News dalla letteratura e caffè

Validation of the "Step-by-Step" Approach in the Management of Young Febrile Infants

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‘Step by Step approach’

- ✓ **Disegno: studio osservazionale prospettico**
- ✓ **Setting: PS pediatrici, 8 spagnoli, 1 svizzero, e italiani (PD e TV)**
- ✓ **Popolazione: 2185 neonati 0-3mesi con FWS, precedentemente sani**
- ✓ **Scopo : validare l’accuratezza di un approccio ‘step by step’ nell’identificare i lattanti febbrili a basso rischio di IBS/IBI (possibile gestione domiciliare senza terapia antibiotica empirica)**
- ✓ **Approccio step by step: valutazione ‘in sequenza’ di parametri clinici (aspetto generale, età) esame delle urine, esami di laboratorio (Neutrofili, PCR e PCT)**
- ✓ **Altri accertamenti: emocoltura/urocoltura a tutti (altri accertamenti a discrezione del curante)**
- ✓ **Follow up: telefonico per tutti i pazienti dimessi**

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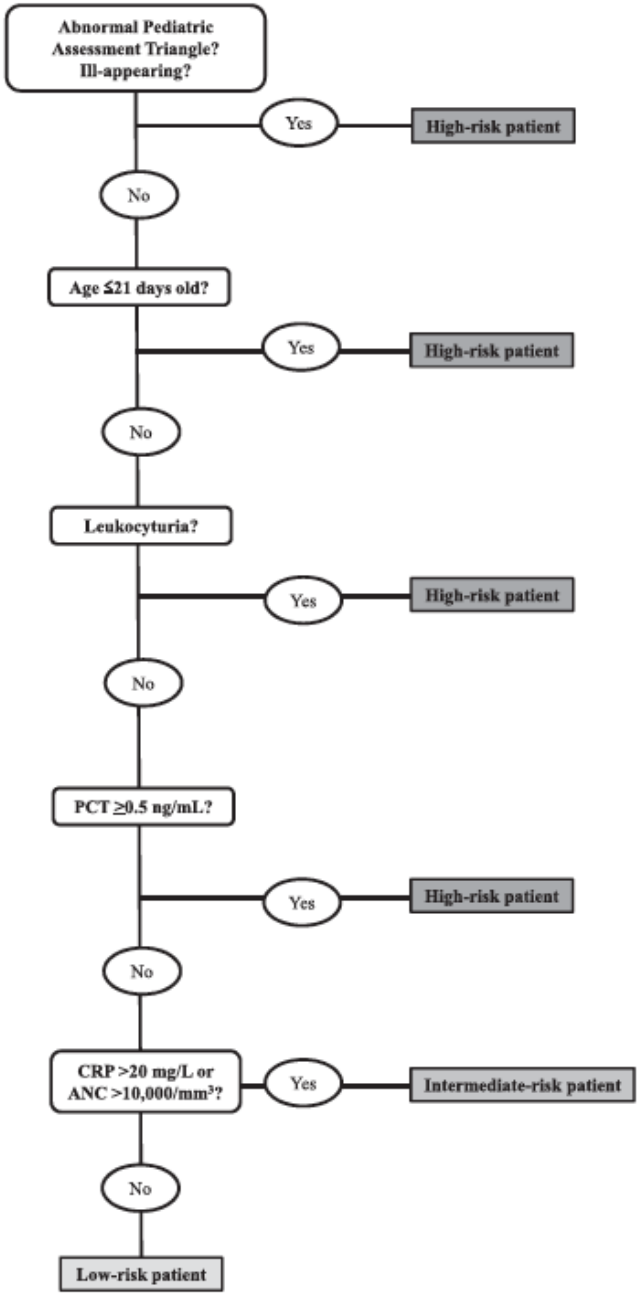

