Memorandum - Core #224

To: UNC Health Attending Physicians, Faculty Practice Physicians, Housestaff, Clinical Nurse Coordinators, Department Heads and Supervisors

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Date: June 30, 2025

Subject: Changes to Serum Free Light Chain Testing

Effective June 30th, 2025, an increase in serum free light chain (free Kappa, free Lambda) test values may be observed due to instrument servicing that better aligns measured values to manufacturer assigned values.

Impact on patient serum free Kappa and free Lambda testing:

- Reference ranges will not change.
- Patient free Kappa values ≥ 50 mg/dL may have increased values (bias approximately +25%) compared with previously reported UNC results though this is patient-dependent and variable.
- Patient free Lambda values ≥ 50 mg/dL may have elevated values (bias approximately +10%) compared with previously reported UNC results though this is patient-dependent and variable.

Recommendation for Healthcare Providers:

- Due to shift in measured serum free light chain values following instrument service, consider re-baselining patient serum free Kappa, serum free Lambda, and Kappa/Lambda ratio values with interpretation in the clinical context.

Analytical changes in measured values following instrument servicing are described below:

- Data indicate a positive proportional bias in measured free Kappa and free Lambda values following instrument servicing. There are minimal differences in measured free Kappa and free Lambda values ≤ 50 mg/dL. The positive bias is more evident at higher free Kappa and free Lambda (> 50 mg/dL) concentrations which subsequently change the calculated free Kappa/free Lambda (K/L) ratio. Linear regression analyses demonstrate:
- [Post-service free Kappa] = 1.2455[Pre-service free Kappa] + 0.9954; R2 = 0.9986
- [Post-service free Lambda] = 1.0771[Pre-service free Lambda] + 0.0463; R2 = 0.9999
- [Post-service K/L ratio] = 1.2975[Pre-service calculated K/L ratio] + 1.3184; R2 = 0.9955

If you have any questions related to these changes, please contact the Special Chemistry Laboratory at 984-974-1415 or Dr. Korpi-Steiner at 984-974-1498.