TriVerity (Inflammatix 29-mRNA Host-Response Test)

Evidence Review and Assessment of Utility in a Level 1 Trauma SICU

August 13, 2026

Contents

Bottom Line Up Front

1. There is no defensible routine role for TriVerity in your SICU today. The test's single most valuable output — the Severity score — answers the question *"will this patient need ICU-level care (mechanical ventilation, vasopressors, or RRT) within 7 days?"* That question is already answered for a patient lying in your SICU. In the one study that tested a severity score in patients already established in an ICU, it performed *worse* than the SOFA score you calculate for free (AUROC 0.65 vs 0.81).

2. What's left — the bacterial/viral discrimination — performs no better than procalcitonin in exactly the population you care about. In the only prospective surgical-ICU study (University of Florida, n=200), the bacterial classifier's AUROC was 0.84 (95% CI 0.77–0.90) versus procalcitonin's 0.85 (95% CI 0.79–0.90), P = .79. You already have procalcitonin, and it costs a fraction as much.

3. The genuinely interesting finding for a trauma surgeon is a negative one, and it is reassuring: severe sterile inflammation from major trauma and major surgery did **not** falsely drive the bacterial score into the "very likely" band.

In the at-risk cohort (46% severe trauma with ISS > 15, plus post-op and hemorrhagic shock patients), median bacterial scores sat at the *low* end of the "possible" band and nearly half fell in "unlikely." That is a real biological result and the strongest argument that host-response testing may eventually work in trauma patients — but "eventually" is doing heavy lifting. It is not a reason to buy the instrument in 2026.

Where it might actually earn its keep at your institution: the Emergency Department, which is the only setting the FDA cleared it for, and the only setting where the 1,222-patient pivotal trial was run.

Part 1 — What the Test Actually Is

The mechanics

TriVerity measures the expression of **29 host immune messenger RNAs** from a whole-blood PAXgene tube. It does not look for the pathogen at all. It reads what your patient's immune system is doing and asks a machine-learning classifier to interpret the pattern.

Component	Detail
Specimen	PAXgene Blood RNA tube (2.5 mL whole blood)
Instrument	Myrna — benchtop, cartridge-based, single-use
Chemistry	RT-LAMP (isothermal amplification, a PCR cousin)
Turnaround	~30 minutes; operator hands-on time under 1 minute
Outputs	3 scores, each 0–50, each binned into 5 bands
Regulatory	FDA 510(k) K241676, cleared 10 January 2025; Breakthrough Device Designation Nov 2023
Cleared population	**Adults in the emergency department** with suspected acute infection or suspected sepsis
Cost	**$388 per test** — $375 cartridge + $13 PAXgene tube (CMS FY2026 IPPS Final Rule, Fed. Reg. doc 2025-14681)
Reimbursement	CMS New Technology Add-On Payment, FY2026: maximum **$243.75** per qualifying inpatient case (65% of cartridge cost). Inpatient only; requires ICD-10-PCS **XXE5XBB**; newness period began 10 Jan 2025 so expect sunset ~FY2027–28. Best-case net cost **$144.25**.

The analytical validation (*J Clin Microbiol* 2025) is solid on the bench: reproducibility SDs under 5.5 score units, no interference from 17 tested interferents, cartridge stable at room temperature for 9–12 months, fresh and frozen PAXgene equivalent, limit of detection around blood containing 500 leukocytes/µL. **The instrument works. That was never the question.**

The three scores

Bacterial score — likelihood the patient has a bacterial infection. **Viral score** — likelihood of a viral infection. **Severity score** — likelihood the patient will need mechanical ventilation, vasopressors, and/or new renal replacement therapy within 7 days. Note carefully: this is *all-cause* deterioration, and the endpoint is need for ICU-level care.

Each score falls into Very Low, Low, Moderate, High, or Very High. The company frames the two top bands as "rule-in" and the two bottom bands as "rule-out." **That framing does not survive contact with their own data,** as shown in Part 3.

Part 2 — The Evidence Base

Tier 1: The pivotal trial

Liesenfeld O, Arora S, Aufderheide TP, Clements CM, et al. Clinical validation of an AI-based blood testing device for diagnosis and prognosis of acute infection and sepsis. *Nature Medicine* 2025;31:4044–4054. DOI 10.1038/s41591-025-03933-y

SEPSIS-SHIELD: 22 emergency departments in the US and Europe, March 2020 – May 2024. This is the study that got the test cleared.

