EAS Journal of Anaesthesiology and Critical Care
Abbreviated Key Title: EAS J Anesthesiol Crit Care
ISSN: 2663-094X (Print) & ISSN: 2663-676X (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-7 | Issue-3 | May-Jun-2025 | DOI: https://doi.org/10.36349/easjacc.2025.v07i03.002

Original Research Article

Evaluation of The Knowledge of Staff In The Intensive Care Units of Abidjan University Hospitals on The Preventive and Curative Management of Pressure Ulcers

Mobio N'kan Michael Paterne[1]*, Kouamé Koffi Isidore [2], Coulibaly Klina Théodore[3], Judith Kouesseu Bouh[2], Ango Privat Désiré[4], Kouassi Konan Jean[2], Koffi Loes[5], Ymele Nana Cedric[1], N'Guessan YF[1]

[1]Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, University Hospital Center of Cocody
[2]Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, University Hospital Center of Yopougon
[3]Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, Bingerville Mother and Child Hospital
[4]Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, University Hospital Center of Treichville
[5]Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, University Hospital Center of Angre

Article History
Received: 05.04.2025
Accepted: 12.05.2025
Published: 15.05.2025

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Introduction:*** The objective was to assess the knowledge of intensive care staff at Abidjan University Hospitals on the preventive and curative management of pressure ulcers. ***Method:*** This is a descriptive and multicenter cross-sectional study, carried out on126 members of medical staff (senior and junior anesthesiologists and resuscitators) and paramedical staff (nurses) from the intensive care units of the university hospitals of Yopougon, Treichville, Cocody and Angré, from October to December 2024. ***Results:*** The staff was relatively young with a mean age of 36.7 years with a sex ratio of 1.21. The staff had insufficient knowledge on the assessment and monitoring of pressure ulcers (61.90%). Knowledge on pressure ulcer risk factors was acceptable (50.70%). Knowledge on preventive measures was acceptable (93.65%). Knowledge on pressure ulcer treatment was insufficient (61.90%). Knowledge on psychosocial feelings, information and education of patients was insufficient (53.17%). No specific training had been received by the entire sample. ***Conclusion:*** The majority of staff have insufficient knowledge regarding the preventive and therapeutic management of pressure ulcers.

Keywords: Knowledge – Personnel – Resuscitation – Pressure ulcers.

INTRODUCTION

A pressure ulcer is a skin lesion of ischemic origin linked to compression of soft tissues between a hard plane and bony prominences [1]. Pressure ulcers due to pressure affect more than 7 million patients per year worldwide [2]. In the United States, the healthcare sector alone records more than 2.5 million cases of pressure ulcers, more than 60,000 deaths and an annual cost of at least $9 to $11 billion [3]. In France, the prevalence of pressure ulcers was 8.9% among hospitalized patients [4]. These rates vary depending on the department, and can reach up to 42% in intensive care units [5]. In sub-Saharan Africa, the prevalence of pressure ulcers ranged from 1.95% to 15.38% [6,7]. With an estimated prevalence of pressure ulcers of 15.6%, Ivorian hospital structures are far from being a model in the prevention of the occurrence of pressure ulcers [8]. We therefore conducted this study, the objective of which was to assess the knowledge of staff in the intensive care units of Abidjan's hospital and university centers on the prevention and management of pressure ulcers.

METHOD

Framework of the study

The study took place in the intensive care units of the 04 university hospitals (CHU) of Abidjan, namely the CHU of Cocody, Angré, Yopougon and Treichville.

Type of study

This was a prospective, multicenter, descriptive cross-sectional study.

***Corresponding Author:** Mobio N'kan Michael Paterne
Department of Medicine and Specialty, Medical Sciences Training and Research Unit of Abidjan, University Hospital Center of Cocody

Period of study

The study took place over three months (October to December 2024).

Sampling

The number of questionnaires given to the different intensive care units included in the survey was proportional to the number of caregivers present in these structures during the study period and according to the workload.

Population studied

It was made up of medical staff (senior and junior anesthesiologists and resuscitators) and paramedical staff (nurses) from the resuscitation departments of the 4 hospital and university centers in Abidjan.

