

Transfusion Safety Lives in the Interface

Five reports on therapeutic interference, alert burden, inventory control, and cord-blood collection quality.

Wednesday, September 23, 2026

Anti-CD38 | Anti-CD47 | Hemovigilance | Platelet inventory | Cord blood

FIVE SIGNALS WORTH YOUR BENCH TIME

01 / IMMUNOHEMATOLOGY / ANTI-CD38

Soluble CD38 turned apparent incompatibility into interpretable crossmatches

Finding. A center used soluble CD38 for 128 red-cell crossmatches in 49 patients receiving daratumumab. The reagent neutralized interference in every sample, allowing compatible labels; antibody screening still used DTT-treated cells, and no new alloantibody was detected at last follow-up.

Why it matters. A clean crossmatch label can reduce avoidable calls and ambiguity, while a separate validated screen protects antibody detection. The workflow makes the purpose and limitation of each mitigation method explicit.

Limits. This was a single-center experience with limited follow-up. The protocol restricted soluble CD38 to crossmatching because of Duffy-system effects; it does not replace an independently validated antibody screen.

Evidence label: Peer-reviewed single-center implementation study; full text may require subscription.

02 / IMMUNOHEMATOLOGY / ANTI-CD47

A low-red-cell-affinity drug still produced method-specific interference

Finding. In spiked samples, IMC-002 affected ABO/RhD typing, DAT, and antibody screens. Saline washing or replacement resolved some grouping effects, while gel testing and papain-treated cells showed stronger panreactivity; flow cytometry confirmed much lower red-cell than T-cell binding.

Why it matters. Drug class alone is not enough to predict the blood-bank pattern. Laboratories need agent-specific testing maps that identify affected methods, workable mitigations, and a path for unresolved reactivity.

Limits. This was an in-vitro interference study rather than testing of treated patients. Clinical concentrations, timing, metabolites, and rare antibodies may change performance.

Evidence label: Peer-reviewed analytical interference study; full text may require subscription.

03 / HEMOVIGILANCE / ALERT FATIGUE

Six years of automated reaction alerts exposed a signal-to-noise problem

Finding. Electronic alerts generated 94.4% of suspected transfusion-reaction reports but had 58.1% positive predictive value, versus 92.5% for clinician reports. In a focused period, only 1.5% of alerts were reported, a 1:78 signal-to-noise ratio; nearly two thirds reflected repeated entries or documentation errors.

Why it matters. Automation widened surveillance, but durable performance depended on triage and data quality. Temperature-containing and multi-parameter alerts may deserve priority over isolated triggers.

Limits. This retrospective single-hospital study cannot determine whether missed alerts represented preventable harm. Workflow strain and local vital-sign documentation strongly shaped performance.

Evidence label: Peer-reviewed six-year retrospective hemovigilance study; subscriber access may apply.

A simple inventory model cut platelet outdating to 0.04%

Finding. A regional center combined current stock, target levels, ABO distribution, group AB use, and reorganized apheresis collection in an Excel decision tool. From 2015 to 2025, annual transfusions rose from 8,306 to 13,971 while outdating fell from 1.86% to 0.04%.

Why it matters. Inventory improvement did not require a black-box algorithm. Transparent rules can support daily decisions, expose assumptions, and be adjusted with hospitals when demand or collection capacity changes.

Limits. The retrospective before-after design cannot isolate the tool from organizational changes. Platelet age increased modestly, and ABO policy, shelf life, and demand patterns differ by region.

Evidence label: Peer-reviewed retrospective regional operations study; full text may require subscription.

Twenty years of cord-blood data separated banking rate from product quality

Finding. Among 73,925 units, 27,684 (37.4%) were banked. Across three regulatory phases, banking rates fell from 35.6% to 24.8%, while post-processing nucleated-cell count rose from 10.08 to 11.87×10^8 and recovery improved from 74.4% to 85.6%.

Why it matters. Collection volume, delivery mode, and hospital-level variation create actionable targets for collector education and standardized collection without treating a lower banking rate as automatic failure.

Limits. The analysis reflects one Korean public bank and changing regulation over two decades. Selection thresholds, transplant demand, and collection networks limit direct transfer to other systems.

Evidence label: Peer-reviewed 20-year retrospective banking study; official journal metadata verified.

Verified source trail

1. Javanbakht, Hanna, Jaspau, et al. Implementation of soluble CD38 in blood crossmatching for patients on anti- CD38 therapy: A single-center experience. Transfusion. 2026. DOI: 10.1111/trf.70389.

2. Kim, Park, Chung, et al. Pretransfusion testing interference profile of IMC -002: A novel anti- CD47 monoclonal antibody engineered for minimized red cell binding. Transfusion. 2026. DOI: 10.1111/trf.70382.

3. Lim, Park, and Kim. Clinical performance and limitations of a vital sign-based electronic automatic notification system for suspected transfusion reactions: A 6-year experience. Transfusion. 2026. DOI: 10.1111/trf.70342.

4. Lizoń, Marszałek, and Krzyściak. Optimization of platelet concentrate inventory management using a simple standardized decision-support model: A retrospective study from a Regional Blood Center. Vox Sanguinis. 2026. DOI: 10.1111/vox.70366.

5. Roh, Lee, Shin, et al. Cord Blood Quality and Banking Predictors Across Three Regulatory Phases: A Retrospective Study of 73,925 Units Collected over a 20-yr Period. Annals of Laboratory Medicine. 2026. DOI: 10.3343/alm.2026.0169.

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