Flow: 1,441 consented → 1,388 enrolled → 1,222 with valid TriVerity results → **729 (59.7%) reached consensus clinical adjudication** and form the primary diagnostic analysis. 1,120 were evaluable for the prognostic endpoint.

Adjudicated infection status (n = 729): bacterial 448 (61.5%), viral 165 (22.6%), viral–bacterial co-infection 12 (1.6%), non-infected 104 (14.3%).

Headline accuracy:

Score	AUROC (80% CI)	Comparators
Bacterial	**0.83** (0.81–0.85)	Procalcitonin 0.71 (0.68–0.73); CRP 0.74 (0.72–0.77); WBC 0.76 (0.73–0.78). All P < .0001
Viral	**0.91** (0.89–0.93)	No established comparator
Severity	**0.78** (0.75–0.81)	Lactate 0.76 (0.73–0.80)

In the **forced adjudication** analysis (all 1,222 patients, including the uncertain ones), the bacterial AUROC dropped from 0.83 to **0.76** (0.75–0.78) and viral from 0.91 to **0.83** (0.81–0.85). This is the more honest estimate of real-world performance, and it is meaningfully worse.

Note carefully: the confidence intervals are 80%, not the conventional 95%. Every AUROC and likelihood ratio in this paper is reported with an 80% CI, which is narrower and makes every estimate look more precise than a standard report would. Read every interval in this trial with that in mind.

Bacterial score by band (n = 729):

Band	% of patients	LR (80% CI)	Probability of bacterial infection
Very High	24.3%	8.04 (5.66–12.43)	93.2%
High	18.1%	2.50 (1.97–3.31)	81.1%
Moderate	18.7%	**1.14 (0.94–1.42)**	66.2%
Low	24.3%	0.54 (0.45–0.63)	**48.0%**
Very Low	14.7%	0.08 (0.05–0.11)	12.1%

Severity score by band (n = 1,120; 122 patients [10.9%] needed ICU-level care):

Band	% of patients	LR (80% CI)	Probability of severe illness
Very High	2.8%	11.33 (7.07–17.75)	58.1%
High	16.1%	2.41 (1.96–2.91)	22.8%
Moderate	20.4%	1.63 (1.35–1.97)	16.6%
Low	27.1%	0.43 (0.30–0.57)	5.0%
Very Low	33.7%	0.22 (0.14–0.31)	2.7%

The antibiotic stewardship claim. Of 33 patients adjudicated as bacterially infected who did *not* get antibiotics on presentation, 24 (72.7%) had a Moderate, High, or Very High bacterial score. Of 103 patients adjudicated as *not* bacterially infected who *did* get antibiotics, 62 (60.2%) had a Low or Very Low score. This is the source of the "reduce

inappropriate antibiotic use by 60–70%" marketing line. It is a **post-hoc, hypothetical, non-prespecified analysis.** Nobody's antibiotics were actually changed. The authors say so plainly in their own conclusion: *"Further clinical testing in an interventional setting is needed to prove actionability and clinical benefit."*

One genuinely notable finding: procalcitonin performed substantially worse in Black patients (AUROC 0.66) and other races (0.62) than in White patients (0.74), while the TriVerity bacterial score held steady across groups (0.82 White, 0.83 Black, 0.91 other races). If that replicates, it is a real equity argument for host-response testing over procalcitonin.

Tier 2: The surgical ICU evidence — the papers that matter most for you

Brakenridge SC, et al. Evaluation of a Multivalent Transcriptomic Metric for Diagnosing Surgical Sepsis and Estimating Mortality Among Critically Ill Patients. *JAMA Network Open* 2022;5(7):e2221520. DOI 10.1001/jamanetworkopen.2022.21520

This is the single most relevant paper to your question. Prospective, single academic surgical ICU (University of Florida), July 2020 – July 2021, 200 analyzed patients, median age 62.5.

