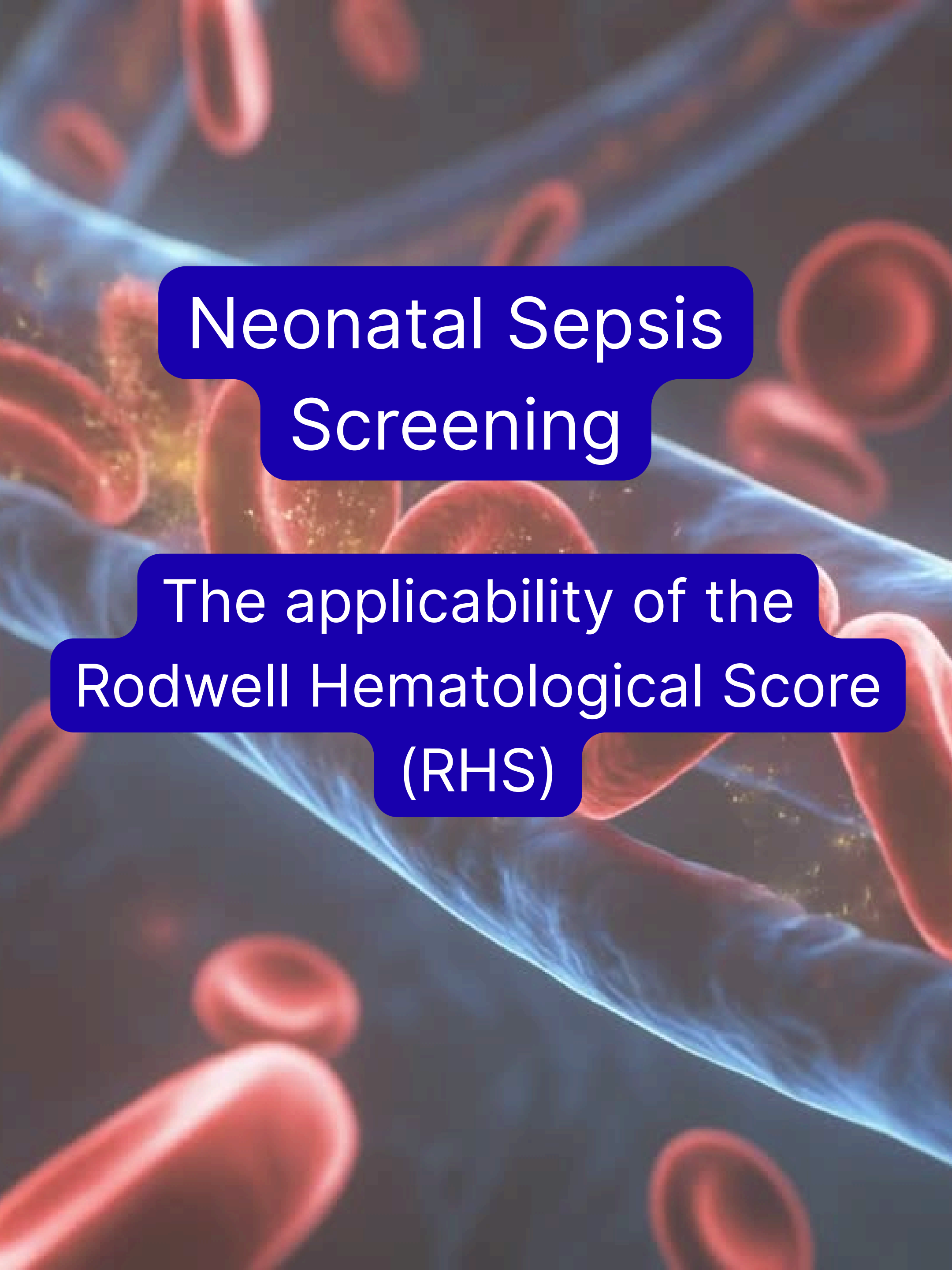




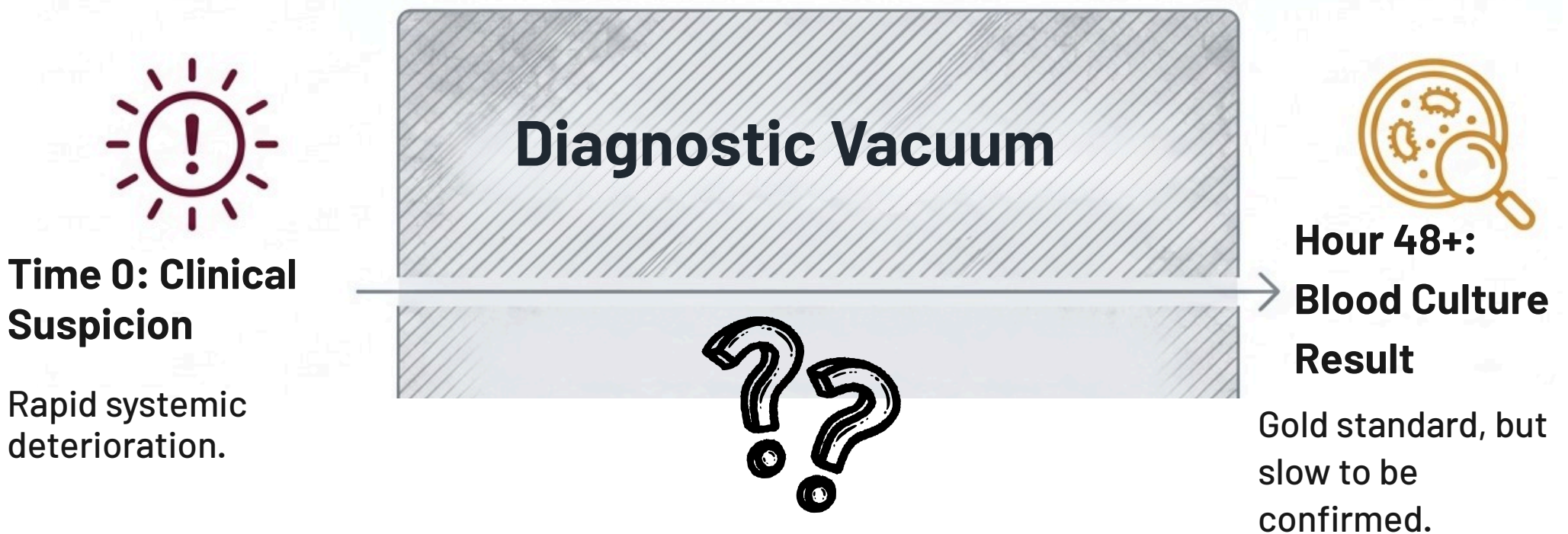
Neonatal Sepsis Screening

The applicability of the
Rodwell Hematological Score
(RHS)

Diagnostic Vacuum in the First 48 Hours

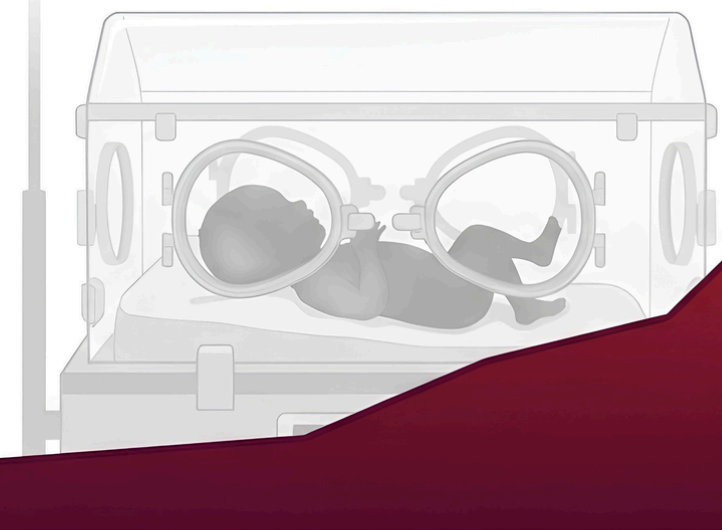
Neonatal sepsis is rapid and often fatal.

The central dilemma in the NICU occurs right at admission.



The Cost of Uncertainty: Antimicrobial Resistance (AMR)

Exponential increase in multidrug-resistant bacteria (MRSA, ESBL)



The maxim "when in doubt, prescribe" is no longer safe. The empirical and prolonged use of antibiotics has created an ecosystem crisis in NICUs.

Lethal alteration of the gut microbiome, increasing the risk of Necrotizing Enterocolitis (NEC).

Critical Fact: Of the 40 antibiotics approved for adults since the year 2000, only 4 included dosage information for neonates. The arsenal is running out.

Rodwell Hematological Score (RHS)

Developed in 1988, the RHS transforms a simple admission blood count into a powerful predictor of sepsis risk.

Speed

Results in minutes to hours, safely covering the time gap of blood cultures.

