CKiD Chronic Kidney Disease in Children Cohort Study SECTION A: GENERAL INFORMATION

A1. PARTICIPANT ID: AFFIX ID LABEL OR ENTER NUMBER IF ID LABEL IS NOT AVAILABLE

| | | - - |
|-----|---|---|
| A2. | CKiD VISIT #: | |
| A3. | FORM VERSION: | <u>0</u> <u>9</u> / <u>0</u> <u>1</u> / <u>0</u> <u>9</u> |
| A4. | SPECIMEN COLLECTION DATE: | $\frac{1}{M} \frac{1}{M} \frac{1}{D} \frac{1}{D} \frac{1}{Y} \frac{1}{Y} \frac{1}{Y} \frac{1}{Y} \frac{1}{Y}$ |
| A5. | FORM COMPLETED BY (INITIALS): | |
| A6. | Is this study visit an irregular (accelerated) visit? | Yes 1 No 2 |

The following samples should be collected.

| Samples: | Shipped to | <u>Shipped:</u> |
|---------------|------------|---|
| Serum | CBL | IMMEDIATELY |
| Serum | CBL | Batched (Ship in Jan, Apr, Jul or Oct) |
| Whole Blood | CBL | IMMEDIATELY |
| Iohexol Blood | CBL | IMMEDIATELY |
| Urine | CBL | IMMEDIATELY |
| | | |

If consent is obtained for biological sample, collect the following: Shipped to: Samples: Shipped: Serum (Biological) NIDDK Biosample Repository Batched (Ship in Jan, Apr, Jul or Oct) Plasma (Biological) NIDDK Biosample Repository Batched (Ship in Jul, Apr, Jul or Nov) Urine (Biological) **NIDDK Biosample Repository** Batched (Ship in Jul, Apr, Jul or Nov) **Toenail Clippings NIDDK Biosample Repository IMMEDIATELY** (Biological)



| B1. | ls p | participant a female of child-bearing | g potential? | | | |
|-----|----------|--|--|--|--|--|
| | | S | i , | | | |
| | INO | | 2 (Skip to B3) | | | |
| - | | | PARTICIPANTS OF CHILD-BEARING POTENTIAL ONLY. ALL WITHIN 72 HOURS BEFORE GFR TESTING DATE. | | | |
| | | | | | | |
| B2. | a. | Urine pregnancy test date: | $-\underline{m} - \underline{m}' - \underline{m} - \underline{m}' - \underline{m} - \underline{m}' - \underline{m} - m$ | | | |
| B2. | a. b. | Urine pregnancy test date: Urine pregnancy results: | $-\underline{M} - \underline{M} -$ | | | |
| B2. | | | | | | |

FIRST MORNING URINE COLLECTION

Obtain urine collected at home in the specimen container that was shipped to the family before the visit. IF URINE WAS NOT collected at home, collect FRESH urine into a specimen container provided by central biochemistry laboratory (containers were shipped in batches to each site).

Pour 10 to 14.5 mL of urine into light blue top urine collection tube and 5 to 14.5 mL into a second light blue top urine collection tube (provided by CBL).

Check that all information is correct on the urine collection tube and follow packaging instructions and ship to CBL.

Reasons Code List :

1= Not required 2 = Difficult Urine Collection

4 = Collection Contamination

3 = Participant Refused

6 = Oversight

5 = Inadvertently Destroyed

| Sample Type (Required Volume in Top Color Tube | | (a) Sample Obtained: | | (b) If No, specify reason *SEE CODE LIST ABOVE | (c) Additional Requirements: | |
|---|---|-------------------------|-----------|--|---|--|
| | Type): | Yes | <u>No</u> | SEE CODE LIST ABOVE | | |
| B3. | Urine Creatinine, Urine Protein, Urine Albumin (10.0 mL–14.5 mL in Light Blue Top tube) | 1 (skip to c→) | 2 | (skip to B4) | i. Is this a first morning urine sample? Yes1 No2 ii. Time of Collection: : 1 = am, 2 = pm | |
| B4. | Urine (Heavy Metals) (5.0-14.5 mL in Light Blue Top tube) | 1 (skip to C1) | 2 | (skip to C1) | NA | |

Encourage fluids throughout the visit.

