KAISER PERMANENTE®

DOCUMENT NUMBER:	SBMC-PPP-0692
DOCUMENT TITLE:	24 Hour Urine Processing Guidelines
DOCUMENT NOTES:	

LOCATION:	SBMC-rel	**VERSION:**	01
DOC TYPE:	SBMC PPP	**STATUS:**	Release

EFFECTIVE DATE:	05 May 2022	**NEXT REVIEW DATE:**	05 May 2024
RELEASE DATE:	05 May 2022	**EXPIRATION DATE:**	

AUTHOR:		**PREVIOUS NUMBER:**	
OWNER:		**CHANGE NUMBER:**	SBMC-CR-0298

24 Hour Urine Processing Guidelines

Purpose

This procedure provides instructions for preanalytical processing of 24 hour urine collections.

Scope

This procedure is intended for staff who provide patients with supplies for 24 hour urine collections and staff who perform preanalytical processing steps prior to submission to the testing laboratory.

Policy

- Volumetric measurement and/or pH measurement is performed by a licensed Clinical Laboratory Scientist (CLS) or Medical Laboratory Technician (MLT)
- Addition of preservative to urine is performed by a licensed CLS or MLT

Equipment

- Urine Specimen Containers and Transport Containers
- Transfer pipettes

Reagents

The following contains the list of reagents which may be required.

Description	Source/Vendor	Storage
6 N HCl	Quest Product Id: **U53**	Room temperature
1 N NaOH	Various	Room temperature
Boric Acid Additive	Quest Product Id: **U52**	Room temperature

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Materials and supplies

The following contains the list of materials and supplies required.

Description	Source/Vendor	Storage
24 hour Urine Bottle, no preservative (UR99)	Quest Product Id: **U30** or other vendor(s) with equivalent product	Room Temperature
24 hour Urine Bottle, with preservative (PU99)	Quest Product Id: **U33** (Boric Acid) OR **U35** (HCl) or other vendor(s) with equivalent product (See LABNET for instructions for adding preservative to UR 99)	Room Temperature
24 hour Urine Bottle-Trace Element (TU99)	Quest Product Id: **U32** or other vendor(s) with equivalent product	Room Temperature
Quest Stone Risk Urine Collection Container (QS99)	Quest Product Id: **U24** Contains sponge, aliquot containers, and transport box	Room Temperature
24 Hour Aliquot/Transport (GWH3)	Greiner or other vendor(s) with equivalent product	Room Temperature
ARUP Standard Transport Tubes (20 mg Sulfamic Acid)	ARUP supply #4809 or other vendor(s) with equivalent product	Room Temperature
Quest Urine Acid Washed Tube (Trace Element)	Quest Product Id: **ST08** or other vendor(s) with equivalent product	Room Temperature
Light protected aliquot container (PU30)	Quest Product Id: **ST04** or other vendor(s) with equivalent product	Room Temperature
pH paper	Various vendors	
Patient Instructions	Kaiser Permanente (SCAL SCPMG)	LABNET/Regional Document Management System (Master Control)

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Safety

Refer to the safety manual for general safety requirements.

Definitions

The following definitions are provided for this procedure.

Term	Definition
Preservative	Chemical (various acids, sodium carbonate etc.) added to the 24 hour urine collection container (pre-collection) or to the urine specimen (post collection) to prevent/retard any changes to the specimen which may interfere with testing.

Before you begin

- All 24 hour urine collections require total volume determination.
- All 24 hour urine collections require total volume to be documented in computer information system(s).
- Aliquots of 24 hour urine collections must have total volume documented on the label affixed to the container submitted for testing.
- Assess all orders placed on the 24 hour urine specimen, as multiple tests may be ordered on the same collection.
- When 2 containers are submitted, best practice is to alert processing staff using local protocols (stickers on containers, tracking form).

Procedure

Follow the steps below to determine the proper collection container and patient collection instructions to hand out to the patient when they present with a 24 hour urine collection order.

