

## SPECIAL ARTICLE

## Learn, unlearn, and learn again: the secret to changing how elderly patients are attended in the emergency department

Mireia Puig Campmany<sup>1,2</sup>. Marta Blázquez Andión<sup>1,2</sup>. Josep Ris Romeu<sup>1,3</sup>

The demographic shift toward ever greater numbers of older patients with multiple conditions and functional dependency has increased pressure on emergency departments (EDs). The traditional approach to emergency treatment does not resolve problems in this population, creates risk, leads to high admission rates, and collapses the ED itself. Medical associations recommend that multidisciplinary teams incorporate geriatric assessment strategies and procure safe care environments. Implementing such recommendations will require profound changes in ED processes and staff and in connections between the ED and the community the patient is discharged to. This paper describes the processes we used in our tertiary-care hospital to achieve the necessary level of change. Our aims were to ensure that the ED staff provides correct diagnoses and treatments for elderly patients; bases decisions on the patients' clinical, social and functional needs and the preferences of both patient and family; and arranges for the most appropriate treatment environment in each case. All these changes were essential for properly addressing new care demands while achieving optimal patient outcomes and contributing to better ED and hospital performance.

**Keywords:** Emergency health services. Aged. Morbidity. Frail elderly.

### *Aprender, desaprender y reaprender para asistir ancianos en urgencias: el secreto del cambio*

El importante cambio demográfico, con el incremento de personas ancianas con multimorbilidad y dependencia funcional, conlleva un aumento de presión sobre los servicios de urgencias (SUH). En esta población, la atención clásica desarrollada en los SUH no es resolutoria, comporta riesgos para las personas, implica tasas altas de ingreso y contribuye a aumentar la saturación del propio SUH. Las sociedades científicas recomiendan incorporar estrategias de valoración geriátrica en el SUH a cargo de equipos multidisciplinares, y procurar entornos seguros. Una organización de este estilo requiere de un profundo cambio del propio servicio, de sus profesionales y de las conexiones con el entorno post-hospitalario. Exponemos la experiencia del SUH de un hospital terciario y los mecanismos utilizados para conseguir ese cambio. El objetivo es garantizar que el equipo del SUH lleve a cabo unos cuidados y un diagnóstico y tratamiento correctos de los procesos urgentes en la población anciana, tome decisiones ajustadas a las necesidades clínicas, sociales, funcionales, a los deseos del paciente y su familia, y elija el entorno de tratamiento mejor en cada caso. Todo ello son cambios imprescindibles para atender adecuadamente una nueva demanda, conseguir resultados óptimos para los pacientes y para el funcionamiento del SUH y del hospital.

**Palabras clave:** Urgencias. Ancianos. Morbilidad. Fragilidad.

*"The secret of change is to focus all your energy not on fighting the old, but on building the new."*

Sócrates

### Justification

Over the last thirty years there has been an evolution and growth of hospital emergency departments (ED). The current paradigm is a hierarchical ED with intense protocolization, which has a standardized a structured and universal triage system to prioritize care. This care should be provided by expert professionals with diagnostic skills and instrumental abilities typical of the specialty. EDs have sought new management strategies, such as organization into visiting areas by different levels, observation areas, short stay units and even semicritical units<sup>1-3</sup>. Like other hospital departments, EDs have been involved in teaching and re-

search activities<sup>4,5</sup>. All this has substantially improved the care they provide. However, as is also the case in other countries, overcrowding remains a major problem, which has been widely associated with poorer health outcomes<sup>6-8</sup>.

While we were busy with all of the above, gradually, but very quickly, a major change has taken place. Demographic and epidemiological data show a steady increase in the age and health needs of the population. Elderly, vulnerable, chronically ill, multimorbid, dependent or oncologically active persons present a high demand for medical care, especially in the ED<sup>9-13</sup>. People with chronic diseases, in addition to functional limitations in their ability to care for themselves or perform routine daily tasks such as shopping or cooking, have different patterns of health care use and expenditure than those observed in patients with three or more chronic diseases, but without functional limitations<sup>10,14</sup>. Thus, patients over 60 years of age now re-

#### Author affiliation:

<sup>1</sup>Emergency Department, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain.

<sup>2</sup>Universitat Autònoma de Barcelona, Barcelona, Spain.

<sup>3</sup>Emergency Care Process, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain.

#### Contribution of the authors:

The authors have confirmed their authorship in the responsibilities of the author, publishing and transfer agreement of the rights to EMERGENCIAS.

#### Corresponding author:

Mireia Puig Campmany  
Servicio de Urgencias  
Hospital de la Santa Creu i Sant Pau  
Carrer de Sant Quintí, 89  
08041 Barcelona, Spain.

#### E-mail:

mpuigc@santpau.cat

#### Information about the article:

Received: 20-8-2019

Accepted: 12-10-2019

Online: 4-2-2020

#### Editor in charge:

Juan González del Castillo

present 20-25% of ED consultations. Compared with the rest of the patients, the elderly more often arrive by ambulance, their length of stay is longer and their admission rate is higher<sup>15</sup>. Furthermore, we know that when they are admitted, their hospital stay is 20% longer and they receive 50% more diagnostic tests than other patients<sup>15</sup>. The care we have been developing in the EDs is not very useful in this population group. In the elderly, triage is not very sensitive in discriminating potentially serious diseases and frequent diseases have atypical presentations, both of which lead to under-diagnosis<sup>16,17</sup>. Professionals require specific skills to establish safe and effective diagnostic plans and treatments, and social and functional aspects must be taken into account from the outset. From a structural point of view, conventional EDs are areas of risk for the vulnerable population as a result of noise, lack of rest and disconnection from the usual family environment. An increase in iatrogeny and geriatric syndromes associated with ED stays has been demonstrated<sup>18,19</sup>. Finally, the usual management focused on the single health problem is not resolving, generates long waits for the elderly, a very high rate of admissions, reconsultations and readmissions, and contributes significantly to increasing overcrowding<sup>20,21</sup>. Contradictory to this challenge, we continue to respond with the 'old' mechanisms.