- **Inclusion criteria**

Included were any individual who was a member of the medical or paramedical staff who received and responded to the form during the study period and who gave their consent to participate in the survey.

- **Non-inclusion criteria**

Any individual who was a member of the medical or paramedical staff who received but did not respond to the form during the study period or who did not give their consent to participate in the survey was not included.

Investigation sheet

Forms software, was sent through social networks to staff (senior anesthesiologist-resuscitators, junior anesthesiologist-resuscitators and nurses). This questionnaire included 50 questions whose objective was to assess the knowledge of doctors and nurses on the prevention and management of pressure ulcers.

Questions with multiple correct answers were awarded the point if all correct items were selected. Thus, the evaluation was done as follows:
Assessment and monitoring of pressure ulcers: acceptable if score ≥ 5/10.
Risk factors: acceptable if score ≥ 5/10.
General preventive measures: acceptable if score ≥ 3/6.
Treatments: acceptable if score ≥ 6/12.
Psychosocial resentment and information given to the **patient and family:** acceptable if score ≥ 1/2.

VARIABLES

- **Epidemiological characteristics**: Age, sex, occupation, professional seniority and place of practice.
- **Knowledge about the initial description, assessment and monitoring of pressure ulcers:** Classification of pressure ulcers, the value of the initial assessment, the constituent elements of the initial assessment, monitoring criteria
- **Knowledge of risk factors:** Pressure ulcer risk scales, specific resuscitation risk scale, pressure ulcer risk factors, specific risk factors in resuscitation and frequency of pressure ulcer risk assessment.
- **Knowledge of general prevention measures:** Specific training on pressure ulcer prevention measures, frequency of position changes, list of pressure ulcer prevention equipment, assessment of patients' nutritional status, components of nutritional status assessment.
- **Knowledge about curative treatment:** Recommended products for cleaning pressure ulcers, the value of pressure ulcer care protocols, surgical indications for pressure ulcers, assessment of pressure ulcer-related pain and psychological care.
- **Knowledge about psychosocial resentment and information given to the patient and family:** Psychosocial resentment, Information and education of the patient and his family

REFERENCES USED

Medical and professional recommendations are defined as methodically developed proposals to assist the practitioner and patient in seeking the most appropriate care in given clinical circumstances.

There are two methods for developing recommendations: the "Clinical Practice Recommendations" method and the "Consensus Conference" method.

To assess knowledge on the prevention and treatment of pressure ulcers, we decided to rely on:

- The recommendations established in November 2001 by the consensus conference "Prevention and treatment of pressure ulcers in adults and the elderly" [1].
- The recommendations of the NPUAP/EPUAP/PPPIA (National Pressure Ulcer Advisory Panel / European Pressure Ulcer Advisory Panel / Pan Pacific Pressure Injury Alliance), developed in 2009 and revised in 2014 and 2019 by method of recommendations for clinical practice under the title: "Prevention and Treatment of Pressure Ulcers: A Brief Reference Guide" [9].

Data analysis and processing

Data entry, processing and analysis were done using epi info software version 7.2.3.0 and Excel 2010. Text entry was done using Microsoft Word 2010 software.

Ethical consideration

Obtaining the approval of administrative authorities (directors of health facilities, various heads of

department) before the start of the study, and ensuring the anonymity of the tools and data collected.

RESULTS

Epidemiological characteristics

During the study period, 126 agents were collected. The average age was 36.7 years with extremes of 27 and 55 years. The study population consisted of 70 men. The sex ratio was 1.21. The staff was distributed as follows: senior anesthesiologist-resuscitators (20), junior anesthesiologist-resuscitators (70) and nurses (36). The average seniority in the profession was 4.6 years. The distribution according to the place of practice was as follows: Yopougon University Hospital (54), Treichville University Hospital (24), Angré University Hospital (24) and Cocody University Hospital (16).