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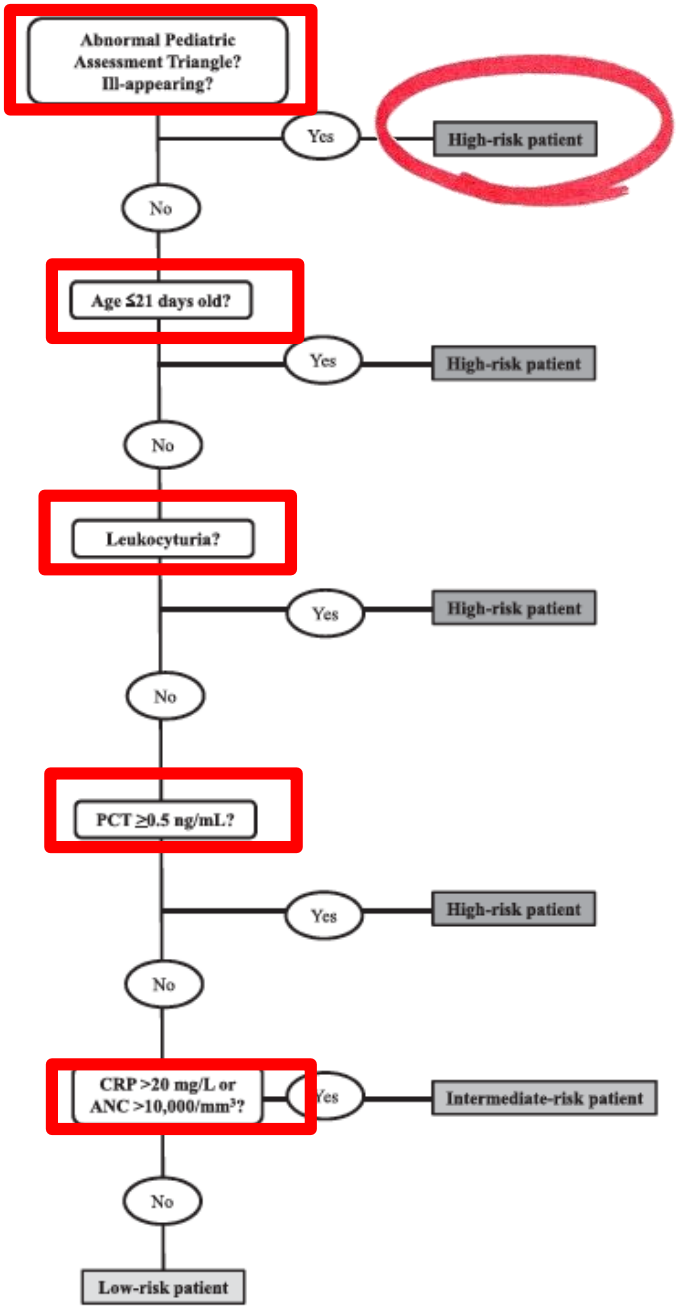

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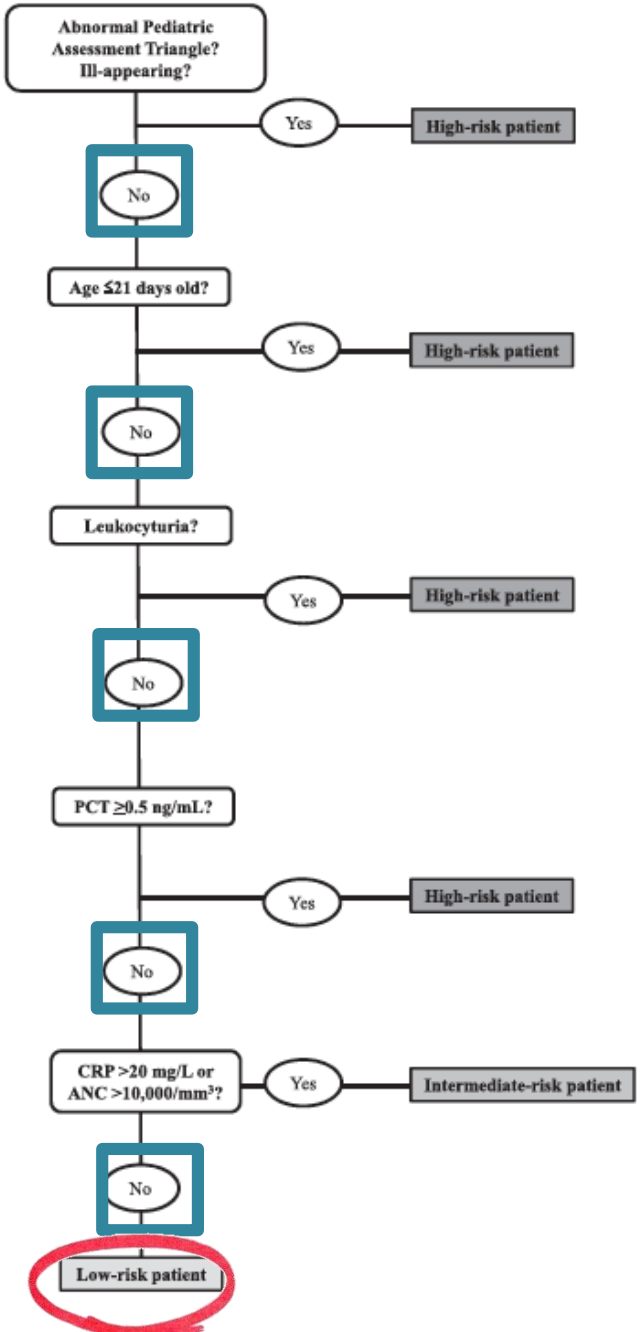

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Definizioni

- ✓ **FWS (Fever Without Sourse): TC ≥ 38°C in pz con EO normale**
- ✓ **IBI (Invasive bacterial Infection): isolamento di batteri patogeni da emocoltura o liquorcoltura**
- ✓ **Non IBI (Severe bacterial Infection): Infezione delle vie urinarie UTI (urinocoltura positiva) e gastroenterite batterica (coprocoltura positiva)**
- ✓ **Possibile SBI: urinocoltura positiva senza leucocituria, polmonite e otite media acuta senza emocoltura positiva**

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2185 neonati-lattanti 0-3mesi

TABLE 1 Epidemiologic and Clinical Characteristics, Complementary Tests, and Management of Patients

