PERFORMANCE OF TISS-28 AND NEMS IN ASSESSING NURSE WORKLOAD IN PICUS

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Introduction

• **Background:**
  – One of the challenges of the management of a pediatric intensive care unit (PICU) is to adapt the staff nursing care demands required by critical ill child.

• **Objectives:**
  – To evaluate the nursing workload in a PICU using the Simplified Therapeutic Intervention Scoring System (TISS-28) and the Nine Equivalents of Nursing Manpower Use Score (NEMS).
Method

• Prospective cohort study at the Hospital São Lucas da PUCRS (Brazil) from 01/1/2009 to 31/12/2009.

• The data collection was performed by the nurses on call for the unit in each shift – three shifts per day.

• The nursing staff estimate was performed in accordance to the Brazilian Board of Nursing using data from TISS-28 and NEMS.
Results

- We studied 459 admissions, with 3409 observation.
- Mean workload per patient per day estimated by TISS-28 and NEMS.

TISS-28 11.04 hours
NEMS 13.34 hours

P>0.05
Results

- TISS-28 and NEMS showed a good correlation (r²=0.779 for all observations, r²=0.795 at admission, and r²=0.817 for total score).
Results

The mean difference between TISS-28 x NEMS was $-4.35 \pm 4.1$.

Analysis of the measurement outside 2SD ($>8,2SD$) = 5.7%.

Limits of agreement for 2SD was +3.85 to -12.55.

Bland–Altman plots for limits of agreement between TISS-28 and NEMS.

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Calculation of the number of nurses per day

\[ QP = KM \times THE \]

\[ QP = \frac{DS \times IST \times NMP \times HE}{JST} \]

KM = constant

THE = total hours of nursing

DS = weekday (7)

IST = technical security index
  - 30% = 1.30)

JST = weekly journey (36 h)

NMP = average number of patients (12)

HE = hours of nursing
  - TISS=11,04
  - NEMS=13,34
Number of nurses per day

Nursing staff estimation using TISS-28 and using NEMS.

TISS-28
33 nurses/24h

NEMS
40 nurses/24h
Conclusion

• Although NEMS and TISS-28 showed good agreement, there was a non-significant difference between nursing workload estimate by them.

• When used to estimate nursing staff, TISS-28 underestimated number of nurses per day in comparison to NEMS.

• Workload scores are important in defining nursing staff adequacy to workload in PICUs, and nurses need to aware of discrepancies existent between these methods.