



MEMORANDUM

DATE: 10-10-18

TO: NPL Clients

FROM: Rhonda Burgard, MT (ASCP), BB, MPA

RE: Chemistry Stability Changes

Effective 10-10-18, several of the specimen type and stability requirements for chemistry testing have changed. Please see the chart below:

| PROFILES | Serum/BF/CSF/Urine | Li Heparin Plasma Stored in Primary Tube |
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| C6, C7, C8 | Serum: 7 days refrigerated at 2-8°C* | Li Heparin plasma: 8 hours refrigerated at 2-8°C* |
| C14 | Serum: 7 days refrigerated at 2-8°C ** | Li Heparin plasma: 8 hours refrigerated at 2-8°C* |
| LIVP | Serum: 7 days refrigerated at 2-8°C ** | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| Lipid Profile | Serum: 7 days refrigerated at 2-8°C** | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| TESTS | | |
| Acetaminophen | Serum: 7 days refrigerated at 2-8°C **** | Li Heparin plasma: 8 hours refrigerated at 2-8°C* |
| Albumin | Serum: 7 days room temp*** 7 days refrigerated at 2-8°C* | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| Alkaline phosphatase | Serum: 7 days refrigerated at 2-8°C* >4 days freeze*** | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| ALT (SGPT) | Serum: 7 days refrigerated at 2-8°C* >7 days frozen*** | Li Heparin Plasma: 7 days room temp*** 7 days refrigerated at 2-8°C* |
| Ammonia | Serum: Not a valid sample type | EDTA/Li/Na Heparin: Refer to CHEM154 for processing instructions. Remove plasma from cells to store. 7 days frozen at -10°C or colder.* |
| Amylase | Serum: 7 days room temp*** 7 days refrigerated at 2-8°C* Urine: Adjust pH to 7.0 then store at: 7 days room temp*** 1 month refrigerated at 2-8°C*** | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| ASO | Serum: 7 days refrigerated at 2-8°C**** >7 days, freeze*** | Serum is the recommended specimen type. |

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| AST (SGOT) | Serum: 24 hrs room temp*** 7 days refrigerated at 2-8°C* 1 year frozen*** | Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| BHB | Serum: 7 days refrigerated at 2-8°C*** | Plasma: 7 days refrigerated at 2-8°C*** |
| B12 | Serum: 8 hours room temp*** 48 hours refrigerated at 2-8°C*** >48 hours freeze*** | Heparin plasma: 8 hours room temp*** 24 hours refrigerated at 2-8°C*** >24 hours freeze*** |
| Bilirubin, Direct | Serum: Protect from light 7 days refrigerated at 2-8°C* 3 months frozen*** | Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Bilirubin, Total | Serum: Protect from light *** 7 days refrigerated at 2-8°C* 3 months frozen*** | EDTA/Heparin plasma acceptable Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| BNP | EDTA Plasma - 7 hrs. room temperature or up to 24 hrs. 2-8° C. Freeze if exceeds 24 hours. Warm to room temp 30 minutes prior to testing. Whole blood stability: up to 7 hrs. room temperature or refrigerated. Storage conditions start from drawn time. ***** | Cannot use Heparinized plasma or serum |
| BUN (blood or urine urea nitrogen) | Serum: 24 hrs room temp*** 7 days refrigerated at 2-8°C* 2-3 months frozen*** Urine: 7 days refrigerated at 2-8°C** | Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| C3 | Serum: 4 hrs room temp*** 8 days refrigerated at 2-8°C*** 2 weeks frozen** | Serum Only |
| C4 | Serum: 4 hrs room temp*** 8 days refrigerated at 2-8°C*** 3 months frozen*** | Serum Only |
| Calcium | Serum: 7 days room temp*** 7 days refrigerated at 2-8°C* 1 year frozen*** Urine: 5 days room temp*** 5 weeks refrigerated at 2-8°C*** 6 months frozen*** | Heparin plasma acceptable Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Carbamazepine (Tegretol) | Serum: 1 month refrigerated at 2-8°C*** 3 months frozen*** | Heparin/citrate/oxalate/EDTA plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C * 3 months frozen*** |

