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Replication Study of Nursing Diagnosis in the Hospitalized Chronic Pulmonary Disease Patient: A Pilot Study

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REPLICATION STUDY OF NURSING DIAGNOSIS IN THE HOSPITALIZED CHRONIC PULMONARY DISEASE PATIENT: A PILOT STUDY

by

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ABSTRACT

REPLICATION STUDY OF NURSING DIAGNOSIS IN THE HOSPITALIZED CHRONIC PULMONARY DISEASE PATIENT: A PILOT STUDY

By

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This study replicated a pilot study, conducted by Lynn Dapice in 1985, to clinically validate nursing diagnoses developed by the American Thoracic Society Group and Nursing Diagnosis Classification Group. The purpose of this current study was to broaden the body of knowledge regarding nursing diagnoses associated with the medical diagnosis of Chronic Obstructive Pulmonary Disease (COPD).

A retrospective descriptive study was conducted using Dapice's tool adapted to suit this study. Data from 25 charts of hospitalized COPD clients were analyzed using percentages and t-test; the results showed no significant difference between the two studies, with the exception of the age range of the subjects. Seventy-six nursing diagnoses and 480 defining characteristics were documented. It was found that 103 of the defining characteristics supported fourteen nursing diagnoses; however, there were two nursing diagnoses that lacked documentation of supporting defining characteristics. The study also found that documentation of nursing process was very limited in the clinical area.

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CHAPTER 1

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a group of diseases wherein the lungs exhibit resistance to air out flow, due to intrapulmonary lesions. The clinical characteristics exhibited by persons with COPD are shortness of breath on exertion, cough, and progressive disability.

More than 24 million people in the United States are diagnosed with COPD (National Center for Health Statistics, 1987). The physical condition and working capacity of clients with COPD gradually decrease; COPD is the third most common cause for disability under the Social Security System (De Vito, 1985). Anxiety, anger, irritability, loneliness, depression, and fear of death are frequent psychological effects as the disease progresses (Francis, Petty, & Winterbaucher).

Because of the chronicity of COPD, nursing care becomes directed to the client's response to the disease. Because clients with COPD are usually referred to home health agencies by health care providers in other

settings, clear communication is of vital importance. The taxonomy of nursing diagnoses being developed by the North American Nursing Diagnosis Association (NANDA) provides a common vocabulary that can facilitate accuracy of communication and understanding among nurses caring for COPD clients.

Many of the nursing diagnoses and their related defining characteristics which have been identified by NANDA have not as yet been validated. Since poorly developed diagnostic and etiological categories can increase the risk of errors in diagnoses and treatment, deprive patients of quality care, and place the clinician in jeopardy for malpractice, clinical validation studies are necessary (Gordon, 1984). The question to be pursued in such studies is whether the problem, as described in the defining cluster of signs and symptoms, exists.

The purpose of this study was to broaden the body of knowledge regarding the nursing diagnoses associated with the medical diagnosis of COPD. Specific aspects which were investigated included the validation of defining characteristics previously developed for the 12 nursing diagnoses by the American Thoracic Society Nursing Group (Abraham, Atkinson, Boyce, Briggs and Kim, 1981) and for the 18 nursing diagnoses developed by the Nursing

Diagnosis Classification Group at the Sixth National Conference (Hurley, 1986). This research replicated and extended the study conducted by Dapice (1985) entitled "Nursing Diagnoses in the Hospitalized Chronic Obstructive Pulmonary Disease Patient: a Pilot Study."

CHAPTER 2

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework

The primary goals for nursing management of the advanced COPD client are to help the client reach maximal function within the disease process and to make the client as comfortable as possible. Nursing care of a COPD client aims at improving the ability of the client to function as normally as possible (i.e., to provide self-care).

The conceptual framework for this study was based upon the work of Dorothea E. Orem. Orem's belief about self care is that "Individuals personally initiate and perform on their own behalf in maintaining life, health and well-being" (1971, p. 13). In present society, adults are expected to be self-reliant and responsible for themselves and for the well-being of their dependents. "Initiation of and perseverance in action to meet self-care demands demonstrate the individual's power of agency in this form of deliberate action. Any deficit in ability decreases power of agency which may give rise to a demand for assistance. Such deficits when they are

related to the individual's health state constitute the reasons why people need nursing" (Orem, 1971 p. 36).

Fawcett (1984) suggests that Orem presented the nursing process in three steps: (1) diagnosing and prescribing, (2) designing and planning, and (3) producing and managing systems of nursing assistance. The first step focuses on determining why the person needs nursing care. This step includes calculation of the person's therapeutic self-care demand, assessment of self-care agency, and identification of the self-care deficit. The second step deals with the design of a system of nursing assistance. The final step involves the provision of direct nursing care and decisions regarding the continuation of direct nursing care in its present form or changing form.

Self-care can be promoted in the client with COPD when nurses use their abilities to prescribe, design, and provide care. As clients move from a state of illness to a state of maximum independence, nurses play an important role in assisting these clients in the transition; nursing diagnosis directs care in a client-oriented direction. Thus, validation of nursing diagnoses for the COPD client is necessary for promotion of self-care.

Literature Review

According to Gordon and Sweeney (1979) and Fehring (1984), to validate a nursing diagnosis one must provide evidence that the defining characteristics (DC) to which the label refers can be actually observed in clinical situations. Due to the developmental nature of the nursing diagnosis movement, reports of validation studies in the literature are limited but gradually increasing. Gordon and Sweeney (1979) proposed three models for validation of nursing diagnosis: (1) the clinical model, (2) the retrospective identification model, and (3) the nurse-validation model.

Overview of validation models. The clinical model uses direct observation of patient behaviors to identify nursing diagnoses. This type of study is carried out in clinical settings, and information is gathered verbally or from the clients' clinical records. Sample selection, accurate communication, and clear descriptions are of vital importance in collection of data. Assessment tools based on conceptual guidelines, guidelines for diagnostic categories, protocols for entering and discharging clients from the study, a format for collection of data, and training of data collectors are all important aspects for consideration in carrying out this type of study (Gordon

and Sweeney, 1979).

The retrospective identification model is an inductive method used for identifying diagnosis and defining characteristics. This method is based on nurses' abilities to recall health problems they have treated in the past; the gathered data are then used to identify the nursing diagnoses. This procedure is similar to the method used by the participants of the North American Nursing Diagnosis Association conferences (Gordon and Sweeney, 1979). Guidelines which include the problem label, etiology, signs and symptoms, and defining characteristics are necessary for the group to formulate the nursing diagnoses. Participant selection and training play an important role in confirming the validity and reliability of the nursing diagnosis arrived at by group consensus.

Finally, the nurse-validation model consists of tabulating which defining characteristics listed for a previously identified diagnosis are present clinically when a diagnosis is made. This model can be applied to clinical testing of identified diagnoses. In this type of study, the nurses' reliability as diagnosticians must be established. There has to be a high frequency of occurrence of defining characteristics to be considered as

the "critical cluster" for the defining characteristics.

The nurse validation model can also be implemented by using two nurses assessing the same patient sample and making diagnoses independently. Another example of its use would be to use a panel of nurse specialists to review data collected by trained nurse diagnosticians; this is also a method by which consensual validity can be obtained. This method can be used in situations where data collection is conducted in a problem oriented or computerized record system (Gordon and Sweeney, 1979).

Most nursing diagnosis validation studies have derived their methodologies from the three described by Gordon and Sweeney (1979). Although each method has advantages, the clinical method is possibly the one most free of biases.

The clinical model. The clinical validation model was used by Kim, Amoroso-Seritella, Gulanick, Moyer, Parsons, Scherbel, Stafford, Suhayda, and Yocum (1980 & 1984) for use and validation of cardiovascular nursing diagnoses. The objectives of these studies were to identify nursing diagnoses appropriate to cardiovascular nursing, to establish validity and reliability of these diagnoses, and to compare clinical judgement between clinical specialists and staff nurses. Eighteen staff

nurses who had no experience with identification and use of nursing diagnoses were randomly selected to participate in the study, as were four masters prepared nurses with a minimum of one year experience as clinical nurse specialists. Each staff nurse used an assessment guide to identify and record nursing diagnoses, etiologies, signs and symptoms, and nursing orders and/or interventions. Independent assessments on the same patients were conducted by the clinical nurse specialist within a six hour period using the same assessment guide.

Results of these two studies showed that there was more agreement than disagreement ($df=37$, $t=45.31$, $p<0.05$) between the two groups in their independent assessments. From this, the authors concluded that given the proper teaching and training in the concept of nursing diagnosis, staff nurses as well as clinical specialists were able to identify and use nursing diagnoses. Findings from their second study revealed that the ten most frequently identified nursing diagnoses appeared to have content and face validity as judged by nurse experts and staff nurses. The authors made this conclusion by evaluating the scores derived, using a five point rating scale.

The clinical model was also used by Castles (1982) in her study of interrater agreement in the use of nursing

diagnosis in an intensive care unit. The objective of the study was to determine if the same nursing diagnoses were made when the same patients were assessed at approximately the same time by more than one nurse. Less than a 24 hour period between the two assessments was defined as "approximately the same time". This study showed that nurses making assessments of the same patients at the same time do not arrive at the same conclusions. Furthermore, they reported different signs and symptoms as bases for their conclusions. According to Castles (1982) this indicates an unexpected range of assessment parameters and decision points. However a limitation to this study was the fact that, in the intensive care units, patients' conditions change rapidly, and this could make a difference in the comparisons of the assessments by two nurses within a 24 hour period.

Another clinical validation study conducted by Miaskowski and Garofallou (1984) focused on documented nursing diagnoses for oncology patients in a tertiary care facility. A total of 282 patient charts were evaluated for nursing diagnoses. Findings revealed 560 actual nursing diagnoses and 149 potential nursing diagnoses. This study identified only the nursing diagnoses and not the defining characteristics.

Hoskins, McFarlane, Rubenfield, Schreier, & Walsh (1984) also used the clinical validation model to study nursing diagnosis in chronically ill clients. Theories related to human need and motivation provided the framework for health assessment of the subjects and for the formation of the nursing diagnoses. The researchers divided their methodology into two phases: the clinical phase and the validation phase. In the clinical phase, the researchers gathered information for forming diagnostic labels; this phase resulted in the formulation of the nursing diagnoses and the identification of their defining characteristics and critical indicators. In the validation phase, the comparison of frequency of occurrence of the given diagnosis in each sample was studied. The researchers found 13 diagnoses within the higher level needs and 38 diagnoses within the lower level needs. This study supported the theories of human need and motivation which indicate that lower-level needs become predominant under adverse living conditions.

York and Martin (1984) conducted a clinical validation study of respiratory nursing diagnoses. The authors designed a questionnaire and chart review method to gather data. Care plans were reviewed by the

researchers to identify the presence or absence of defining characteristics supporting a particular respiratory nursing diagnosis. Nurses were also interviewed to identify all defining characteristics present at the time the diagnosis was made. The authors developed, piloted, and tested a model for clinical validation of respiratory nursing diagnoses which they believed could easily be incorporated into clinical practice duties which require chart review.

The York and Martin study was conducted in two phases. In Phase I a questionnaire was distributed to ten volunteer nurses who were considered experts in their field and had worked for at least one year with clients with respiratory problems. The questionnaire asked nurses to rate the appropriateness or inappropriateness of etiologies and defining characteristics for the three respiratory nursing diagnoses. It was found that seventy percent of the nurses consistently considered only two defining characteristics, cough and prolonged expiratory phase, as definers of the diagnosis of ineffective breathing patterns. The authors stated that test-retest reliability of the tool was established; however, the reliability coefficient of the tool was not reported.