Place two IV lines (18-22 gauge polyethylene catheters); using two separate vascular access sites --OR---Place one butterfly and one IV line (18-22 gauge polyethylene catheter); using two separate vascular accesssites; use tape to stabilize butterfly for Iohexol infusion

Complete Pre-Iohexol Infusion blood draw according to MOP instructions/flowchart on page 4. NOTE: If patient has had a local CBC drawn within the past 30 days, those CBC results may be used instead of drawing another CBC and blood draw amounts on pre-iohexol infusion blood draw can be decreased by 1 ml.

SECTION C: PRE-IOHEXOL INFUSION BLOOD DRAW

For Initial Blood Draw with <u>Syringe</u>, <u>Vacutainer</u> OR <u>Butterfly</u> Method: Select the Type of Consent Obtained (options 1 through 2) That Pertain to the CKiD Participant:

1 If participant consented to BIOLOGICAL samples:

Collect 20.5-23.0 mL if participant is < 30 kg OR 24.5-27.0 mL if participant is $\ge 30 \text{ kg}$.

If < 30 kg, immediately transfer (using 18 gauge needle) or draw:

- 12.5 mL into (2) Tiger-Top SSTs for CBL & NIDDK BR
- 3 mL into (1) PST for NIDDK Biosample Repository
- 1 mL into Tan-Top tube for heavy metal
- 1 mL in lavender-top tube for local CBC (*tube not provided in CBL kit*)
- 3 mL in appropriate tube (*not provided*) for local Renal Panel
- 2.5 mL of additional blood in SST for CBL (if initial sample is GROSSLY HEMOLYZED)

If ≥ 30 kg, immediately transfer (using 18 gauge needle) or draw:

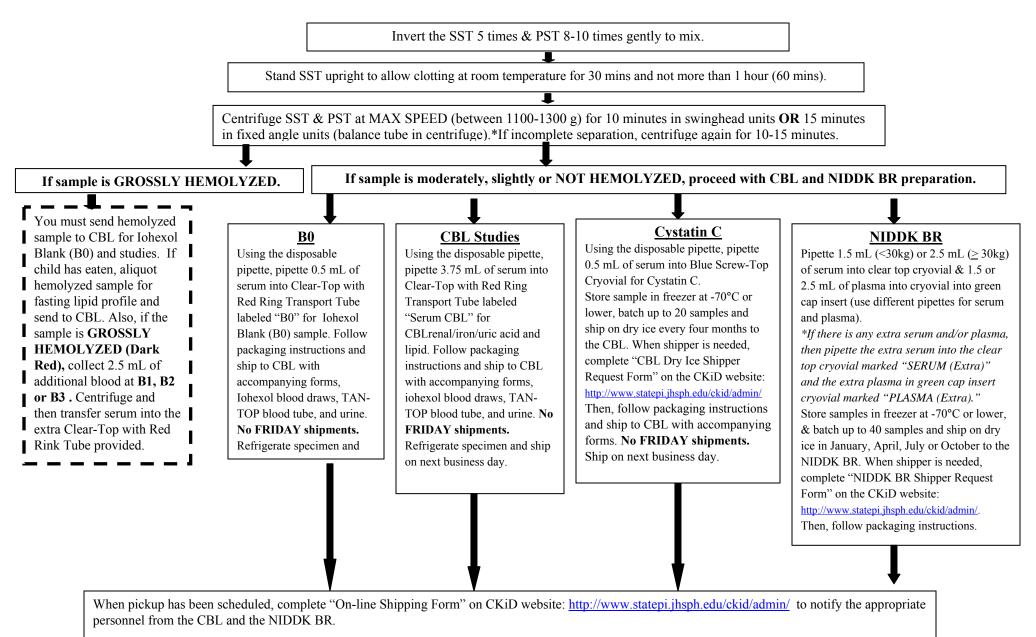
- 14.5 mL into (2) Tiger-Top SSTs for CBL & NIDDK BR
- 5 mL into (2) PST for NIDDK Biosample Repository
- 1 mL into Tan-Top tube for heavy metal
- 1 mL in lavender-top tube for local CBC (*tube not provided in CBL kit*)
- 3 mL in appropriate tube (*not provided*) for local Renal Panel
- 2.5 mL of additional blood in SST for CBL (if initial sample is GROSSLY HEMOLYZED)

2 If participant did NOT consent to BIOLOGICAL samples: Collect 14.5-17.0 mL from all participants (regardless of weight) as specified below.

