tenets of grounded theory, the initial research question is broad and flexible (Strauss & Corbin, 1998). This initial question, the process, and the concepts being investigated will be gradually refined and focused during the study.

Purpose of the Research

The specific aim of this study is to identify and describe the nursing process utilized in TpN. The study of this specific process is expected to answer such questions as: (1) What are the core concepts of the process?; (2) What are the relationships between these concepts?; and, (3) Are there external factors that influence the process? The purpose of this study is to construct a description and develop a preliminary theory of the process of care delivery in the practice of telephone nursing using grounded theory methodology. It is hoped that this study will stimulate additional research into specific aspects of the process.

Background

Although nurses have been providing care over the telephone for decades, in the early 1990’s TpN services became widely acknowledged as important for reducing health care costs, improving access to care, and increasing patient and provider satisfaction (e.g., Greenberg, 2000; Poole, Schmitt, Carruth, Peterson-Smith, Slusarski, 1993;
Vickery & Lynch, 1995). As a viable and ‘successful’ specialty practice, telephone nursing takes place in a wide range of settings and provides services to a wide variety of populations. All TpN services: (1) fall within the scope of nursing practice, (2) use the nursing process to guide care delivery, and (3) utilize some form of protocols or guidelines to assist and support nurse decision-making (AAACN, 2004; ANA, 1999; Wheeler & Windt, 1993).

Telephone nursing practice varies in services provided, service goals and program policies, characteristics of the setting, population, and nurse providers. Perhaps because of this wide variation, a careful review of the research literature suggests that descriptive and correlational research has been unsuccessful in providing the knowledge needed to understand, improve, and address problems in TpN. This has been verified in the body of research and model building by Valanis and colleagues (2003a, 2003b) and others (Omery, 2003). Because evidence is limited about the process and its relationship to outcomes, management decisions, interventions and nursing education in TpN are based mainly on assumptions about the practice or on knowledge derived from other areas.

Before investigating the relationships among concepts, or the influence of various factors on the outcomes in TpN, central concepts must be identified, defined, and measured. To do this, the basic process used in each nurse-client interaction must be identified, described, and understood. Although currently known as the nursing process, it is not well-defined, understood, or measurable (Chang et al, 2002).

Although the nursing process is central in telephone nursing regardless of setting, population, or acuity, the goal-directed behaviors inherent in the nursing process vary
according to the client, the complaint, and the resources available (Meeker, 2001). For example, an assessment is done whether the service is triage, advice, or disease management. However, the depth of the assessment and the subsequent intervention are determined by the problem and the level of acuity (Leprohon & Patel, 1995). The process is more flexible in non emergent situations.

Consider an example from my own experience as a telephone nurse. A young mother who calls, frantic, because her baby is sick (i.e., has a “high fever” and is very fussy). Once urgent and emergent symptoms have been ruled out, the nurse continues to assess the situation and formulate a working diagnosis (e.g., discomfort related to the fever for the baby, and anxiety related to a lack of knowledge for the mother). The nurse then gathers information to support or to refute this diagnosis. Verbal interactions with the caller often result in additional information. Many times the emerging information (e.g., tacit or explicit; increasing emotional upset, or caller statement like “I can’t be alone with this crying baby”) necessitates a change in the sequence or direction of the process (e.g., a change from a physical to a psychosocial focus).

Consider another example. Variation in the application of the nursing process is evident when telephone nursing is used in disease management. In disease management, frequent, ongoing, and goal-directed patient contact allows a single nurse to manage the care of large numbers of patients with chronic conditions. After an initial, comprehensive assessment, the nurse and client set goals and schedule routine calls for follow-up. In subsequent calls, the nurse’s assessment is brief and focused mainly on implementation of the plan of care and changes in the condition (i.e., intervention and
evaluation). Because prevention, health maintenance and education are the essential features of disease management, nurse-client interactions focus on education and self-management strategies (Goldsmith, 2005). Consequently, the intervention (e.g., education) and evaluation phases of the nursing process play a much larger role in disease management than in telephone triage or advice nursing, which require a more comprehensive assessment.

These descriptions suggest that the nursing process is dynamic, variable, and dependent on the situation and the expertise of the nurse to manage the process accordingly. In fact, in conjunction with the nursing process, decision-making, problem-solving, critical thinking skills are required (ANA, 1996; Meeker, 2001). But when and how are these skills used to identify and meet caller’s needs? There are many such questions that research should eventually answer. When does the nurse know the assessment is complete? How does the nurse know what questions to ask? How does the nurse know that enough information has been gathered to formulate a diagnosis? Is there a secondary problem being masked by the first? Should the assessment focus on the physical signs and symptoms alone? Does assessment differ when the problem is psychosocial? How does the nurse determine if an intervention is appropriate for the caller or the situation? What, if any, accommodations are made for variations in clients and their problems? The focus of this study is to learn more about this nursing process by developing a grounded theory of the process of care delivery in TpN.
Qualitative Research Methodology

Qualitative research methods are appropriate when (a) little is known about a topic, the populations, or the setting of interest; (b) the research is exploratory and the purpose is to describe phenomena; and (c) the research question is “what is?” (Brink & Wood, 1994; Hinshaw, 1979). Grounded theory is a qualitative, exploratory method used to develop mid-range, substantive theory (Strauss & Corbin, 1998). The grounded theory method was developed to reduce the gap between theory and practice. Glaser and Strauss (1967) felt that focusing on grand theory inhibited the ability of scientists to address practical issues. This has been identified as a problem in the nursing profession as well (e.g., Morse, 1994). Chenitz and Swanson (1986b) have provided an appropriate example of how the use of broad abstract concepts such as the nursing process and processes can be problematic when applied to specific nursing situations.

According to Chenitz and Swanson (1986b) the nursing process is an accepted framework used to guide nursing practice, and is a very broad and generalizable. They argue that it consists of many sub-processes (i.e., problem-solving actions and interactions between the nurse and the client) that are not understood or defined. The general conceptualization of the nursing process as five phases does not prescribe specific problem-solving actions for specific problems. To make online decisions in TpN, nurses must use their own judgment and decision-making skill, relying on deduction, induction, and intuition to apply the nursing process to the specific situation (Brennan, 1992; Edwards, 1998; Mayo, Chang & Omery, 2002). A “clear description of the central process that explains the action in the situation is needed” (Chenitz & Swanson, 1986b, p.
29), and they recommend the use of a method in which “the central purpose of the researcher is to fully and adequately describe a specific situation, analyze each situation for processes, develop basic and central processes, and identify how these processes are used in carrying out nursing interventions” (p. 36).

This is precisely what the grounded theory method was developed to accomplish. The grounded theory method was designed to uncover theoretical explanations of complex social processes in the contexts in which they occur. In addition, grounded theory is useful for identifying previously unrecognized, but relevant, concepts and providing a clear understanding of the relationships between concepts (Strauss & Corbin, 1998). Grounded theory is thus an ideal method to analyze the nurse-client interaction in TpN, identify and describe the basic process, the core variables, and the factors influencing the process.

Significance for Nursing

The theoretical explanations generated by a grounded theory can be valuable for describing, interpreting, explaining, predicting, and testing social phenomena (Glaser & Strauss, 1967). New understandings generated from grounded theory can be used to inform nursing practice, education, and research. The results of this study will provide a description of the nursing process used in TpN and identify concepts and relationships central to both the process and context of telephone nursing practice. The explanation of the process and the identification of its essential features may contribute vital information that can be operationalized and tested in future research. Consequently, the results of this study will lay the groundwork to meet the ultimate goals of this research: (1) To
understand the process of care delivery used by nurses in TpN practice, and (2) to develop practice, policy, and educational interventions to improve telephone nursing delivery and health outcomes.

Chapter Summary

This chapter has provided the reader with a description of the research problem; namely, the existing knowledge deficit related to the application of the nursing process, the critical component of nursing care, in telephone nursing practice. The research focus is therefore on describing the precise process utilized by telephone nurses in their practice. In Chapter 1 it was argued that the identification and description of the nursing process utilized in TpN is a necessary step toward understanding and improving TpN practice and that the appropriate method to advance this goal is the grounded theory method.
CHAPTER 2: LITERATURE REVIEW

In qualitative research, the focus and function of the literature review differs somewhat from the extensive review undertaken in quantitative research. This chapter begins with a discussion of the place of literature review in a grounded theory study, and how it will be used in this study. The discussion is followed by an introduction to the conceptual background underpinning this study and the choice of method, and a review of studies examining the role of context and process in social phenomena and nurse practice settings. Finally, a review of the literature specific to telephone nursing literature is provided.

Literature Review in Grounded Theory

An exhaustive review of the literature is not recommended in grounded theory studies to avoid researcher bias and reliance on preconceived ideas and concepts that may influence the analysis of data (e.g., Munhall, 2000; Smith & Biley, 1997). Not completing a comprehensive literature review is considered one way to avoid common methodological mistakes in grounded theory, namely, the failure to “suspend preconceptions, disciplinary perspectives, and previous readings” (Wilson & Hutchinson, 1996, p. 224). Despite this, most experts take a pragmatic view, and acknowledge that the previous knowledge and experience of the researcher often includes a familiarity of the literature that cannot be erased or avoided (Schreiber, 2001; Strauss & Corbin, 1998; Morse, 2001). They recommend that researchers recognize and make explicit their knowledge, experience, beliefs, and preconceived notions and then use them to help develop the theory. In fact, Boyd and Munhall (2001, p. 615) state that “personal
investment in the research topic can be exploited to enhance the research process.” And, according to Chenitz (1986), the question is not *if* a literature review should be done but *how* it should be done.

In grounded theory research, a literature review is used to: (a) determine how much is known about the subject; (b) develop a rationale and support for the research question and the proposal; (c) extend knowledge of the substantive area and identify relevant concepts to compare with those that emerge from the data; and (d) substantiate the study findings and place them in the context of what was previously known (Brink & Wood, 1994; Chenitz, 1986; Hutchinson & Wilson, 2001; Schreiber, 2001; Strauss & Corbin, 1998).

Thus, in this study a review of the literature will be applied as follows. In Chapter 1, specific areas of TpN knowledge and the rationale for this study were discussed and the discussion will be extended in Chapter 2. In addition, the literature review will focus on relevant methodological and substantive literature and identify previously established concepts that may pertain to the phenomena of interest.

The concepts identified in the literature review will be considered in Chapter 4 as an additional source of data and used to compare, differentiate, and validate concepts emerging from the collected data (Chenitz, 1986; Strauss & Corbin, 1998). Morse (2001) believes that failure by the researcher to consider established concepts before identifying and labeling new concepts is irresponsible and leads to redundancy and a plethora of disconnected research results. Both Morse (2001) and Strauss and Corbin (1998)
recommend that, *when they fit the ideas emerging from the data*, researchers use existing concepts and labels.

Once a theory has been developed, the literature will again be reviewed in Chapter 5 and Chapter 6 to confirm the study findings and/or suggest how they fit in the context of existing knowledge. Linking new concepts and research findings with existing knowledge supports the growth and development of nursing knowledge.

**Theoretical Context**

The purpose of this study is to identify and describe essential concepts and construct a theory of the process used by nurses to identify and meet the needs of clients when delivering nursing care over the telephone. Grounded theory, the method selected for this study, is rooted in constructionism and symbolic interactionism (Crotty, 1998). The foundation of constructivism is that meaning is derived from the interactions between individuals and their world and, that reality, or meaning, cannot exist without this interaction. Applying constructionism to the social world, the essential stance of symbolic interactionism is that meaning and subsequent action is derived from our interactions with others (Blumer, 1969). Consequently, the meanings and motives behind the actions of an individual can only be understood by taking the perspective of that individual.

Suchman (1987) explored how cognitive processes make behavior meaningful. In a comprehensive look at how human action limits human-machine interaction (e.g., human-computer communication, artificial intelligence), Suchman distinguished plans, (i.e., devices constructed before or after an activity to help determine the course of
action) from situated actions (“actions taken in the context of particular, concrete circumstances”, p. viii). An extensive case study was used to support her premise that all human actions, however well planned, are inevitably situated actions and that crucial behavioral processes are a combination of the beliefs and intentions of the actors and the meanings that result from contextual (e.g., environmental, social, cultural) interactions.

The intent of this study is to illuminate the crucial behavioral process inherent in nursing care delivery over the telephone, as well as the environmental factors associated with that process.

A substantial body of research has supported the value of the symbolic interactionist perspective as a guiding theoretical framework for the study of social processes; this work demonstrates the usefulness of this perspective in reducing the theory-practice gap identified in both social science and nursing (Glaser & Strauss, 1967; Morse, 1994). Chaiklin and Lave (1993) have compiled a selection of studies grounded in the belief that socially significant activities and their associated meanings cannot be studied separately from the context in which they occur. Their book features a variety of studies that explore a range of social processes, concepts, and contexts without decontextualizing them (e.g., Engestrom, 1993; Fuhrer, 1993). The studies demonstrate the essential notions that meaning (e.g., knowledge and activities) originates out of a specific context, that much of that meaning is lost or altered when removed from that context, and that the real value in investigating social processes is in the development and eventual application of the theory generated.
Berg (e.g., 1997a, 1997b, 1999) has been a strong advocate of the need to understand and explicate the complexity of the social practices in health care. He has argued that the social practices inherent in the work of health care are context dependent. Investigations of the interaction between the development and implementation of an electronic patient record (Berg, Langenberg, Berg, & Kwakkernaat, 1998) and of telehealth consultation in six medical specialties (Lehoux, Sicotte, Denis, Berg, & Lacroix, 2002) have demonstrated that an understanding of social processes within the contexts in which they occur is critical for successful outcomes in health care interventions. Similar points have been made in other contexts (e.g., May & Ellis, 2001). These studies have also illustrated the contribution that non-experimental research approaches (i.e., qualitative methods, case study, and ethnography; Lehoux et al, 2002; Berg et al, 1998; and May & Ellis, 2001, respectively) can make to understanding the interactions between social processes and social, cultural, or environmental context.

Nursing Context

The importance of context and the relationships of context to process and outcomes has been well established in organizational and health care literature. However, there is no standard use of the concept context; it can be, and often is used to refer to a wide variety of environmental characteristics, often causing confusion for the reader. Depending on the author, context may refer to structure (Donabedian, 1988; Perrow, 1967), setting (Brooten & Naylor, 1999; Ingersoll & Mitchell, 1999), or the practice environment (McClure, Poulin, Sovie, & Wandelt, 1983). In addition to physical or structural characteristics of the environment, context can also refer to social, political,
economic, and cultural characteristics (e.g., Berg & Goorman, 1999; Chaiklin & Lave, 1993; Effken, 2003; Suchman, 1987). Context is therefore considered a very broad concept that applies to the entire range of environmental characteristics with the understanding that the specific meaning varies from study to study.

**Context as Organizational Structure**

Central to Charles Perrow’s (1967) framework for organizational analysis is the relationship between context (i.e., organizational structure) and process (technology). For Perrow, the organizational structure refers to the characteristics of how the organization’s work is done and technology the task or actions performed. Perrow (1967) introduced the concept of discretion as a measure of organizational structure. Discretion was defined as the measure of control an individual has over the task being performed. According to Perrow, high discretion is appropriate with non-routine technology and raw materials that are not well understood. Conversely, low discretion is appropriate when technology is routine and the raw materials are understood. To be effective, the organizational structure (i.e., context) must be appropriate to the tasks performed or processes used (Lawrence & Lorsch, 1967; Perrow, 1967; Woodward, 1965). This provides additional support that contextual variables should be used to determine the best decision-making approach and discretion is essential in assessing the context and judging which approach is most fitting.

In nursing, the notion that context informs practice and influences outcomes has been supported by both quantitative and qualitative research. Aiken, Smith, and Lake (1994) have empirically demonstrated a link between organizational context and health
outcomes. McClure and colleagues (1983) described the characteristics of a professional practice environment in their classic study of Magnet Hospitals. Aiken and colleagues (1994) then demonstrated that hospitals with the identified characteristics had significantly better outcomes than similar hospitals without these features. The link between the characteristics of the practice environment and outcomes has been supported in a variety of acute care studies (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Mitchell, Armstrong, Simpson, & Lentz, 1989).

*Context as Practice Environment*

Context has long been thought to play a significant role in the delivery of nursing care. Nurse autonomy, control over practice, and nurse-physician relationship or collaboration are concepts associated with the context of care. These concepts have been established as characteristics of a professional practice environment (Aiken & Patrician, 2000; McClure et al., 1983) and also as positively related to nurse satisfaction (Laschinger, Almost, & Tuer-Hodes, 2003; Mark, Salyer, & Wan, 2003). Although autonomy and control over practice differ somewhat in focus (i.e., clinical and organization, respectively), both concepts measure perceived control over one’s actions (Kramer & Schmalenberg, 2004; Scott, Sochalski, & Aiken, 1999). Aiken and colleagues (1994) contend that the perception of control and positive nurse-physician relationships enable nurses to better exercise their professional judgment on behalf of their patients, resulting in quality care and positive outcomes. Additionally, psychologists Deci and Ryan (1987) have concluded that an autonomy supportive environment is associated with more intrinsic motivation, greater interest, more
creativity, more cognitive flexibility, a more positive emotional tone, higher self-esteem, and better physical and psychological health than a controlling environment in which one is pressured toward specific outcomes. Deci and Ryan (1987) report that these associations are supported in the study of both environmental and personal factors. In addition, they state that the critical consideration is not the objective factors thought to promote autonomy, but rather the person’s perception of those factors.

Decision-Making and Context

Context also has been shown to play an essential role in nurse decision-making. Few studies have addressed clinical decision-making in relation to the nursing process and the context of care. Grounded theory studies have made significant contributions to the little that is known about the application of the nursing process and its relationship with decision-making processes. For example, in an important study, O’Connell (2000) used grounded theory to explore the clinical application of the nursing process in acute care. This study emphasized the role of context (e.g., factors related to the working environment) and the need for nurses to adapt the nursing process to environmental factors such as overwhelming workload, uncertainty, and complexity. Adjusting the nursing process resulted in an emphasis on communication and on assessment as an ongoing, iterative process which allowed the nurse to deliver nursing care. However, O’Connell found that the working environment necessitated modifications of nursing practices which resulted in task oriented rather than patient oriented care and subsequent professional disillusionment.
In a grounded theory study of nurse’s clinical decision making, Radwin (1995) identified ‘knowing the patient’ as the core concept in the decision-making process. Radwin found that learning about the patient was done to enable the nurse to individualize the nursing interventions to meet the patient needs. In a follow-up study, Radwin (1998) explored the concept of nurse experience identified in her previous study (i.e., the use of knowledge gained from previous situations) as one of the central variables in clinical decision-making. Radwin found that nurse experience sensitized the nurse to situational variables, increased confidence in practice, and allowed the nurse to focus on the patient, thus “enhancing the individualization of nursing interventions.”

In a grounded theory study of accountability in primary nursing practice, knowing the patient also emerged as a central concept of the nursing process (Richard & Stern, 1991). The key concepts identified that explained nurse accountability were communication and the nursing process. Prescott, Dennis and Jacox (1987) explored staff nurse clinical decision-making using interview data from nurses and physicians in hospitals in six different cities. They found that clinical decision-making was context dependent; that is, it was affected by the degree of perceived autonomy, nurse-physician relationships, and the circumstance of the decision-making (i.e., emergency conditions). In later studies (e.g., Radwin, 1998) ‘knowing the patient’ and nurse experience emerged as key variables in the decision making process. In a descriptive study using observation and interviews, Hedberg and Larsson (2003) identified ‘knowing the patient’ (and understanding their situations) and communication as key factors in nurse decision-
making and the subsequent nursing care provided. These studies converge on the idea that ‘knowing the patient’ is an essential element of the nursing process.

In a qualitative analysis of interview data, Kramer and Schmalenberg (2003) found that a nurse’s definition of autonomy is related to nurse-client interaction and decision-making and that organizational sanction is an important variable in facilitating nurse autonomy and subsequent nurse satisfaction. Other studies have specifically examined the interaction between environment and decision-making. For example, Bucknall (2003) analyzed observation and interview data from 18 nurses in three hospitals to study nurse decision-making. Bucknall found that patient complexity (e.g., acuity and stability), available resources and support, and nurse-physician relations were the three main factors influencing decision-making and care delivery. In an ethnographic study of the social context and process of clinical decision-making in a CCU, Calkins (2001) found that collaboration and communication among patients, nurses, and physicians, and a supportive environment facilitated decision-making and enhanced patient care. This suggests that the characteristics of a professional practice environment identified by Aiken and colleagues (1994) a significant factor in nurse decision-making.

Thompson (1999) has proposed that nurse decision-making is associated with either a systematic, positivistic approach or an intuitive-humanist approach. The latter approach stems from the work of Patricia Benner (1984) who demonstrated that decision-making moves from rule based, analytical and explicit to intuitive, experiential and implicit as the nurse moves from novice to expert. Thompson (1999) supports the idea that the two approaches be viewed as a continuum; each valuable and useful when
applied in specific situations. In fact, three situational dimensions have been identified as pivotal in determining the appropriate approach to decision-making (Hamm, 1988; as cited in Thompson, 1999). These dimensions are complexity, ambiguity, and presentation. Recent research has explored this notion. Hicks, Merritt, and Elstein (2003) used data from questionnaires completed by 54 nurses working in critical care units in three hospitals to compare the consistency between intuitive and analytical decision-making processes in low and high complexity situations. They found that (a) nurses were inconsistent in their use of either intuitive or analytic decision-making processes; (b) consistency was higher in low complexity situations; (c) nurse experience was related to consistency in decision-making in low complexity tasks; (d) in low complexity situations, the use of the analytical processes led to more complete and specific interventions; and (e) in high-complexity tasks the intuitive process rather than the analytic resulted in a clear, plausible, and safe specification of interventions.

Collectively these studies demonstrate the importance of attending to the interactions between process and context and suggest that contextual variables (e.g., knowing the client and the client’s situation, communication, perceived autonomy, and nurse experience) play substantial roles in the use of nurse discretion (i.e., judgment or decision-making). The studies also suggest that nurse discretion plays a big role in delivery of nursing care, regardless of the context or the population. The literature reviewed thus far indicates the complex nature of nursing practice (in both process and context) and the need for the nurse to adjust to those complexities in order to meet the
needs of the patient. This study will describe the process (the how, when, and why) by which the nurse adjusts to the complexities of TpN practice.