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| CEA | Serum: 8 hours at room temp.*** 48 hours refrigerated at 2-8°C*** If >48 hours or shipped frozen at -20°C*** | Cannot use plasma*** |
| Chloride | Serum: 1 week room temp (2-30°C)*** 7 days refrigerated at 2-8°C* Urine: 7 days refrigerated at 2-8°C** | Li/Ammonium heparin acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| Cholesterol | Serum: 7 days refrigerated at 2-8°C* 3 months frozen*** | EDTA/Heparin plasma acceptable. Do not use oxalate, citrate, or fluoride.*** Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| CK | Serum: 48 hrs at room temp 7 days refrigerated at 2-8°C* 1 month frozen*** | Li Heparin plasma: 7 days refrigerated at 2-8°C * Heparin plasma (not EDTA, oxalate, or citrate): may occasionally produce unpredictable rate reactions resulting in false low results.*** |
| CKMB | Serum: Preferred specimen type Li heparin plasma 8 hours at room temp*** 2 days refrigerated at 2-8 °C.*** 6 months frozen ** | Li Heparin plasma: 8 hours room temp*** 48 hours at 2-8 °C*** 6 months frozen** |
| Cortisol | Serum: 7 days at room temp 7 days refrigerated at 2-8 °C. 3 months frozen** Thaw samples only once*** | Heparin plasma acceptable*** Li Heparin plasma: 8 hours room temp*** 48 hours refrigerated at 2-8°C.*** 3 months frozen** Thaw samples only once*** |
| CO2 | Serum: 8 hrs refrigerated at 2-8°C* Stability comment is added if >8.0 hrs, | Na/Li Heparin plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C * |
| Creatinine | Serum: 7 days refrigerated at 2-8°C*** indefinitely frozen*** Urine: 2 days room temp*** 6 days refrigerated at 2-8°C*** | Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* |
| CRP | Serum: 11 days room temp*** 2 months refrigerated at 2-8°C*** >2 months freeze*** | EDTA/Li heparin plasma acceptable*** Li Heparin plasma: 11 days room temp*** 7 days refrigerated at 2-8°C* >2 months freeze*** |
| CRPH | Serum: 11 days room temp*** 7 days refrigerated at 2-8°C* >2 months freeze*** | EDTA/Li heparin plasma acceptable*** Li Heparin plasma: 11 days room temp*** 7 days refrigerated at 2-8°C* >2 months freeze*** |

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| Digoxin | Serum: 8 hrs room temp*** 7 days refrigerated at 2-8°C*** 6 months frozen*** | Heparin/oxalate/EDTA plasma: Li Heparin plasma: 8 hrs room temp*** 8 hours refrigerated at 2-8°C* 6 months frozen*** |
| Estradiol | Serum: 2 hours at room temp** 2 days refrigerated at 2-8 ° C.** 6 months frozen** | Li Heparin plasma: 8 hours room temp*** 48 hours at 2-8 ° C*** 6 months frozen** |
| Estradiol, Sensitive | Serum: 8 hrs room temp*** 7 days refrigerated at 2-8°C*** >7 days freeze at <-20°C*** | Li/Na heparin or EDTA plasma: 8 hrs room temp*** 7 days refrigerated at 2-8°C*** |
| Ethanol (Alcohol) | Serum: 7 days refrigerated at 2-8°C** >3 days freeze*** | Fluoride/Oxalate/Citrate/EDTA/Heparin plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C* >8 hrs freeze*** |
| Ferritin | Serum: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 3 months frozen ** Thaw samples only once*** | Heparin plasma acceptable.*** Li Heparin plasma: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C*** 3 months frozen ** Thaw samples only once*** |
| Folate | Serum: 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples only once*** | Heparin plasma acceptable*** Li Heparin plasma: 48 hours at 2-8 ° C *** 3 months frozen ** Thaw samples only once*** |
| Free T3 | Serum: 24 hours at room temp 7 days refrigerated at 2-8 ° C. 1 month frozen** Thaw samples no more than 3 times*** | Heparin plasma acceptable. Li Heparin plasma: 8 hours room temp*** 48 hours at 2-8 ° C*** 1 month frozen** Thaw samples no more than 3 times*** |
| Free T4 | Serum: 24 hours at room temp 7 days refrigerated at 2- 8 ° C. 1 month frozen** Thaw samples only once*** | Heparin plasma acceptable. Li Heparin plasma: 8 hours room temp*** 48 hours at 2-8 ° C*** 1 month frozen** Thaw samples only once*** |
| FSH | Serum: 8 hours at room temp*** 7 days refrigerated at 2-8 ° C.** 3 months frozen*** Thaw samples only once*** | Heparin plasma: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 3 months frozen*** Thaw samples only once*** |
| Gentamicin | Serum: 6 weeks refrigerated at 2-8°C*** 6 months frozen*** | Citrate/Oxalate/EDTA/Heparin plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C* 6 months frozen*** |
| GGT | Serum: 1 month refrigerated at 2-8°C*** 1 year frozen*** | Recommended is EDTA plasma; heparinized plasma becomes turbid in the reaction mixture; citrate, oxalate and fluoride depress activity by 10-15%. |

