

Revision of accreditation standards for hospital emergency services: with regard to the 48-hour working week

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Background

In 2000, EMERGENCIAS published 4 articles by Montero Perez et al.¹⁻⁴ analyzing the situation of Hospital Emergency Departments, which subsequently formed the basis for developing the Accreditation Standards of Centers and Services (EACS)⁵ by the Spanish Society of Emergency Medicine (SEMES). The results of these studies⁶ such as "insufficient resources, staff and user dissatisfaction, inadequate management or insufficient budget" reflect a situation that in many centers has not changed or even deteriorated, and reduced staffing is being considered despite its precarious state. This fact, which in our centre is a reality, has been borne out in the forum of the Association of Emergency Medicine Physicians of Andalusia (AMURA).

The EACS recommend that the number of consultations and observation beds or chairs should be determined by the demand, and establish the number of physicians necessary to meet these needs based on hours of actual work to determine patient attention time according to the complexity of each area. Specifically, for the consultation area the text reads: "The medical staff for consultation should not be less than one physician for every three visits per hour, or determined according to the formula:

$$\frac{0.37 \times \text{Number of patients attended per annum}}{\text{Number of annual working hours contracted}}$$

where 0.37 hours is the average time needed to attend to a patient and the annual number of

working hours depends on each institution. Approximately, one physician is needed for every 4,000 patients attended per year".

Law 55/2003 of 17 December of the Framework Statute⁷ states that "the maximum working time shall be an average of 48 hours per week computed every six months" and the ordinary working day shall be determined by rules or agreements of each centre. In Andalusia, Decree 175/1992 of 29 September, amended by Decree 553/2004 of 7 December⁸, establishes the ordinary annual workload as 1,540 h for day shifts and 1,483 h for rotation shifts.

The conclusion of the EACS formula coincides with the hours stipulated for rotation shifts, because 0.37 multiplied by 4000 is equivalent to the 1483 h specified for this shift. With one physician for every 4,000 patients per year, the EACS recommended number of consultations can be covered (Table 1), but with more than 1480 working hours this relationship is lost and the number of consultations cannot be met.

Unfortunately, despite the clear shortfall of resources of our services^{1,3,6}, the EACS formula can be misinterpreted, and the figure of 2,304 hours per year is being applied with the Framework Statute being used as an argument, with disastrous consequences for our emergency services. Although the literature is sparse, and the issue is complicated to explain due to its numerous implications, our sole intention is to analyze solutions for a situation that is supposed to be adjusted to the standards and the law, but may entail serious deterioration in emergency care.

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RECEIVED: 25-2-2008. **ACCEPTED:** 17-7-2008.

CONFLICT OF INTEREST: None.

Table 1. Combination of consultations for a hospital centre attending 120,000 emergencies per year with the original EACS proposals* and a 48-hour working week per physician, with a 50% reduction in requirements for weekends and night shifts. The 12 consultations recommended can be covered applying the usual shifts of 7, 17 and 24 h, or combinations with 12h shifts

Number of consultations by type of shift using the original EACS formula*							
No. of consultations recommended for 120,000 emergencies per year (1/10.000) = 12 consultations. *EACS formula: $0.37 \times 120.000 / 1.480$ h or 4,000 emergencies per physician per year = 30 physicians							
	Types of shift			Distribution			
	Monday to Friday	Weekends	Hours per week	Physicians 48 h/week	Monday to Friday	Weekends	
Mornings (7 h)	12		420		Morning	12	6
Afternoons (7 h)	6		210	30			
Evenings (17 h)	6		510	(29.75)	Afternoon	12	6
Full day (24 h)		6	288		Night	6	6

*Standards of Accreditation of Centers and Emergency Services of the Spanish Society of Emergency Medicine.

Errors and magnitude of the problem

Because of the complexity of patient conditions, the recommended attendance time for a patient under observation (0.75 h) is twice that for a consultation (0.37 h). Applying only the coefficient 0.37 for calculating staff requirement results in an error of at least the percentage of patients entering the observation areas of each centre (10-20%). Applying for 2,304 h workload, the error (alone or added), would be > 30%, as discussed below.

The 2,304 "working hours" is derived from the 48-hour maximum working week of the Statute Framework minus 4 weeks holiday per year (48 hours x 48 weeks = 2,304 h). The Statute Framework applies the European Council Directives 93/104 and 2000/34 of the Council and Parliament relating to "minimum requirements for the protection of safety and health of personnel", specifying the working time as "the period that the staff remain in the center, available for work and the effective exercise of their activities and functions"⁷. The 2,304 hours are not effective working hours, and if we apply them to the EACS formula for effective attendance time without counting holidays and real attendance hours, the result is working hours and demand that are not covered.

