Emergency department nurses' competences: implementing a personal dossier for nurses onboarding, skills maintenance, and quality audit

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Marco Ruggeri[1], Laura Rasero[2], Angela Brandi[3], Stefano Bambi[4]

[1] RN, Emergency Department Pathways Workflow Monitor, Department of Nursing and Midwifery, Careggi University Hospital, Florence, Italy
[2] RN, MSN, Associate Professor, Department of Health Sciences, University of Florence, Italy
[3] RN, MSN, PhD Nursing Director, Department of Nursing and Midwifery, Careggi University Hospital, Florence, Italy
[4] RN, CCN, MSN, PhD, Associate Professor, Department of Health Sciences, University of Florence, Italy
***Correspondence:** Stefano Bambi - Department of Health Sciences, University of Florence ,Italy; stefano.bambi@unifi.it*

Abstract
Emergency Departments (EDs) are among the most challenging clinical settings for nurses. EDs are complex settings, including patients with various clinical severity levels, every typology of medical and surgical specialties, fast organizational responses, a triage area to identify the clinical priorities to access a medical visitation, and simultaneous emergency codes to be managed. Therefore, the issue of acquiring and maintaining adequate competencies to manage the delivery of nursing care in a multifaceted setting such as ED is central. Orientation and onboarding programs with very different characteristics in terms of content, duration, and delivery methods are present worldwide. These programs can include clinical skills self-assessment, structured learning opportunities, e-learning, development of core skills, portfolios. The possibility of integrating different educational strategies to gain knowledge with time spent in specific clinical areas to increase experience is the winning way to obtain the growth and maintenance of ED nurses' competencies. In this paper, we report on the experience (currently in progress) related to the ongoing performance evaluation of ED nurses' activities during 12 months in the Emergency Department of Careggi University Hospital. In particular, a printed annual

"Professional dossier" was designed with two-fold aim. The staff nurse holder of the booklet can handle a realistic summary of his/her activities, case mix, and time spent in the diverse clinical areas of the ED, comparing these data with opportune standards provided to make adequate comparisons and pinpoint the professional improvements that are needed. The nurse coordinator and nurse manager can use nurses' personal dossiers to know the realistic competencies load in the ED, balance the work shifts with adequate skill mix, program the rotation of nurses in the different clinical areas during the year to ease the maintenance of experience and expertise, and have a photograph of some important performance indicators for hospital personnel evaluation.

Keywords: Nurse Competences, Dossier, Nurse Skills, Quality

Nurses' competencies in Emergency Department

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Therefore, the issue of acquiring and maintaining adequate competencies to manage the delivery of nursing care in a multifaceted setting such as ED is central. American Nurses Association defines competence as "an expected and measurable level of nursing performance that integrates knowledge, skills, abilities, and judgment, based on established scientific knowledge and expectations for nursing practice"[1]. The Emergency Nurses Association competence definition is a little bit further on, introducing a temporal adjective and a more detailed description of the soft and hard elements that compose it; in fact, competence is "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served"[2].

The competencies required for an emergency nurse (EN) are composed of a large set comprising Medical and Surgical Nursing, Orthopaedic Nursing, Neurological Nursing, Paediatric and Neonatal Emergency Nursing, Maternal/Obstetrical Emergency, Forensic Nursing, Community Health Nursing, Operating Theatre Nursing, Intensive Care/Critical Care Nursing[3]. Some strategies to identify the core activities of nurses in emergency department are provided by ad-hoc questionnaires surveying the typologies and frequencies of performed procedures, nursing diagnosis implementation and management, and organizational roles played by nurses (e.g. the Emergency Nursing Procedures Questionnaire). This approach has been used to identify the most, least, and most frequent activities on which to program competencies and skills education and assessment[4].

Nurses onboarding and orientation in ED

Currently no "sink or swim" approach can be used to introduce new nurses in ED settings, even in contexts characterised by low levels of resources, because of the risk of adverse events, frustration and turnover. Orientation and onboarding programs with very different characteristics in terms of content, duration, and delivery methods are present worldwide. These programs can include clinical skills self-assessment, structured learning opportunities, e-learning, development of core skills, portfolios, supported clinical development through many kinds of educational resources as Online training or face-to-face tutorials; supervised practice; working with a support person; reflecting on clinical practice; discussion forums; clinical supervision/action learning sets; ward simulation exercises; in-service education; Continuing Professional Development workshops; conferences; attending professional interest groups (e.g. wound interest groups)[5,6].