Age (median and interquartile range), d	47 (29–65)
≤21 d old, %	16.7
Sex (boy), %	59.5
Duration of fever (median and interquartile range), h[a]	5 (2–12)
Highest temperature measured at home (median and interquartile range), °C[b]	38.5 (38–38.8)
Temperature upon arrival to the PED (median and interquartile range), °C[c]	38.1 (37.8–38.5)
Previously healthy, %	85.9
Classified as well appearing, %	87.7
PCT, CRP, WBC count, urine dipstick, urine culture collected by sterile method, blood culture, %	100
Lumbar puncture performed, %	27.4
Flu test, %	12.5
Antibiotic treatment, %	49.0
Admitted, %	58.5
Pediatric/neonatal ICU	1.6

[a] Evolution time was available in 2103 patients.

[b] Highest temperature measured at home was recorded in 2019 patients.

[c] Temperature upon arrival to the PED was recorded in 2174 patients.

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TABLE 2 Bacterial Infections Diagnosed

IBIs	87 (3.9%)
Bacterial sepsis	26
Bacteremic UTI	25
Occult bacteremia	24
Bacterial meningitis	10
Cellulitis-adenitis syndrome with bacteremia	1
Septic arthritis	1
Non-IBI	417 (19.1%)
UTI	409
Bacterial gastroenteritis	5
Cellulitis-adenitis syndrome with negative cultures	1
Omphalitis with negative cultures	1
Myositis with negative cultures	1
Possible bacterial infections	98 (4.5%)
Possible UTI (positive urine culture without leukocyturia)	88
Pneumonia with negative cultures	7
Acute otitis media with negative cultures	3

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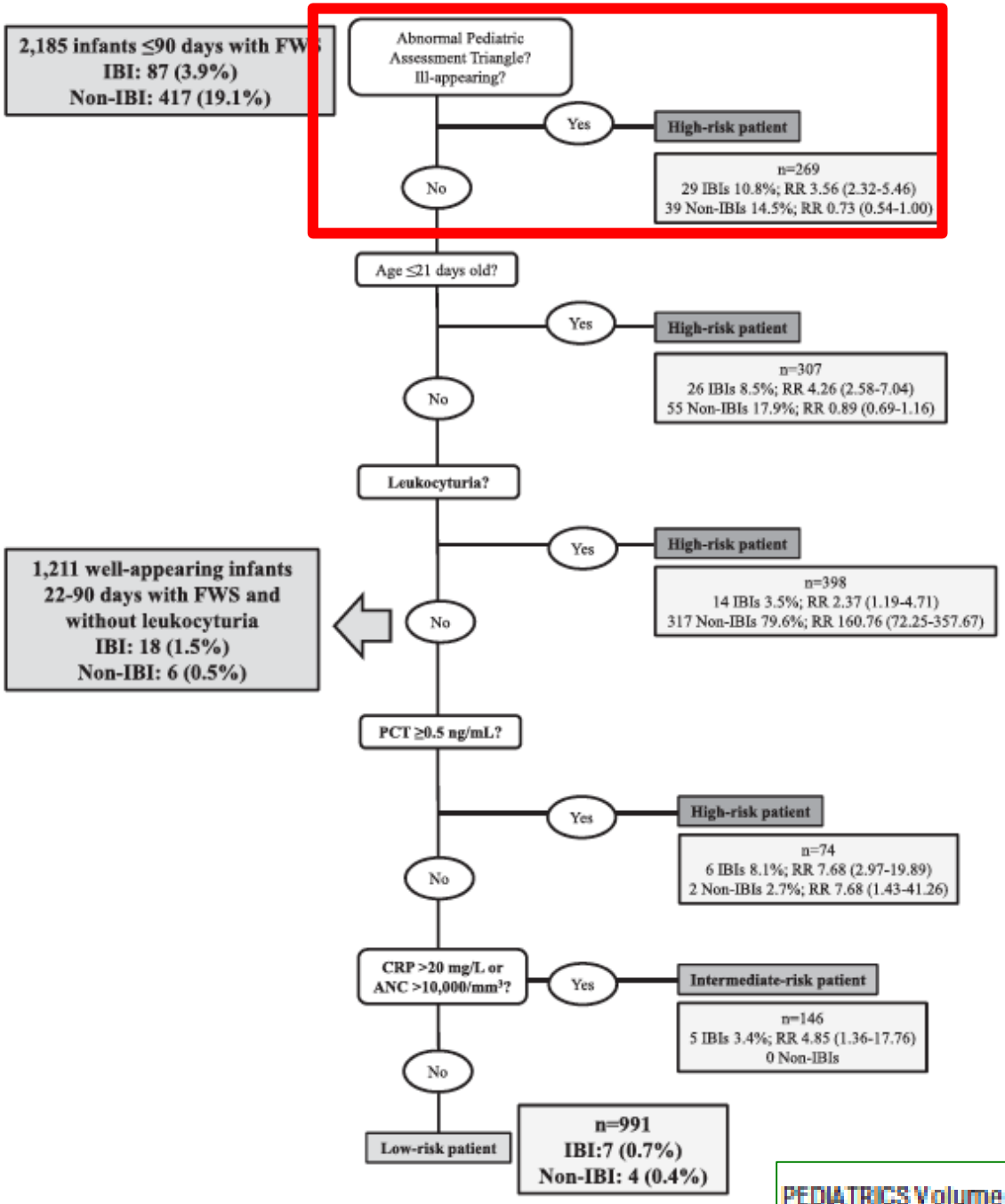

