Computerization of the Nursing Care Plan (NCP) has achieved an end to the means in resolving the many obstacles that have made nurse care planning theoretical and non-functional.

This paper describes a computerized Nursing Care Plan (C-NCP) program developed at Community-General Hospital of Syracuse, New York, that allows the professional nurse creativity, autonomy and accountability in the development, revision and retrospective analysis of the NCP.

The Problem

Nurse Care Planning historically has been a nursing dilemma with much literature addressing the problem. Although the concept is scientifically sound, manual attempts to implement the Joint Commission on Accreditation for Hospitals (JCAH) requirements have been generally unsuccessful.

With the manual method, development of a NCP has met with low nursing compliance in fulfilling the requirement that each hospitalized patient have a current, active NCP. Analysis of this problem has identified the following factors:

1. Lack of time - There is a lack of nursing time to develop statements that will communicate to all the intent of the NCP in terms of Nursing Diagnosis, Goals, and Nursing Intervention.
2. Fear of criticism - Many nurses feel uncomfortable when putting their own words on the NCP for all to see.
3. Difficult to read - Penciled entries must be sized correctly to allow placement in an allotted space on the NCP. These entries are often crowded and illegible as they are erased and revised in an attempt to keep the NCP current.
4. Discarded - The NCP is not a permanent part of the Health Care Record and is discarded upon discharge. It does not meet legal document requirements. Erasers permanently delete entries, making them unavailable for retrospective nursing auditing.
5. No accountability - RN's and often LPN's make entries and deletions, making it difficult to know who has done what, when (no audit trail).
6. Not valued - Little if any positive reinforcement is given, often because it is not known to whom it should be given.

Because of the factors stated above, development of the NCP is given low priority and rarely enforced by the head nurse.

Nursing has lost important patient care data as a result of an erasable, discardable NCP which could otherwise have had greater impact on nursing practice, research and education.

The Solution

A committee of seven nurses looked to the computer to resolve the problems listed above. Another hospital in our area was completing their computerized Nursing Care Plan (C-NCP) Program and were helpful in showing that we, too, had the resources necessary to implement a system for our 350 bed hospital that could achieve our own goals.

The screen oriented program was developed and sequenced according to the principles of the Nursing Process (assessment, planning, implementation and evaluation) and Nursing Diagnosis. One committee function was to formalize a series of statements that would be available to selectively choose from in the development of the C-NCP. Selected responses would give direction to the health team members in meeting the specific needs of a given patient.

Jack Hennessy, our Systems Analyst/Programmer, provided the wizardry to overcome the obstacles we identified as inherent in the manual method. The program is written in the MIIS standard dialect of MUMPS and operates on a PDP-11/70, dedicated to patient-oriented systems. Like most patient-oriented systems, the C-NCP system is dependent on the admitting system for patient information. Only a minimum of data, however, is required by the system, including: name, patient number, sex, age, attending physician, room and bed, date admitted and medical diagnosis. This heading automatically appears at the top of the C-NCP.

Typing a 1 to 3 digit code number appearing in front of a given statement computes the statement and dictates the branchings within the program.

The Computerized Nursing Care Plan System

In developing a C-NCP, the professional nurse signs on by giving his/her hospital number. This will label the entries or revisions made with the nurse's initials, thus offering accountability for the C-NCP. The nurse is then asked to identify the patient for whom the plan is being developed, either by patient number, room and bed number, or the first three
letters of the patient's last name and first letter of the first name. If at any time throughout the program the nurse is confused about what the computer is asking, typing a question mark will cause a statement of clarification to appear.

Medical Standards of Care

In the development of the C-NCP, the nurse is first asked if a routine Standard of Care, available in our manual, would serve the patient's nursing needs. This index is available for call up on the video display terminal (VDT) so the nurse can make a selection. If following the Standard of Care alone will ensure quality patient care, the nurse can elect to have the C-NCP printed out with a directional statement to guide the nurse care team (for example, "Follow the Standard of Care for Cholecystectomy"). If no (medical) Standards of Care are available or if a Nursing Diagnosis need be added, the nurse would press a button allowing continuation in the program.

Nursing Diagnosis

From a screen of 35 possible nursing diagnoses (exhibit 1), the problem area to be addressed is selected. If the nurse wishes to make a diagnostic statement that does not appear on the list, the code number of the most closely related available diagnosis is selected and the nurse would type his/her own problem statement. The code number selected will give the nurse an appropriate "order screen" later in the program. If the choices available do not meet the patient's needs at any step in the program, the nurse may type in his/her own response (free text).

Etiology

The etiology (cause) of the nursing diagnosis qualifies the problem statement and gives direction to the types of nursing interventions that may be appropriate. From a list of 36 etiology statements, the nurse may choose the response that accomplishes this. If the etiology is unknown, the nurse would select the statement "unknown causes".