Research on Telephone Nursing Practice

Telephone nursing is an important method of health care delivery grounded in professional nursing practice. Nurses utilize the nursing process to provide care to individual patients or defined patient populations via the telephone (AAACN, 2004). In the literature, TpN is often used synonymously with telephone triage. Telephone triage has been defined as ranking client’s health problems according to their urgency, educating and advising clients, and making safe, effective, and appropriate dispositions – all by telephone (Wheeler & Windt, 1993). However, telephone triage is only one aspect of TpN, for the latter term encompasses both triage and other services provided over the telephone, including advice and information, appointments and referrals, and symptom, demand, and disease management (Greenberg et al., 2003). TpN thus provides clients with access to care and health-related information, and helps to ensure that they get the appropriate level of care.

In the past decade telephone nursing has experienced phenomenal growth nationwide (O’Connell et al., 2001). TpN programs vary in size, setting, and purpose. Programs are known by titles such as telephone advice counseling, medical call centers, triage call centers, health advice centers, nurse phone centers, and telephone-based decision support services. Telephone nursing has become increasingly central to the delivery of cost-effective, quality care (e.g., Bleich, 1998). TpN is also a successful demand management strategy (Lazarus, 1995; Sabin, 1998). However, despite its current
success and popularity, empirical research on the subject has been limited. Aside from the nursing process, which is primarily applicable in nurse-client interactions, there is no unifying theoretical foundation for this practice. The conceptual framework most commonly used in studies of TpN is Donabedian’s (1988, 1992) three-part quality assessment framework. In fact it is the underlying framework for model development in TpN (Larson-Dahn, 2001; Valanis et al., 2002, 2003a). Donabedian’s structure-process-outcome framework is also useful for organizing the research conducted to date on TpN. This review will begin with the largest body of research, which has focused on outcomes of TpN; then it will cover the few studies which have assessed the role of structure, i.e., context, and the actual process of TpN.

**Outcome Research**

Documented outcomes associated with TpN include reduced costs, high patient satisfaction (technical and interpersonal), high provider satisfaction, and reduction of both drop-in visits and unnecessary clinic visits (Greenberg, 2000; Poole et al., 1993; Stirewalt, Linn, Godoy, Knopka, & Linn, 1982). For example, high satisfaction with TpN care has been reported in a variety of studies (Crouch, Woodfield, Dip, Dale, & Patel, 1997; Poole et al, 1993; Stirewalt et al., 1982). Patients with access to TpN services have reported significantly higher satisfaction with care than those clients in a control group (Stirewalt et al., 1982). Studies specifically focused on the caller experience with TpN have found that TpN has both practical (e.g., access to care and convenience) and personal (comfort, support, and trust) value for callers (Greenberg & Schultz, 2002; Wahlberg & Wredling, 2001). Crouch and colleagues (1997) found that dissatisfaction
with TpN services is most often related to the advice received and lack of acknowledgment of the caller’s physical or emotional needs. The level of patient satisfaction with nursing care is an indicator of the extent to which the client perceives that his/her healthcare needs are being met (Bleich, 1998; Davies & Ware, 1988; Lazarus, 1995).

Disposition accuracy (i.e., the appropriateness of the plan or intervention agreed upon by the TpN nurse and client) has also been used as an outcome measure in a variety of studies (e.g., Marsden, 2000; O’Connell et al., 2001). The accuracy of dispositions has been reported as 54% in emergency telephone triage (i.e., 100, 50, and 74% in high, moderate, and low urgency situations respectively; Leprohon & Patel, 1995) and 63% in 35 adolescent health clinics (Rupp, Ramsey, & Foley, 1994). Disposition accuracy has also been reported as an error rate (i.e., dispositions that did not comply with protocol) of 0.07% in 1450 pediatric calls in a TpN program evaluation (Poole et al, 1993), and as inter-rater agreement [kappa 0.11; 95% C. I., 0.02 to 0.20] in an evaluation of the use of TpN protocols (Watchter, Brill, Lewis, & Sapien, 1999). Crouch and Dale (1998) recommend further studies exploring accuracy of dispositions but caution that variations in practices and differences in study design make comparison difficult.

**Context**

Using the concept broadly, the context (e.g., environmental characteristics) in which TpN is provided includes the setting, the population served, and the services provided. Telephone nursing services have been shown to be effective in a large variety of settings and populations including: an after-hours pediatric call center (Poole et al.,
1993); an ophthalmic nursing specialty practice in an accident and emergency service (Marsden, 1999, 2000); triage, advice and support for patients and families in an ambulatory oncology center (Nail, Greene, Jones, and Flannery, 1989); and a national call center providing triage services to members of 40 health plans (O’Connell et al., 2001).

Research on the impact of specific contextual variables in TpN has been fairly limited. Using questionnaires and focus groups in eight medical office settings and four call centers nationwide, Valanis and colleagues (2002, 2003a) recently identified a comprehensive list of contextual variables believed to impact the process or outcome of TpN. Variables included nurse and client characteristics, such as, education, experience, communication style and health status, level of education and reason for call. System, or program variables, identified in this study included RN autonomy and support, nurse-physician relationships, and protocol use. Valanis and colleagues have yet to report on relationships among the contextual, process, and outcomes variables.

A few studies have examined how nurse characteristics influence process and outcome variables. For example, in a telephone triage service without protocols, Leprohon and Patel (1995) reported a decision-making accuracy rate of 70% for nurses with ten or more years of experience compared to 26% for nurses with less experience. Mayo and colleagues (2002) reported that nurses with higher levels of education and those who received audiotaped training scored higher on quality of the nursing process measure. This work suggests that nurse education and experience improve outcomes.
Practice Environment

The importance of a context that supports the use of nursing judgment and decision-making has been expressed by many TpN experts (Dale, Crouch, Lloyd, 1998; Edwards, 1994; Leprohon & Patel, 1995; Wheeler & Windt, 1993). The primary aspect assessed in these studies has been the presence or absence of protocols. Mostly developed by physicians, protocols are symptom based guidelines that categorize symptoms according to urgency, define the condition addressed, promote consistent treatment for clients with that condition, and when followed and documented, provide some legal protection for the nurse (Gobis, 1997; Lippman, 1995). While standardized guidelines and protocols were developed to provide efficient, effective, and consistent care, their increasing use in TpN has raised a number of concerns (Berg, 1997a; Mead, 2000; Valanis, 2000). Concerns about protocols use include: 1) they cannot account for all circumstances, and are often unavailable or inadequate; 2) when developed outside of nursing, protocols may affect the quality of care and lead to the regulation and control over nursing practice by others; and 3) they are often used to direct nursing practice rather than guide it. The ANA (1996) clearly states that “the use of protocols, standardized guidelines, or computerized algorithms cannot be allowed to substitute for the independent assessment and judgment of registered nurses” (p. 2).

In TpN research, nurse experts have consistently acknowledged that protocols are often overridden and professional judgment and decision making are used instead (e.g., Brennan, 1992; Mayo et al., 2002; Pursley-Crotteau & Bentley, 1998; Wheeler & Windt, 1993). Similarly, nurse experts in TpN have acknowledged the use of both intuitive
judgment and a more rational, logical process in decision-making (e.g., Brennan, 1992; Edwards, 1994, 1998; Marsden, 1999; Nauright et al, 1999; Wheeler & Windt, 1993).

Thus, it is generally acknowledged that protocols are tools used to aid and guide assessment and decision-making and are not replacements for nurse judgment (AAACN, 2004; Wheeler & Windt, 1993). Indeed, the basis of the success of TpN is believed by experts to be the assessment and decision-making skills of the nurse (Edwards, 1998; Rutenberg, 2000; Wheeler & Windt, 1993). Nurse expertise, the use of protocols, and nurse comfort with the triage process are assumed to be determinants of the degree to which nurse decision-making and judgment are used. For example, nursing expertise, defined as at least 5 years experience (Benner, 1984), is a common requirement for a TpN nurse position, even though there is little empirical evidence linking the length of time or type of nursing experience with TpN ability or quality (Van Dinter, 2000). The assumption that expertise in one area of nursing translates into the ability to perform TpN is not supported in practice (Martha Denton, personal communication, November, 2000).

The lack of empirical data and links between policies, practices, and outcomes may be a contributing factor to the overwhelming use of, and sometimes total reliance on, protocols. Indeed, in an evaluation of a telephone triage service, Poole et al. (1993) described any disposition by the nurses that did not comply with protocol as ‘error;’ suggesting that they viewed any deviation from the protocols, i.e., nurse discretion, as harmful rather than as sound nursing practice.

However, the research that has been done examining protocols in TpN supports the existence of such nurse discretion. Wachter and colleagues (1999), in a study of the
relationship between protocol use and dispositions, found that even when instructed to adhere strictly to protocols, 58% of nurses felt confined by the protocols, 50% believed that the protocols forced them at times to focus on irrelevant information, and 42% said they had knowingly deviated from the protocols at least once during the interviews. Both Poole et al. (1993) and Wachter et al. (1999) surmised that protocols cannot account for situational nuances and that their use is affected by the characteristics of the nurse and client. Further supporting this point, Mayo and colleagues (2002) explored the relationship between protocol availability and use and the quality of the nursing process and TpN outcomes. They found that the more protocols were available to nurses, the lower were expert ratings of the quality of the nursing process (r=-.395, p<.0001). Thus the quality of nursing practice seemed to be better in programs with less availability of protocols. This suggests that the availability of protocols may inhibit appropriate use of nurse discretion in some circumstances. However, client satisfaction did not differ between programs with and without protocols. In addition, for programs with protocols, no relationship was found between the extent of use of those protocols and either the quality of the nursing process or client satisfaction. Although the results of this particular study are mixed with regard to the efficacy of protocol use, taken together, the literature on protocol use suggests that at best protocols are, and should be, used to aid and guide nursing assessment and decision-making, not as replacements for nurse judgment (Wheeler & Windt, 1993).
Decision-making

A handful of studies have investigated decision-making in TpN itself, how it is influenced by context, and how it influences outcomes. In a study of telephone triage in a senior citizens clinic, Corcoran-Perry and Narayan (1991) analyzed the decision-making process used by nurses and the relationship between lines of reasoning (i.e., conceptual steps used to reach a clinical judgment) and case complexity (measured by straightforwardness of presenting symptoms, number of potential diagnoses and triage options). Using records of out-loud nurse thinking, they found that nurses’ lines of reasoning varied according to case specific information and the main issue of concern (safety, efficiency, or safety and efficiency) and not to a rating of case complexity. The authors concluded that clinical decision-making, the use of knowledge, and cognitive processing are context dependent tasks and consequently recommended that tools used to support this practice be informal and provide reminders and triggers rather than direct decision-making. Similarly, in an ambulatory oncology center, Nail and colleagues (1989) examined TpN service over a six month period. In data collected on 1,844 phone calls, Nail et al. found that, guided by standards of nursing practice, nurses functioned independently, handling 91% of the calls received. This study also suggests that nurse decisions to refer 9% of the calls to physicians and other professionals (e.g., pharmacists, social workers) and to utilize consultation in 52% of the calls demonstrated nurse knowledge of professional roles and responsibilities, valuing of interdisciplinary collaboration, and ability to independently manage the phone calls.
Using a sample of 34 nurses and 50 telephone calls, Leprohon & Patel (1995) investigated decision-making strategies of telephone triage nurses in an emergency medical service setting. Analyzing data from call content and nurse interviews Leprohon and Patel concluded that in high urgency situations the decisions were principally symptom-based and that the problem focus was thus narrowed and the complexity decreased. Decisions made in high urgency situations were analytic and consistently accurate. Factors used in decision making in moderate and more frequently in low urgency situations included: symptoms reported, the situation, hypothesis generation and testing, nurse identified need, patient negotiation, and consideration of alternate solutions. In moderate urgency situations, the complexity and uncertainty increased and decisions were the least accurate. Decisions in this category involved limited problem-solving based primarily on exploration of the identified need and situational factors. Low urgency decisions were characterized by deliberate problem solving and planning, consideration of the entire situation, consideration of the client and their preferences, resources, and available options. In low urgency situations, decisions were more accurate than in moderate urgency situations. In addition, qualitative and quantitative evidence in this study demonstrated that nurse experience is a key component in accurate decision-making.

Nursing Process

Benner’s proposal that intuitive judgment plays an important role in the nursing process pertains as well to TpN (e.g., Brennan, 1992; Nauright et al., 1999; Watchner et al., 1999). Yet, little research has actually focused on the online process and nurse
discretion while delivering care over the telephone. Valanis and colleagues (2002) recently embarked on an ambitious TpN research project using a systems perspective and a structure-process-outcome framework similar to Donabedien (1988). The project involves gathering data at eight medical offices and four call centers in four different regions of the U.S. Researchers plan to assess a variety of contextual variables concerning organizational, nurse, and patient characteristics in general and at the time of the call. They are also planning to assess the process variables, nurse’s interpersonal communication style, use of protocols, and nursing judgment at the time of each call, and measure outcomes in terms of disposition accuracy, patient satisfaction, and impact on the organization. Preliminary findings have been published.

As a prelude to examining how such variables affect TpN outcomes Valanis and colleagues (2003a) reported ways in which TpN settings vary and those factors nurses identified as influencing their work. Moscato and colleagues (2003) reported developing a quantitative tool to assess caller satisfaction with and perception of their experience with a specific TpN call. Of most relevance to the present study, Valanis and colleagues (2003b) used pilot and unpublished data to identify relevant contextual and process variables for predicting TpN outcomes. With regard to the nursing process, they identified interpersonal communication style, quality of assessment, and quality of nursing judgment as variables to be assessed in their large scale quantitative study.

The two studies most directly relevant to the goals of the current study were done by Edwards (1994, 1998). The first (Edwards, 1994) was a grounded theory study investigating components of diagnostic reasoning used by experienced TpN nurses.
Edwards had five RNs simulate two calls each; he taped, replayed, and discussed these calls with the nurse participants. Discussions were framed by balancing most probable with worst probable scenarios. The author identified the following components of the nurse decision-making process, (a) developing a general picture of the situation, (b) determining impact on the client, (c) assessing professional vulnerability, (d) guiding and negotiating client behavior, and (d) assessing client accessibility to relevant health care resources.

In an expanded follow-up study, Edwards (1998) had eight nurses conduct simulated calls which were taped, replayed, and discussed. From this study, Edwards concluded that TpN nurses’ efforts to help the client are directed toward eliciting data from the client that leads to the formation of a general picture of the problem, its impact, the person, and the surrounding relevant situation. Decisions are then based on the objective symptoms reported within the context of this general picture. These results suggest that the gathering of personal, contextual, and medical information is central to how TpN nurses implement the nursing process and engage in nurse discretion.

Chapter Summary

This chapter began with a discussion of the role of a literature review in grounded theory research. Then concepts pertinent to the application of grounded theory in a study of nursing practice were reviewed. The chapter then provided an overview of relevant research on context and process variables in nursing. This was followed by a review of research specifically on TpN, including research on outcomes and on the role of contextual and process variables.
The TpN literature has clearly established the value of telephone nursing. It has also begun to illuminate contextual factors that contribute to good outcomes, e.g., nurse characteristics. However, only a small set of studies has begun to explore the core process nurses use in practicing TpN. Concepts relevant to this study that will be used to stimulate thinking about, and comparison and identification with, emerging concepts in the analysis include: the practice environment (e.g., nurse support, autonomy, and protocol use), nursing experience and intuition and knowledge of the patient. The present grounded theory study is designed to add to the existing body of knowledge by exploring in depth the nursing process and ways in which nurses use their discretion in TpN.
CHAPTER 3: RESEARCH METHODS

Grounded theory will be used to investigate the process of care delivery used in telephone nursing practice. In this chapter, a description of the grounded theory approach and the rationale for choosing it is provided, followed by a brief discussion of the origins of the theory. The source used to guide this study is Strauss and Corbin (1998), Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. After their method is introduced, a detailed account of the specific procedures, techniques, and terminology used to develop and evaluate the grounded theory in this study will be given.

Introduction to Grounded Theory

Grounded theory is a qualitative, exploratory method used to develop mid-range, substantive theory. The focus of a grounded theory is most often on a social process including not only human actions/interactions but the consequences of those actions and the conditions under which they occur (Strauss & Corbin, 1998). Grounded theory uses an inductive and systematic method to develop a theory that interprets, explains, and predicts human actions and behavior (Chenitz & Swanson, 1986a).

Because process (i.e., evolving sequences of events) is most often the focal point of grounded theory research, many experts advocate the use of interviews for data collection (Chenitz, 1986; Morse & Field, 1995; Schreiber, 2001; Hutchinson & Wilson, 2001). The most valuable information relevant to the phenomena of interest often comes from the description of the events, experiences, and thoughts of the participants (Morse, 2001). Participants of a grounded theory study are encouraged to
describe the events, thoughts, and actions of the process as they were experienced.

The data are collected and carefully examined for recurring concepts. The emerging concepts are labeled and abstracted to categories with identifiable properties and dimensions. This analytic process involves methodical comparison of all data to identify and validate patterns in behavior and context that emerge consistently in the events described. Categories and relational statements are similarly developed using constant comparison and abstraction until a theory takes shape. The concepts, categories, and hypotheses thus earn their way into the theory, and the theory is indeed grounded in the data.

Built from the actual experiences, thoughts, and actions of the participants, grounded theory can provide an excellent representation of reality (Morse, 2001). Grounded theory illuminates complex social processes and the contexts in which they occur, and therefore it is an ideal method to study phenomena in their natural settings (e.g., nursing practice). A theoretical explanation generated from grounded theory contributes new understanding to the substantive area of interest (Hutchinson & Wilson, 2001). This new understanding can be used to inform nursing practice, education, and research. In nursing, grounded theory studies have resulted in (a) new nursing knowledge (e.g., Brady-Fryer, 1994), (b) new ways of viewing old knowledge (Sandelowski, 1993), (c) the development of new nursing interventions (e.g., Morse & Johnson, 1991; Rempusheski & Phillips, 1988), (d) advances in nursing education (e.g., Hutchinson, 1992), and (e) the development of formal theory (Sandelowski, 1995; Kearney, 2001). The primary focus of this study is to generate new knowledge, i.e., a
theoretical explanation of the TpN process that can inform practice, education, and research in this specialty practice.

Rationale for Selecting Grounded Theory

The grounded theory method is best used to study phenomena not well-understood. The method is well suited to answering the question ‘what is going on here?’ (Morse, 2001). A grounded theory not only provides an empirical basis for generating an explanation of behavior but also adds insight and understanding to the context and consequence of behaviors (Strauss & Corbin, 1998). In the area of TpN, research is limited and the use of the nursing process in the delivery of TpN care is assumed but not well understood. Despite limited knowledge about the practice, TpN continues to grow. To study the effects of nursing care delivery over the telephone, and to develop appropriate interventions, a solid understanding of the process is needed. Without empirical evidence about what is going on, the clinical, educational, and administrative decisions being made daily are based on speculation. Until there is evidence to support how the TpN process contributes to successful outcomes, program decisions and education, hiring, and orientation policies will continue to be based on assumptions.

Grounded theory method can provide an explanatory theory of this complex nurse/caller interaction, its context and consequences, and therefore is the logical choice for initial studies of this phenomenon. “Grounded theories, because they are drawn from data, are likely to offer insight, enhance understanding, and provide a meaningful guide to action” (Strauss & Corbin, 1998, p. 12). Once the major concepts of the TpN process and their properties and dimensions have been identified, operational definitions can be
developed, ultimately leading to concept measurement. In addition to the insight and understanding gained, the identification of key variables in the TpN process will permit the quantitative investigation of those variables, the relationships among them, and the effects on the outcomes. For example, future study questions may include: “Do nurse characteristics influence the TpN process?”; “What is the relationship between nurse process and telephone nursing outcomes?”; “What are the contextual variables that affect the process and outcomes of care delivery?” Such questions can be more effectively investigated once major process concepts have been identified and described.

Methodological Background

*The Discovery of Grounded Theory: Strategies for Qualitative Research* was written by Glaser and Strauss and published in 1967. The book was an attempt by these two sociologists to close the gap between research and theory and to teach ways to generate useful theory. According to Glaser and Strauss, at the time of the book, scientists were unduly focused on grand theory and methods of verification (1967). Glaser and Strauss concluded that social and behavioral scientists were far removed from practical research and that the practical problems that needed to be addressed by scientists did not fit the grand theories of the day. Glaser and Strauss (1967) argued that the existing theories had little practical value and that (1) data could be forced to fit the theory; (2) when data did not fit, the theory was not necessarily threatened because existing methods limited the number of variables being tested and the theory could never be verified or disproved, only modified; and (3) theories were so plentiful at the time that sociologists concentrated on generating new methods of verification rather than new
theory. Glaser and Strauss responded to these issues by developing grounded theory, the
discovery of theory from data and the associated method of comparative analysis. They
felt that social theory generated from data would be useful, accessible, understandable,
and empirically testable; providing “relevant predictions, explanations, interpretations
and applications” (Glaser & Strauss, 1967, p. 1).

Symbolic interactionism is the theoretical perspective, or philosophical stance
underpinning grounded theory (Crotty, 1998). According to this perspective, (1) human
beings are actors; (2) their actions are based on the meanings they assign to people,
things, and actions; and (3) meaning is interpreted and modified through interaction with
others (Blumer, 1969). The basic premise of symbolic interactionism is that meaning is
derived through social interaction. Methodologically, the essential stance of symbolic
interactionism is that the researcher must take the role and the perspective of the other.
Crotty states that “only through dialog can one become aware of the perceptions, feelings
and attitudes of others and interpret their meanings and intent” (1998, pp 75-76).

The epistemological foundation, or the theory of knowledge, that informs
symbolic interactionism is constructionism (Crotty, 1998). Constructionism is the view
that knowledge, truth, and meaning are constructed from interactions with the world. The
meaning ascribed to a particular entity or action can vary depending on the interactions
and interpretations of the individual. The essential stance of constructivism is that
humans interact with their world (and objects in it) to create meaning.

