Title: Febrile children with comorbidities at the ED – A multicentre observational study.

European Journal of Pediatrics

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## Appendix 1: Participating EDs

| Hospital                                                   | Country, city     | Hospital type | Total annual paediatric ED visits | Total period of inclusion | Period of inclusion per month | Number of patients included |
|------------------------------------------------------------|-------------------|---------------|-----------------------------------|---------------------------|------------------------------|----------------------------|
| Medizinische Universität Graz                             | Austria, Graz     | University    | 10,000-30,000                     | 1-1-2017                  | 10 days                      | 2243                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Dr. von Hauner Children's Hospital                        | Germany, Munich   | Teaching      | 10,000-30,000                     | 1-1-2017                  | 1 week                       | 1175                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| P. and A. Kyriakou Children’s Hospital                    | Greece, Athens    | University    | >30,000                           | 1-1-2017                  | 1-2 weeks                    | 4549                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Children clinical university hospital                     | Latvia, Riga      | Teaching      | >30,000                           | 1-1-2017                  | All                          | 9000                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Univerzitetni Klinični Center                            | Slovenia, Ljubljana | University   | <10,000                           | 1-1-2017                  | All                          | 3659                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Hospital Clínico Universitario                           | Spain, Santiago de Compostela | University | >30,000                           | 1-1-2017                  | 1-2 weeks                    | 3877                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Erasmus MC-Sophia Children’s Hospital                    | The Netherlands, Rotterdam | University | <10,000                           | 1-1-2017                  | All                          | 1681                       |
|                                                            |                   |               |                                   | 1-4-2018                  |                              |                             |
| RadboudUMC                                                 | The Netherlands, Nijmegen | University | <10,000                           | 1-1-2017                  | All                          | 676                        |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Canisius Wilhelmina Ziekenhuis                           | The Netherlands, Nijmegen | Teaching | <10,000                           | 1-1-2017                  | 2 weeks                      | 415                        |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Alder Hey Children’s Hospital                            | United Kingdom, Liverpool | Teaching | >30,000                           | 1-1-2017                  | 1 week                       | 1624                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| St. Mary’s Hospital                                       | United Kingdom, London | University | 10,000-30,000                     | 1-1-2017                  | All                          | 5714                       |
|                                                            |                   |               |                                   | 31-12-2018                |                              |                             |
| Great North Children’s Hospital                          | United Kingdom, Newcastle upon Tyne | University | >30,000                           | 1-4-2017                  | 2 weeks                      | 3870                       |
|                                                            |                   |               |                                   | 1-4-2018                  |                              |                             |
Appendix 2. Immediate life-saving interventions

1. Airway and breathing support, including intubation or emergent noninvasive positive pressure ventilation.
2. Electrical therapy, including defibrillation, emergent cardioversion, or external pacing.
3. Procedures, including chest needle decompression, pericardiocentesis, or open thoracotomy.
4. Hemodynamic support, including significant intravenous fluid resuscitation in the setting of hypotension, blood administration, or control of major bleeding.
5. Emergency medications, including naloxone, dextrose, atropine, adenosine, epinephrine, or vasopressors.
Appendix 3 - Categorization of presumed cause of infection

![Diagram of presumed cause of infection categorization based on clinical data]
Appendix 4: NICE alarming signs for children with different types of comorbidities.

**NICE alarming signs**

- Ill appearance
- Work of breathing
- Rash
- Any neurological signs

![Chart showing percentages of alarming signs for different comorbidities](chart.png)
Appendix 5: Adjusted odds ratios for children with specific types of comorbidities for diagnostic tests, therapy, disposition and final diagnosis compared to children without comorbidities.

| Condition                          | Cardiac  | Malignancy-immunodeficiency | Psychomotor delay-neurological | Prematurity  | Pulmonary  | Urology/ nephrology |
|-----------------------------------|----------|-------------------------------|--------------------------------|--------------|------------|---------------------|
| CRP > 60                          | 1.5 (1.1-2.1) | 2.5 (2.0-3.2)               | 1.6 (1.3-1.9)                  | 1.1 (0.8-1.5) | 0.9 (0.7-1.1) | 2.1 (1.6-2.8)       |
| Positive blood cultures           | 1.5 (0.6-4.0) | 3.4 (2.0-5.6)               | 1.8 (1.0-3.3)                  | 1.4 (0.6-3.3) | 2.6 (1.2-5.6) | 2.0 (0.8-5.0)       |
| ILSI                              | 2.7 (1.7-4.5) | 2.3 (1.4-3.8)               | 5.3 (4.1-6.9)                  | 2.2 (1.4-3.3) | 3.0 (2.1-4.3) | 1.3 (0.7-2.5)       |
| IV antibiotics                    | 1.9 (1.4-2.5) | 9.3 (7.7-11.2)              | 2.6 (2.2-3.0)                  | 1.6 (1.2-2.0) | 1.4 (1.1-1.7) | 2.4 (1.9-3.0)       |
| Any admission                     | 2.1 (1.7-2.6) | 5.8 (4.8-7.0)               | 2.9 (2.5-3.3)                  | 2.1 (1.8-2.5) | 2.1 (1.9-2.5) | 1.8 (1.5-2.2)       |
| PICU admission                    | 6.9 (3.2-14.7) | 6.2 (2.8-13.6)              | 9.7 (6.1-15.5)                 | 8.1 (4.4-14.7) | 8.8 (5.2-14.8) | 0.0 (0.0-0.0)       |
| Sepsis/meningitis                 | 3.0 (1.1-8.4) | 14.5 (8.3-24.8)             | 4.6 (2.6-8.1)                  | 4.5 (2.2-9.2) | 2.2 (1.0-5.0) | 2.6 (0.9-7.3)       |

Children without comorbidity used as reference.

# Adjusted for ED, age, sex, duration of fever, previous medical care, time of arrival.
Appendix 6: focus of infection for children with different types of comorbidities.

Focus of infection for different types of comorbidities

- Cardiac
- Pulmonary
- Immuno
- Neuro/PMR
- Prematurity
- Uro/nephro

Legend:
- URTI
- LRTI
- Gastrointestinal
- UTI
- Flulike illness/undifferentiated
- Mucoskeletal
- Sepsis/meningitis
Appendix 7: Pathogens found in children with sepsis/meningitis with (N=45) and without comorbidity (N=25).

CoNS = Coagulate-negative staphylococci. CoNS were considered contaminants in children with comorbidity.