Knowledge about initial description, assessment and follow-up of pressure ulcers

More than half of the sample (55.6%) knew that an initial assessment of the pressure ulcer was necessary. This assessment should be carried out by doctors (87.3%) and nurses (41.30%). The elements constituting the initial assessment were known by a third of the population (38.09%). The stage (88.89%) and the location (90.48%) were the elements most sought after in the admission examination. Less than half of our workforce knew all the forms of presentation of pressure ulcers (47.62%). Redness (84.12%) and ulceration (73.01%) were the forms of presentation of pressure ulcers most listed by our respondents. The majority of our respondents knew that it was necessary to put in place a care plan when a pressure ulcer occurs (96.83%). In case of favorable evolution, more than half of the population (68.25%) knew that the pressure ulcer should be assessed at least once a week. In case of unfavorable evolution, the majority of our population (92.06%) knew that the pressure ulcer should be assessed at least once a day.

Knowledge about risk factors

Half of our staff were not aware of a structured pressure ulcer risk assessment scale (50.79%). The best-known scales during our survey were those of Norton (30.16%), Waterlow (19.04%) and Braden (15.85%). The existence of a specific risk assessment scale for intensive care was only known by a minority (24.81%), however the majority of our auditees considered it necessary to have ready-to-use pressure ulcer risk assessment grids in the departments (93.6%).

A third of the respondents were able to list all the risk factors for the occurrence of pressure ulcers. Among these, immobility (66.67%), prolonged bed rest (49.21%) and malnutrition (44.44%) were the most listed. For the specific risk factors of resuscitation, none of the respondents were able to cite all the specific factors in resuscitation. The length of stay was cited predominantly with 87.30%, followed by anemia and noradrenaline infusion with 25.40% and 19.05% respectively. A minority of our respondents had cited cardiovascular collapse and the Apache score as specific risk factors for resuscitation (10%).

Knowledge about preventive measures

None of the respondents had received specific training on pressure ulcer prevention measures, however all knew the importance and frequency of changing position. None of the respondents were able to name all the pressure ulcer prevention materials. The most well-known prevention material was the anti-pressure ulcer mattress (76.19%). A significant proportion of our sample did not know any prevention material (22.22%).

All respondents knew that it was necessary to assess the nutritional status of patients at risk of developing pressure ulcers (100%). For the assessment of nutritional status, the most listed parameters were patient weighing (82.54%), blood albumin measurement (71.43%), skinfold measurement (71.43%), food calorie count (63.49%), and arm circumference (60.32%).

Knowledge about curative treatment

No specific training on pressure ulcer treatment was provided to the auditees. For pressure ulcer cleaning, a small proportion of our population knew the recommended products (14.29%). All the principles of local pressure ulcer treatment were known by less than a fifth of our study population (14.28%). Removing necrotic tissue (93.65%), avoiding cross-contamination (55.56%) and controlling exudates and infections (49.21%) were the principles of local treatment of pressure ulcers best known by our respondents. Almost all of the staff interviewed knew that it was necessary to have pressure ulcer treatment protocols according to the stage (96.77%). A third of our sample knew all the surgical indications for pressure ulcers (33.33%).

While the assessment of pressure ulcer pain was known by more than half of our study population (69.84%), a similar proportion was unaware of the existence of pain scales for patients unable to communicate. For the assessment of the latter, the patient's behavior (49.21%) and the intensity of the pain (65.08%) were the criteria listed most often. The management of pressure ulcer pain required the use of level 2 (55.08%), level 1 (36.33%) and level 3 (8.59%) analgesics.

Knowledge about psychosocial resentment and information given to the patient and family

The majority of staff recommended psychological support for the patient with pressure ulcers (74.60%) with the main reasons being adaptation to their condition (11.11%), followed by depression (9.52%). Two thirds of staff knew that the information and education of the patient and their family, given by the care team, aimed to encourage their participation in the prevention and treatment of pressure ulcers, particularly in the context of a return home (66.66%).