Rooted in constructivism and symbolic interactionism, grounded theory is not just
a method, that is, a systematic set of techniques and procedures used to gather and
analyze data, but also a way of thinking about and viewing the world (Strauss & Corbin, 1998). Because it focuses on human and social behavior and is used to study complex social interactions, grounded theory is particularly valuable for studying nursing phenomenon.

Methodological Outcomes

The desired outcome of a grounded theory study is a well-developed theory. The theory should provide a description and explanation for the phenomenon and clear concepts and hypotheses that can be both verified by future research and operationalized for quantitative studies (Glaser & Strauss, 1967).

A grounded theory can be either substantive or formal (Morse, 2001). Although both are considered mid-range theories they differ in the level of specificity or generality. Formal theory is most often an extension of a substantive theory developed further through comparative investigation of the original theory under a variety of conditions or substantive areas (Glaser & Strauss, 1967). To extend the substantive theory to a more formal one requires comparison groups that the researcher has identified as different in some respect from the original. A formal theory requires a higher level of abstraction and is removed somewhat from the original context. It is however “applicable to many more situations and contexts” (Morse, 2001, p. 9). The goal of this study is to develop a substantive theory.

For various reasons (e.g., time and funding constraints), a grounded theory project may end before the theory is complete (Hutchinson & Wilson, 2001). When a study using the grounded theory method ends prematurely the results might take the form of (1)
description, a very graphic and detailed account of the phenomena without interpretation, (2) conceptual ordering, identification and classification of concepts according to their properties and dimensions, and (3) the identification and development of categories used to build measurement scales (Strauss & Corbin, 1998).

Methodological Source

Because the strategies used in a grounded theory study can vary considerably, researchers are obliged to specify the source used to guide their research (Wilson & Hutchinson, 1996; Munhall, 2000). Adherence to the method of choice promotes trustworthiness in the research (Lincoln & Guba, 1985). The specific methodological strategies used for this study are taken from Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory (Strauss & Corbin, 1998). The method described by Strauss and Corbin originated in Glaser and Strauss (1967) and has evolved over time. Because the method has evolved, researchers who have used the original method may notice differences in the analytic process (See Stern, 1994 or MacDonald, 2001 for a comprehensive discussion of the differences).

Strauss and Corbin’s (1998) work was chosen to guide this study because it provides clear, comprehensible techniques and procedures for data analysis and development of grounded theory. The authors logically and systematically describe each phase of the analytic process of theory development. Moreover, they explicitly state that they are providing guidelines and once the method is understood, the procedures should be applied flexibly and creatively by the researcher (p. 14). In this grounded theory study, I intend to follow the steps outlined by Strauss and Corbin to develop a substantive
theory of the process of care delivery in TpN practice. These steps, and the related techniques and procedures will now be described in detail. Important methodological terms used by Strauss and Corbin are underlined for emphasis. Exactly how the theory was developed using the procedures described here will be discussed in Chapter 4.

Method Described

Getting Started

Strauss and Corbin (1998) describe theory as a set of well-developed concepts and statements of relationship which offer an explanation about some complex phenomena (i.e., problem, issue, or event). A theory includes a description of the objects or events, the context or condition in which the event or action occurs, and the consequences or outcomes of the action. The Strauss and Corbin grounded theory method will be used to develop a substantive theory of the process of care delivery in TpN practice.

The research process begins with a question identifying the problem and the context of the study. The initial question should be broad, flexible and oriented to process (e.g., action). In this study the question is: What is the process used to deliver nursing care over the telephone? To be used for data collection without leading the participants this question will be restated in the interviews. In grounded theory, data collected in response to the initial research question generate more refined and focused inquiries as the data collection and analysis unfold. Alternating or concurrent data collection and analysis is critical in grounded theory. In fact, to do otherwise (i.e., independent data collection and analysis) limits the level of abstraction and threatens the validity of the study (Schreiber, 2001). Ongoing data analysis and collection allows
sampling and verification of provisional categories and hypotheses based on the emerging concepts (Strauss & Corbin, 1998).

At the beginning of the study the researcher must decide where the data collection will take place, the duration of each session, and the focus of the initial interviews. Initial interview questions may be based on concepts previously identified from researcher’s experience, or the literature. However, the process is best served if the initial interview is unstructured and uses “general guidelines only, such as ‘tell me what you think about…’, ‘What happened when…?', and ‘What was your experience with…?’” (Strauss & Corbin, 1998, p. 205).

**Sampling**

Sampling in grounded theory is theoretical, that is, based on concepts rather than individuals. In theoretical sampling the researcher collects information (i.e., samples) about representative events and incidents (Strauss & Corbin, 1998). Before beginning sampling, the researcher determines who the respondents will be, where they will come from, what type of data will be collected (e.g., interview, observation), and how (e.g., audiotape, videotape; Strauss & Corbin, 1998). These decisions are made according to consideration of the greatest potential of each to capture the information desired (p. 204). As with all research, initial decisions made by the researcher may require modifications subject to research goals, access to and availability of resources, including the researcher’s time and energy, and the emerging theory.

The initial sampling decisions are based on the need to collect information that addresses the main research question, hence, the initial broad interview questions. Once
data collection and analysis begins, the concepts emerging from the data will guide the questions asked and sampling done. Strauss and Corbin differentiate theoretical sampling into three modes (i.e., open, relational (or variational), and discriminant) that correspond with the coding process (i.e., open, axial, and selective). For example the initial sample is selected by open sampling. Open sampling which corresponds to open coding analysis (discussed below), is very flexible and guided by the need to generate as many categories as possible. A category is a higher order concept, an abstract classification of concepts that represent a problem, issue, or event of interest; it has the ability to explain what is going on (Strauss & Corbin, 1998). In open sampling the researcher is thus open to any person, place, or situation that aids the discovery of theoretical concepts. Purposive (i.e., satisfying pre-specified eligibility criteria; Powers & Knapp, 1995), convenience, or systematic sampling are appropriate open sampling techniques.

After the first data are collected from the initial purposive sample and analyzed (i.e., open coding) theoretical sampling continues as a systematic and cumulative process driven by the emerging concepts and the need to fully develop each conceptual category. The researcher compares incoming with existing data, looking for similarities and variations. This is known as a theoretical comparison, a technique used to stimulate and clarify thinking and to develop the theoretical categories and relationships. Theoretical comparisons generate understanding of the data and provide ideas for theoretical sampling. In theoretical comparisons, abstract ideas and/or relational hypotheses are compared to similar or different ones (i.e., incoming data or samples) to help define the properties and dimensions. The category properties and their dimensions define and give
meaning, variation, and specificity to categories. For example, a category may be objects that share the characteristic of flight, e.g., bird, kite, and plane (p. 116). Properties or characteristics of the category flight might include reasons for, when, height, speed, or distance of flight. It is through theoretical comparison that the researcher is able to understand the concept of flight, and identify its properties and dimensions. This is done by comparing events in the data with other events; for example, both the bird and the kite may be found in the air; but, how are they the same, how are they different? These questions generate the need for theoretical sampling (relational and selective) and comparison of other flying objects; say a plane. For example, how is the plane similar or different from the kite and/or the bird? Eventually, through sampling and comparison the researcher is able to identify the abstract concept of flight and its properties and dimensions. The researcher can further clarify the flight category into sub categories (i.e., kites, birds, and planes), each with its own properties and dimensions. Theoretical comparisons (e.g., how is this concept similar or different from that one?) are used throughout the analysis to gain a better understanding of the data and facilitate discovery.

In a grounded theory study, sample size cannot be determined a priori because it is based on theoretical sampling, a process that continues until all categories are saturated and the theory is dense and fully developed (Carpenter, 1995; Morse & Field, 1995; Glaser & Strauss, 1967). Saturation is the point in the research where no new information is emerging. Information refers to categories and their related properties, dimensions, or relationships. The research process is complete when categories are saturated and a theory has been developed.
During data analysis, concepts, categories and relationships are identified and validated. Concepts are developed by abstracting raw data, labeling it, and comparing it with new data. Categories are developed by abstracting groups of similar concepts and specifying their properties and dimensions by constantly comparing and validating them with new data. Each component of the theory is developed in much the same way. Every concept is challenged with new data and only items that are repeatedly present in the data earn their way into the theory. The continual process of testing, revision, verification, and finally specificity of the theoretical concepts contributes to the credibility of the data and serves to offset researcher bias. In addition, Strauss and Corbin (1998) suggest that, when clarification or confirmation is needed, the developing categories and hypotheses should be checked out by asking respondents if the interpretations and ideas being identified match their experiences.

During data analysis, Strauss and Corbin suggest that researchers provide their own names for the theoretical concepts rather than using concepts established in the literature. Because established concepts have meaning and images associated with them, their use in developing theory may bias or limit interpretation of the data. Once the theory is considered developed, the literature should be reviewed to identify existing concepts and describe how they relate to the data when reporting the findings. In addition, the literature should be reviewed to confirm findings, to challenge existing knowledge, and/or to suggest how the new findings fit in the context of what is already known (Strauss & Corbin, 1998; Streubert, 1995).
Coding

Coding refers to the procedures used to examine, organize, and interpret data. Coding is a dynamic process which becomes increasingly more focused and abstract. Coding, along with questioning, comparing, and theoretical sampling, allows the researcher to identify similarities, differences, and meaning in the data; this in turn allows the analysis to move from specific events and concepts to more general abstract categories and their interactions. Strauss and Corbin (1998) use three types of coding: open, axial, and selective.

Open coding is the process of breaking the data down into discrete parts to discover and name concepts. Open coding can be done line-by-line to generate concepts and categories early in the process. This technique is recommended for use with the initial data. Open coding can also be done by looking for the central idea in sentences or paragraphs or by looking at the entire document to determine what is going on there.

When engaged in open coding, concepts are uncovered, examined for differences and similarities, and labeled and grouped according to the identified properties. During this initial data coding, Strauss and Corbin recommend the use of memos, that is, “the researcher’s record of analysis, thoughts, interpretations, questions, and directions for further data collection” (p. 110). Concepts with similar characteristics are grouped into categories. Once a category has been identified, the properties and dimensions are developed. Properties are the characteristics or attributes of the category and dimension refers to the range in which the properties vary. Categories can be further developed into subcategories for additional specification and clarification.
Axial coding is the process of reassembling the categories according to the properties and dimensions of the concepts. In axial coding, the researcher is able to get closer to the explanatory aspects of the data by relating the categories and subcategories (Strauss & Corbin, 1998). Axial coding involves (1) continued identification of category properties and dimensions, (2) describing how the categories and subcategories are related, (3) discovering how the categories are related to each other.

In axial coding, the researcher is looking for explanations rather than discrete entities. To uncover the relationships and help develop an explanatory scheme, Strauss and Corbin suggest that the categories be examined according to the associated conditions (structure), the actions/interactions (process) taking place, and consequences. Process refers to the action and/or interactions taking place and how they evolve. Consequences are the outcomes of the actions. The conditions, also called structure, refer to the context or “set of circumstances or situations, in which phenomena are embedded” (Strauss & Corbin, 1998, p. 128).

Process and structure are bound; as changes occur in one, the other changes as well. Structure is the ‘why’ and process is the ‘how’ of the phenomena of interest. In a developed grounded theory, a connection is made between the social process and the conditions (i.e., structure) that affect it. Conditions can vary in character (e.g., economic, political) and scope (interpersonal, occupational, organizational). Conditions can influence action/interaction directly or indirectly. Strauss and Corbin define context as “a set of conditions that come together to produce a specific situation” (1998, p. 103). Because the actions taken by individuals depend on the context in which they take place,
the characteristics of process are variable as well. Process therefore can take a major or a minor role in the theory and can range from orderly, sequential, purposeful, to uncontrolled and chaotic. Consequences occur in response to action or lack of it; they can be intended or unintended and vary in impact and duration.

Selective coding is the integration and refinement of categories and relationships into a theory (Strauss & Corbin, 1998). Connecting the elements of context, process, and consequences creates an explanatory framework and describes ‘what is going on here’. To achieve integration the researcher must decide on the central explanatory and unifying concept. Strauss and Corbin call this the central explanatory category. It is the unifying concept, it represents the main theme of the research and all other major categories are related to it. With the identification of the central explanatory category the researcher is able to link all the categories and thus create an explanatory whole.

The tentative theory is then refined, by reviewing it for internal consistency and logical development, and by filling in poorly developed or trimming excess categories. The analysis is designed to capture the interplay between the conditions, the responses of the actors (process), and the resulting consequences. The theory is an increasingly abstract rendition of the raw data and should be able to explain most cases but may not fit every aspect of every case (p. 159). To determine how well the theory fits with the raw data it must be validated. Validation is done either by returning to the raw data to determine if the theory is able to explain most of the cases, or by presenting the theory to the participants to determine how well it fits their cases. According to Strauss and Corbin, “a theory that is grounded in data should be recognizable to participants, and
although it might not fit every aspect of their cases, the larger concepts should apply” (1998, p. 161).

Memos

Strauss and Corbin (1998) recommend the use of memos and diagrams during the analysis to keep track of the concepts and their properties, the hypotheses generated, and conceptual processes of the researcher. Memos are written records and diagrams are visual representations of relationships among the concepts. Both memos and diagrams can take different forms; that is, they can be hand written on index cards or in a notebook, or typed into a computer using a word processor or analysis software, or both. Styles of memos and notes will vary according to the individual researcher. In addition to providing a record of the analysis process, they can be sorted, ordered and reordered to stimulate thinking and alternative views of the concepts emerging in the data. Memos and diagrams will become progressively complex and perhaps lengthy as the theory takes shape. It is important that the researcher develop a system of coding the memos so that the original information (i.e., date, interview, page, and line) is identifiable and retrievable. The use of memos begins with the first data analysis and ends during or after the research is reported. Memos and diagrams are an individualized way to “record the progress, thoughts, feelings, and directions of the research and researcher…” (Strauss & Corbin, 1998, p. 218).

Theorizing and Researcher Bias

The basic analytic operations of grounded theory are (1) asking questions, (2) making comparisons, and (3) theoretical sampling. Because each of these operations
involves creativity, interpretation, comparison, decision, and judgment about the data, the biases, beliefs, and assumptions of the researcher are likely to play a role in the analysis. The process of analysis and theorizing requires that the researcher find a balance between objectivity and sensitivity. Theoretical sensitivity is the ability to distinguish relevance and meaning in the data. Sensitivity is based on personal and professional experience and familiarity with the literature. Immersion and interaction with the data increases sensitivity, builds awareness, and allows recognition of often subtle concepts, similarities and relationships. However, without objectivity, knowledge of the substantive area can result in forced interpretations and explanations. Strauss and Corbin recognize the impossibility of total objectivity while retaining sensitivity. They have proposed several techniques designed to reduce researcher bias while capitalizing on the researcher’s knowledge of the area. Proposed techniques include questioning the face value of the respondent’s words, making comparisons, looking for similarities and differences among incoming, existing (i.e., already analyzed and identified), and preconceived concepts, and also looking for alternative explanations (Strauss & Corbin, 1998).

Strauss and Corbin (1998) also acknowledge that familiarity with the literature can block creativity and bias interpretation. Because I am very familiar with the TpN literature and have completed two studies and written several articles on this topic, I will describe how I will attend to my own biases and preconceived notions in this study. Before beginning the analysis, I will explicate the concepts that I believe to be important in TpN practice, and will examine the role of these preconceptions in the analysis using the following questions. Are these concepts truly emergent, or am I seeing them in the
data because I am so familiar with them? Can I find an alternative explanation? In
addition, once analysis is complete, the interpretations will be taken to participants to see
if the findings match their experiences. Concepts identified from researcher experience
and those previously derived from the literature (see Chapter 2) will then be considered a
source of data and used to make comparisons with those emerging from the data (Strauss
& Corbin, 1998; Chenitz, 1986). Awareness of biases and sensitizing concepts will be
used creatively in the research process to stimulate critical and comparative thinking. If
the concepts are emerging from the data, they will either earn their way into the theory
through constant questioning, comparison, testing, and validation with the data and the
participants or be discarded.

I will use additional techniques to supplement and validate the analytic process.
Qualitative researchers have recommended mentoring and validating findings with
experts to increase creativity, wholeness, and truth value (Stern, 1994; Strauss & Corbin,
1998). Regular meetings and discussion with dissertation committee members, and
additional grounded theory researchers will provide opportunities to challenge the
findings and enhance creativity and credibility in the analysis of the data. Discussions
will provide opportunities for critical thinking and problem solving and application of the
analytical tools listed above (Corbin & Strauss, 1990). In addition, validity checks, that
is, simultaneous coding of the initial interviews by two independent researchers will be
completed. Being challenged by knowledgeable nurse scientists and consequently
needing to articulate and support analytic decisions will help demonstrate clear and
consistent links between theorizing and raw data, and reveal inconsistent or unclear links.
Regardless of the safeguards I will employ to recognize and minimize bias, experts agree that preconceived ideas and personal experienced related to the study topic still may interfere with data interpretation (Morse & Field, 1995; Hutchinson & Wilson, 2001). A short explanation of my own ideas and reactions to the research process will therefore be included in the study as recommended by Strauss and Corbin (1998). This will enable the readers “to judge how personal reactions might have influenced the investigation and interpretations placed on the data” (Strauss & Corbin, 1998, p. 273).

Strengths and Limitations

Both a strength and a limitation of grounded theory is the interplay of the data, the concurrent analysis, and interpretation. Strauss and Corbin (1998) encourage creativity in the development of the categories and the theory. Creativity is the equivalent of the researcher approaching, interacting with, and interpreting the data with an open mind. The authors acknowledge that the personal and professional history of the research plays an important role in the grounded theory process. Previous knowledge of the subject matter (includes literature reviews before and during analysis) can serve to bias or sensitize the researcher to the emerging concepts. Strauss and Corbin encourage researchers to capitalize on this reality and make explicit what those concepts are. Achieving a balance between objectivity and sensitivity is important for validity of the process and the product. Ultimately this dilemma (achieving the balance) and the subsequent threat to the validity are managed by continual comparison and validation with the incoming data. As stated previously, all concepts earn their way into the theory.
For each step and technique used in the method, Strauss and Corbin (1998) provide details and underlying logic as well as encouragement to adapt the steps to the researcher’s style and subject. The looseness of this analytic style, the inherent creativity, and the tenuousness of the process, may be viewed by some as a limitation of this research process. The method however is empirical; analysis and data are systematically linked throughout the process, and a system of theoretical comparison is built in for verification and validation. For example, the researcher may have some very original ideas about what is emerging from the data, but unless these ideas are repeatedly compared and validated with incoming data until no new information emerges, they will not remain viable.

The grounded theory process is lengthy and very intense. The researcher becomes, of necessity, immersed in the data, often analyzing data and memoing during the activities of daily living. This requires commitment and perseverance. An additional limitation is the length of time required to complete the study. The fully developed theory depends on saturation (density and variation) in all categories. Unfortunately, there is no way to predict when saturation will occur and this may be difficult for some researchers. The inability to reach saturation in a study is a limitation. If the study must end prematurely, the researcher can present results other than a developed theory (i.e., description, conceptual ordering, or discovery of categories to build measurement scales; Strauss & Corbin, 1998, p. 188).

Strengths of the method are that the results (a) are grounded in data, (b) provide explanatory theory about human behaviors within the context that they occur, and (c)
illuminate aspects of social behavior in complex environments that are of interest to nurses but difficult or impossible to discover with other research methods (e.g., grounded theory provides a moving picture rather than a snapshot). The theory is constructed from the stories, experiences, events, and situations of participants, and therefore should resonate with anyone interested in the subject, whether novice or expert. Results also provide (d) sound empirical basis for theory testing and for the development of quantitative measures, and (e) an informative foundation for the development of nursing interventions specific to the problem/substantive area (Straus & Corbin, 1998; Glaser & Strauss, 1967; Chenitz & Swanson, 1986a; Hutchinson & Wilson, 2001). Because they present excellent representations of reality and create new knowledge to inform practice, grounded theories play an important role in nursing (Morse, 2001).

Evaluative Criteria

A number of criteria have been developed and used to address the rigor of qualitative methods. In the 1980’s it was common to use the four criteria developed by Lincoln and Guba: credibility, dependability, confirmability, and transferability, to determine the scientific merit of all qualitative studies (1985). Although there are many similarities among the different qualitative methods, there are differences in the underlying methodological frameworks. For example, although ethnography and grounded theory are both underpinned by symbolic interactionism, the methods are quite different. For example, ethnography uses participant observation for data collection, and focuses on culture for data analysis, whereas, grounded theory uses interviews and focuses on social process. What constitutes appropriate criteria for evaluating one
qualitative method is not necessarily appropriate for another method (Sandelowski, 1986; Corbin & Strauss, 1990). It follows then that the standard for judging the scientific merit of a specific method should be geared specifically toward that method. When determining the scientific merit of a qualitative research study, experts agree that there is a need to establish and follow predetermined criteria for evaluation of a study, use evaluative criteria that fit the underlying methodology of the study, and inform the reader/critic of the criteria and how they were or were not met (Sandelowski, 1986; Leininger, 1994; Evertz, 2001).

Corbin and Strauss (1990) propose that the following four criteria be used to evaluate a grounded theory: credibility of the data, plausibility and value of the theory, adequacy of the research process, and empirical grounding of the research findings. They offer these criteria as guidelines, not hard and fast rules. The authors state that when procedures and evaluative criteria are modified, the modifications must be made explicit. Then, with this information in hand, the reader can judge the adequacy of the research process and the credibility of the findings. This approach has been supported by other grounded theory experts (e.g., Stern, 1994).

**Credibility**

Credibility refers to the truth value, or believability, of the findings (Leininger, 1994). Credibility is a measure of how well the researcher represents the reality described and experienced by the participants (Lincoln & Guba, 1985). The procedures used for data collection and analysis are used to judge the credibility of the findings. To maximize credibility, the interpretations and decisions of the researcher, as well as any
methodological modifications, should be recorded (Corbin & Strauss, 1990). Although Cutcliffe and McKenna (2000) have questioned the value of the audit trail in establishing credibility of the findings, particularly when used by expert qualitative researchers, it has been used for many years as evidence of credibility (Lincoln & Guba, 1985). An audit trail is the “careful documentation of the research process and sufficient evidence to make it possible for interested others to understand how researchers reached their conclusions” (Powers & Knapp, 1995, p. 11). Corbin and Strauss (1990) have specifically identified documentation of analytic and sampling features of the grounded theory method relevant to determining credibility and developing an audit trail.