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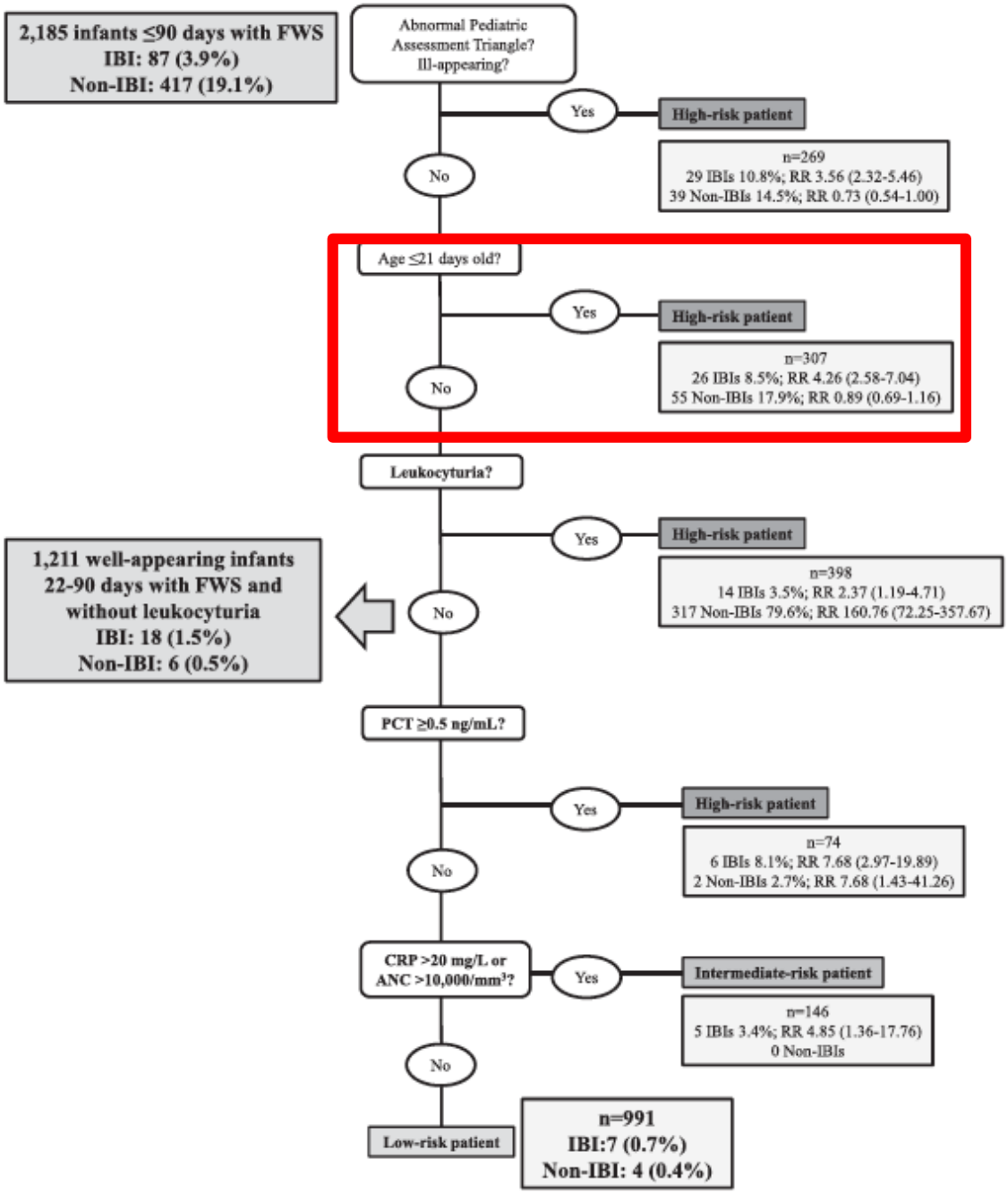
FIGURE 3

Prevalence of invasive and non-IBI in the different risk subgroups and OR for those infants presenting each risk factor.