Phase II consisted of a review of nursing

documentation. Patient records of all clients who had a respiratory nursing diagnosis made by a nurse regularly assigned to the Respiratory Care Unit were reviewed. Defining characteristics from the chart audit were then compared to those on the tool used in phase I of the study. There was a difference in the rank order of the defining characteristics for two of the three respiratory nursing diagnoses. The researchers suggested that additional studies be conducted using direct patient assessments as well as chart reviews.

Halfmann & York (1982) examined nurses' perceptions of rheumatic disease patient problems as evidenced in nursing diagnoses, etiologies, defining characteristics, expected outcomes and interventions. Data were collected by retrospective audit of the nursing care plans of 51 clients with rheumatic disease. The researchers collected 161 labels for patient problems and placed them into a 16 category system developed by Halfman and others (1981). Out of the 161 labels, 137 (85%) were categorized as those present in the list developed by the Fourth National Conference List (NCL) of accepted nursing diagnoses. The researchers hypothesized that the high percentage of NCL nursing diagnoses documented by nurses may have been influenced by having this list made available to them.

The retrospective chart review for clinical validation was used by Suhayda and Kim (1982) to evaluate documentation of the nursing process in critical care, identify the most commonly documented patient problems, and describe documented actions and patient outcomes. The charts were in narrative form, including flow sheets. The data collection tool was designed as an open ended instrument that included all components of the nursing process as well as pertinent demographic and medical data. A panel of experts established the content validity of the tool. Ten of the 50 charts were randomly selected and reexamined by a medical-surgical clinical nurse specialist who used the same tool. Interrater agreement was 93%.

Findings of this study revealed that nursing process was documented as "scattered fragments of an incomplete chain" (Suhayda and Kim, 1982, p. 167). No linkages of problem identification, nursing action and patient outcome with cognitive information processing and decision making were found in the charts. Patient problems were reflected in unclustered and unrelated pieces of assessment data. Further, there was no documentation of inferential diagnostic statements, and assessment data were recorded and often repeated by every shift, with no indication of problem advancement or resolution. No summary statements

were made about the problems, their treatment, or their clinical courses. Much documentation was entered on diagnostic parameters without any documentation on the interpretation of the values. Documentation on nursing process was found to be lacking in the charts reviewed. The researchers concluded that integration of the nursing process into practice, as emphasized by the American Association of Critical Care Nurses, was not present in documentation. The researchers recommended that open boundaries be maintained and closure be avoided until the changing and expanding role of nursing is more clearly defined.

The retrospective identification model. Cattaneo and Lackey (1986) conducted a three-phase study to define impaired skin integrity. In Phase I, the authors had 42 expert Enterostomal Therapy (ET) nurses respond to the Objects Contest Test (OCT) instrument. The OCT instrument included 20 questions describing impaired skin integrity. In Phase II, five nurse experts with clinical expertise in skin care were asked to help validate the presence or absence of the responses in the category of impaired skin integrity according to a suggested definition. In Phase III, a final questionnaire, formulated from the results of Phase II, was mailed to the 42 ET nurses. Twenty-five

nurses responded. If there were agreement among 15 of the 25 respondents, the term or phrase became a part of the defining criteria. The findings of this study demonstrated 90% agreement between the nurse experts and the ET nurses on terms and phrases defining impaired skin integrity.

The retrospective identification model was also used by Coviak (1985) in her study Alteration in Growth and Development: a Nursing Diagnosis Validation Study. The author developed this diagnostic label based upon review of the literature and her clinical experience. Two hundred nurses were asked to identify their major diagnosis for a case study depicting a child who displayed some of the characteristics of developmental alteration. The author's survey revealed a wide variety of terms used to describe the condition pictured. The author recommended that maternal and child health nurses adopt a common term for the child who displays developmental delay.

A descriptive study was conducted by Ruthven (1986) on diagnosing self-harm in the elderly. The purpose of this study was to identify observable characteristic behaviors and their correlates that constitute self-harm. The author proposed to do this by developing a diagnostic

definition of self harm in the elderly. Fourteen community health nurses were given a questionnaire consisting of 88 items for the defining characteristics and etiological categories. These nurses were asked to recall a self harming client they had cared for within the last five years and check those characteristics on the questionnaire that described that client. Several characteristics were described by these nurses to support the nursing diagnosis of self-harm in the elderly.

The diagnosis of alteration in temperature regulation: hypothermia was studied by Johnson (1986). A sample of 85 nurses was surveyed to recall if hypothermia was a relevant concern for their clients and if the nursing diagnosis alteration in temperature regulation was a relevant nursing diagnosis to their daily practice. Eighty one of the sample supported the two questions asked.

Frenn, Lee, Sanger and Strong (1988) conducted a Delphi survey to gain consensus on nursing diagnosis on wellness and health promotion. The three round Delphi technique was used. The authors designed an open-ended questionnaire for the generation of diagnostic labels appropriate to nursing practice in a wellness and health promotion framework. The 104 nurse respondents generated

a total of over 800 nursing diagnoses. Nursing diagnoses that were already on the accepted list were not included. A total of 76 new nursing diagnoses were generated.

Another retrospective identification model study was conducted using the Delphi technique to study activity intolerance. MacLean (1988) mailed questionnaires to 122 master's prepared nurses who clinically practiced in an acute care setting with adult patients with cardiac disease. The questionnaire contained 127 cues of activity intolerance that had been identified through a literature review. Subjects were asked to rate the cues on importance for making the diagnoses of moderate activity intolerance related to an imbalance between oxygen supply and demand. These questionnaires were mailed in three rounds. At the end of the third round, the original list of 127 cues was reduced to 19 cues of greatest importance. This study identified cues that had greater precision and clearer guidance than those available in the literature. This author suggested that more research be conducted to refine and clarify nursing diagnoses and the NANDA framework. This study was conducted using a nurse-validation type of model as well as a retrospective identification model.

The nurse-validation model. The nurse-validation model was used by Silver, Halfmann, McShane, Hunt & Nowak (1982) in their study to identify clinically recorded nursing diagnoses and their indicators. From an audit of 377 charts, a list of 1344 diagnostic labels, with multiple indicators, was collected. The authors identified these labels as nursing diagnoses; some labels were the same as those accepted by the National Conference List (NCL), while others were not. Five experts defined 16 categories under which the 1344 labels were placed. The most frequent diagnosis was alteration in comfort: pain in the NCL category. In the signs and symptoms category, shortness of breath and elevated temperature were examples of labels. Self-care deficit was not found in the charts reviewed although it was identified on the NCL. The authors suggest that this is probably due to the fact that nursing care like bathing, feeding, toileting, etc., is not expected of the client in an acute care setting. Nursing diagnoses like sleep pattern disturbance and alterations in nutrition were considered significant by their absence in the same setting.

Dapice (1985) conducted a retrospective study of eight clients hospitalized with the medical diagnoses of Chronic Obstructive Pulmonary Disease, Chronic Bronchitis

and/or Emphysema. Dapice based her study on the nurse-validation model and utilized a checklist to review client charts. The checklist consisted of 214 defining characteristics developed from twelve nursing diagnoses by the American Thoracic Society Nursing Group and from fourteen nursing diagnoses by the Nursing Diagnoses Classification Group at the Fifth National Conference. Dapice's pilot study resulted in the identification of 52 defining characteristics which supported eleven nursing diagnoses.

Dapice's study did not provide any information on where she used the instrument, or whether she used it at the bedside or only conducted a chart review after discharge. Dapice's tool also did not provide instructions on whether certain critical defining characteristics were needed to support a nursing diagnostic label. Furthermore, Dapice reported nursing diagnoses supported by only one defining characteristic even though she stated that two or more defining characteristics were needed to support a nursing diagnosis.

Additional limitations of Dapice's study included the small size of the sample (N=8) and the possible

variability of nursing documentation in a cross-sectional retrospective design. In an attempt to verify and expand the findings of Dapice's study, this current study was designed and conducted as an extension and replication.

CHAPTER 3

METHODOLOGY

This study was a replication and expansion of the research conducted by L. A. Dapice (1985) entitled "Nursing Diagnosis in the Hospitalized Chronic Obstructive Pulmonary Disease Patient: A Pilot Study".

Research Questions

The following questions, the same as those used in Dapice's research (1985), were studied.

1. What nursing diagnoses are documented by the nurse caring for the hospitalized COPD client?
2. What defining characteristics are documented for the hospitalized COPD client?
3. What nursing diagnoses are generated from the defining characteristics?
4. What defining characteristics are possible, but are not documented for the hospitalized COPD client?
5. What clusters of defining characteristics are documented for the hospitalized COPD client?

Operational Definitions

Defining Characteristics: "Signs and symptoms evident in the client which assist the nurse to identify the presence of a health problem" (Coviak, 1985, p. 16). Two hundred and fourteen defining characteristics developed by the American Thoracic Society Group (Abraham et al., 1981) and by the Nursing Diagnosis Group (Kim, McFarland & McLane, 1984) were used in this study. Data regarding the presence of these defining characteristics were collected on the checklist instrument (Appendix A).

Defining Characteristics Cluster: "The presence of two or more defining characteristics related to a specific diagnosis by the American Thoracic Society Nurses group and/or the Nursing Diagnosis Group" (Dapice, 1985, p. 8).

Nurse: For the purpose of this study a nurse was defined as one who was licensed to practice as a registered nurse, and who provided care for clients in a medical or surgical unit. He/she was employed by a midwest hospital where this research was conducted during the period of July to December, 1987.

Nursing diagnoses: "Client problems or concerns identified by nurses, which are amenable to some intervention which is available in the present or

potential scope of nursing practice" (Campbell, 1978 p. 11). The 12 Nursing diagnoses developed by The American Thoracic Society Group (Abraham et al., 1981) and 18 from the Nursing Diagnosis Group (Kim, McFarland et al., 1984) were used in this study and were collected on the checklist instrument (Appendix A).

Validation: Specific to this study, the term validation was used when there was written documentation of a nursing diagnosis and/or defining characteristic identified in the clinical situations.

Hospitalized COPD clients: A client who is 18 years of age or older who is hospitalized and has as one medical problem the medical diagnosis of COPD, chronic bronchitis, emphysema and/or asthma (Dapice, 1985, p. 8).

COPD: Chronic Obstructive Pulmonary Disease. "A disease in which clients exhibit resistance to the air flow from the lungs" (American Lung Association, 1977, p. 11).

Chronic Bronchitis: "A clinical disorder characterized by excessive mucus secretion in the bronchi; it is manifested by chronic or recurrent productive cough, and in these patients other causes of productive cough, such as specific pulmonary infections, neoplasms, and

heart disease, have been excluded" (American Lung Association, 1977, p. 13).

Asthma: "A disease characterized by increased responsiveness of the trachea and bronchi to various stimuli, manifested by difficulty in breathing; it can be caused by generalized narrowing of the airways" (American Lung Association, 1977, p.15).

Emphysema: "An enlargement of the air spaces distal to the terminal nonrespiratory bronchiole, with destruction of alveolar walls" (American Lung Association, 1977, p. 15).

Design

The descriptive study reported herein was a cross sectional, retrospective chart review.

Sample

The sample consisted of the charts of 25 hospitalized clients with the diagnosis of COPD, Chronic Bronchitis, Asthma and/or Emphysema. Clients were above the age of 18, of both sexes, and hospitalized in a 529 bed acute care teaching hospital in a midwest metropolitan area. Of available charts of clients with COPD hospitalized between

June, 1987, to December, 1987, every third chart was selected by the hospital's medical records personnel for use in this study. This selection continued until a total of 25 charts was available for review.

