

## Appendix D

# Chemistry

## Specimen Collection & Processing

### I: 24-Hour Urine Collection

#### General Information:

1. Proper collection technique includes voiding first specimen of the morning; discard this urine sample. Have the patient record this time as the START TIME. This will be the patient's FINISH TIME at the end of the 24-hour (timed) collection period. The patient must place all subsequent urine collections for a 24-hour period in the proper collection container. This includes the first morning specimen on the following morning. The patient should completely empty their bladder as close to the FINISH TIME as possible and add this urine to the container. If required, the container can be kept cool in a refrigerator, cooler with ice or basin with ice during collection. The patient should then transport the specimen to the lab as soon as possible.
2. The total volume must be recorded on the request ticket if complete specimen is not submitted. The contents of the container should be thoroughly mixed prior to aliquoting. If two or more containers with the same preservative are collected, the contents of all containers should be combined and thoroughly mixed prior to aliquoting.
3. Collection containers may contain strong acid as a preservative - handle with care !

Appendix D: Chemistry continued

The following listing is of tests that can be performed on 24-hour urine specimens. The first preservative listed after the test name is the preservative of choice, followed by other acceptable preservatives. All unlisted preservatives are not satisfactory for that test.

IN HOUSE

Test	Final pH	Adjust pH with	24 Hour (Timed) Preferred Preservative	Preferred Aliquot Volume for lab	Perferred Storage Temperature	Notes	Acceptable Preservative
<u>In-House Urine Testing</u>							
Beta 2 Microglobulin			No Preservative	1mL	Refrigerated	*1E	
Drug Screen - Medical	5-8	*1A	No Preservative	20 mls	Refrigerated		
Electrophoresis			No Preservative	50 mls	Refrigerated		
HCG - Qualitative			No Preservative	1ml	Refrigerated		
Immunofixation			No Preservative	50 mls	Refrigerated		
Microalbumin			No Preservative	1 ml	Refrigerated		
Osmolality			No Preservative	1 ml	Refrigerated		
<u>Urine Chemistries</u>							
Amylase	7	*1B	No Preservative	1 ml	Ambient		
Calcium	<3	6N HCL	(10-20 mis) 6 N HCL	1 ml	Refrigerated		
Chloride			No Preservative	1 ml	Refrigerated		
Creatinine			No Preservative	1 ml	Refrigerated		HCL, Acetic Acid and Boric Acid Acceptable
Glucose			No Preservative	1 ml	Refrigerated		
Phos	<3	6N HCL	(10-20 mis) 6 N HCL	1 ml	Refrigerated		
K			No Preservative	1 ml	Refrigerated		
Mg	<3	6N HCL	(10-20 mis) 6 N HCL	1 ml	Refrigerated		
Na			No Preservative	1 ml	Refrigerated		
T Protein			No Preservative	1 ml	Refrigerated		
Urea			No Preservative	1 ml	Refrigerated		
Uric Acid	8-9		(10 mls) 5% NaOH	1 ml	Refrigerated	*1D	

\*1A pH between 5-8 adjust with 1N HCL or 1N NaOH (Do NOT use Boric Acid)

\*1B pH urine to 7.0 with 1N HCL or 1N NaOH after collection then refrigerate

\*1D 5%NaOH (5 gm NaOH/100 mL distilled water)

\*1E If testing not performed within 24 hours, adjust pH between 5.5-7.5 with 0.5N NaOH or ammonium hydroxide and FREEZE sample.

Random urines should also be adjusted to the correct pH with appropriate preservative if (pH) listed.

