

Physical Measures Child Blood Pressure Instrument

|  |  |
| --- | --- |
| **Event:** | 12- and 24- Month |
| **Participant:** | Child |
| **Domain:** | Physical Measures |
| **Type of Document:**  **Allowable Mode:**  **Allowable Method:** | Data Collection Instrument  In Person  CAPI |
| **Recruitment Groups:** | EH, PB, HI |
| **Version:** | 1.0 |
| **Release:** | MDES 3.0 |

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Physical Measures Child Blood Pressure Instrument

**TABLE OF CONTENTS**

[Physical Measures Child Blood Pressure Instrument 1](#_Toc318880999)

[APPENDIX A:](#_Toc318881000) [BP SPECS- PROGRAMMER’S INSTRUCTIONS](#_Toc318881001) [FOR ROF AND   
REFERRALS 9](#_Toc318881002)

[APPENDIX B: REFERALL LEVELS BASED ON AGE AND PERCENTILE LENGTH/HEIGHT,](#_Toc318881004)

[BOYS 1-2 YEARS 10](#_Toc318881005)

[APPENDIX C: MALE LENGTH (AGE 11.5-23.5M) AND HEIGHT (AGE 24M+)   
PERCENTILES 13](#_Toc318881006)

[APPENDIX D: REFERALL LEVELS FOR BLOOD PRESSURE, BOYS 1-2 YEARS 14](#_Toc318881007)

[APPENDIX E: BLOOD PRESSURE REFERRAL LEVELS BASED ON AGE AND   
PERCENTILE LENGTH/HEIGHT,](#_Toc318881008) [GIRLS 1-2 YEARS. 15](#_Toc318881009)

[APPENDIX F: FEMALE LENGTH (AGE 11.5-23.5M) AND HEIGHT (AGE 24M+)   
PERCENTILES 18](#_Toc318881010)

[APPENDIX G: REFERRAL LEVELS FOR BLOOD PRESSURE , GIRLS 1-2 YEARS 19](#_Toc318881011)

**Tables**

[TABLE A-1. REFERRAL TABLE 8](#_Toc316462055)

Physical Measures Child Blood Pressure Instrument

**(TIME\_STAMP\_BP\_ST) PROGRAMMER INSTRUCTION:**

* INSERT DATE/TIME STAMP

BP001. Thank you for agreeing to participate in the National Children’s Study. I’d like to collect {C\_FNAME/the child}’s blood pressure information.

**DATA COLLECTOR INSTRUCTIONS:**

* EXPLAIN THE BLOOD PRESSURE PROTOCOL TO THE PARENT OR CAREGIVER.
* IF THE PARENT OR CAREGIVER REFUSED THE BLOOD PRESSURE MEASUREMENTS, SELECT REFUSED. OTHERWISE, SELECT CONTINUE.

CONTINUE 1 **(RESP\_REL)**

REFUSED -1

PROGRAMMER INSTRUCTIONS:

* IF C\_FNAME COLLECTED DURING PREVIOUS INTEVIEW AND VALID RESPONSE PROVIDED, PRELOAD C\_FNAME.
* OTHERWISE, IF C\_FNAME NOT COLLECTED DURING PREVIOUS INTERVIEW OR VALID RESPONSE NOT PROVIDED, DISPLAY “the child”.
* PRELOAD PARTICIPANT DATE OF BIRTH. SET AS CHILD\_DOB.
* PRELOAD PARTICIPANT SEX; SET AS CHILD\_SEX.

BP002/(BP\_REF\_REASON). I am sorry that you have chosen not to participate in this activity. Can you please tell me why?

CONCERN ABOUT DISCOMFORT 1 **(BP\_END\_REF)**

CHILD SICK 2 **(BP\_END\_REF)**

CHILD TIRED/UNHAPPY 3

OTHER -5

REFUSED -1 **(BP\_END\_REF)**

DON’T KNOW -2 **(BP\_END\_REF)**

**BP003/(BP\_REF\_REASON\_OTH).**

SPECIFY:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

REFUSED -1 **(BL2000)**

DON’T KNOW -2 **(BL2000)**

**BP004/(BP\_END\_REF).** That’s fine. Thank you for your time.

**PROGRAMMER INSTRUCTION:**

* GO TO **TIME\_STAMP\_BP\_ET.**

**BP005/(RESP\_REL).** WHAT IS THE RELATIONSHIP OF THE PARENT OR CAREGIVER TO CHILD?

MOTHER 1 **(BP\_ARM\_USED)**

FATHER 2 **(BP\_ARM\_USED)**

OTHER -5

**BP010/(RESP\_REL\_OTH).**

SPECIFY\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PROGRAMMER INSTRUCTION:**

* LIMIT TEXT TO 255 CHARACTERS.

BP015/(BP\_ARM\_USED). RECORD ARM USED TO MEASURE BLOOD PRESSURE.

RIGHT……………………………….1

LEFT………………………………....2

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..…-2 (BP\_MEAS\_REASON)

PROGRAMMER INSTRUCTIONS:

* IF AN\_UP\_ARM\_CIR COLLECTED PREVIOUSLY AND VALID RESPONSE PROVIDED, PRELOAD FROM ANTHROPOMETRY MODULE AND GO TO BP\_CUFF\_SIZE\_CALC.
* OTHERWISE, IF AN\_UP\_ARM\_CIR NOT COLLECTED PREVIOUSLY OR VALID RESPONSE NOT PROVIDED, GO TO BP\_HUMERUS\_LTH.

