

# Awareness of Nutritional Screening and Support Among surgeons

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## Abstract

**Background:** Surgical nutrition is a critical part of surgery that many surgeons overlook or undervalue. No previous studies are present to fill the gap of knowledge in Saudi Arabia about nutritional screening awareness and support among surgeons.

**Objectives:** to measure the knowledge and awareness of nutritional screening and support among surgeons in Makkah province, and to define their approach toward its implementation.

**Methods:** a cross-sectional study was done and surgeons of all specialties at King Abdulaziz University Hospital, Jeddah city, Saudi Arabia were included.

**Study instrument:** a predesigned questionnaire was sent to the targeted participants. The questionnaire included items to collect data about surgeons' gender, specialty, position, work duration, institution, screening of nutritional status of their hospitalized patients, patients screened for malnutrition, system used in nutrition screening, participation in meetings on clinical nutrition, calculation of daily energy requirement and practice in nutritional support.

**Ethical considerations:** ethical approval was obtained from the research ethics committee of King Abdul-Aziz University.

**Results:** Only 25.4% of the participants were screening all patients for their nutritional status; 39.8% were screening only those who appear undernourished by inspection and 50.8% were using multiple methods to determine the nutritional risk. 61% did not participate in meetings on clinical nutrition, 14.4% participated in more than 2 yearly

meetings, and 39.8% started nutritional support in a patient with a high nutrition risk 10-14 days prior to the operation. Most of them (58.5%) did not calculate daily energy requirement and consult a dietitian; 59.3% mentioned that they give postoperative nutritional support if the patient will not be able to fulfill his/her nutritional needs by oral food intake. 34.7% did not prescribe nutritional support products to patients when discharged if given nutritional support during hospital stay and 33.1% ceased oral intake of solid food in a patient who will be undergoing a major abdominal operation at midnight before the operation day. 30.5% cease the oral intake of clear fluids in a patient who will be undergoing a major abdominal operation at midnight before the operation day and 38.1% give standard nutritional support to patients at nutritional risk who will undergo a major abdominal operation for cancer. Females and surgeons who participated in more than 2 meetings on clinical nutrition in a year had a significant higher percentage of those who were screening the nutritional status of their hospitalized patients.

**Conclusion:** Our findings indicated that the nutritional knowledge levels of surgeons in the field of clinical nutrition was not satisfactory. To improve nutritional care in hospitals, effective nutrition training and ongoing education for all staff must be prioritized.

**Keywords:** awareness, nutritional, screening, support, surgeons, Saudi Arabia

## Introduction

Preoperative surgical nutrition, which includes providing the patient clear fluids until 2-3 hours before anesthesia, is safe and shown to reduce the feeling of thirst while preventing dehydration (1).

The goal for postoperative patients is to promote faster recovery and well-being, with fewer complications and a shorter hospital stay. This can be accomplished in a variety of ways, including early oral intake and movement, sip feeds, or artificial feeding via enteral or parenteral methods. Surgical nutrition should always be considered because of its positive impact on clinical practice and costs.

Surgical nutrition is a critical part of surgery that many surgeons overlook or undervalue. Even though it has a significant impact on surgical recovery, a lack of information can lead to a variety of issues, including decreased wound healing, decreased immunological responses, increased organ dysfunction, delayed recovery, and increased morbidity and mortality (3,4).

According to a Turkish research of Turkish surgeons, there is still room for development in terms of clinical nutrition awareness and understanding (5). Another Swiss-Austrian study found that, despite the well-established link between malnutrition and poor postoperative outcomes, surgeons fail to adopt routine screening and support based on evidence-based guidelines (6).

There are no previous studies present to fill the gap in knowledge in Saudi Arabia about nutritional screening awareness and support among surgeons. This study aimed to measure the knowledge and awareness of nutritional screening and support among surgeons in Makkah province, and to define their approach toward its implementation.

