# 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 #: <u>0 1 b</u>

A3. FORM VERSION: <u>1</u> <u>0</u> / <u>0</u> <u>1</u> / <u>1</u> <u>2a</u>

A4. SPECIMEN COLLECTION DATE:

M M D D Y Y Y Y

A5. FORM COMPLETED BY (INITIALS): \_\_\_ \_\_\_

The following sample should be collected.

Samples: Shipped to: Shipped:

Serum CBL BATCHED (Ship in Jan, Apr, Jul or Oct)

Plasma CBL BATCHED (Ship in Jan, Apr, Jul or Oct)

Please refer to questions 25 and 26 on the Eligibility Form to determine if genetic and/or biological consent was obtained.

Depending on the type of consent, the following samples may or may not be collected:

Samples: Shipped to: Shipped:

Whole Blood (Genetic) Rutgers Repository IMMEDIATELY

Nail Clippings (Biological) NIDDK Biosample Repository IMMEDIATELY

Hair (Biological) NIDDK Biosample Repository IMMEDIATELY

Serum (Biological) NIDDK Biosample Repository Batched (Jan, Apr, Jul or Oct)

Plasma (Biological) NIDDK Biosample Repository Batched (Jan, Apr, Jul or Oct)

Urine (Biological) NIDDK Biosample Repository Batched (Jan, Apr, Jul or Oct)

# BATCHED SAMPLES SHOULD BE SHIPPED QUARTERLY (Jan, Apr, July or Oct) OR MORE OFTEN IF DESIRED BY THE SITE COORDINATOR!

Samples should NOT be stored for more than one year. For specific questions, contact your CCC prior to shipment.



#### **SECTION B: Visit V1B BLOOD DRAW**

#### For Initial Blood Draw with Syringe, Vacutainer OR Butterfly Method:

Select the Type of Consent Obtained (options 1 through 4) That Pertains to the CKiD Participant:

For irregular visits, an additional 1.0mL of blood should be collected in the Tiger Top SST for lohexol Blank (B0) blood sample.

#### If participant consented to both BIOLOGICAL AND GENETIC samples:

Collect 16.8 mL if participant is < 30 kg OR 20.8 mL if participant is  $\ge 30 \text{ kg}$ .

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

- 7.8 mL into (3) 2.6mL ACD tubes for Rutgers Genetic Repository (ACD Tubes must be COMPLETELY FILLED)
- 5 mL into (1) Tiger-Top SST for CBL and NIDDK Biosample Repository
- 4 mL into two (2) PSTs for CBL and NIDDK Biosample Repository

If  $\geq 30$  kg, immediately transfer (using 18 gauge needle) or draw:

- 7.8 mL into (3) 2.6mL ACD tubes for Rutgers Genetic Repository (ACD Tubes must be COMPLETELY FILLED)
- 7 mL into (1) Tiger-Top SST for CBL and NIDDK Biosample Repository
- 6 mL into two (2) PSTs for CBL and NIDDK Biosample Repository

If participant consented to BIOLOGICAL samples ONLY:

Collect 9 mL if participant is < 30 kg OR 13 mL if participant is  $\ge 30 \text{ kg}$ .

If < 30 kg, immediately transfer or draw:

3

- 5 mL into (1) Tiger-Top SST for CBL and NIDDK Biosample Repository
- 4 mL into two (2) PSTs for and CBL NIDDK Biosample Repository

If  $\geq 30$  kg, immediately transfer or draw:

- 7 mL into (1) Tiger-Top SST for CBL and NIDDK Biosample Repository
- 6 mL into two (2) PSTs for CBL and NIDDK Biosample Repository

If participant consented to GENETIC samples ONLY:

Collect 10.8 mL from all participants (regardless of weight)

Immediately transfer or draw:

- 7.8 mL into (3) 2.6mL ACD tubes for Rutgers Genetic Repository (ACD Tubes must be COMPLETELY FILLED)
- 2 mL into (1) Tiger-Top SST for CBL
- 1 mL into (1) PST for CBL

## If participant did NOT consent to BIOLOGICAL AND GENETIC samples:

Collect 3 mL from all participants (regardless of weight). Immediately transfer or draw 2 mL into (1) Tiger-Top SST for CBL and 1mL into PST for CBL.