Three cohorts: - **Cohort A (n = 52):** suspected sepsis at SICU admission - **Cohort B (n = 137):** critically ill, no suspected sepsis, but high risk — **68 (45.9%) trauma, 24 (16.2%) emergency surgery**, 21 (14.2%) cancer complications, 17 (11.5%) vascular, 12 (8.1%) GI including pancreatitis - **Crossover (n = 11):** cohort B patients who later developed sepsis (median time to ICU-acquired sepsis 6 days)

Diagnosing bacterial infection at SICU admission:

Metric	AUROC (95% CI)	vs IMX-BVN-3
IMX-BVN-3 bacterial	0.84 (0.77–0.90)	—
Procalcitonin	**0.85 (0.79–0.90)**	P = .79 (no difference)
IL-6	0.67 (0.58–0.75)	P < .001
WBC	0.68 (0.59–0.77)	P = .003

30-day mortality:

Metric	AUROC (95% CI)	vs IMX-SEV-3
IMX-SEV-3 severity	0.79 (0.66–0.95)	—
Day-1 SOFA	0.76 (0.62–0.91)	P = .48 (no difference)
Procalcitonin	0.65 (0.50–0.79)	P = .06
IL-6	0.57 (0.37–0.77)	P = .006

Combining the transcriptomic metrics with procalcitonin, IL-6, or SOFA **did not significantly improve performance.**

The sterile inflammation question — the key result for trauma:

- In **cohort A** (suspected sepsis), 50 of 52 patients (96.1%) had bacterial scores in the "very likely" or "possible" bands on days 0–1, with 38 (73.1%) in "very likely." Scores then declined over time, tracking resolution of sepsis.
- In **cohort B** (trauma, post-op, hemorrhagic shock — massive sterile inflammation, no infection), median bacterial score on days 0 and 2 sat at the **lower end of the "possible" band, with almost half of patients in the "unlikely" band.**

This is the finding that matters. Severe tissue injury did not counterfeit a bacterial signal. Procalcitonin, CRP, and white count all do exactly that in trauma patients. This is the strongest existing biological argument for host-response testing in your population.

The early-warning question — and here the news is bad. In the crossover cohort, 13 bacterial scores were measured within the 3 days *before* sepsis onset, and **11 (84.6%) were below the "very likely" band.** Scores rose to the very-likely threshold only on the day of and the day after documented infection. In surgical patients, the test recognized sepsis roughly when the clinicians did — it did not see around the corner.

Discriminative performance of the "very likely" band in the whole cohort: sensitivity 0.64, specificity 0.81, LR 3.35. For comparison in the same patients: CRP sensitivity 0.98 / specificity 0.33 / LR 1.47; WBC 0.26 / 0.89 / LR 2.38; PMN-to-lymphocyte ratio 0.26 / 0.91 / LR 2.93. Only 4 patients with bacterial infection landed in the "unlikely" band and none in "very unlikely."

Brakenridge SC, et al. A Transcriptomic Severity Metric That Predicts Clinical Outcomes in Critically Ill Surgical Sepsis Patients. *Critical Care Explorations* 2021;3(10):e0554. DOI 10.1097/CCE.0000000000000554

Retrospective validation, 335 critically ill adult surgical patients with sepsis, 48-bed surgical ICU, University of Florida, blood drawn 24 hours after sepsis protocol initiation. 30 patients (9.5%) died; 194 (61.4%) had an adverse clinical outcome.

- Secondary infections: AUROC **0.71**
- Composite adverse clinical outcome: AUROC **0.75**
- Significantly better than CRP, absolute lymphocyte count, WBC, age, and Charlson index (all $p < 0.05$); better but *not* significantly so than IL-6 and APACHE II
- Combining with Charlson → 0.80 for adverse outcomes; with APACHE II → 0.81; with Charlson for 30-day mortality → 0.79

Worth noting: this cohort **excluded** severe TBI, spinal cord injury, transplant recipients, and patients on chronic immunosuppression — i.e., a meaningful slice of your actual trauma SICU census.

Balch JA, et al. Defining critical illness using immunological endotypes in patients with and without sepsis: a cohort study. *Critical Care* 2023;27:292. DOI 10.1186/s13054-023-04571-x

522 patients across two prospective surgical ICU cohorts (septic n = 377, non-septic n = 145, the latter including severely injured trauma and post-operative patients). Used IMX-SEV-3 plus a 33-mRNA endotype classifier.