BP020/(BP\_HUMERUS\_LTH). HUMERUS LENGTH.

|\_\_\_|\_\_\_|. |\_\_\_| CM

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..…-2 (BP\_MEAS\_REASON)

PROGRAMMER INSTRUCTION:

* IF MEASUREMENT IS <0 OR > 80 CM, DISPLAY HARD EDIT.

DATA COLLECTOR INSTRUCTION:

* UPPER ARM CIRCUMFERENCE NOT AVAILABLE FROM ANTHROPOMETRY EXAM. OBTAIN HUMERUS LENGTH NOW.

BP025/(BP\_MID\_HUMERUS\_LENGTH).

PROGRAMMER INSTRUCTIONS:

* CREATE DERIVED VARIABLE BP\_MID\_HUMERUS\_LENGTH WHERE BP\_MID\_HUMERUS \_LENGTH = BP\_ HUMERUS\_LENGTH/2 AND STORE AS BP\_MID\_HUMERUS\_LENGTH.
* DISPLAY BP\_MID\_HUMERUS \_LENGTH.

BP030/(BP\_UP\_ARM\_CIRC\_MEAS). UPPER ARM CIRCUMFERENCE, MEASURED AT THE MIDPOINT OF THE HUMERUS.

|\_\_\_|\_\_\_|. |\_\_\_| CM

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..…-2 (BP\_MEAS\_REASON)

DATA COLLECTOR INSTRUCTION:

* TAKE UPPER ARM CIRCUMFERENCE AT THE HUMERUS MIDPOINT.

PROGRAMMER INSTRUCTION:

* DISPLAY MIDPOINT OF HUMERUS.
* REFER TO APPENDIX A (ANTHROPOMETRY EDIT RANGES) IN CHILD ANTHROPOMETRY INSTRUMENT:
  + IF MEASUREMENT FALLS OUTSIDE MINIMUM OR MAXIMUM EXPECTED UPPER ARM CIRCUMFERENCE BASED ON AGE AND GENDER, DISPLAY SOFT EDIT.
  + IF MEASUREMENT IS < 0 OR > 70 CM, DISPLAY HARD EDIT.

BP035/(BP\_CUFF\_SIZE\_CALC). DETERMINE APPROPRIATE BLOOD PRESSURE CUFF SIZE.

PROGRAMMER INSTRUCTIONS:

* IF BP\_UP\_ARM\_CIRC\_MEAS < 8 CM, DISPLAY RECOMMENDED CUFF SIZE AS “COULD NOT OBTAIN”, CODE BP\_CUFF\_SIZE\_USED AS -2, AND GO TO BP\_MEAS\_REASON.
* IF BP\_UP\_ARM\_CIRC\_MEAS > 8 CM AND < 11.9 CM, BP\_CUFF\_SIZE = ”INFANT”
* IF BP\_UP\_ARM\_CIRC\_MEAS > 12 CM AND < 16.9 CM, BP\_CUFF\_SIZE = ”CHILD”
* IF BP \_UP\_ARM\_CIRC\_MEAS > 17 CM AND < 21.9 CM, BP\_CUFF\_SIZE = ”SMALL ADULT”
* IF BP\_ UP\_ARM\_CIRC\_MEAS > 22 CM AND < 29.9 CM, BP\_CUFF\_SIZE = “ADULT”
* IF BP\_ UP\_ARM\_CIRC\_MEAS > 30 CM AND < 37.9 CM, BP\_CUFF\_SIZE = “LARGE ADULT”
* IF BP\_ UP\_ARM\_CIRC\_MEAS > 38 CM AND < 50 CM, BP\_CUFF\_SIZE = “THIGH”
* IF BP\_UP\_ARM\_CIRC\_MEAS > 50 CM, DISPLAY RECOMMENDED CUFF SIZE AS “COULD NOT OBTAIN”, CODE BP\_CUFF\_SIZE\_USED AS -2, AND GO TO BP\_MEAS\_REASON.
* DISPLAY RECOMMENDED CUFF SIZE.

BP040/(BP\_CUFF\_SIZE\_USED). SELECT BLOOD PRESSURE CUFF SIZE USED FOR MEASUREMENTS.

INFANT 1

CHILD 2

SMALL ADULT 3

ADULT 4

LARGE ADULT 5

THIGH 6

COULD NOT OBTAIN -2

DATA COLLECTOR INSTRUCTION:

* SELECT CUFF SIZE USED.

