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The Evaluation of the Multicenter Intensive Care Quality Standards in Turkey

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ABSTRACT

The intensive care beds are limited in number and costly. The problem might be solved by using these beds more efficiently. We were the first in conducting intensive care-related quality research in our country.
Our study was a survey study. We screened a total of 134 tertiary level intensive care units.
Specialists working in intensive care units of 134 hospitals, of which 54 were university hospitals, were interviewed. The ratio of hospitals without any negative-pressure chamber was 55.6%. No medical technical manager was present in intensive care units. No physical therapy coordinator was determined to be present in intensive care units, presenting only when a consultation was requested. No joint meeting with a multi-professional team was being held. We also determined that no joint meeting was being held with the infection control committee regarding handwashing either. Additionally, we discovered that the growing microorganisms and their antibiotic sensitivities were not being evaluated together with the infection control committee.
We determined that inadequacies were present regarding the infrastructure, procedures, and outcomes related to quality assessment in Turkey, which is a developing country.

Key Words: Turkey, quality, intensive care, epidemiology

Introduction

Intensive care units are costly facilities, usually with a limited number of beds. The limitation in the number of beds progressively increases in parallel with the increasing population (1,2). In the future, it will be difficult both to provide trained personnel and to fulfill the requirement for intensive care beds (3). In addition to meeting this increasing demand for beds, more effective and efficient use of intensive care units can provide a solution (4). Effective use of intensive care units may vary from country to country (5). European Society of Intensive Medicine (ESICM) published a guideline regarding the quality of intensive care (4). However, this guideline was written considering the resources and studies of developed countries. International scales are required for evaluation of such situations (6). However, the resources of developed and developing countries might be different. Due to the infrastructures (trained personnel, number of protocols, number of patients per personnel, the number of supplies, etc.) of developed countries, the quality standards of intensive care might be different (7). Different quality standards might be developed for developing countries. These countries might use their intensive care units more effectively by strengthening their infrastructures (using checklists and training qualified personnel, etc.). This situation might enhance patient care and also reduce morbidity and mortality. The number of cost-effectiveness analysis studies conducted in developing countries is small. There are still severe deficiencies regarding registration and targeted treatments in developing countries. For the provision of quality standards, an infrastructure homogenizing all intensive care units is initially required. In developing countries, the intermediate intensive care units and long-term care centers, which lead to increased patient circulation in intensive care units, are scarce also. In developing countries, more effective use of intensive care units might be a solution for both the limitation of intensive care beds and increased intensive care costs. Increased quality standards might enhance patient care and reduce the mortality rate (8). Different quality standards might be developed for developing countries (6). Developing countries may use their intensive care facilities more effectively by strengthening their infrastructures (e.g., creating checklists, qualified training personnel) (9). Turkey is a developing country. The number of intensive care beds has been increasing over the years. It is similar to other OECD countries regarding the quality

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standards of intensive care (10). Raising quality standards might reduce the limitation of intensive care beds. A study on the quality of intensive care was conducted for the first time in Turkey.

Material and Method

After obtaining the approval of the ethics committee, the personnel working in intensive care units participating in the study were interviewed. The intensive care units participating in the survey were tertiary. Universities, affiliated universities, training-research hospitals, and state hospitals participated in the study. The questions were prepared to be asked online and consisted of sections on physical structure, social structure, continuing education and training, protocols and routines, material resources, safety processes, and work processes.

Statistical Analysis: Descriptive statistics were presented as count and percentages for the categorical variables. Chi-square test was performed to determine the relationship between these variables. Statistical significance level was considered as 5% and SPSS (ver: 13) statistical program was used for all statistical computations.

Results

University hospitals consisted of the majority of our research, with a ratio of 39.4%. The number of beds was over 750 in 70.1% of the hospitals. The median of the number of beds was 1000 (IQR 900-1230). The beds belonged to anesthesiology department was 56.9%. No training program was present in 43.9% of intensive care units in total and in 87.5% of intensive care units of state hospitals (Table 1-9). We determined the rate of presence of one isolation room in over ten beds in intensive care units as 56%. The place for interviewing with patient relatives was absent in 81% of intensive care units. No clinical engineer was present in 62 (45.6%) hospitals. The intensive care coordinator nurse was simultaneously coordinating the other intensive care units in 35.8% of the hospitals. Of these coordinator nurses, 39.4% had completed their intensive care courses.