From the EACS requirement of one physician for 4,000 patients per year, we get to the figure of 6,227, an increase of 56%, which on applying the formula means a one-third reduction in staffing to meet the same demand, and in the number of consultations although physicians perform 48 hours per week.

These data can be illustrated with a real example. Applying the formula with the 2,304 working hours to an emergency service like ours, treating 120,000 emergencies a year, we get a number of

19 physicians for consultations. EACS recommend "one consultation for every 10,000 attendees per year"⁵, which means 12 consultations in our case. With 19 physicians we can only cover 8 consultations during the day Monday to Friday and 4 evenings and weekends (Table 2), and only on the assumption that all physicians continuously work 48 hours per week in shifts of 12 and 24 h. The problem is magnified when using observation formulas, because it does not allow us to have one physician in each area on night shifts, with the inevitable weariness from prolonged and continuous activity and pressure on scarce resources.

This deficit and pressure causes a series of events that progressively undermine the quality of care: greater stress on the physicians and users, delays in care and dissatisfaction of patients and relatives that raise occupational risk and aggression, greater reliance on residents, lower filtering of admissions, massification and risk of errors, high physician turnover due to work pressure and absence of professional expectation; all this results in a vicious circle of mounting pressure. Time attending patients absorbs everything else, like training, teaching, research, family reconciliation, safety, quality etc, which are concepts perceived as remote and inaccessible.

The departure of emergency physicians without being replaced offers justification for incorporating into observation areas newly qualified specialists from other departments with a clearly economic basis, and is used by corporative interests to insist on a functional concept of emergency medicine⁹, preventing us from managing our own Emergency Services in Andalusia; this may limit the range of activities of our future specialty if it extends to the rest of the Health System, considering the weight of our administration, economic motivation, staff shortage and working conditions.

Table 2. Combination of consultations with the 2,304 "Annual hours contracted" for a hospital centre attending 120,000 emergencies per year a 48-hour working week per physician. 33% of the recommended consultations cannot be covered even when the 48h working week is performed with 12 and 24h shifts.

Number of consultations by type of shift applying the 2,304 "contracted hours"							
Number of consultations recommended by EACS * for 120,000 emergencies per year (1/10.000) = 12 consultations EACS formula* for 2,304 "contracted hours": $0.37 \times 120.000 / 2,304 \text{ h} = 19 \text{ physicians}$							
Shifts	Types of shift			Physicians (48 h/week)	Distribution	Distribution	
	Monday to Friday	Weekends	Hours per week			Monday to Friday	Weekends
Mornings (7 h)	8		280	19 (19.1)	Morning	8	4
Afternoons (7 h)	3		105		Afternoon	7	4
Afternoon-Night (17 h)	4		340		Night	4	4
Full day (24 h)		4	192		Morning	8	4
Morning-Afternoon (12 h)	8		480	19	Afternoon	8	4
Night (12 h)	4		240		Night	4	4
Full day (24 h)		4	192				

*Standards of Accreditation of Centers and Emergency Services of the Spanish Society of Emergency Medicine.

We need a revision or clarification of the standards to support adequate staffing and avoid the possibility of misinterpretations, intentional or not, without going into the repercussions of the extended working week currently being debated in the European Parliament.

Possibilities for adapting the standard

Staff requirements must be calculated in each area taking into account the shifts needed to cover the demand according to standards, and balance these needs with work regulations, and not vice versa. Each operational area of the Service must have a minimum care unit if we are to avoid over-reliance on residents for direct patient attention, and we must ensure that all areas are always covered without depleting the rest.

In consultations

To meet the EACS recommendations, the number of physicians and consultations must maintain an adequate proportion with respect to demand. The original EACS recommendation regarding consultations was 4,000 per year per physician, a fundamental point to cover the recommended number of consultations. The calculations have been adjusted to 48 hours per week per physician, which is debatable, but our task is precisely to analyze this situation, and shifts longer than 12 h are needed because the requirements would increase significantly.

Examining the formula factors, we analyzed three possibilities:

A. Specify a maximum number of 4,200 h per year per physician for consultations: This number

is obtained by applying the formulas with the original EACS recommendations of the EACS as to complexity and number of consultations, adjusting the required shifts to 48 hours per week, with a weekend and night shift requirement of 50%. The results are equivalent to 0.37 h per patient and 1,554 hours of actual work by each physician (0.37 multiplied by N° consultations per year divided by 1,554 hours).