PROGRAMMER INSTRUCTIONS:

* FOR (BP\_SYS\_MEAS1)(BP\_DIA\_MEAS1)(BP\_PULSE\_MEAS1), (BP\_SYS\_MEAS2)(BP\_DIA\_MEAS2)(BP\_PULSE\_MEAS2), AND (BP\_SYS\_MEAS3)(BP\_DIA\_MEAS3)(BP\_PULSE\_MEAS3) BELOW:
  + IF THE DIFFERENCE BETWEEN THE SYSTOLIC AND DIASTOLIC IS LESS THAN 20, DISPLAY MESSAGE “THE DIFFERENCE BETWEEN THE SYSTOLIC BP AND DIASTOLIC BP IS LESS THAN 20 MMHG. ARE YOU SURE?”
    - REQUIRE SELECTION OF YES/NO TO THIS QUESTION.
      * IF YES IS SELECTED, ACCEPT THE VALUE AND GO TO NEXT FIELD.
      * IF NO SELECTED, DISPLAY MESSAGE “PLEASE ENTER A CORRECTED VALUE FOR SYSTOLIC BP AND/OR DIASTOLIC BP.” ALLOW ENTRY IN SYSTOLIC AND/OR DIASTOLIC FIELDS.
  + IF THE DIFFERENCE BETWEEN SYSTOLIC AND DIASTOLIC BP IS GREATER THAN 100, DISPLAY MESSAGE “THE DIFFERENCE BETWEEN THE SYSTOLIC BP AND DIASTOLIC BP IS GREATER THAN 100 MMHG. ARE YOU SURE?”
    - REQUIRE SELECTION OF YES/NO TO THIS QUESTION.
      * IF YES IS SELECTED, ACCEPT THE VALUE AND GO TO NEXT FIELD.
      * IF NO SELECTED, DISPLAY MESSAGE “PLEASE ENTER A CORRECTED VALUE FOR SYSTOLIC BP AND/OR DIASTOLIC BP.” ALLOW ENTRY IN SYSTOLIC AND/OR DIASTOLIC FIELDS.
  + IF SYSTOLIC OR DIASTOLIC BP IS > 290, DO NOT ACCEPT THIS VALUE. DISPLAY MESSAGE “THIS VALUE IS NOT WITHIN ACCEPTABLE LIMITS. PLEASE ENTER A VALUE WITHIN THE ACCEPTABLE RANGE (<290).” REQUIRE SELECTION OF “OK” TO CONFIRM MESSAGE WAS READ. ALLOW NEW ENTRY IN THAT FIELD.
  + IF DIASTOLIC BP IS GREATER THAN THE SYSTOLIC BP, DISPLAY MESSAGE “DIASTOLIC BP MUST BE LESS THAN SYSTOLIC BP. PLEASE ENTER A VALUE WITHIN THE ACCEPTABLE RANGE.” REQUIRE SELECTION OF “OK” TO CONFIRM MESSAGE WAS READ. ALLOW NEW ENTRY IN SYSTOLIC AND/OR DIASTOLIC FIELDS.
  + IF SYSTOLIC BP = -1 OR -2, DO NOT ACCEPT A VALUE FOR DIASTOLIC BP. DISPLAY MESSAGE “PLEASE ENTER A VALUE FOR SYSTOLIC BP.” REQUIRE SELECTION OF “OK” TO CONFIRM MESSAGE WAS READ. ALLOW NEW ENTRY IN THAT FIELD.
  + IF SYSTOLIC BP IS ZERO, DO NOT ACCEPT THIS VALUE. DISPLAY MESSAGE “SYSTOLIC BP CANNOT EQUAL ZERO. PLEASE ENTER A VALUE WITHIN THE ACCEPTABLE RANGE OR SELECT COULD NOT OBTAIN.” REQUIRE SELECTION OF “OK” TO CONFIRM MESSAGE WAS READ. ALLOW NEW ENTRY IN THAT FIELD.

BP045/(BP\_SYS\_MEAS1)(BP\_DIA\_MEAS1)(BP\_PULSE\_MEAS1). RECORD BLOOD PRESSURE 1 MEASUREMENTS.

SYSTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

DIASTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

PULSE: |\_\_\_|\_\_\_|\_\_\_| BPM

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..…-2 (BP\_MEAS\_REASON)

DATA COLLECTOR INSTRUCTION:

* OBTAIN FIRST SET OF BLOOD PRESSURE MEASUREMENTS.

BP050/(BP\_POSITION\_MEAS1). RECORD THE CHILD’S POSITION FOR BLOOD PRESSURE MEASUREMENTS 1.

SEATED 1

SUPINE 2

UPRIGHT 3

BP055/(BP\_STATE\_MEAS1). RECORD THE CHILD’S STATE FOR BLOOD PRESSURE MEASUREMENTS 1.

AWAKE 1

SLEEPING 2

CRYING 3

BP060/(BP\_SYS\_MEAS2)(BP\_DIA\_MEAS2)(BP\_PULSE\_MEAS2). RECORD BLOOD PRESSURE 2 MEASUREMENTS.

SYSTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

DIASTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

PULSE: |\_\_\_|\_\_\_|\_\_\_| BPM

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..…-2 (BP\_MEAS\_REASON)

DATA COLLECTOR INSTRUCTION:

* OBTAIN SECOND SET OF BLOOD PRESSURE MEASUREMENTS.

BP065/(BP\_POSITION\_MEAS2). RECORD THE CHILD’S POSITION FOR BLOOD PRESSURE MEASUREMENTS 2.

SEATED 1

SUPINE 2

UPRIGHT 3

BP070/(BP\_STATE\_MEAS2). RECORD THE CHILD’S STATE FOR BLOOD PRESSURE MEASUREMENTS 2.

AWAKE 1

SLEEPING 2

CRYING 3

BP075/(BP\_SYS\_MEAS3)(BP\_DIA\_MEAS3)(BP\_PULSE\_MEAS3). RECORD BLOOD PRESSURE 3 MEASUREMENTS.

SYSTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

DIASTOLIC: |\_\_\_|\_\_\_|\_\_\_| mmHg

PULSE: |\_\_\_|\_\_\_|\_\_\_| BPM

REFUSED………………………..-1 (BP\_MEAS\_REASON)

COULD NOT OBTAIN…………..-2 (BP\_MEAS\_REASON)

DATA COLLECTOR INSTRUCTION:

* OBTAIN THIRD SET OF BLOOD PRESSURE MEASUREMENTS.

BP080/(BP\_POSITION\_MEAS3). RECORD THE CHILD’S POSITION FOR BLOOD PRESSURE MEASUREMENTS 3.

SEATED 1

SUPINE 2

UPRIGHT 3

BP085/(BP\_STATE\_MEAS3). RECORD THE CHILD’S STATE FOR BLOOD PRESSURE MEASUREMENTS 3.

AWAKE 1 (BP\_CALC)

SLEEPING 2 (BP\_CALC)

CRYING 3 (BP\_CALC)

BP090/(BP\_MEAS\_REASON). ENTER THE REASON YOU COULD NOT OBTAIN THE BLOOD PRESSURE MEASURES.

REFUSAL 1 **(BP\_CALC)**

LANGUAGE ISSUE, SPANISH 2 **(BP\_CALC)**

LANGUAGE ISSUE, NON SPANISH 3 **(BP\_CALC)**

PARTICIPANT ILL/ EMERGENCY 4 **(BP\_CALC)**

NO TIME 5 **(BP\_CALC)**

EQUIPMENT FAILURE 6 **(BP\_CALC)**

SAFETY EXCLUSION 7 **(BP\_CALC)**

PHYSICAL LIMITATION 8 **(BP\_CALC)**

PULSE NOT OBLITERATRED 9 **(BP\_CALC)**

TECHNICIAN ERROR 10 **(BP\_CALC)**

OTHER -5

BP095/(BP\_MEAS1\_REASON\_OTH)

SPECIFY \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

REFUSED -1

DON’T KNOW -2

BP115/(BP\_CALC). AVERAGE SYSTOLIC BLOOD PRESSURE, DIASTOLIC BLOOD PRESSURE, AND PULSE.

DATA COLLECTION INSTRUCTION:

* COMPLETE THE REPORT OF FINDINGS USING DISPLAYED INFORMATION.
* GIVE REPORT OF FINDINGS TO PARENT/CAREGIVER.

PROGRAMMER INSTRUCTIONS:

* CALCULATE THE AVERAGE PULSE RATE, SYSTOLIC AND DIASTOLIC BLOOD PRESSURE FOR THE REPORT OF FINDINGS AS FOLLOWS:
  + IF 3 VALUES COLLECTED FOR MEASURE:
    - IGNORE THE FIRST SET OF VALUES AND CALCULATE THE AVERAGE FOR THE REMAINING 2 SETS OF MEASURES.
  + IF 2 VALUES COLLECTED FOR MEASURE:
    - USE THE SECOND VALUE AS THE AVERAGE.
  + OTHERWISE, IF 1 VALUE COLLECTED FOR MEASURE:
    - USE THAT VALUE AS THE AVERAGE.
  + DO NOT USE VALUES OF “COULD NOT OBTAIN” OR “REFUSED” IN THE AVERAGES.
  + IF THERE ARE NO VALUES WHICH ARE NOT “COULD NOT OBTAIN” OR “REFUSED” THE AVERAGE SHOULD BE SET TO “COULD NOT OBTAIN.”
* SAVE SYSTOLIC BLOOD PRESSURE AVERAGE AS BP\_SYS\_AVG.
* SAVE DIASTOLIC BLOOD PRESSURE AVERAGE AS BP\_DIA\_AVG.
* SAVE PULSE AVERAGE AS BP\_PULSE\_AVG.
* IF VALID MEASURE CALCULATED, DISPLAY BP\_SYS\_MEAS\_AVG, BP\_DIA\_MEAS\_AVG, AND BP\_PULSE\_MEAS\_AVG.
* IF VALID MEASURE COULD NOT BE OBTAINED, DISPLAY “COULD NOT BE OBTAINED” AND THEN GO TO BP125.

**BP120/(BP\_REFERRAL\_LEVEL).** BLOOD PRESSURE REFERRAL LEVEL.

**PROGRAMMER INSTRUCTIONS:**

* CREATE CATEGORY AND REFFERAL LEVEL BASED ON INSTRUCTIONS IN APPENDICES A THROUGH G:
  + IF REFERRAL CATEGORY =1, DISPLAY, “IN THE REPORT OF FINDINGS CHECK BOX ‘IS WITHIN NORMAL RANGE”’AND ‘NO ACTION IS NEEDED.”’ PLEASE NOTE THAT THERE IS NO REFERRAL LETTER.”
  + IF REFERRAL CATEGORY = 2, DISPLAY, “IN THE REPORT OF FINDINGS CHECK BOX ‘NORMAL BUT AT THE HIGH END OF NORMAL’AND ‘DISCUSS THESE FINDINGS WITH A HEALTH CARE PROVIDER AT NEXT VISIT.’ PLEASE NOTE THAT THERE IS NO REFERRAL LETTER.’”
  + IF REFERRAL CATEGORY = 3, DISPLAY, “IN REPORT OF FINDINGS CHECK BOX ‘HIGH’ AND ‘SEE A HEALTH CARE PROVIDER WITHIN 2 WEEKS.’’ GIVE PARENT/CAREGIVER A REFERRAL LETTER.”
  + IF REFERRAL CATEGORY = 4, DISPLAY, “IN REPORT OF FINDINGS CHECK BOX ‘VERY HIGH’ AND ‘SEE A HEALTH CARE PROVIDER IMMEDIATELY.’ GIVE PARENT/CAREGIVER A REFERRAL LETTER.”
  + IF REFERRAL CATEGORY = N/A, DISPLAY “IN REPORT OF FINDINGS CHECK BOX “N/A” AND DO NOT CHECK A RECOMMENDED ACTION BOX. PLEASE NOTE THAT THERE IS NO REFERRAL LETTER.”