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| GHGB (Glycosylated Hgb) | EDTA whole blood: 7 days refrigerated at 2-8°C***** | EDTA whole blood is the only acceptable sample type. |
| Glucose | Serum: 8 hrs room temp*** 7 days refrigerated at 2-8°C* Body fluid: 7 days refrigerated at 2-8°C**** CSF: 5 days refrigerated at 2-8°C tightly capped*** >5 days frozen*** Urine: 2 hours refrigerated at 2-8°C** 48 hrs frozen** | EDTA/sodium fluoride/heparin plasma acceptable*** Li Heparin plasma: 24 hours refrigerated at 2-8°C* |
| Haptoglobin | Serum: 7 days refrigerated at 2-8°C*** 2 months frozen*** | Not a recommended specimen type*** Li Heparin plasma: 8 hours refrigerated at 2-8 ° C.**** |
| HCG | Serum: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples only once*** | Li Heparin plasma: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples only once*** |
| HDL | Serum: <14 hrs room temp*** 7 days refrigerated at 2-8°C* 3 months frozen at <-70°C*** | EDTA/Heparin plasma acceptable*** Li Heparin plasma: <14 hrs room temp*** 7 days refrigerated at 2-8°C* 3 months frozen at <-70°C*** |
| IgA | Serum: 7 days refrigerated at 2-8°C* >3 days frozen*** | EDTA/Li Heparin plasma acceptable*** Li heparin plasma: 7 days refrigerated at 2-8°C* >3 days frozen*** |
| IgG | Serum: 7 days refrigerated at 2-8°C* >3 days frozen*** | EDTA/Li Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* >3 days frozen*** |
| IgM | Serum: 7 days refrigerated at 2-8°C* >3 days frozen*** | EDTA/Li Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* >3 days frozen*** |
| Iron | Serum: 4 days room temp*** 7 days refrigerated at 2-8°C* | Heparin plasma acceptable*** Li Heparin plasma: 7 days * |
| Lactic Acid | Serum: unacceptable sample type CSF: 7 days refrigerated at 2-8° C**** | Sodium fluoride-potassium oxalate plasma only: 8 hrs room temp*** 14 days refrigerated at 2-8°C*** (keep on ice and remove plasma from cells within 15 minutes***) |
| LD (LDH) | Serum: 2 days refrigerated at 2-8°C* Body fluid: 3 days refrigerated at 2-8°C***** | Heparin plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C * |