#### SECTION B: Visit 1B BLOOD DRAW PROCESSING PROCESSING BLOOD FOR CBL, NIDDK BR AND RUTGER SAMPLES **CBL & NIDDK BR (Serum) CBL & NIDDK BR (Plasma)**

Invert the Tiger Top SST 5 times gently to mix.

Stand SST upright to allow clotting at room temperature for 30 mins and not more than 1 hour (60 mins).

Centrifuge SST at MAX SPEED between 1100-1300g (3000rpm with 10cm radius rotor) for 10 mins in swinghead OR 15 mins in fixed angle. \*If incomplete separation, centrifuge again 10-15 mins.

#### NIDDK (Serum)

Pipette 1.5mL (<30kg) or 2.5mL (>30kg) serum into clear top cryovial (use different pipettes for serum and plasma). \*If there is any extra serum, then pipette the extra serum into the clear top cryovial marked "SERUM (Extra)".

Store sample(s) in freezer at -70°C or lower, batch up to 40 samples and ship during January, April, July and October. When shipper is needed, complete "NIDDK BR Shipper Request Form" on the CKiD website: http://www.statepi.jhsph.edu/ckid/admin/.

Then, follow packaging instructions.

When pickup has been scheduled, complete "On-line Shipping Form" on CKiD website to notify Heather Higgins, Sandra Ke and KIDMAC that sample(s) have been shipped to NIDDK BR.

#### iPTH/hsCRP

Pipette 0.5 mL of serum into red top cryovial tube for CBL iPTH &. hsCRP

#### Vitamin D

Pipette 0.5 mL of serum into red top cryovial for CBL Vitamin D

Pipette 0.5 mL of plasma into a cryovial with a green cap insert

Store sample in freezer at -70°C or lower and batch up to 20 samples and ship quarterly during the months of **January**, April, July and October. When shipper is needed, complete "CBL Dry Ice Shipper Request Form" on the CKiD website: http://www.statepi.jhsph.edu/ckid/admin/ Then, follow packaging instructions and ship to CBL with accompanying forms. No FRIDAY shipments. Refrigerate and ship on next business day.

> When pickup has been scheduled, complete "On-line Shipping Form" on CKiD website to notify CBL and KIDMAC that sample(s) have been shipped to CBL.

Invert each PST 8-10 times gently to mix.

Centrifuge each PST at MAX SPEED between 1100-1300g for 10 mins (swinghead) **OR** 15 mins (fixed angle).

## FGF-23

for CBL FGF-23

Pipette 1.5mL (<30kg) or 2.5mL (≥30kg) plasma into cryovial with green cap insert (use different pipettes for serum and plasma). \*If there is any extra plasma, then pipette the extra plasma into the green cap insert cryovial marked "PLASMA (Extra)".

Store sample(s) in freezer at -70°C or lower, batch up to 40 samples and ship during the months of January, April, July and October. When shipper is needed, complete "NIDDK BR Shipper Request Form" on the CKiD website: http://www.statepi.jhsph.edu/ckid/admin/. Then, follow packaging instructions.

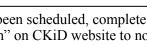
Invert each of the 3 pediatric yellow-top ACD Tubes 6 times gently to mix blood with additives.

**RUTGERS** 

Keep tubes at room temperature. DO NOT FREEZE.

> Follow packaging instructions, complete **RUCDR** Collection Form and ship immediately to **Rutgers Repository** with accompanying forms. **Specimen** can be shipped on Friday.

Complete "On-line Shipping Form" on CKiD website to notify KIDMAC that sample(s) have been shipped to Rutgers.



When pickup has been scheduled, complete "Online Shipping Form" on CKiD website to notify Heather Higgins, Sandra Ke and KIDMAC that sample(s) have been shipped to NIDDK BR.

