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A Survey of the Challenges Faced by On-Call Physicians in the Plastic Surgery Department at Mohammed VI University Hospital, Marrakech

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Abstract: **Original Research**

Plastic surgery is a transversal specialty that covers several areas. Training is long and demanding. The resident undergoes an extensive curriculum through several training phases. The first difficulties encountered are during on-call duties and are both theoretical and practical in nature. Through this article, we aimed to shed light on these difficulties, which prompted us to conduct a survey that highlighted the main challenges faced — such as knowing how to indicate and perform blepharorrhaphy in a burn patient, knowing how to indicate and carry out early excision-grafting, and correcting hydro-electrolyte disorders.

Keywords: Residency, Plastic Surgery, Difficulties, On-Call Duty.

INTRODUCTION

Plastic, reconstructive, and aesthetic surgery is a highly versatile specialty. This discipline offers great transversality, as it spans numerous fields such as burn care, traumatology, oncology, and congenital or acquired malformative pathologies, all with the shared goal of reconstruction. The other — equally interesting — aspect of this specialty is aesthetic surgery, including surgery for aging, obesity, and cosmetic enhancement.

During the residency program in plastic, aesthetic, and reconstructive surgery at CHU Mohamed VI in Marrakech, both the resident physician and the intern assigned to the department are required to perform on-call duties in the ward, in the burn intensive care unit, and in the emergency department as part of their training. During these shifts, the physician must receive patients, manage them in the emergency department, and hospitalize them in the plastic surgery ward or the burn ICU if necessary. The physician also participates, under the supervision of their supervisors, in surgical procedures in the operating room, and ensures pre- and post-operative preparation and follow-up.

During the on-call shift, the physician is confronted with diverse clinical situations requiring both theoretical and practical knowledge in patient management, various ICU scenarios, and pre- and post-operative follow-up. They must therefore possess the necessary theoretical and technical background to successfully fulfill their duties. The on-call resident faces difficulties of different kinds: theoretical difficulties related to insufficient theoretical knowledge, practical

difficulties related to lack of experience in performing certain procedures, and relational and management difficulties. We therefore wanted to determine these difficulties by conducting a survey among former and current residents to identify the various challenges they encounter during their on-call shifts, whether theoretical, practical, relational, or managerial.

Objective of our work:

- To conduct a survey to identify the various difficulties encountered by an on-call physician in plastic surgery during their shift in the ward, emergency department, and burn ICU.

Materials and Methods

I. Study Description

The purpose of our study was to gain an overview of the level of competency acquisition required for an on-call physician in a plastic surgery department in Morocco when faced with specific clinical situations during their shifts. The method used was a descriptive, cross-sectional observational study, based on a survey conducted among interns and residents in plastic, aesthetic, and reconstructive surgery departments using an anonymous questionnaire.

II. Questionnaire Design

The questionnaire was structured into 5 parts:

1. Collection of socio-professional characteristics: sex, status, and duration of service in the department
2. Use of documentation and need for a practical guide for the main emergency situations encountered
3. Self-assessment of competency level in burn care, infectious disease management, pressure ulcer management, and peri-operative patient care
4. Performance of basic plastic surgery procedures and the number of times performed
5. Non-medical difficulties encountered by the physician during the on-call shift

The questionnaire was anonymous, consisting of approximately twenty multiple-choice and short-answer questions, completable in 5 minutes.

III. Study Population

Inclusion criteria encompassed all interns and residents currently or previously assigned to the plastic, reconstructive, and aesthetic surgery departments of CHU Mohamed VI in Marrakech, CHU Souss Massa in Agadir, CHU Tanger, and CHU Mohamed VI in Oujda.

IV. Questionnaire Distribution

The study ran from March 14, 2022 to April 4, 2022. A digital file was created on Google Forms based on the questionnaire, then sent via private messages to several current and former physicians from the department, and distributed in plastic surgery wards across various Moroccan university hospitals. A total of 25 responses were collected.

V. Data Analysis

Data collection was carried out using Google Forms software, with some data converted into Excel 2010 files. Qualitative variables were expressed as graphs and percentages, and quantitative values as medians or means.