Some authors have identified different lengths of time for orientation and onboarding, according to the previous clinical experience of nurses: at least 1 month for experienced emergency nurses, at least 6-8 week for experienced intensive care nurses (with no previous experience in emergency

settings), and 3–6 months for newly hired nurses or nurses without any intensive care or emergency experience[7].

An essential part of competency acquisition is assessment. Competencies can be evaluated through different tools such as simulation, Objective Structured Clinical Examination, self and hetero evaluation, observation, demonstration and return demonstration, chart review, test, and skill checklist[8,9]. Some authors have proposed a psychometrically validated tool for the assessment of emergency nurses' competencies for self- or hetero-evaluation. This tool has been designed with the aim of detecting the quality and quantity of emergency nurses' daily practice and provides discrimination among different levels of competences through the assessment of the following variables: degree of professional competence, level of professional competence, frequency of action, autonomy, complexity of the action, and results of the actions[10].

ED triage competencies issues

Unquestionably, triage represents the peculiarity of nursing care in EDs since it is a hospital process performed exclusively in the emergency department. The accuracy of ED triage in identifying high-acuity patients at risk of adverse outcomes is crucial for preventing ED and in-hospital mortality[11]. Literature shows that incorrect triage evaluation affects patients' flow, ED, in-hospital length of stay, and mortality rates[12].

Therefore, special attention must be paid to the education, certification, and maintenance of competencies to play the role of triage nurses inside every single hospital. These aspects should be consistent with those of the ED triage quality improvement system. The need to establish a quality improvement system for ED triage is compelling because patients and system-hard outcomes depend on the adequacy of the triage level assignment by ED nurses. In fact, the need to assess the ability of nurses to assign the right triage levels has emerged since the adoption of triage in healthcare systems according to quality assurance programs[13]. The correctness of the triage level assignment is fundamental to prevent major adverse events in critically ill patients, and it is the first step in the ED organisation to identify the adequate streaming for patients with minor complaints, avoiding long waiting times and the risk of leaving the ED without being seen, which is one of the most important quality indicators for the effectiveness of ED organisations.

A quality improvement system for ED triage should consider several aspects: periodic revisions of the adopted triage system and the related procedure, continuing education for nurses and nurse aids, triage audit after adverse events related to under- or over-triage cases, and quality auditing of triage nurses. The last dimension should be individually fitted.

There are published experiences of quality improvement in nursing triage performance using the plan-do-check-act, focusing on organizational, relational, and educational interventions[14]. Attending educational courses is a factor that is moderately related to nurses' professional capacity in managing ED triage ($r= 0.38$, $p < 0.001$)[15]. The formal establishment of educational encounters focused on the discussion of anonymised triage clinical cases seems to be effective in improving some indicators related to triage nurses' performance[16,17,18].

However, even if experience does not show a clear relationship with adequate triage decision-making, and more evidence is needed[19], a strong rationale continues to support the irreplaceable role of nurses' clinical experience in making better clinical decisions[20]. Therefore, riage quality and accuracy are related to the experience of triage nurses; in particular, triage decision making depends on the experience and knowledge of nurses[21]. Research has shown that clinical experience is related to ED nurses' competence in performing triage ($r= 0.41$, $p < 0.001$)[15]. In addition, experience is self-perceived by triage nurses as a fundamental element of security at triage, even to support nurses who are new to this role[22]. The results from the administration of the self-report tool showed that triage competence varied according to age ($F = 9.93$, $p<0.001$), clinical experience ($F=18.82$, $p<0.001$), emergency department experience ($F=12.07$, $p<0.001$), and triage experience ($t = 4.40$, $p<0.001$). Moreover, the factors affecting nurses' triage competence were clinical reasoning competence ($\beta = 0.36$, $p<0.001$), emergency room experience ($\beta=0.21$, $p=0.006$), work-related stress ($\beta = 0.18$, $p = 0.007$), and nurse–physician collaboration ($\beta = -0.17$, $p = 0.009$)[23].

Following these streams of reasoning, the possibility of integrating different educational strategies to gain knowledge with time spent in specific clinical areas to increase experience is the winning way to obtain the growth and maintenance of ED nurses' competencies.