## **SECTION B: Visit 1B BLOOD DRAW AND PROCESSING**

: 1 = AM 2 = PM

5 = Inadvertently Destroyed

3 = Participant Refused

	2 = Difficult Blood	Draw 4 = Red I	Blood Cel	I Contamination 6 = 0	versight		
(Re	Sample Type quired Volume in Top Color Tube Type):	(a) Sample Obtained: <u>Yes</u> <u>No</u>		(b) If No, specify reason *SEE CODE LIST ABOVE	(c) Additional Requirements:		
B2a.	Serum for iPTH, hsCRP & Vitamin D (2.0 mL of blood in Tiger Top SST)	1 (skip to c→)	2	(skip to B2b)	Date Frozen:  / /		
B2b.	Plasma for FGF-23 (1.0 mL of blood in PST)	1 (skip to c→)	2	(skip to B3)	Date Frozen:  / /		

B3.	Did the participant consent to have whole blood st	ored at Rutgers, the Genetic Repository?
	Yes	1
	No	2 (Skip to B5)

B1. ACTUAL TIME OF BLOOD DRAW

Reasons Code List: 1= Not required

Sample Type (Required Volume in Top Color Tube Type):	(a) Sample Obta	ined:	(b) If No, specify reason	(c) Additional Requirements:		
	<u>Yes</u>	<u>No</u>	*SEE CODE LIST ABOVE			
B4. Whole Blood for Rutgers Cell & DNA Repository (7.8 mL of blood in 3 pediatric (2.6 mL) Yellow Top ACD tubes)	1 (skip to c→)	2	(skip to B5)	i. Date of Blood Draw: //		

B5.	Did the participant consent to have biological samples (i.e., serum, plasma, urine, nail clippings and hair samples) stored at NIDDK
	Biosample Repository?

Reasons Code List<sup>\*</sup>: 1= Not required 3 = Participant Refused 5 = Inadvertently Destroyed 2 = Difficult Blood Draw 4 = Red Blood Cell Contamination 6 = Oversight

	Sample Type (Required Volume in Top Color Tube Type):	(a) Sample Obta	nined:	(b) If No, specify reason *SEE CODE LIST ABOVE	(c) Additional Requirements:		
		<u>Yes</u>	<u>No</u>	SEE CODE LIST ABOVE			
B6.	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 B7)	Date Frozen: //		
B7.	Plasma for NIDDK Biosample Repository (**3.0 mL of blood (1) Green Top or **5.0 mL (2) Green Top PSTs)	1 (skip to c→)	2	(skip to C1)	Date Frozen: / /		

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

#### SECTION C: Visit 1B URINE COLLECTION AND PROCESSING FOR REPOSITORY

Collect FRESH urine into an initial urine collection cup or hat (provided by the site).

Pour 15-60 mL (preferably 60 mL) of FRESH urine into 90 mL urine collection cup with 4 protease inhibitor tablets. Do not fill the urine past the 60 mL mark on the collection cup. One protease inhibitor tablet should be used for 10-15 mL of urine (see Table A). For example if 30 mL of urine is collected, ONLY 2 PI tablets are needed. (Like all unused supplies, unused protease inhibitor tablets should be returned to the CBL.)

TABLE A:
# of Protease
Urine Volume Inhibitor Tablets

10 - 15 mL
16 - 30 mL
2
31 - 45 mL
3
46 - 60 mL
4

Invert the urine cup gently 5 - 10 times.

The PROTEASE INHIBITOR TABLET(s) MUST BE COMPLETELY DISSOLVED in the urine.

Once the protease inhibitor tablets are completely dissolved, pour urine into up to six (6) 10 mL urine centrifuge tubes. (**For each tube:** remove yellow top cap, pour urine into tube and SCREW cap back onto tube.) Place no more than 10 mL in each tube.

OR –
 Sites may also substitute with tubes normally used to centrifuge urine at site.

Centrifuge urine tube(s) at MAX SPEED between 1100-1300g (3000rpm with 10cm radius rotor) for 10 mins (swinghead units) – **OR** – 15 mins (fixed angle units).