In analysis, the systematic development and validation of each theoretical component is documented using memos, notes, and diagrams. Theoretical sampling techniques provide consistency in the data collection and representativeness of the concepts. Recording the techniques used in sampling permits access to the process and addresses trustworthiness in the data. Although not specifically advocated for use in grounded theory (Straus & Corbin, 1998), the combination of raw data, and carefully and systematically recorded memos, diagrams, and notes comprise an audit trail (Lincoln & Guba, 1985).

*Plausibility and Value*

The plausibility and value of a grounded theory is addressed by the explanatory power (i.e., predictive ability) of the theory. “The real merit of a substantive theory lies in its ability to speak specifically for the populations from which it was derived and to apply back to them” (Strauss & Corbin, 1998, p. 267). To best accomplish this, the
theory must specify the conditions that give rise to the process, or phenomena of interest, identify the problems or issues surrounding this process and the actions/interactions taken to manage them, and finally, provide an explanation of the consequences of those actions. Chenitz and Swanson (1986a) maintain that the value of theory can best be evaluated with the following question, “If I apply this theory to a similar situation will it work, that is, allow, me to interpret, understand, and predict phenomena?” (p. 13).

**Adequacy of the Research Process**

Corbin and Strauss (1990) argue that by providing specific information, the reader has reasonable grounds to judge the adequacy of the research process. Information necessary to judge adequacy should include; how the original sample was selected; major categories and examples of events that helped identify them; how theoretical sampling was carried out; and how categories and hypothesized relationships were formulated and tested; any discrepancies in the data and how they were handled; how were the central explanatory categories selected.

**Empirical Grounding**

Corbin and Strauss (1990) provided specific criteria to judge the empirical grounding of the findings. To assess empirical grounding, the reader must be able to determine that concepts were generated from the data and are systematically related and that there are many conceptual linkages and categories. Categories should be dense and contain multiple concepts that demonstrate the properties and variations within the category. Variation should be built into the theory in terms of actions/interactions, the conditions or circumstances in which the action takes place, and consequences. Context
(i.e., set of conditions that come together to produce a specific situation) must include the broader conditions as well as the immediate (e.g., Is the theory linked to conditions beyond the telephone call?). Process must be evident through specified change or movement (e.g., phases, stages). The findings should explain the phenomena of interest and stimulate further research.

Chapter Summary

In this chapter, an overview of grounded theory has been presented. The method and its origins have been described. The rationale for selection of this method, along with potential study outcomes, has also been discussed. The process used to generate grounded theory, as well as the terms, concepts and procedures and techniques specific to the Strauss and Corbin (1998) method were described in detail. An additional section describing methodological techniques used to mitigate researcher bias and other threats to the study validity was included. Finally, the criteria to be used in the process and product evaluation of this grounded theory study were presented. Much of the information necessary for the reader of this study to judge the adequacy of the research process and the credibility of the findings will be provided throughout Chapter 4: Method Applied. The evaluative criteria will then be revisited in Chapter 6 in the discussion of the scientific merit of this grounded theory study.
CHAPTER 4: METHOD APPLIED

In this chapter, a detailed account of the research process and how it was used to accomplish the aim of the study is provided. The specific methodological procedures explained in the previous chapter, and how they were applied in this study, are described in depth. Procedural details (e.g., human subject approval, recruitment) are provided and techniques used and variations in the application of the method are also explicated. Examples from this study are included in the description of the research process in an attempt to present the process as it unfolded.

Getting Started

Specific Aim and Study Overview

The specific aim of this study was to construct a substantive theory of the process used by nurses to identify and meet the needs of clients when delivering care over the telephone. The grounded theory method as described by Strauss and Corbin (1998) was used to construct a set of well-developed concepts and statements of relationships that explain the process of care delivery in TpN practice. The research question that guided the study was: What is the process used to deliver nursing care over the telephone?

Because the focus of the study was on process, data were collected in narrative form using semi-structured audiotaped interviews lasting up to one hour each. Interviews were scheduled at the convenience of the participant and conducted in private, reserved rooms at the clinical site at which the participants were employed. To ensure privacy and freedom from interruptions and distractions during the interviews a sign reading:
‘Interview in Progress Do Not Disturb’ was placed on the door. Before collecting and analyzing data, the following procedures were completed.

**Sampling**

Consistent with grounded theory, study participants were recruited based solely on their ability to respond to questions, relate their experiences, and elaborate on the phenomenon of interest, that is, the process of care delivery in TpN practice. The following inclusion criteria were used to select nurses for study participation. Nurses had to (1) be currently working as a telephone nurse at least four days a month for the last three months, (2) have at least six months experience as a telephone nurse, (3) speak English, and (4) be willing to commit to one, and possibly up to three, one hour taped interviews.

**Setting**

Because TpN is a specialty practice, nurse managers from clinical settings in Tucson, Arizona that offered TpN services were contacted in person by the researcher and asked to participate in the study by assisting with recruitment and providing descriptive information about the setting and services. Four of the six clinical sites contacted actually provided TpN services and employed nurses that fit the inclusion criteria. The four eligible nurse managers were given a verbal description of the study and the role of the nurse manager as a participant. All four nurse managers agreed verbally to participate in the study and subsequently provided letters of site approval and support of the proposed research project, pending Human Subjects approval.
The clinical sites used in the study were: (1) a family practice clinic with two eligible nurses, one of whom participated; (2) a pediatric and pediatric sub-specialty clinic with two eligible nurses, one of whom participated; (3) a primary care clinic and OB/GYN specialty serving a pediatric to geriatric population with eight eligible nurses, four of whom participated; and (4) a regional health care organization providing TpN services for 30 primary care and four specialty offices (cardiothoracic surgery, rheumatology, podiatry, and ENT [ear, nose, throat]) with 13 eligible nurses, four of whom participated.

Human Subjects

The research proposal entitled, *The Process of Care Delivery in Telephone Nursing: A Grounded Theory Approach*, along with the letters of support from the nurse managers of the four clinical settings, was sent to the University of Arizona Human Subjects Protection Program Institutional Review Board for review. The proposal was reviewed and approved (see Appendix A). Included in the review were the Subject’s Consent Form and TpN Sample: Descriptive Information Questionnaire and for the Nurse Managers, a Cover Letter/Disclaimer, a TpN Setting: Descriptive Information Questionnaire, and Nurse Recruitment Statements.

Recruitment

Following Human Subjects approval, the four Nurse Managers were contacted by electronic mail and a packet was hand delivered containing a Nurse Manager Cover Letter (Disclaimer), a TpN Setting Questionnaire with a stamped envelope addressed to the researcher, and multiple Recruitment Statements. The Nurse Manager Cover Letter
(see Appendix D) invited participation, detailed the expectations, explained the voluntary nature of participation, and described privacy/confidentiality issues. Nurse Managers were asked to complete a questionnaire describing TpN services (see Appendix E) and to deliver the Recruitment Statements (invitations) to eligible nurses. The information in the written questionnaire contained no site identifiers and was used to describe the range of TpN settings and services used in the study. The nurse Recruitment Statement (see Appendix F) explained the study, invited participation, described in detail what that entailed, and provided researcher contact information for nurses interested in participating. The Nurse Managers were contacted by e-mail one week later to confirm receipt of the package and thank them for participating. The four TpN setting questionnaires were completed by the Nurse Managers and received in sealed envelopes by the researcher. At the end of the study, Nurse Managers were sent a formal thank-you letter and given a $20 gift card of their choice (i.e., Target, Starbucks, Century Theaters) in appreciation for their participation in the study.

By invitation of the Nurse Manager at one clinical site (the health care organization), the researcher attended a monthly staff meeting, introduced the study, and invited nurse participation by distributing the recruitment statement. A sign-up sheet was passed around for those nurses interested in participating. Six of the eight nurses who were present expressed interest and provided contact information for the researcher. Nurse Managers from all clinics reported that all eligible nurses received the recruitment statement with researcher contact information included. Nurses interested in participating in the study independently contacted the researcher either by telephone or e-
Sixteen of the twenty-five eligible nurses expressed interest in participating in the study.

**Sample**

A purposive sample of telephone nurses was used and the sequence in which they were interviewed was determined by convenience, that is, in the order they contacted the researcher and scheduled an interview. Participants were drawn from four clinical settings that provided TpN services. Descriptive information about the sample (i.e., both TpN nurses and settings) was taken from the data reported by the participants in the completed TpN Sample and Setting Questionnaires. All of the participants met the inclusion criteria and all were female. The mean age of the participants was 40 years. The sample consisted of 10 RN’s (4 BSN, 4 AD, 1 Diploma, and 1 not reported). For this sample, total nursing experience ranged from 16 to 40 years, averaging 28.7 years. Participant experience in TpN ranged from 18 months to 16 years, averaging 8.3 years.

The TpN services provided by participants included nursing assessment, advice, education and triage and served populations ranging from pediatrics to geriatrics. These services were provided weekdays (8am - 5pm at three sites), and after-hours and weekends (one site). The number of TpN calls reported varied per site. For the entire sample, the number of calls handled per month ranged from 350 to 4500; the number of calls per nurse per eight hours ranged from 12 to 40 and the number of calls per nurse per hour ranged from 2.5 to 4.5. The TpN programs providing the services have been in existence 8 to 15 years, average 11 years.
Nurses used paper programs in two settings and computerized systems in two settings to store and access protocols and references and document call information. Nurse availability of the caller’s medical record varied; it was available in one setting and limited or available on request in the other three settings.

Methodological Procedures

Data Collection

Eligible nurses interested in participating contacted the researcher to schedule an interview. During the first telephone contact, the researcher read each nurse the consent form and obtained verbal consent. Interviews were scheduled when convenient for the participant. Before beginning each interview, the participants read and signed a written consent (see Appendix B). The consent form provided a written explanation of the study, discussed what was involved for the participant (e.g., audiotaped interviews), and described risks and benefits. The consent form also explicitly stated that the study was voluntary and participants may refuse to answer any questions asked and/or withdraw from the study at any time without consequences. In addition, the researcher verbally reviewed the research focus, voluntary participation and freedom to withdraw, and offered participants the opportunity to ask questions or voice any concerns. Nurse participants were then asked to complete the TpN Sample questionnaire (see Appendix C). This demographic information was collected solely for the purpose of describing the sample, no personal identifying information was required. According to techniques suggested by Swanson (1986), before beginning the interview, the researcher explained the interview process, that the approach was relaxed and informal, and that it would be
Participants were assured that there were no right or wrong answers and encouraged to answer questions freely. All interviews lasted one hour, and, upon completion, nurses were asked if they would be willing to participate in a second interview. All participants were willing, although no second interviews were done. At the end of the interviews, nurses were thanked and given a $20 gift certificate of their choice (i.e., Target, Starbucks, Century Theater) in appreciation of their participation in the study.

Confidentiality

Completed Subject Consent Forms were submitted for safekeeping and storage by the researcher to the Office of Nursing Research (Room 410) at the University of Arizona College Of Nursing. The names and contact information of the participants was accessible only to the researcher and kept separate from all other study materials in a metal lock box in the home of the researcher. This information was destroyed after the final participant meeting.

Prior to each interview the participant was given a pseudonym and an interview number used to label the audiotapes, the interview transcripts, and all other written or computer stored records other than the consents. Each interview was audiotaped in its entirety and transcribed verbatim by the researcher (6) and a paid transcriptionist (4). Any names used during the interviews were erased during transcription. Transcripts were labeled by pseudonym and reviewed for accuracy. The audiotapes (labeled with numbers and pseudonyms) were stored in a locked cabinet along with the completed TpN Sample and Setting Questionnaires (containing no identifiers) and written documents and
printouts comprising the audit trail. They will be kept there for 5 years. No link exists between the study participants and the stored information.

Data Management

The ATLAS.ti computer software program was used to store and organize the study data. Intact and coded interviews, all levels of coded data, and researcher generated memos were stored in the ATLAS.ti program. Interview quotes and data codes were organized and linked up in the program, allowing the researcher to sort, filter, search, edit and generate print-outs and diagrams as needed to facilitate the analysis. Data entries were dated, sequential versions of the files saved in the program, and as the analysis progressed, printouts were generated to help document the research process. Data stored in the computer was password protected so that only the researcher had access to the ATLAS.ti files.

Theorizing and Investigator Bias

This researcher has been immersed in TpN practice and literature for over ten years. Despite a strong interest in TpN practice and personal experience as a telephone nurse, the researcher has been unable to personally articulate the process used to deliver nursing care over the telephone. Concepts believed by the researcher to be critical in providing quality nursing care over the telephone include (a) nurse discretion (i.e., ability to use judgment and make decisions), (b) nursing supportive practice environment, and (c) collaboration with the caller (e.g., mutual goal setting and decision-making). Biases include the belief that experienced telephone nurses provide better care in a flexible and autonomous rather than a rigid and controlled practice environment, and that TpN
practice that relies heavily on symptom based protocols is less likely to meet the health needs of the caller than practice that uses them as reference.

Concepts from the literature identified, in Chapter 2: Literature Review, as relevant to this study included: the practice environment (e.g., nurse support, autonomy, and protocol use), nursing experience and intuition, and knowledge of the patient. The researcher acknowledged sensitivity to all of the concepts listed. Because they were used to stimulate thinking about, comparison with, and identification of new concepts, it was critical that measures were taken to ensure that concepts emerged from, rather than were forced into, the data. Those measures included rigorous application of the method and records of all analytic interpretation and decisions to substantiate the direct links to the data.

Data Collection and Analysis

The methodological process used to construct the grounded theory will now be described as it unfolded. Selected concepts emerging from the data are used to demonstrate how the data were collected and analyzed during the process of the theory development. The measures taken to minimize researcher bias and enhance the credibility of the study findings are included in this detailed description of the analytic process.

Interview

Because initial data collection is designed to generate as many phenomena related categories as possible, interviews were guided by the broad research question: ‘What is the process used to deliver nursing care over the telephone?’ However, to be useful without leading the respondent, the question was rewritten for use in the interviews as
“Tell me, what is it that you do on the telephone?”; or, “Can you describe what happens on the phone from the Hello to the Goodbye?”; and “Can you describe a typical or routine phone call?” The first interviews were very broad and largely dealt with the entire phone call. As the interviews progressed, although still guided by the research questions, the focus of the interviews became increasingly specific.

Open Sampling

To begin the first interview, the researcher said, “I am interested in what happens on the telephone between you and the caller; can you describe a typical, or routine phone call?” Initial and subsequent interviews proceeded for one hour, with the respondents describing elements of a phone call, particular calls, and responding to questions about how and why things happened that were described. Memos were written after each interview was completed, and again after it was coded. The memos included critique of the research technique, reactions to the data, and interesting ideas, questions or hypotheses that the researcher felt needed pursuing. The memos were used to develop sample questions, interview process reminders, and record topics to explore for the next interview. For example, in the first interview memo the researcher recorded feeling more subjectively than objectively aware during the interview. The memo included a reminder for the next interview; to more fully adopt the role of researcher and to remain removed and detached toward the interview information to better facilitate unbiased data collection. The style of the interview improved as the researcher adjusted to the researcher role. Subjective verbal reactions and personal comments were no longer
present after the second interview, and questions and prompts became increasingly brief, non-committal, and open-ended in subsequent interviews.

Examples of questions asked by the researcher in the early interviews in response to participant data include: “What guided your questions?”; “You mentioned that when she called again you told her to bring the child in, do you remember any specifics about the conversation that led you to that decision?”; “What were you thinking during this time?”; “What do you find most frustrating about being on the phone?”; and, “What do you like best about TpN?”

Open Coding

In open coding the data are examined line by line to discover and name concepts, or ideas, that determine what is going on. Once the first three interviews were completed and transcribed and open coded by the researcher, two colleagues (i.e., one doctoral student and one doctoral candidate) were asked to independently review the transcripts for accuracy and to code the data. These nurses were asked to contribute to this study because they are knowledgeable about the research process and interested or engaged in grounded theory research. Having the initial interview data coded by others helped to validate that the concepts identified by the researcher emerged from the data.

Nurse colleagues agreed to complete open coding of the interview data. Focusing on process and guided by the question ‘what is going on here?’ colleagues of the researcher individually identified and labeled discrete concepts present in the data. The group (researcher and colleagues) met to discuss and compare their findings. With few exceptions, the gerunds chosen by the research colleagues corresponded to those of the
researcher and the group agreed that the differences were not in the underlying concept but in the names chosen for them. Some of the more important concepts identified independently by all three researchers were: gathering information, connecting with caller, nurse expertise. Examples of different terms used for fundamentally the same concept included: choosing approach and decision-making; educating and teaching; hearing and listening.

After comparing coded concepts, the group proceeded to first identify concepts that were consistently present in the first interviews, and second, generate ideas about the process of telephone nursing and what could be inferred from the data thus far. The recurring concepts identified were: gathering information, cognitive activities, understanding the caller, nurse comfort level, tools used to assist the nurse (e.g., protocols and expertise), and call output, with an affective (e.g., giving reassurance or validating) and an objective component (e.g., giving an appointment or information). The tentative hypotheses generated were (1) the TpN process had both subjective and objective elements, and (2) the reason for the call was explored beyond the context of the caller (personal situation) and the nurse (health care arena). Later in the analysis process these were identified, refined, and validated as the central explanatory categories of the TpN process (i.e., the implicit and explicit process and interpretation).

Theoretical Sampling

Once initial concepts were identified in open coding, theoretical sampling was used to gather focused information from the participants to develop these concepts more fully. In theoretical sampling, data are systematically collected and compared, looking
for concept similarities and differences. Once theoretical sampling began, interview
guides were used and the questions became more specific. This allowed the researcher to
collect information on previously identified theoretical components that needed to be
supported, challenged, or developed with new data. The following interview questions
are examples of those asked in this phase of the analysis. “Other nurses have talked to
me about ‘connecting’ with caller, what can you tell me about that?”; “What are some of
the things that help you do your job?”; and, “I have heard nurses say that ‘they just knew
something was wrong’ have you had any experiences like this?”

Although the interview questions at this point in the analysis were
gather focused information, the researcher remained attentive to all incoming data. The
interview process remained relatively unstructured, even though it was now guided by the
need to validate and elaborate specific concepts. The incoming data were questioned,
compared, and analyzed even as they were being collected. For example, participant
responses were internally questioned by the researcher: “Does this fit with what others
have said?”; “How is this different?”; “Is this a new idea or just another way of stating
what has been confirmed?” This active process often generated interview questions to
verify or clarify information (e.g., “You just said ‘there was a disconnect’ what does that
mean?”; “Can you tell me more about the caller cues?”; “What are the factors that
affected that decision?”). Memos describing the discoveries and hypotheses generated
during the interviews and documenting suggestions for comparisons with existing data
were written after each interview.
Axial Coding

Data from interviews four through seven added no significant new concepts, and were used primarily for conceptual clarification and differentiation. After transcripts were coded for concepts (i.e., open coding), axial coding was then done. In axial coding, similar concepts are grouped to form categories (i.e., a higher order concept, a group of related concepts) and relationships. Once categories were formed, a variety of techniques were used to help differentiate the properties of each category and describe how categories related to each other. After the data were coded, the ATLAS.ti program was used to link quotes to concepts, sort and store similar concepts and related quotes into categories, and create and store diagrams of the tentative relationships (e.g., concepts within a category and relationships among the categories). The ATLAS.ti print outs were used to stimulate thinking, question, and compare, explain, and test the increasingly abstract concepts. Interaction with and analysis of the data were underpinned by the question: Are these concepts and links consistent with the raw data? Memos were written keeping track of each interaction with the data and the analytic conclusion.

An example of how the category, gathering information, was developed from a discrete concept into a major theoretical category using open and axial coding and theoretical sampling is described. In response to the guiding question in open coding ‘what is going on here?’, gathering information was identified from the initial data as a discrete concept. With each interview, more data was coded as gathering information. As the concept grew, differentiation in the way the nurse gathered information was noted (e.g., making broad inquiries versus specific comparisons), and as a result, numerous
gathering information concepts were identified. Through the identification of these differentiated concepts of gathering information, this initial discrete concept was designated a category, which is a higher order concept made up of related concepts. Differences in some of these related concepts were evident in the data (e.g., questioning versus ruling out) and were readily differentiated and labeled as types of gathering information. Subtle differences between concepts were also noted (e.g., sometimes nurses gathered information by listening and other time by asking specific questions). Through careful and continual examination, comparison, and questioning of the existing and incoming data these concepts were further differentiated, defined, and subsequently labeled (e.g., as getting to know and investigating, respectively). When differences in the data were found (e.g., nurse asking very general introductory questions versus very specific focused questions), hypotheses about those differences were developed (e.g., the nurse gathers information to get to know the caller and to define the health problem) and tested against existing and incoming data.

When there was uncertainty in data interpretation, theoretical sampling was used to clarify and validate the meanings. Theoretical sampling is systematically collecting and comparing data looking for concept similarities and differences. During interviews, participants would be given the researchers interpretation of the data (e.g., a particular concept, category, or relationship) and asked to comment (e.g., “I have noticed that the questions asked at the opening of the phone call are very general and often open-ended and gradually become more focused and detailed. Does this match your experience?”);
and, “What can you tell me about it?”). Responses by the participants validated the interpretation or sometimes added new information, increasing the density of the idea.

Print-outs of the quotations were particularly useful in examining the data, differentiating the concepts, and linking them to the data. For example, all the quotes related to ‘gathering information’ were sorted per concept and printed out. This provided the opportunity, visually, to get to know (e.g., examine, question, compare) the data, generate ideas for testing, and look for alternative explanations. By examining the quotations using the questions: “How do these concepts differ?”; and “What is really going on here?”; the concepts of gathering information were grouped into subcategories. Subcategories are a classification that helps to differentiate the concepts and explain the category. Continued application of analytic processes (e.g., sampling, examination, comparing, questioning) confirmed the subcategories of gathering information. The identified subcategories of gathering information (i.e., getting started, information seeking, and secondary gathering) differ according to what information is gathered, how, and why. The quote/concept print-outs illustrated the links between the raw data and the theoretical concepts and were used to support the analytic decisions. The same process was used to define all of the theoretical concepts.

