Chronic Kidney Disease in Children Cohort Study (CKiD)
QUESTION BY QUESTION SPECIFICATIONS
EL: ELIGIBILITY FORM

THIS FORM MUST BE COMPLETED AND DATA ENTERED FOR ALL CHILDREN ENROLLED INTO CKiD

General Instructions:

1. Sites must obtain written consent from a parent or legal guardian and assent, if applicable, from the participant before performing any study related procedures or tasks, including the collection of data. Written consent/assent may be obtained prior to or on the day of the initial study visit.

2. Children who have had CKD for more than 5 years at time of screening are ineligible for study participation.

3. The EL form must be completed and submitted to the CCC as follows:
   a. If the site identifies an eligible child and they obtain written consent/assent, the EL form should be completed in its entirety, scanned and emailed to the CCC.

   b. If the site identifies an eligible child but written consent/assent has **not yet** been obtained (i.e., family/child verbally expresses interest in participating in the study), an EL form must be partially completed with only:

      • the **next consecutive KID ID number (refer to #9 for instruction on assigning a KID ID number),**

      • **Participant's initials and,**

      • **Date of screening. The screening date is defined as the date when the child's diagnosis and medical record were reviewed to determine eligibility or the date when the site discussed the CKiD study with the family.**

      No other data can be recorded on the form until written consent/assent has been obtained. This partially completed form must be scanned and emailed to the CCC. The site should keep the partially completed form. **Once written consent/assent is obtained, sites must complete the remainder of the EL form, scan it, email it to the CCC and again keep a copy of the completed form stapled**.

   c. An EL form should not be completed if the site identifies an eligible child but the family/ child does not agree to participate in the study (i.e., is not interested and declines to provide written consent/assent). A refusal form (REF) must be completed instead. For eligible families/children who had previously expressed interest in the study (verbally agreed) but thereafter decline to provide written consent, a refusal (REF) must be completed. If an EL form had been partially completed and a KID ID was issued it should not be reused.

   d. If after providing written consent/assent, the family/child decides to withdraw from the study before Visit 1A occurs, a Disenrollment Form (DSEN) must be completed and that KID ID that was issued should not be reused.

   e. For children who refuse to participate or withdraw before Visit 1a has occurred, the lab kit can be saved as a spare or returned to the Central Biochemistry Lab (CBL) with another shipment.

4. This form is designed to document whether a child is eligible for enrollment into the CKiD cohort study. If a potential participant has a response that falls in any of the shaded areas, he/she is ineligible for enrollment. Forms should not be scanned and emailed to the CCC for people deemed ineligible for enrollment into the CKiD study.

5. Once the EL form has been received by the CCC, study supplies with the KID ID may be ordered on the CKiD website. After making a copy at the site, the original EL form must be sent to the CCC with the other Visit 1a forms for data entry.

6. Follow all specified instructions on the form. Statements in boxes or in italics are instructions and should not be read to the participants.

7. Although information may be obtained during medical record abstraction, the information collected on the form must be confirmed with the parent/legal guardian and the child, if appropriate.

8. Use form version dated 08/01/17.

9. The following are the steps in determining the next consecutive KID ID number.
   a. The first and second phases of enrollment has ended. Enter "3" in the first box for participants who are enrolled during the third phase of enrollment.
   b. The next two digits indicate the site number. Values between "01" and "49" are reserved for sites coordinated by the Midwest clinical coordinating center, and "50" to "99" for sites coordinated by the east coast clinical coordinating center.
   c. The last three digits document the sequence of participants in a given site beginning with "001" for each site. Please note that if a site has previously enrolled children, then the three digits should continue starting from the last number recruited during the previous phase of enrollment (children enrolled in Cohort 1 or cohort 2). For example, if a child is enrolled during the third phase of enrollment but is the fifth child recruited at site "01", then the KID would be 3-01-**005** not 3-01-001.

Upper Left Corner: The person who is interviewing the potential participant must document their initials.