Step	Action
1	**DETERMINATION of 24 HOUR COLLECTION CONTAINER** Staff should verify on LABNET the proper collection container to hand out to patient. 24 hour Urine Bottle, no preservative (UR99) 24 hour Urine Bottle, with preservative (PU99) 24 hour Urine Bottle-Trace Element (TU99) Quest Stone Risk Urine Collection Container (with sponge) (QS99) • Do NOT give patient white stone risk aliquot containers Refer to Attachment A if LABNET not available

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Procedure, continued

Step	Action
2	**LABEL COLLECTION CONTAINER(S)** Staff will label collection container(s) with patient label (Health Connect preferably) with at least two patient identifiers. • It is acceptable to provide patient with 2 collection containers when the patient requests a second container ▪ If 2 collection containers have been given to patient, document per local protocol (Health Connect appointment notes, manual log) • If 2 containers were provided, instruct patient to return both (even if no collection in 2nd container)
3	**DISTRIBUTE PATIENT INSTRUCTIONS and COLLECTION CONTAINER(S)** Staff will give patient labeled container(s) with patient collection instructions. Per local protocol, document container provided to patient.

If container provided is…	Then provide the following printed patient instructions…
UR99/TU99	24 Hour Urine Collection NO Acid
PU99	24 Hour Urine Collection with Acid
QS99	24 Hour Urine Collection for StoneRisk® Diagnostic Profile

If test ordered is one of the following…	Then ...
• 5-hydroxyindoleacetic acid • Arsenic • Histamine • Mercury • Oxalic Acid • VMA (Vanillylmandelic Acid)	Direct patient to review the additional patient preparation instructions for the test.

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Procedure, continued

Step	Action
4	**INSTRUCT PATIENT VERBALLY** Staff will verbally instruct patient to return container within the specified time of final collection.

If container provided is…	Then instruct patient to return specimen …
UR99/PU99 /TU99	Within 3 hours of final collection
QS99 (Quest Stone Risk)	within 4 hours of final collection

Step	Action
5	**RECEIVE AS COLLECTED** Update patient order(s) to collected and receive specimen in applicable computer systems (Health Connect, KRMS, Cerner etc.) following current procedures.
6	**MANUAL DOCUMENTATION OF RECEIPT** Per local protocol, manually log in specimen or begin the use of a tracking form. • If 2 containers are submitted, stickers may be adhered per local protocol to alert staff of extra container.
7	**TOTAL VOLUME DETERMINATION** All 24 hour urine collections require total volume determination.

If volume determination to be performed at…	**Then…**
Same location in which specimen was received	Place in designated area.
Another location (e.g. Medical Center)	Prepare specimen for transport.

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Procedure, continued

Step	Action
8	**DOCUMENTATION OF TOTAL VOLUME** Once specimen is received by CLS/MLT volume determination is performed and documented. • CLS/MLT will measure volume (document per local protocol on manual log) • Enter total volume in appropriate information systems (KRMS, Cerner etc.) following current procedures
9	**REVIEW FOR ADDITIONAL URINE TESTS ORDERED** CLS/MLT and/or Laboratory Assistant will review tests ordered on urine specimen

If…	Then…
Additional tests are ordered for urine specimen	Aliquot for additional tests as required
No additional tests are ordered for urine specimen	Proceed to next step.

10	**ADDITIONAL PROCESSING FOR 24 HR URINE TEST** CLS/MLT will determine if acidification, addition of NaOH or any other special processing is required for the test ordered. • Follow processing instructions in LABNET – Refer to Attachment A if LABNET not available
11	**ALIQUOT FOR 24 HOUR URINE TEST** CLS/MLT or Lab Assistant proceeds to aliquot specimen to appropriate labeled transport container. • Refer to LABNET for transport container specifications – Refer to Attachment A if LABNET is not available • Write total volume on container label. • Per local protocol, aliquot a retention specimen
12	Process specimen for transport to testing laboratory.

Continued on next page

24 Hour Urine Processing Guidelines, Continued

Controlled Documents

The following controlled documents support this procedure.