Immediately transfer (using 18 gauge needle) or draw:

- 9.5 mL into (2) Tiger-Top SSTs for CBL
- 1 mL into Tan-Top tube for heavy metal
- 1 mL in lavender-top tube for local CBC (*tube not provided in CBL kit*)
- 3 mL in another tube (*not provided*) for local Renal Panel
- 2.5 mL of additional blood in SST for CBL (if initial sample is GROSSLY HEMOLYZED)

PROCESSING OF PRE-IOHEXOL INFUSION BLOOD FOR CBL & NIDDK BR



C1. ACTUAL TIME OF PRE-IOHEXOL INFUSION BLOOD DRAW

_____: ____: ____ 1 = AM 2 = PM

| PROMPT: IF SUSPECTED BLOOD DRAW ADVERSE EVENT (i.e., infection), complete ADVERSE EVENT (ADVR) Form | | | | | | | | |
|--|--|---|--|--|--|--|--|--|
| Reas | ons Code List [*] : 1= Not r | required | 3 = Participan | t Refused 5 = Inadvertently Destroyed | | | | |
| | 2 = Diffi | cult Blood Draw | 4 = Red Blood | Cell Contamination 6 = Oversight | | | | |
| Sample Type (Required Volume in Top Color Tube Type): | | (a) Sample Obtained <u>Yes</u> No | (b) If No, specify reason *SEE CODE LIST ABOVE | (c) Additional Requirements: | | | | |
| C2. | Renal/Iron/Uric Acid Chemistries (7.0 mL in Tiger Top SST) | 1 2 (skip to c→) | (skip to C3) | Indicate the appearance of the serum after centrifuging. Grossly (Dark Red) | | | | |
| C3. | Cystatin C (1.0 mL in Tiger Top SST) | 1 2 (skip to c→) | (skip to C4a) | Date Frozen: /// | | | | |
| C4a | Local CBC (1.0 mL in Lavender Top tube) | 1 2 (skip to C4b) | (skip to C4b) | N/A | | | | |
| C4b | Local Renal Panel (3.0 mL in Local SST) | 1 2 (skip to C5) | (skip to C5) | N/A | | | | |
| C5. | Serum for Fasting Lipid Panel (1.5 mL in Tiger Top SST) | 1 2 (skip to c→) | (skip to C6) | Did the child fast after midnight? Yes1 No2* | | | | |
| C6. | Whole blood for Heavy Metals (1.0 mL in Tan-Top tube) | 1 2 (skip to C7) | (skip to C7) | N/A | | | | |
| *If the child did not fast, the lipid results will be invalid and therefore will not be reported on the Nephron Lipid Report. Sites can obtain results for lab values that have been identified as "KEY VARIABLES". To obtain results, go the CKiD Nephron Website: https://statepiaps.jhsph.edu/nephron/groups/aspproc/, click on "Report Menu" and choose the appropriate lab report (i.e., Selected Renal | | | | | | | | |

Panel Lab Variables Report.)

C7. Did the participant consent to have biological samples (i.e., serum, plasma and urine samples) stored at the NIDDK Biosample Repository?

