When the nursing workload measurement among comatose patients becomes a reality ...

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PURPOSE

Our neurologic unit of 30 beds is one of reference's centers for detection and differentiation of the comatose patients. So, our reference's center accommodate more and more comatose patients from different European countries.
The purpose of this work is to be able to quantify the nursing workload with comatose patients and to demonstrate that this one is heavier and harder than the workload with other neurological patients.

METHODS

B-NMDS

Since 2008, the Belgian Nursing Minimum Dataset (B-NMDS) quantify 91 nursing activities, structured in 23 classes and 6 domains.

Using the Nursing Interventions Classification (NIC) as an international nursing intervention 'language', moreover B-NMDS represents more accurately the workload of nursing care by taking into account most of the aspects in comparison with the previous version of NMDS (23 nursing interventions). However B-NMDS is still a selection of the 433 NIC interventions and thus, unable to cover all NIC activities.

Weighting nursing activities

In 2005-2007, the main goal of an explorative study financed by the Belgian Health Care Knowledge Centre (KCE) was to investigate how this revised B-NMDS could be used and integrated in the hospital financing system.

The time weighting of these 91 nursing activities of this federal tool was carried out within the framework of this study. All B-NMDS interventions and their score modalities were rated separately, independently of any patient To facilitate interpretation the time rating per intervention is recoded to a relative weight expressed in relative points. A denominator of five minutes was chosen. Thus, we can calculate the nursing workload (in points) based on the carried out nursing activities

B-NMDS Domain	B-NMDS Class	Number of activities
1. Physiological : basic, care that supports physical functioning	A. Activity and exercise	1
	B. Elimination management	13
	C. Immobility management	4
	D. Nutrition support	7
	E. Physical comfort promotion	4
	F. Self-care facilitation	6
2. Physiological : complex, care that supports homeostatic regulation	G. Electrolyte and acid-base	5
	H. Drug management	5
	I. Neurologic management	2
	K. Respiratory management	3
	L. Skin/wound management	5
	M. Thermoregulation	1
	N. Tissue perfusion management	7
3. Behavior : care that supports psychosocial functioning and facilitates	O. Behavior therapy	2
	P. Cognitive therapy	1
	Q. Communication enhancement	1
	R. Coping assistance	3
	S. Patient education	2
4. Safety : care that supports protection against harm	V. Risk management	7
5. Family : care that supports the family	W. Childbearing care	5
	X. Family	1
6. Health system : care that supports effective use of the health care	Y. Health system mediation	2
	Z. Health system and information management	4
TOTAL		**91**

RESULTS

From March 2008 to June 2010, B-NMDS was recorded during 150 days among all patients hospitalized in our neurology department, generating a total of 5.630 patient days (1.056 patients). Only days characterized by the presence of a comatose patient were taken into account. So, a total of 5.289 patient days (1.001 patients) were selected for the analysis (♂:57%, ♀:43%) with a middle age of 56 +/- 17 years old.

B-NMDS Class	Mean Rank Gr. A	Mean Rank Gr. B	p-value
Z. Health system and information management	2524,20	5029,73	,000
D. Nutrition support	2524,34	5026,98	,000
V. Risk management	2517,50	5162,00	,000
B. Elimination management	2519,46	5123,30	,000
H. Drug management	2534,54	4825,66	,000
F. Self-care facilitation	2532,33	4869,30	,000
G. Electrolyte and acid-base	2577,08	4380,71	,000
C. Immobility management	2544,52	4628,56	,000
E. Physical comfort promotion	2554,23	4436,95	,000
K. Respiratory management	2583,95	3850,28	,000
L. Skin/wound management	2599,33	3546,55	,000
I. Neurologic management	2586,77	3794,58	,000
N. Tissue perfusion management	2586,43	3801,30	,000
Y. Health system mediation	2658,98	2369,01	,000
P. Cognitive therapy	2634,34	2855,47	,000
S. Patient education	2661,13	2326,59	,000
R. Coping assistance	2649,59	2554,43	,035

In this data set, a binary grouping variable was used : "comatose patient or not". In these conditions, days were divided into 5.034 patient days for neurological (not comatose) patients (group A, grouping variable = 0) and 255 patient days for comatose patients (group B, grouping variable = 1).

The nursing workload was quantified by adding each nursing activities during identical recording day for one patient. Nursing workload per patient day was measured in points for the two groups: m_A=97,5 and M_A=91 for the group A and heavier in the group B with m_B=147,5 and M_B=149.

Using the Mann-Whitney U Test and with a p-value < 0,05 = α, we can reject the null hypothesis (H_0 $Median_A$ = $Median_B$). At the level of significance, there is enough evidence to conclude that there is a difference in the nursing workload of the two groups.

If we examine the workload at the level of the 23 classes (A to Z), we can observe that 17 classes of activities are significantly concerned with this higher workload (see table opposite)

CONCLUSIONS

As demonstrated by the results (difference in the nursing workload of the two groups), nurses feeling is quantified: the workload of comatose patient is higher than the other neurologic patients.
This is particularly the case of the following nursing activities classes: Health system and information management, Nutrition support, Risk management, Elimination management, Drugs management.

Moreover, the problem of the language and the assumption of foreign families responsibility should be added. So, next steps are:

- To publish these results in order to get a higher nursing staff taking care of comatose patients
- To reorganise the coma's team.

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