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### Appendix A - Hospital characteristics

| Hospital                                      | Country, city              | Type of hospital | Type of ED            | Inclusion period per month |
|-----------------------------------------------|----------------------------|------------------|-----------------------|----------------------------|
| St. Mary’s Hospital                           | London, United Kingdom     | University       | Paediatric            | All month                  |
| Alder Hey Children’s Hospital                 | Liverpool, United Kingdom  | Teaching         | Paediatric            | 1 week                     |
| Great North Children’s Hospital               | Newcastle, United Kingdom  | University       | Paediatric            | 2 weeks                    |
| Erasmus MC-Sophia Children’s Hospital         | Rotterdam, the Netherlands | University       | Paediatric and adult  | All month                  |
| P. and A. Kyriakou Children’s Hospital        | Athens, Greece             | University       | Paediatric            | 1-2 weeks                  |
| Hospital Clínico Universitario                | Santiago de Compostela, Spain | University       | Paediatric            | 1-2 weeks                  |
| Medizinische Universität Graz                 | Graz, Austria              | University       | Paediatric            | 10 days                    |
| Children clinical university hospital         | Riga, Latvia               | Teaching         | Paediatric            | All month                  |
| Dr. von Hauner Children’s Hospital            | Munich, Germany            | University       | Paediatric            | 1 week                     |
| Univerzitetni Klinični Center                 | Ljubljana, Slovenia         | University       | Paediatric            | All month                  |
| Radboud UMC                                   | Nijmegen, the Netherlands   | University       | Paediatric and adult  | All month                  |
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Patients could have an identified viral co-infection
Appendix C – Cause of infection in the total febrile population (N=913)

Missing N=4
Appendix D - Causative pathogens in the total febrile population (N=913)

**Bacterial pathogens (N=152)**
- E. coli: 47%
- S. Aureus: 13%
- Enterobacter spp.*: 8%
- Enterococcus spp.*: 8%
- Streptococcus spp.*: 7%
- Coagulase negative staphylococcus: 9%

**Causative pathogens: bacteria (N=152)**
* Enterobacter spp: Klebsiella, Enterobacter, Pantoea spp.
*Enterococcus spp: Enterococcus Faecium, Enterococcus Faecalis
*Streptococcus spp: Streptococcus Salivarius, Streptococcus Parasanguis, Streptococcus Viridans, Streptococcus Mitis, Streptococcus Pneumoniae, Group B Streptococcus
Other: Moraxella Catarrhalis, Haemophilus Influenzae, Corynebacterium spp., Pseudomonas Aeruginosa

**Viral pathogens (N=197)**
- Enterovirus: 24%
- Rhinovirus: 19%
- RSV: 10%
- Influenza A/B: 13%
- Other respiratory: 13%
- Gastrointestinal: 19%
- Other: 26%

**Causative pathogens: viruses (N=197)**
* Other respiratory: Parainfluenza virus, Adenovirus, Human Parechovirus, Human Metapneumovirus, Coronavirus
*Gastrointestinal: Norovirus, Rotavirus
*Other: Human Herpes Virus6, Varicella Zoster Virus, Human Immunodefiency Virus
Appendix E - Management in febrile children per ED stratified for the prevalence of SBI (N=913)