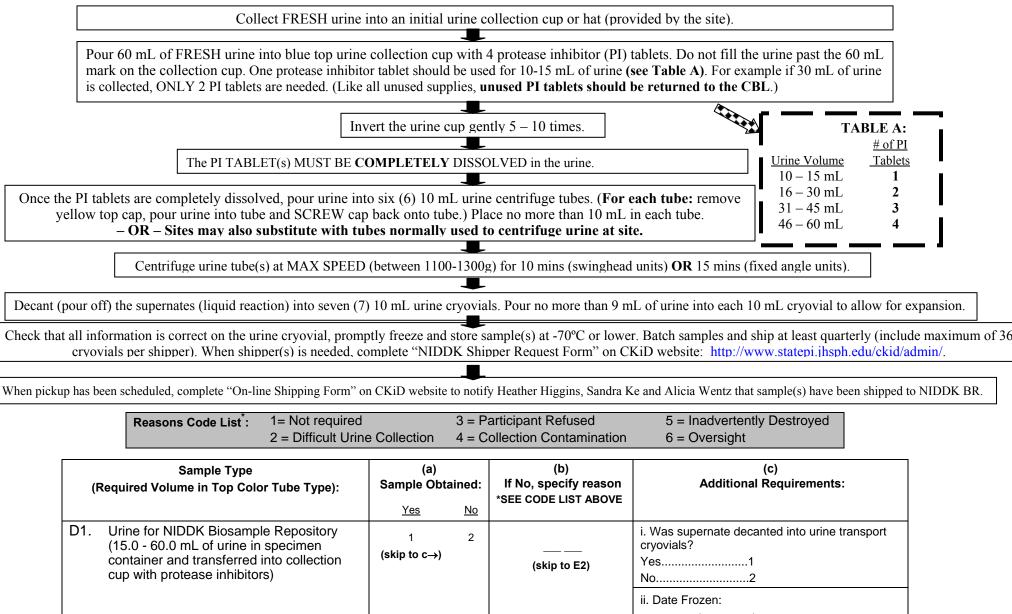
Yes..... 1

Reasons Code List :1 = Not required3 = Participant Refused5 = Inadvertently Destroyed2 = Difficult Blood Draw4 = Red Blood Cell Contamination6 = Oversight

| | Sample Type (Required Volume in Top Color Tube Type): | (a) Sample Obtained: | | (b) If No, specify reason *SEE CODE LIST ABOVE | (c) Additional Requirements: | | |
|-----|--|-------------------------|-----------|--|---------------------------------|--|--|
| | | Yes | <u>No</u> | | | | |
| C8. | Serum for NIDDK Biosample Repository (**3.0 mL or **5.0 mL of blood in Tiger Top SST) | 1 (skip to c→) | 2 | (skip to C9) | Date Frozen: / / / | | |
| C9. | Plasma for NIDDK Biosample Repository (**3.0 mL of blood in one Green Top or **5.0 mL in two Green Top PSTs) | 1 (skip to c→) | 2 | (skip to D1) | Date Frozen: /// | | |

** Collect 3.0 mL of whole blood for children < 30 kg and 5.0 mL for children \ge 30 kg

SECTION D: URINE COLLECTION AND PROCESSING FOR REPOSITORY



M M

D D Y Y Y Y

SECTION E: OPTIONAL LOCAL LAB TEST (IF CLINICALLY INDICATED)

Check with the PI at your clinical site to determine whether or not it is **CLINICALLY INDICATED** to obtain urine for local lab. These are instances when the PI needs results immediately and/or the participant needs additional local labs performed (i.e., local Urine Creatinine and Urine Protein).

E2. Was a 1st morning urine protein to creatinine ratio assay performed at the clinical site's local laboratory?

| Yes | 1 | \rightarrow Complete Local Urine Assay Results Form L06, ONLY if local labs are |
|-----|---|---|
| No | 2 | CLINICALLY INDICATED |

SECTION F: INFUSION SYRINGE WEIGHT

F1. SCALE MUST FIRST BE ZEROED BEFORE WEIGHING. REMOVE ALUMINUM FOIL PRIOR TO WEIGHING THE SYRINGE. THE <u>SAME</u> SCALE MUST BE USED TO WEIGH THE SYRINGE <u>PRE AND POST</u> IOHEXOL INFUSION.

- a. Syringe Weight Pre-Iohexol Infusion: _____(g)
- b. Syringe Weight **Post-Iohexol Infusion**: _____. (g)

(Post-Infusion Weight should be **at least 6.0g** less than Pre-Infusion Weight. If Post-Infusion Weight is not at least 6g less, please confirm.)

PRE AND POST SYRINGE WEIGHT MUST BE OBTAINED IN ORDER TO CALCULATE CHILD'S GFR.