Question 1: Record the date the form is completed when written consent/assent has been obtained. **Note:** The entire form should not be completed until after written consent is obtained.

Question 2a: Sites must have a documented DOB for a participant to be eligible. For example, a copy of the child's birth certificate or DOB documented in the child's medical records. Without DOB verification, the participant is ineligible for enrollment into CKiD.

Question 2b: Sites must have a documented gender for a participant to be eligible.

Question 3a: Sites should document the date of the child's most recent serum creatinine measurement.

Question 3b: The serum creatinine measurement must be obtained from laboratory results. The results should correspond to date of the serum creatinine measurement. Record serum creatinine measurement in milligrams/deciliter (mg/dl).

If serum creatinine measurement is not available, check "NA" and skip to question 4a.

Question 4a: Sites should document the participant's height so that GFR can be calculated for question 9 for participants ≥2 years old. A participant must have a documented height in order to review the appropriate serum creatinine range table on page 3 of the eligibility form and determine eGFR as potential eligibility criteria for enrollment into CKiD. Date of most recent height refers to the date closest to the **most recent** serum creatinine measurement. Document the date of the most recent height.

Question 4b: Record height measurement in inches or centimeters for the most recent height. Round to the nearest inch or centimeter. If a participant is less than 19.7 inches or greater than 74.4 inches, the clinical site should contact their CCC to ensure that the appropriate eGFR is obtained.

Question 5a: Sites must determine study eligibility based on age. **Age should be calculated by subtracting the written consent date from the date of birth.** For example: if DOB = 11/03/2007 and written consent date = 02/23/2010, then age = 2 years old. The Steering Committee has agreed that eligible children must be between the ages of 6 months to 16 years old. Therefore, the child is eligible as long as he/she has not had his/her 17th birthday. Signed consent must be obtained before any study procedures are performed.

Question 5b: The participant is not eligible for enrollment into CKiD if his/her age, as determined by DOB is not between the ages of 6 months and 16 years old (before 17th birthday).

Question 6: Sites must determine study eligibility based on the number of years the child has had CKD or the CKD duration. **YEARS with CKD (i.e., CKD duration) should be calculated by subtracting the written consent date from the date of diagnosis.** For example: if Date of diagnosis = 08/07/2012 and written consent date = 10/31/2016, then years with CKD = 4. The Steering Committee has agreed that eligible children must have 5 years or less of CKD. Therefore, the child is eligible as long as he/she has not had CKD for more than 5 years. Signed consent must be obtained before any study procedures are performed.

Question 7: Site must determine if the child's primary diagnosis group is non-glomerular CKD. ONLY participants with non-glomerular diagnosis are eligible.

Question 8: **If YES to question 7**, sites must document the primary diagnosis of CKD. The study coordinator or MD may need to obtain this information from the participant's medical record. The options are coded into categories. The third phase of recruitment is focused **on only recruiting children with non-glomerular diagnosis. Therefore, sites should choose the appropriate NON-GLOMERULAR (NG) diagnosis**.Most of the NG diagnoses are provided on the EL form.

The list of diagnoses which **DO NOT QUALIFY** for the study (***G diagnosis***) are provided below:

- Chronic glomerulonephritis
- Congenital nephrotic syndrome
- Denys-Drash syndrome
- Diabetic nephropathy
- Familial nephritis (Alport's)
- Focal segmental glomerulosclerosis
- Hemolytic uremic syndrome
- Henoch Schonlein nephritis
- Idiopathic cresentic glomerulonephritis
- IgA Nephropathy (Berger's)
- Membranoproliferative glomerulonephritis Type I
- Membranoproliferative glomerulonephritis Type II
- Membranous nephropathy
- Sickle cell nephropathy
- Systemic immunological disease (including Systemic Lupus Erythematosus)

For sites that are able to perform a database search for N-G diagnoses, a list of ICD9 and ICD10 codes are provided below to assist in identification of potential participants.