Human Subjects Review Committees at both the hospital and at Grand Valley State University granted approval of the research prior to data collection. Only the charts of clients who signed the standard release form for research, which obtained their informed consent when admitted into the hospital, were included in the study. During the data collection period, confidentiality was maintained by using clients' hospital registration numbers. Confidentiality was later maintained by using a coding system, which was used only for the purpose of facilitating analysis of the data. Anonymity was maintained throughout the research.

Instruments

The checklist instrument developed by L. A. Dapice, (1985) was used. Dapice's checklist consisted of 214 defining characteristics developed from Twelve nursing diagnoses by the American Thoracic Society Nurses Group and from fourteen nursing diagnoses by the Nursing Diagnosis Classification Group at The Fifth National

Conference. Reliability for the instrument was not reported in her study.

Stability of the instrument in this study was determined through a test-retest reliability procedure. Thirty days following initial data collection, three charts were randomly selected for repeat data collection using the same instrument and the same data collector. Identical results were obtained on the two data collections. The test-retest reliability coefficient was +1.00.

Dapice reported that content validity was obtained by having experts review the instrument. The qualifications of Dapice's experts were not described. In this study, content validity of the instrument was further established by five nurses with advanced education in nursing; three held masters degrees in nursing of the adult while two had completed all course work in a master's program in adult acute care. These nurses were selected on the basis of expertise in nursing diagnoses; they all had done extensive work in nursing diagnoses in their fields of speciality. They also participated in conferences and served in positions as clinical specialists, departmental heads, and faculty at various hospitals and a university.

These five nurse experts reviewed the instrument and made suggestions regarding both the validity of the content and the organizing structure of the instrument.

Minor changes in the instrument were made based upon feedback from the experts. For example the instrument developed by Dapice (1985) was organized alphabetically, so that defining characteristics were arranged in alphabetical order in the checklist. Based upon suggestions from the nurse experts who reviewed the instrument for content validity, Dapice's instrument was reorganized to improve ease of use in this study. Defining characteristics were arranged in alphabetical order according to physiological and psychological needs (Appendix A). Additionally, information on age, sex, medical diagnoses of the client, medical treatment, current smoking status, years of smoking, and occupation was also obtained.

Procedure

The study was conducted at a 529 acute care teaching hospital in a midwest metropolitan area. At the time of the study, this hospital had an eight year history of using nursing diagnosis, as published by NANDA. In the

past several years this hospital had also offered a class on nursing diagnoses to all nurses during their orientation.

Every third chart in which the client had the medical diagnosis of Chronic Obstructive Pulmonary Disease, for a total of 25 charts, was selected by a medical records staff member using the computer. The researcher scrutinized the selected client charts to determine if defining characteristics and nursing diagnoses were documented. The following portions of the client chart were scrutinized: (1) emergency room data sheet, (2) nursing admission form, (3) nursing assessment form, (4) daily nurses notes, (5) discharge forms, (6) laboratory reports, and (7) Xray reports. The tool used was Dapice's instrument which was reorganized into physiological and psychological needs (Appendix A).

The client charts were screened from the day of admission to the day of discharge during the period of June 1987 to December 1987. Other data such as clients' medical diagnoses other than COPD, smoking status, occupation, age, and medical treatment were also collected. Data were collected and then entered into the computer for analysis.

Data Analysis

Data were analyzed by computer using SPSS-X version 2.2 software. Descriptive statistics were used to indicate percentage occurrence of nursing diagnoses and defining characteristics in the 25 client charts audited. Measurements of range, mean, and standard deviation were used to describe the characteristics of the sample, defining characteristics, clusters of defining characteristics, and nursing diagnoses in this study. The t-test was computed for testing differences in the two group means to compare the results of this study to those found in Dapice's research.

CHAPTER 4

RESULTS

Characteristics of Subjects.

Clients varied in age from 19 to 61. Of the 25 charts reviewed, eight were of male clients and 17 were of females. In the males, six of the eight had a history of smoking, while in the females, 11 of the 17 had a history of smoking. In the demographic characteristics, 11 of the 25 clients had been professional workers, nine were previously factory workers, three were housewives, and two of the clients did not state their occupation. Eight clients were disabled at the time of their hospitalization.

The chart review also included the type of medical therapy the clients required during their hospital stay. Some of the clients received more than one type of therapy; the most frequently used medical therapies were IPPB (n=21), oxygen by cannula (n=17), and respirex (n=9). Three clients were on mechanical ventilation and suctioning, and three were administered oxygen by mask. One client necessitated cardiac massage, intubation, Swan Ganz catheter insertion, and a tracheostomy.

Analysis of Research Questions

Table 1 presents a complete list of nursing diagnoses that were documented in the 25 client charts. Of the 14 possible nursing diagnoses on the instrument (Appendix A), seven were identified for the clients in this study. Of the charts audited, 13 additional diagnoses that were not present in the tool were documented. As can be seen in Table 1, the nursing diagnosis of respiratory insufficiency was identified in 20 of the 25 client charts studied. The next most frequently identified nursing diagnoses were anxiety and impaired gas exchange. These were identified in ten of the client charts. It was interesting to note that none of the client charts documented the nursing diagnoses of ineffective airway clearance, sleep pattern disturbance or powerlessness, all of which one would think to be closely related to respiratory insufficiency, anxiety, and impaired gas exchange. Other ATS and NANDA nursing diagnoses not identified by the nurses in this study were alteration in nutrition, less than body requirements; alteration in nutrition, more than body requirements; noncompliance with therapy; and sexual dysfunction.

Altogether, 76 nursing diagnoses were documented in the 25 client charts. It should be noted that all but three clients had multiple nursing diagnoses identified. One client chart documented nine nursing diagnoses, another had five nursing diagnoses, five client charts had four nursing diagnoses, nine client charts documented three nursing diagnoses, while another six client charts documented two nursing diagnoses.

Table 1

Nursing Diagnoses Identified (N=25 client records)

Diagnosis	n	%	Rank
Respiratory insufficiency	20	80.0	1
Anxiety	10	40.0	2
Gas exchange, impaired	10	40.0	2
Alteration in comfort	8	32.0	4
Altered respiratory status	5	20.0	5
Breathing pattern, ineffective	4	16.0	6
Alteration in cardiac output	3	12.0	7
Impaired verbal communication	2	8.0	8
Alterations in family coping	2	8.0	8
Activity intolerance	2	8.0	8
Assertion in family process*	1	4.0	11
Self-care deficit	1	4.0	11
Mobility, impaired	1	4.0	11
Fluid volume, alterations in excess	1	4.0	11
Self concept, disturbance in	1	4.0	11
Ineffective individual coping	1	4.0	11
Altered skin integrity	1	4.0	11
Fear	1	4.0	11
Alterations in urinary elimination	1	4.0	11
Alterations in tissue perfusion	1	4.0	11
Total	76		

*Assertion in family process instead of alteration in family process was documented in chart.

The second research question asked "What defining characteristics are documented for the hospitalized COPD client?" Review of the 25 client charts found that 103 of the 214 defining characteristics were documented a total of 480 times. While the entire listing of the defining characteristics is presented in Appendix D, the defining characteristics that were most frequently documented were shortness of breath, wheezes, cough, and sputum changes. Shortness of breath was noted in all 25 client charts.

Some cues that were not included in the tool but which could support some of the nursing diagnoses were documented in the charts. These cues were: (1) laboured respiration (present in 17 client charts), (2) tightness in chest (present in 6 charts), (3) crying (present in 4 client charts), and (4) nausea (present in 2 charts). These signs and symptoms were refered to as cues in this study as they have not been validated as defining characteristics. It should be noted that most of the nurses used the term shortness of breath, found in 20 client charts, instead of dyspnea, found in five client charts.

To answer the third research question, "What nursing diagnoses are generated from the defining characteristics?", the researcher noted those nursing diagnoses that were not explicitly stated although they were supported by other client documentation (i.e., defining characteristics were present in the documentation). As can be seen in Table 2, defining characteristics documented in the 25 client charts supported an additional 14 nursing diagnoses that had not been explicitly stated in the charts. Data on the incidence of defining characteristics that supported the generation of each of the 14 nursing diagnoses can be found in Appendix F.

Table 2

Nursing Diagnosis Generated From Defining Characteristics (N=25 client charts).

Nursing Diagnosis	n	%
Airway clearance, ineffective	24	96
Breathing pattern, ineffective	24	96
Gas exchange, impaired	20	80
Nutrition, alteration in, more than body requirements	20	80
Sleep pattern disturbance	17	68
Self-care deficit	7	28
Mobility, impaired	3	8
Nutrition, alteration in, less than body requirements	2	8
Powerlessness	2	8
Self concept, disturbance in	2	8
Activity intolerance	1	4
Fluid volume, alterations in excess	1	4
Noncompliance with therapy	1	4
Sexual dysfunction	1	4
Total	125	

The fourth research question was "What defining characteristics are possible, but are not documented for COPD clients?" Appendix E presents those defining characteristics that were listed in the data collection instrument but were not documented in any of the 25 clients' charts. It is interesting to note that, of the 214 defining characteristics noted on the instrument, 111 were not found in the documentation. Several of the defining characteristics were not present in the clients' charts, but should have been present on the basis of the type of care that was needed by some of the clients and the condition the clients were in.

The final research question asked, "What clusters of defining characteristics are documented for the hospitalized COPD client?" Analysis of the 25 client charts revealed the following clusters of defining characteristics that were most frequently documented: shortness of breath, wheezes, cough, and sputum changes which supported the nursing diagnoses of ineffective airway clearance, ineffective breathing pattern, and impaired gas exchange. It was also noted that there were no cluster patterns to support some specific nursing diagnoses. Rather, individual defining characteristics

were unclustered and unrelated. Instead of showing patterns of defining characteristics clustered together to support specific nursing diagnoses, scattered fragments consisting of individual defining characteristics were found. The listing of groups of individual defining characteristics documented for each nursing diagnosis is contained in Appendix F.

Comparison of the Two Studies

Sampling population characteristics. Dapice's sample consisted of all eight male clients where as this study included eight males and 17 female clients. Data between the two studies were analyzed with a t-test. The results of the t-test showed no significant difference between the two study samples ($p<.05$), with the exception of the age of the subjects. As can be seen in Table 3, the samples differed significantly in ages. Ages of clients in Dapice's study ranged from 53 to 65 years with a mean of 61.2 years, while the ages of clients in the researcher's study ranged from 19 to 61 years with a mean of 47.2 years.

Table 3

Comparison of age of subjects

Group	Range	Mean	S.D.
Researcher's study (N=25)	19-61	47.2	13.73
Dapice's Study (N=8)	53-65	61.25	4.30
t=-2.824, df=31, p=0.008			

Table 4 shows that the average number of days spent in the hospital was 7.24 for the researcher's sample and 50.88 for Dapice's sample.

Table 4

Comparison of hospital days of subjects

Group	Range	Mean	S.D.
Researcher's study (N=25)	1-55	7.24	10.23
Dapice's study (N=8)	1-365+	50.88	127.07
t=-1.760, df=31, p=0.088			

The samples differed greatly in this area. Closer examination of the data revealed two data points that were widely divergent; the researcher's sample included a client with 55 hospital days while Dapice's sample included a client with 365+ hospital days. Eliminating these outliers from consideration, as shown in Table 5, yields means of 5.25 hospital days (researcher) and 6

hospital days (Dapice). When the outliers were eliminated, the two study samples experienced a similar length of hospital stay.

Table 5

Comparison of hospital days of subjects eliminating outliers

Group	Range	Mean	S.D.
Researcher's study (N=24)	1-10	5.25	2.44
Dapice's study (N=7)	1-16	6.0	6.50
t=-.472, df=29, p=.640			

There was no significant difference in the number of medical diagnoses documented in the two studies. Table 6 shows the number of medical diagnoses documented between the researcher's study and Dapice's study. The mean in the researcher's study was 5.0, while the mean in Dapice's study was 5.1.