Attachment A: 24 Hour Urine Specimen Guidelines
24 Hour Urine Collection NO Acid
24 Hour Urine Collection with Acid
24 Hour Urine Collection for StoneRisk® Diagnostic Profile
Job Aid_Transfer a 24-Hour Urine Specimen

Non-Controlled Documents

The following non-controlled documents support this policy.

College of American Pathologists Laboratory General and All Common checklists
California Code, Business and Professions Code - BPC § 1269

Authors

- PreAnalytic Processing Working Group

Attachment A: 24 Hour Urine Specimen Guidelines

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
17 KETOSTEROIDS, TOTAL, W CREATININE, 24 HR URINE	UR99 (TU99)	Transfer two 4 mL aliquots from a well-mixed 24-hour urine collection into 2 ARUP Standard Transport Tubes containing 20 mg Sulfamic Acid	ARUP Standard Transport Tubes	5 mL	Refrigerated
5-HYDROXYINDOLEACETIC ACID [5-HIAA], 24 HR URINE	UR99	Submit with pH ≤6	UR25	10mL	Ambient
ALDOSTERONE, 24 HR URINE	UR99		UR25	5 mL	Refrigerated
ALUMINUM 24 HR	TU99		Quest Acid Washed	7 mL	Refrigerated
ARSENIC, 24 HR URINE	TU99		Quest Acid Washed	7 mL	Refrigerated
C-PEPTIDE, 24-HOUR URINE	UR99		UR25 or ARUP Standard Transport Tubes	2 mL	Frozen
CADMIUM, 24-HOUR URINE	TU99		Quest Acid Washed	7 mL	Refrigerated

Continued on next page

Attachment A: 24 Hour Urine Specimen Guidelines, Continued

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
CALCIUM, 24 HR URINE	UR99	Acidify to pH <2.0 with 6N HCl Mix vigorously for 5 minutes after adding preservative (HCl) Record total volume	GWH3	1.5 mL	Refrigerated
CHROMIUM, 24 HR URINE	TU99		Quest Acid Washed	7 mL	Refrigerated
CITRIC ACID, 24-HOUR URINE WITH CREATININE	UR99		UR25	10 mL	Frozen
CITRIC ACID, 24-HOUR URINE WITHOUT CREATININE	UR99		UR25	10 mL	Refrigerated
COBALT, 24-HOUR URINE	TU99		Quest Acid Washed	3 mL	Refrigerated
COLLAGEN CROSSLINKED N-TELOPEPTIDE, 24 HOUR URINE	UR99		UR25	2 mL	Refrigerated
COPPER, 24-HOUR URINE	TU99		Quest Acid Washed	7 mL	Ambient
CORTISOL, FREE, 24H URINE	UR99		GWH3	1.5 mL	Refrigerated

Continued on next page

Attachment A: 24 Hour Urine Specimen Guidelines, Continued

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
CORTISONE, 24-HOUR URINE	UR99		UR25	2 mL	Refrigerated
CREATININE, 24 HOUR URINE	UR99		GWH3	1.5 mL	Refrigerated
CYSTINE 24 HOUR URINE	UR99		UR25	5 mL	Frozen
DELTA AMINOLEVULINIC ACID 24HR URINE	UR99	Protect from light	PU30	2 mL	Refrigerated
DOPAMINE URINE, LC	UR99	After 24 hour urine collection, add 15 g of boric acid or 25 mL of 6N HCl to maintain a pH below 3	UR25	10 mL	Ambient
ELECTROLYTE PANEL [NA, K, CL], 24 HR URINE	UR99		UR10	10 mL	Refrigerated
HISTAMINE, 24-HOUR URINE	UR99	To avoid contamination, do not pour into a secondary container to measure total volume.	UR25	4 mL	Refrigerated
IMMUNOFIXATION, 24 HR URINE W REFLEX TO PROTEIN ELECTROPHORESIS	UR99		UR25	25 mL	Refrigerated