Patients were classified as **adaptive, inflammopathic, or coagulopathic**. Key findings: - At enrollment the predominant endotype in *both* septic and non-septic patients was **adaptive** - Inflammopathic and coagulopathic septic patients, and inflammopathic non-septic patients, had significantly higher rates of secondary infection ($p < 0.01$) - **Endotypes changed during ICU stay in 57.5% of patients** — a single snapshot is not a fixed patient phenotype - Low-mortality-risk patients were almost uniformly adaptive (100% septic, 93.4% non-septic) - Septic patients with high predicted mortality were inflammopathic in 49.6% of cases, with 67.4% cumulative adverse outcomes

The conceptual takeaway is that critically ill surgical patients with and without sepsis occupy overlapping immunological space. That is intellectually important and it also undercuts the premise that a host-response score cleanly separates infected from non-infected in your unit.

Tier 3: Supporting and contextual evidence

Halder A, et al. A 29-mRNA host-response classifier identifies bacterial infections following liver transplantation — a pilot study. *Langenbeck's Archives of Surgery* 2024;409:185. DOI 10.1007/s00423-024-03373-1

The only serial post-operative monitoring data that exists. 30 consecutive liver transplant patients, daily sampling days 0–13, Heidelberg. Bacterial infection in 10 (33.3%), no viral infections, invasive fungal in 2.

Two findings you need:

1. **Post-operative false-positive behavior is real and time-limited.** Bacterial scores were elevated in **all** patients immediately following transplant and declined until day 4 in all patients. Major surgery itself pushes the bacterial score up. The test only became discriminating from roughly **day 4 onward, performing best days 6–9.**
2. **Where it did work, it worked earlier than the alternatives.** It identified bacterial infection in **9 of 10** infected patients, and did so **at least one day before clinical diagnosis.** Procalcitonin was useless here — it spiked on day 1 in *every* patient and declined regardless of infection, unable to differentiate. CRP was elevated in everyone and roughly tracked the classifier.

Caveats: n = 30, single center, batch-processed rather than real time, and every patient was on steroids, tacrolimus, and mycophenolate.

Daenen K, et al. A Transcriptomic Severity Classifier IMX-SEV-3b to Predict Mortality in Intensive Care Unit Patients with COVID-19. *J Clin Med* 2023;12:6197. DOI 10.3390/jcm12196197

53 mechanically ventilated ICU patients, Erasmus MC. ICU mortality 34%. **IMX-SEV-3b AUROC for ICU mortality 0.65 (95% CI 0.48–0.82) versus SOFA 0.81 (0.69–0.93).** In patients already established in an ICU, the severity score was beaten by SOFA. This is the most direct evidence that the severity score's value is concentrated at the front door, not in the unit.

Kostaki A, et al. *Shock* 2022;58(3):224–230. 397 ED patients, 6 Greek EDs. 28-day mortality AUROC 0.82 (95% CI 0.74–0.90) vs lactate 0.66, procalcitonin 0.67, qSOFA 0.81. Low-severity band = 67% of patients with 3% mortality; high-severity band = 5.3% of patients with 48% mortality. qSOFA + severity score raised AUROC from 0.81 to 0.89.

Galtung N, et al. *Eur J Emerg Med* 2022;29(5):357–365. 312 ED patients, Charité Berlin. In-hospital mortality AUROC 0.84 (95% CI 0.76–0.93), significantly better than lactate 0.76, qSOFA 0.68, NEWS2 0.75. But for 72-hour multiorgan failure, AUROC 0.76 — **not** significantly better than lactate, qSOFA, or NEWS2.

Bauer W, et al. *Crit Care Med* 2021;49(10):1664–1673. Same Berlin cohort, 312 patients. Bacterial AUROC 0.90 (95% CI 0.85–0.95) vs procalcitonin 0.89 (0.84–0.94). **Important flaw: procalcitonin was used in the adjudication that defined the reference standard**, which biases the comparison in procalcitonin's favor and makes this a circular comparison.

Mayhew MB, et al. *Nature Communications* 2020;11:1177. The original classifier development. Trained on 1,069 samples from 18 retrospective studies. Independent validation cohort n = 163: bacterial AUROC 0.86 (95% CI 0.77–0.93), viral 0.85 (0.76–0.93).

SUBSPACE Consortium. A consensus immune dysregulation framework for sepsis and critical illnesses. *Nature Medicine* 2025;31:4084–4096. Not a clinical test — a research framework (HI-DEF) built from over 7,074 samples across 37 cohorts. Relevant to you for one reason: myeloid and lymphoid dysregulation associated with severity and mortality was observed **in trauma and burn patients as well as sepsis and ARDS**, suggesting a conserved mechanism across critical illness syndromes. This is the scientific runway on which a future trauma-specific host-response test would land. It is not something you can order.