BP125. Thank you for having {CHILD’S NAME/the child} complete these blood pressure measures.

**(TIME\_STAMP\_BP\_ET) PROGRAMMER INSTRUCTION:**

* INSERT DATE/TIME STAMP

# APPENDIX A: BP SPECS- PROGRAMMER’S INSTRUCTIONS

# FOR ROF AND REFERRALS

IF **CHILD\_SEX** = 1:

* IF VALID RESPONSE PROVIDED FOR **AN\_RECUMB\_LENGTH\_MEAN**, CALCULATE CHILD’S AGE USING CURRENT DATE AND **CHILD\_DOB** AND THEN CHECK CHILD’S AGE AND **AN\_RECUMB\_LENGTH\_MEAN** AGAINST APPENDIX B, APPENDIX C, AND TABLE A-1 (REFERRAL TABLE).
* OTHERWISE, IF VALID RESPONSE NOT PROVIDED FOR **AN\_RECUMB\_LENGTH\_MEAN**,CALCULATE CHILD’S AGE USING CURRENT DATE AND **CHILD\_DOB** AND THEN CHECK CHILD’S AGE AGAINST APPENDIX D AND TABLE A-1 (REFERRAL TABLE).

IF **CHILD\_SEX** = 2 OR 3:

* IF VALID RESPONSE PROVIDED FOR **AN\_RECUMB\_LENGTH\_MEAN**, CALCULATE CHILD’S AGE USING CURRENT DATE AND **CHILD\_DOB** AND THEN CHECK CHILD’S AGE AND **AN\_RECUMB\_LENGTH\_MEAN** AGAINST APPENDIX E, APPENDIX F AND TABLE A-1 (REFERRAL TABLE).
* OTHERWISE, IF VALID RESPONSE NOT PROVIDED FOR **AN\_RECUMB\_LENGTH\_MEAN**,CALCULATE CHILD’S AGE USING CURRENT DATE AND **CHILD\_DOB** AND THEN CHECK CHILD’S AGE AGAINST APPENDIX G AND TABLE A-1 (REFERRAL TABLE).

# TABLE A-1. REFERRAL TABLE

|  |  |
| --- | --- |
| **Category** | **Statement Displayed** |
|  |  |
| N/A | IN REPORT OF FINDINGS CHECK BOX “N/A” AND DO NOT CHECK A RECOMMENDED ACTION BOX. PLEASE NOTE THAT THERE IS NO REFERRAL LETTER. |
|  |  |
| Category 4 | IN REPORT OF FINDINGS CHECK BOX “VERY HIGH” AND “SEE A HEALTH CARE PROVIDER IMMEDIATELY.” GIVE PARENT/CAREGIVER A REFERRAL LETTER. |
|  |  |
| Category 3 | IN REPORT OF FINDINGS CHECK BOX “HIGH” AND “SEE A HEALTH CARE PROVIDER WITHIN 2 WEEKS.” GIVE PARENT/CAREGIVER A REFERRAL LETTER. |
|  |  |
| Category 2 | IN THE REPORT OF FINDINGS CHECK BOX “NORMAL BUT AT THE HIGH END OF NORMAL”AND “DISCUSS THESE FINDINGS WITH A HEALTH CARE PROVIDER AT NEXT VISIT.” PLEASE NOTE THAT THERE IS NO REFERRAL LETTER. |
|  |  |
| Category 1 | IN THE REPORT OF FINDINGS CHECK BOX “IS WITHIN NORMAL RANGE” AND “NO ACTION IS NEEDED.” PLEASE NOTE THAT THERE IS NO REFERRAL LETTER. |

# APPENDIX B: REFERALL LEVELS BASED ON AGE AND PERCENTILE LENGTH/HEIGHT,

# BOYS 1-2 YEARS

**Boys - Age 1**

**Percentile of length = Less than 10 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <49 | 49-53 | 54-66 | ≥ 67 |
| < 94 | 1 | 2 | 3 | 4 |
| 94-97 | 2 | 2 | 3 | 4 |
| 98-110 | 3 | 3 | 3 | 4 |
| ≥ 111 | 4 | 4 | 4 | 4 |

**Percentile of length = 10-24 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <50 | 50-53 | 54-67 | ≥ 68 |
| < 95 | 1 | 2 | 3 | 4 |
| 95-98 | 2 | 2 | 3 | 4 |
| 99-111 | 3 | 3 | 3 | 4 |
| ≥ 112 | 4 | 4 | 4 | 4 |