Continued on next page

Attachment A: 24 Hour Urine Specimen Guidelines, Continued

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
IRON, URINE	UR99		UR25	10 mL	Refrigerated
MAGNESIUM, 24 HOUR URINE	TU99	1.5 mL aliquot from a well-mixed 24 hour urine. Add 1 drop of 6N HCl to the aliquot and mix well again	GWH3	1.5 mL	Refrigerated
MERCURY, 24 HR URINE	TU99		Quest Acid Washed	7 mL	Refrigerated
METANEPHRINES, 24-HOUR URINE	UR99	Add 25 mL of 6N HCl to maintain a pH <3. Urine without preservative (not adjusted with 6N HCl) is acceptable if pH is below 6 and the sample is shipped frozen.			Ambient (pH<3) Frozen (no preservative pH<6)
MICROALBUMIN, 24 HR URINE	UR99		GWH3	1.5 mL	Refrigerated
N-METHYLHISTAMINE, W/CREATININE, 24 HR URINE, LC/MS/MS	UR99		UR25	5 mL	Refrigerated
OXALIC ACID, 24 HOUR URINE [WITHOUT CREATININE]	PU99		UR25	10 mL	Refrigerated

Continued on next page

Attachment A: 24 Hour Urine Specimen Guidelines, Continued

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
PHOSPHORUS, 24H URINE	UR99		GWH3	1.5 mL	Refrigerated
PORPHOBILINOGEN, QUANTITATIVE 24 HR URINE	UR99	Protect from light	PU30	10 mL	Refrigerated
PORPHYRINS, FRACTIONATED, QUANTITATIVE 24-HOUR URINE	UR99	Protect from light	PU30	2 mL	Refrigerated
STONERISK DIAGNOSTIC PROFILE	QS99 (Quest Stone Risk Collection Container)	•Carefully fill the two plastic white vials [one at a time and cap] with urine collected in the large orange container. •The two white vials must be filled within two to four hours of completion of the 24 hour collection	Quest Stone Risk Aliquot Containers (2 white vials)	30 mL	Ambient
THALLIUM, 24 HR URINE	TU99	Aliquot in Quest Urine Acid Washed Tube with Red Lid	Quest Acid Washed	7 mL	Refrigerated
TOTAL PROTEIN, 24 HR URINE	UR99 (TU99)		UR25	1.5 mL	Refrigerated

Continued on next page

Attachment A: 24 Hour Urine Specimen Guidelines, Continued

This reference guide is to be consulted in the event that LABNET is not available

Test	Collection Container	Processing Instructions	Aliquot/ Transport Container	Volume	Shipping Condition
UREA NITROGEN, 24 HR URINE	UR99		UR25	1.5 mL	Refrigerated
Test	**Collection Container**	**Processing Instructions**	**Aliquot/ Transport Container**	**Volume**	**Shipping Condition**
UREA NITROGEN RENAL CLEARANCE	UR99	1 mL serum AND 1.5 mL aliquot of a well-mixed 24hour urine specimen NOTE: Serum collection to occur within 24 hours of urine collection	GWH3	1.5 mL	Refrigerated
URIC ACID, 24 HR URINE	PU99		GWH3	1.5 mL	Refrigerated
VMA [VANILLYLMANDELIC ACID, 24 HR URINE]	UR99	pH may be adjusted to <3 (ship ambient) Urine without preservative (not adjusted with 6N HCl) is acceptable if pH is below 6 and the sample is shipped frozen.	UR25	10 mL	Ambient (pH<3) Frozen (no preservative pH <6)

Signature Manifest

Document Number: SBMC-PPP-0692 **Revision:** 01
Title: 24 Hour Urine Processing Guidelines
Effective Date: 05 May 2022

All dates and times are in Pacific Standard Time.

Preanalytic Regional documents

Initial Approval

Name/Signature	Title	Date	Meaning/Reason
Jay Raymund Castaneto (K258559)	Assistant Director Operations Area Lab	12 Apr 2022, 11:02:37 AM	Approved

Operations Director Approval

Name/Signature	Title	Date	Meaning/Reason
Janice Wolf (K119893)	Director Operations Area Lab	14 Apr 2022, 01:52:28 PM	Approved

Medical Director Approval

Name/Signature	Title	Date	Meaning/Reason
Sony Wirio (A478893)	Pathologist, Medical Director	18 Apr 2022, 08:30:28 PM	Approved