Part 3 — Your Three Questions, Answered Directly

"Is there a role for me to get them in my SICU for level 1 trauma patients?"

No, not as a routine SICU test, and there are four independent reasons.

First, the severity score is answering a question you have already answered. Its validated endpoint is "need for mechanical ventilation, vasopressors, or new RRT within 7 days." Your level 1 trauma patients are in the SICU precisely because that question has been resolved — many are already on the ventilator or on pressors. In the one study of patients already in an ICU, the severity classifier returned an AUROC of 0.65 against SOFA's 0.81. You would be paying for a prediction you no longer need, generated by a tool that underperforms a free bedside score in that setting.

Second, the bacterial score ties procalcitonin in your exact population. AUROC 0.84 vs 0.85, P = .79, in a surgical ICU, in a study co-authored by Inflammatix. When a sponsor-involved study cannot separate its product from the incumbent, the honest read is that there is no separation. Adding a second test that agrees with the first does not improve decisions; it adds cost and, when the two disagree, ambiguity.

Third, it does not give you early warning in surgical patients. This is the capability that would justify a SICU deployment — catching ventilator-associated pneumonia, an anastomotic leak, or ICU-acquired sepsis before it declares. The crossover cohort tested precisely this and found that **84.6% of bacterial scores measured in the 3 days before sepsis onset were below the "very likely" threshold.** The score rose on the day of clinical diagnosis. The liver transplant pilot found roughly one day of lead time from day 4 onward, but that is 30 patients in a very different immunological context (profound pharmacologic immunosuppression, no trauma).

Fourth, it is not cleared for this and not validated for serial use. The FDA clearance is for adults **in the emergency department**, single time point. Repeated daily measurement in a SICU is off-label, has never been prospectively vali-

dated for trend interpretation, and there are no published thresholds for what a rising or falling score should make you do.

The one honest argument on the other side, and you should know it because it will come up: in trauma patients with massive sterile inflammation, the bacterial score stayed low, while procalcitonin, CRP, and white count all rise from tissue injury alone. If your specific pain point is *"my post-injury patients have a procalcitonin of 8 and a white count of 22 on day 2 and I cannot tell whether that is their femur or a pneumonia,"* then a test that ignores sterile inflammation has real conceptual appeal. But the supporting evidence is a **secondary observation in one 200-patient single-center study**, on a NanoString research platform rather than the Myrna cartridge you would actually buy, and it was never the study's primary endpoint. That is a hypothesis worth following. It is not a purchase justification.

"And some surgery post ops?"

No — and here the data give you a specific, concrete caution.

The liver transplant study found that bacterial scores were elevated in **every single patient immediately after surgery** and did not decline to baseline until **day 4.** A high bacterial score on post-operative day 1 or 2 after a major operation is uninterpretable — you cannot distinguish the operation from an infection. The test only became useful from day 4, with best performance days 6–9.

So the window in which it could theoretically help your post-ops — the first 72 hours, when you are anxious about a leak or an early wound infection and the white count is unhelpful — is precisely the window in which the test is blind. And by day 6–9, when it starts working, you usually have cultures, imaging, and a clinical trajectory.

There is a narrow theoretical exception: the post-operative patient beyond day 4 with a persistent low-grade SIRS picture, negative cultures, and no clear source. In that patient a Very Low bacterial score (LR 0.08) would be genuinely informative for stopping antibiotics. But that is a handful of patients per month, it is off-label, and you would be validating it yourself.

"What utility does it serve?"

Stripped of marketing, the test does exactly three things, and it does them with very different degrees of credibility:

1. It rules bacterial infection in, well, in about a quarter of patients. A Very High bacterial score carries an LR of 8.04 and a 93.2% probability of bacterial infection, and 24.3% of patients land there. That is a genuinely useful, actionable result.

2. It rules bacterial infection out, well, in about one seventh of patients. A Very Low score carries an LR of 0.08 and a 12.1% probability, capturing 14.7% of patients. Also genuinely useful.