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| LDLD (Direct LDL) | Serum: 7 days refrigerated at 2-8°C* 3 months frozen at <-70°C*** Only freeze once*** | EDTA/heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* 3 months frozen at <-70°C*** Only freeze once*** |
| LH | Serum: 8 hours at room temp*** 7 days refrigerated at 2-8 ° C.* 6 months frozen*** Thaw samples only once*** | Heparin plasma acceptable*** Li Heparin plasma: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples only once*** |
| Lipase | Serum: 7 days refrigerated at 2-8°C* >7 days frozen*** | Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C* >7 days frozen*** |
| Lithium | Serum: 7 days refrigerated at 2-8 ° C. ***** >1 year frozen*** | Lithium heparin plasma cannot be used. EDTA plasma: 1 week refrigerated at 2-8°C*** >1 year frozen*** |
| Magnesium | Serum: 7 days refrigerated at 2-8°C* Urine: 7 days refrigerated at 2-8°C** | Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Microalbumin | Urine: 1 month refrigerated at 2-8°C*** 6 months frozen*** CSF: 72 hrs refrigerated at 2-8°C*** 6 months frozen*** | N/A |
| Myoglobin | Serum: 8 hours at room temp 7 days refrigerated at 2-8 ° C. 3 months frozen ** Preferred specimen type: Li heparin plasma Thaw samples only once*** | EDTA or Li Heparin plasma acceptable*** Li Heparin plasma: 8 hours at room temp*** 1 day refrigerated at 2-8 ° C.*** >1 day freeze*** Thaw samples only once*** |
| Osmolality | Serum & Urine: 7 days refrigerated at 2-8 ° C. ** | Li Heparin plasma: 8 hours refrigerated at 2-8°C* |
| Phenobarb | Serum: 1 month refrigerated at 2-8°C*** 3 months frozen*** | Heparin/citrate/oxalate, EDTA plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C* 3 months frozen*** |
| Phenytoin | Serum: 1 month refrigerated at 2-8°C*** 3 months frozen*** | Cannot use gel tubes. Heparin/citrate/oxalate, EDTA plasma acceptable: 1 month refrigerated at 2-8°C*** 3 months frozen*** |

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| Phosphorus | Serum: 8 hours room temp*** 7 days refrigerated at 2-8°C* Urine: >6 months refrigerated at 2-8°C*** when acidified with HCL.*** | EDTA, fluoride oxalate or citrate are not a recommended specimen type*** Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Potassium | Serum: 7 days refrigerated at 2-8°C* Urine: 7 days refrigerated at 2-8°C**** | Li/Ammonium heparin acceptable.*** Li Heparin plasma: 48 hours refrigerated at 2-8°C * |
| Progesterone | Serum: 8 hours at room temp*** 4 days refrigerated at 2-8 ° C.** 3 months frozen** Do not store on gel*** Thaw samples only once*** | Plasma cannot be used. |
| Prolactin | Serum: 8 hours at room temp*** 2 day refrigerated at 2-8 ° C.*** >2 days freeze*** Thaw samples only once*** | Heparin plasma: 8 hours at room temp*** 2 day refrigerated at 2-8 ° C.*** >2 days freeze*** Thaw samples only once*** |
| Protein, Total | Serum: 7 days refrigerated at 2-8°C* 1 months frozen*** | Not recommended specimen type, but acceptable: Heparin Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Protein, Urine/CSF | Urine: 7 days refrigerated at 2-8 ° C. ** Body fluid: 3 days refrigerated at 2-8°C** CSF: 72 hrs at 4°C*** | N/A |
| PSA | Serum: 8 hours at room temp** 4 days refrigerated at 2-8 ° C. ***** 6 months frozen** | Plasma cannot be used. |
| Prealbumin (PAB) | Serum: 7 days refrigerated at 2-8°C* 2 months frozen*** | Serum is recommended sample type*** Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| PTH, intraoperative | Serum: 4 hours at room temp*** 8 hours refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples no more than 3 times*** | Heparin/EDTA plasma: 8 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples no more than 3 times*** |
| RF | Serum: 1 day at room temp*** 8 days refrigerated at 4 – 8°C*** 3 months at -20°C*** (avoid repeated freezing and thawing) | EDTA/Li heparin plasma: 1 day at 20 – 25°C*** 8 days at 4 – 8°C*** 3 months at -20°C*** (avoid repeated freezing and thawing) |
| Rubella | Serum: 2 days at room temp** 7 days refrigerated at 2-8 ° C. **** 1 year frozen** Thaw samples no more than 3 times*** | Plasma cannot be used. |