**Percentile of length = 25 - 49%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <51 | 51-54 | 55-68 | ≥ 69 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-100 | 2 | 2 | 3 | 4 |
| 101-113 | 3 | 3 | 3 | 4 |
| ≥ 114 | 4 | 4 | 4 | 4 |

**Percentile of length = 50 - 74%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <52 | 52-55 | 56-69 | ≥ 70 |
| <99 | 1 | 2 | 3 | 4 |
| 99-102 | 2 | 2 | 3 | 4 |
| 103-115 | 3 | 3 | 3 | 4 |
| ≥ 116 | 4 | 4 | 4 | 4 |

**Percentile of length = 75 - 89%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <53 | 53-56 | 57-70 | ≥ 71 |
| < 100 | 1 | 2 | 3 | 4 |
| 100-103 | 2 | 2 | 3 | 4 |
| 104-117 | 3 | 3 | 3 | 4 |
| ≥ 118 | 4 | 4 | 4 | 4 |

**Percentile of length = 90 - 94%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <53 | 53-57 | 58-71 | ≥ 72 |
| < 102 | 1 | 2 | 3 | 4 |
| 102-105 | 2 | 2 | 3 | 4 |
| 106-118 | 3 | 3 | 3 | 4 |
| ≥ 119 | 4 | 4 | 4 | 4 |

**Percentile of length = 95% and higher**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <54 | 54-57 | 58-71 | ≥ 72 |
| < 103 | 1 | 2 | 3 | 4 |
| 103-105 | 2 | 2 | 3 | 4 |
| 106-119 | 3 | 3 | 3 | 4 |
| ≥ 120 | 4 | 4 | 4 | 4 |

**Boys - Age 2**

**Percentile of length = Less than 10 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <54 | 54-58 | 59-71 | ≥ 72 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-100 | 2 | 2 | 3 | 4 |
| 101-114 | 3 | 3 | 3 | 4 |
| ≥ 115 | 4 | 4 | 4 | 4 |

**Percentile of length = 10-24 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <55 | 55-58 | 59-72 | ≥ 73 |
| < 99 | 1 | 2 | 3 | 4 |
| 99-101 | 2 | 2 | 3 | 4 |
| 102-115 | 3 | 3 | 3 | 4 |
| ≥ 116 | 4 | 4 | 4 | 4 |

**Percentile of length = 25 - 49%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <56 | 56-69 | 60-73 | ≥ 74 |
| < 100 | 1 | 2 | 3 | 4 |
| 100-103 | 2 | 2 | 3 | 4 |
| 104-118 | 3 | 3 | 3 | 4 |
| ≥ 119 | 4 | 4 | 4 | 4 |

**Percentile of length = 50 - 74%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <57 | 57-60 | 61-74 | ≥ 75 |
| < 102 | 1 | 2 | 3 | 4 |
| 102-105 | 2 | 2 | 3 | 4 |
| 106-118 | 3 | 3 | 3 | 4 |
| ≥ 119 | 4 | 4 | 4 | 4 |

**Percentile of length = 75 - 89%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| 58 | 58-61 | 61-75 | ≥ 76 |
| < 104 | 1 | 2 | 3 | 4 |
| 104-107 | 2 | 2 | 3 | 4 |
| 108-120 | 3 | 3 | 3 | 4 |
| ≥ 121 | 4 | 4 | 4 | 4 |

**Percentile of length = 90 - 94%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <58 | 58-62 | 63-76 | ≥ 77 |
| < 105 | 1 | 2 | 3 | 4 |
| 105-108 | 2 | 2 | 3 | 4 |
| 109-122 | 3 | 3 | 3 | 4 |
| ≥ 123 | 4 | 4 | 4 | 4 |

**Percentile of length = 95% and higher**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <59 | 59-62 | 63-76 | ≥ 77 |
| < 106 | 1 | 2 | 3 | 4 |
| 106-109 | 2 | 2 | 3 | 4 |
| 110-122 | 3 | 3 | 3 | 4 |
| ≥ 123 | 4 | 4 | 4 | 4 |