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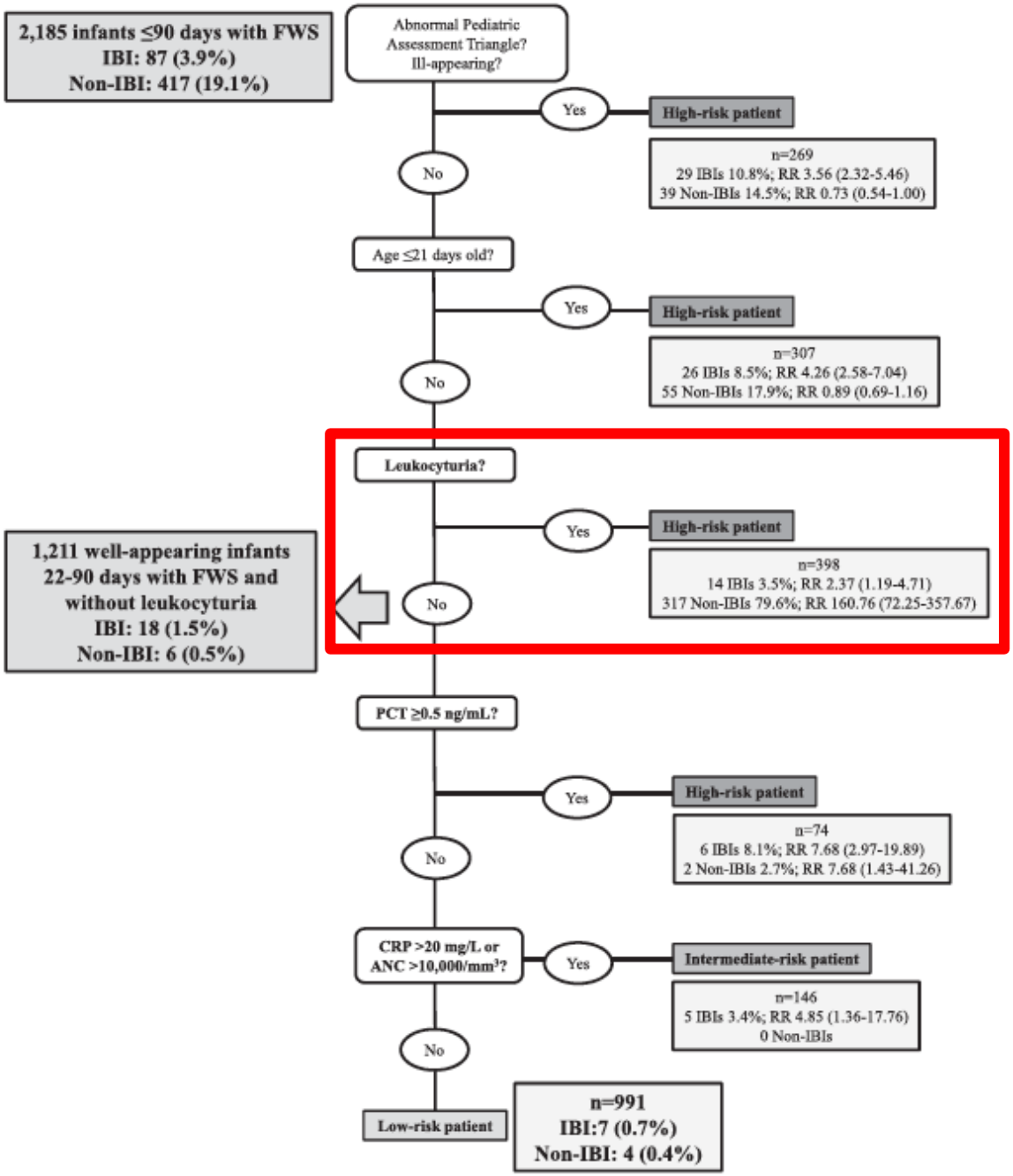