Therefore, a change of paradigm is needed. While preserving the important development of the EDs, it is necessary to evolve and incorporate new organizational strategies to face the important demographic change. In 2013, the American College of Emergency Physicians (ACEP) published the first clinical practice guidelines aimed at adapting or 'geriatrizing' EDs to achieve quality and responsive care for elderly patients. However, more than five years later, few EDs around the world have incorporated initiatives in this sense. To encourage this implementation, the ACEP generated the GEDA (Geriatric Emergency Department Accreditation) in April 2018, which certifies EDs with geriatric interventions that impact on patients.

Studies show the advantages of developing this type of strategy, directly related to improvements for the patients themselves and also for the organizations (shorter stays, fewer adverse effects, reduced admissions and readmissions<sup>22-25</sup>). In these studies we found different models of adaptation of the ED<sup>24-26</sup>. One option is to provide expert geriatric teams that come to the ED on demand, during daytime hours. Such interventions have the disadvantages of focusing on a selected number of patients and not all fragile patients in the ED<sup>24,27</sup>. In contrast, comprehensive geriatric assessment (CGA) approaches carried out by the ED professionals themselves are more inclusive and can reach all patients, although they are still a minority.

The ED and the Urgent Care Process of the Hospital de la Santa Creu i Sant Pau (HSCSP) have progressively developed a Fragility Assistance Program (FAP, 2011-2019) to meet the needs of the most vulnerable patients. The project involves different disciplines and hos-

pital units, and collaboration with other health care providers in the area. It has received several national and international recognitions, and has recently been awarded the first international GEDA accreditation outside the USA and Canada. Therefore, we thought it would be interesting to detail our experience in this article.

## Description of the Fragility Care Program

### *Program guidelines*

FAP has three main lines of action. The first is the inclusion of multidisciplinary comprehensive geriatric assessment (IGA) procedures in the emergency department, under the responsibility of the ED professionals themselves (physicians, nurses, pharmacist and social worker), which guarantees systemic application (24 hours x 7 days). Secondly, a joint project was developed with the other health care professionals, allowing direct and early transfer from the ED to social health care centres, home hospitalisation, residences and PADES (Programa d'Atenció Domiciliària i Equips de Suport) in the area. Finally, a new area has been created within the ED structurally adapted to the most vulnerable patients.

The basic guidelines of the program are: 1) to perform a systematic ED-adapted IGA in no more than 5-6 minutes on frail patients consulting in the ED, guiding diagnostic and therapeutic intensity (24 hours x 7 days); 2) to keep patients in an environment adapted to prevent incidental geriatric syndromes while in the ED, in an effort to ensure quality stays that promote recovery; 3) ensure that all patients who may benefit from alternatives to hospitalisation can be discharged and avoid tertiary hospitalisation; and 4) obtain early discharge, avoiding prolonged stays in the ED and the risks involved.

Below is a description of our experience in designing and implementing the program as a model for other organizations wishing to develop a similar program.

The HSCSP is a tertiary university hospital with 550 beds in a referral area of 407.000 inhabitants. More than 120.000 adult patients are cared for each year in various hospital facilities (emergency room, psychiatric, gynecological and obstetrics, and ophthalmology). Of these, approximately 91.000 patients/year are treated in the adult emergency department with 41% being over 65 years of age.

### *Program objectives*

The general objective is to provide high quality, comprehensive and multidisciplinary emergency care, focused on fragility, applied in a universal and standardized manner from the moment the patient's first contact with the ED. The specific objectives are:

- Improve quality of care: increase patient and family satisfaction, increase patient safety, increase resolution

and efficiency of care, decrease ED stays, detect geriatric syndromes and age-related disorders.

- Reduce costs: decrease hospital admissions and their inherent risks, shorten ED stays and decrease ED saturation.

### Program design

The programme was designed on three main pillars<sup>28</sup>:

#### Adapting the ED to address fragility (ED geriatrics)

The aim is to ensure that the most vulnerable patients receive an appropriate decision-making process based on a thorough assessment of their clinical, functional and social needs, including their preferences.

A screening of vulnerable populations in triage was implemented, to which a selection of geriatric assessment tools of efficacy demonstrated in the ED were applied. Social work and pharmacy were integrated into the emergency care team.

Together with the geriatric unit, a comprehensive design of different aspects listed below from A to G was carried out.

##### A) Triage selection of the target population

Triage selection is a critical issue, as it defines the target population. The objective is to identify the vulnerable population that can receive adapted care and be placed in specific inpatient and outpatient circuits. However, a comprehensive assessment of fragility is not the objective<sup>26,29</sup>.

In Catalonia, in 2011, CatSalut defined the chronic complex patient (CCP) and the patient with advanced chronic disease (MACA, advanced chronic malaltia) and encouraged their identification in primary care throughout the population. The CCP defines a profile of chronicity, with multiple morbidity or a single condition leading to difficult clinical management (approximately 2-3% of the population). The term MACA defines a limited prognosis of life, high need health and palliative needs (1-2% of the population). This identification is intended to develop proactive health care strategies at different levels of care. In both cases, patients are identified in their primary care records with a brand name. In Catalonia, the patient's medical history is shared by all health care providers (història clínica compartida de Catalunya, HC<sup>3</sup>), which facilitates the transmission of clinical information between different health care providers.

The following modifications were included in the triage: 1) The ED computerized clinical workstation (CW) was modified to generate a triage alert for each patient arriving in the ED who is marked in HC<sup>3</sup> as a CCP or MACA; 2) A 'vulnerable or fragile patient' mark was created in the ED CW, with the triage nurse making the initial mark; and 3) to ensure the selection of vulnerable patients who were not previously identified by CatSalut, a second step was added so that the nurse can mark internally all those patients who are not identified as CCP or MACA, and who have advanced organ failure, dementia or cognitive impairment, de-

pendency, visual or hearing impairment, psychiatric disease, active oncological disease.

