



EDITORIAL

Towards the full development of paediatric transport in Spain ☆,☆☆

Hacia el pleno desarrollo del transporte pediátrico en España

P. Domínguez-Sampedro^{a,b}

^a Unidad de Transporte Pediátrico, Hospital Universitario Vall d'Hebron, Universitat Autònoma de Barcelona, Barcelona, Spain

^b Base SEM-Pediátrico YPO1, Sistema de Emergencias Médicas de Catalunya (SEM), Barcelona, Spain

Paediatric transport (PT) brings human and material resources to the locations where they are needed, and additionally, brings the ill child to where these resources are, which is particularly important when intensive care or emergency surgery are required. For this reason, PT is a key link in the chain of survival of the severely ill child and in providing continuity of care.^{1,2}

Paediatric transport must be viewed as a complex health-care process and its development is linked to specific domestic policies and health care models, therefore the approaches of other countries cannot be implemented in their entirety in Spain. Ensuring quality and efficiency in PT requires optimum organisation: defining objectives (both general and operational), transport team, equipment, transport protocol, coordination, and evaluation. And to implement it properly requires political willingness and availability of resources.

General objectives must include *equity*, *healthcare quality*, *efficiency* and patient and provider *satisfaction*, while

operational objectives pertain to the child (such as immediate survival) or the transport process (such as the efficient use of resources). The safety of the child and the transport team is a priority, with the prevention of complications as the main focus, as seen in the article by Carreras et al. published in this issue of *Anales de Pediatría*.³ This article concerns complications arising during helicopter transfer, and reports a low rate of major complications (5%) that the authors attribute to the application of a rigorous protocol for prior stabilisation.

Achieving the operational goals requires professionals qualified in paediatric care and established protocols for transport. Following a survey in 2006, the Sociedad Española de Cuidados Intensivos Pediátricos (Spanish Society of Paediatric Intensive Care [SECIP]) recommended forming specialised teams of paediatricians and nurses with training in paediatric and neonatal critical care. There is evidence supporting the advantages of PT performed by specialised teams. It stands to reason, as the success of the process depends largely on foresight and stabilisation prior to transport, both of which require knowledge of the child and his or her pathology, and competence in life support techniques and procedures.

Foresight, which aims at preventing potential future complications, must be employed in all phases of PT, and the probability of human errors should be reduced through the use of checklists. Carreras et al. present foresight, in combination with correct stabilisation and careful monitoring, as a key element in the prevention of complications. On the other hand, prior stabilisation is necessary for safe transport, as advanced interventions such as intubation or

DOI of original article:

<http://dx.doi.org/10.1016/j.anpedi.2014.08.001>

☆ Please cite this article as: Domínguez-Sampedro P. Hacia el pleno desarrollo del transporte pediátrico en España. *An Pediatr (Barc)*. 2014;81:203–204.

☆☆ Unless otherwise specified, in this editorial the terms 'paediatric' and 'child' include the concepts 'neonatal' and 'newborn', respectively, and 'paediatric transport' refers to air or ground inter-hospital transport.

E-mail address: pdomingu@vhebron.net

central venous access may be required, if only infrequently (less than 25% of patients in the Carreras et al. series; which is consistent with the experience of other paediatric teams).

The suitability of a PT system can be assessed by its degree of *universality*, as it pertains to a territory and age range (covering the full territory and all paediatric age groups, from neonates to adolescents), *specificity* (system solely dedicated to PT) and *specialisation* (care delivered by paediatricians and paediatric nurses). In Spain, the degree of suitability of public PT is not homogeneous. While it is true that children have been, are, and will continue to be transported, most autonomous communities (ACs) do not have a structured PT system which is universal, specific, or specialised. Nonetheless, some ACs have developed systems whose main features are described below in chronological order⁴:

- Cataluña (1995): coordinated by the Sistema d'Emergències Mèdiques (Medical Emergencies System [SEM]); covers Catalonia; paediatric and neonatal transport; ground and air transport; paediatricians and paediatric nurses (air and ground transport); ambulances and technicians specially devoted to PT.
- Balears (2004): coordinated by 061-Balears; covers the Balearic Islands; neonatal and paediatric transport; air and ground transport; paediatricians and paediatric nurses.
- Madrid (2007): coordinated by SUMMA-112; covers the Region of Madrid; neonatal transport; ground transport; paediatricians.
- Valencia (2008): coordinated by SAMU; covers the provinces of Valencia and Castellon; neonatal transport, ground transport, and paediatricians.