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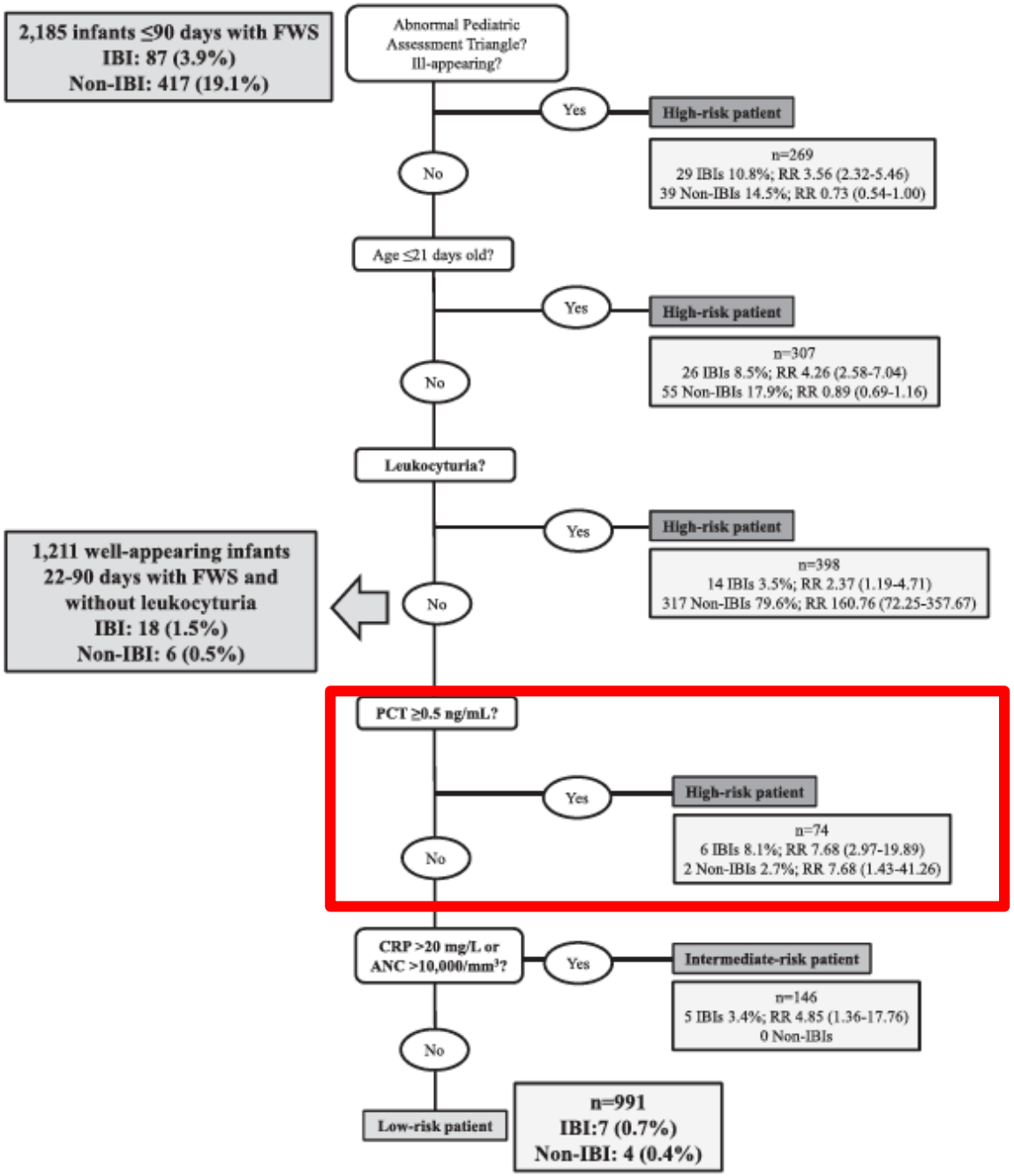

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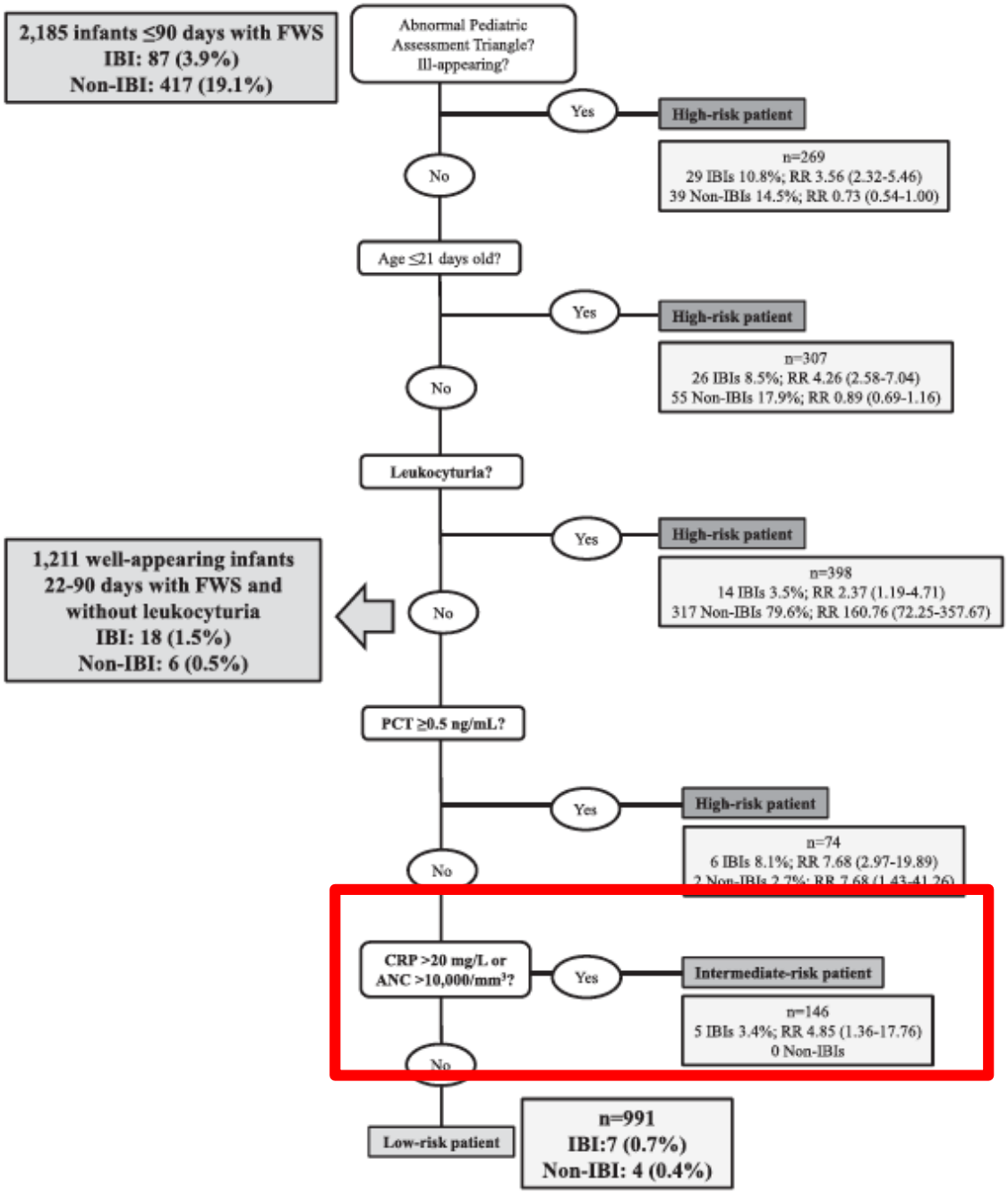