SECTION G: IOHEXOL – Refer to Instructions for Iohexol Infusion and GFR Blood Draws Flow Chart on Page 12

- > BEFORE INFUSING 5 mL OF IOHEXOL, SET TIMER = 0. SIMULTANEOUSLY START TIMER AND BEGIN IOHEXOL INFUSION
- > COMPLETE INFUSION BETWEEN 1 TO 2 MINS
- ▶ LEAVE TIMER RUNNING THROUGHOUT IOHEXOL INFUSION AND SUBSEQUENT BLOOD DRAWS

G1. IOHEXOL INFUSION

a. INFUSION START TIME: ______ 1 = AM 2 = PM

- > DO NOT DRAW BLOOD FROM THE IV SITE WHERE IOHEXOL WAS INFUSED. ANOTHER IV SITE MUST BE USED.
- > WASTE 1 mL OF BLOOD IF DRAWING FROM A SALINE/HEPARIN LOCK.
- > COLLECT 1 mL OF BLOOD FOR EACH IOHEXOL BLOOD DRAW IN THE PROVIDED SST.
- RECORDING THE EXACT NUMBER OF MINUTES ON THE TIMER IS MORE IMPORTANT THAN DRAWING THE BLOOD EXACTLY AT 120, 240 & 300 MINUTES AFTER IOHEXOL INFUSION. FOR EXAMPLE, IF BLOOD IS DRAWN AT 133 MINS. INSTEAD OF 120 MINS, DOCUMENT BLOOD DRAWN @ 133 MINS.

> TIME SHOULD BE RECORDED IMMEDIATELY <u>AFTER</u> EACH BLOOD SAMPLE IS OBTAINED (i.e., B1, B2, and B3).

POST VITALS SHOULD BE TAKEN 10 MINUTES AFTER INFUSION USING LOCAL BLOOD PRESSURE MEASUREMENT (i.e. DINAMAP)

- If rash develops after lohexol Infusion, consider it a reaction to lohexol and notify PI immediately. Consider administration of 1 mg/kg Benadryl IV (maximum dose: 50 mg Benadryl IV).
- In the rare event that systolic BP decreases more than 25 mm Hg, diastolic BP decreases more than 20 mmHg, or pulse increases more than 20 beats per min, notify PI immediately to evaluate reaction and complete the Adverse Event (ADVR) Form. Consider the possibility of an anaphylactic reaction to lohexol. Consider administration of 1 mg/kg Benadryl IV (maximum dose: 50 mg Benadryl IV). Draw up to 0.1 mL 1:1000 Epinephrine for SQ injection and 2 mg/kg Solumedrol IV for administration as ordered by physician.

| | (i) Post Vitals: | | | | | | | |
|------|---|---------------|--|--|--|--|--|--|
| G2a. | Post- infusion blood pressure: | / | | | | | | |
| b. | Post-infusion temperature: | 1 = °C 2 = °F | | | | | | |
| C. | Post-infusion number of heart beats per minute: | | | | | | | |
| d. | Post-infusion respirations per minute: | | | | | | | |

INVERT TUBE 5-10 TIMES AFTER EACH BLOOD DRAW LET SST TUBE STAND 20-30 MINUTES (BUT NO LONGER THAN 1 HOUR) 200g (2000rpm with 40pm radius rater) for 10 MINUTES IN SWING HEAD OR 15 MINUTES IN FIXE

CENTRIFUGE AT 1100-1300g (3000rpm with 10cm radius rotor) for 10 MINUTES IN SWING HEAD OR 15 MINUTES IN FIXED ANGLE

| | ALL TIMES should be documented from the initial infusion time | (i) ACTUAL HOURS/ MINUTES on TIMER | (ii) ONLY if Timer malfunctions, record Clock Time using the same clock used for G1a | (iii) Difficult Blood Draw: Yes No | (iv) Blood Volume Collected (1 mL): | od Volume Centrifuged at Clinic ollected | |
|------|--|---|---|---|--|---|-----------------|
| G3a. | B1 2 hrs (120 min): | hr mins | : 1 = AM 2 = PM | 1 (Skip to b) 2 | mL | 1 (Skip to G4a) | 2 (Skip to G4a) |
| b. | B1 2 nd attempt: | hr mins | :: 1 = AM 2 = PM | 1 2 | mL | 1 | 2 |
| G4a. | B2 4 hrs (240 min): | hr mins | :: 1 = AM 2 = PM | 1 (Skip to b) 2 | mL | 1 (Skip to G5a) | 2 (Skip to G5a) |
| b. | B2 2 nd attempt: | hr mins | :: 1 = AM 2 = PM | 1 2 | mL | 1 | 2 |
| G5a. | B3 5 hrs (300 min): | hr mins | :: 1 = AM 2 = PM | 1 (Skip to b) 2 | mL | 1 (Skip to H1) | 2 (Skip to H1) |
| b. | B3 2 nd attempt: | hr mins | :: 1 = AM 2 = PM | 1 2 | mL | 1 | 2 |