B) Adapted care in all marked patients involves the following actions (Figure 1).

- Perform a multidisciplinary IGA, by physicians and nurses from the ED, with the intervention of the social worker and pharmacist when necessary<sup>19,30,31</sup>.
- Assessment of the risk of admission with the ISAR scale<sup>32</sup>.
- Systematic detection of cognitive impairment with the 4MT test<sup>33,34</sup>.
- Initial detection of delirium, repeated every 8 hours, with the b-CAM scale (brief-Confusion Assessment Method)<sup>35</sup>.
- Careful management of pain, including appropriate scales for non-communicative patients (Abbey Scale)
- Specific clinical protocols for the diagnosis and treatment of diseases in the elderly.
- Protocolization of end-of-life care.
- Reconciliation of initial and discharge medication by emergency physicians with pharmacist intervention when necessary.

C) Integration of social workers and pharmacists into the project.

A social worker (Monday to Friday from 8.00 to 22.00) and a pharmacist (Monday to Friday from 8.00 to 17.00) participate, carrying out activities of their field and under clinical consultation.

D) Integration of clinical specialties.

The clinical specialties that collaborate in the ED were included in the program so that they are integrated into the established circuits and procedures.

E) Specific care plan.

Implementation of a care plan developed ad hoc for the prevention of incidental geriatric syndromes in the ED (delirium, constipation and immobility) (Figure 1).

F) Training program.

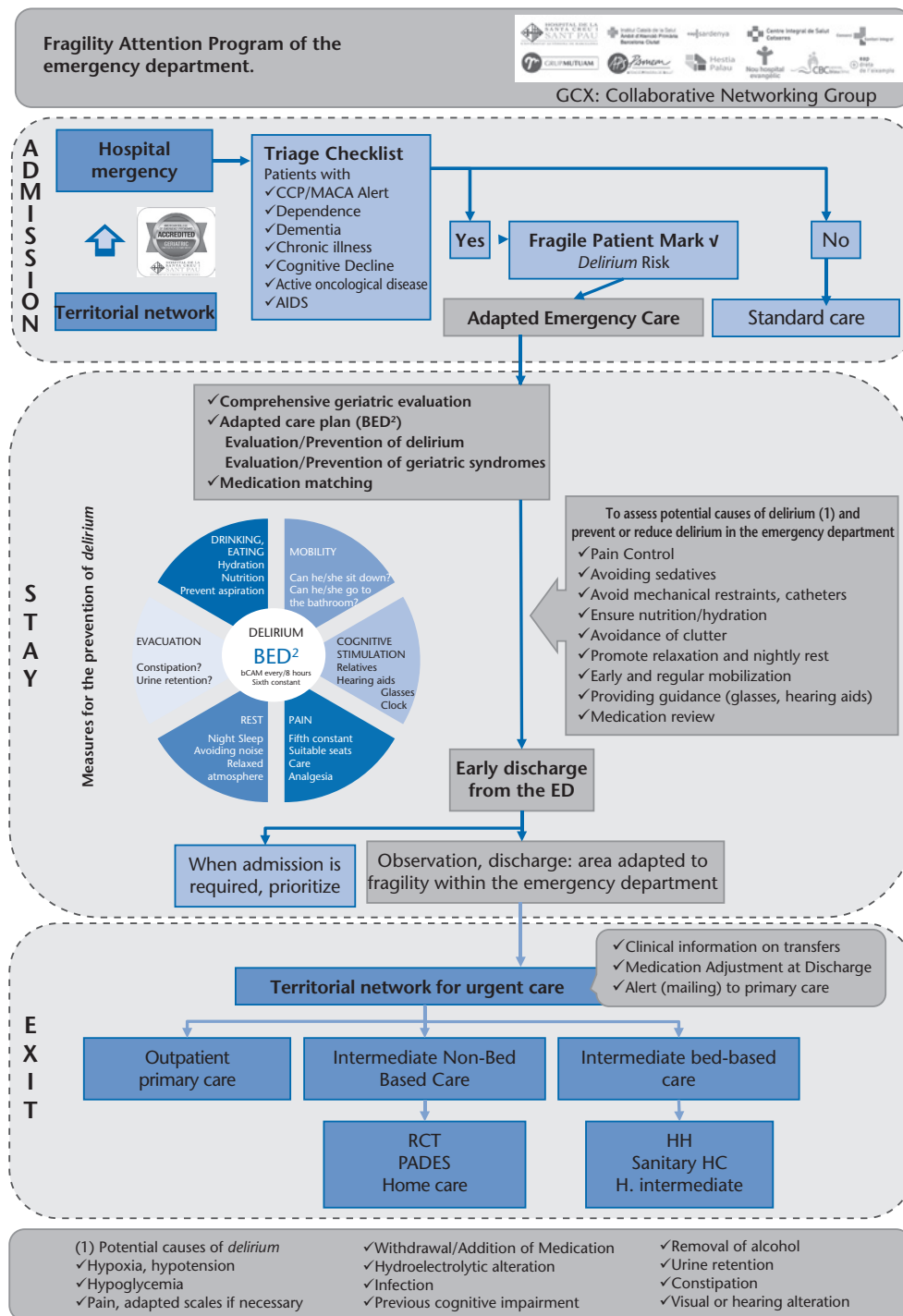
A training program was carried out for physicians and ED residents, nurses, assistants, guards and administrative staff.

G) Development of new indicators to monitor activity.