NG Kidney Disease Dx Codes		
Type of Disease	**ICD-9 Code(s)**	**ICD-10 Code(s)**
Aplastic/hypoplastic/dysplastic kidneys *	753.13	Q61.4
hypoplastic kidneys	753.0	Q60.5, Q60.3, Q60.4
Branchio-oto-Renal Disease/Syndrome *	759.89	Q878.8, Q87.0
Bilateral Hydronephrosis	591	N13.30, N13.2
Congenital Urologic Disease (Bilateral Hydronephrosis) *	753.0	
Cystinosis *	270.0	E72.04
Medullary cystic disease/juvenile nephronophthisis *	753.16	Q61.5
Methylmalonic Acidemia *	270.3	E71.120
Obstructive uropathy (Posterior urethral valve (PUV)) *	599.6	N13.9
Oxalosis *	271.8	E72.53
Perinatal Asphyxia *	768, 768.5, 768.6, 786.9	P84
Polycystic kidney disease (Autosomal dominant) *	753.13	Q61.2
Polycystic kidney disease (Autosomal recessive) *	753.14	Q61.19
Pyelonephritis/Interstitial nephritis	580.89, 581.89, 582.89, 583.89	N10, N11, N12
Reflux nephropathy *	593.73	N11.0, N13.7, N13.9
Renal infarct	593.81	N28.0
Syndrome of agenesis of abdominal musculature (Eagle Barrett, prune belly syndrome) *	756.71	Q89.4
Vactrel or Vater Syndrome *	759.89	Q87.2
Wilms' tumor	189.0	C64.9
Other		
Infections of the Kidney	590	

For children who have NG diagnosis, site must also document the date of onset/diagnosis. Please note that for children with congential diagnosis (diagnoses with an asterick *), the date of onset/diagnosis is the child's date of birth. Although the date the family/child first saw a nephrologist or first became aware the child had kidney disease may have occurred after their date of birth, kidney disease for these congential diagnoses are present at birth.

Children with the non-glomerular diagnoses (NG) listed below and duration of kidney disease less than 5 years are ELIGIBLE. These diagnoses do not have to meet additional criteria. For these diagnoses, after documenting date of CKD Onset/diagnosis, **skip to the Exclusion Criteria Questions (question 10)**:

- Branchio-oto-Renal Disease/Syndrome
- Cystinosis
- Medullary cystic disease/ juvenile nephronophthisis
- Methylmalonic Acidemia
- Oxalosis
- Polycystic kidney disease (Autosomal recessive)

All other NG diagnoses, require 2 additional eligibility criteria. Therefore, proceed to question 9. All criteria EXCEPT for abnormal imagining/biopsy must have occurred outside of the intitial 6 months of life and are not secondary to a current or resolving Acute Kidney Infection (AKI).

Question 9: Site must determine if the child has had 2 or more of the following conditions which should not be secondary to a current or resolving Acute Kidney Injury (AKI). These conditions must have occurred outside of the initial 6 months of life with the exception of kidney imaging and biopsy. Check "Yes" if child has two or more of the conditions and provide the appropriate data for each condition.

Question 9a. Significant proteinuria based on age and determined by a urine protein/creatinine ratio

If the child is less than 2 years old (< 2 years old), the urine protein to creatinine ratio should be > 0.5
(For sites that receive results in mg/mmol, the urine protein to creatinine ratio should be > 56.5 mg/mmol Cr. Up/c of 0.5mg/mg = 56.5 mg/mmol Cr)

If the child is 2 years of age or older (≥ 2 years old), the urine protein to creatinine ratio should be > 0.2
(For sites that receive results in mg/mmol, the urine protein to creatinine ratio should be > 22.6 mg/mmol Cr. Up/c of 0.2 mg/mg = 22.6 mg/mmol Cr)

1. Record the urine creatinine measurement.

2. Record the urine protein measurement.

3. Record the date of the urine creatinine and urine protein measurement.

Quesiton 9b. Hematuria (erythrocytes/blood/RBC in the urine) for at least 3 months
To be eligible, the child should have two measurements at least 90 days apart but does not have to be the most recent date. Specifically, hematuria should be present for at least 3 months or more documented at some time in the child's history (the results can be intermittent/sporadic).

