Utilizing A Community Data Base System with Community Health Nursing Students

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Nursing a population group, a community, is the uniqueness of community health nursing. The American Nurses’ Association defines this speciality area as “a synthesis of nursing practice and public health practice applied to promoting and preserving the health of populations... The dominant responsibility is to the population as a whole.” Special tools and skills are required to nurse population groups. The first and most important skill is the ability to systematically collect data about the community. This is not an easy task for students or staff nurses because the concept of community can be overwhelming in its scope. It is difficult for both neophytes and professionals to amass and handle all of the information that can and must be obtained if the view of community-as-client is to be operationalized.

A Solution

When the nursing process is applied to the community setting, pertinent information must be collected and ordered in a logical way so that accurate diagnoses are identified and interventions planned.

This paper describes how a baccalaureate
nursing program teaches the concept of community-as-client to students, utilizing a community data base management system (DBMS) that demonstrates a method of ordering the mass of information accumulated about a community. An overview of the community health nursing course follows, describing the inclusion of this concept within the course content.

The University of Rochester School of Nursing is an upper division program. Senior students are enrolled in community health nursing for eight semester hours of credit divided between three hours of classroom learning, one hour of independent study, and 12 hours per week in the clinical setting.

In the theory portion of the course a systems approach is utilized as an organizing framework. Students are helped to view the family and community historically, to examine the dynamic interactions within the environment as well as the reciprocal adaptations involved in applying the nursing process to the family and the community. Levels of prevention in health promotion also are applied to both family and community.

Voluntary and official agencies are used for clinical experience. One day a week students visit two or three families for which they assume total responsibility throughout the semester. Students are helped to see how the health of the family subsystem influences the health of the larger community system.

In addition to the care of families, students in groups of five to seven are involved in a community project. The project enables the students to: (1) apply concepts of group process to their own group as well as to consumer groups; (2) utilize principles of epidemiology; and (3) apply concepts of assessment, planning, implementation and evaluation to a particular community or aggregate.

The students select a geographical area, usually one to three census tracts. They analyze this community using the epidemiological approach and generate problems based upon analysis of the collected data. A plan to alleviate the problems, and a method to evaluate the effectiveness of the plan are then developed. This information is compiled into a scholarly paper and is presented orally to the entire class. Professionals in the community, including community health nurses and school principals, have requested copies of selected papers and have utilized the information in program planning.

Invariably, the largest obstacle students face in this project is collecting and organizing data. It is imperative that this first step be accurate, since the function of the data base is to support program planning. Good intentions and hard work are not enough; planning must be based on conditions that actually exist and these conditions can be found only by careful study.

Viewing the community as a system helps students to understand why it can be viewed as a client, as well as why health problems are reflected in every facet of the community. One result of this view is the accumulation of much information. However, it is difficult to collect an all-inclusive descriptive data base in a short period. Students and practitioners alike need direction in data gathering because in no way can all of the facts about a community be gathered.

Data Collection Methods

Nurses use various methods to diagnose a community in an attempt to be as complete as possible. The literature suggests many different approaches for collecting this enormous amount of critically important data. Hall and Weaver suggest that community health nurses use indicators, tracers or markers of health that depend upon the socio-demographic characteristics of the community as well as what is feasible. Ruybal, Bawens and Falsa state that they “present students with a systematic way of organizing data for community assessment” though this method is never presented. Freeman writes that community health diagnosis is based upon the health status of the
community, the community health capability, and the community action potentials. Others diagnose through "sense, sight and sound."6

A conceptual scheme which identifies all of the critical structures of a community is lacking in many approaches.7 A way of conceptualizing the health needs and potential of a community through systematically recording and organizing relevant data is needed.

This problem was studied by a graduate student as a research project.8 Christianson hypothesized that nurses and students have difficulty in assuming a "community-as-client" focus in their clinical experience because they have been accustomed, for the majority of their educational experience, to individual client practice. Even in community agencies, students must glean the staff's knowledge regarding communities they will be working with, since there is no "community record" available containing this kind of data.9 Using her experience and expertise in community health nursing, Christianson developed a method for systematically recording and organizing data that can be used to diagnose a community's strengths and needs. Selected members of our faculty decided to use this method with students.