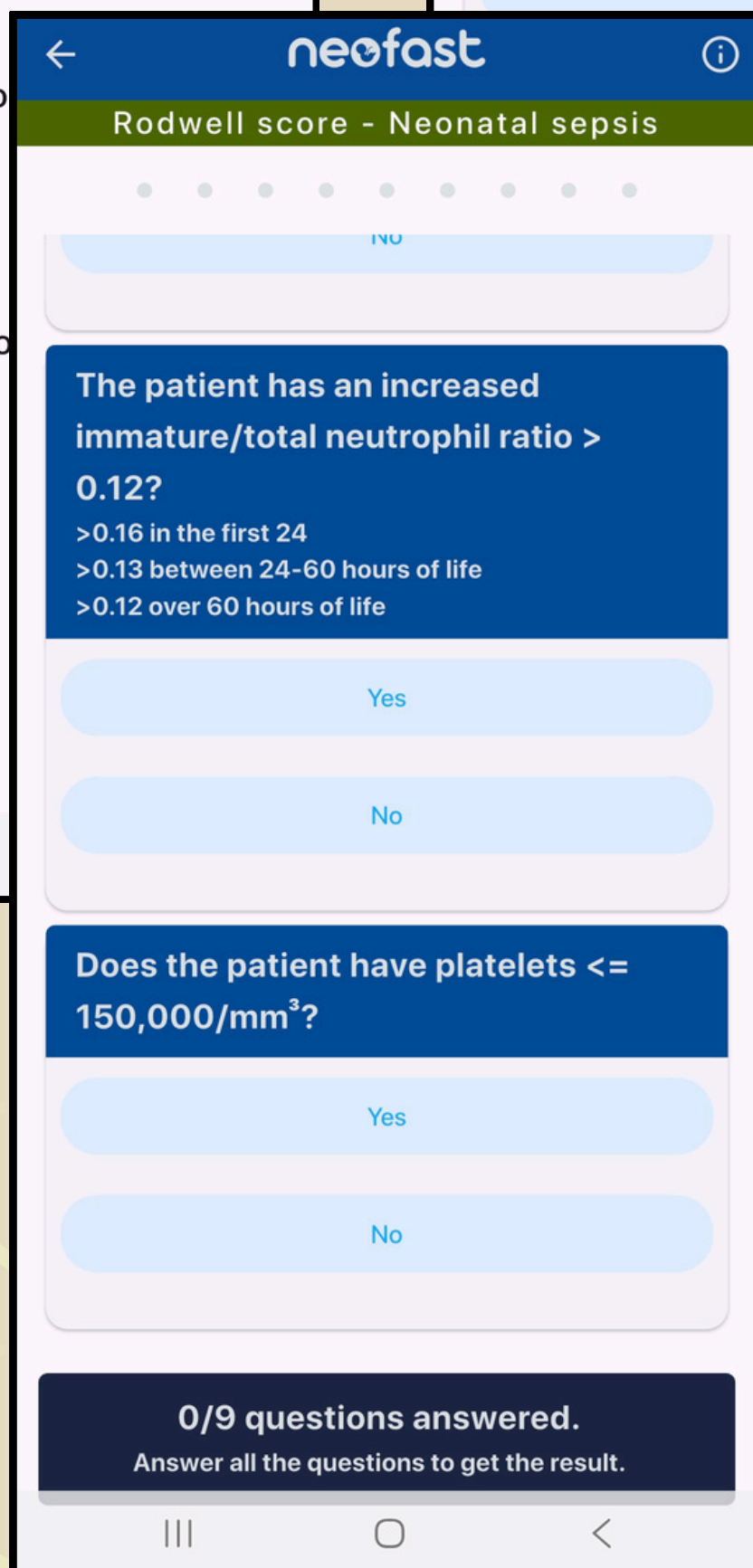
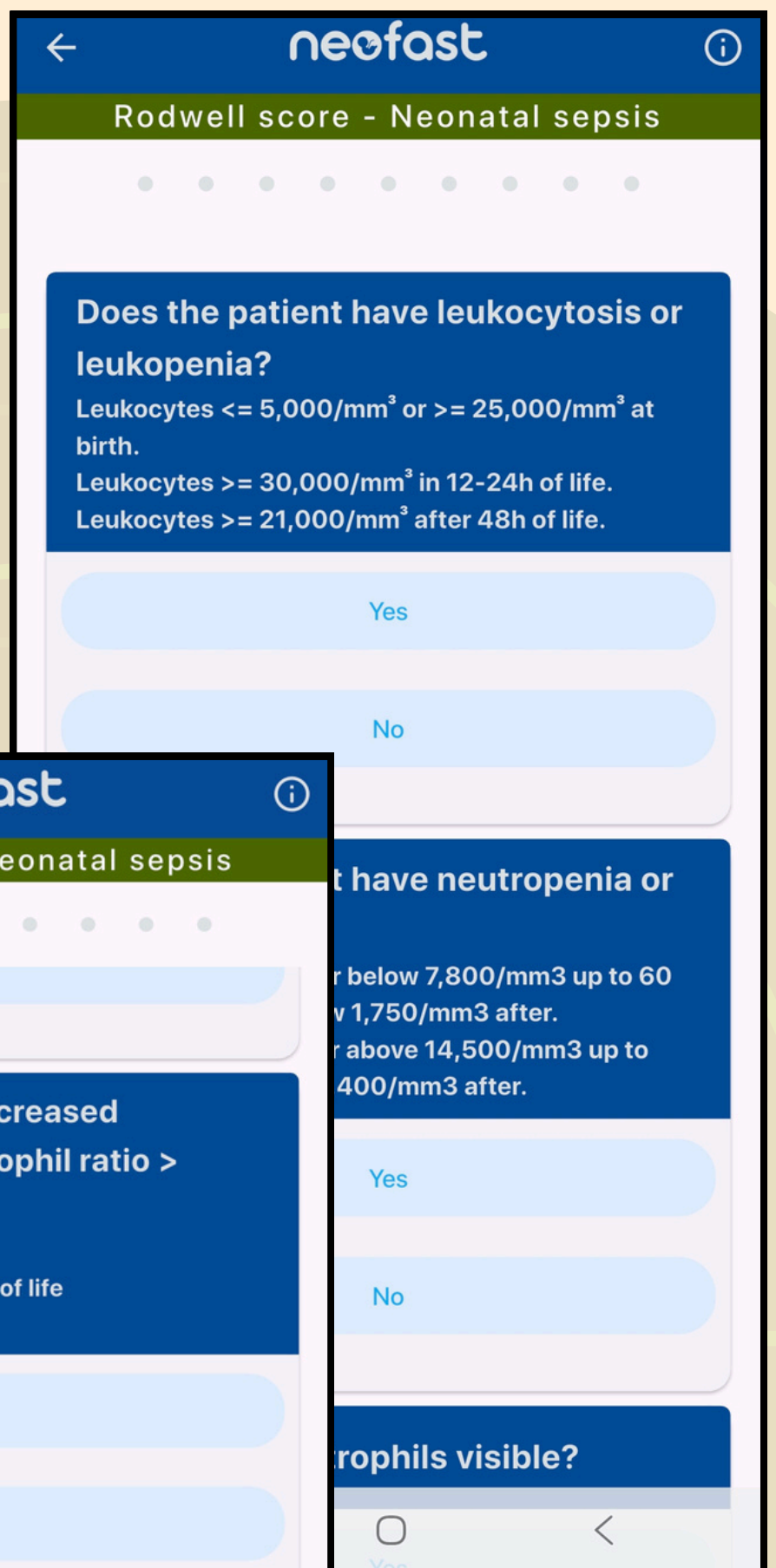
