

# Structure and operational organisation of paediatric emergency services: a Spanish national survey

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**Background:** A good understanding of the structure and operational organization of pediatric emergency departments (EDs) is essential for the design and promotion of interventions that can lead to improvement.

**Objectives:** 1) To describe the structure and operational organization of pediatric EDs in Spanish hospitals. 2) To determine the degree of fulfillment of the basic quality indicators established by the Spanish Society of Pediatric Emergency Medicine (SEUP).

**Methods:** The SEUP Quality Group designed a questionnaire to measure the described objectives. Forty hospital EDs with SEUP members were surveyed. Answers received between September 2006 and January 2007 were analyzed.

**Results:** Thirty-four questionnaires were received. Twenty-three EDs had a chief of staff, 25 had emergency staff, and 30 had residents in different years of training. On most nights and weekends, medical care is given by nonemergency staff. Eighteen EDs had problems when staff doctors were on leave. The EDs surveyed were compliant on 56% to 88% of the items related to the dimension "diseases". Under the dimension "activities", 7 (21%) did not have a triage system. On items related to documentation, all EDs (100%) completed care reports and 22 entered diagnostic codes. Under the dimension "workplace resources", 33 (97%) performed a check of the crash cart.

**Conclusions:** Important opportunities for improvement were identified at the levels of structural organization and functioning. The lack of an ED chief of staff and/or permanent staff was the main factor causing the detected problems. The analysis of quality indicators shows that compliance is acceptable in the area of diseases but was deficient in those of activities and documentation, probably due to inadequate computer systems. [Emergencias 2008;20:322-327]

**Key words:** Pediatrics. Emergency Medical Services. Quality indicators. Surveys.

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## Introduction

Hospital emergency departments often represent the first contact of the patients with the healthcare system and they have become one of the most important and complex parts of the hospitals. In the paediatric setting several publications<sup>1-3</sup> have referred to an important increase in the demand for healthcare which has generated or increased numerous organisational and functional problems in the different healthcare points. Among these problems the recurrent exaggerated demand, the lack of personnel, the interference of "duties" with other healthcare work, the unjustified variability in clinical practice or the deficit of

specific knowledge of the speciality among professionals who sporadically attend patients with acute disease are of note.

This series of problems and the hackneyed, albeit true, topic that "the emergency department is the show window of the hospital" are arguments which, on the positive side, help to sensitise some healthcare managers as to the precarious situation. On the other hand, the response of the professionals within the heart of the Spanish Society of Paediatric Emergency Medicine (SEUP) is to, among other actions, promote and edit norms and standards which help to have references on how to structure and manage paediatric emergency departments (PED). Of note among these documents

are for example, recommendations on diagnostic coding<sup>4</sup> or indicators of quality<sup>5</sup>, which are useful for monitoring and evaluating daily work. Along a more care providing line, a manual on paediatric poisoning<sup>6</sup> has been created. These and other similar documents should be used as tools for improvement, but to adequately know the impact of their application it is essential to know the current situation and the main problems affecting the PED. Up to now, no studies on this situation have been published and therefore the aim of this study was to know the current state of the PED in our country and therefore, the following objectives were established:

1. Know aspects on the organisation and functioning of PED.
2. Determine the degree of fulfilment of the basic indicators of quality established by the SEUP.

## Methods

A questionnaire divided into two parts was designed. The first covered the aspects referring to the organisation and functioning of the PED of the centres surveyed.

The second part of the questionnaire was aimed at evaluating the degree of fulfilment of the basic indicators of quality proposed by the SEUP<sup>5</sup>.

This questionnaire was sent to the heads of 40 hospitals with members of the SEUP and was published on the website of the society ([www.seup.org](http://www.seup.org)) for greater diffusion and ease of completion.

The period of data collection was from September 2006 to January 2007.

## Results

A total of 34 questionnaires from the hospitals to which they were sent throughout Spain were collected (Table 1).

Table 2 shows the main results obtained in relation to the aspects of organisation and structure. In addition to this, it should be mentioned that all the hospitals have a paediatric department, 5 have a paediatric intensive care unit and 4 have a neonatal intensive care unit. All the hospitals attend medical and surgical emergencies, including traumatology in 25 of these 34 hospitals.