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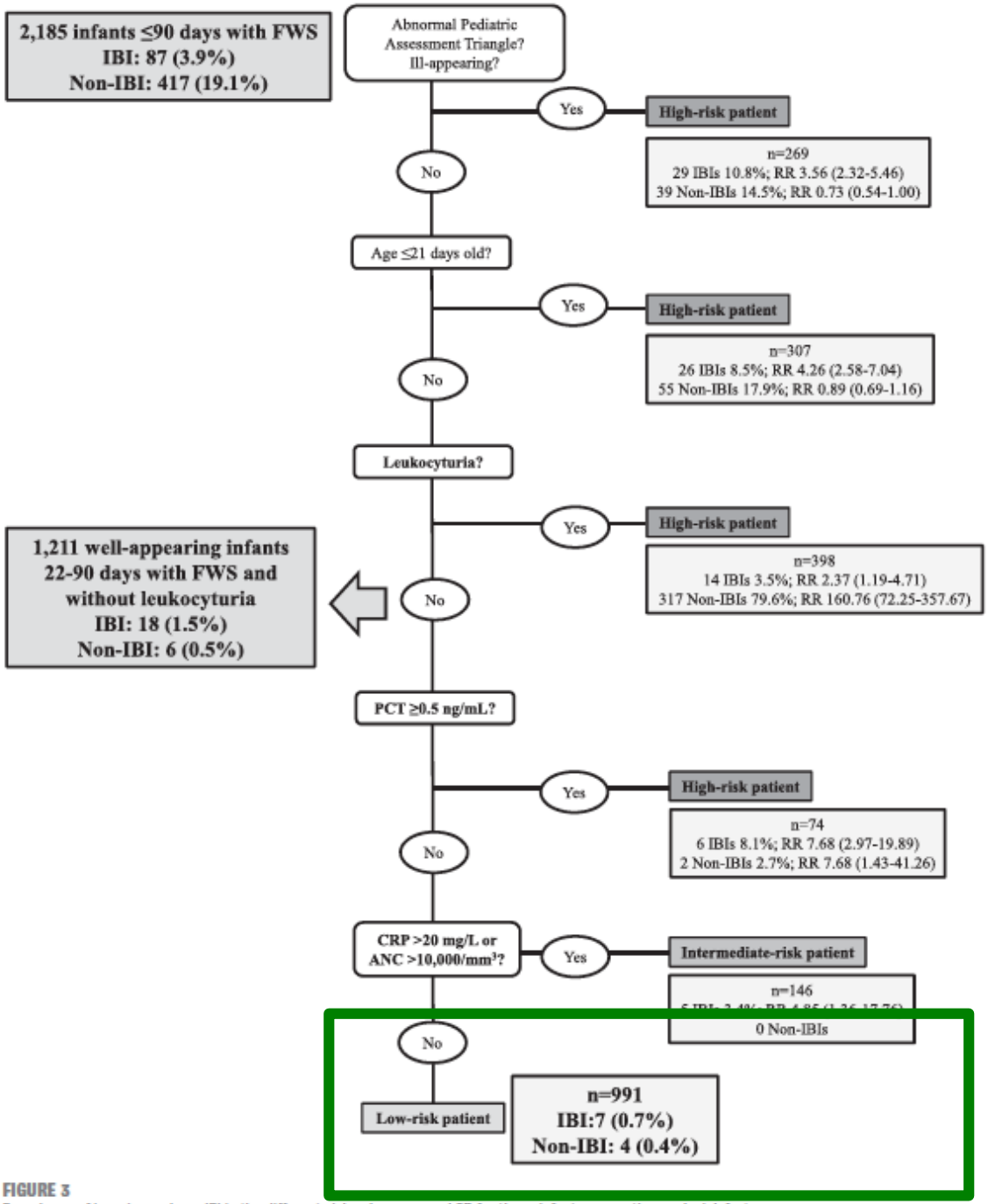