The experience of Emergency Department at Careggi University Hospital

Careggi University Hospital is a 1144 beds hospital, one of three trauma centres in Tuscany, Italy.

The Department of Nursing and Midwifery has enacted a general procedure indicating the modalities to provide onboarding and orientation for newly hired nurses or nurses who changed wards or services inside the hospital, and the related charts and documents to fill at the moments of competency assessment, which should be made at fixed intervals[24].

Since this departmental procedure covers only the general lines of action, the detailed planning of orientation and onboarding is deferred to specific clinical settings, with the possibility of implementing onboarding and orientation local programs with ad hoc tools.

Currently, Emergency Department of Careggi University Hospital has a proper procedure to ease the onboarding of nurses that includes a timely and progressive work placement beginning from the low-complexity areas, followed by the intermediate ones, and then the high complexity ones. After these steps, nurses can also have access to spending their shift in the triage area (upon attending a specific regional educational course and obtaining certification). Lastly, nurses with 2 years ED length of service and regional triage certification can attend the course and obtain certification for the advanced competencies in See & Treat.

Competencies are not limited to the acquisition process. The maintenance of competencies (composed of evaluation and enhancement phases) requires a huge amount of work, starting from the mapping of all ED and ending with quality improvement tools as individuals perform audits and clinical case reviews.

In this paper, we report on the experience (currently in progress) related to the ongoing performance evaluation of ED nurses' activities during 12 months in the Emergency Department of Careggi University Hospital.

An ED nurse with clinical and management roles related to the supervision and improvement of the clinical pathways of emergency department patients with high, intermediate, and low clinical complexities has designed an internally printed annual 20 pages pocket booklet entitled "Professional dossier" (Figure 1).

Figure 1 – Booklet "Professional dossier" main sections*

* Dummy data and information

The usefulness of this dossier is two-fold. The nurse holder of the booklet can handle a realistic summary of his/her activities, case mix, and time spent in the diverse clinical areas of the ED, comparing these data with opportune standards provided to make adequate comparisons and pinpoint the professional improvements that are needed. Standards are "expected and achievable levels of performance against which actual performance can be compared…" and determine "…the minimum level of acceptable performance"[25]. The nurse coordinator and nurse manager can use nurses' personal dossiers to know the realistic competencies load in the ED, balance the work shifts with adequate skill mix, program the rotation of nurses in the different clinical areas during the year to ease the maintenance of experience and expertise, and have a photograph of some important performance indicators for hospital personnel evaluation.

The dossier was composed of six parts. Data shown in the personal dossier were gathered from a Hospital Database called "Oracle®". This database collects information on all Emergency Department activities and processes. The six parts of the booklet are described below:

1. A cover reporting the name of the single triage nurse to provide the awareness of "taking in own hands" a personal dossier, and a sense of belonging to the unit.
2. The Introduction section provides the rationale of the booklet and the guide for consultation. The rationale focuses on the need to follow triage performance appropriateness standards provided by National and Regional regulations. The relationship between volume activities and outcomes was explained. The guide to consultation shows the three main sections of the booklet related to ED working activities during the previous year. The first is related to a summary of the number of shifts (working hours) spent by a single nurse in the different clinical areas of the Emergency Department: Emergency Room; ED Clinics for patients with various levels of triage, Short-Stay Emergency Department Observation Unit, and High Dependency Unit. This chapter provide a "photograph" of the clinical settings where the ED nurse exerted his/her competencies and enhanced his/her expertise. The second section relates to triage activities in the previous year. The last section covers See and Treat activities.
3. The page before the first section displays nurse's personal data: name, surname, date of recruitment in hospital, service number, typology of contract of employment (e.g., full time vs part time), typology of work-shifts (daily shift, versus 24-hour shifts), Emergency Department length of service, certified skills, and competencies in special clinical areas (triage, orthopedics, emergency room, See & Treat)
4. The first section is entitled 'Clinical sectors and rostering' (Figure 2).