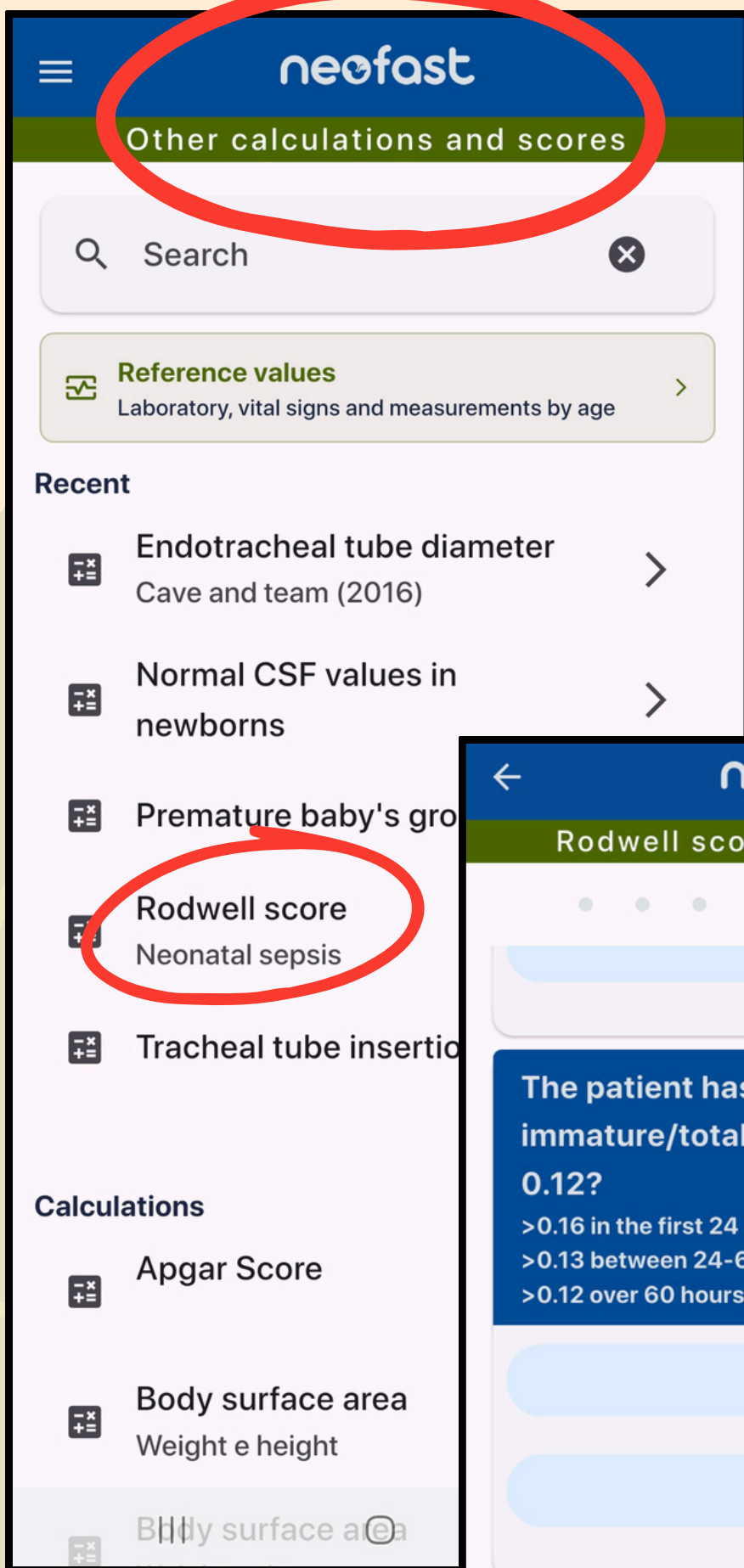
Low Cost

