

## Strategic analysis of the surgical internship in Sudan

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### **Abstract:**

**Background:** The internship period is internationally recognized the prerequisite official essential training period for the medical graduates to get registered in the local licensing body; in Sudan being the Sudan Medical Council. The evaluation of this important period was not studied before in Sudan.

**Objectives:** To evaluate the performance of house-officers as reflected by their activities and opinions of their supervisors.

**Methodology:** A prospective qualitative study in the period May 2011 through June 2011. The data was collected from 246 house-officers. Their activities, duties as formulated by their seniors and supervisors together with the relevant aspects of the working environment and their aspirations were noted.

**Results:** A total of 106 (53%) were trained in surgical units having seven or less peers. 118(59%) have worked in surgical units under supervision of surgical registrars and consultants. 157 (78.5%) had duties once or more/week. 129 (64.5%) house-surgeons had regular seminars and tutorials. 163 (81.5%) gained experience in wound suturing. 177 (88.5%) house-surgeons were exposed to clinical diagnoses and management of cases of acute abdomen but, 134 (67%) were able to perform various numbers of appendicectomies. 88(44%) of house-officers had a chance to open or close a vertical midline laparotomy wounds and 140 (70%) had chance to apply a plaster of Paris

**Conclusion:** The overall performance of house-surgeons in Sudan as reflected by their activities and opinions is good. However, protocols and guidelines of practice, structure of the training should be made clear before starting the surgical internship.

**Key words:** Preregistration medical graduates duties, house-officers, medical education, and medical responsibility.

**I**n Sudan about 3200 medical graduates annually get their internship training. Although, the hospitals are not well equipped, the historical heritage of medical practice, have played a role in optimising training for this number of house-officers. After the permanent registration, in developing countries and in particular in Sudan, these doctors are expected to take legal responsibilities and some of them may become the sole treating doctor in rural hospitals. The internship period is detrimental for the future direction of the medical graduate. This important period, which was restructured many times in the past in Sudan, has not yet been evaluated.

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This motivated us to find out the strengths, weaknesses, challenges and threats of training during the internship in the current set up of practice in Sudan.

**The objective:** To evaluate the performance of house-surgeons as reflected by their activities and self-satisfaction.

### **Methodology:**

**Sample size:** The annual medical graduates were about 3200. Some of them travel abroad but, the majority applies for internship training in Sudan. About one quarter of the latter i.e. nearly 320 get chances to be trained in the surgical departments in the capital of the country. A total of 246 pretested questionnaires were distributed to those who had already accomplished their surgical internship in May 2011. Only 200 of the

correspondents responded (response rate 81.3%). We expected this is to yield valid results with confidence level 95%.

**Tools used for evaluation:** The questionnaire included the number of peers, registrars and consultants in the surgical unit. Also, the frequency of the duties, tutorials and seminars were obtained. Participation in management of emergency cases such as acute abdomen, multiple injured patients as well as experience gained in elective surgical procedures were recorded.

**Inclusion criteria:** medical officers who have just completed their pre-registration internship.

**Exclusion criteria:** The house –surgeons who were working in their surgical internship shift at the time of distribution of the questionnaire, were excluded to eliminate the bias in judgement.

**Statistical analysis:** Data were fed into the Statistical Package of Social Sciences (SPSS) version 17. Means, correlations were computed where appropriate. Significance was taken at  $P = < 0.05$ .

**Results:**

A total of 106 (53%) were trained in surgical units having seven or less peers. However, 22 (11%) were trained in overcrowded surgical units having eleven house-surgeons or more (Table 1).

Table 1: The frequency of the house-officers in the surgical units

Number of house-officers	Frequency
1 – 3	11 (5.5%)
4 – 7	95 (47.5%)
8 – 11	72 (36%)
More than 11	22 (11%)
Total	200 (100%)

Also, 118(59%) have worked in surgical units under supervision of surgical registrars and consultants but 82(41%) were exclusively working with consultants in units without registrars as seen in table 2.

Table2: The relationship between the percentage of house-officers and the number of registrars in their surgical units.

Number of registrars	House-officers
Zero	82 (41%)
1 – 2	87 (43.5%)
3 – 5	30 (15%)
More than 5	1 (0.5%)
Total	200 (100%)

The house-surgeons who had duties once or more per week were 157 (78.5%) as shown in table 3.

Table 3: The frequency of duties allotted to the house surgeon.

Interval	House-surgeons
None	5(2.5%)
Less than once/week	38(19%)
Once a week	112(56%)
Twice a week	36(18%)
Three times a week	4(2%)
> three times a week	5(2.5%)
Total	200

**The academic activities:** A total of 129 (64.5%) house-surgeons had regular seminars and tutorials at least once a month as shown in table 4.