Once theoretical concepts were well developed and the researcher was able to explain ‘what was going on,’ a tentative conceptual diagram of the TpN process was prepared. To provide the researcher with new and critical perspectives of the data and the findings, the two research colleagues who previously contributed were asked to review the tentative theory, to question, to examine to weaknesses, and to generate alternative
explanations. Throughout the analysis process, dissertation committee members were asked individually to review the findings. These reviews provided (1) enlightened discussions that stimulated creative thinking, and (2) opportunities to support the logic of the findings and demonstrate how they were constructed from the data. Being challenged by knowledgeable nurse scientists and consequently needing to articulate and support analytic decisions helped to demonstrate clear and consistent links between abstract theoretical concepts and raw data as well as reveal inconsistent or unclear links. When the concepts were not fully developed, the reviewers provided challenges and alternative explanations and then additional testing, validation or alteration of the findings took place until they were fully developed and confirmed.

As discussed in Chapters 2 and 3, the literature review is used in the analysis to extend knowledge and sensitize the researcher, to identify relevant concepts to compare with, and stimulate thinking about, those concepts that emerge from the data. During data analysis in this study, for example, the literature was used to explore the precise meaning of the term “gathering information” and to help make comparisons and distinctions between it and the more common term, information seeking. Gathering information is a term used in this study to describe a broad overarching category representing multiple ways (general and specific) of collecting information. Gathering information was differentiated from ‘information seeking’ identified in this study as a specific, focused method of collecting information and designated as a subcategory of ‘gathering information’. This distinction between information seeking, which is designed to satisfy a perceived need, and the more general gathering information is reflected in the
literature on information seeking in health care settings, and helped to support the distinctions made in this study (Gorman, 1999; Kassirer & Gorry, 1978).

**Theoretical Saturation**

Data from interviews eight through ten focused on refining the theoretical categories and relationships. To help confirm theoretical saturation (i.e., no new information emerging) questions from the initial interviews were used in interview nine. The data collected in response to those questions were then compared to raw data, coded data, and abstracted concepts from all previous interviews; no new information, concepts, properties, dimensions, or relationships emerged. Theoretical saturation was supported.

Interview ten was previously scheduled and the questions asked focused on relationships among concepts. Questions included: “Are there factors other than symptoms that you consider when you are making decisions?”; “Tell me everything you can think of that you do for the caller while on the phone.”; “So you personalize care? How do you do that?”; “Do you ever go back and check on a call that you handled previously?”; “Does having the information after the fact affect your job in any way?”; “What type of things help you handle phone calls and what type of things make it more difficult?” These data were used to review, substantiate, and validate the theoretical components.

**Selective Coding**

Refinement and validation of the proposed theory continued beyond the final interview. Discrete data bits and abstract concepts were repeatedly reviewed, compared, challenged, and discussed with colleagues and committee members to identify holes and
inconsistencies. The discussions helped facilitate the integration of categories into a set of interrelated concepts with explanatory power: a theoretical scheme.

In grounded theory, central explanatory categories represent the main theme in the grounded theory; all other categories are organized around them. The central explanatory categories of this theory were identified in response to the question “What category(ies) appear throughout the data, are related to all other concepts, and provide a logical explanation for the variation occurring in the TpN process?” Once this question was posed, the central explanatory categories were easily recognized. These categories had figured prominently throughout the research process even though they had been accepted up to this point as categories rather than as the central explanatory categories.

Techniques used to finalize and confirm the central explanatory categories and theory integration included diagramming the process, reviewing all of the memos and raw data, and explaining the process to verify relationships and uncover inconsistencies. When the researcher was confident in the findings, their link to the data, and their ability to explain what was going on in TpN practice, the findings were taken back to the participants for validation.

Validation of Study Findings

When the study was considered complete, all of the study participants (ten) were invited, by e-mail and follow-up phone call, to hear a brief account of the study findings and provide some feedback. The meeting, entitled ‘Here is what I heard you say, does it match your TpN experience?’, was scheduled at a convenient time and place for the
participants who expressed interest in attending. Six of the ten original study participants attended, representing three of the four clinical sites.

Each of the attendees was given a written account of the findings. Although the content was the same, a slightly simplified formatted version of Figure 1 (see Summary of Study Findings, page 94, Chapter 5) was given out. The researcher began by informing the participants that in the study, the job of the researcher was to listen to each of them, identify and classify concepts and relationships common across nurses, populations, and settings, and integrate them into an explanation of the TpN process. That day, their job was to listen to a brief account of those results, and ask themselves, “Does this reflect my experience as a telephone nurse?” They were also encouraged to take notes on anything that struck them as particularly interesting, contradictory, or confusing, so that it could be discussed.

The participants had no questions about the findings; however, a few verbal comments were made expressing agreement with the findings and appreciation at being included in the study. Participants were then asked to answer in writing the three questions on the back of the handout and turn it in to the researcher on their way out. No identifying information was to be written on the paper. When the participants handed in their written responses, they were given a $20 gift card and thanked for their participation. The validation questions and responses are reported in Chapter 5: Study Findings.
Chapter Summary

A comprehensive description of the research process, the procedures, and specific methodological techniques used to develop the grounded theory in this study was provided. The steps in this theoretic process were explained in Chapter 3, and how these steps were carried out in this study was described here in detail. Theorizing is a long and complex activity, requiring creativity, intuition, interpretation, and consistent interaction with the data. The description of the grounded theory process described here illustrates how each of the theoretical concepts identified was examined from multiple perspectives, constantly compared, tested, challenged, verified, validated, and substantiated until there was no question that they had earned their way into the results. In addition, because of the complexity of the process, representative examples of the concepts were used to illustrate how the findings from this study were constructed from, and supported by, the raw data.
CHAPTER 5: STUDY FINDINGS

In this chapter, the research findings are be presented according to Strauss and Corbin’s (1998) description of a well-developed substantive theory; that is, as a set of interrelated concepts, or categories, organized around a central explanatory concept. Categories are higher order concepts that refer to phenomena (i.e., issues, events, or problems that explain ‘what is going on here’). Categories contain multiple concepts that demonstrate the properties and variations within the category. A theory also includes explanatory statements of the relationships among concepts and descriptive statements of the conditions in which the phenomena are situated.

All of the components of a theory as described by Strauss and Corbin (1998) are present in the study findings; however, the statements of relationships are limited and in many cases tentative (i.e., not well-established). The relationship between the central explanatory categories, parallel process and interpreting, is one example. Although these study findings fall just short of being considered a well-developed substantive theory they do exceed the requirements of conceptual ordering (i.e., organizing data into discrete categories or stages; Strauss & Corbin, 1998). Therefore the results of this study will be labeled a conceptual model, and fuller explanations of the relational links are required before being considered a well-developed theory (Strauss & Corbin, 1998; Powers & Knapp, 1995). The objective for this chapter is to present the conceptual components as a logical, systematic explanation; i.e., a conceptual model of the process of care delivery in Telephone Nursing Practice. The process of care delivery in TpN encompasses all that
occurs between the caller and the nurse from the initial connection to the call closing and links the process to the context in which it takes place.

The findings of this study, the conceptual components of the model, are summarized in Figure 1 to aid discussion and integration of the findings as they are reported. In Figure 1, the first component of the model is a set of major categories the subcategories and the concepts which represent the three phases of the TpN process. The second component consists of the two central explanatory categories, concepts that play a role through all phases of the process. The final component is a set of categories identified as key influences on the course of the process. Figure 2 is presented to illustrate an action-oriented process and to demonstrate the relationships among categories, subcategories, and concepts of the three phases. Figure 3 illustrates and provides examples of how the central explanatory categories are represented across the three phase process (discussed on page 108).

Statements made by the participants appear in italics and are used to illustrate the findings and demonstrate connections to the data. In addition, the individual concepts of each category or subcategory are underlined throughout the description of the study findings. As stated in Chapter 2 (see page 24, section c) when relevant, concepts from the literature are identified and included to support, explain, or situate the reported findings reported. Finally, validations of these findings, according to the responses of the participants, are reported.
FIGURE 1. Summary of study findings: major categories and subcategories, central explanatory categories, and influencing categories in the process of care delivery in Telephone Nursing Practice.

<table>
<thead>
<tr>
<th>MAJOR CATEGORIES</th>
<th>Gathering Information</th>
<th>Cognitive Processing</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subcategories</strong></td>
<td><strong>Getting started</strong></td>
<td><strong>Determining</strong></td>
<td><strong>Disposition</strong></td>
</tr>
<tr>
<td><strong>Concepts</strong></td>
<td>Connecting, questioning, redirecting, getting to know</td>
<td>Relating, processing, verifying</td>
<td>911, ER, UC, advice, appointment, referral, other</td>
</tr>
<tr>
<td><strong>Information seeking</strong></td>
<td>Investigating, focusing, verifying, clarifying, comparing, ruling out</td>
<td>Decision-making</td>
<td>s/s, other caller needs</td>
</tr>
<tr>
<td><strong>Secondary Gathering</strong></td>
<td>Investigating, focusing, verifying, clarifying, comparing, ruling out</td>
<td>Planning</td>
<td>Thinking ahead</td>
</tr>
<tr>
<td><strong>Supporting</strong></td>
<td>Reassuring, encouraging, validating, teaching, aftercare</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Collaborating</strong></td>
<td>Giving options, problem solving, follow-up</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Closing the call</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**CENTRAL EXPLANATORY CATEGORIES:**

1) **Parallel Process** – goal oriented process occurring simultaneously on explicit (i.e., tangible data: verbal & s/s) and implicit (i.e., nonverbal & contextual cues) dimensions.

2) **Interpreting** – a two-way translation process by which the nurse filters information from the caller into health care language and health care information into the language of the caller. Results in individualized care.

**INFLUENCING CATEGORIES:**

- **Prioritization** - determining the urgency or acuteness of the problem
- **Complexity** - refers to the extent to which the ‘problem’ is not readily clear
- **Resources**:
  - Nurse: Comfort Level, nursing experience, nursing knowledge, life experience, and intuition.
  - Organizational: tools (protocols, references), information about the caller, services available, physician support, collaboration with colleagues, and public perception of ‘nurse as expert’.
- **Validation Mechanisms** - nurses need for confirmation of both the value of the service and the appropriateness of the output. Used to enhance performance and increase knowledge and comfort with the process.
FIGURE 2. Relationships among TpN process concepts.

Parallel Process
Interpreting

Phase 1
Gathering Information
- Getting Started
  - Connecting
  - Questioning
  - Redirecting
  - Getting to know
- Information Seeking
  - Investigating
  - Focusing
  - Verifying
  - Clarifying
  - Comparing
  - Ruling out
- Secondary Gathering
  - Investigating
  - Focusing
  - Verifying
  - Clarifying
  - Comparing
  - Ruling out

Phase 2
Cognitive Processing
- Determining
  - Relating
  - Processing
  - Verifying
- Decision-making
  - Signs/symptoms
  - Other caller needs
- Planning
  - Thinking ahead

Phase 3
Output
- Disposition
  - 911, ER, UC
  - Advice
  - Appointment
  - Referral
  - Other
- Supporting
  - Reassuring
  - Encouraging
  - Validating
  - Teaching
  - Aftercare
- Collaborating
  - Giving options
  - Problem-solving
  - Follow-up
- Closing the Call
FIGURE 3. Parallel process and interpreting across the three phases of TpN

INTERPRETING
Two-way translation; the nurse filters information from caller into health care language and health care information into the language of the caller. Results in individualized care.

PARALLEL PROCESS
Goal oriented process occurring simultaneously on explicit and implicit dimensions.

PHASE 1
Gathering Information

Explicit
Focus on verbal and physical

What are you seeing that makes you say that he’s breathing rapidly? Can you count the number of breathes?

Implicit
Focus on non-verbal and contextual

You just have to hear what is not said, or a tone of voice, or pain in the voice.

PHASE 2
Cognitive Processing

Explicit
Focus on verbal and physical

If someone calls with nausea and vomiting we access the vomiting protocol and assist them in determining the appropriate level of action.

Implicit
Focus on non-verbal and contextual

Sometimes you have to base your decision on what kind of support system they have – are they going to have the time and energy to do this?

PHASE 3
Output

Explicit
Focus on verbal and physical

I would advise them to go to the ER, if they don’t want to I say do you know what the risks are with not going?

Implicit
Focus on non-verbal and contextual

Sometimes just explaining what is normal relieves their anxiety.
Three Phase Process

Gathering information, cognitive processing, and output are the three major categories or phases in the TpN process identified from the data. Gathering information refers to all the nurse activities designed to collect information from or about the caller. Cognitive processing is the determination of the priority problem and the most appropriate and feasible intervention. Output is all of the nursing actions designed to meet caller needs. Identifying and meeting the needs of the caller is the common overarching goal, the desired result, of these three phases. The phases are generally sequential, however, the process is dynamic and nurse actions occur in response to caller needs and circumstances. Variations in the process are explained by the theoretical concepts described and also by those factors identified as influencing the process.

Gathering Information

The first phase of the TpN process is gathering information. During this phase the nurse gathers information by first opening the call, greeting the caller, and making an introduction. This is called getting started, a subcategory of gathering information that consists of connecting with, questioning, redirecting, and getting to know the caller.

Getting started

The actions taken when opening the call facilitate ‘connecting with’ the caller. When opening the call, nurses introduce themselves, usually including a first name, title, and role. Most nurse nurses follow the introduction with a general inquiry phrase or question such as: “How can I help you today?”; What can I do for you?”; or “Tell me why you are calling in today”. In addition to the words used, the nurse demonstrates
being present and willingness to assist the caller with the tone of voice, and active listening and reflection. This is called getting started: *Getting started is listening. I think if you can listen, you know, I think nine times out of ten that will get you a better handle on everything.*

**Connecting with** the caller is also described as *communication and cooperation* and *just something you know is happening*. Nurses attribute the ability to connect with their listening and people skills, tone of voice, and the initial introduction.

*It happens or it doesn’t happen and sometimes it doesn’t happen. Sometimes you’re just going around and around and around on the call, and you’re just not, there’s no rapport, there’s no connection. I call it a difficult call.*

*I think part of connecting is just that they are really telling you the questions you need to be answered and they are saying appropriate things back to you.*

*Over time getting a feeling that you know that you are connecting with the caller.*

*I think it is well within the nurse’s um control to, I would say, deal with most of it so that there isn’t a disconnect. You certainly have to be open minded and you have to be flexible and you really do and you have you have to, as soon as you hear that somebody is starting to do battle with you, you really need to back off.*

*So here you know you just have all this kind of stuff, you know, you really are um, really stepping into their, almost at times into their living room or wherever their phone is. You really are talk about connections, you really do have quite a, and very quickly, sometimes a very personal connection ... to people. But uh, so and you know and it’s a very personal thing I think a lot of times.*

Getting started also includes **questioning**. **Questioning** is using broad, open ended questions that invite the caller to tell their story. Caller responses to **questioning** allow the nurse to ‘get to know’ the caller and determine the direction of the call.
By asking those initial questions, ‘how long have you been sick?’ and um, significant medical history is on there, so if they have a chronic medical illness like diabetes that’s going to change your framework a little bit about how you approach this patient.

Nurses have identified numerous strategies used to gather information, one of them is redirection. Nurses state that often callers seem to just want someone to listen to them. Redirection is an important strategy used by the nurses when gathering information using broad questions and essentially inviting the caller to tell their story.

You have to be able to jump in, you know, nicely, politely, you just do it, jump in and let’s get this call directed, “what are you calling about today?” and not everybody, not all people can do that.

If they are not getting to, if I feel like they are not getting to what it is that they need and I feel like they are giving me a lot of information, extraneous information, I just ask them the questions, How can I help you today? What can I do for you today?

‘Getting to know’ the caller is done through interaction with the caller. Throughout the call the nurse attends to the explicit and implicit communication and gains information about the health problem as identified by the caller (e.g., my child has a fever, abdominal pain, cough and congestion), but also about the state of mind and concerns of the caller (e.g., sounds very anxious, insecure, afraid). Attention to the reason for the call, the words used, the knowledge level, and the responses given by the caller provides information about the caller and enable the nurse to estimate age, education level, support system, resources, and even values and cultural beliefs. Assessing caller comfort, both physical and emotional, is an important aspect of getting to know the caller and also helps to identify and prioritize the problem.
Getting to know the caller has emerged in this study as an integral concept in the TpN process. It is by getting to know the caller that the nurse is able to grasp the situation, accurately interpret, and effectively address the caller concerns. The concept getting to know the caller has been identified in the literature as familiarization, “a process whereby a clinician learns enough about the caller to feel comfortable making management decisions” (Gorman, Lavelle, Delcambre, & Maier, 2002, p. 1245).

Knowing the patient has been previously identified as an essential ingredient for skilled clinical judgment and patient advocacy (Benner, Tanner, & Chesla, 1996; Tanner, Benner, Chesla, Gordon, 1993).

The strategies, connecting, questioning, redirecting, and getting to know are used to get the call started. Getting started provides initial knowledge of callers and their concern and then the nurse seeks information specific to those concerns.

Information Seeking

Information-seeking, a subcategory of gathering information, refers to the systematic gathering of increasingly specific information about the health needs and condition (situation) of the caller. Information seeking strategies include investigating, focusing, comparing, ruling out, and verifying. Investigating is a systematic inquiry using increasingly specific questions to pursue information about the problem. By investigating, the nurse begins to formulate a clinical picture of the caller (a hypothesis), obtain increasingly detailed information from the caller, and identify specific symptoms or concerns on which to focus. Focusing is questioning about one particular aspect of the call to the condition (e.g., symptom duration or intensity). For many phone calls, the
primary symptom or concern is indistinct and difficult to discern. In these cases, and when caller statements are not immediately clear, the nurse uses clarifying statements and questions to help understand. Comparing and ruling out are also used to help identify and clarify the priority concern. Nurses will seek specific information to rule out known diseases or conditions and/or compare the incoming information with their knowledge and experience.

*Well I just ask them - sometimes - about the cry, is it a cry or like a scream like they’re in intense pain? Or an, I’m uncomfortable well not a cry but just a fussy kind of a noise?*

*You know sort of just give them choices because they may not know what or how to answer so you ask them is it like this or like this?*

*I say well are they just restless or are they crying like something hurts.*

*If they’re coughing and having difficulty breathing I’ll ask how they are eating. Are they drinking enough or is their congestion interfering with their ability to drink liquids?*

*You know you try to rule out some things really bad and then you also try to figure out what it is.*

During information seeking, the nurse is continually verifying the information with the caller, as well as the impressions and conclusions gained from the information given. The strategies used in information seeking aid the nurse in identifying the primary symptom and/or concern. These strategies correspond to the four data gathering strategies of expert physicians as described by Kassirer and Gorry (1978). They are (a) confirmation (i.e., focusing), matching incoming information with a known disease or condition; (b) elimination (i.e., ruling out), seeking condition specific information specific for use in ruling out a hypothesis; (c) discrimination (i.e., comparing), seeking
information to differentiate one possible condition or diagnosis from another; and (d) exploration (i.e., investigating), collecting general information to both relate it to and extend knowledge of the clinical condition.

**Secondary Gathering**

Secondary gathering is a subcategory of gathering information that consists of many of the concepts used in Information Seeking but occurs under different conditions. Many times there is a need to gather additional information even after the nurse has gathered information and moved beyond that phase (e.g., to decision-making, planning or output). Secondary gathering is often based on the realization that the nurses are unable to reach a ‘comfortable’ decision or plan without new information or more information for the purpose of clarification. Secondary gathering may occur anytime after initial gathering and before the closing of the call or even immediately after the call during documentation or review, or, during a follow-up. Secondary gathering is done specifically to get information that will allow the nurse to ‘comfortably’ close the call. Secondary gathering differs from the other two gathering information subcategories. The strategies used in getting started do not apply because a connection has been established. The strategies used in information seeking are used in secondary gathering but the information sought, the rationale, and the timing differ.

*Sometimes you’ll hang up the phone and you’ll say, you’re finishing out the call because you will have a minute or two where you know reread what you did, make sure that you addressed the correct protocol or that you feel like you did, then sometimes you’ll say did she say that, maybe she didn’t. I call people back if I’m not sure.*

*The patient might sound distracted, maybe a spouse or significant other keeps interrupting the conversation. That happens - they keep throwing
in, you’re asking a question they answer and the spouse is throwing their two-cents in. Sometimes you get off the phone and you think…did they really get the whole thing? And I’ll call back.

I know I have had a couple of calls where I have actually hung up and I’ve thought ‘Oh I forgot to tell them this’ and then you call back and say oh, ‘I just spoke with you and I forgot to tell you this.’

Cognitive Processing

The second phase of the TpN process is cognitive processing. Cognitive processing refers to all the activities of the nurse designed to determine the main concern and the most appropriate way to address it. After gathering information, the nurse analyzes, or processes it, determining the problem, and what should be done about it, that is, decision-making and planning.

Determining the Problem

Processing is considering all of the call related information with the intent to grasp or comprehend the problem. Processing includes identifying the problem in terms of the physical or the psychosocial need and eventually determining which takes precedence. If it is the physical one, then the nurse relates the problem to some known illness, diagnosis or scenario. When the problem is determined to be physical or medical, in many cases a protocol is available. Selection of a protocol requires relating the caller signs and symptoms to those listed in the protocol and verifying them with the caller, for example:

Probably the majority of the calls, before I’ve made the decision I verify information. Because I have to be sure I understand clearly, before I can make a decision.
Protocols are not available for many situations, particularly when caller problems are identified as psychosocial. Caller problems that do not ‘fit’ a protocol are implicitly determined by the nurse. The nurse relates the caller information to past knowledge and experience, processes the information (i.e., makes determination), and verifies the problem with the caller.