Goals

Next the goal or goals are selected. From a screen displaying the broad goals, the nurse selects one or more goals which are most significant to the resolution of the nursing diagnosis. A long-term goal is specified by typing "L" after the selected code number. Again, the nurse can select a goal not shown by entering free text.

Nursing Interventions

For each nursing diagnosis, there is a screen displaying possible nursing orders (exhibit 2). The nurse selects 1 or more nursing interventions that will help accomplish the stated goal or goals. The nursing orders are in 3 categories: Nursing Observations, Nursing Treatments, and Health Teaching. When selected, some orders will give a choice of frequencies, durations, amounts, or distances that may be assigned. As above, free text is an option if the available orders do not meet the patient's needs. When this process is completed a screen that lists all possible options is displayed (exhibit 3), allowing immediate access to any part of the program. This is the first screen that would appear if a C-NCP were already developed. Selecting to add another nursing diagnosis would repeat the above process.

Printing an active hard copy (exhibit 4) would give the current C-NCP for inclusion in a Nursing Kardex.

Evaluation

The evaluation screen will appear on the VDT whenever the nurse changes or discontinues a standard of care, nursing diagnosis, goal, or discharges a patient. It will bring up each goal and ask the nurse to evaluate the outcome in terms of:

- Goal met: Problem Resolved
- Goal not met: Unrealistic Expectation
- Goal not met: Change in Patient Condition
- Goal not met: Change in Patient Compliance
- Goal not met: Not Mutually Agreed
- Goal not met: Nursing/Medical Follow-up

The hard copy (complete) (exhibit 5) is the total record to date, which will become a permanent part of the health care record at the time of patient discharge. It leaves an audit trail of all entries initiated, discontinued or reviewed, and gives appropriate dates, nurses' names and goal statuses.

Evaluations since its implementation 7 months ago have reflected an almost unanimous preference to the C-NCP. Benefits achieved thus far have been:

1. Increased communication and accurate NCP development.
2. Consistent attention to and use of the Nursing Process.
3. A learning opportunity for nursing staff and students.
4. Increased accountability of the professional nurses.
5. Strengthening of nursing practices.
6. Savings in nursing time spent making NCP's.
7. Improved recruiting efforts due to hospital progressiveness.
8. Meets JCAH requirements.

Summary

Computerization of the NCP has been our solution. It has provided a common nomenclature from which all nurses can work. It offers as much structure and flexibility as is required. It is a rewarding experience, enabling the nursing process to be used to its fullest. The cost-benefit ratio would be variable for other hospitals, depending on their computer capabilities and systems.

For Nursing, it has been too costly, for too long, to have done without.

References


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--- DIAGNOSIS (ADD) ---

JONES, EDWARD G (565538)- 09/25/82 403-02 SMITH, J

1) AIRWAY CLEARANCE, INEFFECTIVE
2) ANXIETY
3) BODY FLUIDS, EXCESS
4) BOWEL ELIMINATION, ALTERATION IN
5) BREATHING PATTERN, INEFFECTIVE
6) CARDIAC OUTPUT, ALTERATION IN
7) COMFORT, ALTERATION IN: PAIN
8) COMMUNICATION, IMPAIRED VERBAL
9) COPING, INEFFECTIVE
10) DIVERISIONAL ACTIVITY: DEFICIT
11) FEAR
12) FLUID VOLUME DEFICIT
13) GAS EXCHANGE, IMPAIRED
14) GRIEVING
15) HOME MAINTENANCE MANAGEMENT
16) IMPAIRMENT OF OTHERS ADJUSTMENT
17) INJURY, POTENTIAL FOR
18) KNOWLEDGE DEFICIT
19) MOBILITY, IMPAIRED PHYSICAL
20) NONCOMPLIANCE
21) NUTRITION, ALTERATION IN
22) PARENTING, ALTERATIONS IN
23) RAPE-TRAUMA SYNDROME
24) RESPIRATORY DYSFUNCTION
25) SELF-CARE DEFICIT
26) SELF-CONCEPT, DISTURBANCE IN
27) SENSORY/PERCEPTUAL ALTERATIONS
28) SEXUAL DYSFUNCTION
29) SKIN INTEGRITY, IMPAIRMENT OF
30) SLEEP PATTERN DISTURBANCE
31) SPIRITUAL DISTRESS
32) THOUGHT PROCESSES, ALTERATION IN
33) TISSUE PERFUSION, ALTERATION
34) URINARY ELIMINATION
35) VIOLENCE, POTENTIAL FOR

DIAGNOSIS (ADD)>> 1

Identified by the National Group on Classification of Nursing Diagnosis at conferences on Nursing Diagnosis, St. Louis, Missouri, 1978, 1980.