Table4: The frequency of seminars and tutorials attended by the house-surgeons.

Seminars and tutorials	House-surgeons
None	71(35.5%)
1/Month	79(39.5%)
2/Month	09(4.5%)
3/Month	07(3.5%)
4/Month	29(14.5%)
> 4/Month	5(2.5%)
Total	200

**Clinical experience:** House-surgeons who had a chance for wound suturing were 163 (81.5%) as depicted in Figure 1.

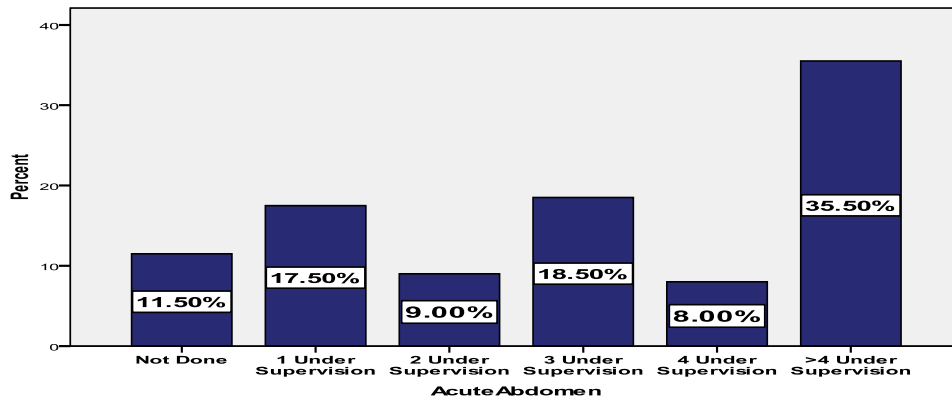


Figure 1: The frequency of house-surgeons who performed wound suturing

About 177 (88.5%) house-surgeons were exposed to clinical diagnoses and management of cases of acute abdomen (Figure 2) but, 134 (67%) were able to perform various numbers of appendicectomies (Figure 3).

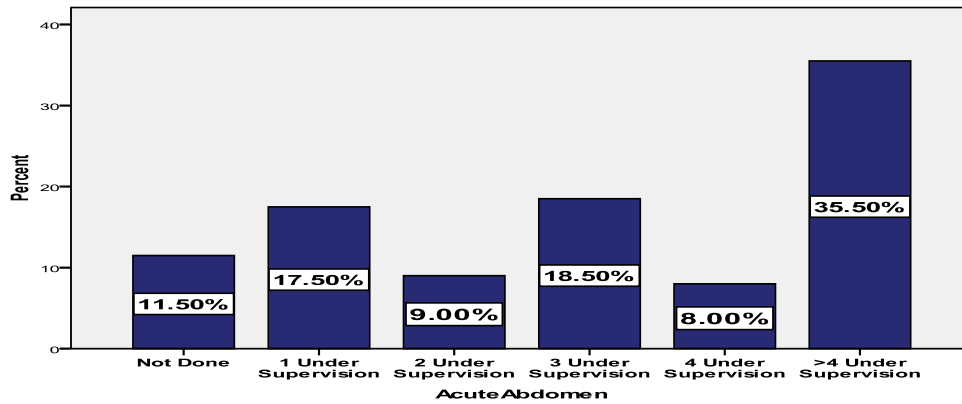


Figure 2: The frequency in involvement of diagnosis and management of acute abdomen.

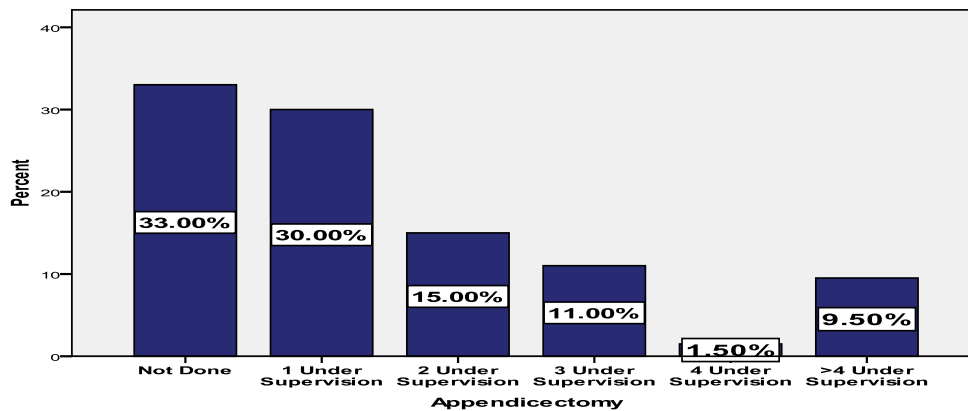


Figure 3: The frequency of appendicectomies performed by house-surgeons

However, 88 (44%) of house-officers had a chance to open or close vertical midline laparotomy wounds as illustrated in Figure 4.