Minimal attention was given to explicitly identifying the problem and none of the study participants mentioned a ‘nursing diagnosis’. This finding reflects the narrative nursing accounts recorded by Benner and colleagues (1996) and their finding that nursing interventions were not based on explicit nursing diagnoses. In this study, determining the problem focused on whether the primary concern was medical or nursing. Nursing concerns were often described as psycho-social-emotional such as: anxiety, out of control, concerned about, didn’t know if she could handle it, lacked the knowledge.

Yeah, I mean when you talk about it she doesn’t seem comfortable and just from experience the child is not that critical or need to be seen but it’s almost like the parent needs to be seen, not so much the child but the parent. Some TLC for them, a little extra teaching and sometimes it means more for the doctor to say it than for you to say it.

Decision-making

Nurses make decisions based on their determination of the problem. If the problem is medical and/or beyond the scope of nursing, the nurse decides where and when this caller should receive care. If the priority problem is physical, the decision is most often based on the signs and symptoms, and protocols are usually available. Protocols are used to aid decision-making about the appropriate intervention. If the problem is not addressed by protocols, the nurse decides on the most appropriate
intervention based on the caller’s needs and nursing knowledge and experience. When unsure about a call, or making difficult decisions, nurses turn to their colleagues, TpN nurses and physicians, for information and advice. Decisions are always based on the callers needs, and the nurses were very clear that the safety and welfare of the caller underpins all decisions.

And sometimes we override disposition will factor in, you’ll override, the thing will say 24 hours for the patient to be seen but you can say see in 4 hours because you were just unable to clearly evaluate what’s going on.

Right, and sometimes there is not a protocol for the complaint either so we rely on our judgment and experience if you will, and/or just gather the information and refer it to the physician at that point.

Planning

Planning helps the nurse decide if the intervention is practical and feasible given the caller problem and situation. Planning is more ‘thinking ahead’ about the intervention possibilities than designing steps to actualize the intervention.

Knowing the caller, and having an awareness of the caller’s resources and support, is essential in planning. Knowledge of the organizational and community resource and service availability is also an integral part of planning interventions to meet caller needs. Examples include: (a) transportation – it does no good to refer a caller to ER if they have no transportation, (b) services – advising a caller to schedule an appointment with a primary care provider within the next 24 hours is dependent on an available appointment, and (c) home care advice – effective home care teaching is dependent on the caller’s state of mind and ability to attend to and absorb the information. Planning is actualized in the output phase when the nurse discusses with the
caller the care that is recommended. The description below illustrates how the phases and their related concepts unfold up to this point.

You are prioritizing and picking out the one factor that you need to work on during that step because I think there are different factors in different steps. One is the prep even before you call the patient to say what is their past history, let me see what is going on with this patient? Let me get a glimpse of what is going on before I call them. And then when you call them you are getting, what’s their tone of voice, what’s going on, are they anxious, are they nervous, are they feeling really good? ‘Boy it doesn’t sound like they are having shortness of breath and chest pain’ Boy it doesn’t sound, you know this kind of stuff, so you are really listening trying to pick up cues as to what’s going on with them and what they feel is the most important thing and why are they calling -prioritizing that. And then you know looking at your day’s schedule - what is the priority here, ‘do I want to bring them in today or do I want to send them to UC, can they wait for an appointment later on this week, let’s see what his next available appointment is. This kind of stuff.

Output

The final phase of the TpN process is the call output. Output differs from call outcome. Outcome is the end result of the call and not included in the TpN process. Call output, on the other hand, is the actual intervention, the actions taken during the telephone call to meet the caller’s health need. Output can be tangible, or explicit, that is, what the caller walks away from the call with, (e.g., a disposition), or intangible, or implicit, that is, nursing interventions (e.g., reassurance).

Explicit Output

Dispositions. The TpN dispositions are the explicit actions taken to meet the caller’s health need. Dispositions are recognized in the TpN literature as addressing the urgency, the type of care needed, and the setting the care is to be provided (Wheeler & Windt, 1993). Dispositions are based on the presenting physical symptom and most
often derived from protocols, guidelines or TpN references. Those identified in this study include instituting a 911 call, referring callers to an emergency room or urgent care facility, or to a specialist (non-urgent). Dispositions also advising callers to schedule appointments (i.e., where and when they should be seen) and providing information and advice on self-management. Additional output provided by nurses included prescription renewal, over the counter medication advice, and lab results.

Implicit Output

The supporting and collaborating interventions are implicit, intangible TpN outputs. These intangible outputs occur throughout the process and are most often done automatically in response to caller need.

Supportive Interventions. Supportive interventions include reassuring, encouraging, validating (e.g., the situation or the feelings of the caller), teaching, and ‘aftercare’. Aftercare is a concept that refers to advice and teaching given that addresses care after the call. Examples include welcoming the caller to utilize the services available, educating them about those services, reassuring callers about when and how they can get in touch with nurses and other health care providers. The intent of aftercare is caller comfort with the care availability and utilization for future problems.

Collaborative Interventions. Collaboration with the caller results in interventions determined jointly by the nurse and caller. Strategies used for collaborating with the caller include: giving options, problem-solving, and following-up. Examples are provided below. Following-up is a strategy used when nurses or callers are not quite comfortable with the call output. In these circumstances the nurse opts to ‘put the call on
hold’ (i.e., set it aside) and follow-up later, at some agreed upon time (e.g., two hours, four hours, next day). During the follow-up, the nurse will re-assess the situation (secondary gathering), the nurse and caller will agree on a new intervention or confirm the previous one, and then close out the call.

The TpN process ends with a concept the nurses call ‘closing the call’. When closing the call, the nurse reviews and verifies with the caller the reason for the call and the intervention (output). The nurse also gets verification that the caller understands the intervention, is comfortable with it, and has no additional questions or issues. The concepts giving options, problem solving, following-up, and closing the call, are best described using the following examples respectively.

*Like I said, usually after asking all the questions I’ll say I would like you to try this and this and this and um call me back if that’s not working OR if you like we can schedule you for an appointment. So I give them that option. But I also like to try to encourage them, or make them feel like these are the things they can do, they can do this and this and this. I do give them the options."

*Oh yeah, we get involved in that I think truly. I mean because, I mean I can tell somebody to go the ER but if they can’t get there and they really need to be there we need to come up with a plan. Whether it’s taking a cab, whether it’s knocking on your neighbor’s door and saying I’m really sick and even if they don’t know the person, if they’re kind of like your neighbor, I mean I would. But see I go kind of by, I mean if my kids were sick and I didn’t have a car I would knock on somebody’s door and I’d say “my child need to go could you please take him.

*There are times when and if I’m not sure I choose the option of following up with the person a few hours later during my shift just to see if things have progressed or if they have an understanding of what they need to do. Like if I give a Mom advice and I say you know ‘if the baby doesn’t take this much fluid in the next 3-4 hours then we probably need to re-evaluate her’ or if the baby hasn’t urinated. And if the Mom seems, if there’s a question about her understanding then I have that option of getting back with her and reevaluating again, at another space maybe when she’s not*
as stressed out or you know whatever it might be. I’ll reevaluate again what is happening with the situation which is one thing I really like, we have the option to do.

Well, that I’ve handled it in a way that has met the patient needs and that they understand what’s to be done as a result of the call. That would be what I would consider closing out the call.

At the close you kind of do a quick review to make sure that they understand what direction they’re going in and when they need to call back, and what the issues are.

Central Explanatory Categories

Two central explanatory categories were identified in this study as important features throughout the process. These central explanatory concepts occur throughout each phase of the TpN process, are related to all other major theoretical concepts, and account for much of the variability in the process. They are parallel process and interpreting. Figure 3 illustrates how the two central explanatory categories are represented across the three phases of the TpN process.

Parallel Process

Very clearly emerging from the data is the fact that the process used in the delivery of TpN care is a parallel process, occurring simultaneously on explicit and implicit dimensions. Throughout the TpN process, the goal oriented actions of the nurse are focused simultaneously but to varying degrees on explicit and implicit client needs. In the explicit component of the process, attention is focused on tangible caller data, usually verbal and written information pertaining to the physical signs and symptoms. In the implicit component, attention is focused on intangible caller data, for example nonverbal and contextual (i.e., situational) information and ‘cues’ related to the caller’s health, state of mind, or situation. The parallel process is present in varying degrees
throughout every telephone call and therefore addressed in each phase and associated with all subcategory concepts. The degree to which the focus is on the implicit or explicit information varies in response to caller needs and circumstances. As a central explanatory concept the parallel process explains much of the variability throughout the TpN process.

But, um I mean I’m trying to give you an example of the things that you pick up on um. You’re talking to a Mom that is having difficulty or is frustrated with the baby crying, and is she alone or does she have support, does she have a supportive husband that is going to help take the baby or Grandma or Mother or somebody, you know. I mean sometimes they may need a referral to an outside resource or you know, some other kind of assistance. You need to be able to pick up, not just why she’s calling, but maybe there are some others needs that you could say “oh, well I know this great...” or “maybe you should talk to your doctor about this...” you know those kinds of things. So again, the whole intake process is not just going down that list but as you’re doing that there is a lot of stuff going that the triage nurse is incorporating from the information that she’s getting and you can’t, I don’t think you can always capture that in your triage note.

Because you are going to know in a very short time, a little about their personality, you know if you’ve got a 91 year old person that’s hard of hearing you are going to have to handle that much differently than you know if you’ve got a Mom that’s panicked. I had a mom one night practically screaming about her 3 year old ‘there’s worms coming out of his bottom’ I said ‘ok the first thing you need to do if he’s right there is you need to calm down because you’re upsetting him and this is actually probably much more common than you.. and we are going to talk about that but the first thing you need to do is get yourself calmed down so you’re not traumatizing him any more than he is’. But it is not always black and white like that but sometimes you just need to take hold of the situation. You do sometimes have to take control at the beginning but by the end you’ve given the information and passed the knowledge to them which is why they called and now they can go on.”
Interpreting

The second central explanatory concept is interpreting. Throughout each phase of the call, the nurse is interpreting, that is, enacting a two-way translation process between the caller and the health care system. Interpreting is translating information from caller into health care (medical and nursing) ‘language’ and in turn translating health care information into caller ‘language’. Interpreting is dependent on an understanding of the caller and the situation and consequently to the nurse’s ability to attend to the implicit aspects of the call. The ability to ‘read’ the caller situation and translate the appropriate information (two-way translating) to the caller allows the nurse to individualize the care provided. Similar to parallel processing, interpreting takes place throughout the TpN process, varies in response to caller needs and circumstances, and is done to meet caller needs.

Let me interject one thing; the ability to establish rapport with people on the phone is critical, you have to be able to go across the spectrum from somebody who has I don’t know how else to say it, somebody who has low intelligence, they’re not, you may have to talk really, really basic to one person and you get somebody on the phone, you know you get a Mom on the phone who’s totally up on what’s going on and you talk to her completely different than you talk to the other person, the nurse has to be able to um you know change what she’s doing.

How they are answering the questions and also, part of it is when you are talking to them you can kind of judge by how they are describing things to you. I mean if you pick up the phone and they say ‘they have this green snot coming out of their nose and their shit is green’ you are going to talk a little bit differently than if the Mom says ‘he has some nasal congestion and I’m concerned about (we get a lot of doctors that call) …his feet are edematous and all these big words’ So you kind of judge. Part of it is just talking to them. You can kind of pick up just how they’re talking how they might...what kind of thing you have to say and how well they might be understanding.
Influencing Categories

Nurse’s in-depth responses to ‘tell me what you do on the telephone?’ invariably describe a very dynamic and complex process. Two sets of factors have been identified as having significant influence on the process. The first set, prioritization and complexity, are inherent aspects of the call. Although prioritization and complexity can influence nurse actions at any time during the phone call, they can exert significant influence on the subsequent TpN process early in the call. The second set consists of factors external to the specific call, such as available resources of the nurse and organization and validation mechanisms. These influencing factors make up the conditions and circumstances that interact with and affect the process of care, either directly or indirectly. Additionally, to some extent, these influencing factors can explain variations in the TpN process.

Prioritization

Prioritization refers to the determination of the urgency or acuity of the problem. Prioritization is used in response to incoming information throughout the call, but it is particularly important at the beginning of the call. If the situation is identified as emergent or urgent, the process is very straightforward and nurse actions are minimal and focused on getting the caller to the appropriate setting. The higher the priority of the call, the narrower the focus, and fewer decisions are needed. It is important to note that the parallel process is an inherent part of the call and the nurse attends to nonverbal and contextual cues even in the emergent and urgent calls. This is illustrated in the following call descriptions.

As soon as the person started talking I asked them ‘did they have anyone with them?’ And this one particular caller as soon as she said no, I said
well what is your address because we need to call 911 and it was not so much from what she was actually telling me what was wrong with her but it was from I heard from her voice and I got a call later that evening… they admitted her.

The other call was a Mother calling about a baby that was under a month and I heard this noise in the background and I said ‘what is that?’ ‘Is that the baby?’ It sounded a stridor-like noise. She said “oh but the doctor said that that’s just how the baby sounds and I said, ‘well, we’re going to have to have the 911 come over there and look at this baby right now. So I got the address and we did follow up on that and the baby had been admitted for two and a half days with an upper respiratory thing.

Prioritization includes determining the acuity of the psychosocial problem as well as the physical. When the psychosocial need (e.g., anxiety or fear) is greater than the physical, both the cognitive processing and the output phases of the process are affected.

Decision-making is based on the priority problem and when it is psychosocial, protocols are ordinarily not available necessitating implicit nursing interventions.

**Complexity**

Call complexity refers to calls in which the problem is not readily discernable.

Complex calls are not straight-forward or easy to handle, but rather they are calls in which the incoming information is complicated, confusing, or contradictory, and the problem is difficult to make out. Calls vary in complexity. Nurses differentiate emergent and ‘symptom-based calls’ as straightforward and relatively easy to handle, not complex.

For a non-complex call, the nurse is able to get an objective picture of a presenting complaint, usually an appropriate protocol is available which is then used to guide the remainder of the TpN process.

*If the patient complains of headache and then they say ‘oh and also I’m having abdominal bloating and those are two different issues and I use two different protocols for that. I collect the information about the first*
complaint and deal with that, give them advice and then I go on to their next complaint, gather information and give them advice regarding the second complaint.

We have a protocol book though. And you can, those are guidelines. But you still have to...you can’t just ask only those questions. I’m trying to think of a situation I had just last week. The caller made a comment just before I was getting ready to hang up and it turned out the patient had the symptom and I can’t think of what it was. It wasn’t in the protocol book to ask but it made the difference in whether the patient was seen or not.

Complex calls were described as those that require nursing skills to identify and address caller needs, and calls in which the caller has multiple needs. Complex calls most often involve psychosocial concerns and require much more problem-solving actions and time to process than the ‘symptom based’ or urgent/emergent call. Nursing actions were most often emphasized when the problem was not symptom based or addressed by a protocol. In complex calls, the nurses identify and attend to caller psychosocial and emotional needs even though they were rarely stated explicitly by the caller. It is these calls in which the implicit process dimension takes precedence.

I like the off protocol. I just say what the patient is experiencing, patient is tearful, patient not eating well, weight loss, um you know, angry all the time sometimes yelling at the kids all the time or I’m just not happy. I basically just put down what the patient says.

Well, right if I bring the patient in, their initial complaint of sore throat I’m bringing them in for an appointment I’m going to justify why I decided to bring that patient in. And sometimes it’s because the patient says ‘I want to come in’ and so you know yeah, I just use what the patient tells me, what I actually hear. Like if the voice is quivering or you know and the patient may have asthma I’ll document the patient sounds short of breath.

The complexity of the call influences the progress and the focus of the TpN process, and consequently the nursing strategies used. Similar findings have been
reported in research by Leprohon and Patel (1995) who found that (a) in high urgency situations, decisions were principally symptom-based, the problem focus was narrowed and the complexity decreased; (b) in moderate urgency situations, the complexity and uncertainty increased and decisions were based primarily on exploration of the identified need and situational factors; and (c) in low urgency situations, decisions were characterized by deliberate problem solving and planning, consideration of the entire situation, consideration of the client and their preferences, resources, and available options.

Resources

Resources are sources of support or aid (e.g., personal characteristics, tools, or services) that originate from the nurse and the organization. Nurse resources include comfort level, nursing experience, nursing knowledge, life experience, and intuition. Organizational resources included the tools used (protocols, reference materials), caller information, services available, physician support, collaboration with colleagues, and the public perception of ‘nurse as expert’. These resources are conditions that influence the TpN process and therefore provide some insights and help to explain some of the nurse actions and variations in the TpN process.

Nurse Resources

Nurse comfort level refers to the ease of or security with the TpN process. Comfort level is directly related to the nurse’s ability to attend to the caller situation beyond the initial complaint (i.e., the implicit component of the process). Consequently, the nurse’s comfort is a major factor influencing the nurse’s ability to identify and meet
the caller’s needs. Nurse comfort level is also closely related intuition. Nurses expressed that either you either have it (comfort level) or you don’t– and if you don’t, you will not ‘cut it’ as a telephone nurse.

I think it takes some time as a triage nurse to develop those kinds of skills, it’s not something, I think when you’re first learning triage it’s very, very much like go to the protocols and do it and then once you’re familiar with the process of telephone triage and you become more comfortable with your skills you can incorporate all the extraneous things because in the beginning you’re just so focused on these really basic things. So again, the whole intake process is not just going down that list but as you’re doing that there is a lot of stuff going that the triage nurse is incorporating from the information that she’s getting and you can’t, I don’t think you can always capture that in your triage note.

Just asking questions and getting them to talk a little bit more and things like that. And then you determine, well, that really isn’t the concern. What you’re telling me is.... Well, I think it’s a lot of years of experience and experience doing telephone triage that allows you to, you know, look into it further. I think that they tell you a symptom and you have nothing that you can tie together or....that relates. Then you have to.... Well, I think a lot of times, just looking through the protocol, referring to different things in the protocol, maybe you’ve experienced something similar that you can pull from your knowledge, and just trying to get the information to be able to tie it together.

According to the data, nurses rely heavily on their nursing experience and education to provide TpN care. Life experience is also used by nurses to understand the caller’s situation and help problem solve. These nurse qualities or characteristics form a foundation of knowledge and experience utilized by nurses to identify and address caller needs. When gathering information and determining the priority need, intuition plays a significant role in the TpN process. Although nurses had difficulty describing intuition (e.g., it was just something you know, a feeling, it just happens), they clearly take notice when it does happen.
These findings about intuition reflect research findings reported in the literature. Intuition has been defined as “a process whereby the nurse knows something about a patient that cannot be verbalized, that is verbalized with difficulty, or for which the source of knowledge cannot be determined” (Young, 1987, p. 52). Intuition has also been associated and even used synonymously with expertise (Benner, 1984, Benner & Tanner, 1987; Leprohon & Patel, 1995); and, intuition has been shown to be a critical factor in clinical decision-making (Benner et al, 1996; Carnevali, Mitchell, Woods, Mitchell & Tanner, 1984; Young, 1987).

We are active, thinking human beings and um there is knowledge that you gain from going to school and experience that supplements or enhances the protocol process and just you know, for instance trying to pick up on the nuances of what the patient is really trying to tell you or what the patient’s problem really is, and getting to the bottom of that. Knowing what questions to ask because sometimes you don’t ask just the questions on the protocol you ask other questions too, ‘what is your family situation?’ ‘did anybody else in your family have strep throat recently?’ those types of things and that comes from knowledge, your own knowledge that is necessary to transform the questions and address them.

Gut feeling. I mean just some of it is...you know the protocol says it can wait a day but I have a bad feeling about them. I’m not getting, they may be a difficult communicator, you’re not getting the information you’d really like, like there’s something missing somewhere.

I don’t know if it is experience, being old nurses or what, but I think everybody gets that gut feeling that ‘oh boy, this is not right’ or ‘something’s wrong here and we need to do something more here for this patient’. We have, I don’t know if it’s, I don’t know what to call it, intuition or what but I think it is based on past experiences where you’ve either seen those symptoms before or you’ve seen that picture, everybody gets that set frame in their mind that flips back and says at one time or another you saw this and this is the outcome and this is the beware and the little lights go off and then, does that. And I think nine times out of ten you need to, you gotta go with that, you’ve got to listen to that voice.
I know that sometimes you have that gut feeling, when you’ve been a nurse for a long time you get that gut feeling, ‘um this person needs to be seen’ and so you know can go to the telephone nursing book and it says need to be seen today if fever persists for the last three days- perfect!-it fits into that criteria. Sometimes it doesn’t fit into that criteria, you still have that gut feeling and you say, ‘let me call you back’ because you want to portray that gut feeling to the doctor. You say ‘you know your patient better than I do but in talking to them I feel this needs to be done now.

Organizational Resources

Organizational resources help guide and support nurse decisions. Organizational resources identified in this study include the tools used, caller information, services available, physician support, collaboration with colleagues, and the public perception of ‘nurse as expert’. The quality and availability of many of these resources can have a significant effect on the TpN process. The tools used, protocols, guidelines, policies, and reference books, are an integral and essential part of the TpN process. Nurses appreciate and rely on protocols for reference, to guide the information gathering, to determine level of care, and to document the TpN process. Nurses utilize protocols whenever possible but are also well-aware that protocols are symptom-based and not available for every situation.

But I know that you are going to find a lot of differences too, just in our own group here. I know that I constantly look things up. I’m always ‘what do you know about such and such?’ We all have access to the same references but they don’t keep them handy like I do. I have all these books, all this stuff. If they are calling in because they’re questioning whether they’re having a side effect of a drug well I’ll pull it up on the computer… If you know it’s something … I might put them on hold and look it up while they’re on the phone.

When protocols do not address the problem, nurses depend on their own knowledge and experience and also often consult physicians and other nurses for advice
or assistance processing a call. **Physician support** and availability is an important aspect of TpN care.