Decant (pour off) the supernates (liquid reaction) into up to seven (7) 10 mL urine cryovials. Pour no more than 9 mL of urine into each 10 mL cryovial to allow for expansion.

Check that all information is correct on the urine cryovials, promptly freeze and store sample(s) at -70°C or lower. Batch and ship at least quarterly (include maximum of 36 cryovials per shipper). When shipper(s) is needed, complete "NIDDK Shipper Request Form" on CKiD website: <a href="http://www.statepi.jhsph.edu/ckid/admin/">http://www.statepi.jhsph.edu/ckid/admin/</a>. Then, follow packaging instructions.

When pickup has been scheduled, complete "Online Shipping Form" on CKiD website to notify Heather Higgins, Sandra Ke and KIDMAC that sample(s) have been shipped to NIDDK BR.

Reasons Code List\*: 1= Not required 2 = Difficult Urine 3 = Participant 4 = Collection 5 = Inadvertently 6 = Oversight

Collection Refused Contamination Destroyed

	Sample Type (Required Volume in Top Color Tube Type):	(a) Sam Obtaiı <u>Yes</u>	ple	(b) If No, specify reason *SEE CODE LIST ABOVE	(c) Additional Requirements:
C1.	Urine for NIDDK Biosample Repository (15.0 - 60.0 mL of urine in specimen container and transferred into collection cup with protease inhibitors)	1 (skip to c→)	2	 (skip to D1)	i. Was supernate decanted into urine transport cryovials? Yes1 No2 ii. Date Frozen: / /

#### SECTION D: NAIL CLIPPING COLLECTION

- Collection of fingernails is preferred. DO NOT collect fingernail clippings if the participant has acrylic nails, nail fungus, or discoloration
  causing pain or discomfort. If the participant cannot provide fingernail clippings, the Study Coordinator may clip the participant's toenails
  instead. FINGERNAILS AND TOENAILS SHOULD NOT BE COLLECTED IN THE SAME CRYOVIAL (collect one or the other).
- 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) fingernails, 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 clean with clean cloth.

Figure A





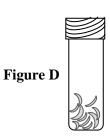


Figure B





Figure C



Provide 10 nail clippings that are at least 1 mm tall

D1.	Do	es the participant have acrylic nails?	
		Yes	1 (Skip to D3)
		No	2
D2.	We	ere 10 fingernail clippings collected?	
		Yes	1 (Skip to E1)
		No	2
	a.	How many fingernail clippings were collected?	
	b.	————— Specify reason "10" fingernail clippings were not collected	ed.
		Nails not long enough	1 (Skip to D3)
		Participant Refused	-7 (Skip to D3)
		Other	2
		i. Specify:	
D3.	We	ere 10 toenail clippings collected?	
		Yes	1 (Skip to E1)
		No	2
	a.	How many toenail clippings were collected?	
	b.	Specify reason "10" toenail clippings were not collected:	(e.g., Nail fungus or discoloration causing pain or discomfort)
		Nail fungus or discoloration	1 (Skip to E1)
		Nails not long enough	2 (Skip to E1)
		Participant Refused	-7 (Skip to E1)
		Other	
		i. Specify:	

#### SECTION E: HAIR SAMPLE COLLECTION

- STAINLESS STEEL SCISSORS MUST BE USED TO COLLECT HAIR SAMPLE. The scissors are included in the CKiD starter package.
- DO NOT collect hair sample if the participant has colored, or chemically altered hair
- Clean blades of stainless steel scissors with SaniZide Plus prior to use.
- Use powder-free gloves.
- Refer to CKiD MOP Section 12 for further details.
  - Lift up the top layer of hair from the occipital region of the scalp (see Figure A). Isolate a small thatch of hair (at least 20 fibers) from this region (see Figure B).
  - > Place the label with the participant's KID ID # tightly around all 20 strands of hair located at the distal end (furthest from the scalp) (see Figure C).
  - Cut the hair sample off the participant's head as close to the scalp as possible (see Figure D).
  - > Place cut thatch of hair inside aluminum foil (4 X 4) and fold the top of the foil to completely enclose the hair sample.
  - Place the aluminum foil inside a Ziplock bag (4 X 4) with the gel desiccant pellets in it and seal.
  - > Store sample at room temperature in a dark place prior to shipment.
  - After using the scissors, spray scissors with SaniZide Plus and wipe clean with clean cloth.