## Methods

**Study design:** a cross-sectional study was done.

**Study setting:** King Abdul-Aziz university hospital Jeddah, Saudi Arabia.

**Study population:** Surgeons of all specialties at King Abdulaziz University Hospital, Jeddah city, Saudi Arabia.

**Study instrument:** a predesigned questionnaire was sent to the targeted participants. The questionnaire included items to collect data about surgeons' gender, specialty, position, work duration, institution, screening of nutritional status of their, hospitalized patients, patients screened for malnutrition, system used in nutrition screening, participation in meeting on clinical nutrition, calculation of daily energy requirement and practice in nutritional support.

**Ethical considerations:** ethical approval was obtained from the research ethics committee of King Abdul-Aziz University.

**Data analysis:** Data were analyzed using SPSS version 26. Qualitative data was expressed as numbers and percentages, and Chi-squared test ( $\chi^2$ ) was used to assess the relationship between variables. Ap-value of less than 0.05 was considered as statistically significant.

## Results

Table 1 shows that 77.1% of the participants were males, 35.6% had the specialty of general surgery and 47.5% were consultants. Of them, 62.7% had a work duration more than 5 years and 69.5% were working in teaching hospitals (university or training and research hospital affiliated to the Ministry of Health).

Figure 1 shows that most of the participants (69.5%) were screening the nutritional status of their hospitalized patients.

Figure 2 illustrates that only 25.4% of the participants were screening all patients for their nutritional status, while 39.8% were screening only those who appear undernourished by inspection. As for the system used in nutrition screening, most of the participants (50.8%) were using multiple methods to determine the nutritional risk in the same patient.

Table 2 shows that most of the participant surgeons did not participate in meetings on clinical nutrition (61%) and only 14.4% participated in more than 2 yearly meetings. Of them (39.8%) reported that they start nutritional support in a patient with a high nutrition risk 10-14 days prior to the operation. Most of them (58.5%) reported that they do not calculate the daily energy requirement of a patient themselves as they consult a dietitian to calculate it. Most of them (59.3%) mentioned that for patients whom they give nutritional support before the operation, they give postoperative nutritional support if the patient will not be able to fulfill his nutritional needs by oral food intake. About 34% (34.7%) reported that they do not prescribe nutritional support products to patients when discharged from the hospital if the patient was given nutritional support during the hospital stay. About one third of the participant physicians (33.1%) reported that they cease the oral intake of solid food in a patient who will be undergoing a major abdominal operation at midnight before the operation day. And 30.5% reported that they cease the oral intake of clear fluids in a patient who will be undergoing a major abdominal operation at midnight before the operation day. Of them, 38.1% reported that they give standard nutritional support products to the patients at nutritional risk for those patients who will undergo a major abdominal operation for cancer.

Table 3 shows that female surgeons had a significantly higher percentage of those who were screening the nutritional status of their hospitalized patients compared to male surgeons (88.9% vs. 63.7%) ( $p < 0.05$ ). On the other hand, there was a non-significant relationship between screening of the nutritional status of hospitalized patients and participants' specialty, position, work duration and institution ( $p > 0.05$ ).

Figure 3 illustrates that surgeons who participated in more than 2 meetings on clinical nutrition in a year had a significantly higher percentage of those who were screening the nutritional status of their hospitalized patients ( $p < 0.05$ ).