*Like I said if there is no particular protocol that I can draw from and I’ll just say well, would you like to come in and discuss it with the doctor.*

*Or a lot with children you know it doesn’t quite fall into the protocol where you really need to have them go in but there’s this little area here where you’re not really sure about, you don’t want to let it go, so call the doctor tell them the story and see what they think. And I think it’s sometimes an underused resource that really needs to be used.*

*It gives you sort of a sinking, helpless feeling when should you need the doctor, if the doctor is unavailable, those days that we have certain doctors that are hard to reach. And when we see that they are on call it gives me kind of a nervous feeling, if we need them, like especially if it was a really big emergency where you really need them.*

*See because I have different options - if it’s one of our doctors and it’s something I’m not sure about or the protocol says they should be seen in 4 hours but I think there’s a stretch that we can make, I have the option of calling the physician and saying ‘what do you think?*  

*The nurses’ experience is real important because if it sounds like something that needs to be seen and if there is a doubt in really, where you’re not really sure if the person needs to be seen or not, then you can call your doctor and you know discuss what the symptoms are, what is going on. Is it something that really does need to be seen today?*

**Caller information** refers to caller specific information available to the nurse before or during the phone call (e.g., access to medical record or other some patient specific documentation, or a past history, relationship, or some other familiarity with the caller). This study found that for TpN nurses, having information about the caller (e.g., health history, prior relationship) is very helpful and desirable, particularly when the caller has a complicated medical history and/or is on multiple medications. Having the medical record or a copy of the last visit or phone call gives the nurse enough information
to begin framing and planning, a ‘head start’ on the process. This has been previously identified as ‘pre-encounter patient data’ and is used by clinicians to reduce cognitive strain by removing some of the possible problems from consideration (Carnevali, 1984, p.36).

*It has made a BIG difference, giving me a kind of snapshot of the patient before I go in there to give advice, or an opinion, or to make a judgment on their, what kind of symptoms they’re having. Whether it needs to be seen, whether this is a continuation of a problem, or kind of how to approach it beforehand. So that’s been one of the best things about our new computer system.*

Knowledge of the services available in the organization and the community is important resource and often an essential component of planning caller interventions. For example, when aware of long waits in ER and UC, nurses will often find a way to get callers seen in clinics. And, to meet caller needs, nurses also provide callers contact information for community resources (e.g., free non-emergency transportation).

*One of my frustrations is that when there are not a lot of doctors scheduled we don’t have a lot of appointments to give. It makes things more stressful and frustrating because - especially in the winter time when everybody is coughing and everybody has fevers and vomiting and diarrhea. You need to decide who needs to come in, who’s going to get the appointments.*

*It does make it a little different because - I mean you still don’t want to bring people in unnecessarily but when you have three open appointments you’re pretty you know selective about what you use them for. So you really have to get a little more exacting I mean we do anyway but especially those times when you are not sure what’s going on because you might have ...It makes you more stressful. And the stress makes it so you are maybe not thinking as clearly so you have to concentrate more. I mean in the back of your mind is like all the things - I think it affects how you’re concentrating, how you’re prioritizing. I mean while you are on the phone you’re still thinking about all the stuff that’s going on.*
Well most of the time I actually do that before I actually call the patient. I’ll look at the protocol and have a plan in my mind ahead of time so that if a patient does need an appointment I know that appointments are available and when you can get them in and it just helps the process to move along a little quicker.

‘Nurse as expert’ was identified by the participants as the public perception of the nurse as ‘knowledgeable’ and ‘an authority’. Although they acknowledge that there are callers who consider the doctor the ultimate authority, nurses believe that the general public perceives the nurse as expert, knowledgeable and trustworthy. The perception of nurse as expert gives the caller confidence in the nurse and the system, helps establish a connection, and in general facilitates the entire TpN process.

I think the other issue about connecting is most times they’re calling you for help and they are calling you because they have some level of confidence in your training and ability or background, even though they don’t, they’ll say ‘are you a nurse?’ ‘Yes I’m a nurse’ that you know and I don’t know because I’m a nurse I can’t really say how the population views nurses but in general I think they’re very trusting of nurses. So they’re calling you for assistance and they trust you, most times it’s not real difficult to establish a connection.

Well I do think they call for the expertise part of it but I think when you are working together is the best situation because I give them what I know, albeit the protocols etc and now they have the information to follow through on the action so we’re both involved.

I think their perspective a lot of the time is that the nurse is [expert]. The triage nurse, I think that they for the most part have respect for our knowledge and experience and they appreciate what we are telling them.

I can’t really say how the population views nurses but in general I think they’re very trusting of nurses. So they’re calling you for assistance and they trust you, most times it’s not real difficult to establish a connection um but.
Validation Mechanisms

TpN nurses need confirmation of both the value of the service (i.e., process) and the appropriateness of the output (i.e., outcome). For TpN nurses, validation of the process and outcome of telephone nursing is not only useful in increasing nurse knowledge and comfort level, but also necessary for the delivery of quality care and professional growth and development.

Process Validation

Mechanisms by which nurses receive process validation are formal and informal. Most often, nurses receive feedback about the value of the service informally through caller, physician, managerial, or public comments and compliments. More formal feedback is provided by the organization via individual performance evaluations, chart audits, and QA/QI reports.

Well, I feel good when a parent feels good about what they’ve been told. It makes me feel good. I feel like I serve a good purpose, and it is a really important part of pediatric nursing because we can’t be bringing kids in all the time. And you know a lot of things can just be dealt with over the phone so if um the parent feels good about the advice. And then too people say you always treat us so nice, I really appreciate all your help. That’s what makes me feel good. You know they really do appreciate you taking the time to talk to them.

Dr X came in today while I was making a triage call and I got off the phone he said, ‘you’re so good at that’ So... Yeah, it made me feel good.

My accountability, knowing that I have completed the task as complete as I can is my quality as a nurse, it’s my reputation as a nurse. I don’t ever want something to come back and bite me. I’m here because I love what I do and I am here because I, I make a difference. And if I didn’t feel that I made a difference, then, [pauses] it’s not just a job.
Output Mechanisms

There are, however, no established mechanisms for the nurses to receive feedback on the appropriateness of the call output or the process decisions made. Because nurses need this feedback, they actively seek confirmation, or output validation, on their own, after the call has been completed (often days later). Mechanisms used by the nurses include ordering and reviewing the caller’s medical record, locating and questioning the health professionals that cared for the caller, or when on site, going to the care area to seek information. Output validation is used by nurses to enhance their performance and increase this knowledge and comfort with the process. The following statements illustrate the importance of output validation.

But I will call them back later in the day and check on them. That’s just me. I’m following-up on my own. Not because it’s protocol, not because a physician has asked.... It’s personal gratification. To know that the advice I gave was very good, or to know that I didn’t...

I’ll say ‘what happened to that patient I sent to ED?’ And they ended up going to surgery or whatever. So we are that kind of situation. We’re that kind of a work situation where we keep each other informed about our patients.... I think it does [help with future calls] especially if it’s something I was totally wrong on. That really comes back to make you think, oh yeah with that other patient this happened, maybe I should look at that avenue or maybe I should look at this avenue.

But you always do kind of wonder ‘what ever happened with that’. Every once in a while I do call on my own to find out. Because part of me was curious; part of me was, ‘did I make the right decision?’; and, I don’t know I mean it probably happens once a month and I guess it’s probably more often than not if I’m feeling uneasy with either they’re not going to follow-through or you know.... I just say I was just following up and a lot of times they appreciate the call, I’m just glad they’re there. It would be nice, if we had the time and resources to do... follow-up but I do think it is important.
I like to be able to see. Like OK, I brought this kid in what did they find? I am always curious about what did they find, what did they do? I’ll go back and say ‘I triaged that kid, what did you think?’ I like to be able to follow up but I’m not always able to. I might not be able to get out of triage and I may not be in the back office when they’re checked in and I sometimes miss that. That’s kind of frustrating. Sometimes if they are there I triaged that kid so I’ll go in and I’ll talk to them and say ‘Hi, I’m ****, we spoke on the phone earlier and what did the doctor say or what’s different’ and I sort of follow-up with them while they are there.

Validation of Findings

Six of the ten participants responded to an invitation to review and respond to the study findings. After receiving a written summary of the findings and hearing a brief verbal explanation, they were asked to respond in writing to three questions. The three questions and the responses are listed below.

Question 1: Is this a reasonable explanation of what is going on? 6/6 ‘yes’ responses.

Question 2: Is this process, and the larger concepts, recognizable even though not every aspect may fit? 6/6 ‘yes’ responses.

Question 3: Please comment on how well this description seems to fit your experience.

1. The presentation seems to be accurate interpretation of the call process as was described in previous interview.

2. This pretty much describes what telephone triage nurses do. We collect data, then we utilize our tool (protocols) and our life experiences and nursing knowledge to make an assessment and come up with a treatment plan.

3. On target for factors influencing process. Three key findings nicely categorized.

4. This is an excellent description. What you read in the books is strictly process. The ‘art of nursing’ is left out. You have captured what I call the ‘art of nursing’ – the essence of what is underlying nurse’s work. The ability for nurse’s to take the ‘caring, listening, and reassurance’ and use that masterfully to enhance the patient’s healthcare experience.

5. This very concisely describes the process of telephone triage, from start to finish. I look at the information written down here and I see in my mind’s
eye myself on the phone with my patients/parents. It definitely fits my experience to a “T”.

6. I think this is a good explanation of the telephone triage process. The description captures all aspects – even though some were not obvious to me. Thank you for doing this project.

Chapter Summary

Figure 1 is a summary of the study findings used in this chapter to illustrate the TpN process. Care delivery in Telephone Nursing Practice consists of three phases, gathering information, cognitive processing, and output. Each phase involves a set of sub processes serving the respective goals of the categories and the ultimate goal of identifying and meeting caller needs. The central explanatory concepts, parallel process and interpretation represent the core of the TpN process. These two central categories provide insight into the ongoing process throughout all phases. Parallel process is the simultaneous attention to the implicit and explicit aspects of the call. Interpretation is the continual and accurate translation of caller information into health care language and health care information into caller language. Figure 2 illustrates the relationships among the TpN process concepts, and Figure 3 illustrates how the central explanatory categories are represented across the three phases. The focus of the TpN process (implicit or explicit) and the number and type of strategies used by the nurse depend upon the priority need of the caller and the complexity of the call. Conditions in the TpN environment that can positively or negatively influence the process of care delivery are the quality and availability of nurse and organizational resources. Process validation is a significant factor influencing the comfort level of the nurse and the quality of the TpN care delivered. Participants validated the accuracy and utility of the conceptual model.
CHAPTER 6: DISCUSSION

Overview of the Conceptual Model

The purpose of this research was to construct a substantive theory of the process of care delivery in TpN practice. The study findings fell just short of allowing this goal to be achieved; however, a conceptual model was developed which largely address the research question, what is the process used when delivering nursing care over the telephone? The conceptual model includes identification and description of core concepts and relationships in the TpN process and of the factors that influence the process (see Figure 1).

The TpN process consists of three essential phases, the major categories of gathering information, cognitive processing, and output. These phases occur sequentially but also can be simultaneous and recurring (shown in Figure 2). Each phase or category consists of subcategories and the specific related concepts that explain the actions/interactions and consequences, and the circumstances (conditions) in which these nursing actions occur. Thus, as a whole, the explanation provides a dynamic picture as well as a description of what is being done by the nurse and why (see Figures 2 and 3).

The concepts that underpin and link all actions in the TpN process are interpreting and parallel process. The nurse provides two-way interpretation throughout the entire call. That is, the nurse translates client information into health care and health care information into client language. The result of ongoing interpretation, and the subsequent verification with client and with other health professionals when needed, is individualized
problem identification and intervention. Interpretation is inherent in every phase of the TpN process and is therefore a significant finding.

Also inherent across all phases of the process is the parallel nature of all of the theoretical components. There are explicit (e.g., tangible, verbal, signs & symptoms) and implicit (e.g., intangible, nonverbal cues) dimensions of all process elements, the actions, conditions, and consequences; and both dimensions contribute greatly to the nursing actions chosen. Nurses reported attending to, and utilizing, both dimensions throughout the TpN process, although objective data and evidence is easier to document, and therefore most often used to support nursing decisions. As unifying concepts, parallel process and interpreting help account for the variability in nurse actions, how the phases of the process unfold, and also how the client needs are identified and met.

Prioritizing and complexity occur within the context of the call. Although these concepts both influence and help to explain the nature of the TpN process, they differ from the central categories in that they are not related to all other concepts. Prioritizing occurs at some level throughout the call but is particularly significant at the beginning. Prioritizing, determining the problem acuity, influences subsequent nursing actions. Call complexity (degree of clarity of the caller problem) also influences the TpN process. Like the results of prioritizing, variations in call complexity can account for differences in nurse actions and explain variability in the process.

In accordance with the grounded theory method, circumstances external to the TpN process (telephone call), but recognized as having a significant impact on it, were also identified. Nurse and organizational resources were identified as having the
potential to positively or negatively affect the TpN process. Nursing characteristics, their comfort level with the process, experience, education, and use of intuition were recognized as having an effect on the ability to interpret and address caller needs and thus are important in determining who should provide care over the telephone. These characteristics can explain differences among nurses and variations in the actions and outputs.

Organizational resources were found to affect the nurse’s ability to meet caller needs and were instrumental in what nurses perceived as the quality of the process. Thus, the identification of protocols, patient information, physician support, and service availability are important influencing factors in TpN.

Finally, whether nurses received validation for the service provided or for the output given was thought to affect the TpN process. Process validation, that is, getting feedback about the service provided (nursing care) affected the level of comfort and satisfaction the nurse had with the process. Output validation, feedback on the appropriateness of the call output, was rarely available but identified as a critical need by the nurses. They identified output validation as a potentially key mechanism in TpN quality improvement. Without feedback on the actual care provided, how can nurses expect to grow and gain expertise in the practice? Data suggests that these nurses work in a care delivery vacuum and that they realize the importance of the feedback loop absent in the TpN process.
From Conceptual Model to Theory

To move from the conceptual model for TpN to a fully developed substantive theory, more articulated relational links are required. To continue theory development, the relationship between the two central explanatory categories needs to be investigated. Strauss and Corbin (1998) acknowledge that more than one central explanatory category can exist but suggest that the researcher choose one. It appears likely that parallel process is the structural category and interpretation is the action category but how the two are related within the TpN process must be clarified. In addition, future research should focus on precisely how the internal and external influencing factors affect the process specified in the model.

Study Findings and Existing Knowledge

The aim of this study was to identify the process used by nurses in TpN practice. Three phases were identified in the TpN process. These phases correspond to those in the nursing process. That is, gathering information as assessment; cognitive processing and diagnosis and planning; and output as implementation, with evaluation occurring throughout the process. Although what is going on in the three phase TpN process is similar to the nursing process the TpN phases are much more specific. The labels chosen for the TpN phases more precisely represent the data and prevent inaccurate interpretations based on commonly held meanings often associated with established concepts (Strauss & Corbin, 1998).

Carpenito (1983, p 10) describes the nursing process as “a standardized approach to systematically assess patient needs, identify problems, define outcomes, implement a
plan of care, and evaluate the results.” The TpN process identified in this study supports the widespread belief that the nursing process is used to guide care delivery; however, many nurse authors have found the nursing process inadequate for identifying and documenting what nurses actually do and how that varies for individuals and settings. These same authors have identified a need for nursing process theories to ‘fill in the blanks’ and help address the details of application of the nursing process in various populations, and settings (Chenitz & Swanson, 1984; Mason & Attree 1997; Meleis, 1997; Varcoe, 1996). The conceptual model of TpN developed in this study provides an example of how the nursing process provides a guiding framework for the process, but also how specific process theories are needed for each phase of the process. Indeed the TpN model specifies a set of sub processes within each of the three phases of gathering information, cognitive processing, and output. Next the gathering phase will be used to illustrate the utility of the fine-grained distinctions developed in the current model and relate these distinctions to the existing literature.

The Gathering Phase

Using two focus groups of telephone nurses to identify TpN issues, Nauright and colleagues (1999) found that lack of a framework for assessment hindered data collection. The gathering information phase of this study provides a detailed framework for assessment beginning with connecting with and getting to know the caller, using broad general questions that become narrower in focus until the problem is identified and verified. Data collection, assessment, and diagnostic reasoning process are part of the nursing process and have been found to move from general to specific (Carnevali et al,
Research has shown however, that in high acuity situations, less information is needed for decision-making and intervention (Benner et al. 1996; Leprohon & Patel, 1995). The nursing process is systematic in that each phase is dependent on the previous one (Barnum, 1987; Carpenito, 1983; Carnevali et al. 1984). Carnevali et al. (1984) has noted the tendency of nurses to focus on nursing interventions over nursing diagnoses. Benner and colleagues (1996) reported that they found no evidence that nursing diagnoses were used to support nursing interventions. In this TpN study, nursing diagnoses were not used and nursing planning and interventions were based on problem identification.

In a grounded theory study that examined the application of the nursing process in an acute care setting, O’Connell (1998) found that inadequacies or lack of completion of one phase of the nursing process interfered with the adequacy of the next phase. O’Connell found that in the absence of sufficient nursing assessment information the nursing diagnoses were predominantly physical in nature and related far more to the medical diagnoses that to the identification and intervention of nursing problems. O’Connell also reported that lack of time, ineffective communication, and not ‘knowing’ the patient negatively affected nursing care. The current findings are consistent with these earlier findings in explaining the importance of getting to know the patient and interpreting their needs in order to provide the care needed.
The Implicit Dimension

Nauright et al (1999) and others (Carpenito, 1983; de la Cuesta, 1983; Edwards, 1994, 1998) have noted an emphasis on physical data and medical diagnoses by nurses. Nurses in Nauright’s study reported that the available accepted interventions were inadequate for complex problems. To describe the why callers used TpN services and the care provided, the authors of one study recorded 4269 phone calls in medical offices and call centers in four regions of the United States (Shapiro et al, 2004). They reported the care provided using accepted dispositions (e.g., ER, UC, appointment, referral, nursing management, other) and their results reflected previous findings in TpN research. Nursing management (i.e., explanation, reassurance, advice, information) was the disposition for 90% of the calls. However, these authors also reported that 42% of the callers received ‘conditional dispositions’. Conditional dispositions were those provided along with another disposition and included advice on when to call back, what to look for in terms of change in symptoms or new ones. This suggests implicit nursing interventions (teaching, ‘aftercare’, and interpreting). were provided in most if not all of the 4269 phone calls. The intangible nursing interventions, so much a part of the delivery of TpN care, are not normally acknowledged in nursing practice and in the literature. The findings of this study demonstrate that a large part of the nursing interventions are not acknowledged.

The identification of the parallel processes is a key finding of this study, particularly the implicit dimension. Many concepts in the nursing literature are relevant to the intangible nature of the TpN process and the associated concepts identified in this
study. Telephone nursing studies have shown that nurses used both implicit and explicit information to determine the impact of the caller problem (Edwards, 1994, 1998); nurses stress the importance of intuition (Nauright et al, 1999); that perceiving the unspoken is an important part of assessment and decision-making in TpN (Wahlberg et al, 2003); and that triggering cues “single pieces or sets of data about the patient situation that activate one or more concepts in the decision-maker’s long term memory” are used in nurse decision-making (Corcoran-Perry & Narayan, 1991, p. 357).

In a grounded theory study of the role of intuition and the nursing process, Young (1987, p. 57) found that nurses used “cues”, that is, “intangible, subjective, and frequently inexplicable data” to help identify patient problems and concluded that “acknowledgment of the importance of subjective and personal knowledge in the diagnostic process of nursing is needed”. Cues and nuances are a characteristic of intuition, and nurse decision-making (Rew, 1988a, 1988b). Benner and colleagues (1996) have built a large body of research supporting this idea. Carper’s (1978) ways of knowing also support the implicit aspects of patient care and nursing work and also give credence and value to the concepts of intuition, expertise, ‘knowing the patient’. The current study provides future considerations of the importance of these implicit processes.

An example of how focusing on implicit process can be useful can be seen in the early part of the gathering phase. According to nurses in this study, connecting with and getting to know the caller was essential to care provision. Radwin (1998) reported that knowing the patient and focusing on the patient resulted in individualized care. Knowing the patient has been identified as essential in clinical decision-making (Hedberg &
Larsson, 2003; Radwin, 1995, 1998; Tanner, Benner, Chesla, Gordon, 1993). Relative to the implicit process identified in this study, Tanner and colleagues (1993) identified ‘knowing the patient’ as central to skilled clinical judgment and stated that knowing the patient is “broader than what is captured in formal physical assessments”.

*Influences Internal to the Call: Prioritization and Complexity*

Prioritization and call complexity are components of the TpN process that determine the actions of the nurse and influence the process of care delivery. Research in TpN has shown that high acuity calls are more straightforward in that they require fewer decisions and less information (Leprohon & Patel, 1995). Research in TpN has suggested that in addition to prioritization, call complexity is an important aspect of the TpN process and care delivery (e.g., Edwards, 1994, 1998; Marsden, 1999; Nauright, et al, 1999; Valanis et al, 2003; Wachter et al, 1999). Support for these concepts includes the inability of protocols to address many caller situations and evidence of nurse discretion and decision-making in the TPN process.

*External Influences: The Nurse and the Organization*

Research in many areas has supported the idea that context affects the decision-making process, which is an inherent aspect of every phase of this TpN process theory. For example, researchers have pointed to task complexity (Perrow, 1967); characteristics of the diagnostician, the task, and the setting (Carnevali et al, 1984); supportive practice environment and opportunities for collaboration with colleagues (Aiken et al, 1994; Valanis et al, 2003). In this study, multiple concepts outside the nurse client telephone interaction were found to have the potential to influence the TpN process in all three
phases. These external factors concern characteristics of the nurse and of the practice environment (i.e., physician support, service availability). For example, regarding the practice environment, access to patient information also has been reported previously as important. Lack of health care resources has also been identified as detrimental to the TpN process (Nauright et al., 1999; Valanis et al, 2003a; Wahlberg et al. 2003).

In fact, pre-encounter data availability reduces cognitive strain and narrows the diagnostic field (Carnevali, 1984; Kassirer & Gorry, 1978). In this and other studies, nurse comfort level with the TpN process was identified as an important influencing variable (Nauright et al., 1999; Valanis et al., 2003a; Wahlberg et al, 2003). Two different studies identified nurse confidence as a key variable in clinical decision-making and as a contributing factor in the ability of nurses to provide individualized patient care (Hagbaghery, Salsali, & Ahmed, 2004; Radwin, 1998). Perhaps the concept ‘comfort level’ identified in this study as an essential nurse quality in TpN is actually confidence? In light of these studies, the concept warrants in depth investigation.