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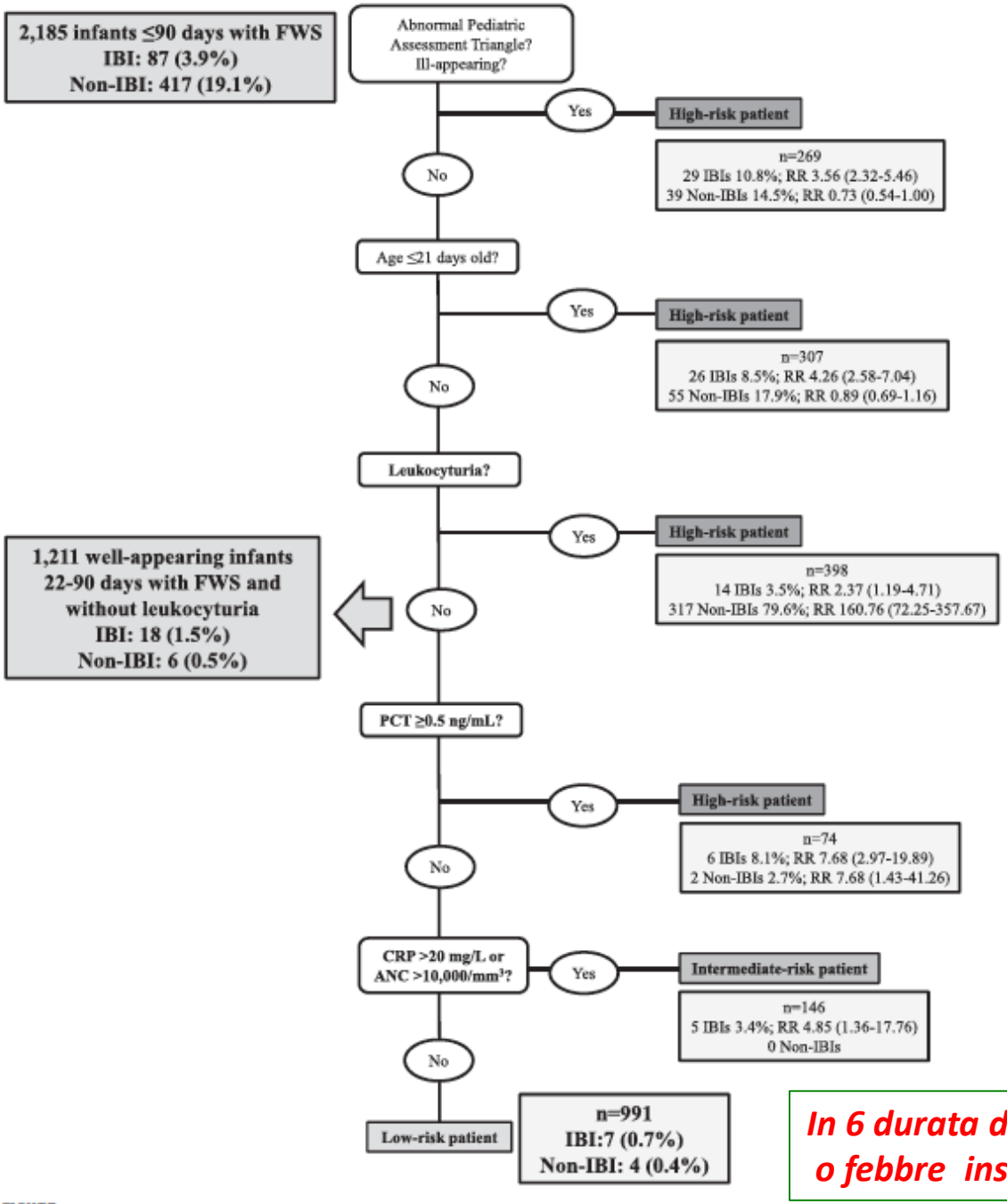

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FIGURE 3
Prevalence of invasive and non-IBI in the different risk subgroups and OR for those infants presenting each risk factor.

TABLE 4 Sensitivity, Specificity, PPVs, NPVs and Positive and Negative LR, with 95% CI, of Each Approach for Identifying IBIs

	Sensitivity, %	Specificity, %	PPV	NPV	Positive LR	Negative LR
Rochester criteria	81.6 (72.2–88.4)	44.5 (42.4–46.6)	5.7 (4.6–7.2)	98.3 (97.3–99.0)	1.47 (1.32–1.64)	0.41 (0.26–0.65)
Lab-score	59.8 (49.3–69.4)	84.0 (82.4–85.5)	13.4 (10.4–17.2)	98.1 (97.3–98.6)	3.74 (3.07–4.56)	0.48 (0.37–0.62)
Step by Step	92.0 (84.3–96.0)	46.9 (44.8–49.0)	6.7 (5.4–8.3)	99.3% (98.5–99.7)	1.73 (1.61–1.85)	0.17 (0.08–0.35)

CONCLUSIONS

The Step-by-Step approach revealed a high sensitivity, being more accurate than the Rochester criteria and the Lab-score at identifying children at low risk of IBI, and appears to be a useful tool for the management of the febrile infant in the ED. However, as no perfect tool exists, the Step by Step is not 100% sensitive and physicians should use caution especially when assessing infants with very short fever evolution. For this subgroup of patients, we strongly advise for an initial period of close observation and monitoring in the ED, even when all the complementary test values are normal.

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