VI. Ethical Considerations

Data collection was performed with respect for patient anonymity and confidentiality of their information.

RESULTS

I. Sociodemographic and Professional Characteristics

1. Sex

Among respondents, there was a slight male majority: 13 males (52%) vs. 12 females (48%), with an M/F sex ratio of 1.08.

Table 1: Distribution of respondents by sex

Sex	Number (n)	Percentage (%)
Male	13	52%
Female	12	48%
Total	**25**	**100%**

2. Physician Status

Among respondents, 96% (n=24) were physicians in training (intern or resident), compared to 4% who were specialists (n=1).

Table 2: Distribution of respondents by training status

Status	Number (n)	Percentage (%)
In training	24	96%
Qualified specialist	1	4%
Total	**25**	**100%**

Of physicians in training, 66.7% were residents (n=16) and 33.3% were interns (n=8).

Table 3: Distribution of respondents in training by position

Position	Number (n)	Percentage (%)
Resident	16	66.7%
Intern	8	33.3%
Total	**24**	**100%**

3. Time Spent as a Physician in a Plastic Surgery Department

More than half of the respondents had spent less than one year in a plastic surgery department (54.1%, n=13), 16.7% between 2 and 3 years, and 12.5% more than 4 years.

Table 4: Distribution of respondents by time spent in a plastic surgery department

Duration	Number (n)	Percentage (%)
Less than 1 year	13	54.1%
1-2 years	4	16.7%
2-3 years	4	16.7%
More than 4 years	3	12.5%
Total	**24**	**100%**

II. Use of Documentation and Utility of a Practical Guide

1. Difficulty Managing Patients During On-Call Shifts

Nearly half of respondents (44%, n=11) reported frequently encountering situations where they did not know how to manage patients during their shifts; 40% (n=10) faced such situations occasionally.

Table 5: Frequency of patient management difficulties during on-call shifts

Frequency	Number (n)	Percentage (%)
Frequently	11	44%
Sometimes	10	40%
Rarely	3	12%
Never	1	4%
Total	**25**	**100%**

III. Self-Assessment of Competencies in Burn Care, Infectious Disease, Pressure Ulcer Management, and Peri-operative Care

1. Burn Patient Management — Local Aspect

Respondents demonstrated the best mastery in the following areas:

- Assessing burn depth (40% excellent mastery n=10, 48% good mastery n=12)
- Assessing total body surface area burned in adults and children (44% excellent mastery n=11, 28% good mastery n=7)
- Knowledge of dressing protocols according to the local state of the burn (44% excellent mastery n=11, 40% good mastery n=10)

The objectives with the greatest difficulty were:

- Knowing how to indicate and perform blepharorrhaphy in a burn patient (20% no mastery n=5, 28% average mastery n=7)
- Knowing how to indicate and perform early excision-grafting in a burn patient (16% no mastery n=4, 28% average mastery n=7)

Table 6: Mastery of burn care objectives - local aspect

Objective	Excellent	Good	Average	No Mastery	Total (n)
Assess burn depth	40% (10)	48% (12)	12% (3)	0% (0)	25
Assess body surface burned	44% (11)	28% (7)	24% (6)	4% (1)	25
Dressing protocols	44% (11)	40% (10)	16% (4)	0% (0)	25
Indicate/perform blepharorrhaphy	16% (4)	36% (9)	28% (7)	20% (5)	25
Indicate/perform excision-grafting	24% (6)	32% (8)	28% (7)	16% (4)	25

2. Burn Patient Management — General Aspect

Best-mastered objectives:

- Calculating the fluid balance for a burn patient (44% excellent mastery n=11, 32% good mastery n=8)
- Categorizing burned patients and knowing when hospitalization is required (36% excellent mastery n=9, 44% good mastery n=11)
- Identifying signs of respiratory burns (36% excellent mastery n=9, 48% good mastery n=12)

Most difficult objectives:

- Correcting hyper/hyponatremia in a burn patient (8% no mastery n=2, 36% average mastery n=9)
- Correcting hyper/hypokalemia in a burn patient (12% no mastery n=3, 36% average mastery n=9)

