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NURSING RELATED GROUPS: A RESEARCH STUDY

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ABSTRACT

In nursing management a lot of patient classifications systems have been developed until now. They are mostly related to personnel management but haven't much professional value. In the context of a new hospital financing system in Belgium, nursing data are periodically gathered for financing purposes. Based on these data, the concept of Nursing Related Groups (NRG) has been developed. NRG is a clinically meaningful patient classification scheme for nursing based on nursing diagnosis, nursing interventions and nursing outcome.

A first research study on NRG has been started in May 1987 and data have been collected in 7 hospitals, 37 nursing units, for about 3,500 patients. The first results of this study are expected in June 1988.

INTRODUCTION

The concept Nursing Related Groups (NRG) looks at first view very similar to Diagnosis Related Groups (DRG). In part, it's true. On the other hand, there is a great difference between both concepts. In this paper, the concept of NRG is worked out in the Belgian context and similarities and dissimilarities between NRG and DRG are indicated.

1. The Context: A New Hospital Financing System

In 1985 the minister of Public Health introduced a new hospital financing system that is less cost oriented and more budget oriented. I highlight the main features.

Essentially, hospital care operating costs are subdivided into two parts: part one, all logistic costs including administration, part two non-physician care cost, called costs of clinical departments, primarily nursing costs. For part one, and two, a national prospective hospital budget in yearly provided for and is subdivided among all hospitals. Therefore an allocation procedure is required. To do so, each hospital gets a peer group consisting of about 15 most similar hospitals on the basis of activity indicators. Subsequently the real cost of each hospital are compared with the real average cost of the peer group.

For clinical department purposes, it was proposed to define similarity between clinical department "on the basis of patient medical diagnosis, age of the patient, special medical procedures and the workload of the nursing staff generated by the degree of dependency of the patients (Dehaene, 1985).

In September 1985, a research study was started to develop one national nursing care registration instrument with a view to develop an effective and feasible Nursing Minimum Data Set. For two months, data were collected in 13 hospitals, 92 nursing units and about 12,000 patients (Delesie a.o., 1987a, 1987b). The results of this study are reported in another paper (De Becker a.o., 1988).

The study resulted in a Royal Decree of 14 August 1987 "determining the rules on how to collect and communicate statistical data to the minister of Public Health." These statistical data include patient data (age, sex, length of stay), medical diagnosis and 23 minimum nursing data). These data have to be collected 4 times a year during a 15-day sampling period pointed out by the Minister of Public Health.

This Royal Decree is a mile-stone for nursing in Belgium. Why?

First of all, nurses are inevitably confronted with the world of hospital financing. So far, the management of a hospital has been the job of accountants, lawyers, financial managers because hospital management was cost oriented. The new financing system is performance oriented. So, nurses and physicians can't be but discussion partners in general management of hospitals. Two Royal Decrees (1986, 1987) induce hospitals to develop the organization structure to make this possible.

Secondly, nursing is one of the "performance indicators" of a hospital. It means that the law in Belgium puts nursing care on the same level as physician care in the hospital care process.

To understand the concept of NRG's, we have to point out some essential features of measuring similarity among hospitals.

Firstly, the objects of comparison are hospitals, departments, nursing units, as opposed to individual patients. In a DRG-based financing system, each patient gets an individual DRG-label indicating the available budget. However, the total hospital's patient load is not the mathematical sum of all the individual patients. Therapeutic activities are not only determined by the individual patient himself, but are distinctly influenced by the dynamics of a particular case mix in any given period as well as the availability of staff resources in that period, the incidence of urgencies, busy periods, etc...

It's a fallacy to believe one can finance the care on the level of individual patients. One can only finance organizations, departments.

Secondly, performance is measured by different criteria. The measurement and comparison is value-free. It indicates only that hospital A is similar to hospital B; that nursing unit X is similar to nursing unit Y. It doesn't indicate good or bad, better or worse. What's more, each indicator is independent of any other indicator. It is like changing glasses. Nursing unit A can be similar to B so far as nursing activities but dissimilar on medical diagnosis profile. Each scope of view, each pair of glasses, gives other information about the hospital, about the nursing unit.

It is difficult to point out which point of view is the most important. It depends on who is wearing these glasses. From the physician's point of view, medical diagnosis will be the most important indicator. For nurses, nursing interventions will be.

It depends also on the patients. For example in a chronic care setting, information about basic needs (activities of daily living) will be the most important indicator.

The determination of the value of each point of view is a political issue. Scientifically, juxtaposing the different scopes of view helps to understand the complex process of caring and curing on a particular nursing unit.

In the research study, we look from different angles such at the same time: activities of daily living, medical diagnosis, nursing interventions, traditional criteria (length of stay, age, number of beds, department, etc...).

2. Nursing Related Groups: Objectives and Definition

The new financing system is based on "what" and "how much" questions: which patients are admitted; what is their pathology?; which and how much nursing interventions have taken place?