- Dipstick must be greater than or equal to 1+ blood
- Microscopic must be greater than or equal to 5 (red blood cells per high powered field)

Record two different dates when hematuria results were measured.

Question 9c. Evidence of renal tubular disorders
Examples of renal tubular disorders include (but are not limited to):

- Hyperkalemia (high levels of potassium in the blood)
- Renal glycosuria (glucose in the urine)
- Metabolic acidosis
- Renal tubular acidosis (RTA)
- Tubular proteinuria

1. Check the appropriate box to specify the type of renal tubular disorder. If other, please specify.

2. Record the date of the renal tubular disorder

Be aware that the metabolic and electrolyte abnormalities that occur with renal tubular disorders may be treated and corrected with medication. In the nephrologist's note you may see an indication that the electrolyte imbalance or acidosis has been normalized with medication. Common medications used to treat these conditions include sodium polystyrene (e.g. Kayexalate), loop diuretics (e.g. furosemide, bumetanide), potassium citrate, or sodium bicarbonate. If these medications are prescribed, you may need to investigate further to see if there is documentation of a renal tubular disorder. If you are uncertain of the diagnosis, please consult with your PI.

If you have additional questions, contact your respective CCC to determine eligibility.

Question 9d. Abnormalities detected by kidney biopsy results or kidney imaging (i.e.ultrasound, CT scan)

Question 9e. Abnormal kidney function (eGFR=0.413*Ht/SCr)

If the child **is less than 2 years old (< 2 years old)**, the most recent serum creatinine measurement should be > 0.4 mg/dL.

If the child **is greater than or equal to 2 years old (≥ 2 years old)**, sites must use the table on page 3 of the eligibility form to determine if the child's most recent height and serum creatinine measurements correspond to an estimated GFR less than (<) 90 ml/min/1.73m^2. Calculation of an eGFR is standard for participants of all gender. The SCr measurements are based on the updated Schwartz formula to estimate GFR (eGFR=0.413*Ht/SCr) in children with CKD.

[Schwartz, Muñoz, Schneider et al. Journal of the American Society of Nephrology, 2009].

NOTE: If child's most recent serum creatinine or eGFR measurement does not meet eligilbilty criteria but previous measurements are within the eiligiblity criteria range, site should contact respective CCC.

Question 9f. Hypertension defined by one or more of the following:

- Documented hypertension noted in the medical record by the physician.
- Current treatment of hypertension

  Below are a few examples of antihypertension medications. However, sites must confirm that the medications are being used to treat hypertension.
  - Amlodipine (Norvasc)
  - Diltiazem (Cardizem, Tiazac)
  - Felodipine (Plendil)
  - Isradipine (DynaCirc)
  - Nifedipine (Adalat, Procardia)
  - Verapamil (Isoptin, Calan, Nu-Verap, Novo-Veramil)
- Blood pressure > 95th percentile on at least two occasions

In the space provided, record the systolic and diastolic measurements, and the date when the blood pressure was measured. If sites need to determine if the measurement is > 95th percentile, go to https://www.bcm.edu/bodycomplab/Flashapps/BPVAgeChartpage.html to calculate the BP percentile (see pages 8-9 for instructions on how to use the website).

Example:

1st BP 114 / 076 Date of BP measurement: 02 / 16 / 2017

2nd BP 126 / 094 Date of BP measurement: 10 / 12 / 2016

NOTE: If the site has questons or concerns, consult physican to confirm hypertension classification and/or contact your respective CCC.

Questions 10-16: These questions are used to further determine eligibility. Although this information may be obtained through medical chart reviews, sites should verify the accuracy of the information in medical records by asking the parent/legal guardian of the potential participant during the clinic visit.

Question 17: This question is to determine if the child has had a history of severe to profound developmental delay (mental retardation). Severe to profound developmental delay (mental retardation) is determined as having an IQ < 40, which is defined as a significant impairment in adaptive functioning and/or the inability to independently execute self-care skills.