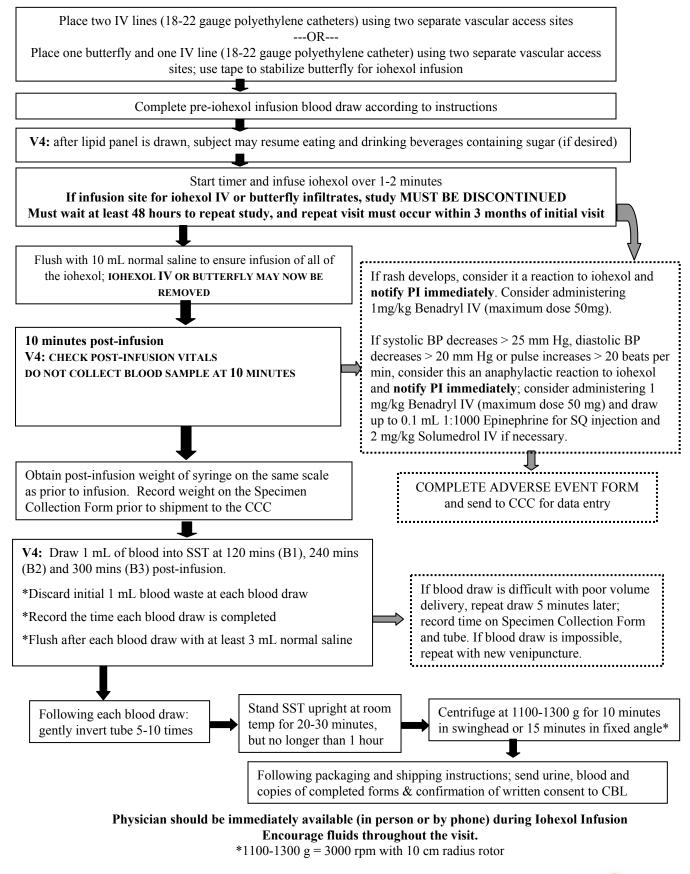
IF FAMILY CONSENTED TO THE COLLECTION OF HAIR AND NAIL SAMPLES, THEN PROCEED TO SECTION H

(SEE QUESTIONS ON PAGE 13)





Instructions for Iohexol Infusion and GFR Blood Draws





SECTION H:

TOENAIL CLIPPING COLLECTION

- At Visit 4, the collection of TOENAILS is preferred. DO NOT collect fingernail clippings. Also DO NOT collect toenails if participant has nail fungus, or discoloration causing pain or discomfort.
- STAINLESS STEEL NAIL CLIPPERS MUST BE USED TO COLLECT NAIL CLIPPINGS. Use small (pediatric size) stainless steel nail clippers (see Figure A) for younger children and large stainless steel nail clippers (see Figure B) for older children. Both sizes are included in the CKiD starter package.
- Clean the blades of the nail clippers with SaniZide Plus prior to use (provided by the CBL).
- Whenever possible, the Study Coordinator should clip all (10) toenails, removing approximately 1 millimeter from each nail (See Figure C). Be prepared to collect flyaway nails.
- > (To use nail clippers, see Figures A D). Refer to CKiD MOP Section 12 for further details.
- Carefully place the nail clippings into the cryovial (see Figure D). After using the nail clipper, spray the clipper with SaniZide Plus and wipe with clean cloth.

ALTHOUGH PICTURES DEPICT THE CLIPPING OF FINGERNAILS, AT VISIT 4 TOENAIL CLIPPINGS ARE PREFERRED.

Figure A



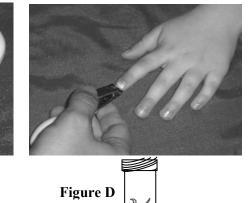


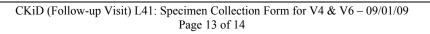
Figure B





Figure C

Provide 10 nail clippings that are at least 1 mm tall



| or discomfort) |
|----------------|
| |
| |
| |
| |
| |
| - |