Definition of Data Base Management System

The aim of Christianson's data base management system was to "develop an organizing set of major categories that would be all-encompassing" to characterize a community. She recognized the difficulty in attempting an "all-inclusive" descriptive community data base, and thus made careful decisions about developing these categories. Those that resulted were based on experience with the usefulness of certain data as compared to others.

Christianson formulated the categories, drawing upon the community-as-organism concept, and reflecting McMahon and Pugh's "Web of Causation" theory, that health problems impinge on all community systems.6 Strauss and Glaser's "fit and work" criteria also were utilized in the construction. As she describes these criteria, when data were categorized, the question was asked: Does it fit and does it work? The system of categories that resulted is based on actual community structure, to which functional data can be added. Christianson hypothesized that the risks of losing a holistic orientation and overlooking critical interrelationships within community systems were reduced when the nurse was required to observe the community as a whole while using the data base management system.8

Figure 1 contains Christianson's master list of categories for recording descriptive community data. Outlined below the categories are "accounts," representing areas of interest or need in a community. As decisions are made about a study focus and as data collection is begun, data can be posed in appropriate accounts. Christianson wrote, "the chart of categories would then begin to reflect the character of the specific current concern of the community."8

Using the DBMS with Students

We followed Christianson's recommendation that the DBMS be developed on a small scale, capable of expansion as observation skills were learned and the tool's utility was demonstrated, thus reducing the overwhelming nature of the prospect of a community study.

Figure 2 contains the tool developed by this faculty. The accounts reflect areas found to be "essential" sources of data about communities. Note that the economic system was deleted from the list, based on the assumption that this category of data would be too difficult to collect within the students' experience. Christianson also documented the limitations of available data in her community study within the economic system.

Students are given the tool during the orientation to their clinical setting and are instructed to travel on foot or by car as a group in a community involving one or two census tracts. It is most beneficial if this

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FIGURE 1
A MASTER LIST OF CATEGORIES FOR RECORDING DESCRIPTIVE COMMUNITY DATA

I. Physical Environment
   A. Land Use
      1. Open Space
      2. Undeveloped Space
      3. Residential Space
         a. Single Family Housing
         b. Multiple Family Housing
         c. Settlement Patterns
      4. Commercial Space
         a. Private
         b. Public
      5. Industrial Space
      6. Water-covered Space
      7. Roads
      8. Boundaries
      9. Agriculture, animal husbandry
   B. Environmental Status
      1. Sanitation
      2. Air
      3. Utilities
      4. Household Pets
   C. Topography and Geology
   D. Flora, Fauna

II. Social & Behavioral
   A. Education
   B. Religion
   C. Recreation/entertainment
   D. Health
      1. Services
      2. Practices
      3. Status
      4. Theory of Disease Causation, Lay Diagnosis and Treatment
   E. Family Living Patterns, Standards and Routines
      1. Infancy
      2. Childhood
      3. Adolescence
      4. Adulthood
      5. Old Age
   F. Population
      1. Demographic Variables
      2. Groups and Interpersonal Relationships
      3. Associations
         a. Special Interest
         b. Planning
   G. Communication
      1. Public
      2. Private
   H. Transportation and Travel

III. Economy
   A. Economic Status
   B. Labor
   C. Finance
   D. Property

IV. Government
   A. Districts
   B. Representatives
FIGURE 2

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* CATEGORIES FOR RECORDING DESCRIPTIVE COMMUNITY DATA

Find a place to eat in the community in which your caseload exists. After lunch, drive around or walk in the community in pairs, essentially observing on as many streets as possible for the following assessment categories, which are grouped according to Community Systems. Do not be concerned if all categories are not covered.