Table 6

Comparison of numbers of medical diagnoses of subjects

Group	Range	Mean	S.D.
Researcher's study (N= 25)	1-17	5.0	3.39
Dapice's study (N=8)	2-10	5.13	3.52
t=-0.090, df=31, p=0.929			

Defining characteristics

Although the frequency occurence of individual defining characteristics varied considerably, the mean numbers of defining characteristics surveyed per client were similar. As can be seen in Table 7, the mean number of defining characteristics was found to be 15.6 (Dapice) and 18.8 (researcher). The group surveyed by the researcher contained one patient with 60 of 214 defining characteristics (28.04%). This client had substantially more defining characteristics than did the rest of the sample. The client with the second highest number of defining characteristics had 34 (15.89%).

Table 7

Comparison of numbers of defining characteristics of subjects

Group	Range	Mean	S.D.
Researcher's study (N=25)	4-60	18.8	10.98
Dapice's study (N=8)	9-29	15.63	6.67
t=0.77, df=31, p=0.448			

Eliminating the client with 60 defining characteristics from the researcher's study and the client with 29 defining characteristics from Dapice's study as

outliers, as seen in Table 8, results in a mean of 17.08 in the researcher's study and a mean of 13.71 in the Dapice study. There was no significant difference between the two studies.

Table 8

Comparison of numbers of defining characteristics of subjects eliminating the outliers

Group	Range	Mean	SD
Researcher's Study (N=25)	4-34	17.08	7.00
Dapice's Study (N=8)	9-19	13.71	4.23
t=1.20 df=29 p=0.24			

Of the 52 defining characteristics identified by Dapice's study, the researcher identified 43, or 82.69%. Table 9 shows the defining characteristics identified by both Dapice and the researcher's study.

Table 9

Defining characteristics identified in Researcher's and Dapice's studies

ABG, Abnormal
Activity, decreased daily
Anxiety
A-P diameter, increased
Arrhythmias
Congestion
Control or influence, verbal report of not having
Cough
Cyanosis
Decreased PO2
Dehydration
Depression
Discomfort
Divorce or separation
Dyspnea
Dyspnea with exertion
Edema
Exercise tolerence, decreased
Fatigue
Fatigue, verbal report of
Hypercapnia
Hypoxemia
Movement, impaired ambulation
Movement, imposed restriction
Muscle tone, decreased
Muscle wasting
Physical activity, limited
Polycythemia
Prolonged expiration
Rales
Range of motion, limited
Rhonchi
Shortness of breath
Shortness of breath with exertion
Skin integrity, Poor
Sputum, change in
Tachycardia
Tachypnea
Temperature, elevated
Toileting, inability to flush or to empty commode
Weakness
Weight, excessive loss
Wheezes
Withdrawal- family interactions

Those characteristics present in Dapice's study but not identified in the researcher's study were:

Bathing, inability to wash body or body parts

Bathing, inability to get to or obtain water

Bowel pattern, change

Depression related to physical deterioration in spite of compliance with regime

Hopelessness, Increased

Mental acuity, Decreased

Movement, Inability to transfer

Muscle wasting

Role change, Incapacity to resume former role

Respiratory change, depth and respiratory change, rate were two defining characteristics related to the diagnosis of ineffective airway clearance that were identified in this study but not in Dapice's study. In the nursing diagnosis of activity intolerance, the defining characteristics that were found in Dapice's study were exertional dyspnea, verbal report of fatigue, and verbal report of weakness; none of these defining characteristics were found in the researcher's study. Appendix F contains each nursing diagnosis and the frequency of occurence of associated defining

characteristics. As is evident in the data, no discernable patterning or clustering of defining characteristics occurred.

In this study it was noted that there were condition-specific signs and symptoms that were noted in the client's chart but were not present in the tool. For example, 17 clients were noted to have laboured respirations and six clients complained of symptoms like tightness in the chest which can be related to breathing problems and the medical diagnosis of COPD; while four client charts documented crying, which can be associated with nursing diagnoses such as powerlessness, anxiety, and activity intolerance. Nausea was documented in two client charts. The defining characteristic nausea can be associated with all the nutritional diagnoses other than those that effect obesity of a client. Additionally, different terminology was sometimes used in the documentation. For example it was noted that nurses used the term shortness of breath rather than dyspnea in 20 of the charts.

Nursing diagnoses

A comparison of the numbers of nursing diagnoses documented in both studies is presented in Table 10. The number of nursing diagnoses in the researcher's study ranged from 1 to 9 (mean=3.41), while the number in Dapice's study ranged from 2 to 4 (mean=3.5). The difference was not significant.

Table 10.

Comparison of numbers of nursing diagnoses of subjects

Group	Range	Mean	S.D.
Researcher's study (N=25)	1-9	3.41	1.76
Dapice's study (N=8)	2-4	3.5	7.56
t=-0.82, df=31, p=0.419			

As can be seen in Table 11, the number of nursing diagnoses generated from the defining characteristics were similar between Dapice's study and the researcher's study. Nursing diagnoses were generated by using all the defining characteristics that were documented in the study and the coding system that was used in the tool (Appendix A). The mean number of nursing diagnoses generated for each client in Dapice's study was 3.87 and 4.84 in the researcher's study; the difference was not significant.

Table 11

Comparison of numbers of nursing diagnoses generated

Group	Range	Mean	S.D.
Researcher's study	1-13	4.84	2.39
Dapice's study	1-6	3.87	1.55
t=1.07, df=31, p=0.295			

The nursing diagnoses most frequently generated in both studies were the following:

Ineffective breathing pattern

Alterations in fluid volume, excess

Alteration in nutrition, less than body requirements

Disturbance in self concept

Sleep pattern disturbance

Impaired mobility

Self-care deficit

Impaired gas exchange

CHAPTER 5

DISCUSSION AND IMPLICATIONS FOR NURSING PRACTICE

Summary of Results

Seventy-six nursing diagnoses and 480 defining characteristics were documented in the 25 client charts surveyed. The clusters of defining characteristics varied from one client to another, with no discernable pattern evident. Similar results were found between Dapice's study and this current study. Similar nursing diagnoses were generated in both samples. As was expected, however, the number of defining characteristics and nursing diagnoses increased as the sample size increased.

Discussion and Implications

This study identified the defining characteristics, clusters of defining characteristics, and nursing diagnoses documented in charts of clients hospitalized with the medical diagnosis of COPD. On the basis of documented defining characteristics, the study also identified the nursing diagnoses which were possible but were not documented in client charts.

It was noted that nurses made nursing diagnoses on the basis of their initial assessment of the client. They did not, however, tend to document specific defining characteristics to support their diagnoses. Nursing diagnoses tended to be documented separately from the defining characteristics, and no obvious relationship between them was identified. Furthermore, documentation of etiological factors, defining characteristics, goals, outcomes and nursing interventions was usually limited to a reference to standardized nursing process forms which had been developed and adopted by hospital staff. Due to this use of standardized forms, less emphasis was placed on narrative and descriptive documentation. Much of the nursing admission, head-to-toe, and daily assessment data were documented by the use of check marks with little description.

The pre-printed standardized nursing process forms included a listing of the defining characteristics pertinent to each nursing diagnosis; however, the nurses did not indicate which specific defining characteristics were pertinent to their particular clients. Individualizing these preprinted standardized nursing process forms to each client would help the nurses in

gathering data required to make appropriate nursing diagnoses. Further questions and observations of client's condition, reports from laboratory work and xrays etc. are usually required to clarify or verify client's reports.

A diagnostic strategy is required to investigate health problems. Health problems vary between individuals and if cues signify that the client has a problem, decisions have to be made about what information is needed for making the appropriate nursing diagnosis (Carnevali, Mitchell, Woods and Tanner, 1984).

Most of the nursing diagnoses were made by the nurses in the emergency room; however this documentation only noted the statements of the nursing diagnoses and lacked notation of the defining characteristics that supported those nursing diagnoses. Documentation of defining characteristics was noted, however, in the daily nurses' notes made by the nurses on the clients' units. This discrepancy between documentation of defining characteristics and nursing diagnoses is evident when one looks at the number of possible nursing diagnoses generated from the documented defining characteristics. To make a diagnosis in a short period of time, there is generally insufficient time to collect enough cues to

confidently make an accurate diagnosis. If the hypothesis is made early, nurses should verify this later by examining the defining characteristics to see if they fit the diagnosis made (Gordon, 1982).

In order to reduce risk to the client, experts need to accumulate less dependable data and to be able to tolerate greater uncertainty in the diagnosis (Carnevali et. al., 1984). This is the position the emergency nurses need to take because of the limited time they have to stabilize the client. The earliest hypotheses made tend to be general in nature; however, if problem labels of diagnostic classifications are not made, they cannot be tested. The end result of the client's progress depends on the efficiency and effectiveness of the remainder of the assessment, which then determines the most appropriate interventions. The nurses on the floor need to follow-up with the evaluation process by deriving as precise a diagnostic classification as possible from the available data. The data collected and the diagnosis made become the foundation on which prognosis, goals, treatment plans and treatment activities are based (Carnevali et. al., 1984).

In this study, the analysis of 25 charts revealed a high incidence of defining characteristics (Appendix D)

such as shortness of breath (25 clients), wheezes (21 clients), cough (21 clients), sputum changes (21 clients), shortness of breath on exertion (20 clients), tachypnea (18 clients), ABG's abnormal (16 client), anxiety (16 clients) and repiratory change (15 clients) documented in the charts. These are defining characteristics that support diagnoses such as ineffective breathing pattern, ineffective airway clearance and impaired gas exchange. Dapice's study revealed the presence of defining characteristics like sputum change (8 clients), ABG's abnormal (7 clients), shortness of breath (7 clients), wheezes (6 clients), decreased PO2 and hypoxemia (5 clients) supporting these respiratory diagnoses. A comparison of the findings shows that an increase in sample size allows identification of more defining characteristics to support the respiratory diagnostic labels.

Similar to the study conducted by Suhayda and Kim (1982), this study noted that nurses did not identify meaningful clusters of defining characteristics that led to specific nursing diagnoses. Rather, individual defining characteristics were unclustered and unrelated. This lack of meaningful clustering leads to greater

complexity and ambiguity in the nursing diagnostic task. Tremendous overlap among defining characteristics was identified; a single defining characteristic supported multiple diagnoses. As a result of such overlap, there is an increase in cognitive strain on nurses as they attempt to make a nursing diagnosis based on complex and ambiguous data (Carnevali et al., 1984).

Impreciseness and inconsistency in the terminology and language that nurses used to document defining characteristics were noted in this study; Suhayda and Kim (1982) reported similar findings. For example, in this study, most nurses used the term shortness of breath, (found in 20 client charts) instead of dyspnea (found in 5 client charts). Impreciseness (not sharply or exactly defined defining characterisitics) and inconsistency (irregularity, variations, contradictions, and lack of conformity of defining characteristics) relates to the developmental nature of the current language of nursing. An unstandardized language of nursing makes it very difficult to communicate within the profession and leads to cognitive strain for the nurse as suggested by Carnevali and her associates (1984).

One major problem with the current list of defining characteristics is the lack of critical defining

characteristics and symptoms for each diagnostic label. The lengthy list of defining characteristics for acceptable diagnoses without the identification of specific critical signs and symptoms for the accepted diagnoses makes nursing diagnosis a difficult task for the nurse. Specificity as to what cues have to be present to make a diagnosis is necessary to eliminate this problem (Gordon, 1982).