No physical therapist employed as the personnel of the intensive care unit was found to be present in any hospital. The rate of performing a visit at the intensive care unit once either during daytime or nighttime was 68.6%. No medical technical director was determined to be present in any intensive care unit. The nurse ratio of the shifts was lower in university hospitals with coordinator nurses compared to other hospitals (Table 3).

Discussion

Quality indicators have been tried to be determined by the European Society of Intensive Care Medicine (ESICM) and the Society of Critical Care Medicine (SCCM) in countries such as Germany, Spain, the Netherlands, France, and Italy in Europe. Specific standards of intensive care units might not have been established in developing countries. When compliance of infrastructure in quality assessment was investigated, it was determined that a negative-pressure isolation room was not present in 55.6% of university hospitals. Previously it has been claimed that the isolation room had a limited presence in developing countries (11). Regarding human resources, it was determined that a medical technical director was not present, and the medical support team had a limited presence in developing countries (12). In our study, it was determined that physical therapy coordinators provided treatment of patients in intensive care units most commonly when a consultation was requested from them. Joint training with the multi-professional team was not present in intensive care units. It was reported that problems related to the treatments by physiotherapists were present not only in developing countries but in developing countries also, it has been found that physiotherapy applications were inadequate (13,14).

We determined in our study that no joint meeting was being held with the infection control committee regarding compliance with handwashing. Additionally, notifications about the growing microorganisms and their antibiotic sensitivities were not made. In our study, we also discovered that no contact, respiratory, and droplet isolation protocols were present. Regarding antibiotic stewardship, it was reported that surveillance was not performed at a sufficient level in developing countries when compared to developed countries (15). It was also stated that, in developing countries, the incidence of ventilator-related pneumonia was quite high (16). In a study conducted in Vietnam, it was found that intensive care costs were reduced when compliance with hand hygiene increased (17,18).

Regarding result analysis, a part of quality assessment, we determined that the evaluations of the satisfaction of patients and their relatives,

Table 1. Hospital and intensive care data

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (N=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Number of Beds, n (%)					
<750	17 (31.5)	5 (38.5)	11 (27.5)	7 (29.2)	0.774
>750	37 (68.5)	8 (61.5)	34 (35.4)	17 (70.8)	
Educational Program, n (%)					
Not available	46 (85.2)	8 (61.5)	20 (25.9)	3 (12.5)	
Available	8 (14.8)	5 (38.5)	26 (56.5)	21 (87.5)	0.552
Type of Intensive Care Unit, n (%)					
Anesthesiology	36 (66.7)	7 (53.8)	25 (54.3)	10 (41.7)	
Medical	12 (16.2)	6 (46.2)	12 (26.1)	11 (45.8)	0.150
Surgical	6 (7.1)	0 (0)	9 (19.6)	3 (12.5)	

Table 2. Physical structure

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Isolation Room, n (%)					
Not available	1 (1.9)	0 (0)	1 (2.2)	1 (4.2)	
1 room per 10 beds	19 (35.2)	6 (46.2)	22 (47.8)	10 (41.7)	0.807
2 rooms or more per 10 beds and more	34 (63.0)	7 (53.8)	23 (50)	13 (54.2)	
Negative Pressurised Isolation Room, n (%)					
Not available	30 (55.6)	8 (61.5)	31 (67.4)	18 (75)	
Available	24 (44.4)	5 (38.5)	15 (32.6)	6 (25)	0.376
Interview Room for Guests and Patients' Relatives, n (%)					
Not Available	39 (72.2)	9 (69.2)	42 (91.3)	22 (30.7)	0.250
Available	15 (27.8)	4 (30.8)	4 (8.7)	2 (2.9)	
Care to Patient's Privacy, n (%)	13 (24.1)	1 (7.7)	7 (15.2)	2 (8.3)	
When necessary	26 (48.1)	10 (76.9)	20 (43.5)	16 (66.7)	
No	15 (27.8)	2 (15.4)	19 (41.3)	6 (25.0)	0.780
Yes					