Table I: Distribution according to the overall estimate of the sample's knowledge of pressure ulcers

		Nurses	MAR senior	MAR junior	Total
Evaluation and monitoring of Bedsores	Acceptable (≥6/12) Insufficient (<6/12)	10 26	12 8	26 44	48 78
Risk factors	Acceptable (≥3/6) Insufficient (<3/6)	14 22	14 6	36 34	64 62
General measures of Prevention	Acceptable (≥5/10) Insufficient (<5/10)	32 4	18 2	68 2	118 8
Treatment	Acceptable (≥6/12) Insufficient (<6/12)	0 36	14 6	34 36	48 78
Psychosocial feeling, information and education	Acceptable (≥1/2) Insufficient (<1/2)	10 26	13 7	36 34	59 67

DISCUSSION

More than half of the sample, or 55.6%, knew that an initial assessment of the pressure ulcer was necessary. Claudia Gallant in Quebec [10] and Ellen M. in France [11] found higher percentages with 96.9% and 100% respectively. According to our sample, this assessment should be carried out by doctors (87.3%) and nurses (41.30%). Ellen M. found opposite results with 96% of nurses and 58% of doctors [11]. The consensus conference states that the description and assessment of the pressure ulcer are essential from the start of care and during follow-up and must be carried out jointly by the nurse and the doctor, as part of a global approach to the patient" [1].

Only 38.09% of the sample knew all the elements of this initial assessment. The stage and location (88.89% and 90.48%) were the most sought-after elements. Our results are similar to those of Ellen M. in France with results between 75 and 100% [11]. According to the Abridged Reference Guide, it is necessary to assess and document physical characteristics such as: location, category/stage, size, types of tissues affected, coloration, state of the peri-lesional area, wound edges, fistulous tracts, undermining, tunneling, exudate and odor. » [9].

Only 47.62% of the sample were aware of all forms of pressure ulcer presentation. The majority of the sample were aware of at least one form of pressure ulcer presentation with percentages ranging from 73.01% for redness to 84.12% for ulceration. In Ellen M., it was redness that obtained 95%, followed by deep involvement at 91% [11]. More than half of the sample, or 69.84%, were aware of the existence of 4 stages in the classification of pressure ulcers. The Short Reference Guide recommends using the international NPUAP/EPUAP pressure ulcer classification system to classify and document the level of tissue loss. [9].

The majority of the sample, 96.83%, knew that it was necessary to implement a care plan when a pressure ulcer occurred. Claudia Gallant and Ellen M. found similar results with 85.6% and 100% respectively [10,11]. The Short Reference Guide recommends: “Use pressure ulcer assessment data to plan interventions that will best promote healing.” [9].

In case of favorable evolution, the majority of the sample, i.e. 68.25% knew that the pressure ulcer should be assessed at least once a week. According to the abbreviated reference guide, the pressure ulcer should be assessed at the beginning of treatment and reassessed at least once a week in case of unfavorable evolution [9].

In case of unfavorable evolution, the majority of the sample, 92.06%, knew that the pressure ulcer should be assessed at least once a day. According to the consensus conference, the frequency of follow-up assessment is not clearly established. It depends on the state of evolution of the pressure ulcer, its complications and the dressings chosen. As long as there are necrotic or fibrinous areas or debris, signs of infection, the assessment should be daily [1].

Half of our workforce did not know a structured pressure ulcer risk assessment scale (50.79%). This could be explained by the rarity of the formal use of a risk scale in our daily practice context. However, the consensus conference stipulates that the use of reproducible and validated risk scales associated with an initial clinical assessment allows the development of prevention strategies adapted to the level of risk [1].

The best known scales in our survey were those of Norton (30.16%), Waterlow (19.04%) and Braden (15.85%). Ellen M. had obtained similar results but in different proportions to ours [11].

The existence of a risk assessment scale specific to resuscitation was known by only a minority (24.81%); however, as in the Ellen M series (90%) [11], the majority of our auditees considered it necessary to have ready-to-use pressure ulcer risk assessment grids in the departments (93.6%).

A third of the respondents were able to list all the risk factors for the occurrence of pressure ulcers. Among these, immobility (66.67%), prolonged bed rest (49.21%) and malnutrition (44.44%) were the most listed.