Question 18: Check "NA" for male participants.

Question 19: This question is to determine if the child is expected to begin renal replacement therapy (dialysis or transplantation) in the next 6 months.

Question 20: This question is asked to determine if the child has had an allergic reaction to Iodine or Iohexol. If "Yes" is selected, contact the Central Biochemistry Laboratory for further clarification and instruction. They may be reached at (585-275-9784).

Question 21: Forms and questionnaires are available in English and Spanish. This question is asked to determine if the child is fluent in English or Spanish.

Question 22: Sites must document the language that the child speaks most frequently.

Question 23: Sites must document the language that the child's parent speaks most frequently.

Question 24a: Sites must obtain written permission from a parent or legal guardian before performing any study related procedures or tasks, including the collection of data. Signed permission may be obtained prior to or on the day of the initial study visit.

Question 24b: This question documents the date consent form was signed by a parent or legal guardian.

Question 25a: Sites must document whether or not their institution requires child assent. If their institution does not require child assent, **skip to question 26**.

Question 25b: If applicable, sites must document the date assent was obtained from the child.

Question 26: Consent for genetic testing is optional. Participants who refuse to consent to have samples collected and stored for genetic testing are still eligible for enrollment into CKiD. This question documents whether genetic testing consent was obtained from a parent or legal guardian.

Question 27: Consent to collect and store biological specimen(s) to use for future ancillary studies is optional. Participants who refuse to consent to the storage of their biological specimen(s) are still eligible for enrollment into CKiD. This question documents whether consent to collect and store the child's biological specimen(s) was obtained from a parent or legal guardian.

Question 28: For cohort 3 participants, consent for iohexol GFR testing is optional. Participants who refuse to consent to have iohexol GFR testing are still eligible for enrollment into CKiD. This question documents whether iohexol GFR testing consent was obtained from a parent or legal guardian.

Question 29: Consent for data liniking is optional. Participants who refuse to consent to have personal identifiers collected for the purpose of data linking with public national databases are still eligible for enrollment into CKiD. This question documents whether data linking consent was obtained from a parent or legal guardian.

Instructions on using website calculate to compute BP percentile

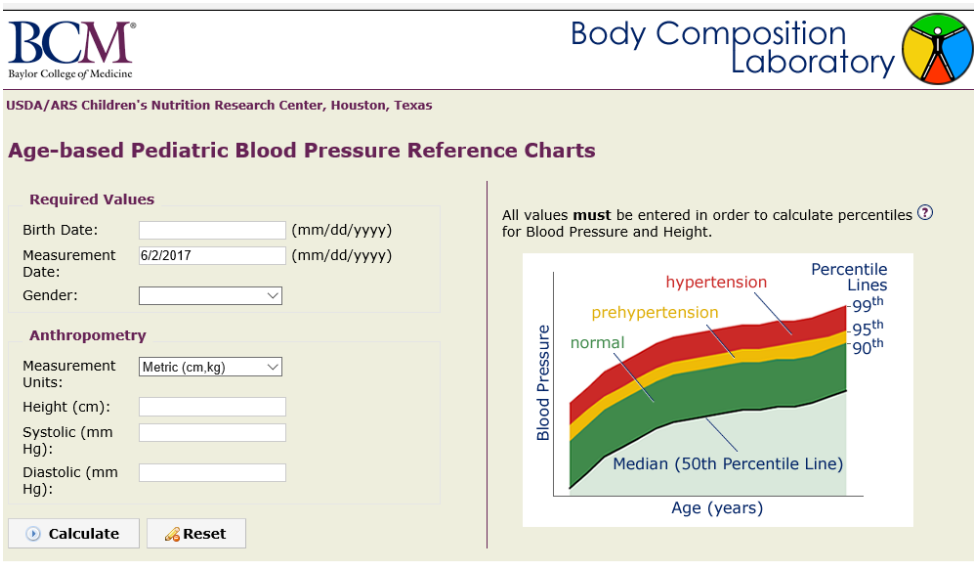
To calculate BP percentile, you will need you the following information (*refer to the information documented on the EL form*):