With regard to the type of medical personnel attending the consultations, 25 centres have a specific emergency medicine staff. These specific personnel fundamentally attends the consultations in

**Table 1.** Hospitals participating and geographical location

<b>Galicia</b>	H. Clínico de Santiago de Compostela
<b>Asturias</b>	H. Central de Asturias. Oviedo
<b>Cantabria</b>	H. de Laredo. Santander
<b>Basque Country</b>	H. de Mendaro. Guipúzcoa
	H. de Basurto. Bilbao
	H. de Cruces. Bilbao
<b>Navarra</b>	H. Virgen del Camino. Pamplona
<b>Aragón</b>	H. Miguel Servet. Zaragoza
<b>Catalonia</b>	H. Parc Taulí. Sabadell
	H. Mútua de Terrassa
	H. del Mar. Barcelona
	H. Joan XXIII. Tarragona
	H. Arnau de Vilanova. Lleida
	H. Sant Joan de Déu. Barcelona
<b>Valencian Community</b>	H. Universitario de Alicante
	H. Universitario Dr. Peset
	H. de la Ribera
	H. General de Castellón
<b>Castilla La Mancha</b>	H. Virgen de la Salud. Toledo
<b>Castilla y León</b>	H. Universitario de Salamanca
<b>Madrid</b>	H. del Niño Jesús
	H. Príncipe de Asturias
	H. Infantil La Paz
	Fundación Hospital de Alcorcón
	H. de Fuenlabrada
	H. Doce de Octubre
	H. Gregorio Marañón
<b>Andalucía</b>	H. Reina Sofía. Córdoba
	H. Carlos Haya. Málaga
	H. Infantil Virgen del Rocío. Sevilla
	H. Virgen de las Nieves. Granada
<b>Murcia</b>	H. Los Arcos
	H. Virgen de la Arrixaca
<b>Balearic Islands</b>	H. Son Dureta. Palma de Mallorca
	H: Hospital.

morning and/or afternoon shifts while the night and holiday consultations are mainly attended by other paediatricians not specifically from the emergency department or by other professionals (family physicians) as duties.

Concerning the basic indicators of quality recommended by the SEUP the results obtained in relation to the fulfilment of the standards are shown in Table 3.

## Discussion

Knowledge of the current situation of the PED should be indisputable to evaluate the measure of

**Table 2.** Organisational and structural aspects of the emergency departments (*n* = 34)

Number of paediatric emergencies attended per year	
< 10,000	2 (5%)
10,000 to 20,000	5 (15%)
20,001 to 50,000	15 (45%)
50,001 to 80,000	10(30%)
> 80,000	2 (5%)
Hospitals and age limit for paediatric care	
Up to 14 years	20 (58%)
Up to 16 years	13 (38%)
Up to 18 years	1 (4%)
Hospitals with Paediatric Medical Residents	30 (88.23%)
Hospitals with specific emergency medicine staff	25 (72%)
Median duties per month	
Medical residents	5
Non medical residents	4.5
Hospitals in which days off duties create care providing problems	18 (53%)
Emergency care of patients hospitalised in other hospital areas	
Emergency department personnel	16 (47%)
Specific hospitalisation personnel	15 (45%)
	(3 hospitals did not answer)
Hospitals with a specific head of the emergency department	23 (67%)
Hospitals with a specific reception area for paediatric emergencies	17 (50%)
Hospitals with a specific waiting room for paediatric emergencies	31 (91%)
Hospitals with a specific care area for paediatric emergencies	31 (91%)

improvement adopted and the changes generated over time. As has already been mentioned, at a state level in Spain, there are no data reporting this information. In Catalonia, the Working Group of the Catalan Society of Paediatrics published the results of a similar survey on healthcare activity and the resources available in 1999 and later in 2005<sup>7</sup> On comparing the results obtained in the two periods a notable increase in emergency healthcare demand, the lack of paediatric special-

ists to attend emergencies, in the extrahospital setting, outside the normal time table (from 08:00 to 20:00 h from Monday to Friday) and the scarce organisation of the centres which provide emergency paediatric care were of note. In other countries the most relevant studies on the situation of the PED also performed with surveys are those of Shaw<sup>8</sup>, Salter<sup>9</sup> and that by Gausche-Hill<sup>10</sup>. The latest data available, to our knowledge, are those reported by the Research in European Pediatric Emergency Medicine (Eusem 2007)<sup>11</sup> which describe data of hospitals from 14 countries of Europe. The common denominator in the conclusions of all these studies, which completely coincide with those of the present survey, is the existence of opportunities for improvement in the structure and organisation of the PED. Walter et al. described the current aspects of the state of paediatric emergency medicine in the world as well as the ongoing working groups and organisations<sup>12</sup> Their proposal of improvement is based on the creation of an international paediatric emergency medicine group which can share experiences, carry out projects of investigation and be the focus of dissemination of all the information accumulated.

The opinion of Cooke<sup>13</sup> on the future steps of the PED was that they should consolidate the application of the indicators of quality, provide greater training of personnel and reduce the variability in care providing based on where it is carried out.

