

Background & aim

The aim of this study was to assess differences in population, management and outcome of children with respiratory complaints in 5 different European emergency departments.

Patients & Methods



- Part of the TRIAGE project
- Prospective observational study
- Collection of routine data
- All children aged <16 years attending the ED, in total 119.309
- Inclusion: shortness of breath as a main complaint (flowchart)
- 5 hospitals in 4 European countries.
- Study period: ≥6 months 2012 -2014
- Outcome: resource use (lab, imaging), inhalation medication, hospital admission

	NL ¹	NL ⁴	UK ⁵	PT ³	AT ²
Age median (IQR)	1.9 (0.7-5.4)	1.7 (0.6-3.8)	2.3 (0.9-4.6)	2.0 (0.8-4.8)	2.2 (1.0-4.5)
Male gender	62%	64%	63%	57%	57%
Urgency: MTS category 1 & 2	48%	69%	53%	80%	13%
Fever ≥ 38.0	38%	36%	27%	11%	17%
Oxygen saturation < 94%	14%	12%	8%	10%	5%

Results

- 13.552** children with shortness of breath included.
- 8.560 (55%) urgent; range 13% - 80%
- 77% < 5 years (range 73-84%).

Vital signs: 41% of the total population had an abnormal respiratory rate according to APLS normal values, 9% had an abnormal oxygen saturation and 53% showed increased work of breathing.

Lab tests were performed in 16% of children (range between hospitals: 8-32%) and an X-ray was performed in 25% (range: 8-33%).

Forty-six percent of all children were treated with **inhalation medication** (range: 21-61%) and 19% was **admitted** (range 8-47%). Two hundred and five children (1.5%) were admitted to the ICU (range: 0.1-9%).

	OR, multivariable (95% CI)*	OR, multivariable (95% CI)*
	Labs	Inhalation medication
NL ¹	4.1 (3.2-5.3) *	0.7 (0.6-0.9) *
NL ⁴	Reference	Reference
UK ⁵	0.6 (0.4-0.8) *	1.0 (0.8-1.3)
PT ³	1.1 (0.8-1.4)	1.2 (1.0-1.5) *
AT ²	7.1 (5.0-9.9) *	0.5 (0.3-0.7) *
	X-ray	Admission
NL ¹	5.3 (3.9-7.3)*	1.5 (1.2-1.9) *
NL ⁴	Reference	Reference
UK ⁵	1.8 (1.3-2.5) *	0.6 (0.5-0.7) *
PT ³	8.3 (6.2-11.1) *	0.2 (0.1-0.2) *
AT ²	4.5 (3.1-6.7) *	0.2 (0.1-0.4) *

*significant. Corrected for: gender, age, triage urgency, fever & abnormal vital signs

Discussion & conclusion

Patient characteristics (age, gender, urgency, presence of fever, abnormal vital signs) could explain part of the observed differences in management. However, after correcting for these population characteristics, we still observed substantial differences between hospitals concerning the management of these children.

Possible explanations might be unmeasured aspects of patient characteristics such as comorbidity, or differences in local practice patterns and use of different guidelines.

European EDs differ substantially regarding the management of children with respiratory complaints, even when correcting for disease severity, age & gender.

Contributing Centers

- 1.Erasmus MC / Sophia Children's Hospital, University Medical Center Rotterdam, Rotterdam, The Netherlands
- 2.Vienna General Hospital, Medical University of Vienna, Vienna, Austria
- 3.Hospital Fernando Fonseca, Amadora, Portugal
- 4.Maasstad Hospital, Rotterdam, The Netherlands
- 5.Imperial College NHS Healthcare Trust, London, UK