# APPENDIX C: MALE LENGTH (AGE 11.5-23.5M) AND HEIGHT (AGE 24M+) PERCENTILES

| **Length (Age 11.5 m - 23.5 m) or Height (Age 24 m +) Percentiles** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **If age in months is greater than or =** | **and less than** | **P10 - P24** | **P25 - P49** | **P50 - P74** | **P75 - P89** | **P90 - P94** | **P95 - >** |
| 11.0 | 11.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 11.5 | 12.5 | 71.38 | 73.02 | 74.92 | 76.92 | 78.81 | 79.99 |
| 12.5 | 13.5 | 72.50 | 74.18 | 76.12 | 78.15 | 80.07 | 81.25 |
| 13.5 | 14.5 | 73.57 | 75.28 | 77.26 | 79.33 | 81.27 | 82.46 |
| 14.5 | 15.5 | 74.59 | 76.35 | 78.37 | 80.46 | 82.42 | 83.63 |
| 15.5 | 16.5 | 75.58 | 77.37 | 79.43 | 81.56 | 83.54 | 84.75 |
| 16.5 | 17.5 | 76.52 | 78.36 | 80.45 | 82.61 | 84.61 | 85.84 |
| 17.5 | 18.5 | 77.44 | 79.31 | 81.44 | 83.63 | 85.65 | 86.89 |
| 18.5 | 19.5 | 78.32 | 80.23 | 82.41 | 84.63 | 86.67 | 87.91 |
| 19.5 | 20.5 | 79.18 | 81.13 | 83.34 | 85.59 | 87.65 | 88.90 |
| 20.5 | 21.5 | 80.01 | 82.00 | 84.25 | 86.53 | 88.60 | 89.86 |
| 21.5 | 22.5 | 80.82 | 82.85 | 85.13 | 87.44 | 89.54 | 90.80 |
| 22.5 | 23.5 | 81.61 | 83.68 | 86.00 | 88.33 | 90.44 | 91.72 |
| 23.5 | 24 | 82.37 | 84.48 | 86.84 | 89.20 | 91.33 | 92.61 |
| 24 | 24.5 | 81.99 | 84.10 | 86.45 | 88.81 | 90.93 | 92.20 |
| 24.5 | 25.5 | 82.36 | 84.49 | 86.86 | 89.23 | 91.36 | 92.63 |
| 25.5 | 26.5 | 83.11 | 85.26 | 87.65 | 90.06 | 92.23 | 93.53 |
| 26.5 | 27.5 | 83.85 | 86.01 | 88.42 | 90.86 | 93.08 | 94.41 |
| 27.5 | 28.5 | 84.57 | 86.74 | 89.18 | 91.65 | 93.90 | 95.26 |

# APPENDIX D: REFERALL LEVELS FOR BLOOD PRESSURE, BOYS 1-2 YEARS

**Boys - Age 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <49 | 49-53 | 54-66 | ≥ 67 |
| < 94 | 1 | 2 | 3 | 4 |
| 94-97 | 2 | 2 | 3 | 4 |
| 98-110 | 3 | 3 | 3 | 4 |
| ≥ 111 | 4 | 4 | 4 | 4 |

**Boys - Age 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <54 | 54-58 | 59-71 | ≥ 72 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-100 | 2 | 2 | 3 | 4 |
| 101-114 | 3 | 3 | 3 | 4 |
| ≥ 115 | 4 | 4 | 4 | 4 |

# APPENDIX E: BLOOD PRESSURE REFERRAL LEVELS BASED ON AGE AND PERCENTILE LENGTH/HEIGHT, GIRLS 1-2 YEARS.

**Child Blood Pressure Values**

**Girls - Age 1**

**Percentile of length = Less than 10 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <52 | 52-55 | 56-69 | ≥ 70 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-99 | 2 | 2 | 3 | 4 |
| 100-113 | 3 | 3 | 3 | 4 |
| ≥ 114 | 4 | 4 | 4 | 4 |

**Percentile of length = 10-24 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <53 | 53-56 | 57 - 69 | ≥ 70 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-100 | 2 | 2 | 3 | 4 |
| 101-113 | 3 | 3 | 3 | 4 |
| ≥ 114 | 4 | 4 | 4 | 4 |

**Percentile of length = 25 - 49%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <53 | 53-56 | 57-70 | ≥ 71 |
| < 98 | 1 | 2 | 3 | 4 |
| 98-101 | 2 | 2 | 3 | 4 |
| 102-114 | 3 | 3 | 3 | 4 |
| ≥ 115 | 4 | 4 | 4 | 4 |

**Percentile of length = 50 - 74%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <54 | 54-57 | 58-70 | ≥ 71 |
| < 100 | 1 | 2 | 3 | 4 |
| 100-103 | 2 | 2 | 3 | 4 |
| 103-116 | 3 | 3 | 3 | 4 |
| ≥ 117 | 4 | 4 | 4 | 4 |

**Percentile of length = 75 - 89%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <55 | 55-58 | 59-71 | ≥ 72 |
| < 101 | 1 | 2 | 3 | 4 |
| 101-104 | 2 | 2 | 3 | 4 |
| 105-117 | 3 | 3 | 3 | 4 |
| ≥ 118 | 4 | 4 | 4 | 4 |

**Percentile of length = 90 - 94%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <55 | 55-58 | 59-72 | ≥ 73 |
| < 102 | 1 | 2 | 3 | 4 |
| 102-105 | 2 | 2 | 3 | 4 |
| 106-118 | 3 | 3 | 3 | 4 |
| ≥ 119 | 4 | 4 | 4 | 4 |

**Percentile of length = 95% and higher**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <56 | 56-59 | 60-72 | ≥ 73 |
| < 103 | 1 | 2 | 3 | 4 |
| 103-106 | 2 | 2 | 3 | 4 |
| 107-119 | 3 | 3 | 3 | 4 |
| ≥ 120 | 4 | 4 | 4 | 4 |

**Girls - Age 2**

**Percentile of length = Less than 10 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <57 | 57-60 | 61-74 | ≥ 75 |
| < 98 | 1 | 2 | 3 | 4 |
| 98-101 | 2 | 2 | 3 | 4 |
| 102-114 | 3 | 3 | 3 | 4 |
| ≥ 115 | 4 | 4 | 4 | 4 |

**Percentile of length = 10-24 %**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <58 | 58-61 | 62-75 | ≥ 76 |
| < 99 | 1 | 2 | 3 | 4 |
| 99-102 | 2 | 2 | 3 | 4 |
| 103-115 | 3 | 3 | 3 | 4 |
| ≥ 116 | 4 | 4 | 4 | 4 |