Not being able to recognize probabilistic relationships between cues and client states may lead to errors in diagnoses. When the researcher in this study read the client charts, it was evident that more nursing diagnoses were warranted than were actually stated in the documentation. For example two clients required mechanical ventilation and needed complete and total nursing care. These clients could have had most of the nursing diagnoses present in the instrument applied to their health status. However, one client had the following nursing diagnoses documented: (1) respiratory insufficiency, (2) altered family coping, (3) alteration in urinary elimination related to low perfusion state and (4) alteration in comfort related to chorea, restless leg syndrome and diseased heart/lung documented in the chart.

The other client, on the other hand, had the following nursing diagnoses documented: (1) respiratory insufficiency related to shortness of breath and anxiety, (2) anxiety related to acute episode and hospitalization and (3) alteration in comfort related to intubation, sore throat and respiratory distress documented in the chart.

Gordon (1982) states that it may still be appropriate to obtain information to test several diagnostic possibilities at once, after the most likely diagnoses have been identified. This is because some diagnoses share the same defining characteristics. Discrimination among the diagnoses is possible because the value of the shared characteristic differs in quality and quantity between the diagnoses. Gordon also points out that good diagnostic judgements are made on the most valid and reliable cues. The less the uncertainty, the higher the confidence the nurse will have in his/her judgement. The care plan for the client, of course, is more effective when better diagnostic judgements are made. Gordon recommends that nurses should not concentrate on collecting more data; rather, they should seek more valid and reliable predictors. Confidence levels can be increased by collecting supporting cues or redundant cues

that provide a support for a diagnostic judgement, especially when information is uncertain. This problem was noted in this study when defining characteristics were documented separately from the nursing diagnoses. There was no link made between the two.

Diagnosis is confirmed by gathering data and informally revising the probability of the hypothesis with each datum. Each positive cue increases the probability of the hypothesized diagnosis. Diagnostic accuracy is increased by recognition of the probabilistic relationship between the cues and the diagnoses (Carnevali et. al., 1984). Accurate data collection in nursing is complicated, as presently nursing is varied in its perspective, the data it needs to make judgements and decisions, categories of problem classification, strategies for treatment and in variables used to evaluate patient response (Carnevali et al., 1984).

Continuing research to validate nursing process will help to make nurses better diagnosticians and bring nursing closer to a common language. Both outcomes are needed for nurses to communicate both within the profession as well as with allied professionals. This communication will be possible when a lexicon of nursing

language is developed, defining characteristics and nursing diagnostic labels are official, formal definitions are published in a taxonomy manual, and all are used by diagnosticians. All members are expected to use these labels only when critical defining characteristics are present for clarity and communication (Gordon, 1982, p. 139). However, in this study, the absence of critical defining characteristics and lack of documentation of critical defining characteristics were noted. For example, in this study, the nursing diagnosis of noncompliance with therapy was supported by the defining characteristics of failure to progress and exacerbation of symptoms. These defining characteristics could have been caused by other factors not related to this diagnosis. Furthermore, the nursing diagnosis alteration in nutrition more than body requirements was supported by the unrelated defining characteristics of shortness of breath and shortness of breath on exertion, as well as other related defining characteristics.

According to Gordon (1984), currently the identified nursing diagnoses describe clusters of related signs and symptoms. A cluster of related diagnoses would be a problem cluster. As of this time very little work has

been done on problem clusters. Lack of standardization of diagnostic categories used in nursing diagnoses contributes to clustering errors. Gordon (1982) suggested that this problem can be reduced by using identified signs and symptoms and category definition. This decreases the potential for error, but does not eliminate the problem until precise diagnostic definitions are standardized. As previously noted, in this study, nurses used varied terms for defining characteristics and nursing diagnoses. Moreover, most of the diagnoses made referred the reader to a standardized form for indication of supporting defining characteristics. However, these standardized forms were not individualized to the client.

Validation studies have not been conducted in sufficient numbers to allow us to determine precisely which defining characteristics are critical for which nursing diagnoses. Because of this lack of critical defining characteristics and clusters of defining characteristics, multiple diagnoses are generated rather than the most accurate diagnosis. Moreover, the kind of data typically available in the nursing domain are often unreliable. Unlike other fields of study wherein professionals make decisions based upon specific

scientific studies, nurses rely almost entirely on their perceptual process, thus making the nurse's task cognitively complex (Carnevali et. al., 1984). The task of making a diagnosis is also very complex.

An individual diagnostician may vary widely in skill and efficiency and the result of the task depends on memory, and the physical, mental and emotional status of the diagnostician at the time of the diagnostic task (Carnevali et. al., 1984).

With the broadening of the scope of nursing practice and increase in the use of nursing diagnoses in the field, continuing research is needed to validate nursing diagnoses and defining characteristics. There is a need to arrive at new diagnoses and to collect data to support these findings.

Self-care Theory Framework. The conceptual framework for this study was based on the nursing theory of "self-care" developed by Dorothea E. Orem (1971). Nurses promote self-care in the client by using their abilities to prescribe, promote, design, and provide care. Orem directs nursing towards helping the client adjust toward his/her daily living. A client's health and health status has an effect on his/her environment. Orem's

nursing process of (1) diagnosing and prescribing (2) designing and planning, and (3) producing and managing systems of nursing assistance provides the framework for effective health care for clients. This model directs nurses to collect data based on self-care demands and self-care capabilities of their clients.

Assessment using Orem's framework focuses on making nursing diagnoses of self-care agency deficits, actual or potential. According to Gordon (1982), Orem's framework views the client as a self-care agent. The goal of the nursing care is for the client to achieve independence in self-care actions. The cause of self-care deficits in COPD clients may be from the disease process, therapy used, or lack of knowledge, skills, resources, interest or motivation. A dysfuctional pattern can be used as a self-care deficit.

The long term impact COPD has on a client makes it necessary for these clients to have a responsibility to direct and control their own health. The nurse acts as an agent to direct this care to the client. The nurse provides care for those who are unable to provide their own self-care. This study identified only seven clients with actual diagnosis of self-care deficit; however,

self-care is dependent on the total client's health. All nursing diagnoses which affect physical health, such as ineffective airway clearance, ineffective breathing pattern, etc., have an impact on the client's activities of daily living, thus making the client dependent on another for self-care. These respiratory nursing diagnoses have an impact on the client's self-care.

Most of the nursing diagnoses identified both in this study and that of Dapice were based on the physiological defining characteristics and very few were based on the psychological defining characteristics. Thus there were few self-care nursing diagnoses identified in either study.

Based on the self-care theory, in order to provide nursing care during a client's short hospital stay, it is necessary for nurses to be highly skilled and organized in their care. According to Orem, any deficit in the client's ability to perform activities of daily living demands the assistance of the nurse. By assisting nurses to organize their thinking and clinical problem-solving, the nursing process provides nurses with the tools necessary to help clients achieve their goals. Documentation of the nursing process is important for

communication and continuity of care among nurses, who plan and provide care for their clients.

Other practical implications. Documentation of the nursing process is important for communication and continuity of care among nurses who plan and provide care for patients. Documentation of nursing diagnoses and defining characteristics could be improved if an assessment tool, based on the alterations of the research instrument, were used at the bedside. The tool could help nurses in the daily assessments of their clients. At the time of the study the rationale for using standardized forms for nursing diagnoses at the study hospital was to make documentation easier and more accurate. This could be achieved if the standardized plans were individualized to the client. An increased sample size and use of the instrument in a clinical validation study at the client's bedside could yield more accurate data to support nursing diagnoses and defining characteristics in COPD clients. This type of study could also be applied to clients with other medical diagnoses.

Limitations of the Study

There were a number of limitations to this study. The sample size was small, limiting the generalizability of the results. The results can, however, be used to suggest further research, which will be discussed at a later point.

A second limitation was that this study was based on written documentation. The study would have been strengthened if concurrent actual client assessments could have been conducted, along with an audit of the documentation. More information could have been gathered at the bedside if this study were conducted in a clinical setting.

A problem that Dapice had with the instrument was that some defining characteristics led to multiple diagnoses. This occurred because of the lack of critical defining characteristics, that is, characteristics which were specific to only one diagnosis (Dapice, 1985). The same problem occurred in this study. The defining characteristics leading to specific diagnoses need to be researched and validated so that critical defining characteristics and clusters of defining characteristics

can be identified, thereby leading to greater diagnostic accuracy.

In addition to the finding that some defining characteristics overlapped several of the nursing diagnoses, some of the diagnoses were supported by defining characteristics that did not directly relate to that nursing diagnosis. These nursing diagnoses were not identified by nurses caring for the client, but were supported using instructions and definitions for existence of nursing diagnoses as presented by Dapice for use of her tool. For example, in the nursing diagnoses generated from the data collected using the tool designed by Dapice, two of the nursing diagnoses lacked appropriate, specific critical defining characteristics. Specifically, the diagnosis alteration in nutrition, more than body requirements was supported by the two defining characteristics of shortness of breath and shortness of breath on exertion, while the diagnosis noncompliance with therapy was supported by the defining characteristics of exacerbation of symptoms and failure to progress. Defining characteristics like shortness of breath and shortness of breath on exertion directly support nursing diagnoses such as ineffective airway clearance and

ineffective breathing pattern, whereas they indirectly result from obesity. Thus, Dapice's instrument was designed with cues that did not directly support some of the diagnoses.

Cues like tightness in chest, crying and nausea were documented in the client charts that could support some of the nursing diagnoses in this study. However, because these cues have not been validated as defining characteristics in COPD clients and were not included in the tool, they could not be considered as defining characteristics in this study. Since the reason for conducting a descriptive study is to find out what currrently exists, perhaps these defining characteristics should be suggested for inclusion to support nursing diagnoses such as ineffective breathing pattern, ineffective airway clearance (supported by the defining characteristic: tightness in chest), powerlessness (supported by the defining characteristic: crying) and alterations in nutrition-less than body requirements (supported by the defining characteristic: nausea) This emphasizes the need for development and validation studies in nursing diagnoses.

Recommendations for Future Study

A more detailed bedside study is suggested. If this study had been conducted in a clinical setting with a larger sample size, at the bedside, with actual observation of clients, there would have been better validation of the defining characteristics and nursing diagnoses. The instrument could be used at the bedside to collect data from admission to discharge of the client.

This type of study could be expanded to attempt validation of nursing diagnoses related to other health problems by using the same method of study. Identification of critical defining characteristics and modification of the tool would be helpful to better support the defining characteristics and nursing diagnoses. At present data are scattered. Cluster analysis to identify essential defining characteristics and to rule out non-essential defining characteristics would strengthen data analysis.

Additionally the tool needs to be updated to remain consistent with the progress NANDA has made in nursing diagnosis research and development. All of the validated defining characteristics and nursing diagnoses should be added to the tool.

Further research is needed to identify critical defining characteristics and clusters of defining characteristics for specific diagnoses. There should be standardization of terminology and critical defining characteristics present in order to validate the nursing diagnoses made.

Conclusion

A replication and expansion of Dapice's nursing diagnosis validation study (1985) was conducted on 25 client charts. The results of the t-test showed no significant difference in the number of nursing diagnoses and defining characteristics identified in the two studies ($p<.05$). Seventy-six nursing diagnoses and 480 defining characteristics were documented in the 25 client charts audited for this study; 103 of the defining characteristics supported 14 nursing diagnoses. Replication of this study in a clinical setting will be helpful in providing accurate and supporting data to validate the defining characteristics and nursing diagnoses in COPD clients.

LIST OF REFERENCES

LIST Of REFERENCES

Abraham, M., Atkinson, M. L., Boyce, B., Briggs, A. M. & Kim, M. J. (1981). Standards of nursing care of patients with COPD. American Thoracic Society News. Summer, 31-38.

Carnevali, D. L., Mitchell, P. H., Woods, N. F., & Tanner, C. A. (1984). Diagnostic reasoning in nursing. Philadelphia, PA: J. B. Lippincott Co.