3. It tells you very little about everyone else — which is most patients. Here is the part the marketing obscures. The company calls the bottom *two* bands "rule-out." But look at their own table: the **Low band still carries a 48% probability of bacterial infection.** Nearly a coin flip. Calling that a rule-out result is indefensible. Similarly the Moderate band has a likelihood ratio of **1.14, with an 80% CI of 0.94–1.42 that crosses 1.0** — statistically indistinguishable from no information at all, in 18.7% of patients.

Tallying honestly: **strongly actionable information in about 39% of patients** (Very High 24.3% + Very Low 14.7%). Modest information in the High and Low bands. Essentially nothing in the Moderate band. The company's claim that "99.6% of patients fell into at least one actionable band" is true only by counting all three scores together and by counting the Low band as actionable, which it is not.

The **viral score is the most impressive output and the least discussed.** AUROC 0.91, with a Very High band carrying an LR of 40.93 and a Very Low band at 0.09 with 95.5% sensitivity. There is genuinely no existing rapid test that tells you "this is a viral illness" pathogen-agnostically. For an ED in respiratory season, that has real value. For your SICU, much less.

Part 4 — Critical Appraisal: Where This Evidence Is Weak

The reference standard is clinician opinion, not microbiology. In SEPSIS-SHIELD, infection status was assigned by adjudicating physicians reviewing charts. No positive culture or other objective proof of infection was required. The test is therefore validated against expert judgment — including judgment informed by the very biomarkers the test is meant to replace. In the Bauer study this becomes overt circularity: procalcitonin was used in the adjudication *and* then compared against the test.

Roughly 40% of the pivotal cohort was excluded from the headline numbers. Only 729 of 1,222 patients (59.7%) reached consensus adjudication. The remaining 493 were the diagnostically uncertain patients — which is to say, exactly the patients for whom you would want a test like this. When they are forced back in, the bacterial AUROC falls from 0.83 to 0.76 and viral from 0.91 to 0.83. **The forced-adjudication number is the one that reflects the patient standing in front of you.**

Every confidence interval in the pivotal trial is 80%, not 95%. This is unusual in clinical diagnostics and makes every estimate appear more precise than conventional reporting would show.

The trial population does not look like a general ED population. 61.5% adjudicated bacterial against 22.6% viral, in a study that enrolled through the COVID pandemic. That bacterial prevalence is high. Since likelihood ratios are prevalence-independent but the reported probabilities are not, the "93.2% probability of bacterial infection" in the Very High band will be lower in a population with a more typical bacterial prevalence.

Sponsor involvement is pervasive. The **first author of the pivotal trial is Inflammatix's own chief medical officer**, and Inflammatix employees are authors on both Brakenridge surgical ICU papers, the Balch endotype paper, the Kostaki, Galtung, Bauer, Mayhew, Halder, and Daenen papers, and the analytical validation. There is essentially **no fully independent clinical validation of this test in the literature.** That is not an accusation of misconduct — it is the normal pattern for a new diagnostic — but it means every performance estimate should be read as a best case, and the absence of an independent replication is itself a finding.

No interventional trial exists. Not one study has randomized patients to TriVerity-guided care versus usual care and measured antibiotic days, ICU admissions, mortality, or length of stay. Every claim about clinical benefit is modeled, hypothetical, and post-hoc. The pivotal authors concede this in their own conclusion. **For a guideline committee, this is the decisive gap:** you cannot write a protocol around a test when nobody has shown that acting on it changes anything.

Independent commentary is skeptical. The clinical review site PulmCCM, assessing the new sepsis diagnostics, concluded that it will take more data to convince most practicing emergency physicians or intensivists of the test's value in high-stakes decisions, criticizing the adjudication-based reference standard and the exclusion of equivocal cases. Their specific percentages differ slightly from the published paper, but their structural criticisms are accurate and match my reading of the primary data.

Part 5 — Recommendation

For the SICU: do not adopt. The severity score is redundant in patients already receiving ICU care and underperforms SOFA there. The bacterial score matches procalcitonin, which you already run. Serial monitoring is off-label and unvalidated. There is no outcome evidence.

For the ED: reasonable to evaluate, not yet to standardize. This is the cleared indication and the studied population. The plausible value is in the undifferentiated patient with abnormal vitals where you are deciding between discharge, floor, and unit — and specifically in the ~39% of patients who land in a Very High or Very Low band. If your ED leadership wants to pilot it, the trauma service has no reason to object and a legitimate interest in the data. The strongest single argument for it is the viral score and the procalcitonin race-performance gap, not the sepsis-prediction story.

