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ASSESSMENT OF RELIABILITY AND ACCURACY OF THE SCREENING FOR DETECTION OF POTENTIAL ADVERSE EVENTS IN BRAZILIAN HOSPITALS



Authors: Travassos C.M.R., Mendes W., Martins M., Pavão A.L.B., Camacho L.A.B.

National School of Public Health, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil.

Objectives

- 1- To measure the agreement between nurse's and physician's reviews of medical records using screening criteria, and:
- 2- To assess sensitivity, specificity and predictive values of nurse's reviews.

Methods

Study Design:
Retrospective cohort study for detection of adverse events incidence using a two-phase methodology based on patient medical records reviews: phase 1 (performed by nurses using screening criteria) and phase 2 (performed by physicians to confirm or not the adverse event). Presence of at least 1 criterion in phase 1 indicates a Potential Adverse Event (PAE).

Study Population:
1,103 patients admitted in 2003 in three public general hospitals in the State of Rio de Janeiro, Brazil. Of these, a probabilistic sample of 259 patients was selected. Data were available for 254 cases.

Analysis:
Reliability of phase 1 performed by nurses compared to physicians (percentual agreement and kappa coefficient) and accuracy (sensitivity, specificity and predictive values) of nurse's reviews using physician's reviews as the gold standard.

Results

Reliability:

	All hospitals	Hospital 1	Hospital 2	Hospital 3
Percentual agreement	79.1	82.3	73.8	81.2
Kappa	0.57	0.61	0.47	0.61

Accuracy:

%	All hospitals	Hospital 1	Hospital 2	Hospital 3
Sensitivity	75.0	87.5	73.0	69.2
Specificity	81.8	80.3	74.5	91.3
PPV	72.8	63.6	69.2	87.1
NPV	83.4	94.2	77.8	77.8
Prevalence	39.4	28.2	44.0	45.9

Other results:

- Different screening criteria did not have the same percentage agreement between nurses and physicians:
 - "Death" was referred 26 times and there was agreement in 25 cases (96.2%).
 - The percentage agreement of "Other unexpected complications during hospitalization" was 2.9% and for "Other undesirable outcomes not covered above" was 7.5%.

Conclusion

- Agreement was satisfactory between nurse's and physician's reviews in all cases (Kappa coefficient was substantial for hospital 1 and 3, and moderate for hospital 2 and all hospitals);
- Accuracy analysis showed specificity higher than sensitivity in all hospitals. It was influenced by the higher specificity of hospital 3;
- Sensitivity was higher than specificity in hospital 1 and both measures were very similar in hospital 2;
- Different percentage agreements were found across screening criteria, which can indicate that refinements of some criterion might improve inter-raters reliability;
- The lower prevalence of PAEs in hospital 1 influenced the predictive values;
- Differences in hospital results may be due to sample design that did not discriminate across hospitals;
- The lower sensitivity of nurse's review might negatively impact the incidence of adverse events in studies with similar designs.

THANK YOU!

albpavao@icict.fiocruz.br