Figure A

**Occipital Region of Scalp** 

Figure B



Figure C



Place the KID ID label tightly around all 20 strands.

Figure D



Cut the hair sample off the participant's head as close to the scalp as possible.

E1. Do	es th	ne participant have permed, dyed, c	olored, or chemically alte	ered hair?
	Ye	es		1 (Skip to E3)
	No	0		2
2. Wa	as the	e Study Coordinator able to cut at le	east 20 fibers of hair from	n the <b>occipital</b> region?
	Ye	es		1 (Skip to E3)
	No	O		2
a	ı. S	pecify reason "20" hair fibers were r	not collected:	
	Н	air not long enough		1 (Skip to E3)
	P	articipant Refused		-7 (Skip to E3)
	0	ther		2
		i. Specify:		
	_			
			VISIT TYPE	
E3.		his an irregular (accelerated) study		
		S	1 $2 \rightarrow (END Form)$	
	. 10		2 / (2:13 · 3:)	
	PR	REGNANCY TEST AND FIRST I	MORNING URINE CO	LLECTION
E4.	-	participant a female of child-bearing	•	
		S	•	v)
	INO		2 (Skip to F1)	
PRO	MPT	: QUESTION E5 IS FOR FEMALE	PARTICIPANTS OF CH	IILD-BEARING POTENTIAL ONLY.
URIN	IE PI	REGNANCY TEST DATE MUST FA	ALL WITHIN 72 HOURS	BEFORE GFR TESTING DATE.
E5.	a.	Urine pregnancy test date:	- $M$ $M$ $D$ $D$ $Y$	<del></del>
	h	Urine pregnancy results:	M M D D Y	Y Y Y
	IJ.	Positive	1 (END; COMPLETE T	RANSITIONAL FORM)
		Negative	2	
		Negative	2	

## ONLY COMPLETE SECTIONS F & G IF THIS IS AN IRREGULAR STUDY VISIT.

For an irregular study visit, additional blood (including blood for the lohexol "B0" Blank sample) should be collected for lohexol-Based GFR.

#### SECTION F: IRREGULAR VISIT INFUSION SYRINGE WEIGHT

F1.		ALE MUST FIRST BE ZEROED BEFORE WEIGHING. REMOVE ALUMINUM FOIL PRIOR TO WEIGHING THE SYRINGE. E <u>SAME</u> SCALE MUST BE USED TO WEIGH THE SYRINGE <u>PRE AND POST</u> IOHEXOL INFUSION.
	a.	Syringe Weight <b>Pre-lohexol Infusion</b> : (g)
	b.	Syringe Weight <b>Post-Iohexol Infusion</b> :(g) (Post-Infusion Weight should be <b>at least 6.0g</b> less than Pre-Infusion Weight. If Post-Infusion Weight is not at least 6g less, please confirm.)
PRE	AN	D POST SYRINGE WEIGHT MUST BE OBTAINED IN ORDER TO CALCULATE CHILD'S GFR.
		SECTION G: IRREGULAR STUDY VISIT IOHEXOL – Refer to Instructions for Iohexol Infusion and GFR Blood Draws Flow Chart on Page 12
		RE INFUSING 5 mL OF IOHEXOL, SET TIMER = 0. SIMULTANEOUSLY START TIMER AND BEGIN IOHEXOL INFUSION
		PLETE INFUSION BETWEEN 1 TO 2 MINS
» L	EAVI	E TIMER RUNNING THROUGHOUT IOHEXOL INFUSION AND SUBSEQUENT BLOOD DRAWS
G1.		EXOL INFUSION 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 & 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).