## REFERRAL

## Urine Preservatives

Test	Final pH	Adjust pH with	24 Hour (Timed) Preferred Preservative	Preferred Aliquot Volume	Perferred Storage Temperature	Notes	Acceptable Preservative
<b>Referral Mailout 24 Hour Urines</b>							
5HIAA	2-4		(25 mL) 50% Acetic	5 mL	Refrigerated	*8	6N HCL, NA2CO3, Toluene, 6N HNO3, Boric Acid, Thymol
17 Ketosteroids Frac	2-4		(25 mL) 50% Acetic	11 mL	Refrigerated		6N HCL, NA2CO3, Toluene, 6N HNO3, Boric Acid, Thymol
ALA	2-4		(25 mL) 50% Acetic	10 mL	Ambient	*8,*2	6N HCL
Aldosterone			1 gram boric/100 mL urine	5 mL	Frozen		6N HCL, 50%Acetic Acid
Arsenic			None	10 mL	Refrigerated	*6	6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
Catecholamines	2-4		(25 mL) 50% Acetic	10 mL	Refrigerated	*1,*7,*8,*12	6N HCL, 6N HNO3, Boric Acid, Thymol
Chromium			No Preservative	10 mL	Refrigerated		
Citrate			10 gm Boric Acid	5 mL	Refrigerated	*10	6N HCL, Acetic, Toluene, 6N HNO3, Thymol
Copper			No Preservative	10 mL	Refrigerated		6N HCL
Cotisol			(10 g) Boric	10 mL	Refrigerated		50%Acetic Acid, Na2CO3, Toluene, Thymol
Cystine			(20 mL) Toluene	5 mL	Frozen	*5	
Heavy Metals			No Preservative	10 mL	Refrigerated	*6	6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
Histamine	2-4		(25 mL) 50% Acetic	1 mL	Refrigerated	*8	6N HCL, Na2CO3, Toluene, 6N HNO3, Boric Acid
HVA	2-4		(25 mL) 50% Acetic	10 mL	Refrigerated	*4,*8	6N HCL (pH 2-4)
Iron			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3, Boric Acid
Lead			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
Lysozyme			No Preservative	12 mL	Frozen		NONE
Magnesium			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
Mercury			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
Metanephrine	<7		(25 mL) 50% Acetic	10 mL	Refrigerated	*8,*12	6N HCL, NA2CO3, Toluene, 6N HNO3, Boric Acid, Thymol
Oxalate	2.5-3.0		(30 mL) 6N HCL	5 mL	Refrigerated	*3	50%Acetic Acid, Toluene, 6N HNO3, Boric Acid, Thymol
Porphyriins	>7		(5 g) Na2CO3	30 mL	Frozen	*2,*9,*12	
Uroirisk			Special 24 hr collection jug provided by Specialty			*11	
Thallium			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3
VMA	1-5		(25 mL) 50% Acetic	5 mL	Refrigerated	*8	6N HCL, 6N HNO3
Zinc			No Preservative	10 mL	Refrigerated		6N HCL, 50%Acetic Acid, Toluene, 6N HNO3, Thymol

\*1: This assay is of greatest value when the specimen is collected during a hypertensive episode.

\*2: Protect from light

\*3: Avoid taking large doses of Vitamin C during collection, Add preservative (30 mL 6N HCL) at end of collection.

\*4: Discontinue Levodopa 24 hrs prior to & during collection

\*5: Collect before IVP

\*6: Patient should not eat seafood for 48 hrs prior to collection

\*7: Discontinue epinephrine, norepinephrine or dopamine injections 12 hrs before collection and discontinue drugs that release or hinder metabolism of epinephrine, norepinephrine or dopamine 1 week prior to collecting specimen.

\*8: Add 15 mL Acetic Acid for children less than 5

\*9: Abstain from alcohol for 24 hrs prior to and during collection. Include list of current medications patient is taking.

\*10: Any drug that causes alkalemia or acidemia may be expected to alter citrate excretion and should be avoided, if possible.

\*11: Paperwork: aliquot containers & outer box are retained at 1D until jug is returned. Specimen must be aliquoted into provided containers before sending to Ref Lab with paperwork.

\*12: Preservative must be added to container before collection.

\*\*\*\*\* Preservative added after end of collection must be added within 4 hrs of completion unless otherwise noted.

\*\*\*\*\* All urines should be sent in a plastic aliquot container with no metal lid or glued insert.