Process and Output Validation

In previous studies, telephone nurses have recognized the absence of and the need for feedback about the decisions made (Nauright et al. 1999; Wahlberg et al., 2003). In a study of factors perceived as influencing TpN practice, nurses specifically identified lack of feedback on advice appropriateness as problematic (Valanis et al, 2003a). In this study the desire for validation emerged as a strong need that is not generally fulfilled.
Nursing Implications

In an era of emphasis on defining and measuring nursing work and the contribution it makes to health outcomes, the identification of the parallel process in TpN has important implications for nursing. TpN dispositions should be revisited in light of the implicit caller needs and the intangible interventions provided by the nurse to address them. The implicit care strategies used by nurses to address caller problems may be an unrecognized but important component of satisfaction with TpN care. These nursing strategies (e.g., support, validation, problem-solving) should be recognized along with other TpN dispositions as legitimate TpN interventions. The nurse’s attention to and use of implicit information may be the essential process ingredient for identifying and meeting caller needs and consequently for realizing TpN clinical outcomes. The results of this study call for more attention to implicit and intangible nursing functions in TpN training and continuing education.

Interpretation is another important aspect of the process that warrants more explicit consideration. Are there things we can do to better prepare nurses in translating caller information into health care language, and translating healthcare information back into language clients fully comprehend? These nurse communication skills, along with the ability to get ‘know’ the patient, and comfort with intuition and the implicit data, are important aspects of the process and appear to be related to nursing (and life) experience. Nursing educators are situated to emphasize awareness of and competence in these areas.

Organizational resources were found to impact the TpN process. Nurses need a supportive and collaborative working environment, available and supportive physicians
and colleagues, access to client information, appropriate tools, and service availability. Without these organizational resources, the TpN care process is compromised. The suggestions that availability of pre-encounter access to client information positively affects each phase of the TpN process offers significant implications for the implementation of the electronic health record.

Perhaps the most important implication for practice is the need for output validation. Nurses clearly expressed the need to receive feedback about the TpN process output. Information about the accuracy and appropriateness of the decisions made was identified as a critical way to learn, gain expertise, and ultimately improve the quality of care provided. Without a feedback loop, TpN nurses, are working in a vacuum, with no opportunities for personal or professional growth.

The implications for research in this area concern concept and model development and measurement. The study findings clearly differentiate process variables from those external variables that impact the process. This distinction provides direction for future studies and model testing. The numbers of implicit nursing interventions uncovered in the TpN process suggest that they may have impact on caller health outcomes as well as the level of satisfaction with the care provided. It would be interesting to know whether these currently unrecognized dispositions (interventions) have a significant impact on health outcomes.

Nurses emphasized a need for information and confirmation of the decisions made in order to increase their knowledge base and their comfort with the process, and to improve the quality of care. Based on these findings, future research should investigate
the effect of providing feedback to nurses on the TpN process and outcomes. Potential outcomes of providing nurses with output validation may be increased job satisfaction, comfort level, and better decision making. Whether these will impact the caller health outcomes is another area of investigation.

Finally, the explication of the assessment process, the gathering information phase, depicts a progression of questioning and gathering from broad to narrow. Beginning with broad open questions designed to ‘get to know’ the caller, the information gathered becomes increasingly specific until the client problem is identified. The gathering information phase provides a framework for future development of an assessment process theory in nursing. Similarly, the sub processes within the cognitive processing and the output phase (i.e., determining, decision-making and planning, and implicit and explicit output, respectively) suggest directions for future research.

Strengths and Limitations

Criteria for evaluation of the scientific merit of this study were provided in Chapter 3. Procedures used to enhance scientific merit specific to this study will be discussed to allow the reader to judge the credibility of the data, plausibility and value of the theory, adequacy of the research process, and empirical grounding of the findings.

How well the reality was represented (i.e., credibility) and the ability of the theory to speak to the population from which it was derived (i.e., plausibility) is evident in the member checks. Participants were given opportunities for input during the data collection and again when findings were considered complete. Participant responses provided during data collection were incorporated in the analysis and responses provided
at the end of the study supported the findings without reservation. Initial questions were repeated in final interviews and participant responses were without differences. Detailed, dated, notes and memos describing reactions to the method, observations, and steps in the analysis (e.g., emerging concepts and hypotheses how they were tested and their subsequent development or elimination) were kept, providing an audit trail to help explain where the results came from and the adequacy of the research process. The use of participant statements to illustrate theoretical concepts supports the empirical grounding of the findings. Density of the categories and the ability of the conceptual model to illustrate ‘what is going on in TpN’ are best judged by the reader.

Researcher bias, the inability to be objective when knowledgeable about and sensitized to the topic, threatens the validity of the findings and was addressed in this study using a variety of procedures. To help achieve balance between objectivity and sensitivity during data collection and analysis, the researcher identified biases and expectations about the phenomenon. This explicit awareness of biases was used to identify and rigorously test (compare and validate) with incoming data. To help validate findings, colleagues simultaneously analyzed data for comparison and at various stages during the study, findings were challenged by colleagues and committee members, necessitating validation of those findings by the researcher.

Adherence to the method strengthens the findings of this study. Selection of TpN nurses that deliver care to populations of spanning the range of age and acuity and that provide services that vary from triage to specialty education/advice strengthens the findings and helps ensure validity (Morse, 2001). The findings of this study are limited
first to telephone nursing practice. Although it is likely that many of the same processes occur in other types of nursing practice, only telephone nurses were studied here. Thus, only further research with other types of nursing practice could determine the extent to which this conceptual model can be applied in other forms of nursing practice.

Another limitation of the study is the expert status of the participants. Nurses with five or more years of experience are usually considered experts (Benner, 1984). The average TpN experience of participants was 8.3 years (minimum 18 months experience) and nursing experience averaged 28.7 years (minimum 16 years). Research is therefore needed with less experienced nurses to determine whether aspects of the process are substantially different for less experienced and expert nurses. Additionally, despite the variation in the TpN programs sampled they all came from one community. Thus, the conceptual model generated may not prove useful in explaining the process of care used by other nurses (e.g., novice, other settings, services or regions). More generally, the grounded theory method is useful for addressing general principles from in depth analysis of qualitative data. Now that this conceptual model of TpN has been developed using this method, concepts and their relationships can be more fully developed and quantitative research is needed to assess hypotheses that can be generated from the model. This will provide more complete assessment of the model and its components. The ultimate value of the conceptual model generated by this study will be determined by application, testing, and usefulness in guiding additional studies in various settings in TpN practice.
Recommendations

Based on the findings of the study, the following recommendations for TpN practice, education, and research are suggested as interventions that may enhance the quality and outcomes of the TpN process. To increase knowledge and comfort with the TpN process, a feedback loop providing information on the appropriateness of decisions should be implemented for TpN nurses. This can be instituted in a variety of ways. For example nurses can flag specific calls for later scheduled discussion with nurses and/or review by a physician. Or, time during staff meetings can be dedicated to input on difficult or questionable decisions submitted ahead of time.

Because parallel process and interpreting are central categories of the TpN process, nurse education in this area should emphasize these concepts. Interpreting implies that the nurse has the ability to understand and articulate the situation of the patient and consequently intervene in a meaningful way. Particular attention should be placed on listening skills, making inferences from the information gathered, and verifying them with the client. A significant portion of nursing interventions identified in this study are ‘implicit’ and therefore not acknowledged. TpN program can easily create and implement a checklist to quantify these nursing outputs and eventually measure whether they make a difference in the outcomes. Using a grounded theory methodology, I have been able to isolate and define subcomponents of the TpN process. Studies are needed to support and refine the TpN process described in this study and to determine if the process differs in specific settings, with specific populations, or when novice nurses are providing the care. Of particular importance are the concepts ‘getting to know’ connecting,
secondary gathering, and aftercare. Now it is time to develop these concepts further and test their utility in TpN and other nursing practice areas.

Summary

The grounded theory method has allowed me to develop a conceptual model of the three phase TpN process and the delineation of the components of those phases. These findings are significant because (1) they reflect those of the nursing process, believed to be the basis of TpN practice; (2) delineation of the steps and strategies used in each phase responds to the criticism of the nursing process components as being too broad and unhelpful in guiding nursing action by providing an in depth description of what happens in those phases, (3) these findings provide information for further investigation and refinement of these phases for use in teaching, developing tools and interventions to meet the goals of each phase, and the ultimate goal of quality nursing care delivery.

The identification of the parallel process and interpreting are also key study findings that requiring attention and additional research. The explication of the parallel process and evidence of implicit and explicit ‘nursing work’ suggest that this is an area that, if developed, will support the nursing work not often recognized or credited but essential to humanism, holism, and health. Interpreting, an essential component occurring throughout the TpN process, requires additional investigation as it has important implications for nurse-patient communication and teaching effectiveness; it therefore can be a critical factor in nursing outcomes. The relationships implied in this study among interpreting, parallel process, intuition and ‘knowing the patient’ suggest
that accurate interpretation requires a strong nursing skills and knowledge and understanding of the patient. By investigating this phenomenon, we can develop training and tools to better address patient needs.

Grounded theory research is valuable in exploring processes in the situations in which they occur. This study has uncovered some important ideas about the nursing process in TpN that perhaps apply to nursing in many other areas as well. Grounded theory research adds discovery, description, and understanding to complicated and ‘situated’ processes, but it is just a first step that lays the groundwork for the additional studies needed to determine the ultimate usefulness of the ideas discussed here.
APPENDIX A

University Of Arizona Institutional Review Board Approval
1 October 2004

Elizabeth Greenberg, RNC, Ph.D. candidate
Advisor: Joyce Verran, Ph.D.; RN
College of Nursing
P.O. Box 210203

RE: BSC B04.187 THE PROCESS OF CARE DELIVERY IN TELEPHONE NURSING: A GROUNDED THEORY APPROACH

Dear Ms. Greenberg:

We received your research proposal as cited above. The procedures to be followed in this study pose no more than minimal risk to participating subjects and have been reviewed by the Institutional Review Board (IRB) through an Expedited Review procedure as cited in the regulations issued by the U.S. Department of Health and Human Services [45 CFR Part 46.110(b)(1)] based on their inclusion under research category 6 and 7. Although full Committee review is not required, a brief summary of the project procedures is submitted to the Committee for their endorsement and/or comment, if any, after administrative approval is granted. This project is approved with an expiration date of 1 October 2005. Please make copies of the attached IRB stamped consenting documents to obtain consent from your subjects. Note: Requirement of signed informed consent has been waived for parts of this study as the research exposes the participants to no more risk than everyday life as stated in 45 CFR 46.117(c)(2).

The Human Subjects Committee (Institutional Review Board) of the University of Arizona has a current Federal Wide Assurance of compliance, number FWA00004218, which is on file with the Department of Health and Human Services and covers this activity.

Approval is granted with the understanding that no further changes or additions will be made either to the procedures followed or to the consent form(s) used (copies of which we have on file) without the knowledge and approval of the Human Subjects Committee and your College or Departmental Review Committee. Any research related physical or psychological harm to any subject must also be reported to each committee.

A university policy requires that all signed subject consent forms be kept in a permanent file in an area designated for that purpose by the Department Head or comparable authority. This will assure their accessibility in the event that university officials require the information and the principal investigator is unavailable for some reason.

Sincerely yours,

Theodore Glase, Ph.D.
Chair,
Social and Behavioral Sciences Human Subjects Committee

TGGpm

cc: Departmental/College Review Committee

Administrative Correction:
Correct the spelling of the PI's name as M. Elizabeth Greenberg.

Program Coordinator Date
APPENDIX B

Subject’s Consent Form
SUBJECT’S CONSENT FORM

Project Title: The Process of Care Delivery in Telephone Nursing Practice

I AM BEING ASKED TO READ THE FOLLOWING MATERIAL TO ENSURE THAT I AM INFORMED OF THE NATURE OF THIS RESEARCH STUDY AND OF HOW I WILL PARTICIPATE IN IT, IF I CONSENT TO DO SO. SIGNING THIS FORM WILL INDICATE THAT I HAVE BEEN SO INFORMED AND THAT I GIVE MY CONSENT. FEDERAL REGULATIONS REQUIRE WRITTEN INFORMED CONSENT PRIOR TO PARTICIPATION IN THIS RESEARCH STUDY SO THAT I CAN KNOW THE NATURE AND RISKS OF MY PARTICIPATION AND CAN DECIDE TO PARTICIPATE OR NOT PARTICIPATE IN A FREE AND INFORMED MANNER.

PURPOSE
I am being invited to participate voluntarily in the above-titled research project. The purpose of this project is to describe the process used by telephone nurses to identify and meet the needs of the callers. The ultimate goal is to identify critical elements of this process that can be used to advance telephone nursing (TPN) practice.

SELECTION CRITERIA
I am being invited to participate because I am an English speaking registered nurse with at least six months experience in TPN, I am currently employed as a telephone nurse and have been employed at least four days a month for the past three months.

PROCEDURES
If I agree to participate I will be asked to consent to the following: a) at least one, and possibly up to three, one hour audio taped interviews. I may be asked to participate in a second or third interview based on the researcher’s need to compare, and/or verify concepts that have emerged in previously collected data. All interviews will be completed between October 2004 and March 2005. The interviews will be scheduled at a time and place convenient to me, (e.g., reserved room at the College of Nursing or the Arizona Health Science Library, my home or the home of the PI) and b) to complete a questionnaire containing descriptive information about myself and the setting in which I work.

RISKS
There are no known risks involved with the voluntary participation in this study.

BENEFITS
There are no direct benefits to me for participating in this project. The benefits of this study are societal. Benefits include the identification of critical factors of TPN practice important in future investigation and interventions designed to improve the quality of this nursing practice.

CONFIDENTIALITY
All signed consent forms will be delivered by the PI (M. E. Greenberg) to the College of Nursing Research office for safekeeping and storage. The demographic questionnaire that I have completed contains no person identifying information and will remain anonymous. As a
participant in this study I will be assigned a pseudonym. To ensure confidentiality and protect my privacy, this pseudonym will be used to label the interview tapes, transcripts, and all written records other than the consents. Once transcribed, the audiotapes will be stored in a locked cabinet accessible only to the PI. When not in use, all written documents related to the research process will also be kept in a locked cabinet at the College of Nursing. Participant contact information will be kept in a lock storage box accessible only to the researcher and separate from all other study materials. Study results will be reported as aggregated and abstracted data and anonymous interview data bits will be used to support the results.

PARTICIPATION COSTS AND SUBJECT COMPENSATION
The cost of participation in this study consists of the time invested (one to three one hour interviews). To reduce the cost in time and inconvenience, every effort will be made to schedule the time and place of the interviews when and where most convenient for me, the participant. I will receive a $20 gift card of my choice: Starbucks, Target, or Century Theaters as compensation for participating in this study. Compensation will be provided after each completed interview.

CONTACTS
I can obtain further information from the principal investigator M. Elizabeth Greenberg PhD Candidate, RN, C at (520) 298-8647. If I have questions concerning my rights as a research subject, I may call the Human Subjects Committee office at (520) 626-6721.

AUTHORIZATION
BEFORE GIVING MY CONSENT BY SIGNING THIS FORM, THE METHODS, INCONVENIENCES, RISKS, AND BENEFITS HAVE BEEN EXPLAINED TO ME AND MY QUESTIONS HAVE BEEN ANSWERED. I MAY ASK QUESTIONS AT ANY TIME AND I AM FREE TO WITHDRAW FROM THE PROJECT AT ANY TIME WITHOUT CAUSING BAD FEELINGS. MY PARTICIPATION IN THIS PROJECT MAY BE ENDED BY THE INVESTIGATOR FOR REASONS THAT WOULD BE EXPLAINED. NEW INFORMATION DEVELOPED DURING THE COURSE OF THIS STUDY WHICH MAY AFFECT MY WILLINGNESS TO CONTINUE IN THIS RESEARCH PROJECT WILL BE GIVEN TO ME AS IT BECOMES AVAILABLE. THIS CONSENT FORM WILL BE FILED IN AN AREA DESIGNATED BY THE HUMAN SUBJECTS COMMITTEE WITH ACCESS RESTRICTED TO THE PRINCIPAL INVESTIGATOR, M. ELIZABETH GREENBERG, OR AUTHORIZED REPRESENTATIVE OF THE COLLEGE OF NURSING RESEARCH DEPARTMENT. I DO NOT GIVE UP ANY OF MY LEGAL RIGHTS BY SIGNING THIS FORM. A COPY OF THIS SIGNED FORM WILL BE GIVEN TO ME.

Subject's Signature __________________________ Date __________________________

INVESTIGATOR'S AFFIDAVIT
I have carefully explained to the subject the nature of the above project. I hereby certify that to the best of my knowledge the person who is signing this consent form understands clearly the nature, demands, benefits, and risks involved in his/her participation and his/her signature is
legally valid. A medical problem or language or educational barrier has not precluded this understanding.

Signature of Investigator
1/2000

Date
APPENDIX C

TpN Sample: Descriptive Information Questionnaire
TPN Sample: Descriptive Information Questionnaire

TPN Sample
Please respond to the following:

What is your age?______________________

Gender?____________________________

Please list all of the degrees you hold and when you received them____________________

______________________________________________________________________________

How many years of experience do you have in nursing?____________________________

How many years of experience do you have in telephone nursing?____________________

______________________________________________________________________________

How long have you been working at this clinic?____________________________________

What do you like most about telephone nursing practice in this clinic?_______________

______________________________________________________________________________

What do you like least about telephone nursing practice in this clinic?_______________

______________________________________________________________________________
APPENDIX D

Nurse Manager Cover Letter
Nurse Manager Cover Letter

Title of Project: The Process of Care Delivery in Telephone Nursing: A Grounded Theory Approach

From: M. Elizabeth Greenberg PhD(c), RN, C

To: Clinical Site Nurse Managers,

You are being invited to voluntarily participate in the above-titled research study. The purpose of the study is to describe the process used by telephone nurses to identify and meet the needs of the callers. You are eligible to participate because you are the manager of the clinic and have access to descriptive organizational data and to the registered nurses eligible for participation in this study.

If you agree to participate, your participation will involve:

1) Completion of a questionnaire, approximately thirty minutes, describing the TPN services offered at your clinical site, the population served, and TPN specific policies and procedures. This information will be combined with other sites and used to describe the research setting. You may choose not to answer some or all of the questions. Your name and the name of the organization will not appear on the questionnaire. By completing this questionnaire you are giving permission for the investigator to use the organizational information for research purposes.

2) Identification of nurses eligible for participation in the study and delivering recruitment materials provided by the researcher to those nurses.

Any questions you have will be answered and you may withdraw from the study at any time. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time and you will not be compensated for your participation.

Only the principal investigator will have access to your name and the information that you provide. In order to maintain your confidentiality, your name and the name of the organization will not be revealed in any reports that result from this project. The results of the information you provide in the questionnaires will be reported as aggregated data. Completed questionnaires will be locked in a cabinet in the office of the researcher.

Nurse manager questionnaires and nurse recruitment materials are attached. You can obtain further information from the principal investigator, M. Elizabeth Greenberg, PhD candidate, RN, C at (520) 298-6647. If you have questions concerning your rights as a research subject, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721.

Thank you.

M. Elizabeth Greenberg
APPENDIX E

TpN Setting: Descriptive Information Questionnaire
TPN Setting: Descriptive Information Questionnaire

Please respond in detail to the following questions about your clinical setting.

SERVICES

Describe all of the TELEPHONE NURSING SERVICES provided

How long have these services been provided at your clinic?

What HOURS and DAYS are TPN services provided?

How many calls does the clinic handle monthly?

Estimate how many calls each nurse handles in an eight hour period.

POPULATION

What is the size of the population served by the TPN services?

Describe the clinical specialties served, if any.

Can you provide any summary data regarding the age, ethnicity, or socioeconomic status of the population served by your clinic?
POLICIES

Are the medical records of the caller available to the nurse during the telephone call?

Are the TPN services computerized or paper and pencil?

Describe the guidelines or protocols used by the TPN nurses.

What is the clinic policy regarding adherence to protocols?

How much autonomy do you think the nurses exercise when providing TPN care?
APPENDIX F

Recruitment Statements
YOU ARE INVITED TO PARTICIPATE IN A RESEARCH STUDY
being conducted by a doctoral student at the University of Arizona College of Nursing.

The Study Is Entitled:
THE PROCESS OF CARE DELIVERY IN TELEPHONE NURSING (TPN)

WHO? Registered nurses with at least six months of TPN experience and who speak English and are currently working as a Telephone nurse at least four days a month for the last 3 months.

WHY? The purpose of this study is to determine the critical elements of the process used by telephone nurses to identify and meet the needs of the caller. The results of this study can be used to develop educational and practice interventions to advance this specialty practice.

WHAT WILL I HAVE TO DO? If you agree to participate you will be asked to give at least one, and possibly as many as three, approximately one hour, audio-taped interviews in which you will be asked to describe events, experiences, and thoughts related to your TPN experience. For each interview completed you will be compensated for your time. Interviews will be scheduled at your convenience over the next three months in locations that are free from distractions, ensure privacy and are convenient for you. You will also be asked to complete a written questionnaire providing descriptive information about yourself and the setting in which you work.

CONSENT, CONFIDENTIALITY, and VOLUNTARY PARTICIPATION: You will be given a written consent form explaining the nature of the study, confidentiality and privacy protection, and your role as a participant. Participation in this study is strictly voluntary and you are free to withdraw from the project at anytime without causing any bad feelings.

If you are interested in participating in the above titled research study, or if you have questions about the study, please contact Liz Greenberg by telephone or e-mail at:

520 298-8647 or 520 991-5907

maryg@nursing.arizona.edu
REFERENCES


Hutchinson, S.A. (1992). Nurses who violate the Nurse Practice Act: Transformation of


Ambulatory Care Nursing *Telehealth Nursing Practice Core Course* (pp. 5-25).

Philadelphia: Lippincott