**Table 1. Distribution of studied physicians according to their gender, specialty, position, work duration and institution (No.: 118)**

Variable	No. (%)
Gender	
Female	27 (22.9)
Male	91 (77.1)
Specialty	
Cardiac surgery	1 (8)
ENT	15 (12.7)
General surgery	42 (35.6)
Neurosurgery	7 (5.9)
OBGYN	9 (7.6)
Ophthalmology	11 (9.3)
Orthopedic	13 (11)
Pediatric surge	6 (5.1)
Plastic surgery	3 (2.5)
Spine	1 (0.8)
Urology	8 (6.8)
Vascular surgery	2 (1.7)
Position	
Consultant	56 (47.5)
Resident	39 (33.1)
Specialist	23 (19.5)
How long have you been working as a surgeon?	
Less than 5 years	44 (37.3)
More than 5 years	74 (62.7)
Type of institution	
A teaching hospital (University or Training and Research Hospital affiliated to the Ministry of Health)	82 (69.5)
General hospital (State Hospital affiliated to the Ministry of Health)	36 (30.5)

Figure 1. Percentage distribution of the participants according to screening of nutritional status of hospitalized patients

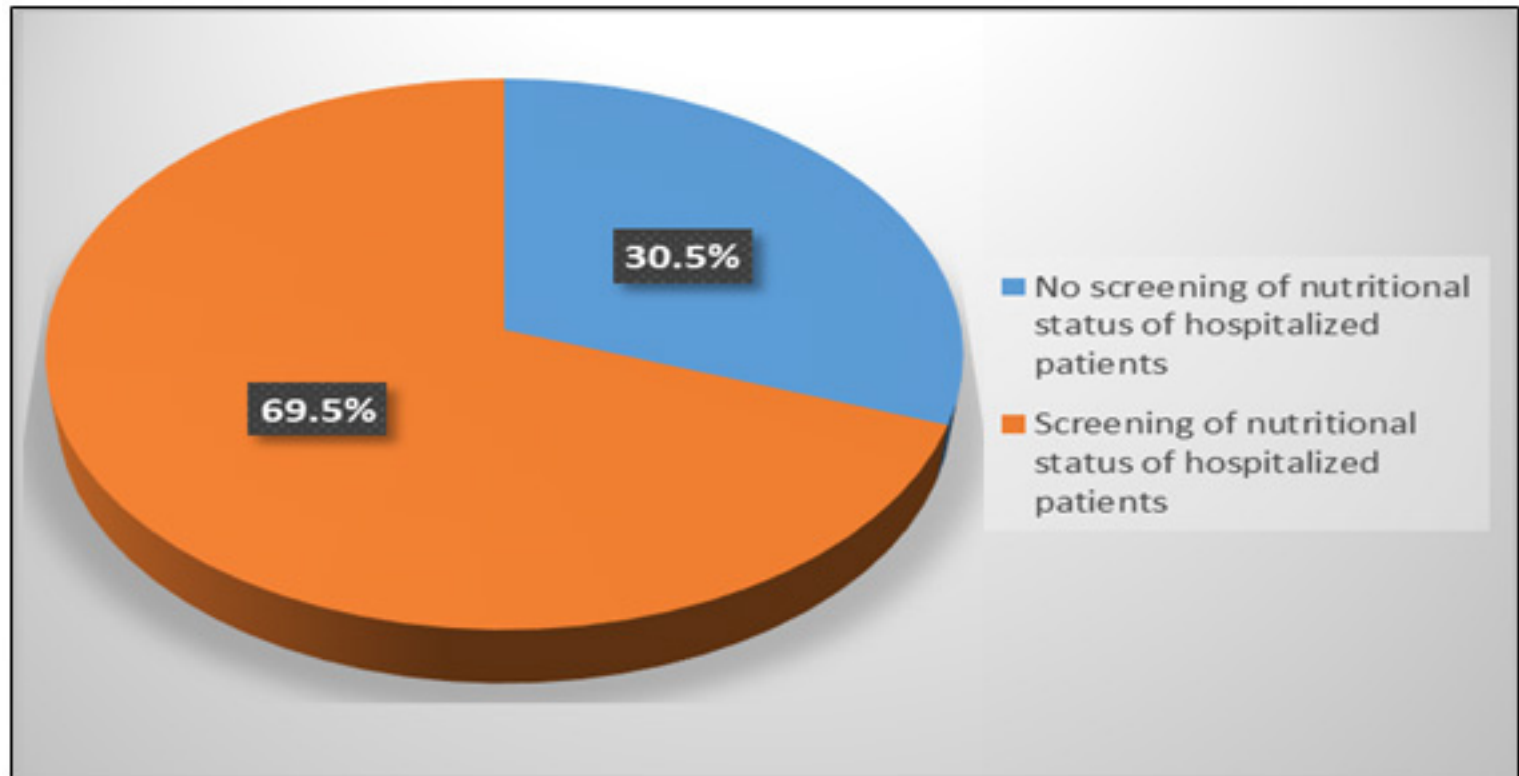
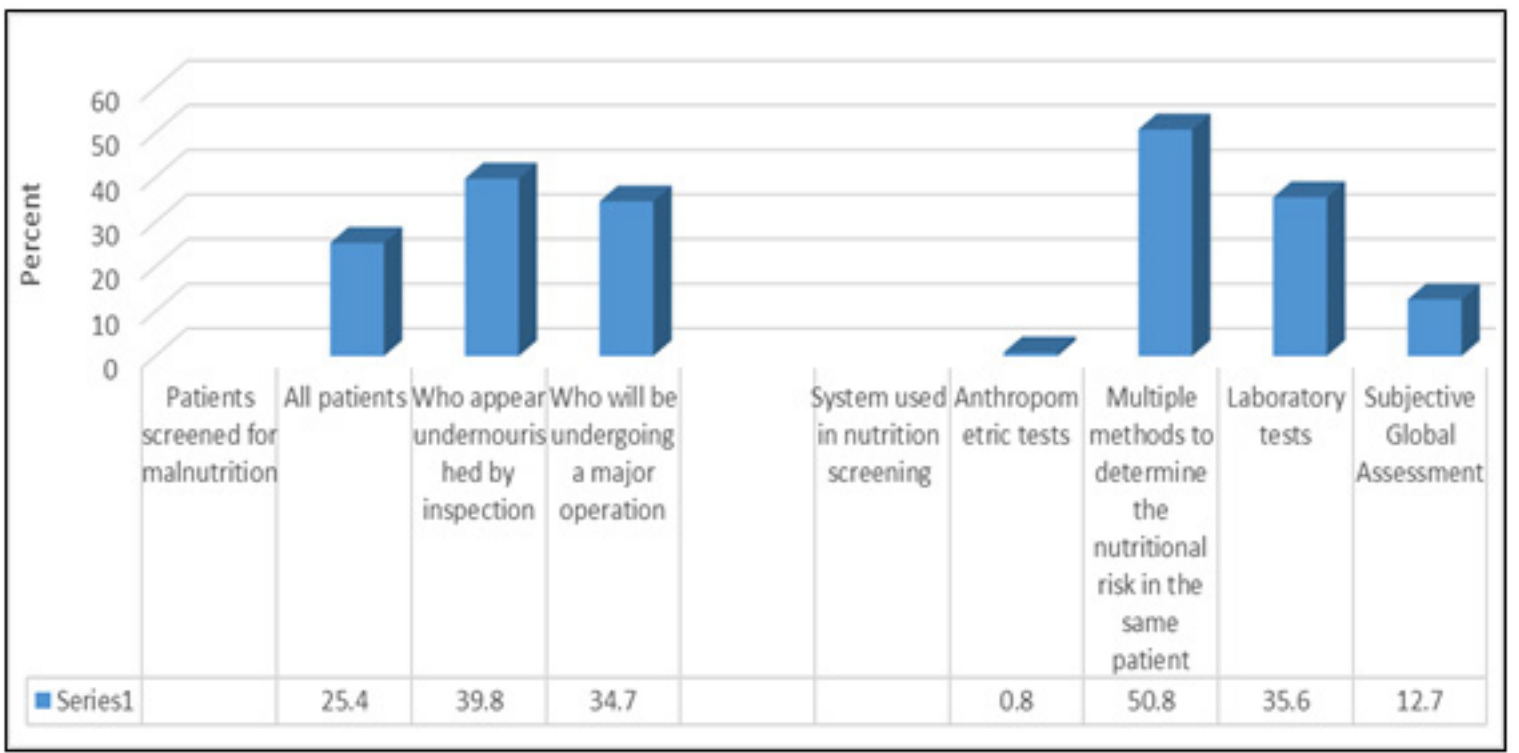


