

Measuring the nursing workload in intensive care with the Nursing Activities Score (NAS): A prospective study in 16 hospitals in Belgium

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TAKE-HOME MESSAGE

- High workload is associated with decreased quality of care in ICU
- In this study, there is a significant difference between the adjusted ratio in Belgium (1/3) and that calculated by the NAS (1/1.5)
- The NAS is significantly higher when calculated per day as compared when calculated per 2 or 3 shifts
- Activities that take on average more time are the administrative tasks and mobilizations of the patient

ABSTRACT

Purpose:

The evaluation of nursing workload is a common practice in intensive care units (ICUs). It allows the calculation of an optimal nurse/patient ratio (N/P) which is a major challenge to ensuring the quality of care while controlling the costs of health care. The objectives of this study were, therefore, to evaluate the N/P ratio and to study nursing activities in intensive care in French-speaking Belgium.

Methods:

The Nursing Activities Score (NAS) was prospectively recorded by shift for two periods of one month each in 16 French-speaking Belgian hospitals for a total of 316 beds ICU and 24 ICU.

Results:

We included 3,377 patients in the study, of which 64% were medical (versus surgical). The results for 24-hour NAS (68.6%) were significantly different from the NAS per shift (Morning: 61.3%, Afternoon: 58.4%, Night: 55.0%). Outliers were significantly more prevalent among men and patients who died and outliers had longer stays in the ICU. Finally, mobilization-positioning and clinical-administrative tasks took, on average, more time for nurses in the ICU.

Conclusions:

There is a significant difference in N/P ratio between the Belgian regulation (1:3) and the one calculated by the NAS (1/1.5). A systematic objective assessment of shift workload should be done to avoid N/P ratio differences in intensive care.

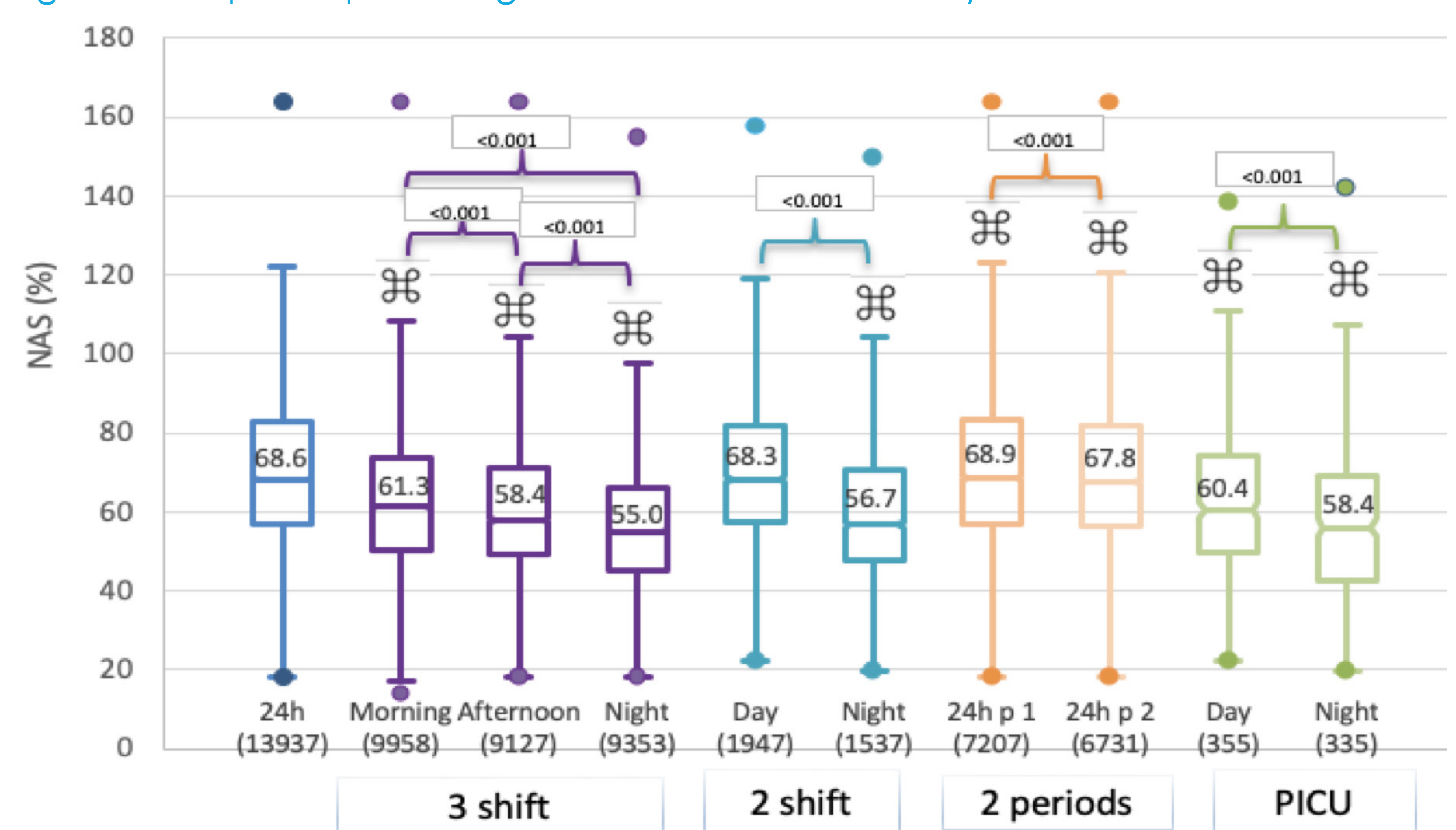
Keywords:

Nursing Activities Score, workload, intensive care unit, shift

Table 1: Hospitals participating in the study

Hospital	Beds ICU
CHU Marie Curie, Hôpital Civil - Charleroi	32
CHU Ambroise Pare - Mons	14
Clinique de l'Europe, site Saint Michel - Bruxelles	8
CHwapi - Tournai	36
CHC Clinique Notre-Dame - Waremme	6
CHR de la Citadelle - Liège	48
CHR East Belgium - Verviers	18
CHU Brugmann site Victor Horta et Paul Brien - Bruxelles	35
Clinique Saint-Jean - Bruxelles	15
CHC Clinique de l'Espérance - Montegnée	10
CHC Clinique Notre-Dame - Hermalle	6
CHC Clinique Saint-Joseph - Liège	22
HIS Hopitaux Iris SUD, site Bracops - Bruxelles	12
Hôpital de Jolimont, La Louvière	22
Hôpital Universitaire des Enfants Reine Fabiola - Bruxelles	18
CHU Tivoli - La Louvière	14
Total	316

Figure 1: Box plots representing the median NAS divided by shift and 24h



P1 = period 1, P2 = period 2; PICU = NAS afternoon and morning are combined into one day; ⌘: comparison NAS 24h with p value < 0.001

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