Figure 1

--- ORDER (ADD) SCREEN 1 OF 1 ---

JONES, JOHN P (560230) - 06/27/82 (DISCH 07/08/82) 433-00 SMITH R JR

DIAGNOSIS (5) AIRWAY CLEARANCE INEFFECTIVE

--- OBSERVE FOR ---

101 CHANGE IN BREATHING PATTERNS
102 CHANGE IN PULMONARY STATUS
103 CHANGE IN TPR
104 CHANGE IN WBC

--- TREATMENTS ---

201 ELEVATE HOB
202 FOLLOW NURSING STANDARD OF CARE
203 MAINTAIN PATIENT AIRWAY
204 MONITOR EFFECTS OF MEDICATIONS
205 MONITOR EFFECTS OF O2
206 MONITOR EFFECTS OF RESPIRATORY TX

--- HEALTH TEACHING ---

301 FOLLOW KNOWLEDGE DEFICIT STANDARD
302 SEE KNOWLEDGE DEFICIT STANDARD

ORDER (ADD)>>

Figure 2

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--- DIAGNOSIS OPTION ---

JONES, JAMES M (542794) - 11/26/82 346-00 SMITH, JR

CURRENT ACTIVE NURSE CARE PLAN DIAGNOSES...

1) 12/28/8 AIRWAY CLEARANCE INEFFECTIVE

OPTIONS=>
1) DIAGNOSIS (ADD)  8) ORDERS
2) DIAGNOSIS (D/C)  9) REVIEW CARE PLAN
3) DIAGNOSIS (DELETE)  10) VIEW CARE PLAN
4) DIAGNOSIS (REINSTATE)  11) DISCHARGE EVALUATION
5) STANDARD OF CARE  12) HARD COPY (ACTIVE)
6) ETIOLOGY  13) HARD COPY (COMPLETE)
7) GOALS

OPTION DESIRED=>

Figure 3

NCP 03/21/83 COMMUNITY-GENERAL HOSPITAL OF GREATER SYRACUSE
ACTIVE NURSE CARE PLAN

JONES, JAMES M (542794) ADMITTED: 04/26/81 ROOM-BED: 346-00
SEX: MALE AGE: 51 ATTENDING: SMITH, R
DIAGNOSIS: CAROTID STENOSIS

ACTIVE CARE PLAN REVIEWED> 02/22/83

SEE MEDICAL STANDARD OF CARE FOR...
CEREBRAL VASCULAR ACCIDENT (12/08/82)  JMP
NEUROLOGICAL DEFICITS (12/08/82)  JMP

1) AIRWAY CLEARANCE, INEFFECTIVE (12/08/82)

RELATED TO> INCREASED SECRETION, POOR COUGH REFLEX
GOALS> MAINTAIN OXYGEN TO ALL CELLS

ORDERS>...

OBserve FOR CHARACTERISTICS/AMOUNT OF SPUTUM  JMP
MaiNTAIN PATENT AIRWAY  JMP
SUCTION: PRN  JMP

Figure 4
COBLPLIE NURSE CARE PLAN

JONES, JAYE (54794) ADMITTED: 14/20/81

SEX: MALE AGE: 51 ATTENDS: SISTHER

DIAGNOSES: CORONARY STENOSIS

SERIAL STANDARD OF CARE FOR...
12/38/82 GENERAL INFECTION-ACCIDENT
01/01/83 REVIEWED
02/27/83 REVIEWED
02/27/83 REVIEWED
12/22/83 REVIEWED
12/18/82 ACUTE INFECTION
01/01/83 REVIEWED
02/27/83 REVIEWED
02/27/83 REVIEWED
02/27/83 REVIEWED

GOALS:
12/08/82 MAINTAIN PATIENT AIRWAY

OBSERVE FOR CHARACTERISTICS/AMOUNT OF STUCCY
12/08/82 ADVERTISE PATIENT ON NURSE'S PLATE, DECREASE

CONTINUE ON PAGE 2...

3) SKIN INTEGRITY, IMPAIRMENT OF

RELATED TO: IMPAIRED PHYSICAL MOBILITY; PRESSURE AREAS
12/08/82 ORIENfATED
01/01/83 REVIEWED
02/27/83 REVIEWED

GOALS:
12/08/82 ACHIEVE GOOD HYGIENE
12/08/82 MAINTAIN NUTRITION TO ALL CELLS

ORDERS:
12/08/82 OBSERVE FOR COLOR, WARMTH OF AREA
12/08/82 OBSE%E FOR PRESSE%E OF OXIDATION TISSUE
12/08/82 OBSERVE FOR SIZE, DEPTH OF AREA
12/08/82 LAMPS WOOL, HEEL PADS
12/08/82 LOTION TO POTENTIAL BREAKDOWN AREAS
12/08/82 PRESSURE REDUCTION MATTRESSES
12/08/82 TURN AND POSITION: Q2H

A) RKD ROSEMARY K
B) JMP JOYCE M
C) WIL MADELINE G

Figure 5