




*Kaiser Permanente Medical Center, San Francisco  
Northern California Region*

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 <b>Form Control Document</b>		
<b>Title:</b> <b>CHEM - 24 Hour and Random Urine Processing Table.</b>		<b>Form Control No.</b> SFOFCD-0316 <b>Revision:</b> 10
<b>Department:</b> Chemistry Clinical Lab Post-Analytical Clinical Lab Pre-Analytical  <b>Area:</b> 2425 Geary Blvd SFO Hospital Lab	<i>Approved Form Control Document</i>	<b>Implementation Date:</b> 07/01/2019
<b>Type of Document:</b> Form		<b>Review Period - 365 Days</b>

**Purpose**

24 Hour Urines Collections are received at SFO Laboratory and processed for transportation to Regional Lab or other Reference Laboratory such as Quest Labs. This document is a compilation of 24 Hour Urine Collection Logs, Regional Lab instructions, Reference Lab instructions, and Patient Instructions, and is intended as Quick Reference Guides. However, specimen collection requirements may be updated with new information as testing processes change. To view the most up-to-date information, refer to [http://lablink.ca.kp.org/test\\_directory/](http://lablink.ca.kp.org/test_directory/).

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1. Pre-collection Urine Preservative Requirements	<ul style="list-style-type: none"> <li>● Detailed test instructions may be viewed by accessing <a href="http://lablink.ca.kp.org/test_directory/">http://lablink.ca.kp.org/test_directory/</a></li> <li>● ARUP and Quest Diagnostic Tests are also referenced on...             <ul style="list-style-type: none"> <li>● <a href="https://www.aruplab.com/testing">https://www.aruplab.com/testing</a></li> <li>● <a href="http://www.questdiagnostics.com/testcenter">http://www.questdiagnostics.com/testcenter</a></li> </ul> </li> <li>● If there are any questions regarding the acceptability of a sample, p...</li> </ul>
2. Regional Laboratory Instructions for 24 Hour Urine Collection	<ul style="list-style-type: none"> <li>● Navigate to <b>KP LabLink &gt; Test Directory &gt; Specimen Collection</b></li> <li>● Scroll down to the "<b>Guidelines for Collection and Labeling of Sp</b>"</li> <li>● See External Document: <b>(24-hr-Urine-Collection-protocol-for-Ch</b></li> </ul>

3. Patient Dietary Restrictions for 24 Hour Urine	<ul style="list-style-type: none"> <li>● See External Document: <b>(Dietary Preparation for 24 Hour Urine C</b></li> <li>● Instruction sheets provided by SFO lab are available in several lang</li> </ul>
4. Patient Instructions for Urine Heavy Metal Screening	<ul style="list-style-type: none"> <li>● See External Document: <b>(Metals-Testing-Sheet_2014)</b>.</li> <li>● Instruction sheets provided by SFO lab are available in several lang</li> </ul>

## **1. PRE-COLLECTION URINE PRESERVATIVE REQUIREMENTS**

Specimen collection requirements may be updated with new information as testing processes change. To view the most up-to-date information, refer to [http://lablink.ca.kp.org/test\\_directory/](http://lablink.ca.kp.org/test_directory/).

- Additional information is available for tests performed at Quest labs:  
**<http://www.questdiagnostics.com/testcenter>**
- Additional information is available for tests performed at ARUP labs:  
**<https://www.aruplab.com/testing>**

**Note:** All timed urine specimens, except for **Uric Acid** must be refrigerated during collection. Instruct the patient to record collection start time and end time on the specimen container. These times should always correspond to 24 hours. The entire specimen must be submitted to the laboratory the morning the collection is completed. Tests requiring acidification should be acidified **within 4 hours** of collection. If specimen was refrigerated but not received within 4 hours, contact Reference Lab or Regional Lab at 8-421-5119 before rejecting, to see if they will accept the sample.

## **2. REGIONAL LABORATORY INSTRUCTIONS FOR 24 HOUR URINE COLLECTION**

Regional Lab-24 hr Urine Collection Protocol  
 RLWI-0584 Attachment

**I) 24 hr Urine Collections :**

For all tests, provide plain containers and make sure to follow the following instructions.