#### Configuration of a structurally adapted area within the ED

For frail people, being in the emergency department is a negative experience which can trigger certain geriatric syndromes. Proper structure, combined with specific care and procedures, can minimize risk. Staying in these areas, even for a few hours, helps prevent incidental delirium in frail patients and improves their well-being<sup>36</sup>. The new area, consisting of 13 beds, operates 24 hours a day, every day of the year. It has been equipped with two nurses and one assistant per shift, and the number of ED attendants has been increased by one doctor from 8 to 21 hours. It has also been equipped with the following elements:

- Soundproofing elements (walls and curtains) and sound meter for detection of noise increase.
- Daylight and adjustable artificial lighting, adjustable individual, low-intensity light bulbs at the patient's bedside for small nursing procedures at night.



**Figure 1.** Flow algorithm.

CCP: Chronic Complex Patient; MACA: Advanced Chronic Disease Patient; BED: Plan of Care Depicted; RCT: Residential Care Teams; HH: Home Hospitalization; PADES: Home Care and Support Teams Program; SHC: Social Healthcare Center.

- Light-absorbing colours to avoid glare for visually impaired patients.
- Furniture: an electrically articulated, self-adjusting bed, a visco-elastic mattress, a bedside table for personal items, a reclining chair for companions or the

patient, and additional chairs for family members on the unit.

- A staff warning bell in each box.
- Air temperature above the hospital standard temperature.

- Adapted bathroom.
- Walking aids for patient use.

### Promote the integration of the ED into a public health network within a shared geographical model of emergency care

The city of Barcelona is administratively divided by CatSalut into 4 areas (AIS Barcelona Eixample-Dreta, AIS Barcelona Nord, AIS Barcelona Litoral and AIS Barcelona Eixample-Esquerra). HSCSP is the reference hospital in AIS Barcelona Eixample-Dreta. In addition, different public health providers operate in the area (primary care, intermediate care hospitals (ICH), home hospitalization, geriatric teams specialized in residences). The model developed seeks to ensure that whenever it is decided that discharge or hospitalization in a non-tertiary facility is the best destination, the patient can be transferred as soon as possible to complete the emergency care. Therefore, the strategic alliance with other health providers in the area is a cornerstone of this model<sup>37,38</sup>. The relationship began in 2009 with a single ICH and has grown, with all the ICHs of AIS Barcelona Eixample-Dreta and later with the other providers (home hospitalization, residential care teams, palliative care at home and primary care). The volume of referrals to each provider has increased, especially to intermediate hospitals, and has led them to adapt to the needs of ED patients. Work has also been done to improve the connection to primary care to ensure continuity of care after discharge.

### Flow algorithm

The care process is summarized in Figure 1. The first knot in the process is triage. In all patients with an emergent situation, triage is immediate, the patient receives treatment and the frailty assessment is deferred. In all other cases, triage selects the target population. Fragile or vulnerable patients, selected through a marking on the CW, will receive customized care. This care includes IGA, diagnostic and therapeutic decisions tailored to their needs, and a specific nursing care plan.

Depending on the comprehensive evaluation, after the first visit, the patient is put in different observation areas within the ED, prioritizing the continuity of the specific care plan and minimizing the length of stay. Fragile patients who require observation without intensive supervision may be placed in the fragile area. Those requiring hourly observation should be placed in more closely monitored areas in the ED while maintaining the specific plan of care for frailty.

ED discharge is supported by a collaborative network with other health care providers in the area and includes alerts to primary care, face-to-face outpatient consultations and telephone rounds by ED physicians or pharmacists, as needed.

### Results of the program

We provide descriptive data from the hospital's data storage on the characteristics of demand and patient

flows to illustrate the experience. It should be noted that the results are not intended to be shown as a pre-post intervention study. Indicators of number of visits, admissions, age-related readmissions and patient flows are compared between 2011 and 2018. The results of the evolution of the activity of the HSCSP emergency department between 2011-2018 are shown in Table 1.

The evolution shows a progressive increase in activity (+ 13.2%), in the age of patients (40.9% vs 43.1%  $\geq 65$  years), and an increase in ambulance arrivals (29.3% of all admissions vs 33.5%). The admission rate increased progressively until 2014 (10.8% to 12%). In 2014, EGI was implemented in the ED and networking was reinforced. Over the next 5 years, there was a progressive decrease in the admission rate, from 2014 (12%) to 2018 (11.2%).

In 2011, the referral program to intermediate hospitals was initiated. There is a progressive increase in transfers from 2011 (0.7%) to 2018 (4.4%). In 2014, the collaborative network was reinforced and intensified, which we believe, combined with the IGA, made it possible to increase transfers. When we analyze the 72-hour readmissions, we see that they were higher in 2011 (4.2%), and that they have progressively decreased to remain stable (3.5%) in recent years.

Table 2 shows the evolution of the triage classification in the last 5 years, for all patients attending the ED and for those over 65 years of age. A gradual increase was observed in levels I-II and III (54.9% vs 61.9%). This increase is more marked in patients over 65 years (69.7% vs 78.6%). This illustrates an aging population that is associated with a higher level of urgency. Therefore, the results show that in the last 5 years there has been an increase in admissions to the ED of elderly patients, an increase in the level of triage, and despite this, a progressive decrease in the rate of admission has been observed, without an increase in readmissions.

The new fragility area (DAFSU) was inaugurated in November 2017. In order to illustrate its possible impact, we show data from the last three winter periods (defined by Catsalut as the period from 1 December to 31 March, Table 3). The new area was not operational during 2016-2017 and was operational in 2017-2018 and 2018-2019. The number of patients over 65 (+ 4.42%), 75 (3.17%) and 85 (10.8%) years old increased progressively (+ 7.3% between 2016-2017 and 2018-2019). However, admissions fell from 10.7% to 9.7% and readmissions to 72 hours (from 3.6% to 3.3%). By age subgroups, the decrease in hospital admissions is more significant in the oldest, and the same is true of readmissions.

As a result of the above, although we cannot certainly attribute the results described to the multiple interventions carried out over time, we think that the development of the FAP, the transformation of the ED and the new structural area have promoted an organization focused on fragility that has contributed in a relevant way to a continuous reduction in the admission rate, and has been a valuable tool in the management of the ED.