Table 3. Human resources

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Specialist Physician Working Regularly in Intensive Care, n (%)					
No	23 (42.6)	6 (42.6)	20 (43.5)	13 (54.2)	0.830
Yes	31 (57.4)	7 (53.8)	26 (56.5)	11 (45.8)	
Patient/Doctor Ratio in Intensive Care, n (%)					
No Specialist Physician	7 (13.0)	2 (15.4)	7 (15.2)	6 (25.0)	0.007
1 Specialist physician up to 10 beds	25 (46.3)	9 (69.2)	32 (69.6)	1 (4.2)	
2 Specialist physicians more than 10 beds	22 (40.7)	2 (15.4)	7 (15.2)	17 (70.8)	
The Least Specialist Physician Proportion in Intensive Care Unit Shifts, n (%)					
No	8 (14.8)	0 (0)	3 (6.5)	1 (4.2)	0.187
Works in Intensive Care Unit at least in one of the shifts	19 (35.2)	9 (69.2)	18 (39.1)	13 (54.2)	
Works in Intensive Care Unit During All Day Long	27 (50)	4 (30.8)	25 (54.3)	10 (41.7)	
Availability of Medical Technical Manager in Intensive Care Unit, n (%)					
No	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Clinical Engineer, n (%)					
No	23 (42.6)	6 (42.6)	20 (43.5)	13 (54.2)	0.830
Yes	31 (57.4)	7 (53.8)	26 (56.5)	11 (45.8)	
Medical Technical Manager Competency about Intensive Care, n (%)					
No	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Availability of Coordinator Nurse in Intensive Care, n (%)					
No	0 (0)	0 (0)	0 (0)	0 (0)	NS★
Yes, Just in Intensive Care	35 (64.8)	8 (61.5)	14 (58.3)	14 (58.3)	
Yes, Common with Other Hospital Units	19 (35.2)	5 (38.5)	10 (41.7)	10 (41.7)	
Intensive Care Unit Coordinator Nurse's Participation in the Courses, n (%)					
Yes	11 (20.4)	0 (0)	0 (0)	7 (29.2)	0.35
No	21 (38.9)	6 (42.6)	6 (46.2)	10 (41.7)	
Some of Them	22 (40.7)	7 (53.8)	7 (53.8)	7 (29.2)	
Patient/Nurse Ratio in Intensive Care, n (%)					
1:1	3 (5.6)	0 (0)	4 (8.7)	19 (79.2)	NS★
2:1	46 (85.2)	11 (84.5)	37 (80.4)	5 (20.8)	
≥3:1	5 (9.3)	2 (15.4)	5 (10.9)	0 (0)	
Availability of Physical Therapy Coordinator in Intensive Care, n (%)					
No	1 (1.9)	0 (0)	2 (4.3)	1 (4.2)	0.270
Available on demand	45 (83.3)	13 (100)	38 (82.6)	23 (95.8)	
Stays in Intensive Care	8 (14.8)	0 (0)	6 (13.0)	0 (0)	
Physical Therapy Coordinator's Competency about Intensive Care Unit, n (%)					
Sufficient	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Non Sufficient	0 (0)	0 (0)	0 (0)	0 (0)	
Physiotherapist/Patient Ratio During Shifts, n (%)					
Not Available	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Available	0 (0)	0 (0)	0 (0)	0 (0)	

NS★=Not Significant

Table 4. Continued education and training

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Regular Education for All of The Multiprofessionals (Nurse, Physiotherapists, Dietitian), n (%)					
No	27 (50)	8 (61.5)	29 (63)	20 (83.3)	
Currently attending	27 (50)	5 (38.5)	17 (37)	4 (16.7)	NS★
Already completed	0 (0)	0 (0)	0 (0)	0 (0)	
Joint Educational Program for All the Multiprofessionals?, n (%)					
No	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	