In general, all the authors coincide in that one of the fundamental aspects to achieve the implementation or the periodic undertaking of actions of improvement is, undoubtedly, better organisation and coordination. To do this, the option of the PED being attended and managed by professionals with

**Table 3.** Fulfilment of the basic indicators of quality

Name of the indicator	SEUP standard	Hospitals fulfilling the standard (n = 34)
Percentage of patients with severe dyspnoea attended in less than 10 minutes	100%	19 (56%)
Determination of oxygen saturation and respiratory frequency in patients with severe dyspnoea	100%	17 (50%)
Control and supervision of polytraumatism	100%	30 (88%)
Have systematic patient classification or triage (Computerised in 7)	YES	27 (79%)
Rate of readmission with hospital admission	15%	5 (15%)
Topical anaesthesia for painful procedures	100%	31 (91%)
Rate of global hospitalisation	< 5%	28 (82%)
Complete the healthcare report	100%	34 (100%)
Have a protocol of vital risk	YES	31 (91%)
Have clinical protocols	YES	31 (91%)
Diagnostic codes	100%	22 (69%)
Review of the material of resuscitation room and cardiac arrest cart	100%	33 (97%)

SEUP: Spanish Society of Paediatric Emergency Medicine.

exclusive dedication or preferential dedication to work in emergency medicine seems very pertinent. Professionalisation of personnel attending emergency care is, to our understanding, the key to allowing the detection of weak points, proposing and carrying out actions of improvement and later evaluating results, thereby closing the classical circle of the quality healthcare policy<sup>14-16</sup>.

In our setting we have observed that although a number of hospitals have started to have their own emergency medicine staff, they only cover very specific time tables. This means that outside these schedules the responsibility lies in the hands of personnel not specifically trained for attending acute disease or professionals in training. In our country the Spanish Society of Emergency Care and Medicine (SEMES) the members of which are professionals attending emergencies among the adult population, are close to achieving recognition of the main speciality of Emergency Medicine after intense negotiation with the prevailing politicians<sup>17</sup>. This application is supported by the European Society of Emergency Medicine in the "Declaration of Principles in Emergency Medicine in Europe"<sup>17</sup> published in September 2007. All of this further enhances the need for specialisation and professionalisation in the area of emergency medicine if the level of quality and efficiency desired is to be achieved. It is clear that this approach must be extrapolated to personnel attending patients of paediatric age. This professionalisation implies that the emergency department should acquire an organisational and functional structure reflecting the hierarchy and responsibility of its members. It is of note that in 11 of the centres there is no figure of a person responsible for adequately coordinating and supervising paediatric emergencies, thereby representing an added problem to achieve correct organisation.

Logically, the availability of specific personnel for emergency work would also lead to the disappearance of the problem of day off duty<sup>18-20</sup> which affects more than half of the centres surveyed. This would allow more rational time tables avoiding the work schedule overload which the classical model of "duties" represents for all professionals and which has started to be questioned from the point of view of work regulations with respect to both the duration of the workday hours as well as the annual number of hours worked. Naturally, with its own personnel this model would also facilitate the participation of the emergency medicine professionals in activities not strictly care related but which are essential such as investigation or teaching.

It is important for it to be clear that although

this concept of professionalisation provides great benefits and should be approached as the final objective, its implementation over time and the intensity of application should be adapted to the possibilities of each centre.

From a structural point of view it is fundamental for the areas of paediatric care to be clearly separated and differentiated from those of adults. In this aspect, the data obtained are quite satisfactory since 31 of the 34 centres have a specific waiting room and care area for paediatric cases.

It is clear that it is not enough to know the weak functional and structural points of the PED but rather the tools necessary to analyse and evaluate the quality and efficiency of the work carried out every day are required. For this, the indicators of quality of SEMES and SEUP<sup>5,21</sup> are currently the reference to allow evaluation and comparison of the activity of the different PED. The application of an indicator should never be seen as something punitive but rather as a parameter which allows the detection of situations of improvement. Thus, the application of indicators of quality are, and should therefore be seen as, great allies of the professional since they allow possible defects to be objectively demonstrated and in this case, implement the adoption of human or technical means for their rectification.

An excellent complement to this document of the SEUP is the "Manual of standards of accreditation for Emergency Departments" published by SEMES<sup>22</sup>. This document also provides very useful information from the point of view of emergency department organisation.

In the review of the literature on indicators of quality in paediatric emergency medicine, the publication of the Royal College of Pediatrics and Child Health<sup>23</sup> in 1999 is of note as are the more recent publications of Guttman et al<sup>24</sup> (USA), Hung et al.<sup>25</sup> (Canada) and an excellent comment by Davies<sup>26</sup> on the current situation and proposals in the United Kingdom.