It uses only parameters from the standard automated blood count and peripheral blood smear review.

Objectivity

It standardizes cellular interpretation, removing subjectivity from neonatal hematological diagnosis.





Block 1: The Defense Volume

The first two parameters of the RHS analyze the total contingent of the circulating immune army.

[Parameter 1]--> Total Leukocytes - Abnormality scores 1.

(Abnormal values: $\leq 5,000$ or higher according to the hours of life table).

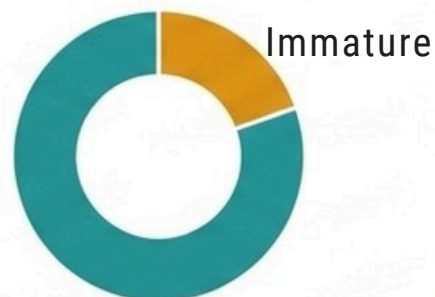
[Parameter 2] --> Total Neutrophils (PMN) - An abnormal count scores 1.

If no mature neutrophils are visible on the slide, parameter 2 receives 2 points to compensate for the impossible calculation of subsequent proportions.

Block 2: The Left Shift (Immature)

The tool's greatest strength lies in its painstakingly stimulating bone marrow efforts to release young cells.

[Parameter 3] Total Immature PMNs

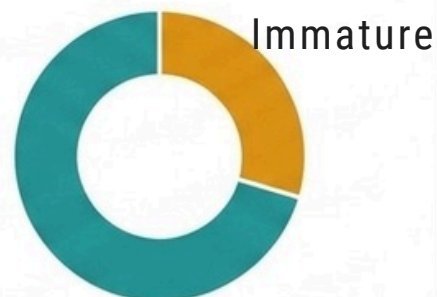


Raised by 1 point.

(Presence of metamyelocytes, band cells, etc.)

Highest isolated sensitivity: 96.87%).

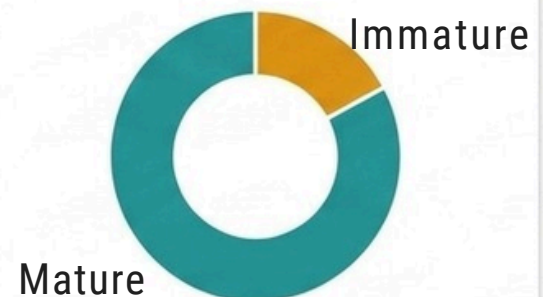
[Parameter 4] I:T Ratio



Immature/Total high = 1 point.

(0 classic high sensitivity index for systemic infection).

[Parameter 5] I:M Ratio



Mature

Immature / Mature $\geq 0.3 = 1$ point.

(0 indicator with greater specificity) isolated: 97.22%).

Block 3: Stress and Cell Phone Consumption

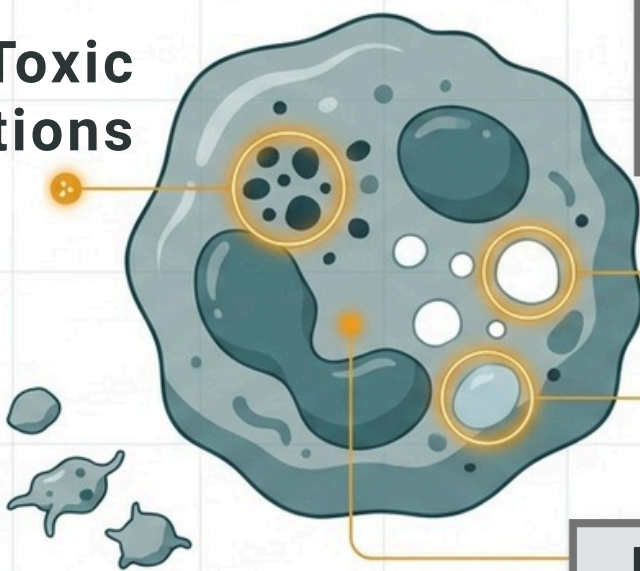
Physical signs of immune system depletion and severe inflammation.

[Parameter 6]

Thrombocytopenia Count $\leq 150,000/\text{mm}^3 = 1$ point.

Clear sign of coagulopathy and peripheral consumption.

Toxic Granulations



Vacuolization

Döhle corpuscles

[Parameter 7] Toxic Changes

Pronounced presence = 1 point.
Toxic Granulations,
Vacuolization,
Döhle corpuscles

Clinical Risk Meter (Score 0-8)

The conversion of the 7 cellular parameters into an immediate and actionable risk stratification.



≤ 2 Points
Green Zone:
Unlikely Sepsis
High security for
exclusion.

3 to 4 points
Yellow Zone:
Possible Sepsis
Probability rises
to 31%-65%.

≥ 5 Points
Red Zone:
**Sepsis Very
Likely**
83.3% of confirmed
cases occur in this
zone.



neofast

Rodwell score - Neonatal sepsis

The patient has an increased immature/total neutrophil ratio > 0.12?
>0.16 in the first 24
>0.13 between 24-60 hours of life
>0.12 over 60 hours of life

Yes

No

Does the patient have platelets < 150,000/mm³?

Yes

No

Score: 2
Diagnosis of neonatal sepsis is highly unlikely.

Note: score >= 3: sensitivity 96% and specificity 99%. Score of 0, 1 or 2: negative predictive value = 99%.

neofast

Rodwell score - Neonatal sepsis

The patient has an increased immature/total neutrophil ratio > 0.12?
>0.16 in the first 24
>0.13 between 24-60 hours of life
>0.12 over 60 hours of life

Yes

No

Does the patient have platelets <= 150,000/mm³?

Yes

No

Score: 3
Diagnosis of neonatal sepsis is moderately likely.

Note: score >= 3: sensitivity 96% and specificity 78%. Score of 0, 1 or 2: negative predictive value = 99%.

neofast

Rodwell score - Neonatal sepsis

The patient has an increased immature/total neutrophil ratio > 0.12?
>0.16 in the first 24
>0.13 between 24-60 hours of life
>0.12 over 60 hours of life

Yes

No

Does the patient have platelets <= 150,000/mm³?

Yes

No

Score: 8
Diagnosis of neonatal sepsis is highly likely.

NeoFast indicates the likely diagnosis according to each score.

Security to Exclude

The clinical virtue of the tool is not only to diagnose, but to give absolute confidence in ruling out infection.