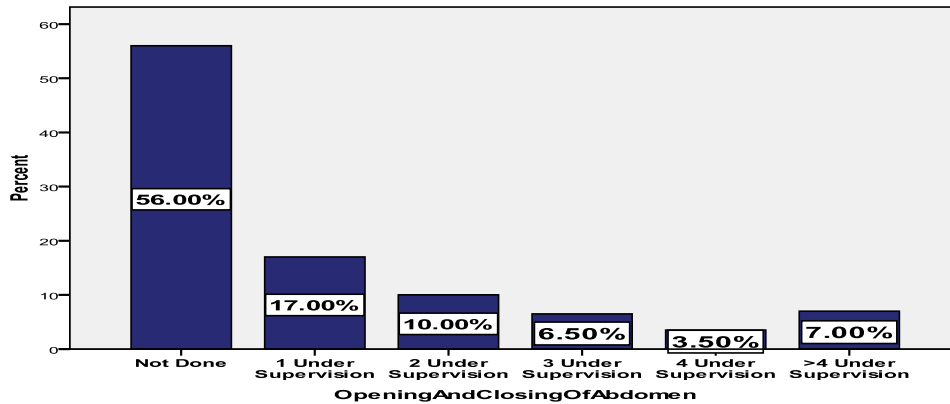


Figure 4: The frequency of opening and suturing surgical vertical midline laparotomy wounds.

Also, 144 (72%) of house surgeons were involved in management of multiple injured patients as shown in Figure 5 and 140 (70%) had chance to apply a plaster of Paris as depicted in Figure 6.

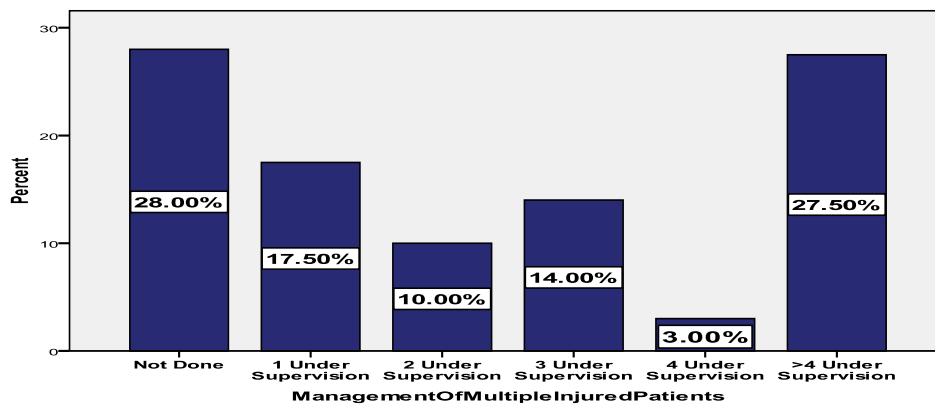


Figure 5: The frequency in involvement of diagnosis and management of multiple injured patients.

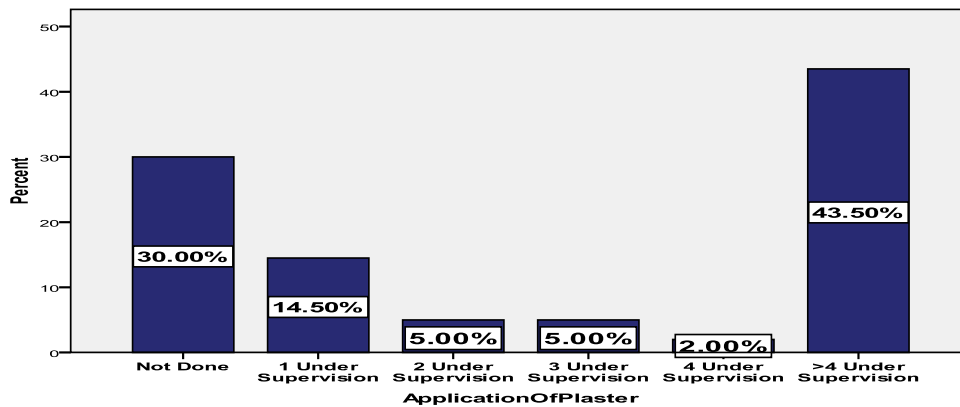


Figure 6: The frequency of applying plaster of Paris by house-surgeons.