A next type of questions are "why" questions: why have these interventions taken place? Is it because of patients' needs or patients' pathology or is it because of the specific health care facilities. Were the interventions necessary? Is it good or bad nursing care?

These types of questions are very different from the questions asked in the financing scheme. In the financing scheme, there is not judgement about good or bad. There is only control on whether a nursing action was effected or not. I think it's fair to separate these two questions. Why-questions don't have anything to do with financing but with accreditation. Is this care acceptable? Does it correspond with the existing standards?

Why-questions are professional questions. These questions have to be posed by the Nurses Association to control nursing care in hospitals. These questions have to be posed by the nursing direction who controls the quality of care.

NRG are meant to solve these why-questions based on the same date as used for financing purposes.

In order to develop answers, NRG's need a lot of information about the total patient case-mix. In Belgium, all energy has so far gone to the definition of a unified language of nursing interventions. In the future, more elements will be necessary to construct a representative indicator for nursing. We strongly believe that nursing diagnosis and nursing outcome are part of it, as stated in the NMDS conference of 1985 (Werley a.o., 1986).

When defining NRG one is easily tempted to use the definition of DRG's: a patient classification which groups patients with similar needs, that differentiates the amount of hospital resources required to provide care by meaning case mix (Mullin, 1983).

I don't like to define NRG as an patient classification scheme but rather as an instrument comparable with AUTOGRP, the computer technology that formed DRG's.

One of the most fundamental critiques on DRG's, is the fact that the autogrouping has just run twice to form DRG's.

The latest DRG-set is based on data for 1979 a nationwide sample of 400,000 medical records collected in 323 hospitals. The reality of 1979 is the basis of a financing system, quality control procedures, utilization review policies at the end of the eighties all over the world. As if nothing has changed in those ten years.

NRG's have to be a more dynamic scheme based on quarterly collected data in order to give actual management information. The technique that is used is similar to AUTOGRP an. It clusters information by minimizing the distance between observations. For NRG's these observations are individual patients. The distance is measured differently with each point of view. From the view of similar diagnostic (nursing) profiles, the distance is measured by differences in nursing interventions. From the view of nursing intervention profile, the distance is measured by differences in nursing diagnosis.

The first measure will give information on how similar problems are treated in the same way. This measure tells which nursing interventions are related to a

certain set of problems. The second measure give information on how particular treatment is useful for different problems.

These two measures are the foundation of NRG.

NRG isn't a hierarchical, clean-cut, fixed classification scheme like DRG's but rather a fuzzy, dynamic scheme that is changing in tune with reality.

Once the NRG scheme is constructed, it can be used to evaluate the similarity or dissimilarity degree of the intervention pattern for patients with similar problems, in a particular hospital or nursing unit in comparison with the "average" nursing unity (based on the total sample).

3. Nursing Related Groups: A Research Study

Developing NRG's is the object of a Ph.D. dissertation. A first study has taken place. The research study on the Nursing Minimum Data Set of 1985 was enlarged in 1987 to collect data on random days in a 6-month period in 22 hospitals, 290 nursing units and about 90,000 patients.

The purpose was to test the set of 23 minimum nursing interventions in a larger environment. We asked the test hospitals to participate in the NRG-study. Seven of them agreed. Extra data were collected in these 7 hospitals on 37 nursing units, for about 3,500 patients.

These extra data were: the 3 most important nursing diagnoses at the day of registration and some measure about the severity of the problem. (See figure 1.

Figure 1.

<u>Nursing Diagnosis No 1</u>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<u>System</u>	(local=1, general=2)	<input type="checkbox"/> <input type="checkbox"/>
<u>Stage</u>	type (acute=1, chronic=2)	<input type="checkbox"/> <input type="checkbox"/>
	degree (mild=1, moderate=2, severe=3, life-threatening=4)	<input type="checkbox"/> <input type="checkbox"/>
	evolution (non progressive=1, progressive=2)	<input type="checkbox"/> <input type="checkbox"/>
<u>Complications</u>	(none=1, treatable=2, complications with residual impairment=3)	<input type="checkbox"/> <input type="checkbox"/>
<u>Response to therapy</u>		
	degree (complete=1, incomplete=2, minimal or none=3)	<input type="checkbox"/> <input type="checkbox"/>
	rate (prompt=1, delayed=2, no response=3)	<input type="checkbox"/> <input type="checkbox"/>
	duration (sustained recovery=1, sustained or intermittent=2, temporary=3, brief=4)	<input type="checkbox"/> <input type="checkbox"/>

A list of nursing diagnoses developed by the North American Nursing Diagnosis Association (NANDA) and given concrete form by Linda Carpenito (1983), was used. The severity measure was based on the work of Susan Horn (1980).