Table 7: Mastery of burn care objectives - general aspect

Objective	Excellent	Good	Average	No Mastery	Total (n)
Calculate fluid balance	44% (11)	32% (8)	20% (5)	4% (1)	25
Categorize patients	36% (9)	44% (11)	16% (4)	4% (1)	25
Identify respiratory burns	36% (9)	48% (12)	12% (3)	4% (1)	25
Correct hyper/hyponatremia	20% (5)	36% (9)	36% (9)	8% (2)	25
Correct hyper/hypokalemia	16% (4)	36% (9)	36% (9)	12% (3)	25

3. Pressure Ulcer Management in Plastic Surgery

60% of respondents (n=15) reported good mastery in recognizing the different aspects and stages of pressure ulcers, and 24% reported excellent mastery. Responses were nearly evenly distributed between excellent, good, and average mastery regarding nursing knowledge (excellent 28%, good and average at 32% each) and prescription writing for pressure ulcer patients. No respondent reported failing to master pressure ulcer staging recognition or prescription writing; only 8% reported not mastering nursing care.

Table 8: Mastery of pressure ulcer management objectives

Objective	Excellent	Good	Average	No Mastery	Total (n)
Recognize pressure ulcer stages	24% (6)	60% (15)	16% (4)	0% (0)	25
Patient nursing knowledge	28% (7)	32% (8)	32% (8)	8% (2)	25
Prescription writing	32% (8)	36% (9)	32% (8)	0% (0)	25

4. Infectious Disease Management in Plastic Surgery

76% of respondents reported average or good knowledge in managing necrotizing fasciitis (good mastery n=11, average mastery n=8).

Table 9: Mastery level in managing necrotizing fasciitis

Mastery Level	Number (n)	Percentage (%)
Excellent mastery	3	12%
Good mastery	11	44%
Average mastery	8	32%
No mastery	3	12%
Total	**25**	**100%**

5. Peri-operative Patient Management in Plastic Surgery

More than half of respondents reported good mastery of pre-operative patient preparation (56%, n=14), post-operative flap monitoring (60%, n=15), and general post-operative patient monitoring (40%, n=10).

Table 10: Mastery level in peri-operative patient management

Objective	Excellent	Good	Average	No Mastery	Total (n)
Pre-operative preparation	24% (6)	56% (14)	16% (4)	4% (1)	25
Post-op flap monitoring	32% (8)	60% (15)	8% (2)	0% (0)	25
Post-op patient monitoring	28% (7)	40% (10)	28% (7)	4% (1)	25

IV. Basic Plastic Surgery Procedures

Procedures performed more than 10 times by the majority of respondents:

- Suturing wounds of the trunk or limbs and facial wound suturing (40%, n=10)
- Postural splinting (32%, n=8)
- Burn hand dressing (48%, n=12)

Procedures never performed by the majority of respondents:

- Aponeurotomy and early excision-grafting (40%, n=10)
- Intubation of a burn patient (44%, n=11)

Table 11: Performance of basic plastic surgery procedures and frequency

Procedure	Never	1-5 times	6-10 times	>10 times
Trunk/limb wound suturing	4%	20%	36%	40%
Facial wound suturing	8%	24%	28%	40%
Postural splinting	12%	24%	32%	32%
Burn hand dressing	8%	16%	28%	48%
Aponeurotomy	40%	32%	20%	8%
Early excision-grafting	40%	32%	20%	8%
Burn patient intubation	44%	28%	16%	12%

V. Non-Medical Difficulties During On-Call Shifts

1. Frequency of Non-Medical Difficulties

Approximately one-third of respondents (36%) reported frequently encountering non-medical difficulties during their shifts (n=9), 28% often encountered them (n=7), and only 12% had never encountered them. These difficulties were mainly driven by a lack of equipment, unavailability of resources and medications (especially antibiotics), organizational and coordination problems between hospital staff (porters and paramedical personnel), and frequent breakdowns of diagnostic equipment. Other difficulties noted included the availability of a rest room and meal quality.