Figure 2. Percentage distribution of the participants according to patients screened for malnutrition and system used in nutrition screening



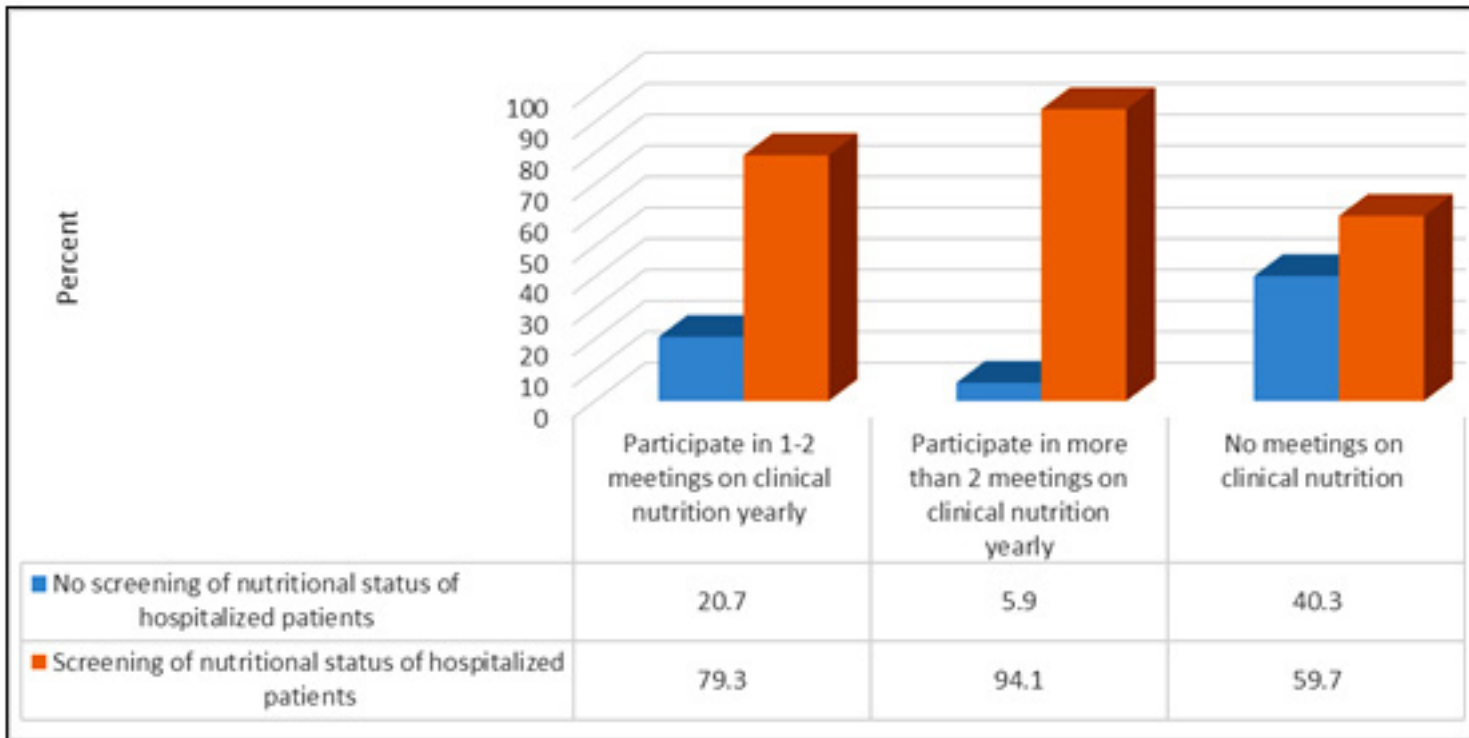
**Table 2. Distribution of studied physicians according to yearly meeting on clinical nutrition, calculation of daily energy requirement and their practice in nutritional support**