- **Store urine sample under refrigerated conditions (direct) light during the entire collection process and transport as well.** Ice packs in an insulated ice chest to maintain desired refrigerated temperature during collection.
- **The patient must bring the 24 hr urine sample to the lab 24 hrs after completion of the collection.** Be sure to bring to the “drop off” location to ensure that pH will be adjusted if acidified urine specimen is required.

1) **Combine urine from all containers and mix well before aliquotting.**

\*If non-acidified / no preservative specimen required, collect **an aliquot before acidifying the remaining urine**

2) **The lab must acidify the urine sample immediately after collection. Add 10 mL of 6 N HCl per 100 mL specimen and adjust the pH to between **2 and 3** (Add 10 mL of 6 N HCl per 100 mL urine) ; Urine sample with pH < 2 is **unsatisfactory for testing.****

The volume of <u>6 N HCL</u> ( 50% conc. HCL)	Total volume
<b>20 mL</b>	> 1000 mL
40 mL	> 500 mL

10 mL	> 500 mL
3 mL	> 200 mL
1 mL	50 mL to
1 drop per 5 mL urine	Less than

- 3) **Wait at least one hour after adding acid** (to be completely dissolved), mix thoroughly, and send in Vacutainer ( UA No Additive) if applicable ) refrigerated to Laboratory.

**NOTE:** Adequate refrigeration is the most important as Stability is enhanced at pH 2 - 3.

**24 hr Collections:**

- 1) Record volume
  - a) If a patient has **more than one container** submit each container and add them together for total volume. Containers and mix well prior to acidifying or aliquoting.
  - b) If there are **AM and PM 12 hour collections (specimens)** please generate **two separate accession numbers** for AM void and PM void collections.
  - c) **If total volume is < 500 mL or > 5000 mL, must include order comment 1.**
- 2) Mix well, send specified volume of aliquot in the specimen container.

## II ) Random Urine Collections:

A) **No Preservative:** Follow the instruction of **Region**  
**- Collection Protocol** table below for sample volume  
2- 8<sup>0</sup> C.

B) **Preservative with HCL:** Add 1 drop of 6 N HCL p  
between **2 and 3**. Mix well. Follow the instruction  
**Urine Tests - Collection Protocol** table below for  
requirements. Keep at 2- 8<sup>0</sup> C.

Regional Lab-24 hr Urine Collection Protocol  
 RLWI-0584 Attachment

**Regional Laboratory Chemistry Urine Test**

All urine samples should be stored at 4°C

Urine Test	Mnemonic	Preservative
Amylase	U Amylase, U Amyl TM	None
Citrate	U24 Cit,	None ( Acid OK)
Cortisol, Free	U24 Cort	None ( Acid OK)
Creatinine	U Creat,U24 Creat,U24 CrCl	None ( Acid OK)
Microalbumin	U MicroAlb, U24 MALB	None
Potassium	U K, U24 K	None
Pregnancy, Urine	PREGU	None
Sodium	U NA, U24 NA	None
Total Protein	U24 Prot, U ProtCrea	None
Urea Nitrogen	U Urea RAN, U Urea TM	None
Uric Acid	U24 Uric	None
Drugs of Abuse	U DAP, U CDRP	None
Immunoelectrophoresis	U IEP, U PIE	None
Protein Electrophoresis	U PEP, U PIE	None
Calcium	U CA RAN	1 drop of 6N HCl 5 mL urine
	U24 CA	20 ml 6N HCl

Catecholamines	U24 CATS	20 ml 6N HCl
Dopamine	U24 DOPA	20 ml 6N HCl
5 HIAA	U24 5HIAA	20 ml 6N HCl
Homovanillic Acid	U24 HVA	20 ml 6N HCl
Magnesium	U Mg RAN	1 drop of 6N HCl 5 mL urine
	U24 MG	20 ml 6N HCl
Metanephrines	U24 Mets	20 ml 6N HCl
Oxalate	U24 Oxala	20ml 6N HCl
Phosphorus	U Phos	1 drop of 6N HCl 5 mL urine
	U24 Phos	20 ml 6N HCl
Vanillylmandelic Acid	U24 VMA	20 ml 6N HCl

