Child stuntedness

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Abstract

Abstract goes here.

1. Stunting

1.1. Definition

According to [1], "Growth stunting is defined by comparing measurements of children's heights to the NCHS¹ growth reference population: children who fall below the fifth percentile of the reference population in height for age are defined as stunted, regardless of the reason for their shortness. As an indicator of nutritional status, comparison of children's measurements with growth reference curves may be used differently for populations of children than for individual children. The fact that an individual child falls below the fifth percentile for height for age on a growth reference curve may reflect normal variation in growth within a population: the individual child may be short simply because both his parents were short and not because of inadequate nutrition. However, if substantially more than 5% of an identified child population have height for age that is less than the fifth percentile on the reference curve, then the population is said to have a higher-than-expected prevalence of stunting, and inadequate nutrition is generally the first cause considered."

1.2. Causes

Inadequate nutrition is just one of several causes of growth stunting. Other contributors to stunting include chronic or recurrent infections, sometimes in combination with intestinal parasites. The prevalence of growth stunting, particularly among children under two years of age, can also reflect the prevalence of low birth weight in a population. Finally, in rare cases, growth stunting may reflect extreme psychosocial stress without nutritional deficiencies.

The contributions of each of these causes to the growth stunting prevalence rate are only partly understood. One study concluded that from 20% to 40% of the prevalence of growth stunting in the first two years of life can be attributed to low birth weight. However, inadequate nutrition may still be implicated because some low weight births may be due to maternal nutritional deficiencies during pregnancy.

Just as low birth weight and nutritional deficiencies are interrelated, so also are inadequate nutrition and the chronic or recurrent infections that are believed to contribute to growth stunting. There is evidence that even mild nutritional deficits can alter the immune response in children, before clinical signs of malnutrition occur, and that nutritional deficiencies during pregnancy can impair the infant's immune response after birth. Thus, the reasons for any given child's growth impairment may be complex. However, inadequate nutrition is a common theme that suggests a key focus for a policy response to the problem of growth stunting.

1.3. Consequences

Children who suffer from growth retardation as a result of poor diets or recurrent infections tend to be at greater risk for illness and death. Stunting is the result of long-term nutritional deprivation and often results in delayed mental development, poor school performance and reduced intellectual capacity. This in turn affects economic productivity at national level. Women of short stature are at greater risk for obstetric complications because of a smaller pelvis. Small women are at greater risk of delivering an infant with low birth weight, contributing to the intergenerational cycle of malnutrition, as infants of low birth weight or retarded intrauterine growth tend be smaller as adults.

1.4. Measuring stunting

Several important age-related differences and discontinuities in the reference growth curves are used to measure stunting. First, for children less than 24 months of age, growth is determined by measuring the length of a recumbent child. After 24 months, growth is determined by measuring the height of a standing child. Because length and height measurements are not equivalent, there is a natural

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¹National Center for Health Statistics

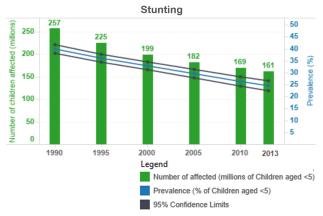


Figure 1. Child malnutriotion trend for stunting (According to [2]).

discontinuity between growth curves for children below and above 24 months of age.

The WHO² uses to classify stunting as height for age $< -2 \text{ SD}^3$ of the WHO Child Growth Standards median (measurement charts of girls and boys are at the end of this document).

2. Problem statement

Using the statement described in [3], we have the goal to determine a combination of early measures that would be a good predictor for birth weight. In pursuit of this goal, we have collected time series data from ultrasounds on pregnant mothers. We would like you to use this data to predict a child's birth weight and birth date (days from pregnancy start).

For each fetus given sex, status, and multiple ultrasound measurements(columns 5-12) during the pregnancy (time being the variable t.ultsnd). The data from the repeated ultrasounds provides a small time series that can be used for predicting the birth weight and day.

For each prediction (b_i, w_i) , the error from the true birth date and birth weight will be measured as the squared Mahalanobis distance,

$$e_i = (b_i - b_{0i}, w_i - w_{0i})^T S^{-1} (b_i - b_{0i}, w_i - w_{0i})'$$
 (1)

where S^{-1} is the inverse of the sample covariance matrix calculated on the complete dataset.