The results obtained in the present study show clear deficiencies in the monitoring and fulfilment of some of the basic quality indicators due to the lack of structure and means in most of the PED surveyed. The absence of computerisation of information, triage systems or diagnostic coding is, for example, an important deficiency which should be rectified because they are fundamental for correct healthcare.

This study logically has some limitations inherent to the data obtained through the questionnaires. Although we believe the number of centres included and their geographical distribution to be

representative, it cannot be guaranteed that some of the hospitals, which did not participate because they are not within the setting of the SEUP or for other reasons, might not contribute very different realities from those obtained. The heterogeneity of the different hospitals may also make the interpretation of some results difficult. Lastly, we must assume that the information provided may, in some cases, be somewhat inexact precisely due to the lack of structure and means detected.

As a final comment, it is of note that at present the structural and functional situation of the PED surveyed has shown important opportunities for improvement in both structural and functional aspects as well as in the use of indicators to measure the quality of care.

Greater specialisation and professionalisation of the PED should be the point of inflexion to allow the application of measures and resources to correctly attend the healthcare needs which society currently demands with the adequate personnel and management tools.

## Addendum

Dr. F. Martín (Santiago de Compostela), Dr. J. Rodríguez (Oviedo), Dr. I. Mongil (Santander), Dr. J. Alustiza (Guipúzcoa), Dr. J. Humayor (Bilbao), Dr. J. Benito\* (Bilbao), Dr. N. Clerique (Pamplona), Dr. C. Campos (Zaragoza), Dr. F.J. Travería (Barcelona), Dr. J. Fábrega (Barcelona), Dr. O. García (Barcelona), Dr. C. Luaces\* (Barcelona), Dr. E. Castellarnau (Tarragona), Dr. N. Pociello (Lleida), Dr. M. Baeza (Alicante), Dr. R. Bretón (Valencia), Dr. S. León (Castellon), Dr. V. Sebastián\* (Valencia), Dr. E. Crespo (Toledo), Dr. J. López (Salamanca), Dr. M. De la Torre (Madrid), Dr. M. A. García (Madrid), Dr. S. García (Madrid), Dr. C. García-Vao (Madrid), Dr. A. Gancedo (Madrid), Dr. R. Marañón (Madrid), Dr. P. Rojo (Madrid), Dr. F. Barcones (Cordoba), Dr. C. Calvo (Málaga), Dr. MT. Alonso (Sevilla), Dr. JL. Santos (Granada), Dr. J. Valverde (Murcia), Dr. J. Rodríguez Camaño (Murcia), Dr. F. Ferrés\* (Palma de Mallorca), Dr. A. González\* (Bilbao).

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## Encuesta nacional sobre las urgencias pediátricas. Aspectos organizativos y funcionales

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**Introducción:** El conocimiento de la estructura y funcionamiento de los servicios de urgencias pediátricos hospitalarios es fundamental para diseñar y promover acciones de mejora.

**Objetivos:** 1. Conocer aspectos sobre la organización y funcionamiento de las urgencias pediátricas de hospitales. 2. Determinar el grado de cumplimiento de los Indicadores Básicos de Calidad establecidos por la Sociedad Española de Urgencias Pediátricas (SEUP).

**Método:** El Grupo de Calidad de la SEUP diseña una encuesta dirigida a responder los objetivos planteados que se remite a los responsables de 40 hospitales con miembros de la SEUP. Se recogen las respuestas recibidas en el período transcurrido del 09/2006 al 01/2007.

**Resultados:** Son 34 encuestas de centros repartidos por toda España. Veintitrés (68%) tienen un responsable específico de urgencias, 25 (74%) *staff* propio y 30 (88%) MIR. Durante las noches y fines de semana, la asistencia corre a cargo en muchos casos de personal no específico de urgencias. La libranza de guardias genera problemas asistenciales en 18 centros (53%). En cuanto a los indicadores destaca que: en los del Área de Patologías el cumplimiento del estándar varía entre el 56 y el 88%, en los del Área de Actividades 7 no disponen de *triaje* (21%), en los del Área de Documentación todos (100%) cumplimentan el informe de asistencia y 22 realizan codificación diagnóstica (65%), en los del Área de Trabajo 33 hospitales revisan el carro de paros (97%).

**Conclusiones:** Se observan importantes oportunidades de mejora tanto a nivel estructural como funcional. La escasez de profesionales y/o responsables específicos es el factor principal que justifica los problemas detectados. El cumplimiento de los Indicadores presenta una evaluación correcta en el área de patologías pero se observan deficiencias debidas a sistemas informáticos insuficientes en las de actividades y documentación. [Emergencias 2008;20:322-327]

**Palabras clave:** Servicios de urgencias de pediatría. Indicadores de calidad. Encuesta.