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| Salicylate | Serum: 7 days refrigerated at 2-8°C**** | EDTA/Na heparin/citrate and oxalate/fluoride are acceptable: Li Heparin not listed as acceptable*** |
| Sodium | Serum: 7 days refrigerated at 2-8°C* Urine: 7 days refrigerated at 2-8°C** | Li/Ammonium heparin acceptable.*** Li Heparin plasma: 7 days refrigerated at 2-8°C * |
| Testosterone | Serum: 24 hours at room temp 7 days refrigerated at 2-8 ° C. 6 months frozen ** Thaw samples no more than 2 times*** | Serum only. |
| Theophylline | Serum: 1 month refrigerated at 2-8°C*** 3 months frozen*** | Heparin/citrate/oxalate/EDTA plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8 ° C.* 3 months frozen*** |
| Tobramycin | Serum: 7 days refrigerated at 2-8°C*** 1 months frozen*** | EDTA/heparin/citrate and oxalate/fluoride plasma: Li Heparin plasma: 8 hours refrigerated at 2-8 ° C.* 1 month frozen*** |
| Total T3 | Serum: 24 hours at room temp 7 days refrigerated at 2-8 ° C. 1 month frozen ** | Li Heparin plasma: 8 hours room temp*** 48 hours at 2-8 ° C*** 1 month frozen ** |
| Transferrin | Serum: 7 days refrigerated at 2-8°C* >40 days frozen*** | Li Heparin plasma: 7 days refrigerated at 2-8 ° C.* Not recommended specimen type |
| Triglyceride | Serum: 7 days refrigerated at 2-8°C* 3 months frozen*** | EDTA/heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8 ° C * |
| Troponin | Serum: 2 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** 6 months frozen*** Thaw samples only once*** | Li Heparin plasma: 2 hours at room temp*** 2 days refrigerated at 2-8 ° C.*** Freeze if not tested within 24 hours 6 months frozen*** Thaw samples only once*** |
| TSH3 | Serum: 8 hours at room temp*** 7 days refrigerated at 2-8 ° C.*** 90 days frozen*** Thaw samples no more than 2 times*** | Li Heparin Plasma: 8 hours at room temp*** 7 days refrigerated at 2-8 ° C.*** 90 days frozen*** Thaw samples no more than 2 times*** |
| UIBC | Serum: 4 days room temp*** 7 days refrigerated at 2-8°C* | Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8 ° C * |

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| Uric Acid | Serum: 7 days refrigerated at 2-8°C* 6 months frozen*** Urine: 3 days room temp*** (add sodium hydroxide to pH between 8-9) 4 days refrigerated at 2-8°C** | Heparin plasma acceptable*** Li Heparin plasma: 7 days refrigerated at 2-8 ° C * |
| Valproic Acid | Serum: 7 days refrigerated at 2-8°C** 1 year frozen*** | Heparin, citrate/fluoride, oxalate, and EDTA plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C* 1 year frozen*** |
| Vancomycin | Serum: 3 days refrigerated at 2-8°C*** 1 month frozen*** | EDTA, Na heparin, Li heparin, citrate, and oxalate/fluoride plasma acceptable*** Li Heparin plasma: 8 hours refrigerated at 2-8°C* 1 year frozen*** |
| Vitamin D 25 (OH) Total | Serum: 72 hours at room temp*** 7 days refrigerated at 2-8 ° C.*** 1 year frozen*** Thaw samples no more than 3 times*** | Plasma: Li heparin plasma: 2 hours at room temp*** 7 days refrigerated at 2-8 ° C.*** 1 year frozen*** Thaw samples no more than 3 times*** |

Specimens exceeding the above limits may be used at the request of a physician or client account. A comment will be added to the test result "Specimen as exceeded recommended stability limits for this analyte. Test performed at the request of ()." The comment is not intended to replace or supersede current policies on specimen rejection. If the specimen is very delayed or has exceeded storage temperature requirements it may still need to be canceled.

Additional information may be found in the NPL Test Catalog at www.northernplainslab.com. If you have any questions or concerns please contact the Northern Plains Client Services at 701-530-5700.