- Date of Birth
- BP date of measurement
- Gender
- *Approximate* Height measurement
  This height measurement should be the height measured closest to the date the BP was measured (i.e., the BP measeurement date).
- BP measurements: systolic and diastolic

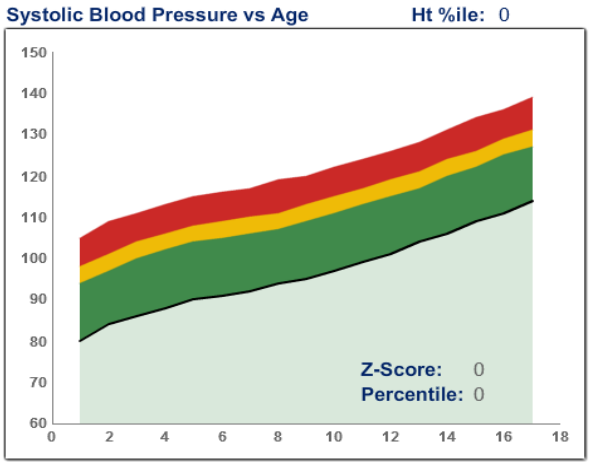
1. Go to "Age-based Pediatric Blood Pressure Reference Charts" located on the Baylor College of Medicine, Body Composition Laboratory website

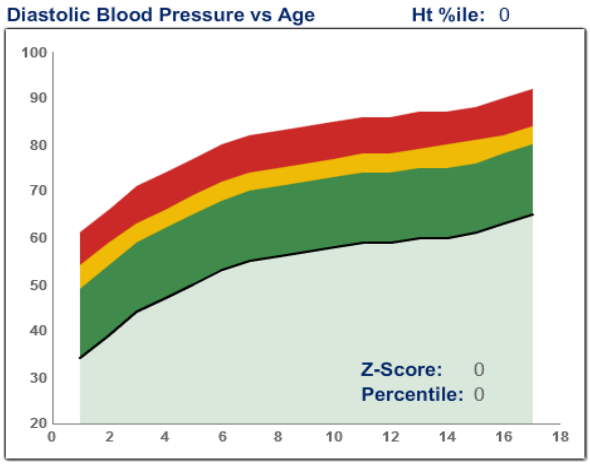
https://www.bcm.edu/bodycomplab/Flashapps/BPVAgeChartpage.html

2. Enter data in the fields and click "Calculate"



3. The system will provide two charts with percentiles. If the BP percentile is > 95, then the child meets the eligibility criteria.