   This section provides a complete report

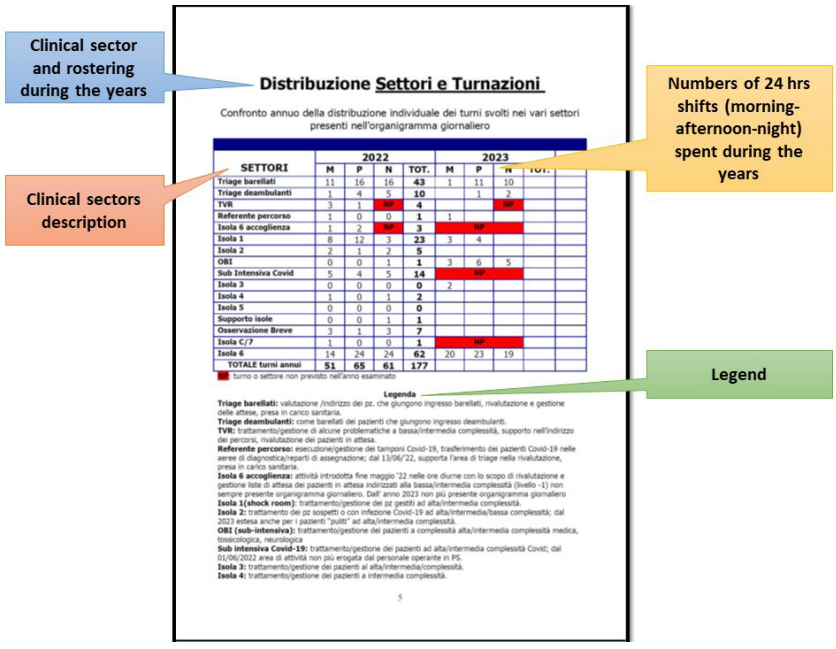


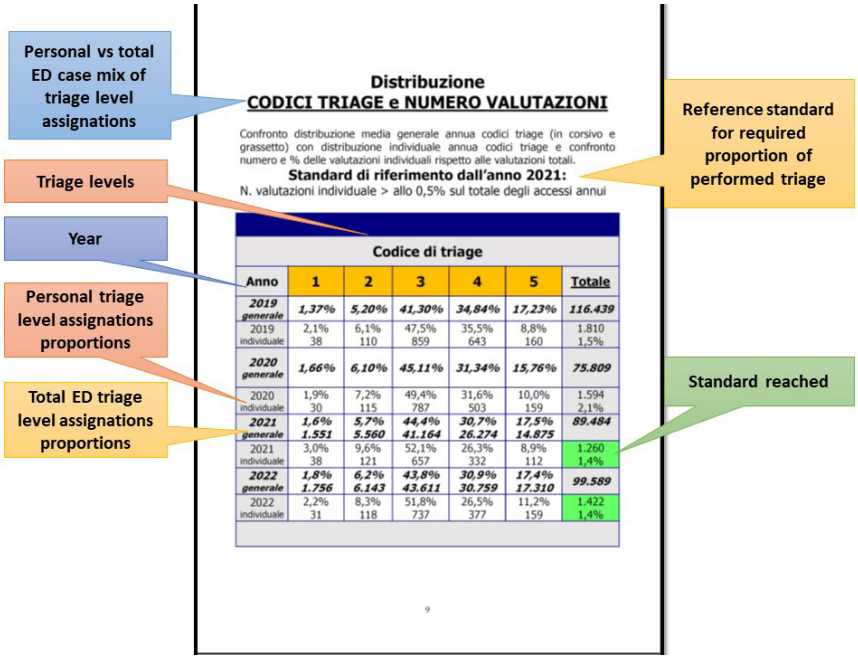
Figure 2 – Booklet "Clinical sectors and rostering" main sections*

* Dummy data and information

about the work shifts spent by nurses in the following clinical areas of the ED, playing different organizational roles: triage area for patients arriving by feet, triage area for patients arriving by ambulance, area of clinical management of minor complaints, periodical re-assessment of patients in the triage area, emergency room, clinics for different levels of clinical complexity (excluding critically ill patients), Short-Stay Emergency Department Observation Unit; ED High Dependency Unit. The shifts spent in all these areas and roles is also displayed according to the progressive clinical complexity of patients: assessment-acceptance (triage, area of clinical management of minor complaints, re-assessment of patients in the triage area); high-intermediate clinical complexity (emergency room, ED High Dependency Unit; intermediate clinical complexity (clinics; Short-Stay Emergency Department Observation Unit); intermediate-low complexity (clinics)

5. The second section covers the personal case mix of triage level assignments, comparing them with the percentages of assignments made by the total number of ED triage nurses. Moreover, the minimum standard of triage volume of activity required is indicated to allow an immediate comparison (Figure 3).