For the specific risk factors of intensive care, none of the respondents were able to cite all the specific factors in intensive care. The length of stay was cited mainly with 87.30%, followed by anemia and noradrenaline infusion with 25.40% and 19.05% respectively. A minority of our respondents cited cardiovascular collapse and the Apache score as specific risk factors for intensive care (10%). Indeed, the pathological development of a pressure ulcer is based on the restriction or even total blockage of blood flow with limitation of oxygenation and cellular metabolism [12].

None of the auditees had received specific training on pressure ulcer prevention measures, however, all were aware of the importance and frequency of changing positions. Ellen M.'s results are similar to ours [11]. The abbreviated reference guide recommends repositioning for all people at risk or with pressure ulcers, unless contraindicated [9]. The consensus conference recommends that position changes should be planned every 2 to 3 hours, or even more frequently [1].

None of the respondents were able to name all the pressure ulcer prevention materials. The most well-known prevention material was the anti-pressure ulcer mattress (76.19%) as in the study by Ellen M (95.6%) [11]. A significant proportion of our sample did not know of any prevention material (22.22%).

All respondents knew that it was necessary to assess the nutritional status of patients at risk of developing pressure ulcers (100%). These results were similar to those of Ellen M [11]. For the assessment of nutritional status, the most listed parameters were weighing the patient (82.54%), a blood albumin test (71.43%), skinfold measurement (71.43%), food calorie count (63.49%), and arm circumference (60.32%). Establishing the nutritional status for each person at risk or with a pressure ulcer is part of the recommendations of the Short Reference Guide [9].

No specific training on pressure ulcer treatment was provided to the auditees. For pressure ulcer cleaning, a small proportion of our population knew the recommended products (14.29%). The abbreviated reference guide recommends cleaning healthy healing pressure ulcer tissue with saline or potable water and considering the use of an aseptic technique when the person, the wound or the wound environment are compromised [9]. The use of cleaning solutions containing surfactants and/or antimicrobials, when cleaning pressure ulcers with debris, confirmed or suspected infection, or when a high level of bacterial colonization is suspected, is also recommended by the abbreviated reference guide [9].

All principles of local treatment of pressure ulcers were known by less than one-fifth of our study population (14.28%). Removing necrotic tissue (93.65%), avoiding cross-contamination (55.56%) and controlling exudates and infections (49.21%) were the most well-known principles of local treatment of pressure ulcers. The application of the principles of hygiene and prevention of cross-transmission of germs is recommended by the consensus conference [1].

Almost all staff surveyed were aware of the need for stage-specific pressure ulcer care protocols (96.77%). The Short Reference Guide recommends considering creating a decision algorithm to assist clinicians in their choices of care plans and medical equipment for pressure ulcer treatment [9].

One third of our sample knew all the surgical indications for pressure ulcers (33.33%). The consensus conference states that surgery is necessary in cases of significant tissue necrosis, exposure of the vascular-nervous axes, tendons or joint capsules, exposure of the bone and infection. Surgery is contraindicated in elderly subjects with multifactorial pressure ulcers as well as in the absence of implementation or effectiveness of measures to prevent recurrence [1].

Pressure ulcers cause painful discomfort and moral and physical suffering, a limitation of functional capacities (impossible to walk or sit) with the consequences of a limitation of autonomy, outings and therefore a reduction in freedom [12]. The assessment of pressure ulcer-related pain was known by more than half of our study population (69.84%). Ellen M. had obtained results significantly higher than ours (93.3%) [11]. For the assessment of the latter, the patient's behavior (49.21%) and the intensity of the pain (65.08%) were the criteria listed most often, as in the study by Ellen M [11]. The abbreviated reference guide recommends assessing and documenting in all people the pain associated with the pressure ulcer or its treatment. An initial assessment of pain should include the following four elements: a detailed history of pain including the character, intensity and duration of the pressure ulcer-related pain; a physical examination including the neurological component; a psychosocial assessment; appropriate diagnostic work to determine the type and cause of pain [9]. The management of pressure ulcer-related pain required the use of level 2 (55.08%), level 1 (36.33%) and level 3 (8.59%) analgesics. According to the consensus conference, it is recommended to use analgesics according to the 3-step strategy recommended by WHO. A change of step is necessary when the drugs of the previous step, correctly prescribed, are insufficient. However, severe pain during pressure ulcer care may justify the use of a step 3 analgesic from the outset [1].