A universal, specific, and specialised model has been established in Catalonia.⁵ Three paediatric teams (SEMPs) are currently in operation, based at 3 hospitals in Barcelona: SEMP-Vall d'Hebron (ambulance), SEMP-Sant Joan de Déu (ambulance) and SEMP-Sant Pau (helicopter; its experience is partially addressed in the paper by Carreras et al.).

So far, we have learned much from the SEMP; it provides *visibility* to hospitals that have a PT team, offers training opportunities to the sending hospitals, and acts as an *observatory of trends* in paediatric and neonatal care. Having said that, there are areas for improvement. The system must be optimised to increase efficiency, and quality management must be enhanced, especially in the classification of the patient prior to transfer, the definition of standards and indicators, and the documentation of complications, in the same line as that described by Carreras et al. We also face upcoming challenges, such as prehospital emergency care, and incorporating training in patient transport into the paediatrics MIR (Spanish medical residency programme).

Ultimately, PT is an indispensable element of continuity of care, especially for severely ill children; it has a methodology of its own, requires specific resources, and improves when performed by paediatric teams. Having a PT team adds value to hospitals and is a source of challenges and opportunities for professionals. The PT model in Catalonia, which revolves around critical care paediatricians and neonatologists, has generated public and professional satisfaction, has demonstrated its effectiveness, and can serve as a benchmark for other ACs.

From the perspective of healthcare policy, a PT programme is a commitment to citizens, ensures greater equality across a given territory (regionalisation), and ought to be seen as an instrument and not an end in itself; it can be expected to meet the transport requirements of a child, but not to fix structural problems in the healthcare system. The model must adjust to the needs, resources, and particularities of the autonomous community, taking into account its individual geographical, demographic, and economic circumstances. Furthermore, it must be developed within the larger context of the existing healthcare system, the specificities of its emergency care system, and the interest and commitment of paediatricians. At any rate, existing political willingness is a key factor in the decision to implement a PT system and the type of model to be adopted.

With a view to the full development of PT in Spain, paediatricians, with the support of scientific societies (AEP, SEN, SECIP, SEUP, and others), must strive to ensure that this political willingness and an alliance with medical emergency systems give rise to the generalised implementation of a PT system in the short term. It may be unreasonable to expect the implementation of a universal, specific, and specialised model in each AC, but if we assess previous experience and avoid repeating past mistakes, suitable systems may be developed for each one of them. ACs that already have PT systems must strive to keep advancing and the rest must commit seriously to documenting and disseminating the existing status of paediatric and neonatal transport in their region, with an emphasis on the observed complications and the immediate outcomes. In this regard, the survey proposed by the Red Iberoamericana de Transporte Pediátrico (Latin American Paediatric Transport Network [RITRANSPED]), available at <https://www.secip.com/>, could be a first step. It can help health policy authorities understand the need to implement some PT system in those ACs that are still lacking one.

It is no easy task, but the results will be worth it, and our young patients will appreciate it.

References

1. Renter Valdovinos L, Gil Juanmiquel L, Rodrigo García R, Domínguez Sampedro P. Transporte del niño críticamente enfermo. In: López-Herce Cid J, Calvo Rey C, Rey Galán C, Rodríguez Núñez A, Baltodano Agüero A, editors. *Manual de Cuidados Intensivos Pediátricos*. 4th ed. Madrid: Publimed; 2013. p. 695–708.
2. Moreno Hernando J, Thió Lluch M, Salguero García E, Rite Gracia S, Fernández Lorenzo JR, Echaniz Urcelay I, et al. Recomendaciones sobre transporte neonatal. *An Pediatr (Barc)*. 2013;79:117.e1–7.
3. Carreras-Gonzalez E, Brió-Sanagustin S, Equipo de transporte. Prevención de complicaciones en el transporte interhospitalario aéreo del paciente crítico pediátrico. *An Pediatr (Barc)*. 2014;81:205–11.
4. Brandstrup Azuero KB, Domínguez P, Calvo C. Estabilización y transporte interhospitalario del neonato y niño crítico. *Rev Esp Pediatr*. 2010;66:18–29.
5. Iglesias Serrano I, Sánchez Hernández S, Pérez Batlló J, Domínguez Sampedro P. El SEM Pediátrico: La respuesta del Sistema d'Emergències Mèdiques de Catalunya a la necesidad de transporte interhospitalario de recién nacidos y niños críticos. *Rescate Vial*. 2012;26:8–12.