NS★=Not Significant

Table 5. Protocols and routines

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Criteria of Admission to and Discharge from Intensive Care, n (%)					
No					
Yes	54 (100)	13 (100)	46 (100)	13 (100)	NS★
	0 (0)	0 (0)	0 (0)	0 (0)	
Blood Glucose Regulation Protocol in Intensive Care, n (%)					
No	14 (25.9)	4 (30.8)	20 (43.5)	15 (62.5)	0.016
Yes	40 (74.1)	9 (69.2)	26 (56.5)	9 (37.5)	
Pain Control in Intensive Care, n (%)					
No	33 (61.1)	12 (92.3)	39 (84)	22 (91.3)	0.004
Yes	21 (38.9)	1 (7.7)	7 (15.2)	2 (8.3)	
Sedation Protocol in Intensive Care, n (%)					
No	21 (38.9)	8 (61.5)	33 (71.7)	15 (62.5)	0.008
Yes	33 (61.1)	5 (38.5)	13 (28.3)	9 (37.5)	
Blood Product Usage Protocol in Intensive Care, n (%)					
No					
Yes	44 (81.5)	13 (100)	41 (89.1)	24 (100)	0.050
	10 (18.5)	0 (0)	5 (10.9)	0 (0)	
Lung Protective Ventilation Protocol in Intensive Care, n (%)					
No	28 (51.9)	11 (84.6)	35 (6.1)	20 (83.3)	0.007
Yes	26 (48.1)	2 (15.4)	11 (23.9)	4 (16.7)	
Ventilator Induced Pneumonia Prevention Protocol in Intensive Care, n (%)					
No	25 (46.3)	8 (61.5)	24 (52.2)	19 (79.2)	0.430
Yes	29 (53.7)	5 (38.5)	22 (47.8)	5 (20.8)	
Catheter Related Infection Prevention Protocol in Intensive Care, n (%)					
No	54 (100)	13 (100)	46 (100)	13 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Antibiotic Usage Protocol in Intensive Care, n (%)	54 (100)	13 (100)	46 (100)	13 (100)	NS★
No	0 (0)	0 (0)	0 (0)	0 (0)	
Yes					
Gastrointestinal Bleeding Prevention Protocol in Intensive Care, n (%)					
No	22 (40.7)	4 (30.8)	24 (52.2)	13 (54.2)	0.367
Yes	32 (59.3)	9 (69.2)	22 (47.8)	11 (45.8)	
Deep Venous Thrombosis Prophylaxis Protocol in Intensive Care, n (%)					
No	31 (57.4)	9 (69.2)	35 (76.1)	18 (75.0)	0.195
Yes	23 (42.6)	4 (30.8)	11 (23.9)	6 (25.0)	
Contact Precaution, Droplet Precaution and Isolation Precaution Protocols in Intensive Care?, n (%)					
No					
Yes	54 (100)	13 (100)	46 (100)	24 (100)	NS★
	0 (0)	0 (0)	0 (0)	0 (0)	

NS★=Not Significant

Table 6. Material and Resources

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
ECG Machine in Intensive Care, n (%)					
Not participating with Other Units	9 (16.7)	1 (7.7)	0 (0)	1 (4.2)	
1 ECG Machine less than 10 beds	35 (64.8)	11 (84.6)	34 (73.9)	18 (75.0)	0.068
More than 1 Machine More than 10 Beds	10 (18.5)	1 (7.7)	12 (26.1)	5 (20.8)	
Emergency Trolley in Intensive Care, n (%)					
Participating with Other Units	0 (0)	1 (7.7)	1 (2.2)	0 (0)	0.020
1 Trolley for 5 Beds	38 (70.4)	12 (92.3)	40 (87.0)	24 (100)	
2 Trolleys for more than 5 Beds	16 (29.6)	0 (0)	5 (10.9)	0 (0)	
Number of Defibrillator in Intensive Care, n (%)					
No	1 (1.9)	0 (0)	2 (4.3)	0 (0)	0.233
1 Less than 5 Beds	42 (77.8)	13 (100)	37 (80.4)	23 (95.8)	
2 and More Defibrillator for more than 5 Beds	11 (20.4)	0 (0)	7 (15.2)	1 (4.2)	
Availability of Pacemaker in Intensive Care, n (%)					
Yes	54 (100)	13 (100)	46 (100)	24 (100)	NS★
No	0 (0)	0 (0)	0 (0)	0 (0)	
Transport Ventilator Availability in Intensive Care, n (%)					
Participated	5 (9.3)	1 (7.7)	4 (8.7)	3 (12.5)	
1 Ventilator for 10 Beds	38 (70.4)	11 (84.6)	33 (71.7)	21 (18.0)	0.341
2 or More Ventilators for 10 or More Beds	11 (20.4)	1 (7.7)	9 (19.6)	0 (0)	
Clocks and calendars can be seen from all of the Beds in Intensive Care, n (%)					
No	21(38.9)	6 (46.2)	30 (65.2)	19 (79.2)	
Some of them	6 (11.1)	0 (0)	4 (8.7)	3 (12.5)	0.005
Yes	27 (50.0)	7 (53.8)	12 (26.1)	2 (8.3)	