**Table 1.** Evolution of the activity of the emergency department of Hospital Santa Creu i Sant Pau (2011-2018)

	2011	2012	2013	2014	2015	2016	2017	2018
Total hospital emergencies*	136,430	131,763	135,258	137,987	144,744	151,485	149,757	154,442
Patients ≥ 65 in total emergencies	39,231 (28.7%)	39,979 (30.3%)	41,544 (30.7%)	41,200 (29.8%)	43,230 (29.8%)	45,455 (30%)	44,621 (29.7%)	46,475 (30%)
ED Admissions	71,998	70,040	70,008	71,166	75,800	80,054	77,812	79,428
Ambulance admissions	21,140 (29.3%)	20,201 (28.5%)	20,642 (29.4%)	21,573 (30.3%)	25,416 (33.5%)	27,035 (33.7%)	26,436 (33.9%)	26,665 (33.5%)
Patients ≥ 65 in the ED	29,462 (40.9%)	29,523 (42.1%)	30,261 (43.2%)	30,205 (42.4%)	32,640 (43%)	34,590 (43.2%)	33,361 (42.8%)	34,162 (43%)
Hospital admissions from the ED**	7,843 (10.8%)	7,807 (11.2%)	8,026 (11.4%)	8,606 (12%)	8,952 (11.8%)	9,235 (11.5%)	8,807 (11.3%)	8,896 (11.2%)
Transfer to HI from the ED	530 (0.7%)	686 (0.9%)	791 (1.1%)	893 (1.2%)	1,290 (1.7%)	2,403 (3%)	3,033 (3.8%)	3,484 (4.4%)
Readmissions (< 72 h)	4.2%	3.9%	3.7%	3.5%	3.5%	3.6%	3.6%	3.6%

\*Includes psychiatry, gynecology and obstetrics, ophthalmology and pediatrics (in different in-hospital units) and the ED.

\*\*Does not include admissions to critical or surgical areas.

ED: hospital emergency department; HI: intermediate care hospitals.

## Discussion and reflections

In this article we try to provide the key points in emergency care for the elderly, show how an ED has been adapting to international recommendations for emergency care in the geriatric population with organizational changes and open a channel of discussion among professionals.

The experience is illustrated with descriptive and quantitative results of the evolution of our ED in the last 9 years. Without a doubt, attributing these results exclusively to the development of the program is difficult, but in this work we do not intend to analyze the results as a pre- and post-intervention study, but rather to describe the evolution of an ED that has undergone progressive organizational change, implemented over different years, to exemplify the experience.

The most important limitations for correlating the descriptive results shown with the proposed interventions are related, in the first place, to their progressive implementation. In this way, the program has been developed during 9 years: the design of the program started in 2011; the fragility mark was implemented in 2012; from 2014 geriatric assessment adapted to the

ED was incorporated into clinical practice; in 2016 social work and pharmacy were integrated into the ED; in November 2017 the new area structurally adapted to the elderly patient was inaugurated within the ED itself; the territorial collaborative network started in 2011, but the relationship with intermediate hospitals was intensified in 2014, and a connection with home hospitalization, PADES and primary care was incorporated in 2017, completing the network. Another important limitation of the data presented is that data on the characteristics of the population are not given and we cannot therefore ensure that they are comparable. Nor are individual patient outcomes given, such as quality of life or functional capacity, facts which are undoubtedly a limitation. However, these are real-life data, and as in similar studies<sup>24,39</sup>, the difficulty lies in attributing the results to a single valuable intervention.

The comparative evolution of results in the same centre is valuable in this context. The expected trend is an increase in the admission rate, since an increase in the age of the patients has been noted. Therefore, variations in expected trends should be related to structural or organisational changes in the ED. Over the years, we have noticed a progressive increase in the

**Table 2.** Triage levels, overall and for ages over 65 in the last 5 years

	2014	2015	2016	2017	2018
<b>ED Admissions</b>	71,166	75,800	80,054	77,812	79,428
Level I	650 (0.9%)	571 (0.8%)	580 (0.7%)	516 (0.7%)	459 (0.6%)
Level II	10,191 (14.4%)	14,482 (19.2%)	18,198 (22.8%)	18,959 (24.4%)	20,405 (25.8%)
Level III	27,919 (39.6%)	27,965 (37.1%)	27,801 (34.9%)	27,058 (34.9%)	28,058 (35.5%)
Level IV	25,053 (35.5%)	26,559 (35.2%)	26,602 (33.4%)	25,316 (32.6%)	24,550 (31%)
Level V	5,690 (8.1%)	4,894 (6.5%)	5,367 (6.7%)	5,060 (6.5%)	5,128 (6.5%)
Non-triads	1,045 (1.5%)	997 (1.3%)	1,120 (1.4%)	639 (0.8%)	489 (0.6%)
<b>ED Admissions &gt; 65 years old</b>	30,205 (42.4%)	32,640 (43%)	34,590 (43.2%)	33,361 (42.8%)	34,162 (43%)
Level I	220 (0.7%)	182 (0.6%)	180 (0.5%)	129 (0.4%)	144 (0.4%)
Level II	6,474 (21.6%)	9,595 (29.5%)	12,168 (35.3%)	12,695 (38.3%)	13,594 (40%)
Level III	14,212 (47.4%)	14,093 (43.3%)	13,759 (39.9%)	12,689 (38.3%)	12,997 (38.2%)
Level IV	7,165 (23.9%)	7,071 (21.7%)	6,601 (19.1%)	6,128 (18.5%)	5,684 (16.7%)
Level V	1,576 (5.3%)	1,304 (4%)	1,474 (4.3%)	1,306 (3.9%)	1,434 (4.2%)
Non-triads	326 (1.1%)	295 (0.9%)	293 (0.8%)	178 (0.5%)	157 (0.5%)

\*Percentage of patients > 65 years old in relation to the total number of patients.