**Percentile of length = 25 - 49%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <58 | 58-61 | 62-75 | ≥ 76 |
| < 100 | 1 | 2 | 3 | 4 |
| 100-103 | 2 | 2 | 3 | 4 |
| 104-116 | 3 | 3 | 3 | 4 |
| ≥ 117 | 4 | 4 | 4 | 4 |

**Percentile of length = 50 - 74%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <59 | 59-62 | 63-75 | ≥ 75 |
| < 101 | 1 | 2 | 3 | 4 |
| 101 - 104 | 2 | 2 | 3 | 4 |
| 105-117 | 3 | 3 | 3 | 4 |
| ≥ 118 | 4 | 4 | 4 | 4 |

**Percentile of length = 75 - 89%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <60 | 61-63 | 64-76 | ≥ 77 |
| < 103 | 1 | 2 | 3 | 4 |
| 103-106 | 2 | 2 | 3 | 4 |
| 107-119 | 3 | 3 | 3 | 4 |
| ≥ 120 | 4 | 4 | 4 | 4 |

**Percentile of length = 90 - 94%**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <61 | 61-64 | 65-77 | ≥ 78 |
| < 104 | 1 | 2 | 3 | 4 |
| 104-107 | 2 | 2 | 3 | 4 |
| 108-120 | 3 | 3 | 3 | 4 |
| ≥ 120 | 4 | 4 | 4 | 4 |

**Percentile of length = 95% and higher**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <61 | 61-64 | 65-77 | ≥ 78 |
| < 105 | 1 | 2 | 3 | 4 |
| 105-108 | 2 | 2 | 3 | 4 |
| 109-121 | 3 | 3 | 3 | 4 |
| ≥ 122 | 4 | 4 | 4 | 4 |

**APPENDIX F: FEMALE LENGTH (AGE 11.5-23.5M) AND HEIGHT (AGE 24M+) PERCENTILES**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Length (Age 11.5 m - 23.5 m) and Height (Age 24 m +) Percentiles** | | | | | | | |
| **If age in months is greater than or =** | **and less than** | **P10 - P24** | **P25 - P49** | **P50 - P74** | **P75 - P89** | **P90 - P94** | **P95 - >** |
| 11.0 | 11.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 11.5 | 12.5 | 69.45 | 71.23 | 73.19 | 75.11 | 76.82 | 77.84 |
| 12.5 | 13.5 | 70.59 | 72.41 | 74.40 | 76.36 | 78.10 | 79.14 |
| 13.5 | 14.5 | 71.69 | 73.53 | 75.56 | 77.56 | 79.33 | 80.39 |
| 14.5 | 15.5 | 72.74 | 74.62 | 76.68 | 78.71 | 80.52 | 81.59 |
| 15.5 | 16.5 | 73.76 | 75.66 | 77.76 | 79.83 | 81.67 | 82.76 |
| 16.5 | 17.5 | 74.74 | 76.68 | 78.80 | 80.91 | 82.78 | 83.90 |
| 17.5 | 18.5 | 75.69 | 77.66 | 79.81 | 81.95 | 83.86 | 85.00 |
| 18.5 | 19.5 | 76.62 | 78.61 | 80.80 | 82.97 | 84.91 | 86.07 |
| 19.5 | 20.5 | 77.52 | 79.53 | 81.76 | 83.96 | 85.94 | 87.11 |
| 20.5 | 21.5 | 78.39 | 80.43 | 82.69 | 84.93 | 86.93 | 88.13 |
| 21.5 | 22.5 | 79.24 | 81.31 | 83.60 | 85.87 | 87.91 | 89.12 |
| 22.5 | 23.5 | 80.07 | 82.17 | 84.48 | 86.79 | 88.86 | 90.10 |
| 23.5 | 24 | 80.88 | 83.00 | 85.35 | 87.69 | 89.79 | 91.05 |
| 24 | 24.5 | 80.52 | 82.64 | 84.98 | 87.31 | 89.41 | 90.66 |
| 24.5 | 25.5 | 80.92 | 83.04 | 85.40 | 87.75 | 89.86 | 91.13 |
| 25.5 | 26.5 | 81.74 | 83.89 | 86.29 | 88.68 | 90.84 | 92.12 |
| 26.5 | 27.5 | 82.54 | 84.73 | 87.16 | 89.59 | 91.77 | 93.08 |
| 27.5 | 28.5 | 83.32 | 85.53 | 88.00 | 90.46 | 92.68 | 94.01 |

# APPENDIX G: REFERRAL LEVELS FOR BLOOD PRESSURE , GIRLS 1-2 YEARS

**Girls - Age 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <52 | 52-55 | 56-69 | ≥ 70 |
| < 97 | 1 | 2 | 3 | 4 |
| 97-99 | 2 | 2 | 3 | 4 |
| 100-113 | 3 | 3 | 3 | 4 |
| ≥ 114 | 4 | 4 | 4 | 4 |

**Girls - Age 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Systolic**  **(mm Hg)** | **Diastolic (mm Hg)** | | | |
| <57 | 57-60 | 61-74 | ≥ 75 |
| < 98 | 1 | 2 | 3 | 4 |
| 98-101 | 2 | 2 | 3 | 4 |
| 102-114 | 3 | 3 | 3 | 4 |
| ≥ 115 | 4 | 4 | 4 | 4 |