B. Modify the ratio 0.37: The coefficient 0.37 is applied in the context of the formula with 2,304 h "contracted" without regard to effective working hours and necessary non-attending time: breaks for eating during long shifts, breaks specified in the Statute Framework⁸, clinical sessions, shift changes and transmission of information, the times for patients resolution at shift changes, breaks during 17 or 24 h shifts, holidays and free days, or other periods stipulated in Article 17 of the Statute Framework to provide quality care, such as time for teaching, research and training⁸.

If 2,304 working hours per year is applied to the formula, annual effective care hours for each physician must be 16.2 h per physician per day if we are to respect the EACS recommendations. The new rate would be 0.55 h ($0.37 \times 24 \text{ h} / 16.2 \text{ h}$), equivalent to 33 min per patient. Reducing this value would mean not filling the positions recommended or assigning more than 48 hours per week to each physician. But, although 2,304 h is being applied, we believe this should not be specified in the standards formula because it is derived from an erroneous interpretation of the rules.

C. Change the denominator of "contracted hours" to a maximum of 1,550 hours of annual effective attendance, in relation to the above-mentioned data: $0.37 \times \text{Number of patients at-}$

tended per year divided by 1.550 h. Using the classical formula by subtracting only the holidays and free days from 2,304 h a year is not enough, there remain about 2,190 h, equivalent to 5,919 emergencies a year per physician, which does not even remotely cover the recommended number of consultations and physicians on each shift.

In observation

Montero et al. noted in their article on observation⁴ that the number of beds was deficient in 56% of emergency services, mean stay time was higher than desired and that this area should be strengthened by additional full-time personnel devoted to observation units. This distinction seems to us to be unnecessary if in the near future we are to have the specialty, but we would emphasize that emergency observation should always be attended by emergency personnel, given their characteristic multidisciplinary training and ability to prioritize, and not by other specialists from other departments.

The EACS recommended formula for calculating the number of physicians required for observation, namely "0.75 h x observation attendance per year divided by the number of working hours contracted"⁵, is in our opinion not valid because the results that do not cover the needs identified or the shifts required. For example, in our case with 6,040 cases per year requiring observation, we would need 2 or 3 physicians according to the 2,304 or 1,480 "contracted hours". With these figures it is impossible to implement shifts without drawing on physicians from other areas, even when using the figures relating to average daily admission, the real number of beds, or the number of beds recommended (33 beds).

We believe it is more accurate to calculate the number of patients and shifts, because attention is continuous and difficult to quantify, depending on the characteristics of each centre and the number of unstable patients habitually found in the observation area due to ICU bed availability: "The ratio of medical staff in the observation area with beds should be one physician for every eight patients and shift"⁵, and one physician for every 10 seated patients and shift.

Following these recommendations we calculated the number of shifts required, with an attending area of at least 6 physicians so as not to rely on physicians from other areas on applying the 48 h limit per week, and in relation to the daily average of patients they are really present

supposedly of maximum occupation, because prolonged stay of patients is frequent and depends on the availability of hospital beds. For the night shift the requirements may be lower, but a limit would have to be established regarding the number of patients per physician and night shift in order to be able to offer adequate attendance and teaching.

Conclusions to be considered for reviewing the standards

The purpose is to adequately staff emergency services and prevent the possibility of arbitrariness, and perform these calculations on the basis of shifts required to cover demand based on standards. We emphasize that we are talking about numbers adjusted to 48 h/week per physician, which is questionable and out of EU legislation.

In the consultation area

Medical staff requirements for this area should be determined by the formula:

$$\frac{0.37 \text{ h} \times \text{Number of patients attended per year}}{1.550 \text{ h}}$$

where 0.37 h is the average attendance time per patient, and the quotient 1,550 h is the maximum annual number of hours of effective care for each physician attending to the consultations and shifts necessary. Approximately, one physician is needed for every 4,190 patients per year.

In the observation area

With the real daily average of patients, the shifts necessary are calculated according to the ratio of patients per physician, understanding that the requirements may be lower for night shifts but establishing a limit of patients per physician per night to ensure attendance and teaching activity, which should be at least 50% of the daytime requirements.

The service must have medical staff attending no more than 8 patients per physician and shift in the observation area with beds, and no more than 10 patients per physician and shift in the observation area with seated patients, calculated using the daily average number of patients at peak hours, with at least 6 physicians for each operational area.

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