Variable	No. (%)
How many meetings on clinical nutrition do you participate in a year?	
1-2	29 (24.6)
More than 2	17 (14.4)
None	72 (61)
How many days prior to the operation do you start nutritional support in a patient with a high nutrition risk?	
10-14	47 (39.8)
3-4	30 (25.4)
5-7	41 (34.7)
How do you calculate the daily energy requirement of your patients?	
I do not calculate it myself, I consult a dietitian	69 (58.5)
I give 25–30 kcal/kg per day depending on the clinical situation	26 (22)
I use another formula	13 (11)
I use Harris-Benedict formula	10 (8.5)
To a patient whom I have given nutritional support before the operation	
I always give postoperative nutritional support	34 (28.8)
I do not give postoperative nutritional support	14 (11.9)
I give postoperative nutritional support if the patient will not be able to fulfill his nutritional needs by oral food intake	70 (59.3)
If you have given nutritional support to your patient during hospital stay, do you prescribe nutritional support products to him/her when discharging from the hospital?	
No	41 (34.7)
Yes, for 2 weeks	39 (33.1)
Yes, for 4–6 weeks	38 (32.2)
When do you cease the oral intake of solid food in a patient who will be undergoing a major abdominal operation?	
12 hours before the operation	22 (18.6)
6 hours before the operation	20 (16.9)
At midnight before the operation day	39 (33.1)
Not applicable	37 (31.4)
When do you cease the oral intake of clear fluids in a patient who will be undergoing a major abdominal operation?	
2 hours before the operation	18 (15.3)
6 hours before the operation	29 (24.6)
At midnight before the operation day	36 (30.5)
Not applicable	35 (29.7)
To a patient who will undergo a major abdominal operation for cancer	
I do not give nutritional support	5 (4.2)
I give immunonutrition products regardless of the nutritional risk	15 (12.7)
I give standard nutritional support products to the patients at nutritional risk	45 (38.1)
Not applicable	53 (44.9)

Table 3. Relationship between screening of the nutritional status of hospitalized patients and participants' gender, specialty, position, work duration and institution (No.: 118)

Variable	Do you screen the nutritional status of your hospitalized patients?		$\chi^2$	p-value
	No No. (%)	Yes No. (%)		
Gender				
Female	3 (11.1)	24 (88.9)	6.21	0.013
Male	33 (36.3)	58 (63.7)		
Specialty				
Cardiac surgery	0 (0.0)	1 (100)	15.75	0.203
ENT	6 (40)	9 (60)		
General surgery	7 (16.7)	35 (83.3)		
Neurosurgery	5 (71.4)	2 (28.6)		
OBGYN	3 (33.3)	6 (66.7)		
Ophthalmology	4 (36.4)	7 (63.6)		
Orthopedic	4 (30.8)	9 (69.2)		
Pediatric surge	3 (50)	3 (50)		
Plastic surgery	1 (500)	1 (50)		
Plastic Surgery	0 (0.0)	1 (100)		
Spine	1 (100)	0 (0.0)		
Urology	2 (25)	6 (75)		
Vascular surgery	0 (0.0)	2 (100)		
Position				
Consultant	18 (32.1)	38 (67.9)	0.28	0.868
Resident	12 (30.8)	27 (69.2)		
Specialist	6 (26.1)	17 (73.9)		
How long have you been working as a surgeon?				
Less than 5 years	14 (81.8)	30 (68.2)	0.05	0.812
More than 5 years	22 (29.7)	52 (70.3)		
Type of an institution				
A teaching hospital (University or Training and Research Hospital affiliated to the Ministry of Health)	23 (28)	59 (72)	0.76	0.381
General hospital (State Hospital affiliated to the Ministry of Health)	13 (36.1)	23 (63.9)		