99%

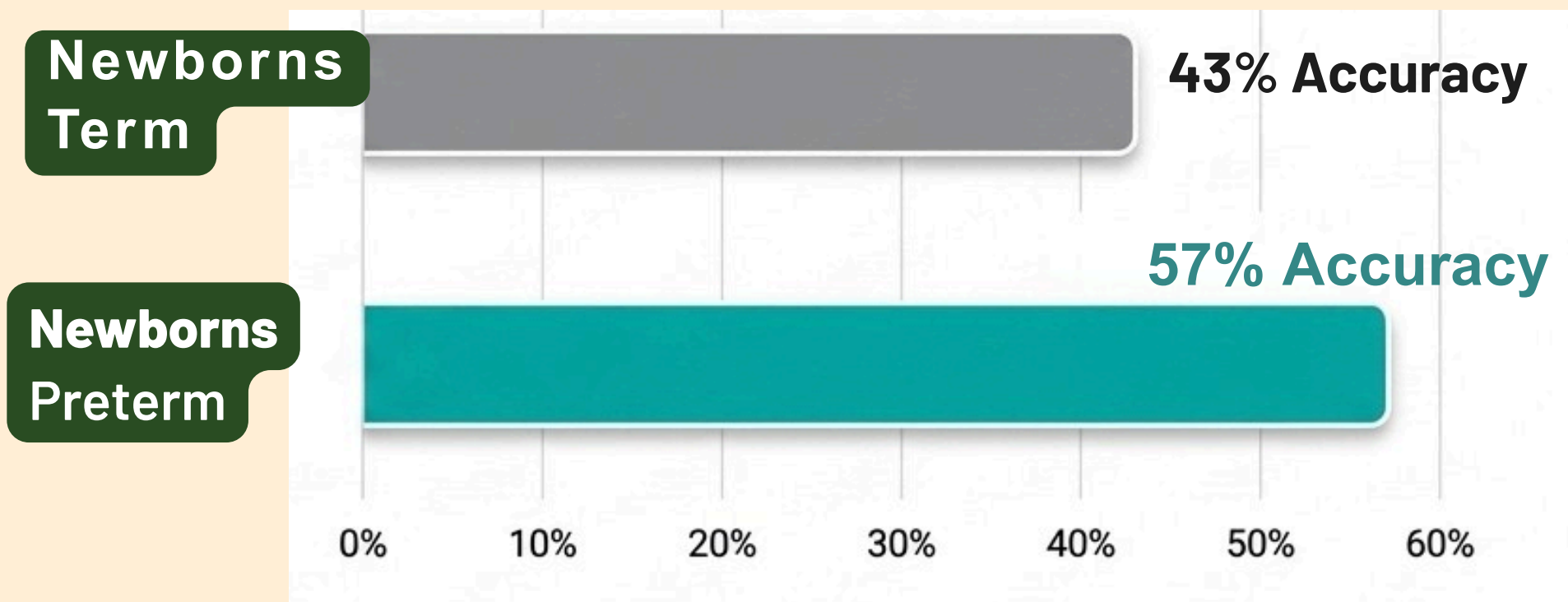
Negative Predictive Value (NPV) for Scores ≤ 2 .

The probability of absence of sepsis when the score is less than or equal to 2 reaches 99% (Rodwell et al., 1988).

Recent studies confirm robust predictive potentials (NPVs) between 93% and 100%. This is the neonatologist's protective shield against empirical overtreatment.

**Superior Performance Among the Most Vulnerable:
RHS shines brightest precisely in the population at
highest risk.**

Predictive Accuracy of RHS (Term vs. Preterm)



The baseline immaturity of the premature immune system makes the inflammatory deviations mathematically more glaring on the slide.

Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) are systemically higher in the premature population (PMC3761960).



Paradigm Shift

How adopting the Rodwell Score radically alters the trajectory of a suspected patient.

The Traditional Approach

Wait 48 hours for the blood culture results.



Empirical antibiotic administered to ALL suspected cases.



Consequences: Irreversible damage to microbiome, prolonged central catheter time, high cost, and active promotion of resistance.

The RHS Approach

Clear hematological response in just 2 hours.