Castles, M. R. (1978). Interrater Agreement in the Use of Nursing Diagnosis. In M. J. Kim & D. A. Moritz (Eds.), Classification of nursing diagnoses: Proceedings of the third and fourth national conference (pp. 153-158). New York: McGraw-Hill, 1982.

Cattalino C. J & Lackey N. R. (1986). Impaired skin integrity. In A. M. McLane (Ed.), Classification of nursing diagnoses: Proceedings of the seventh conference (pp. 129-135). St. Louis, Mo: C. V. Mosby., 1987.

Coviak, C. P. (1985). Alteration in growth and development: A nursing diagnosis validation study. An unpublished Master's Thesis. Grand Valley State Colleges, Allendale, Michigan. (Used with permission)

Coviak, C. P. (1985). Alteration in growth and development: a nursing diagnosis validation study. In A. M. McLane (Ed.), Classification of nursing diagnoses: Proceedings of the seventh conference (pp. 212-216). St. Louis, Mo: C. V. Mosby Co., 1987.

Dalton, J. M. (1979, September). Nursing diagnosis in a community health setting. The nursing clinics of North America: Implementation of nursing diagnosis, 14 (3), 525-531.

Dapice, L. A. (1985). Nursing diagnosis in the hospitalized chronic obstructive pulmonary disease patient: A pilot study. An unpublished master's thesis. Boston University School Of Nursing, Boston, Massachusetts (used with permission).

De Vito, A. J. (March-April, 1985). Rehabilitation of patients with chronic obstructive pulmonary disease. Rehabilitation Nursing. 12-15.

Fehring, R. J. (1984). Validating diagnostic labels: standardized methodology. In M. E. Hurley (Ed.), Classification of nursing diagnosis: Proceedings of the sixth conference (pp. 183-190). St.Louis, MO: C. V. Mosby Co., 1986.

Fortin, Jacqueline D.F. (1979, September). The law's view of the definition of nursing diagnosis. The nursing clinics of North America: Implementation of nursing diagnosis, 14(3), 554-561.

Frenn, M. D., Jacobs, C. A., Lee, H. A., Sanger, M. T. & Strong, K. A. (1986). Delphi survey to gain consensus on wellness and health promotion diagnoses. In A. M. McLane (Ed.), Classification of nursing diagnoses: Proceedings of the seventh conference (pp. 154-167). St. Louis, Mo: C. V. Mosby Co., 1987.

Gordon, M. (1982). Nursing diagnosis: process and application. N.Y: McGraw Hill.

Hurley, M. E. (1986). Approved nursing diagnoses accepted for clinical testing. Classification of nursing diagnoses: Proceedings of the sixth conference (pp. 513-546). St. Louis, Mo: C.V. Mosby Co. 1986.

Halfman, T. M. & Pigg, J. S. (1982). Nurses' perception of rheumatic disease patient problems as evidenced in nursing diagnoses, etiologies, defining characteristics, expected outcomes, and interventions. In M. J. Kim, G. K. McFarland & A. M. McLane (Eds.), Classification of nursing diagnoses: proceedings of the fifth national conference (pp. 216-217). St. Louis, Mo: C. V. Mosby Co. 1984.

Hubalik, K. & Kim, M.J. (1982). Nursing diagnoses associated with heart failure in critical care nursing. In M.J. Kim, G.K. McFarland, A.M. McLane, (Eds.), Classification of nursing diagnoses: proceedings of the fifth national conference (pp 139-149). St. Louis, Mo: The C.V. Mosby Co., 1984.

Interview with Bailey Francis, Thomas L. Petty, & Richard H. Winterbauer: Helping the COPD patient help himself. (1984, June) Patient Care, 18.(11), 177-183.

Johnson, S. E. (1988). Alteration in temperature regulation: Hypothermia. In R. M. Carroll-Johnson (Ed.), Classification of nursing diagnoses: Proceedings of the eighth conference (pp. 378-380). Philadelphia, PA: J. B. Lippincott Co. 1989.

Kim, M. J. , Amoroso, R., Gulanick, M., Moyer, K., Parsons, E., Scherubel, J., Stafford, Suhayda R. & Yocum. (1980). Clinical use of nursing diagnosis in cardiovascular nursing. In M. J. Kim & D. A. Moritz (Eds.), Classification of nursing diagnoses: Proceedings of the third and fourth national conferences (pp. 184-190). St. Louis, MO: McGraw-Hill Book Co. 1982.

Kim, M.J., Amoroso-Seritella, R., Gulanick, M., Moyer, K., Parsons, E., Scherbel, J., Stafford, M. J., Suhayda, R. & Yocom, C. (1984). Clinical validation of cardiovascular nursing diagnoses. In M. J. Kim, G. K. McFarland, A. M. Mclane , (Eds.), Classification of nursing diagnoses: Proceedings of the fifth national conference (pp. 128-137), St. Louis, MO: C. V. Mosby Co., 1986.

Kim, M. J., McFarland, G. K. & McLane, A. M. (Eds.) (1984). Pocket guide to nursing diagnoses. St. Louis, Mo: C. V. Mosby Co.

Lackey, N. R. (1984). Use of Q methodology in validating defining characteristics of specified nursing diagnoses. In M. E. Hurley (Ed.), Classification of nursing diagnoses: Proceedings of the sixth conference (pp. 191-196). St. Louis, MO: C. V. Mosby Co., 1986.

MacLean, S. L. (1988). Activity intolerance: Cues for dignosis. In R. M. Carroll-Johnson (Ed.), Classification of nursing Diagnoses: Proceedings of the eighth conference (pp. 320-327). Philadelphia, PA: J. B. Lippincott Co., 1989.

Miaskowski, C. A. & Garofallou, G. (1984). A study of nursing diagnoses in an oncologic patient population. In M. E. Hurley (Ed.). Classification of nursing diagnoses: Proceedings of the sixth onference. (pp. 465-468). St Louis, Mo: C. V. Mosby Co. 1986.

Miller M.B., Conrad W.F. (Sept. 1975). Pharmacist involvement in an education program for patients with chronic obstructive pulmonary disease. American Journal of Hospital Pharmacology, 32, 909-911.

National Center for Health Statistics: (1987). Current estimates from the national health interview survey. (DHHS Publication No. (PHS) 88-1594). Hyattsville, MD: U.S. Government Printing Office.

Orem, D. O., (1971). Nursing concepts of practice (p. 13) (1st ed.). New York: McGraw Hill Book Co.

Ruthven, W. B. (1988). Diagnosing self-harm in the elderly: a descriptive study. In A. M. McLane (Ed.) Classification of nursing diagnoses: Proceedings of the seventh conference (pp. 253-258). St. Louis, MO: C. V. Mosby Co., 1989.

Silver, S. M., Halfmann, T. M., McShane, R. E., Hunt, C. A. & Nowak, C. A. (1982). The identification of clinically recorded nursing diagnoses and indicators. In M. J. Kim, G. K. McFarland, & A. M. McLane (Eds.) Classification of nursing diagnoses: Proceedings of the fifth national conference (pp. 162-165). St. Louis, MO: C. V. Mosby Co. 1984.

Suhayda, R. & Kim, M.J. (1982). Documentation of nursing process in critical care. In M.J. Kim. G. K. McFairland & A. M. McLane (Eds.), Classification of nursing diagnoses: Proceedings of the fifth national conference. (pp. 166-173). St. Louis, Mo: C. V. Mosby Co., 1984.

Weber, S., (1979, September). Nursing diagnosis in private practice. In M. Gordon (Ed.), The Nursing clinics of North America: Implementation of nursing diagnosis, 14 (3), 533-539.

York, K. A. & Martin, P. A. (1984). Clinical Validation of Respiratory Nursing Diagnosis: A Model. In M. E. Hurley (Ed.), Classification of nursing diagnoses: Proceedings of the sixth conference (pp. 497-509). St. Louis, MO: C. V. Mosby Co., 1986.

General References

American Lung Association: (1977). Chronic obstructive lung disease. New York, NY: Author.

American Nurses Association: (1980). A social policy statement. Kansas City, MO: Author.

Campbell, C. (1979). Nursing diagnosis and intervention in nursing practice. New York: John Wiley & Sons.

Chinn, P. L. (1983). Advances in nursing theory development. Rockville, MD: Aspen.

Fawcett, J. (1984). Analysis and evaluation of conceptual models of nursing. New York, N.Y: F. A. Davis Co.

Gordon, M. (1982). Manual of nursing diagnosis. N.Y: McGraw Hill.

Polit, D., & Hungler B. (1983). Nursing research: principles and methods. (2nd ed.). Philadelphia, PA: J. B. Lippincott.

Kim, H.S. (1983). The nature of theoretical thinking in nursing: The domain of nursing action. Norwalk, CT: Appleton Century-Crofts.

APPENDICES

Appendix B

Letter to Hospital Adminstrator for approval to conduct study.

2604 Golfridge S.E.
Grand Rapids, Mi-49506.
Phone: (616) 956-9504

To,
Ms Jean Doe R.N.
Nursing Adminstrator
Midwest Metropolitan Area Hospital
Grand Rapids, Mi. 49503

Dear Ms Doe,

I am a student in the graduate program at Grand Valley State Colleges. As a partial requirement for my Masters in Nursing, I am required to complete a research project and thesis. For this research I have chosen the topic of clinical validation of nursing diagnoses.

I have chosen to conduct my research in the acute care area. I will be using a checklist and compare it with the nurses notes to determine defining characteristics and nursing diagnoses for the COPD patient. This is a retrospective study and will consist of chart review of clients who have been discharged. It will not have any effect in the care of the patients, nor will there be any time taken away from your nurses.

Confidentiality will be maintained in regards to the patients, nurses, you, and your hospital. This study has been approved by The Human Subjects Research Review Committees of Grand Valley State College. Consent form signed by those clients on admission only will be included in the study. Your participation in the study is greatly appreciated. The information gathered through this research is of value to those nurses developing nursing diagnosis and to nursing at large.

Sincerely,

Pearl Kloac, R.N.
M.S.N -Student
Grand Valley State Colleges.

Appendix C

Letter to Content Validity Experts.

2604 Golfridge S.E.
Grand Rapids, Mi-49506.
Phone: (616) 956-9504

Dear Ms. Jean Doe R.N.
I am a graduate student from Grand Valley State Colleges. As part of my requirement for my degree I am required to complete a research project and thesis.

From your background in the topic of nursing diagnosis and Chronic Obstructive Pulmonary Disease, I am writing to you to review the enclosed instrument for its content. I wish to use this instrument compiled by Lynne Dapice. She used it for collecting nursing diagnoses and defining characteristics data in COPD clients.

I would appreciate your comments as to how I could improve it. Your thoughts and concerns will be of great importance to the validation of the instrument and the study. Your participation in this study is greatly appreciated.

Sincerely,

Mrs Pearl KLoac, R.N.
MSN student,
Grand Valley State Colleges,
Allendale, Mi.

Appendix D

Defining Characteristics identified in COPD Clients (N=25).