**Figure 3. Relationship between screening of the nutritional status of hospitalized patients and frequency of participation in meetings on clinical nutrition / year (No.: 118)**



## Discussion

This study aimed to assess surgeons' knowledge and awareness of nutritional screening and support in Makkah province, and to define their approach to its implementation.

The present study found that only 25.4% of the participants were screening all patients for their nutritional status, while 39.8% were screening only those who appear undernourished on inspection. A previous Iranian study done by Kalantari among interns and residents found that the mean nutrition knowledge scores were reported as 50%, which is significantly lower than the scores in our study [12]. The Iranian study found that the studied nutritionists, physicians and nurses had poor knowledge, especially in clinical nutrition topics. Based on the current results, knowledge level of clinical staff is an effective factor in not paying attention to the importance of nutritional care as a part of medical care of the patients. This may mean that doctors gain knowledge through experience and practice (7).

Results of this work illustrated that females surgeons and those who participated in more than 2 meetings on clinical nutrition in a year had a significantly higher percentage of those who were screening the nutritional status of their hospitalized patients, while there was a non-significant relationship between screening of the nutritional status of hospitalized patients and participants' specialty, position, work duration and institution. In contrast, results from previous studies revealed that age, work experience and specialty are among the important factors that improve a physician's nutritional knowledge (8).

On assessing the actual practice of the participant surgeons, most of them (58.5%) did not calculate daily energy requirement and consult a dietitian and 59.3% mentioned that they give postoperative nutritional support if the patient will not be able to fulfill his/her nutritional needs by oral food intake. 34.7% did not prescribe nutritional support products to patients when discharged if given nutritional support during hospital stay and 33.1% cease oral intake of solid food in a patient who will be undergoing a major abdominal operation at midnight before the operation day.

The nutritionist or the dietitian is the most reliable person to provide nutritional advice and support in the clinical team (9). Thus, there was an obvious deficient knowledge and practice among the participants of this study. Similar deficient practice of physicians regarding the nutritional screening of patients was revealed from previous studies (10,11).

### Limitations

The use of a self-administered questionnaire in this study could have a recall bias.

## Conclusion

This study found that only 25.4 percent of participants screened all patients for nutritional status, while 39.8 percent screened only those who appeared undernourished upon inspection and 50.8 percent used multiple methods to assess nutritional risk. 61 percent did not attend clinical nutrition meetings, 14.4 percent attended more than two yearly meetings, and 39.8 percent began nutritional support in a patient with a high nutrition risk 10-14 days before the operation. The majority of them (58.5 percent) did not calculate daily energy requirements and did not consult a dietitian; however, 59.3 percent stated that they provide

dietitian; however, 59.3 percent stated that they provide postoperative nutritional support if the patient is unable to meet his nutritional needs through oral food intake. If patients were given nutritional support during their hospital stay, 34.7 percent did not prescribe nutritional support products to them when they were discharged. At midnight the night before a major abdominal operation, 33.1 percent of patients discontinue oral intake of solid food. 30.5 percent of patients who will undergo a major abdominal operation for cancer stop taking clear fluids orally at midnight the night before the operation, and 38.1 percent provide standard nutritional support to patients at nutritional risk who will undergo a major abdominal operation for cancer. Our findings indicated that the nutritional knowledge level of surgeons, especially in the field of clinical nutrition, is not satisfactory. Increased nutrition knowledge seems to improve nutrition practice. To improve nutritional care in hospitals effective nutrition training and continuing education for all staff has to be addressed as a priority.

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