Minnesota Hospital Association
2550 University Ave. W., Suite 350-S
St. Paul, MN 55114-1900
phone: (651) 641-1121; fax: (651) 659-1477
toll-free: (800) 462-5393; www.mnhospitals.org

LOINC Mapping Tool Instructions
LOINC Codes for AHRQ Project Laboratory Results
Instructions for Completing Lab Data Worksheet

Overview
The LOINC Mapping Tool was designed for hospitals to transmit information about their laboratory test information systems ("lab tests") to Minnesota Hospital Association (MHA). This information will help standardize local lab tests to an accepted standard known as Logical Observation Identifiers Names and Codes or LOINC. LOINC is a very large collection of terms and values (nearly 31,000 terms related to lab testing) but since MHA is only requesting a small number of lab tests for this project, the LOINC values for the required lab tests have already been compiled for hospitals on the attached worksheet. This tool is intended for laboratory supervisors and/or laboratory information specialists.

Tool
LOINC codes for 32 laboratory data elements, numbered 1 through 32, are listed on the attached worksheet called "Tool". Letters and numbers that follow the numbers are variants of the same lab test (see below). A common laboratory test name is provided for each, along with the specimen type (serum, plasma, blood, arterial blood, capillary blood, and platelet poor plasma), units of measurement, a corresponding LOINC code and LOINC short name, and comments specific to the measurement. For each LOINC code corresponding to a lab test result that will be reported by your hospital, please indicate the corresponding specimen type, units, normal range, and analytic method(s) used in the spaces provided (in green). Also, use the Current ID & Comments section in the template to provide the current local identifier for the test and any additional information that might be useful to MHA for mapping and interpreting test results.

What if multiple analytic methods are used for same lab test?
If several different analytic methods covered by the same LOINC code are used by your hospital to obtain results for the same laboratory test, provide information about each analytic method including specimen type, units, normal range, and current identifier in the row that contains the appropriate LOINC code (see Sodium example in "LOINC Code Worksheet" below).

What if multiple LOINC codes exist for the same lab test (variants)?
When multiple LOINC codes exist for the same laboratory data element (e.g., same measurement performed on plasma and performed on whole blood, results reported in different units, results obtained using different analytic methods), additional rows are provided for each discrete LOINC code. Rows are ordered sequentially to indicate a possible priority of codes when multiple codes describe the same result. Specific instructions are provided below to assist in selecting appropriate codes for individual tests. Several variants of the same lab test may be used to provide some data required for this project so several different codes for a single test may

be required to cover all these variants. In these cases, hospitals should complete rows for each variant for which a different LOINC code may be required.

What if our hospital has lab tests not described by LOINC codes?
Hospitals reporting lab tests **not described by LOINC codes in the attachment** should describe these tests in the "To Be Completed by Hospital" section corresponding to the test number (n) followed by an X. If more than one line is required for a test, additional tests should be described on the "Lab Tests not Described by LOINC" sheet provided by numbering them as nX1, nX2, etc.

What if our hospital is already using LOINC codes?
Hospitals already using LOINC codes do not need to complete the worksheet described above, but should indicate all LOINC codes currently utilized for these lab tests on the attached "Current LOINC Code Information Sheet". If the hospital using LOINC codes also has a unique identifier for a test, that identifier should be listed in the column labeled Current ID & Comments.

If the LOINC code is used as the unique identifier for a test, it should be noted as such in the column labeled Current ID & Comments. Hospitals not currently utilizing LOINC codes should ignore this sheet.

MHA and its subcontractors for this project will check LOINC codes against information provided by hospitals to confirm the accuracy of coding and will advise hospitals on how to code test variations not included here or currently coded by hospitals. If possible, a copy of each relevant Laboratory Data Dictionary would assist MHA in completing this task.

The following comments apply to individual tests:

1. Albumin – If albumin fraction is reported (1A1), then the total albumin also must be reported (1A2).
5. Base Units Deficit (Excess) – Either or both may be reported.
6. Bicarbonate – Bicarbonate may be measured using different methods on different samples. All variations performed by a facility should be completed.
11. CK MB – This test is described by numerous LOINC codes depending on the sample analyzed, the measurement units, and the analytic method employed. Some possible combinations are not described by LOINC codes. If a facility reports CK MB determinations that do not correspond to listed codes, these determinations should be described as an 11X series.
14. Glucose – Serum/plasma samples have individual LOINC codes for a full range of random, fasting, and 2 hour post challenge measurements. Whole blood and capillary blood samples have codes only for some of these measurements. If a facility reports glucose determinations that do not correspond to listed codes, these determinations should be described as a 14X series. Other glucose measurements not covered by listed LOINC codes also should be described in this 14X series.
16. Inhaled oxygen concentration or flow rate – FIO2 and O2 Flow Rate are combined in item 16. When pO2 or O2 Saturation is reported, either FIO2 or O2 Flow Rate should be reported, if known. If neither is reported, an FIO2 of 28 percent will be assumed.

17. INR or prothrombin time – INR and Prothrombin Time are combined in item 17. If both results are reported on the same sample, both LOINC codes should be used with corresponding values.
20. Neutrophils band – Percent neutrophils is preferred measure. If number per volume is reported, corresponding total white blood count is required. When information is available, LOINC code should distinguish between manual and automated counts.
24. Platelet count – When information is available, LOINC code should distinguish between manual and automated platelet counts.
25. pO2 or O2 saturation – pO2 or O2 saturation are combined in item 25. If both determinations are performed at a facility, both LOINC codes should be used as appropriate.
32. White blood count – When information is available, LOINC code should distinguish between manual and automated white blood counts.

The following are examples of completed rows of a LOINC Code Worksheet. Bold entries are supplied by the MHA and its subcontractors. Italicized entries are supplied by hospital personnel.

LOINC Code Worksheet

							TO BE COMPLETED BY LABORATORY				
#	**Test Name**	**Spec. Type**	**Unit**	**LOINC Code**	**LOINC Name**	**Comment**	**Spec. Type**	**Unit**	**Normal Range**	**Method**	**Comment**
25A	**O2 Sat. Arterial**	**Arterial Blood**	**%**	**2708-6**	**O2 % BldA**	**FIO2 if available**	*Arterial Blood*	*%*	*94-100*	*Pulse oximetry*	*ABG11 FIO2 not available*
28	**Sodium**	**Serum / Plasma**	**mEq/l = mmol/l**	**2951-2**	**Sodium SerPl-sCnc**		*Serum*	*mEq/l*	*135-145*	*Ion exchange-gravimetric*	*Na1*
							Serum	*mmol/l*	*135-145*	*Flame photometry*	*Na2*
32B	**White Blood Count**	**Whole Blood**	**10^9 cells/ul**	**6690-2**	**WBC # Bld Auto**		*Whole Blood*	*10^9 cells/ul*	*4.3-10.8*	*Flow cytometry*	*WBC101*