

Nursing Software for Emergency Triage (NSET)

Mandirola Brioux H. F.^{abcd}, Guillen S.^b, La Rosa F.^c, Moreno C.^c, Benitez S.^d

^aBelgrano Hospital in San Martin, Buenos Aires, Argentina

^bBIOCOM, Buenos Aires, Argentina

^cHL7 Argentina, Buenos Aires, Argentina

^dHospital Italiano, Buenos Aires, Argentina

Abstract

Determining the priority of attention in an Emergency Room (ER) has always been a difficult issue. Priority is determined with a simple triage system as people arrive at the hospital. It is important to establish how long they can wait for treatment. In order to obtain the best assessment of patients' conditions, we built a Nursing Software for Emergency Triage (NSET). The objective of this work was to assess the efficacy of the NSET versus the triage process without any software (TWS). Results showed that the NSET we built was a substantial help. With this software, we decreased significantly: 1) the length of the triage system process, 2) the waiting time of patients in the waiting room, 3) the number of complaints and 4) the number of patients who walk away. In conclusion, the NSET improves and helps to define more accurately a patient's risk. NSET helps in the emergency department triage.

Keywords:

EMR; HL7; TRIAGE; Nurse; Computer; System; eHealth; MTS-Manchester; Medical Informatics; ER.

Introduction

In the Emergency Room (ER) staff do not attend to patients on a first come, first served basis; but according to the severity of the patient's condition. In an ER, we *must* know who needs help more urgently in the waiting room. Patients presenting themselves in the ER currently face unacceptable delays in initial treatment, and long, costly hospital stays due to suboptimal initial triage and site-of-care decisions. For the purpose of this work, the Manchester Triage System (MTS) was used to build a Nursing Software for Emergency Triage (NSET) to be used by triage nurses. Our hypothesis is that the NSET is better than a triage system without software (TWS) to categorize patients at the ER. [1,2]

Materials and Methods

Belgrano Hospital is located in the surrounding area of Buenos Aires city, Argentina, South America. It is a medium-level acute hospital. There are 200 beds, 8 critical care unit beds and 250 physicians. This study is a prospective study. The period of data collection for this work was from April 30th, 2014 to November 1st, 2014. In this period, we collected 1800 patients' data in the ER of the Belgrano Hospital, Buenos Aires, Argentina. During the data collection period we included patients who were treated in the ER. Twenty eight patients in total were excluded from the sample because some of their

data were missing. The final sample included 1772 patients. Fifteen of them belonged to the NEST group and thirteen to the control group.

Results

The results were as follows: The triage time in the control group was 3.7 and in the NSET group 2.5 with a p less than 0,001. For the Left-without-being-seen index, the results for the control group were 4.76 and for the NSET group 3.98. The difference between the two samples was not significant waiting time of patients in the ER waiting room. In this case, there was a huge difference between both samples; the control group with an average time of 97 minutes against the NSET group with just 28 minutes. In the Complaint-index, the difference between the two groups was significant with the control group at 42.01 and the NSET at 14.62.

Discussion

Results showed that the NSET was of significant help and was better than the TWS. NSET allowed solving several problems and resulted in a better organization, whereas TWS did not.

Conclusion

Treatment priority in the ER may be subject to variation due to different levels of patient illness. We must give more importance to determining the risk for each patient in the moment they enter in the ER which is why triage is critical. The NSET improves and helps to assess more accurately the condition of a patient.

References

- [1] Schuetz P, Hausfater P, Amin D, Haubitz S, Fässler L, Grolimund E, et al. Optimizing triage and hospitalization in adult general medical emergency patients: the triage project. *BMC Emerg Med.* 2013;13(1):12.
- [2] Van Veen M, Steyerberg EW, Ruige M, van Meurs AHJ, Roukema J, van der Lei J, et al. Manchester triage system in paediatric emergency care: prospective observational study. *BMJ.* 2008;337:a1501.

Address for correspondence

humberto.mandirola@hospitalitaliano.org.ar