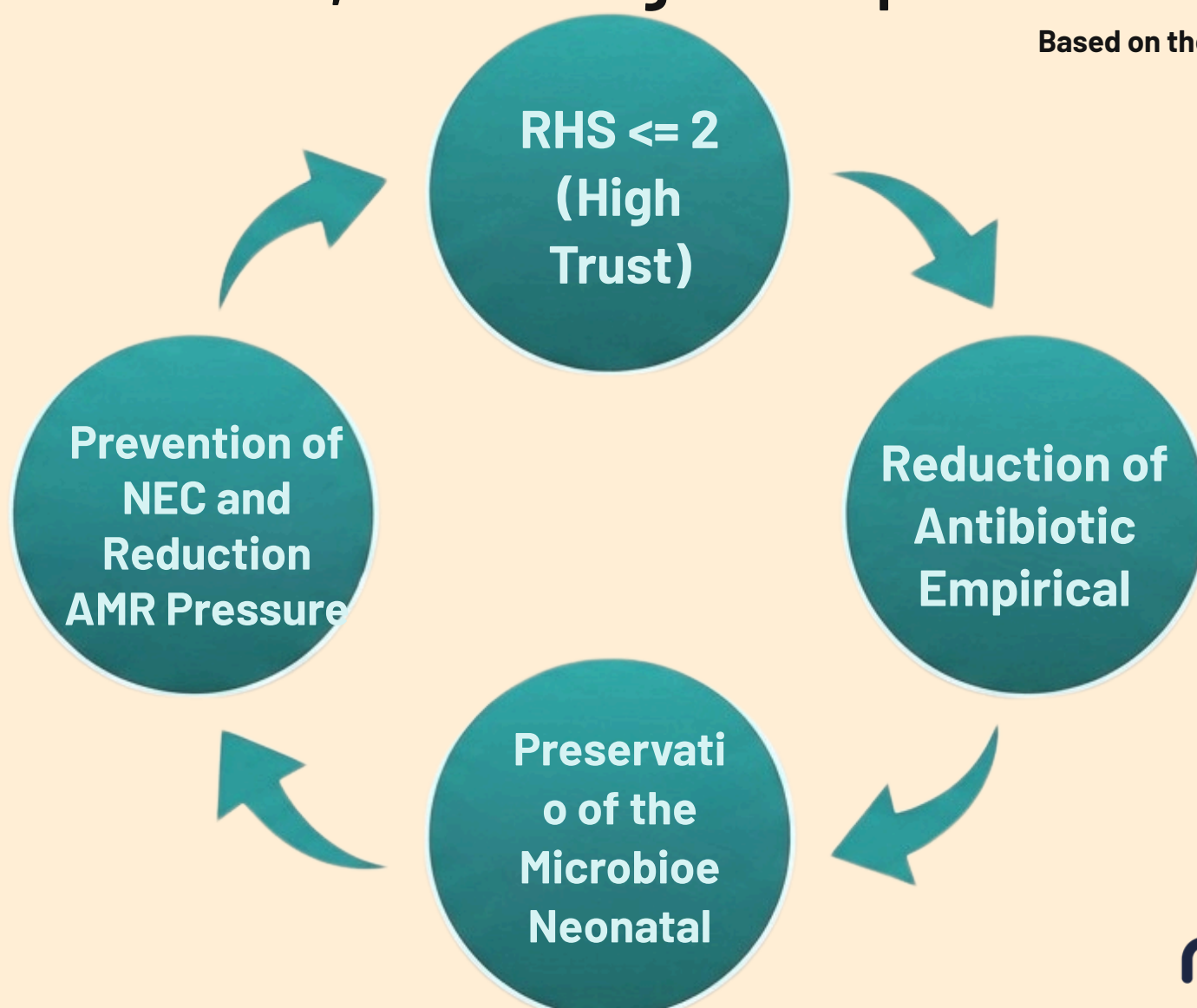
A score of ≤ 2 excludes acute sepsis with $>93\%$ certainty.



Consequences: Safe clinical monitoring WITHOUT antibiotics, protection of the intestinal flora, and a significant reduction in hospital stay.

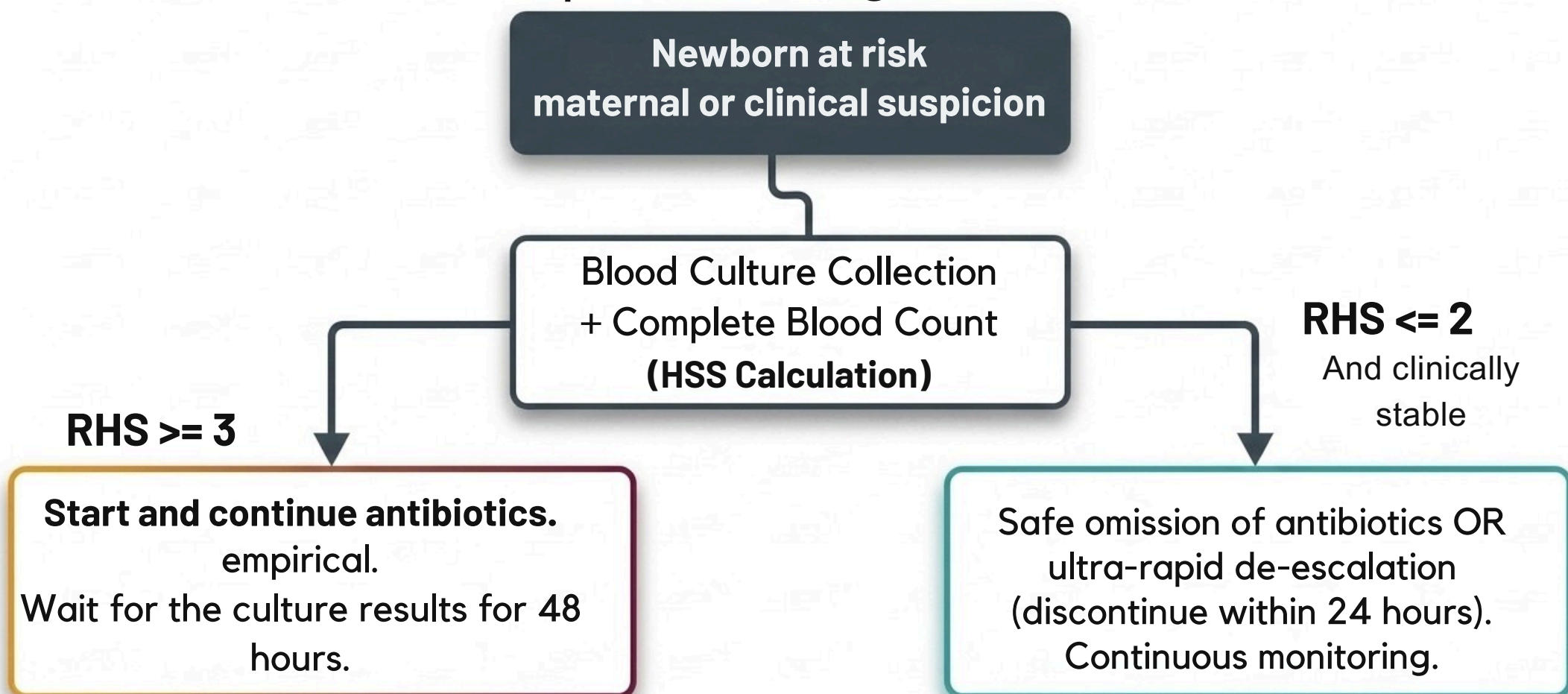
"With modern techniques, if cultures are negative and the clinical condition allows, antibiotics should be discontinued between 24-36 hours, abandoning the old practice of 72 hours."