- \* 16x100 mm tube= Sarstedt Reagent and Centrifuge Tub, TIM#0459
- Urine cup= 125 mL "NALGENE" screw cap bottle or 120 mL "POW"
- <sup>2a</sup> Fill containers approximated 80% only, refrigerate ; do not se
- <sup>2b</sup> 10.0 mL BD Vacutainer UA No Additive (REF# 364979)

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Regional Lab-24 hr Urine Collection Protocol  
RLWI-0584 Attachment

Urine Test	Mnemonic	Preservative
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Urine Test	Microscopic	Preservative
Urine Kidney Stone Risk Panel	U KSP This is a care set containing the following tests	
	U24 Cit KS, U24 Cre KS, U24 K KS, U24 NA KS, U24 pH KS,	None
	U24 <u>Urick</u> KS	None
	U24 CA KS, U24 MG KS, U24 <u>Oxa</u> KS, U24 <u>Phos</u> KS	20 ml 6N <u>HCl</u>

\* 16x100 mm tube= Sarstedt Reagent and Centrifuge Tub, TIM#0459

Urine cup= 125 mL "NALGENE" screw cap bottle or 120 mL "POW

<sup>2a</sup> Fill containers approximated 80% only, refrigerate ; do not se

<sup>2b</sup> 10.0 mL BD Vacutainer UA No Additive (REF# 364979)



### **3. PATIENT DIETARY RESTRICTIONS FOR 24 HOUR URINE**

### Dietary Restriction to Avoid Interferences for 24 Hour Urine Collection

TEST	Medication ( must consult the provider before discontinuing )	Food /Drink	Others
Catecholamines fractionated and Dopamine	Avoid <ul style="list-style-type: none"> <li>Caffeine containing drug for 4 hrs prior to and during collection.</li> <li>Mandelamine for 48 hrs prior to and during collection.</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Caffeine for 4 hrs prior to and during collection.</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Vigorous exercise during collection</li> </ul>
5-Hydroxyindoleacetic Acid (5-HIAA)	Avoid <ul style="list-style-type: none"> <li>Reserpine, imipramine, isoniazid, methyl dopa, monoamine oxidase inhibitors or any compound containing these drugs.</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Alcohol, Avocado, bananas, eggplant, kiwi, pineapple, plantain, plums, tomatoes, and walnuts for a 72 hrs period prior to and during the collection.</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Smoking for 72 hours prior to and during collection.</li> </ul>
Homovanillic Acid (HVA)	Avoid <ul style="list-style-type: none"> <li>Disulfiram, pyridoxine, and reserpine for 48 hrs prior to and during collection.</li> <li>Levodopa for 2 weeks prior to and during collection.</li> </ul>	N/A	N/A
Metanephrines, Total	Avoid <ul style="list-style-type: none"> <li>Caffeine containing drug for 4 hrs prior to and during collection.</li> <li>Monoamine oxidase inhibitors for at least 1 week prior to and during collection</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Caffeine for 4 hrs prior to and during collection.</li> </ul>	N/A
Oxalate	Avoid <ul style="list-style-type: none"> <li>Excessive amounts of vitamin C (more than 2 grams/day) for 48 hours prior to and during collection.</li> </ul>	Avoid <ul style="list-style-type: none"> <li>Vitamin C-rich foods for 48 hours prior to and during collection.</li> </ul>	
Vanillylmandelic Acid (VMA)	Avoid <ul style="list-style-type: none"> <li>Anti-hypertensive ( e.g. alpha-methyl/dopa ) for 48 hrs prior to collection and during collection.</li> </ul>	N/A	N/A

080713 updated

## 4. PATIENT INSTRUCTIONS FOR URINE HEAVY METAL SCREENING

6600 Bruceville Road  
Dept of Global Health  
Sacramento, CA 95823  
Phone: (916) 688-6166  
Fax: (916) 688-6855

### Medical Toxicology Consultation Service Kaiser Permanente Northern California Urine Heavy Metals Screening



#### *Patient Information Sheet*

***Please read this sheet prior to collecting your heavy metals specimen. To ensure accurate measurement of the heavy metals in your body, the following protocol has been developed and should be followed closely:***