I. Physical Environment
   A. Land Use
      1. Open Spaces (look for play areas, parks)
      2. Undeveloped Space (Vacant lots, fields)
      3. Residential Space
         a. Single family housing (note better or poorer housing)
         b. Multiple family housing
      4. Commerical Space
         a. Go into stores, note prices, atmosphere, selection
         b. Visit gas stations — find out where you could go for car repairs, gas, costs
      5. Industrial Space
         a. Note location and condition, type of industry
   B. Water Covered
      a. Note open ditches
      b. Stagnant water
      c. Bodies of water, i.e. lakes, rivers, streams
   C. Roads
      a. Note paved streets, condition
      b. Dirt Roads, condition
   D. Boundaries
      a. Note any geographical boundaries which tend to separate communities such as "the other side of the tracks"
   E. Agriculture
      a. Note types of crops
      b. Note types animals kept
   B. Environmental Status
      1. Sanitation
         a. Note debris, location
         b. Note garbage cans in area
         c. Waste disposal systems
      2. Air
         a. Note smell, color
         b. Note location of unusual smells
      3. Note utilities — note public telephones availability of water, gas, phone lines, availability of electricity.
   C. Household pets — where kept, what type?
   D. Topography and Geology
      a. Note general topography of land
      b. Obstacles to travel, hazards, i.e., rock slides, etc.

II. Social and behavioral
   A. Education
      1. Note churches, synagogues, how many are there, what condition are they in? Types?
      2. Alternative Education Systems i.e., Montissouri Schools, Encounter Workshops, Marshal Arts.

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experience is located in the area where their family caseload will exist. Instructions include finding a place to eat in the community, then observing on as many streets as possible for the categories of accounts. It is emphasized that all categories of the tool may be difficult to cover in this initial experience. However, the picture of the community will begin to emerge as students pursue their community studies throughout the semester. Within selected accounts, specific directions are given to document observations including noting housing conditions, location and type of industry, waste disposal systems, and location and condition of school buildings. Additional selected activities must be accomplished, such as visiting stores, gas stations, and obtaining and reading a community newspaper.

**Evaluation of Student Use of DBMS**

The entire experience normally requires two to three hours of clinical time. We believe that placing an emphasis on identifying a community prior to obtaining a caseload of families in the initial clinical orientation reinforces the community-as-client concept. Certain students have resisted the use of the categories in the tool, insisting that the data collected would be subjective and therefore not usable. This resistance reflects Christianson's observation that data needed to characterize a community may appear "soft," and therefore unacceptable to persons trained to use "hard" clinical data. As the semester progresses, students receive theoretical content related to epidemiology and com-

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munity diagnosis. It becomes evident that students are increasingly able to use their initial data and then compare it to other systems of available data, including census tract data, vital statistics, and information from community agencies and leaders, to arrive at nursing diagnoses of community needs. The community projects which the students produce show evidence of a high level of ability to identify community nursing diagnoses, based upon appropriate orderly data collection. One group of five students studied the problem of pregnancy among 10 to 14 year olds in three census tracts of a large inner city. Utilizing the DBMS and admirable hard work, they collected data for each category from every possible source. Their nursing diagnoses were based upon a sound data base and the resulting program they developed for parents and the school was outstanding.

**Goodness of Fit**

Most data “fit” very well, using the DBMS with the students. Data which students find do not “fit” into a given category include community members’ perceptions of community issues. This lack of fit may be related to the students’ inexperience in observing and recording this kind of community data. Another lack of fit relates to students’ inability to record details about certain accounts, for example, antennas on houses and fences in yards. This difficulty in recording details probably reflects bias in the tool, which was designed to focus students toward generally descriptive and significant data as opposed to less significant data. Agriculture and newspapers are often difficult to identify in communities studied, possibly reflecting the degree of importance of these accounts to a particular community.

Christianson raised the question as to whether the DBMS was “simple enough to be usable and clear enough to reveal actual organized community systems to workers accustomed to individual patient practice.” Additional student experience in using the tool will help to identify whether the DBMS continues to be simple to use. When specific directions are included in selected accounts, students generally are able to document their observations without difficulty. Careful decisions will need to be made regarding how many directions should be included in the DBMS to avoid observer bias while continuing to place emphasis on data which is believed to be “essential.” Initial experience reveals the DBMS to be helpful in organizing data for formal presentation in students’ papers that reflects a broad perspective of community systems.

**Summary**

The instruction to “go out and study the community” can be awesome and confusing to both students and nurses. The use of the data base management system as described in this paper makes the task a less formidable one. It also systematically classifies data about a community into a usable form so that nursing diagnoses can be identified appropriately. We strongly believe that the concept of community-ascient must become a part of the philosophy of every community health nurse. We see the data base management system as one method of incorporating this philosophy.

**References**