If you want to pursue this for trauma anyway, the intellectually honest path is a local observational study, not a protocol change: enroll major trauma patients (ISS > 15), sample on a fixed schedule from post-injury day 3 or 4 onward, adjudicate infection independently, and ask whether a Very Low bacterial score safely supports stopping empiric antibiotics. That is a fundable question, it is the question the existing data actually raise, and University of Florida has

already built the scaffolding for it. It is not a question you should answer by putting the test into routine clinical use first.

What would change this assessment:

1. An **interventional RCT** showing that TriVerity-guided management reduces antibiotic days or improves outcomes. This is the one that matters.
2. **Prospective validation of serial measurement** in post-surgical or post-trauma ICU patients on the Myrna cartridge, with defined action thresholds for trend changes.
3. **Independent, non-sponsor-authored validation** in a surgical/trauma ICU population.
4. **An expanded FDA indication** covering inpatient or ICU use.
5. A **head-to-head against procalcitonin in trauma patients specifically**, powered to detect the sterile-inflammation advantage that the Brakenridge cohort B data suggest exists.

Until at least the first and third of those exist, TriVerity is a scientifically interesting test with a genuine mechanistic advantage in trauma, an FDA clearance that does not cover your unit, and no evidence that using it helps anybody.

Appendix — Paper Index

All PDFs saved to `G:\My Drive\Research\TriVerity\papers\`

Tier 1 — Pivotal

1. `2025_NatMed_TriVerity_SEPSIS-SHIELD_pivotal.pdf` — Liesenfeld O, et al. Clinical validation of an AI-based blood testing device for diagnosis and prognosis of acute infection and sepsis. *Nat Med* 2025;31:4044–4054. DOI 10.1038/s41591-025-03933-y

Tier 2 — Surgical / Trauma ICU (most relevant to you)

2. `2022_JAMANetwOpen_Brakenridge_SICU_surgical_sepsis.pdf` — Brakenridge SC, et al. Evaluation of a Multivalent Transcriptomic Metric for Diagnosing Surgical Sepsis and Estimating Mortality Among Critically Ill Patients. *JAMA Netw Open* 2022;5(7):e2221520. DOI 10.1001/jamanetworkopen.2022.21520
3. `2021_CritCareExplor_Brakenridge_IMX-SEV_surgical_sepsis.pdf` — Brakenridge SC, et al. A Transcriptomic Severity Metric That Predicts Clinical Outcomes in Critically Ill Surgical Sepsis Patients. *Crit Care Explor* 2021;3(10):e0554. DOI 10.1097/CCE.0000000000000554
4. `2023_CritCare_UF_immunological_endotypes.pdf` — Balch JA, et al. Defining critical illness using immunological endotypes in patients with and without sepsis: a cohort study. *Crit Care* 2023;27:292. DOI 10.1186/s13054-023-04571-x

Tier 3 — Post-operative and ICU context

5. `2024_LiverTransplant_postop_BVN_monitoring_pilot.pdf` — Halder A, et al. A 29-mRNA host-response classifier identifies bacterial infections following liver transplantation — a pilot study. *Langenbecks Arch Surg* 2024;409:185. DOI 10.1007/s00423-024-03373-1
6. `2023_ICU_COVID_IMX-SEV3b_pilot.pdf` — Daenen K, et al. A Transcriptomic Severity Classifier IMX-SEV-3b to Predict Mortality in Intensive Care Unit Patients with COVID-19. *J Clin Med* 2023;12:6197. DOI 10.3390/jcm12196197

Tier 4 — Emergency Department validation

7. `2022_Shock_Safarika_IMX-SEV2_28day_mortality.pdf` — Kostaki A, et al. A 29-mRNA host response whole-blood signature improves prediction of 28-day mortality and 7-day ICU care in adults presenting to the ED with suspected acute infection and/or sepsis. *Shock* 2022;58(3):224–230. DOI 10.1097/SHK.0000000000001970
8. `2022_EurJEmergMed_Galtung_severity_classifier_ED.pdf` — Galtung N, et al. Prospective validation of a transcriptomic severity classifier among patients with suspected acute infection and sepsis in the emergency department. *Eur J Emerg Med* 2022;29(5):357–365. DOI 10.1097/MEJ.0000000000000931

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