| Location          | Number of children below 3 months (% of total population) | SBI | Simple diagnostic tests | Advanced diagnostic tests | Antibiotic treatment | Hospital admission |
|-------------------|-----------------------------------------------------------|-----|--------------------------|---------------------------|----------------------|--------------------|
| Rotterdam, NL     | 31 (3)                                                    | 7 (23) | 13 (42) | 11 (35) | 9 (29) | 17 (55)         |
| Ljubljana, Slovenia | 88 (10)                                                 | 17 (19) | 34 (39) | 52 (59) | 29 (33) | 74 (84)         |
| Riga, Latvia      | 153 (17)                                                  | 28 (18) | 106 (69) | 21 (14) | 62 (41) | 136 (89)        |
| RUMC Nijmegen, NL | 24 (3)                                                   | 4 (17)  | 6 (26)  | 16 (67) | 13 (54) | 19 (79)        |
| Newcastle, UK     | 129 (14)                                                  | 19 (15) | 26 (20) | 59 (46) | 66 (52) | 75 (58)        |
| Liverpool, UK     | 72 (8)                                                    | 9 (13)  | 21 (29) | 42 (58) | 39 (54) | 62 (86)        |
| Graz, Austria     | 23 (3)                                                    | 3 (13)  | 19 (83) | 4 (17)  | 6 (26)  | 17 (74)        |
| Athens, Greece    | 113 (13)                                                  | 8 (7)   | 26 (23) | 52 (46) | 42 (37) | 79 (70)        |
| Santiago, Spain   | 47 (5)                                                    | 3 (6)   | 15 (32) | 24 (51) | 11 (23) | 16 (34)        |
| London, UK        | 154 (17)                                                  | 8 (5)   | 25 (16) | 87 (57) | 69 (45) | 98 (64)        |
| Munich, Germany   | 28 (3)                                                    | 1 (4)   | 12 (43) | 16 (57) | 13 (46) | 18 (64)        |
| CWZ Nijmegen, NL  | 51 (6)                                                    | 1 (2)   | 30 (59) | 17 (33) | 15 (29) | 40 (78)        |

Absolute numbers and percentages (%) are shown. Cut-off value high-low prevalence of SBI: 12%.
SBI definition: lower respiratory tract infection, gastrointestinal infection, urinary tract infection, sepsis, meningitis or musculoskeletal infection in combination with a probable or definite bacterial cause of infection.

High prevalence of SBI

Low prevalence of SBI
High prevalence of SBI: ≥12%
Low prevalence of SBI: <12%

Outcome measures per ED (N=12) for children below the age of three months (N=913), stratified for the prevalence of SBI. Outcome measures: A) simple diagnostic tests, B) advanced diagnostic tests, C) antibiotic treatment, D) hospital admission.
Appendix F – Guideline adherence (N=868)

| Management performed according to the guideline | Range per ED (%) |
|--------------------------------------------------|------------------|
| Full adherence                                    | 0-38             |
| Blood culture                                    | 0-67             |
| Lumbar puncture                                  | 0-62             |
| Antibiotic treatment                             | 33-80            |
| Hospital admission                               | 31-91            |

Absolute numbers and percentages (%) are shown.

Denominator depicts the number of children in which management was recommended according to the guideline.

Guideline adherence per ED

| Children below 3 months | Full adherence | Blood culture | Lumbar puncture | Antibiotic treatment | Hospital admission |
|-------------------------|----------------|---------------|-----------------|----------------------|--------------------|
| London, UK              | 132/868 (15)   | 374/868 (43)  | 144/491 (29)    | 270/492 (55)         | 573/859 (67)       |
| Liverpool, UK           | 143/16 (16)    | 79/143 (55)   | 41/66 (62)      | 45/66 (68)           | 87/143 (61)        |
| Newcastle, UK           | 127 (15)       | 39/65 (60)    | 21/65 (32)      | 36/65 (55)           | 55/65 (85)         |
| Rotterdam, NL           | 31 (4)         | 10/31 (32)    | 3/16 (19)       | 8/16 (50)            | 17/31 (55)         |
| Athens, Greece          | 45 (5)         | 1 (2)         | 24/45 (53)      | 1/12 (8)             | 4/12 (33)          |
| Graz, Austria           | 20 (2)         | 0 (0)         | 4/20 (20)       | 0/10 (0)             | 5/11 (46)          |
| Riga, Latvia            | 152 (18)       | 20/152 (13)   | 0/107 (0)       | 50/107 (47)          | 106/152 (70)       |
| Munich, Germany         | 26 (3)         | 16/26 (62)    | 6/15 (40)       | 12/15 (80)           | 16/26 (62)         |
| Ljubljana, Slovenia     | 82 (9)         | 8 (10)        | 50/82 (61)      | 10/42 (24)           | 23/42 (55)         |
| RUMC, Nijmegen, NL      | 24 (3)         | 16/24 (67)    | 9/21 (43)       | 13/21 (62)           | 19/24 (79)         |
| CWZ, Nijmegen, NL       | 50 (6)         | 17/50 (34)    | 7/33 (21)       | 13/33 (39)           | 39/50 (78)         |