ED: hospital emergency department.

**Table 3.** Comparison of emergency department activity during the winter periods 2016-2017; 2017-2018; 2018-2019

	1/12/2016 -31/03/2017	1/12/2017 -31/03/2018	1/12/2018 -31/03/2019
ED Admissions	28,819	29,537	30,942
Ambulance admissions	9,081 (31.5%)	9,492 (32.1%)	9,669 (31.2%)
Hospital admissions from the ED	3,104 (10.7%)	3,063 (10.3%)	3,006 (9.71%)
Transfer to HI from the ED	1,118	1,357	1,433
Readmissions (< 72 h)	3.6%	3.6%	3.3%
Patients ≥ 65 years	12,271	12,945	12,814
Hospital admissions ≥ 65 years	2,410 (19.6%)	2,331 (18%)	2,180 (17%)
Patients ≥ 75 years	8,561	8,990	8,833
Hospital admissions ≥ 75 years	1,851 (21.6%)	1,711 (19.0%)	1,635 (18.5%)
Patients ≥ 85 years	3,884	4,401	4,303
Hospital admissions ≥ 85 years	889 (22.8%)	886 (20.1%)	809 (18.8%)
Readmissions < 72 h, ≥ 65 years	3.6%	3.6%	3%
Readmissions < 72 h, ≥ 75 years	3.4%	3.6%	2.9%
Readmissions < 72 h, ≥ 85 years	3.3%	3.7%	2.5%

\*Does not include admissions to critical areas or surgical areas, ED: hospital emergency department; HI: intermediate care hospitals.

age and chronicity of the patients we treat. The existing structure of the ED has not changed since 2009, with the exception of the new area of frailty opened in November 2017. However, following a network organization, our external resources available as alternatives to hospitalization have gradually increased, as the healthcare providers we share have progressively adjusted resources to meet our requirements in order to achieve the common goal: to avoid unnecessary tertiary admissions for this at-risk population. These changes in patient flows must therefore be understood as the desired consequences of the FAP and as essential tools for meeting the objective of adapting the appropriate care environment. Thus, comprehensive assessment and care adapted to fragility by ED professionals in a multi-disciplinary organization has led to more patients being placed in different channels than those admitted to the tertiary hospital. It is therefore a desired consequence and not a cause of variation in flow. Furthermore, data from the winter period 2018-2019, when the FAP had been reinforced with the new area of fragility, show an increase in activity of 2.4%. The increase in ambulance arrivals and elderly people is remarkable. Despite this, the admission rate remains low, especially among the elderly, and has fallen by half a point since the previous year.

We understand that the quantitative results illustrate a modification in patient flow as a result of this organization, and this is crucial to avoid unnecessary admissions to the hospital, optimizing the occupation of the center and the ED itself. This type of management, taking into account that more than 40% of the popula-

tion we attend are elderly, has an important impact on the results and management of the ED. However, our fundamental objective is to increase the capacity of the ED to solve the urgent problems of frail patients, individualising clinical decisions based on an IGA and not on age, including patient preferences and remembering that the therapeutic objectives are very often to maintain adequate functional and cognitive capacity.

We also want to emphasize that obtaining qualitative indicators for emergency care of elderly patients is a challenge. The evidence reported exposes the difficulty of using quality indicators in geriatric care in the ED<sup>11,40,41</sup>. In fact, work evaluating geriatric interventions in the ED is very scarce<sup>42</sup>. More research is needed in this area and to generate contrasting evidence. We are working in this line in order to obtain results, while trying to incorporate knowledge about the patient experience as a new dimension of quality to help us improve<sup>43</sup>.

## Conclusions

Scientific associations recommend a geriatricisation of the ED<sup>17</sup>. However, there are only a few similar experiences published<sup>44</sup>. This system allows adjusting the diagnostic and therapeutic intensity to the needs of the patient, and selecting the best destination for each of them. It is also the basis for referral to other providers in the network, which eventually leads to a decrease in admission rates. The results, despite the scarcity of quality indicators, show a gradual change in patient flow that has allowed us to address the progressive increase in ED activity characterized by older and more complex patients. The organizational model contributes to the management of saturation.

This way of operating implies a paradigm shift in emergency care and involves learning new strategies, unlearning certain old concepts and relearning a new way of caring for our patients. EDs must change. As we mentioned at the beginning, we must focus all our energy not on fighting with the old strategies but on building a new model of emergency care for elderly patients. In this sense, we would provide quality care and we would fight in a new and more effective way against the saturation of EDs.

**Conflicting interests:** The authors declare no conflict of interest in relation to this article.

**Financing:** The authors declare the non-existence of funding in relation to this article.

**Ethical responsibilities:** All authors confirm in the author's responsibilities document, publication agreement and assignment of rights to EMERGENCIAS that confidentiality and respect for patients' rights, as well as international ethical considerations, have been upheld.

**Article not commissioned by the Editorial Committee and with external peer review**

## Addendum

**Other members of the Collaborative Network:** Hospital de la Santa Creu i Sant Pau (ED: Iván Agra, María Teresa Álvarez, Mary Arjones, Ai-