NS★=Not Significant

Table 7. Safety Processes

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Information to the Patients' Visitors by Infection Control Committee about Infection Prevention, n (%)					
No	45 (83.3)	11 (84.6)	40 (87.0)	23 (95.8)	0.505
Yes	9 (16.7)	2 (15.4)	6 (13.0)	1 (4.2)	
Hand washing Compliance Meeting in Intensive Care, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Adverse and Sentinel Events Registration, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Educational Program to multiprofessional Team about the Proliferation and Sensitivity of Microorganisms by Infection Control Committee, n (%)	54 (100)	13 (100)	46 (100)	24 (100)	
No	0 (0)	0 (0)	0 (0)	0 (0)	
Yes					NS★
Systemic Investigation of the Adverse and Events Causes?, n (%)	54 (100)	13 (100)	46 (100)	24 (100)	
No	0 (0)	0 (0)	0 (0)	0 (0)	
Yes					NS★
Evaluation of The Technical Operations and Its Monitorizations, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	
Yes	0 (0)	0 (0)	0 (0)	0 (0)	NS★
Participation of The Results of The Evaluation of Technical Operations to The multiprofessional Team, n (%)	54 (100)	13 (100)	46 (100)	24 (100)	
No	0 (0)	0 (0)	0 (0)	0 (0)	
Yes					NS★

NS★=Not Significant

Table 8. Work Processes

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Periodical Updates of the Protocols in Intensive Care, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Discussions of The Cases bedside with multiprofessional , n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Bedside Discussions of The Cases Periodically, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Infection Control Committee is discussing the Cases with Multidisciplinary Team, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
A Scale is Being Used for Evaluation of Nurse Performance, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Multiprofessional Team is Participating The Notes with all of the other Team Members, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Relatives of patients can stay with their patients continuously?, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Consent from patient relatives for frequent procedures in intensive care unit, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	
Satisfaction evaluation of patients and their relatives, n (%)					
No	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Yes	0 (0)	0 (0)	0 (0)	0 (0)	

NS★=Not Significant

Table 9. Outcome indicators

	University Hospital (n=54)	Affiliated University Educational and Research Hospital (n=13)	Educational and Research Hospital (n=45)	State Hospital (n=4)	p
Evaluation of 12 months Mortality Rate, n (%)					
≥2	3 (23)	7 (16)	7 (29)	17 (31)	
1	8 (62)	31 (67)	15 (63)	23 (43)	0.18
No	2(15)	8 (17)	2 (8)	14 (26)	
Unplanned Extubation Rate in 12 Months, n (%)					
No Available					
Available	54 (100)	13 (100)	46 (100)	24 (100)	NS★
	0 (0)	0 (0)	0 (0)	0 (0)	
Readmission Rates of Patients to the Intensive Care in 12 Months, n (%)					
Unknown	54 (100)	13 (100)	46 (100)	24 (100)	NS★
Known	0 (0)	0 (0)	0 (0)	0 (0)	
Mean Duration of Stay in Intensive Care, n (%)					
Unknown					
Known	54 (100)	13 (100)	46 (100)	24 (100)	NS★
	0 (0)	0 (0)	0 (0)	0 (0)	
Notification Rate of Your VAP Rate in 12 Months (Per 100 Ventilator Day), n (%)					
	3 (23)	4 (1)	4 (17)	10 (19)	
≥16	2 (15)	11 (4)	2 (8)	3 (3)	0.18
<16	8 (62)	311 (95)	18 (75)	41 (78)	
No Notification					
Notification Rate of Your CLABSI Ratios in 12 Months (Per 1000 Catheter Day), n (%)		22 (48)			
>12	7 (54)	5 (11)	9 (38)	22 (41)	
≤12	0 (0)	19 (41)	2 (8)	1 (2)	0.328
No Notification	6 (46)		13 (54)	31 (57)	
Notification Rate of Your Urinary Catheter Related Infection in 12 Months (Per 1000 Catheter Day), n (%)					
>6	5 (38)	20 (43)	7 (29)	18 (33)	
≤6	2 (16)	9 (20)	5 (21)	10 (19)	0.903
No Notification	6 (46)	17 (37)	12 (50)	26 (48)	

NS★=Not Significant

unplanned extubation, rehospitalization rate, and duration of hospitalization were not performed. The guideline recommends a patient relative-focused intensive care unit (19). In Turkey, patient relatives do not attend visits in intensive care units, and the visits of patient relatives are limited (20). The unplanned extubation rate was reported to be quite high in a study conducted in Turkey (21,22). High rates of rehospitalization were reported in studies conducted in developing countries (23). In Turkey, mortality and prevention of pressure sores are followed obligatorily by the Turkish Ministry of Health (24). Positive results have been reported regarding mortality in studies related to quality assessment in developing countries.

In Turkey, which is a developing country, weight should be given to quality enhancement studies for using intensive care beds more efficaciously.

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