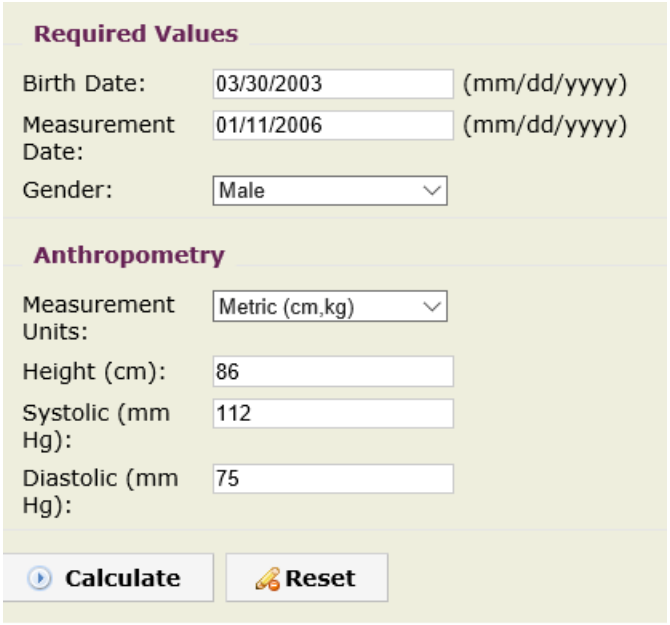


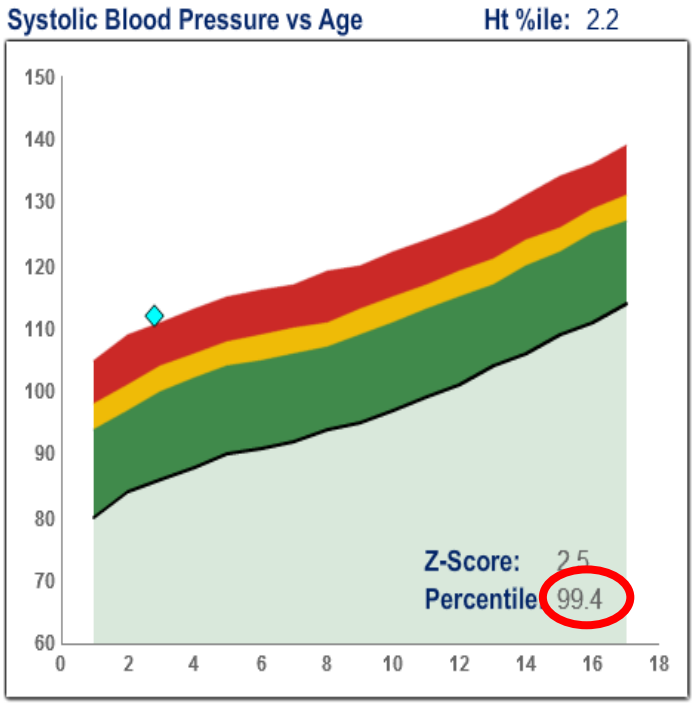


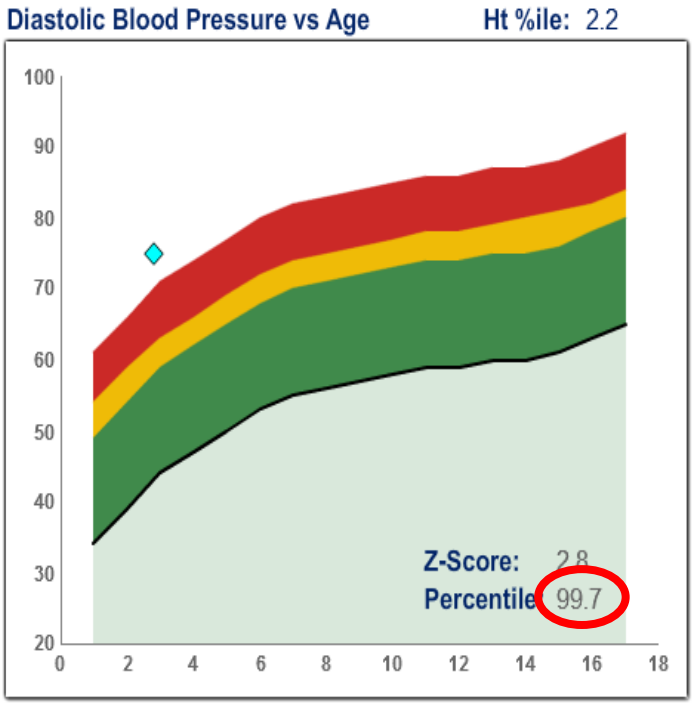
EXAMPLE (3 year old boy)

DOB = **03/30/2003**
BP measurement date = **01/11/2006**
Gender = **Male**
Measurement units = **Metric (cm, kg)**
Height = **86**
BP = **112/75**

Select the correct measurement units:
- Metric (cm, kg)
- English (in, lbs)







In this example, the systolic BP percentile is 99.4, which is > 95th %ile. Therefore, this child is hypertensive.

The diastolic BP percentile is 99.7, which is also > 95th %ile.

ERROR MESSAGE: If after clicking "Calculate", the charts percentile states "NaN" contact the Data Coordinating Center.