Table 12: Frequency of non-medical difficulties during on-call shifts

Frequency	Number (n)	Percentage (%)
Frequently	9	36%
Often	7	28%
Sometimes	6	24%
Never	3	12%
Total	**25**	**100%**

2. Relational Difficulties During On-Call Shifts

Just over half (52%) of respondents reported having already experienced relational difficulties with their colleagues (n=13). Of those who responded "Yes," 58% reported difficulties with both medical and paramedical personnel (n=7). These difficulties were primarily behavioral: refusal to anesthetize patients, nursing procedures performed by physicians, and refusal to carry out instructions.

Table 13: Relational difficulties during on-call shifts

Experienced Relational Difficulties	Number (n)	Percentage (%)
Yes	13	52%
No	12	48%
Total	**25**	**100%**

Table 14: Category of personnel involved in relational difficulties

Personnel Category	Number (n)	Percentage (%)
Medical and paramedical staff	7	58%
Paramedical staff only	3	25%
Medical staff only	2	17%
Total respondents with difficulties	**12**	**100%**

As solutions, respondents proposed: empowering paramedical staff, making more equipment and treatments available, increasing the number of on-call paramedical staff, and implementing well-adapted protocols and management guidelines for the most frequent clinical situations.

DISCUSSION

I. Sociodemographic and Professional Characteristics

The sex distribution of respondents was nearly equal, with 52% male and 48% female, and an M/F ratio close to 1. The vast majority of respondents were physicians in training (interns or residents); only one participant was a specialist. Two-thirds of the surveyed physicians in training were residents, and one-third were interns. More than half of respondents (58%) had spent less than one year in a plastic, reconstructive, and aesthetic surgery department, which underscores the relevance of this study for this physician population.

II. Use of Documentation and Utility of a Practical Guide

In our study, 44% of surveyed physicians had frequently encountered a clinical situation they did not know how to manage, and 40% responded "sometimes," representing over three-quarters of participants. This highlights the importance of making a well-adapted management manual available to physicians for each clinical situation they may encounter on call, especially since 84% of respondents sometimes or often use a manual or practical guide during their shifts. When asked "Do you think a guide to the main situations encountered by an on-call physician in plastic surgery would help you in your practice?", 80% answered "yes, enormously" and 12% answered "yes."

These results demonstrate strong utilization of manuals and guides during on-call shifts by physicians, as well as the high frequency of patient management difficulty situations.

III. Self-Assessment of Competencies

More than 50% of residents considered themselves to have good or excellent mastery in all burn care objectives. The most difficult objectives were: knowing how to indicate and perform blepharorrhaphy in a burn patient, knowing how to indicate and perform early excision-grafting, and correcting hydro-electrolyte disorders in a burn patient — all of which are addressed in our practical guide.

Regarding pressure ulcer management, responses were nearly evenly distributed between excellent, good, and average mastery, with a slight majority reporting good mastery of pressure ulcer staging recognition.

In infectious disease management, the majority of respondents reported average or good knowledge for managing necrotizing fasciitis. The same finding applied to peri-operative management, with 68% of responses falling between average and good mastery.

IV. Basic Plastic Surgery Procedures

The procedures never performed by most respondents were: aponeurotomy, early excision-grafting, and intubation of a burn patient — all topics addressed in our practical guide.

V. Non-Medical Difficulties

Two-thirds of survey respondents frequently or often encountered non-medical difficulties during their shifts, mainly driven by lack of equipment and unavailability of resources and medications. Approximately

50% of respondents encountered relational difficulties with their colleagues, with half of those experiencing difficulties with both medical and paramedical staff. These were predominantly behavioral difficulties: refusal to anesthetize patients, nursing procedures performed by physicians, and refusal to carry out instructions.

As solutions, respondents proposed: empowering paramedical staff, making more equipment and treatments available, increasing the number of on-call paramedical staff, and implementing well-adapted protocols and management guidelines for the most frequent clinical situations.

Practical Guide to the Main Emergencies in Plastic Surgery: www.guideplastique.com

CONCLUSION

The resident or intern physician in plastic surgery is confronted during their on-call shifts with difficulties of both a medical and non-medical nature, requiring theoretical and practical knowledge. Conducting a survey among residents has shed light on the difficulties encountered in practice, with the aim of improving training conditions and on-call working conditions for the resident physician.

Conflict of Interest: No conflict of interest

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