Defining Characteristics	n	%
Shortness of breath	25	100
Adventitious sounds: Wheezes	21	84
Cough	21	84
Sputum, change in color, odor, consistency, amount	21	84
Shortness of breath with exertion	20	80
Tachypnea (respiratory rate >22)	18	72
ABG's, Abnormal (PO2 <70; PCo2 >48)	16	64
Anxiety, expression of	16	64
Tachycardia (Heart Rate >100)	16	64
Respiration change, Depth	15	60
Adventitious sounds: Rhonchi	14	56
Electrolyte, altered	14	56
Hypoxemia (PAO2<70)	14	56
Respiration change, Rate	14	56
ABG's Decreased PO2 (PO2 <70)	13	52
Adventitious sounds: Rales	12	48
Orthopnia	10	40
Restlessness and anxiety	10	40
Restlessness	9	36
Hypercapnia (PCO2>48)	8	32
Movement, Imposed restrictions on, 0-4	8	32
Pulmonary congestion on X-Ray	7	28
Congestion, tracheobronchal	6	24
Fatigue	6	24
Dyspnea,	5	20
Edema	5	20
Expiration, prolonged	5	20
Hemaglobin, decreased	5	20
Hematocrit, decreased	5	20
Insomnia	5	20
Temperature, elevated (= or >100 F.)	5	20
Abdominal pain with or without pathological conditions	4	16
Cyanosis	4	16
Respiration change, Pattern	4	16
Accessary Muscles, use of	3	12

Control or influence, verbal expressions of not having a/an specific outcome	3	12
Dependency	3	12
Pursed Lip Breathing	3	12
Abdominal cramping	2	8
Activity, decreased level of daily living	2	8
Activity, sedentary	2	8
Arrhythmias	2	8
Central venous pressure change	2	8
Confusion	2	8
Discomfort, exertional	2	8
Dyspnea, on exertion	2	8
EKG, ischemic changes with exercise	2	8
Exercise tolerance, decreased	2	8
Intake greater than output	2	8
Lethargy	2	8
Movement, Inability to purposefully move within the physical environment, 0-4	2	8
Passivity, increased	2	8
Physical Activity, limited	2	8
Polycythemia (Hematocrit >52)	2	8
Pulmonary Artery pressure change	2	8
Sleep, Interrupted	2	8
Sleep, Verbal complaints of difficulty in getting to	2	8
Sleep, Verbal complaints of not feeling well rested	2	8
Weight, Excessive gain 10% greater than ideal	2	8
Weight loss with adequate intake	2	8
Abdominal girth increased	1	4
Activity, Sedentary	1	4
Aversion to eating	1	4
Behavior indicative of failure to adhere, by direct observation of statements by patient or significant others	1	4
Behavior and performance, changes	1	4
Blood Pressure Changes, with exercise	1	4
Blood pressure changes, abnormal	1	4
Bowel sounds, hyperactive	1	4
Buccal cavity, sore, inflammed	1	4
Control or influence, verbal expressions of not having a/an specific situation	1	4
Control or influence, verbal expressions of not having a/an self-care	1	4

Dehydration	1	4
Depression, expression of	1	4
Divorce or Breakup of relationships	1	4
Dyspnea, Paroxysmal nocturnal	1	4
Fatigue, Verbal report of	1	4
Fremitus	1	4
Heart Rate, abnormal change with exercise	1	4
Inspiration, changes in depth	1	4
Irritability	1	4
Jugular Venous Distention	1	4
Mental status changed	1	4
Misinformation, lack of information	1	4
Movement, Inability to Ambulate, 0-4	1	4
Movement, Reluctance to attempt	1	4
Nasal Flaring	1	4
Progress failure to	1	4
Range of Motions, limited	1	4
Rested, not feeling well	1	4
Role, Expression of doubt regarding role performance	1	4
Secretions, inability to move	1	4
Self destructive behavior	1	4
Self Worth, verbal and non verbal expressions of decreased	1	4
Sex, Social interaction with actual or potential sexual partners decreased	1	4
Sex, Verbalization of problem	1	4
Skin Integrity, poor	1	4
Sleep, Awakening earlier or later than desired	1	4
Symptoms, Exacerbation of	1	4
Toileting, Unable to flush toilet or empty commode 0-4	1	4
Weakness	1	4
Weakness, Verbal report of	1	4
Weight, Excessive gain	1	4
Withdrawl Family interactions	1	4
Total	480	

Range: 1 - 25, Median: 18.5, Mean: 19.20 per client
(Mean: 2.24 incidents per characteristic).

Appendix E

Defining Characteristics not found in charts:

Altered taste sensation
Anasarcia
Anterior-posterior diameter increased
Apathy
Appearance, deceased interest in
Appointment, failure to keep
Arrhythmias with exercise
Azoturia
Bathing- inabillity to wash body
Bathing- inability to get water
Bathing- inability to regulate temperature flow
Bodyfold, increased
Body Image-response to change in
Bowel pattern, changed
Capilary fragility
Chest excursion, altered
Complications unnecessary
Conjunctiva and mucous membrane pale
Coordination, impaired
Decision making, difficulty in
Depression related to physical deterioration
Disorientation
Dissatisfaction & frustration over ability to perform
Dress, carelessness in
Dress, inability to put on or take off, 0-4
Dress, inability to replace or obtain clothing
Dress, impaired to fasten, 0-4
Eating pattern disfunctional-concentrated at days end
Eating pattern disfunctional-pairing
Eating pattern disfunctional-response to external cues
Eating pattern dysfunctional-response to internal cues
Effusion, pleural
Eye contact
Eyelid ptosis
Eyes, dark circles under
Face expressionless
Feeding inability-food to mouth
Follow through, lack of
Goals, inability to eat
Hand tremmor, slight

Headache, morning
Heart sound, gallop-s3
Hepato-jugular reflex, positive
Hopelessness, increased feeling of
Hygiene, poor
Hypoxia
Impotence, report of
Inability to seek information regarding care
Ingestion of food, perceived inability
Intake, inadequate less than minimum RDA
Lack of food, reported or evidence of
Listlessness
Loss of hair
Mental acuity, decreased
Misconception
Movement, Inability to have bed mobility
Movement, Inability to transfer, 0-4
Muscle control, decreased
Muscle strength, deceased
Muscle tone poor
Muscle wasting
Muscle weakness- swallowing
Nonparticipation-care decision making
Nytagmus
Objective tests indication noncompliance
Oliguria
Posture change
Reluctance to express true feeling
Role, change in capacity to resume
Role, change in others perception of
Role, change in self perception
Role, change in usual patterns/responsibility
Role, conflict in
Role, denial of
Role, lack of knowledge
Satiety after food ingestion
Self-care, does not defend self-care practices
Self-care, disinterest, development plans for self-care
Self-care, failure to follow-directions for self-care
Self-care, failure to meet objectives for self-care
Self-care, failure to participate in self-care
Self-worth, expressions of, decreased
Sex, Alterations in achieving perceived sex role
Sex, Alterations in relationship
Sex, Avoidance of discussion of

Sex, change of interest in self or other
Sex, conflicts involving in, decreased
Sex, desire or interest in, decreased
Sex, participation in, decreased
Sex, seeking confirmation or desirability
Sex, behaviors/verbalizations inappropriate
Skin, shining and taut
Social isolation
Somnolence
Specific gravity change
Speech thick/mispronounce/incorrect
Taste sensation altered
Therapy, non participation in
Three points position
Toilet, unable to carry out proper toilet hygiene
Toilet, unable to get to toilet or commode
Toilet, unable to manipulate clothing/toleting
Toilet, unable to sit or rise from toilet/commode
Triceps skin fold greater than 25mm
Uncertainity, expression- fluctuating energy
Weight loss, excessive
Weight loss, less than 20% of ideal
Weight loss, 20% greater than ideal
Withdrawal, responsibility
Withdrawal, social situations
Yawning, frequent

Appendix F

Frequency of Defining Characteristics Associated with the Nursing Diagnosis:

1. Airway Clearance, Ineffective (n=24).

Defining characteristics	n	%
Adventitious sounds: wheezes	21	14.4
Cough	21	14.4
Sputum, change	21	14.4
Respiratory change, depth	15	10.3
Adventitious sounds: rhonchi	14	9.6
Hypoxemia (PA02<70)	14	9.6
Respiratory change, rate	14	9.6
Congestion, tracheobronchial	6	4.1
Fatigue	6	4.1
Dyspnea	5	3.4
Temperature elevated (= or >100 F)	5	3.4
Cyanosis	4	2.7
Total	146	100.0

2. Breathing Pattern, Ineffective (n=24).

Defining characteristics	n	%
Shortness of breath	24	16.8
Cough	21	14.7
Tachypnea (respiratory rate>22)	18	12.6
ABG, abnormal (PO2<70;PCO2>48)	16	11.2
Respiration change, depth	15	10.5
Hypoxemia (PAO2<70)	14	9.8
Adventitious sounds: rales	12	8.4
Dyspnea	5	3.5
Expiration, prolonged	5	3.5
Cyanosis	4	2.8
Accessory muscles, use of	3	2.1
Pursed lip breathing	3	2.1
Fremitus	1	.7
Inspiration, changes in depth	1	.7
Nasal flaring	1	.7
Total	143	100.0

3. Gas Exchange, Impaired (n=20).

Defining characteristics	n	%
Tachypnea (respiratory rate>22)	17	19.5
Tachycardia (heart rate>100)	16	18.6
ABG's, decreased PO2 (PO2<70)	13	15.1
Restlessness	9	10.5
Hypercapnia	8	9.3
Dyspnea	5	5.8
Fatigue	5	5.8
Cyanosis	4	4.7
Arrythmias	2	2.3
Confusion	2	2.3
Polycythemia (Hematocrit>52)	2	2.3
Irrritability	1	1.2
Secretions, inability to move	1	1.2
Weakness	1	1.2
Total	86	100.0

4. Nutrition, Alteration in, more than Body Requirements (n=20).

Defining characteristics	n	%
Shortness of breath	20	41.7
Shortness of breath with exertion	20	41.7
Abdominal girth increased	1	2.1
Weight, excessive gain	1	2.1
Activity, sedentary	2	4.2
Exercise tolerance, decreased	2	4.2
Weight, gain 10% greater than ideal	2	4.2
Total	48	100.0

5. Sleep Pattern Disturbance (n=17).

Defining characteristics	n	%
ABG's, decreased PO2 (PO2<70)	12	22.6
Orthopnia	9	17.0
Restlessness	8	15.1
Insomnia	5	9.4
Fatigue	5	9.4
Activity, decreased level of daily living	2	3.8
Lethargy	2	3.8
Sleep interrupted	2	3.8
Sleep, verbal complaints of difficulty getting to	2	3.8
Behavior and performance, changes	1	1.9
Irritability	1	1.9
Mental status changed	1	1.9
Rested, not feeling well	1	1.9
Sleep, awakening earlier or later than desired	1	1.9
Sleep, verbal complaints of not feeling well rested	1	1.9
Total	53	100.0

6. Self-care Deficit (n=7).

Defining characteristics	n	%
Shortness of breath with exertion	7	41.2
Fatigue	4	23.5
Dependency	3	17.6
Irritability	1	5.9
Unable to flush toilet or empty commode	1	5.9
Weakness	1	5.9
Total	17	100.0

7. Mobility, Impaired (n=3).

Defining characteristics	n	%
Movement, imposed restrictions on 0-4	2	22.2
Physical activity, limited	2	22.2
Movement, inability to ambulate	1	11.1
Movement, inability to move purposefully	1	11.1
Movement, reluctance to attempt	1	11.1
Range of motion, limited	1	11.1
Weakness	1	11.1
Total	9	100.0

8. Nutrition, Alteration in, less than Body Requirements (n=2).

Defining characteristics	n	%
Abdominal cramping	2	28.6
Abdominal pain with/without pathological condition	2	28.6
Bowel sounds, hyperactive	1	14.3
Weight loss with adequate intake	1	14.3
Aversion to eating	1	14.3
Total	7	100.0

9. Powerlessness (n=2).

Defining characteristics	n	%
Control, verbal expression of not having - specific situation	1	14.3
Control, verbal expression of not having - self-care	1	14.3
Control, verbal expression of not having - outcome	1	14.3
Dependency	1	14.3
Depression, expression of	1	14.3
Passivity, increased	1	14.3
Role, expression of doubt regarding role performances	1	14.3
Total	7	100.0