## 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 Typical range: <b>36.1 – 38.3</b> 2 = °F Typical range: <b>94.5 – 100.6</b>							
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 30 MINUTES (BUT NO LONGER THAN 1 HOUR) CENTRIFUGE AT MAX SPEED BETWEEN 1100-1300g (3000rpm with 10cm radius rotor) for 10 MINUTES IN SWING HEAD OR 15 MINUTES IN FIXED ANGLE (BALANCE TUBES IN CENTRIFUGE)

	ALL TIMES should be documented from the initial infusion time	ACTUAL HOURS/ MINUTES on TIMER		(ii) ONLY if Timer malfunctions, record Clock Time using the same clock used for G1a		Difficult Blood Draw:		iv) Prawn via uncture No	(v) Blood Volume Collected (1 mL):	(vi) Centrifuged at Clinical Site: Yes No	
G3a.	<b>B1 2 hrs</b> (120 min):	hr	mins	: 1 = AM 2 = PM	1 (Skip to b)	2	1	2	mL	1 (Skip to G4a)	2 (Skip to G4a)
b.	<b>B1</b> 2 <sup>nd</sup> attempt:	hr	mins	: 1 = AM 2 = PM	1	2	1	2	mL	1	2
G4a.	<b>B2 5 hrs</b> (300 min):	hr	mins	: 1 = AM 2 = PM	1 (Skip to b)	2	1	2	mL	1 (END FORM)	2 (END FORM)
b.	<b>B2</b> 2 <sup>nd</sup> attempt:	hr	mins	: 1 = AM 2 = PM	1	2	1	2	mL	1	2

#### **Instructions for Iohexol Infusion and GFR Blood Draws**

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 access sites; use tape to stabilize butterfly for iohexol infusion --OR---Use butterfly for pre-iohexol and individual blood draw sticks; use tape to stabilize butterfly for Iohexol infusion

Complete pre-iohexol infusion blood draw according to instructions

Start timer and infuse iohexol over 1-2 minutes

If infusion site for iohexol IV or butterfly infiltrates, study MUST BE DISCONTINUED Must wait at least 48 hours to repeat study, and repeat visit should occur within 3 months of initial

Flush with 10 mL normal saline to ensure infusion of all of the iohexol; IOHEXOL IV OR BUTTERFLY MAY NOW BE REMOVED If rash develops, consider it a reaction to iohexol and notify PI immediately. Consider administering 1mg/kg Benadryl IV (maximum dose 50mg). 10 minutes post-infusion CHECK POST-INFUSION VITALS If systolic BP decreases > 25 mm Hg, diastolic BP DO NOT DRAW BLOOD AT 10 MINUTES decreases > 20 mm Hg or pulse increases > 20 beats per min, consider this an anaphylactic reaction to iohexol and notify PI immediately; consider administering 1 mg/kg Benadryl IV (maximum dose 50 mg) and draw up to 0.1 mL 1:1000 Epinephrine for SQ injection and 2 mg/kg Solumedrol IV if necessary. Obtain post-infusion weight of syringe on the same scale as prior to infusion. Record weight on the Specimen Collection Form prior to shipment to the CCC COMPLETE ADVERSE EVENT FORM and send to CCC for data entry Draw 1 ml of blood into SST at 120 mins (B1), and 300 mins (B2). If blood draw is difficult with poor volume \*For IV ONLY: Discard initial 1 mL blood waste at each delivery, repeat draw 5 minutes later; blood draw record time on Specimen Collection Form \*For IV ONLY: Flush after each blood draw with at least 3 mL and tube. If blood draw is impossible, normal saline repeat with new venipuncture. \*Record the time each blood draw is completed Stand SST upright at room Centrifuge at MAX SPEED between 1100-Following each blood draw: temp for 30 minutes, but 1300 g for 10 minutes in swinghead or 15 gently invert tube 5-10 times no longer than 1 hour minutes in fixed angle\*

Transfer serum into the cryovial labeled "Iohexol Serum."

Following packaging and shipping instructions; send urine, blood and copies of completed shipping form(s) & confirmation of written consent to CBL

Physician should be immediately available (in person or by phone) during Iohexol Infusion Encourage fluids throughout the visit.

\*1100-1300 g = 3000 rpm with 10 cm radius rotor