   This standard was designed through an internal benchmarking made on the personal



Codice di triage						
Anno	1	2	3	4	5	Totale
2019 generale	*1,37%*	*5,20%*	*41,30%*	*34,84%*	*17,23%*	*116.439*
2019 individuale	2,1% 38	6,1% 110	47,5% 859	35,5% 643	8,8% 160	1.810 1,5%
2020 generale	*1,66%*	*6,10%*	*45,11%*	*31,34%*	*15,76%*	*75.809*
2020 individuale	1,9% 30	7,2% 115	49,4% 787	31,6% 503	10,0% 159	1.594 2,1%
2021 generale	*1,6% 1.551*	*5,7% 5.560*	*44,4% 41.164*	*30,7% 26.274*	*17,5% 14.875*	*89.484*
2021 individuale	3,0% 38	9,6% 121	52,1% 657	26,3% 332	8,9% 112	1.260 1,4%
2022 generale	*1,8% 1.756*	*6,2% 6.143*	*43,8% 43.611*	*30,9% 30.759*	*17,4% 17.310*	*99.589*
2022 individuale	2,2% 31	8,3% 118	51,8% 737	26,5% 377	11,2% 159	1.422 1,4%

Figure 3 - Personal case mix of triage level assignations*

* Dummy data and information

triage case mix by the "best performers ED triage nurses". The next pages report the percentages of triage level assignation for every patient's main complaint compared to the percentages of levels assigned by all ED triage nurses, also showing the expected maximum standard for the "generic main presentation complaint" designed through ED internal benchmarking. This indicator serves to maintain the triage nurses' focus on the correct classification of patients' presentation symptoms according to the regional main complaints list[26]. The subsequent table displays the comparison between the percentages of triage level assignations with the related proportion of severe outcomes (in-hospital stay, mortality) and the mean percentages totalised by all ED triage nurses. These data are displayed, in addition to the values expected by the internal ED standards and those provided by the Italian Healthcare Ministry (Figure 4)[27].

6. The last section of this booklet shows the descriptive statistics of the total minor injuries and illnesses managed in the Emergency Department through see and treat. Since only a selected group of ED nurses received certification to perform See & Treat, there is a table with the percentages of their performances distributed for apparatus-related problems. This section ends with a summary list of S&T protocols, according to the organ and apparatus of belonging.

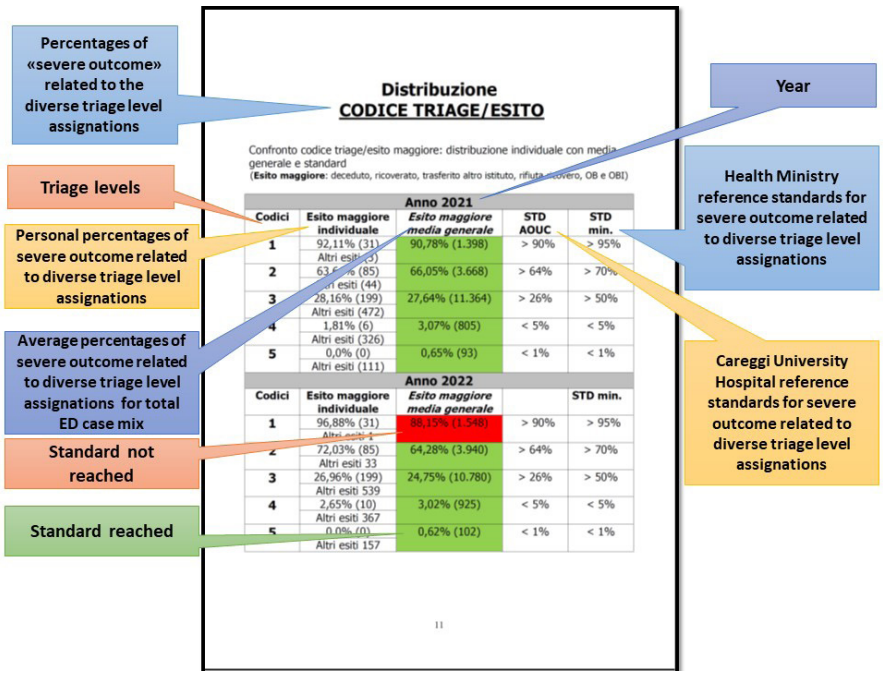


Figure 4 - Personal case mix of triage level assignations with related proportions of severe outcomes*