The first step consists in testing the validity and reliability of the measures that have been used. A first reaction from the nurses themselves was that it was filling in all those papers meant a lot of work. They found it interesting but they weren't used to work with nursing diagnoses. Most of them head of it the first time. They also have some difficulties in making the

WERKING IBM-COMPUTERTERMINAL

- 1. Zet printer en video op ON.
- 2. Indien op scherm "UZ LEUVEN", voer "CICSA" in, duw "ENTER".
- 3. Indien op scherm "CICS-VS", duw op "ALT" en "CLEAR".
- 4. Voer in "SIGN-ON", duw "ENTER".
- 5. Vul paswoord en operatorcode in, duw "ENTER", dan ("ALT") en "CLEAR".
- 6. Vraag uw programma op, vb. "VPLA". ...

WERKING APE-PRINTERS

- 1. Schakel de stroom aan, door op de oranje knop te drukken (links onder).
- 2. Zorg dat op uw printers telkens de tweegroene lampjes branden.
- 3. Druk eventueel op de "SEL"-toets.
- 4. Om papier of etiketten uit de printer te halen, druk eerst op "SEL", dan op "TOP".

Terug op "SEL" drukken nadien

V.P.L.A. (VERPLEEGENHEID)

BEELD 1

Vul eenheid in en duw op "PF 1", voor aanwezige patiënten.

BEELD 2

- Duw "ENTER", na wijziging, registratie of voor vervolg.
- PF 2 : terug naar beeld 1.

- PF 3 : maken van lab. etiketten (LET OP DE DATUM) en gewone etiketten.
- PF 4 : opvragen resultaten van vandaag.
- PF 5 : opzoeken van inschrijvingsnr.
- PF 6 : inlezen uitgevoerde prestaties (nog niet op alle eenheden).
- PF 8 : opvragen cumulatief resultatenbeeld.
- PF 9 : vragen dubbel telefoonkaartje.
- PF 10 : opvragen bijkomende info van patiënt (huisdokter, SOS tel. nr.)

V.P.L.P.

OPZOeken PATIENT IN HET ZIEKENHUIS

- Vul in : naam van de patiënt geslacht en voornaam.
- Duw op "ENTER".

V.P.L.R. (RAADPLEGING)

- Vul eventueel nummer van eenheid in.
- Voer het administratief nummer van de patiënt in.
- Doe de nodige registraties.
- Andere mogelijkheden zijn :
 - PF 1 : registratie tweede raadpleging.
 - PF 2 : etiketten zonder raadpleging.
 - PF 4 : aanvragen immunologie.

WAT BIJ PROBLEMEN ?

COMPUTERAFDELING : 2960
(van maandagmorgen 07u00 tot zaterdagmiddag 15u00, dag en nacht).

D. VANDEWAL : 18/4974/0

J. WOUTERS : 6330 (programma probl.)

V.P.L.D.

U komt eerst in de "SCHERMKRANT".

Duw ("ALT") en "CLEAR".

Gebruik :

- PF 1 : info lab.'s, onderzoeken
 - info over lab.
 - info over analyse met nummer
 - info over analyse met beginnummer
 - overzicht eenheden + telefoonnr.

PF 2 :

- procedures
 - gebruik steeds "0" als begincijfer met eventueel de beginletter van de procedure die U zoekt.
 - Duw op "ALT" en "PF 2".
 - Duid met de cursor de procedure aan die U zoekt en duw op "ENTER".

PF 3 : onderzoeken bij patiënten, idem PF 2.

PF 4 : opzoeken werkschema, idem PF 2.

PF 5 : ziekenhuishygiëne, idem PF 2.

PF 6 : info aan patiënten.

PF 7 : - patiëntenclassificatie

- duw op "ALT" en "PF 3", dan ALT en PF 1 voor dagplanning.
- Lees verder onder de stippellijn op het beeldscherm.

difference between medical problems and nursing problems. Some nursing diagnoses' descriptions seem to abstract to work with.

The severity measure was too complicated and not fit to be used for describing nursing problems.

A second step consists in formulating similarities on the diagnostic side as well as at the intervention side of case-mix. Elements to be included in the diagnostic side are: nursing diagnosis, severity, age, medical diagnosis, need index based on the activities of daily living. Elements to be included in the intervention side are: 23 nursing interventions, length of stay. Once these similarities have been defined, we can run a first test on NRG's. A second sample will be necessary to reformulate nursing diagnosis schemes, to include nursing outcome criteria, to describe severity in a consistent and more nursing oriented manner.

CONCLUSIONS

In nursing management a lot of patient classification schemes have been developed until now. These schemes are mostly related to personnel management, nursing workload, etc....

It's a pity that these schemes haven't much professional value. Clinically meaningful classification systems like DRG are of medical origin.

NRG's are a way to develop a clinically meaningful classification scheme for nursing, based on nursing diagnosis, nursing interventions and outcome criteria.

NRG's are constructed in a very dynamic way as to be able to fulfil the challenges of the nineties. A first study has taken place to build NRG. It will take at least several years before an operational model of NRG's will be ready for hospitals.

This paper brought you some taste of the future.

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