**Discussion:**

On-job training of medical alumnae as a prerequisite for permanent registration of medical practitioners was introduced in the UK in 1950<sup>1</sup>.

In order to establish the Sudan Medical Council the Act number 7 in 1955 was passed by the Council of the General Governor of Sudan, but it was inaugurated in July 18, 1968. The act for the medical council was up dated in 1973, 1986, 1992 which was amended in 2004<sup>2</sup>.

In Sudan the pre-registration internship training had passed along different structuring designs being 12 months inclusive of three compulsory shifts (internal medicine, general surgery and obstetrics and gynaecology with and one optional shift in any of the various medical specialties. It was extended thereafter to 18 months to be completed to two years in 1994. In 2008 it was structured in four compulsory shifts over 12 month's period<sup>2</sup>. However similar differences do occur in other countries<sup>3</sup>.

In 1990 the number of medical schools in Sudan has increased to 39 graduating about 3200-3500 alumnae annually<sup>4</sup>. However the chances for official enrolment in the internship rotation are acquired in 7-10 months of the graduation day. Had this lagging period not been exploited consciously, it may weaken the strengths gained in the medical school.

In this study we found that just more than half the number of the house surgeons had worked in surgical units with reasonable number of peers i.e. less than eight. However, the majority of the house-surgeons had one or more duties/week. This indicates that the training chances are optimal in the Sudan. Yet, 22 (11%) of house-officers were unduly crowded ( $\geq 11$  house-surgeons) in some surgical units and a few of them i.e. 5 (2.5%) did not have duty days during the surgical rotation. Though the latest group comprise little number of house-surgeons, yet, their training schedules need to be amended.

Also, we found that 82 (41%) of the house-surgeons had worked in surgical units, without registrars i.e. under direct supervision

of the consultant surgeons. Hence their gain in knowledge and skills was great. Nonetheless, this needs to be rectified by the Sudan Medical Specialization Board (SMAB) to complete the ladder of training system.

Regarding the gain in knowledge and experience, the study shows that about two thirds of the house-surgeons had regular seminars and tutorials once a month or more. In addition 163 (81.5%) had chances for wound suturing, 177 (88.5) were exposed and participated in the diagnoses and management of cases suffering of acute abdomen conditions. Also, 134 (67%) were able to perform various numbers of appendectomies and 88 (44%) had chances to open or suture vertical midline laparotomy wounds. Furthermore, 144 (72%) were involved in management of multiple injured patients and 140 (70%) had chances to apply plaster of Paris under supervision. To us this is a good overall performance; however, we believe that this importance turning point in the history of the doctors training needs meticulous structuring, close observation and regular auditing. The internship in Sudan is similar to that in New Zealand, where the broad strategy of the latter advises that the house-officer should have clinical experience gained in a wide range of medical and surgical conditions with opportunity to learn and perform several clinical procedures under supervision. Yet it seems that interested house-officers in Sudan do have more practical chances to gain surgical skills more than in New Zealand and the UK. However the internship period in Sudan is shorter and lacks guidelines in the hospital and emergency departments as compared to the training two years foundation in New Zealand and the UK<sup>5,6</sup>.

The working hours per week for the house-surgeon vary in the different hospitals in Sudan. More than half of them work for about 64 hours a week, however, 45 (22.5%) of house-surgeon work 72 hours or more per week. In contrast there is an international trend to reduce the working hours of house-officers from 88 hours/week to not more than

64 hours/week<sup>7, 8</sup>. In this study, we found that 2.5% of house-officers hadn't had any duty during the surgical internship, 18.5% hadn't chances to suture wounds, and 33% were not trained to perform appendicectomy. This should be rectified by the supervising consultants or programme training directorate.

Limitation of the study: The study cannot cover all the surgical house-officer activities, but it has dealt with the major and important ones. Also the study did not assess gains in values and attitudes. This is because medical education is becoming more patient centred and learner driven. Also, assessment of professional behaviour is difficult to define, complicated to measure and makes the study rather complex.

#### **Conclusion:**

The overall performance of house-surgeons in Sudan as reflected by their activities and opinions is good. However, protocols and guidelines of practice, structure of the training should be made clear to the house-officer before he/she starts this important period to unify the gains in surgical experience. Continuous auditing by the interns

themselves, their supervisors, and the policy makers reduces differences and gaps in knowledge and skills before these junior doctors are subjected to full range of responsibility in the outskirts and rural hospitals.

Conflict of interest: none

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