1. Prior to collecting the urine specimen, go to the laboratory and pick up the collection container. It needs to be a special container (free of trace metals) for urine collection.
2. Abstain from eating any seafood for 10 days prior to collection of the sample for analysis. This includes all fish and shellfish. The reason for this is that many seafoods may contain low levels of metals contamination which can show up on urine analysis.
3. Please abstain from taking any over-the-counter supplements, herbal medications, or vitamins for 2 weeks prior to collection. There have been previous reports of these types of treatments containing trace amounts of heavy metals which can show up on analysis.
4. Collect the urine specimen **ONLY** in the container provided by the laboratory. Other containers may possess metals residues which can influence your analysis.
5. Please wash hands with soap and water prior to urine collection or handling containers. On the first day of collection, discard first morning void then collect all urine including the final specimen voided at the end of the 24-hour collection period, i.e., the same time the next morning. All excreted urine for a 24-hour period should be collected. Please collect urine only in the container(s) provided by the laboratory. If you have difficulty collecting urine directly into the special container provided by the lab, it is acceptable to collect urine in a clean paper cup (avoiding any contamination with metal products) and pour the urine into the large container. Screw the lid on securely.
6. Please store the collected urine specimen in the refrigerator until it is time to take it to the laboratory. Please return the specimen to the lab within 12 hours of collection and within 1 hour of leaving the refrigerated environment.

### **Associated Documents:**

External Documents



24 Hour Urine Logsheets Template.docx



24-hr-Urine-Collection-protocol-for-Chemistry-Tests\_LabLink.doc



Dietary Preparation for 24 Hour Urine Collection\_080713.pdf



Metals-Testing-Sheet\_2014.pdf  
Associated Quality System Documents - None

### Document Revision History:

<b>Revision:</b> 10	<b>Date Created:</b> 04/02/2015 <b>Date of Last Revision:</b> 05/25/2019	<b>Last Approval Date:</b> 05/25/2019
<b>Document Author:</b> Kevin W LUI/CA/KAIPERM	<b>Document Manager:</b> Vaiju Ruikar/CA/KAIPERM	

### Reason for Change:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	4/2/2015
2	1. Pre-collection Urine Requirements Table  2. Regional Lab Instructions  3, 4	For tests that require 25 mL 6N HCl as preservative, changed to 20 mL. Checked/Edited RILIS mnemonics, collection and shipping requirements: Urine 17 ketosteroids, Urine 17 hydroxycorticosteroids, U ALDOST 24, U CA, U CATS 24, U CYSTEINE QN, U DOPA, U 5HIAA PED, U Homocysteine, U HVA 24, U MG, U METS 24, U MMA, U OXALA, U PHOS 24, U Porphyrins (Uroporphyrin, Coproporphyrin) U Thallium, U VMA, Revised by REG Lab 4/15/15, Distributed to Facility labs 11/10/15. SFO Edit to REG instructions: Comment required for samples volume >4000 mL Add note that instructions are available in different languages, but not included here.	12/29/2015
3	1. Pre-collection Urine Requirements Table  Approvers	U MMA changed from SCAL metabolic lab to Quest Lab Add instruction to check with Regional Lab before rejecting samples received >4 hours after collection. Change Medical Director to Eric Suba, M.D.	8/30/2016
4	Edited and replaced Regional Lab Urine Table completely	1)Change of Associate Pathologist to Dr. Sarah Cherny 2) Regional Lab 24 hour Table is changed to newer updated version 3/13/2018	10/14/17 3/16/2018
5.	Area	Removed 2200 O'Farrell	3/27/2018
6.	Urine Processing table changed	Added to new table to reflect changes to 24 Hour Urine processing	4/25/2018
7.	Urine Cobalt changed.	Corrected Urine Cobalt going to QST.	5/10/2018

8.	Urine Amino Acid and Urine Arylsulfatase	Corrected both analytes going to ARUP Lab.	5/31/2018
9.	Purpose Table of Contents Precollection Urine Requirements External Documents  Approver	LabLink information added. Updated Table of Contents Removed Precollection Urine Requirements Table. Refer to KP LabLink. Moved documents to External Documents Section. Changed CLIA Director to Dr. Elizabeth Hosfield.	5/24/19

**Notification List:**

**Approvals:**

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May 24, 2019 11:45:51 AM PDT - Approved by: Vaiju Ruikar/CA/KAIPERM

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**Document History Section**