10. Self Concept, Disturbance in (n=2).

Defining characteristics	n	%
Anxiety, expression of	2	28.6
Dependency	1	14.3
Depression, expression of	1	14.3
Self destructive behavior	1	14.3
Self worth, verbal and non verbal	1	14.3
Withdrawal, family interactions	1	14.3
Total	7	100.0

11. Activity Intolerance (n=1).

Defining characteristics	n	%
Blood pressure changes with exercise	1	25.0
Dyspnea on exertion	1	25.0
EKG, ischemic changes with exercise	1	25.0
Discomfort, exertional	1	25.0
Total	4	100.0

12. Fluid Volume, Alterations in Excess (n=1).

Defining characteristics	n	%
Adventitious sounds: rales	1	7.7
Central venous pressure change	1	7.7
Edema	1	7.7
Electrolyte, altered	1	7.7
Hemaglobin, decreased	1	7.7
Hematocrit, decreased	1	7.7
Intake greater than output	1	7.7
Paroxysmal nocturnal	1	7.7
Pulmonary artery pressure change	1	7.7
Pulmonary congestion on x-ray	1	7.7
Orthopnia	1	7.7
Respiration change, pattern	1	7.7
Restlessness and anxiety	1	7.7
Total	13	100.0

13. Noncompliance with Therapy (n=1).

Defining characteristics	n	%
Symptoms, exacerbation of	1	50.0
Progress, failure to	1	50.0
Total	2	100.0

14. Sexual Dysfunction (n=1).

Defining characteristics	n	%
Divorce or breakup of relationships	1	25.0
Passivity, increased	1	25.0
Social interaction with sexual partners decreased	1	25.0
Sex, verbalization of problem	1	25.0
Total	4	100.0

Appendix G

Clusters of defining Charactersistics Associated with:

1. Airway clearance, Ineffective (n=24).

Clusters:	cases
Wheezes, cough, sputum change, resp. change depth, rhonchi, hypoxemia, resp. change rate, fatigue, dyspnea	1
Wheezes, cough, sputum change, resp. change depth, hypoxemia, dyspnea	1
Wheezes, cough, sputum change, hypoxemia	1
Wheezes, cough, sputum change, resp. change depth, cyanosis	1
Wheezes, cough, sputum change, rhonchi, resp. change rate, hypoxemia	1
Wheezes, cough, sputum change, resp. change depth, hypoxemia, resp. change rate, congestion tr-br., temp. elevation, cyanosis	1
Wheezes, cough, sputum change, resp. change depth, temp. elevation	1
Wheezes, cough, sputum change, rhonchi, hypoxemia, resp. change rate, temp. elevation	1
Wheezes, cough, sputum change, hypoxemia, resp. change rate, congestion tr-br.	1
Wheezes, cough, sputum change, resp.change depth, rhonchi, hypoxemia	1
Wheezes, cough, sputum change, rhonchi, resp. change rate,fatigue	1
Wheezes, cough, sputum change, resp. change depth, resp. change rate, congestion tr-br.	1
Wheezes, cough, sputum change, resp. change depth, rhonchi, hypoxemia, fatigue, dyspnea	1
Wheezes, cough, sputum change, resp. change depth, rhonchi, hypoxemia, resp. change rate, fatigue, cyanosis	1
Wheezes, cough, sputum change, resp. change depth, rhonchi, hypoxemia, resp. change rate, dyspnea, temp. elevation	1

Wheezes, cough, sputum change, resp. change depth, rhonchi, resp. change rate, congestion tr-br., cyanosis	1
Wheezes, cough, sputum change, resp. change depth, rhonchi, hypoxia, resp. change rate, fatigue, dyspnea, temp. elevation	1
Wheezes, cough	1
Wheezes, sputum change, rhonchi, resp. change rate, congestion tr-br.	1
Wheezes, resp. change depth, hypoxemia, resp. change rate	1
Wheezes, resp. change rate, fatigue	1
Cough, sputum change, resp. change depth, rhonchi, hypoxemia, congestion tr-br.	1
Cough, sputum change, resp. change depth, rhonchi, dyspnea	1
Cough, sputum change, rhonchi	1

Range: 2 - 10, Median: 6, Mean: 5.875

2. Breathing Pattern, Ineffective (n=24).

Clusters	cases
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, rales, dyspnea, expiration prolonged, accessory muscles use	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, rales, dyspnea, expiration prolonged	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, rales, cyanosis	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, rales	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, cyanosis	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia, dyspnea	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, hypoxemia	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, rales, cyanosis, insp. depth	1
Shortness of breath, cough, tachypnea, ABG abnormal, resp. change depth, cyanosis	1
Shortness of breath, cough, tachypnea, ABG abnormal, hypoxemia, rales, expiration prolonged	1
Shortness of breath, cough, tachypnea, ABG abnormal, hypoxemia	1
Shortness of breath, cough, tachypnea, resp. change depth, dyspnea, pursed lip breathing	1
Shortness of breath, cough, tachypnea, resp. change depth	1

Shortness of breath, cough, tachypnea, accessory muscles	1
Shortness of breath, cough, tachypnea	1
Shortness of breath, cough, ABG abnormal, hypoxemia, rales, expiration prolonged	1
Shortness of breath, cough, ABG abnormal, resp. change depth, hypoxemia, dyspnea, pursed lip breathing	1
Shortness of breath, cough, ABG abnormal, hypoxemia	1
Shortness of breath, cough, resp. change depth, hypoxemia, rales	1
Shortness of breath, cough, resp, change depth, expiration prolonged,	1
Shortness of breath, cough, rales, fremitus	1
Shortness of breath, tachypnea, ABG abnormal, resp. change depth, hypoxemia, rales, nasal flaring	1
Shortness of breath, tachypnea, ABG abnormal, accessory muscles, pursed lip breathing	1
Shortness of breath, tachypnea, rales	1

Range: 3 - 10, Median: 6, Mean: 5.96

3. Gas Exchange, Impaired (n=20).

Clusters:	cases
Tachypnea, tachycardia	2
Tachypnea, tachycardia, ABG's decrease	2
Tachypnea, tachycardia, ABG's decrease, restlessness, hypercapnia, dyspnea, fatigue, secretions inability to move	1
Tachypnea, tachycardia, ABG's decrease, restlessness, hypercapnia, cyanosis, arrythmia, polycythemia, confusion	1
Tachypnea, tachycardia, ABG's decrease, restlessness, dyspnea, polycythemia	1
Tachypnea, tachycardia, ABG's decrease, hypercapnia, fatigue, cyanosis	1
Tachypnea, tachycardia, ABG's decrease, hypercapnia, cyanosis	1
Tachypnea, tachycardia, ABG's decrease, dyspnea, fatigue	1
Tachypnea, tachycardia, restlessness, hypercapnia,	1
Tachypnea, tachycardia, hypercapnia, cyanosis, irritable	1
Tachypnea, tachycardia, dyspnea	1
Tachypnea, tachycardia, fatigue, weakness	1
Tachypnea, ABG's decrease, restless	1
Tachypnea, ABG's decrease, dyspnea, fatigue, confusion	1
Tachycardia, ABG's decrease, restless hypercapnia	1
Tachycardia, ABG's decrease, dyspnea, fatigue and confusion	1
ABG's decrease, restlessness	1
Tachypnea, restlessness, arrhythmias	1

Range: 2 - 9, Median: 4, Mean: 4.3

4. Nutrition, Alteration in, More than Body Requirements (n=20).

Clusters:	cases
Shortness of breath, SOB on exertion	14
Shortness of breath, SOB on exertion, activity sedentary	2
Shortness of breath, SOB on exertion, exercise tolerance decreased	1
Shortness of breath, SOB on exertion, weight gain 10%, weight gain excessive	1
Shortness of breath, SOB on exertion, abdominal, girth increased, exercise tolerance decreased	1
Shortness of breath, SOB on exertion, weight gain excessive	1

Range: 2 - 4, Median: 2 Mean: 2.25

5. Sleep Pattern Disturbance (n=17).

Clusters:	cases
ABG's decreased PO2, orthopnia	1
ABG's decreased PO2, orthopnea, restlessness, sleep- verbal complaints of difficulty getting to	1
ABG's decreased PO2, orthopnea, restlessness, fatigue, insomnia, sleep- interrupted, sleep- verbal complaints of difficuly getting to, Sleep- verbal complaints of not well rested	1
ABG's decreased PO2, orthopnia, fatigue	1
ABG's decreased PO2, orthopnia, insomnia	1
ABG's decreased PO2, orthopnia, lethargy	1
ABG's decreased PO2, restlessness	2
ABG's decreaseD PO2, restlessness, insomnia, lethargy	1
ABG's decreased PO2, restlessness, sleep interrupted	1
ABG's decreased PO2, restlessness, sleep awakening	1
ABG's decreased PO2, fatigue	1
ABG's decreased PO2, fatigue, mental status changed	1
Orthopnia, irritablity	1
Orthopnia, fatigue, insomnia, activity- decreased levels of daily living	1
Restlessness, Behavior and performance changes	1
Insomnia, activity- decreased level of daily living, rested- not feeling well	1

Range: 2 - 8, Median: 3, Mean: 3.12

6. Self-care Deficit (n-7).

Clusters:	cases
SOB exertion, fatigue	2
SOB exertion, fatigue, dependent	1
SOB exertion, fatigue, unable to flush toilet	1
SOB exertion, dependent	1
SOB exertion, dependent, weakness	1
SOB exertion, irritable	1

Range: 2 - 3, Median: 2, Mean: 2.2

7. Mobility, Impaired (n=3).

Clusters:	cases
Movement- imposed restriction on, physical activity limited, range of motion limited	1
Movement- imposed restriction on, movement-inability to ambulate, weakness	1
Movement- inability to purposefully move within physical environment, movement-reluctance to attempt, physical activity limited	1

Range: 2 - 3, Median: 2, Mean: 2.29

8. Nutrition, Alteration in, Less than Body Requirements (n=2).

Clusters:	Cases
Abdominal cramps, abdominal pain, bowel sounds, aversion to eating	1
Abdominal cramps, abdominal pain, weight loss	1

Range: 3 - 4, Median: 3.5, Mean 3.5

9. Powerlessness (n=2).

Clusters:	cases
Control or influence- verbal expression of not having- specific situation, control or influence- verbal expressions of not having- outcome	1
Control or influence- verbal expression of not having- self care, dependency, depression- expressions of, passitivity increased, role - expression of doubt regarding role performance	1

Range: 2-7, Median: 3.5, Mean: 3.5

10. Self Concept: Disturbance in 1. Body Image, 2. Self Esteem, 3. Role Performance (n=2).

Cluster:	Cases
Anxiety- expression of, dependency, depression- expression of, self destruction behavior, self worth- verbal and non verbal expressions of- decreased	1
Anxiety- expression of, withdrawal- family interactions	1

Range: 2 - 5, Median: 3.5, Mean:3.5

11. Activity Intolerance (n=1).

Cluster:	case
Blood pressure- change with exercise, dyspnea, EKG- ischemic changes with exercise, discomfort on exersion	1

12. Fluid Volume, Alterations in Excess (n=1).

Clusters:	Cases
Adventitious sounds: Rales, central venous pressure change, edema, electrolyte altered, Hematocrit decreased, hemaglobin decreased, intake greater than output, orthopnea, dyspnea - paroxysmal nocturnal, pulmonary artery pressure change, pulmonary congestion on xray, respiration change - pattern, restless and anxiety	1

13. Noncompliance with Therapy (n=1).

Cluster:	case
Symptom- exacerbation of, progress- failure to	1

14. Sexual Disfunction (n=1).

Cluster:	Case
Divorce or breakup of relationships, passivity- increased, sex vebalization of problem, social interaction with actual or potential sexual partners decreased	1