Pressure ulcers also have the consequences of a change in self-image and relationships with others linked to the presence of the wound, possible discharge and odors from it [1]. The majority of staff recommended psychological care for patients with pressure ulcers (74.60%) with the main reasons being adaptation to their condition (11.11%), followed by depression (9.52%).

The management of pressure ulcers should prevent the occurrence of a depressive syndrome or avoid its accentuation according to the consensus conference [1].

As recommended by the Consensus conference [1], two thirds of the staff knew that the information and education of the patient and their family, given by the care team, aimed to encourage their participation in the prevention and treatment of pressure ulcers, particularly in the context of a return home (66.66%).

CONCLUSION

The majority of staff have insufficient knowledge regarding the preventive and therapeutic management of pressure ulcers. Conducting staff training could improve the level of staff knowledge.

REFERENCE

1. Consensus Conference Prevention and treatment of pressure ulcers in adults and the elderly Thursday 15 and Friday 16 November 2001 Georges-Pompidou European Hospital – Paris consulted on 07-03-2025 on the site https://www.has-sante.fr/upload/docs/application/pdf/escarresdef_long.pdf
2. Padula, William V et al. "Value of hospital resources for effective pressure ulcer prevention: a cost-effectiveness analysis." BMJ quality & safety vol. 28,2 (2019): 132-141. doi:10.1136/bmjqs-2017-007505.
3. Pham B. Preventing Pressure Ulcers in Long -term Care: A Cost-effectiveness Analysis. Arch Intern Med. 14 Nov 2011;17).
4. Barrois B, Labalette C, Rousseau P, Corbin A, Colin D, Allaert F et al. A national prevalence study of pressure ulcers in French hospital inpatient. J Wound Care 2008; 17:373-379.
5. VanGilder C, Amlung S, Harrison P, Meyer S. Results of the 2008-2009 International Pressure Ulcer prevalence Survey and at 3 year, acute care, unit- specific analysis Ostomy Wound Management 2009; 55:39-45.
6. Bakary Dembele, Abdoulaye Zie Kone, Djeneba Sylla. Survey on the prevention and management of pressure ulcers at the CH U hospital in Mali. - Malian Review of Science and Technology Series B: Human Medicine, Pharmacy, Animal Production 2019; 0, 22: 93-99.
7. André Otti, Anselme N. Tchansi Kouamber, Lauris FAH. Pressure sores and the specific role of nurses Rev. int sc med Abj 2023;25,2:208-217.
8. Datié. A. M et al. The end of the hospital stay and the conditions for returning home from vascular hemiplegia in Abidjan (Côte d'Ivoire): problems and opportunities. Journal of Medical Rehabilitation 2011; 31:65-70.
9. Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Australia; 2014.
10. Claudia Gallant (2008). Evaluation of the knowledge and practices of nurses in a university hospital center in the prevention and treatment of pressure ulcers. Nursing science dissertation. Quebec: Faculty of Nursing, Université Laval 128p.
11. Ellen MILANOVIC (2010). Prevention and treatment of pressure ulcers: current state of knowledge of nurses in certain healthcare establishments in Meurthe-et-Moselle. Doctoral thesis: Pharmacy. Henri Poincaré University - Nancy 1: Faculty of Pharmacy, 2010; 142p.
12. Thomas DR. Prevention and treatment of pressure ulcers: what works? What doesn't? Cleveland Clin J Med. 2001. 68:704-720.

Cite this article: Mobio N'kan Michael Paterne, Kouamé Koffi Isidore, Coulibaly Klina Théodore, Judith Kouesseu Bouh, Ango Privat Désiré, Kouassi Konan Jean, Koffi Loes, Ymele Nana Cedric, N'Guessan YF (2025). Evaluation of The Knowledge of Staff In The Intensive Care Units of Abidjan University Hospitals on The Preventive and Curative Management of Pressure Ulcers. *EAS J Anesthesiol Crit Care, 7*(3), 41-46.