Based on the guidelines of Klaus & Fanaroff.



Integrated Clinical Decision Algorithm

Incorporating RHS into the daily workflow for early-onset sepsis screening in the NICU.

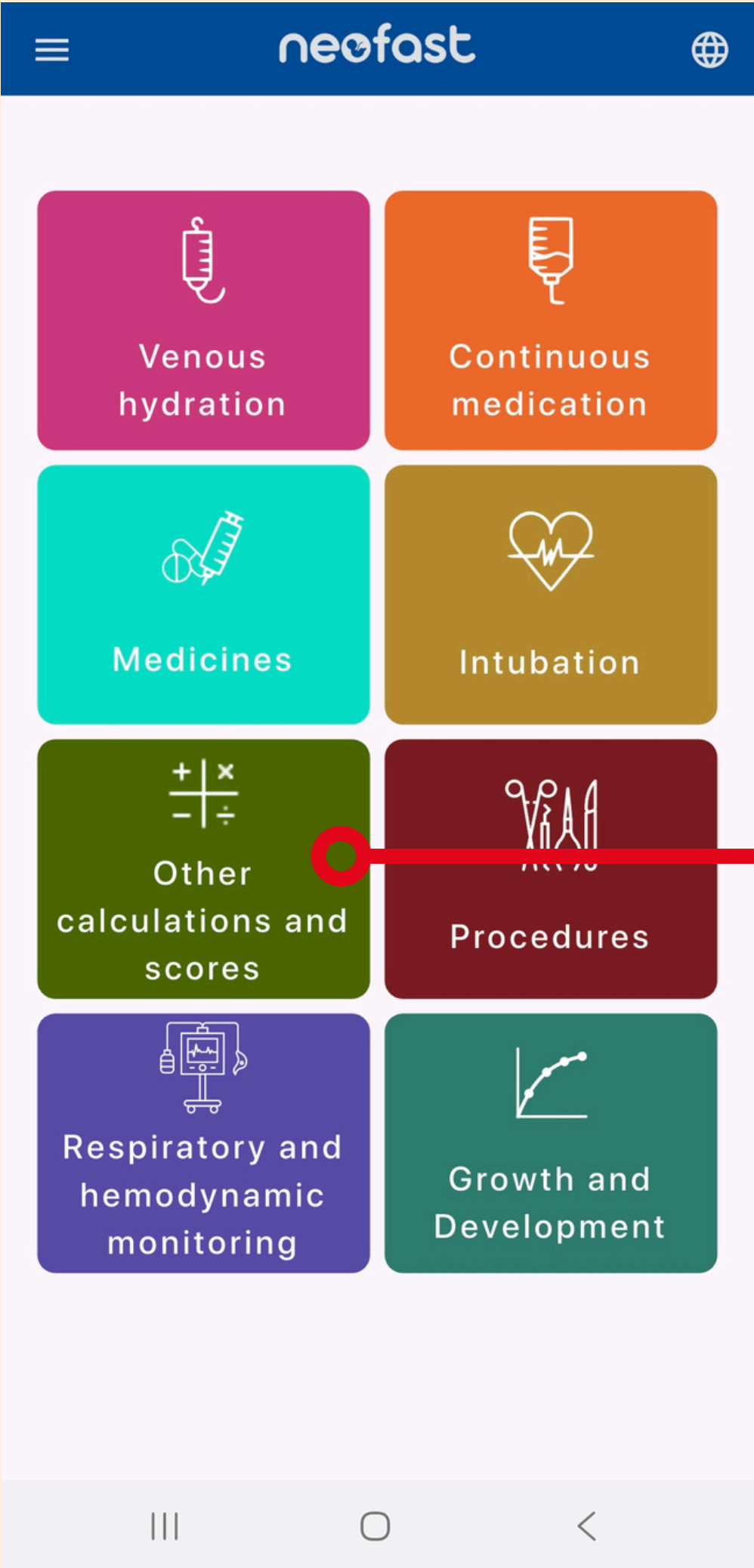


A New Culture of Care

The Rodwell Hematology Score draws wisdom from simple data, protecting the patient from two threats: infection and healing itself.

- ✓ Validated tool with up to 100% NPV in premature neonates.
- ✓ It allows the transition from empirical fear to evidence-based stewardship.

Implement routine RHS calculation in your NICU today. Protecting our antibiotics is protecting the future of our newborns.



Intuitive, fast and secure.

Check it out!