* Dummy data and information

Final considerations and perspectives

At present, ED professional dossiers are in progress. There are further parameters to be implemented in this booklet: the number of patients' re-assessments after triage level assignations, during the waiting period before doctors' visit; this parameter should also be displayed for every single triage level; the number of personal case mix and special clinical procedures performed or attended during the year; the percentages of nursing score utilisation by the different clinical areas of the ED (e.g. pain assessment scales, pressure injuries assessment scales, neurological scales, etc.). In its complete shape, this booklet represents a factual portion of the professional curriculum that could be part of the personal competence portfolio and be potentially useful for further career development opportunities.

The draft of this booklet could be improved if hospital management applications were endowed with special dashboards addressing nurses' activities and tasks.

A professional dossier is a tool that should be used for personal audits, providing data that can be reviewed in the presence of a clinical supervisor, aiming to improve personal

performance. A quality review of personal performance could be accomplished through the discussion of data displayed by the booklet and possibly auditing those triage or clinical cases that the nurse has not appropriately handled[28]. The triage or clinical cases to be reviewed and discussed should be gathered during random checking-monitoring of triage activities performed by clinical supervisors.

Lastly, the booklet could also be an occasion for nurse coordinators to hold periodic meetings with all nursing staff to show and discuss data about ED patients flows, performance trends, and hypothesising some improvement points for team activities and organisation.