Absolute numbers and percentages (%) are shown.
Appendix G – Management and guideline adherence stratified for children <1 month and 1-3 months

Management in children below 1 month (N=231) versus 1-3 months (N=682)

|                                | Children below 1 month (N=231) | Children 1-3 months (N=682) |
|--------------------------------|---------------------------------|-----------------------------|
| **No diagnostic tests *        | 57 (25)                         | 122 (18)                    |
| **Simple diagnostic tests *    | 58 (25)                         | 275 (40)                    |
| CRP                            | 43 (74)                         | 208 (76)                    |
| White blood cell count         | 43 (74)                         | 199 (72)                    |
| PCT                            | 0 (0)                           | 10 (4)                      |
| Urinalysis                     | 26 (45)                         | 164 (60)                    |
| Urine culture                  | 8 (14)                          | 60 (22)                     |
| Ultrasound                     | 2 (3)                           | 24 (9)                      |
| Chest X-ray                    | 10 (17)                         | 36 (13)                     |
| Respiratory test/sputum culture| 14 (24)                         | 57 (24)                     |
| **Advanced diagnostic tests *  | 116 (50)                        | 285 (42)                    |
| CRP                            | 115 (99)                        | 279 (98)                    |
| White blood cell count         | 115 (99)                        | 275 (97)                    |
| PCT                            | 1 (1)                           | 49 (17)                     |
| Urinalysis                     | 80 (69)                         | 213 (75)                    |
| Urine culture                  | 87 (75)                         | 201 (71)                    |
| Ultrasound                     | 18 (16)                         | 43 (15)                     |
| Chest X-ray                    | 26 (22)                         | 39 (14)                     |
| Respiratory test/sputum culture| 46 (40)                         | 106 (37)                    |
| Blood culture                  | 113 (97)                        | 279 (98)                    |
| Lumbar puncture                | 77 (66)                         | 120 (42)                    |
| CT scan                        | 1 (1)                           | 2 (1)                       |
| MRI scan                       | 0 (0)                           | 0 (0)                       |
| **Antibiotic treatment *       | 126 (55)                        | 248 (36)                    |
| Oral                           | 7 (6)                           | 20 (8)                      |
| Parenteral                     | 118 (94)                        | 227 (92)                    |
| Small spectrum                 | 16 (13)                         | 17 (7)                      |
| Broad spectrum                 | 108 (86)                        | 226 (91)                    |
| **Hospital admission *†        | 175 (76)                        | 446 (65)                    |
| Hospital admission >24h †      | 146 (83)                        | 352 (79)                    |
| Admission to PICU             | 8 (5)                           | 3 (1)                       |

Absolute numbers and percentages (%) are shown

* Percentages per subcategory are based on the total number of children per management category

† Missing data on route of administration antibiotics and type of antibiotics (0.5-2%), and duration of hospital admission (3%)

All management categories had a p-value <0.05

Guideline adherence in children below 1 month (N=223) versus 1-3 months (N=645)

|                                | Children below 1 month (N=223) | Children 1-3 months (N=645) |
|--------------------------------|---------------------------------|-----------------------------|
| **Full adherence *             | 71/223 (32)                     | 61/645 (10)                 |
| Blood culture                  | 106/223 (48)                    | 268/645 (42)                |
| Lumbar puncture                | 75/222 (34)                     | 69/649 (26)                 |
| Antibiotic treatment           | 120/223 (54)                    | 150/269 (56)                |
| Hospital admission *           | 167/223 (75)                    | 406/636 (64)                |

Absolute numbers and percentages (%) are shown

Denominator depicts the number of children in which management was recommended according to the guideline

* p-value <0.05
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