tor Alquézar, Boukra Atthou, Carme Beltrán, Salvador Benito, Marta Castellà, Verónica Díez, Eva Gil, Josep M. Guardiola, Héctor Hernández, Sergio Herrera, J. Leopoldo Higa, Yaiza Ibáñez, Rut Jiménez, Mara López, Laura Lozano, Roberto Lazzari, Miriam Mateo, Albert Mauri, Laura Membrilla, Antoni Moliné, Josep A. Montiel, María Dolores Muñoz, Aina Piera, María del Mar Pina, Paola Ponte, Silvia Nuño, Miguel Rizzi, Carlos Romero, Montse Serés, Olga Trejo, Miquel Turbau, Carme Valls; Pharmacy Service Ana Juanes, Jesús Ruiz; Social Workers: Maria Canela, Meritxell Liarte, Jordi Valls; Geriatrics: Jordi Mascaró, Jordi Martín; Hospital Mutuam Güell: Dolors Quera, Neus Saiz; Nou Hospital Evangèlic: Francisco López, M<sup>a</sup> Luisa Jiménez, Joan Solà; CIS Cotxeres: Montse Vila; CIS Isabel Roig and Grup Blauclínic: Josep Ortega, Xavier Pujol; Hospital Hestia Palau: Esther Pallarés; Equips d'Atenció Residencial Mutuam Montse Espier, Rosa Planesas; Hospitalització a Domicili Dos de Maig: Ana García-Sarasola, Maria Karuna Lamarca, Anna Torres, Eulàlia Villegas; PADES: Emma Costas; Grupo EFAD (Equip Farmacèutics Ais Dreta); Atenció Primària Ais Dreta.

**Accreditations. Awards or Mentions (2017-2019):** In April 2019, the Emergency Department of the Hospital de la Santa Creu i Sant Pau received the first international GEDA (Geriatric Emergency Department Accreditation) granted by ACEP (American College of Emergency Physicians). 1st +Futur 2019 Award from Unió Catalana d'Hospitals "Networked collaborative care model, new paradigm in emergency care adapted to high-cost high-needs patients"; 1st award in the 1st Edition of the Quirón-salud Prize for the Best Initiatives in Patient Experience: "New Emergency Care Area for Frail Elderly People created within the framework of a Service's Geriatric Care Program: Evaluation of Patient Experience"; 17th Research Award Fundació Mutuam Convivir 2017: "Comprehensive Geriatric Care in a Hospital Emergency Service. Impact on patient health and flow management after implementation in the Emergency Department and Short Stay Unit"; Innovation in Management Award 2017, Unió Catalana d'Hospitals. "Programa d'Atenció a la Fragilitat del Servei d'Urgències"; finalists in the Excellence Award for Leadership and Management in the category Healthcare 2017 International Awards of The International Hospital Federation: "Collaborative Integral Model of care to chronicity in a large city public network".