References

1. American Nurses Association. Nursing: Scope and Standards of Practice. 2nd Ed. Silver Spring, MD: American Nurses Association; 2010.
2. Epstein RM, Hundert EM. Defining and assessing professional competence. JAMA. 2002;287(2):226–235.
3. South African Nursing Council (SANC). Competencies For Emergency Nursing. 2020. https://www.sanc.co.za/wp-content/uploads/2020/06/SANC-Competencies-Emergency-Nurse.pdf Accessed 24-07-2023.
4. Dağ GS, Bişkin S, Gözkaya M. Determination of nursing procedures and competencies in emergency departments: A cross-sectional study. Nurs Health Sci. 2019;21(3):307-315. doi: 10.1111/nhs.12598. PMID: 30714670.
5. NSW Health 2011. Transition to Practice Emergency Nursing Program. NSW Department of Health 2011. ISBN 978-1-74187-674-1. www.health.nsw.gov.au Accessed 24-07-2023.
6. National Emergency Nurses Association. Emergency Nursing Scope And Standards Of Canadian Practice Sixth Edition, 2018. https://nena.ca/wp-content/uploads/2023/03/Standards-of-ED-Nursing-Practice-2018.pdf Accessed 24-07-23.
7. Proehl JA. Developing emergency nursing competence. Nurs Clin North Am. 2002;37(1):89-96, vii. doi: 10.1016/s0029-6465(03)00085-9. PMID: 11818264.
8. Harding AD, Walker-Cillo GE, Duke A, Campos GJ, Stapleton SJ. A framework for creating and evaluating competencies for emergency nurses. J Emerg Nurs. 2013;39(3):252-64. doi: 10.1016/j.jen.2012.05.006.
9. National Education Framework Cancer Nursing - EdCaN. Competency assessment in nursing: a summary of literature published since 2000 [Internet]. Melbourne: Allison Evans Consulting. 2008 http://edcan.org.au/assets/edcan/files/docs/EdCancompetenciesliteraturereviewFINAL_0.pdf Accessed 24-07-2023.
10. Holanda FL, Marra CC, Cunha ICKO. Assessment of professional competence of nurses in emergencies: created and validated instrument. Rev Bras Enferm. 2018;71(4):1865-1874. doi: 10.1590/0034-7167-2016-0595. PMID: 30156671.
11. Hinson JS, Martinez DA, Cabral S, George K, Whalen M, Hansoti B, Levin S. Triage Performance in Emergency Medicine: A Systematic Review. Ann Emerg Med. 2019;74(1):140-152. doi: 10.1016/j.annemergmed.2018.09.022. PMID: 30470513.sha.
12. Ouellet S, Galliani MC, Gélinas C, Fontaine G, Archambault P, Mercier É, Severino F, Bérubé M. Strategies to improve the quality of nurse triage in emergency departments: A realist review protocol. Nurs Open. 2023;10(5):2770-2779. doi: 10.1002/nop2.1550. PMID: 36527423; PMCID: PMC10077397.
13. Hay E, Bekerman L, Rosenberg G, Peled R. Quality assurance of nurse triage: consistency of results over three years. Am J Emerg Med. 2001;19(2):113-7. doi: 10.1053/ajem.2001.21317. PMID: 11239253.
14. Adhikari S, Rijal S. Quality improvement of triage accuracy in the Emergency Department. Journal of General Practice and Emergency Medicine of Nepal. 2020; 7: 2363-1168. 10.59284/jgpeman88.
15. Aghabarary M, Pourghaedi Z, Bijani M. Investigating the professional capability of triage nurses in the emergency department and its determinants: a multicenter cross-sectional study in Iran. BMC Emerg Med. 2023;23(1):38. doi: 10.1186/s12873-023-00809-7.
16. Bambi S, Giusti M, Camarlinghi D. The quality improvement of nursing triage in a Emergency Department. The experience of S. Maria Annunziata Hospital in Florence. Scenario 2013;30(3): 14-19.
17. Nykieforuk S, Peri S, Pontrandolfo S, Ronchese F. The evaluation of the quality of triage as a tool to improve the performance at the Emergency Room of the Misericordia Hospital of Grosseto. Scenario 2022;39(3):20-26.
18. Zaboli A, Sibilio S, Magnarelli G, Rella E, Fanni Canelles M, Pfeifer N, Brigo F, Turcato G. Daily triage audit can improve nurses' triage stratification: A pre-post study. J Adv Nurs. 2023;79(2):605-615. doi: 10.1111/jan.15521. PMID: 36453458.
19. Considine J, Botti M, Thomas S. Do knowledge and experience have specific roles in triage decision-making? Acad Emerg Med. 2007;14(8):722-6. doi: 10.1197/j.aem.2007.04.015. PMID: 17656608.
20. Noon AJ. The cognitive processes underpinning clinical decision in triage assessment: a theoretical conundrum? Int Emerg Nurs. 2014 ;22(1):40-6. doi: 10.1016/j.ienj.2013.01.003. PMID: 23685041.
21. Cioffi J. Triage decision making: educational strategies. Accid Emerg Nurs. 1999;7(2):106-11. doi: 10.1016/s0965-2302(99)80031-9. PMID: 10578723.
22. Andersson AK, Omberg M, Svedlund M. Triage in the emergency department--a qualitative study of the factors which nurses consider when making decisions. Nurs Crit Care. 2006;11(3):136-45. doi: 10.1111/j.1362-1017.2006.00162.x. PMID: 16719019.
23. Hwang S, Shin S. Factors affecting triage competence among emergency room nurses: A cross-sectional study. J Clin Nurs. 2023;32(13-14):3589-3598. doi: 10.1111/jocn.16441. PMID: 35851727.
24. Azienda Ospedaliera Universitaria Careggi. Procedura di orientamento e inserimento per il personale neoacquisito afferente al dipartimento delle professioni sanitarie. 09-2020
25. College of Registered Nurses of British Columbia (2020). Professional Standards for Registered Nurses and Nurse Practitioners. November 2020; retrieved July 24, 2023; https://www.bccnm.ca/Documents/standards_

practice/rn/RN_NP_Professional_Standards.pdf Accessed 24-07-2023
26. Ruggeri M, Vanni S, Paolini D, Puccetti L, Ammannati L. "Manuale di formazione del Sistema Triage Toscano (STT)" versione 1.0. FORMAS anno 2019
27. Ministero della Salute – Direzione Generale della Programmazione Sanitaria. Linee di indirizzo nazionali sul triage intraospedaliero https://www.salute.gov.it/imgs/C_17_pubblicazioni_3145_allegato.pdf Accessed 24-07-2023
28. Emergency Nurses Association (ENA). Emergency Severity Index – ESI. A Triage Tool for Emergency Department Care Version 4. 2020 by Emergency Nurses Association (ENA).