## References

- Lobon L. Innovación en Medicina de Urgencias y Emergencias: cinco aspectos organizativos que podrían cambiar nuestra práctica. *Emergencias*. 2017;29:61-4.
- Juan Pastor A, Manjón Del Solar S. La jerarquización de los servicios de urgencias hospitalarios como condición necesaria para la mejora continua. *Emergencias*. 2014;26:484-8.
- Sánchez M, Salgado E, Miró O. Mecanismos organizativos de adaptación y supervivencia de los servicios de urgencia. *Emergencias*. 2008;20:48-53.
- Coll-Vinent B, Sánchez M, Nogué R, Miró Ò. La enseñanza de la Medicina de Urgencias y Emergencias en las facultades de medicina españolas: situación actual. *Emergencias*. 2010;22:21-7.
- Fernández-Guerrero IM, Martín-Sánchez FJ, Burillo-Putze G, Miró Ò. Análisis comparativo y evolutivo de la producción científica de los urólogos españoles (2005-2014). *Emergencias*. 2017;29:327-34.
- Peltan ID, Bledsoe JR, Oniki TA, Sorensen J, Jephson AR, Allen TL, et al. Emergency Department Crowding Is Associated With Delayed Antibiotics for Sepsis. *Ann Emerg Med*. 2019;73:345-55.
- Berg LM, Ehrenberg A, Florin J, Östergren J, Discacciati A, Göransson KE. Associations Between Crowding and Ten-Day Mortality Among Patients Allocated Lower Triage Acuity Levels Without Need of Acute Hospital Care on Departure From the Emergency Department. *Ann Emerg Med*. 2019;74:345-56.
- Moskops JC, Geiderman JM, Marshall KD, McGreevy J, Derse AR, Bookman K, et al. Another Look at the Persistent Moral Problem of Emergency Department Crowding. *Ann Emerg Med*. 2019;74:357-64.
- Rosenberg MS, Carpenter CR, Bromley M. Geriatric Emergency Department guidelines. *Ann Emerg Med*. 2014;63:e7-e25.
- Blumenthal D, Chernof B, Fulmer T, Lumpkin J, Selberg J. Caring for High-Need, High-Cost Patients. *N Engl J Med*. 2016;375:909-11.
- Cooke M, Oliver D, Burns A. Quality Care for Older People With Urgent & Emergency Care Needs. Silver book. *Br Geriatr Soc*. 2012;1:102.
- Clegg A, Young J, Iliff S, Rikkert MO, Rockwood K. Frailty in elderly people. *Lancet*. 2013;381:752-62.
- Castillo EM, Brennan JJ, Howard J, Hsia RY, Chalmers C, Chan TC, et al. Factors Associated With Geriatric Frequent Users of Emergency Departments. *Ann Emerg Med*. 2019;74:270-5.
- Khullar D, Kaushal R. "Precision Health" for High-Need, High-Cost Patients. *Am J Manag Care*. 2018;24:396-8.
- Banerjee J, Conroy S, Cooke MW. Quality care for older people with urgent and emergency care needs in UK emergency departments. *Emerg Med J*. 2013;30:699-700.
- Shenoi CL, Platts-Mills TF. Managing the Elderly Emergency Department Patient. *Ann Emerg Med*. 2019;73:302-7.
- Conroy S, Chikura G. Emergency care for frail older people—urgent AND important—but what works? *Age Ageing*. 2015;44:724-5.
- Han JH, Shintani A, Eden S, Morandi A, Solberg LM, Schnelle J, et al. Delirium in the emergency department: An independent predictor of death within 6 months. *Ann Emerg Med*. 2010;56:244-52.
- Ellis G, Marshall T, Ritchie C. Comprehensive geriatric assessment in the emergency department. *Clin Interv Aging*. 2014;9:2033-43.
- Kent T, Lesser A, Israni J, Hwang U, Carpenter C, Ko KJ. 30-Day Emergency Department Revisit Rates among Older Adults with Documented Dementia. *J Am Geriatr Soc*. 2019;1-6.
- Wadhera RK, Joynt Maddox KE, Kazi DS, Shen C, Yeh RW. Hospital revisits within 30 days after discharge for medical conditions targeted by the Hospital Readmissions Reduction Program in the United States: national retrospective analysis. *BMJ*. 2019;366:14563-70.
- Conroy SP, Turpin S. New horizons: urgent care for older people with frailty. *Age Ageing*. 2016;45:579-86.
- Foo CL, Siu VWY, Ang H, Phuah MWL, Ooi CK. Risk stratification and rapid geriatric screening in an emergency department - a quasi-randomised controlled trial. *BMC Geriatr*. 2014;14:98.
- Conroy SP, Ansari K, Williams M, Laithwaite E, Teasdale B, Dawson J, et al. A controlled evaluation of comprehensive geriatric assessment in the emergency department: The "Emergency Frailty Unit." *Age Ageing*. 2014;43:109-14.
- Brown CJ, Kennedy RE, Lo AX, Williams CP, Sawyer P. Impact of Emergency Department Visits and Hospitalization on Mobility Among Community-Dwelling Older Adults. *Am J Med*. 2016;129:e9-e15.
- Carpenter CR, Shelton E, Fowler S, Suffoletto B, Platts-Mills TF, Rothman RE, et al. Risk factors and screening instruments to predict adverse outcomes for undifferentiated older emergency department patients: A systematic review and meta-analysis. *Acad Emerg Med*. 2015;22:1-21.
- Aldeen AZ, Mark Courtney D, Lindquist LA, Dresden SM, Gravenor SJ. Geriatric emergency department innovations: Preliminary data for the geriatric nurse liaison model. *J Am Geriatr Soc*. 2014;62:178-85.
- Puig Campmany M, Ris Romeu J, Blázquez Andión M, Benito Vales S. Development of a comprehensive, multidisciplinary program of care for frailty in an emergency department. *Eur Geriatr Med*. 2019;10:37-46.
- Goldstein JP, Andrew MK, Travers A. Frailty in Older Adults Using Pre-hospital Care and the Emergency Department: A Narrative Review. *Can Geriatr J*. 2012;15:16-22.
- Ellis G, Whitehead MA, Robinson D, O'Neill D, Langhorne P. Comprehensive geriatric assessment for older adults admitted to hospital: meta-analysis of randomised controlled trials. *BMJ*. 2011;343:d6553.
- Ellis G, Jamieson CA, Alcorn M, Devlin V. An Acute Care for Elders (ACE) unit in the emergency department. *Eur Geriatr Med*. 2012;3:261-3.
- Edmans J, Bradshaw L, Gladman JR, Franklín M, Berdunov V, Elliott R, et al. The Identification of Seniors at Risk (ISAR) score to predict clinical outcomes and health service costs in older people discharged from UK acute medical units. *Age Ageing*. 2013;42:747-53.
- Bellelli G, Morandi A, Davis DHJ, Mazzola P, Turcio R, Gentile S, et al. Validation of the 4AT, a new instrument for rapid delirium screening: A study in 234 hospitalised older people. *Age Ageing*. 2014;43:496-502.
- O'Sullivan D, Brady N, Manning E, O'Shea E, O'Grady S, O'Regan N, et al. Validation of the 6-Item Cognitive Impairment Test and the 4AT test for combined delirium and dementia screening in older Emergency Department attendees. *Age Ageing*. 2018;47:61-8.
- Han JH, Wilson A, Vasilevskis EE, Shintani A, Schnelle JF, Dittus RS, et al. Diagnosing delirium in older emergency department patients: Validity and reliability of the delirium triage screen and the brief confusion assessment method. *Ann Emerg Med*. 2013;62:457-65.
- Burton JH, Young J, Bernier CA. The geriatric ED: Structure, patient care, and considerations for the emergency department geriatric unit. *Int J Gerontol*. 2014;8:56-9.
- Conley J, O'Brien CW, Leff BA, Bolen S, Zulman D. Alternative Strategies to Inpatient Hospitalization for Acute Medical Conditions. A Systematic Review. *JAMA Intern Med*. 2016;176:1693-702.
- Dyrstad DN, Testad I, Storm M. Older patients' participation in hospital admissions through the emergency department: an interview study of healthcare professionals. *BMC Health Serv Res*. 2015;15:475-84.
- Wright PN, Tan G, Iliffe S, Lee D. The impact of a new emergency admission avoidance system for older people on length of stay and same-day discharges. *Age Ageing*. 2013;43:116-21.



- 40 Burkett E, Martin-Khan MG, Gray LC. Quality indicators in the care of older persons in the emergency department: A systematic review of the literature. *Australas J Ageing*. 2017;36:286-98.
- 41 Lo AX, Biese K, Carpenter CR. Defining Quality and Outcome in Geriatric Emergency Care. *Ann Emerg Med*. 2017;70:107-9.
- 42 Hughes JM, Freiermuth CE, Shepherd-Banigan M, eRagsdale L, Eucker SA, Goldstein K, et al. Emergency Department Interventions for Older Adults: A Systematic Review. *J Am Geriatr Soc*. 2019;67:1516-25.
- 43 Puig M, Mateo M, Blázquez M, Ris J. Identifying improvements in an emergency department elder friendly area based on patient experience "ED\_EFA their voice project" *Integr Clin Med Int Clin Med*. 2019;3:1-2.
- 44 Lowthian JA, McGinnes RA, Brand CA, Barker AL, Cameron PA. Discharging older patients from the emergency department effectively: A systematic review and meta-analysis. *Age Ageing*. 2015;44:761-70.