The Mahalanobis distance is a measure of the distance between a point P and a distribution D, introduced by P. C. Mahalanobis in 1936[4]. It is a multi-dimensional generalization of the idea of measuring how many standard deviations away P is from the mean of D. This distance is zero

if P is at the mean of D, and grows as P moves away from the mean: Along each principal component axis, it measures the number of standard deviations from P to the mean of D. If each of these axes is rescaled to have unit variance, then Mahalanobis distance corresponds to standard Euclidean distance in the transformed space. Mahalanobis distance is thus unitless and scale-invariant, and takes into account the correlations of the data set.

$$S^{-1} = \begin{pmatrix} 3554.42 & -328.119 \\ -328.119 & 133.511 \end{pmatrix}$$
 (2)

Scores will be calculated as a generalized R^2 measure of fit. This is calculated as follows. The total sum of errors for the submission will be calculated as $SSE = \sum (e_i)$.

A baseline sum of squared error will be calculated by predicting the sample means for each fetus, that is the mean values of b and w for the current training set,

$$e_{0i} = (\bar{b} - b_{0i}, \bar{w} - w_{0i})S^{-1}(\bar{b} - b_{0i}, \bar{w} - w_{0i})'$$
 (3)

$$SSE_0 = \sum (e_{0i})$$

3. Development: numbers, results and dificulties

The dataset given in [3] is composed by 5651 rows, with 14 columns each row, as shown in 3.

There were lines referencing the measurement of only one child but in different times and different values that must be considered and some data entries did not have enough records to evaluate with the R script. In this case, we must to remove these spurious data.

After a clean, we divide the dataset in training, testing and validation in the proportion 80:16:4 respectively, to be confident in the final results.

The answer is not only a variable, but a vector with components. These kind of problems are more complicated than problems involving only a variable response.

Some of the attributes are time series. We had to decide how to deal with it. Decide to stay with average and is an example; decide to work with the series implies having to think about how to include a number as an attribute, which is not trivial.

Using the scripts we reached the value of SSE = 62643.36994767563.

We didn't try another algorithms as kNN or random forest, for instance. During evaluation, the value of Odv3 respect to weight and the last measurement time for the birth date were important features.

²World Health Organization

³standard deviations

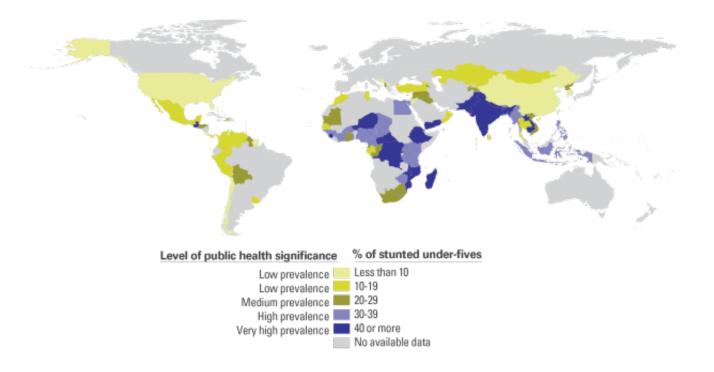


Figure 2. Undernutrition contributes to half of all deaths in children under 5 and is widespread in Asia and Africa Percentage of under-five children who are stunted, 2008 - 2013).

Column	Variable	Type	Label/Description				
1	Id	int	Unique Fetus ID				
2	t.ultsnd	float	Estimated fetus gestational age from last menstrual recall date				
3	Sex	int	0 = Male, $1 = Female$				
4	Status	int	Maternal nutritional status (1 or 2)				
5-12	Odv	float	Dependent variables: Ultrasound observed measurements				
13	Birth Sz	float	Birth Weight (w)				
14	Duration	float	Pregnancy Duration, or Birthday (b)				
Table 1. Dataset definition (from [3])							

4. Further studies

There's a lot of ways to understand the problem of stunting in child populations. The website Topcoder⁴ recently released another two problems regarding this issue ⁵.

Some ways of understand of how to deal this problem permeates the ethnic differences, for instance.

This work clearly does not contain all the possibilities and variations that may occur in relation to the subject of malnutrition and stunting. The possibilities of dealing with this subject are diverse, so we propose the extrapolation to this discipline and continue the development of intelligent algorithms that can be in support of medical decisions to inform pregnant women about the nutrition of their children.

For this problem, we are dealing with the issue of health information from children from the mother's womb. Thus, although the final result within a machine learning system is a set of numbers from a practical way, it is actually helping doctors and / or families, analyzing the results and evaluating the need to take actions to revert the malnutrition.

Thus, the ultimate goal is eventually to create a model that can help make decisions about whether to take action to reverse a possible framework for future child malnutrition, to the extent that we are evaluating the child from the womb breast.

Use another kind of predictors (as kNN, Random forest) can bring new ways to evaluate the data.

⁴https://www.topcoder.com/

⁵http://community.topcoder.com/longcontest/
?module=ViewProblemStatement&rd=16153&pm=13478
and https://www.topcoder.com/longcontest/?module=
ViewProblemStatement&rd=16209&compid=45332

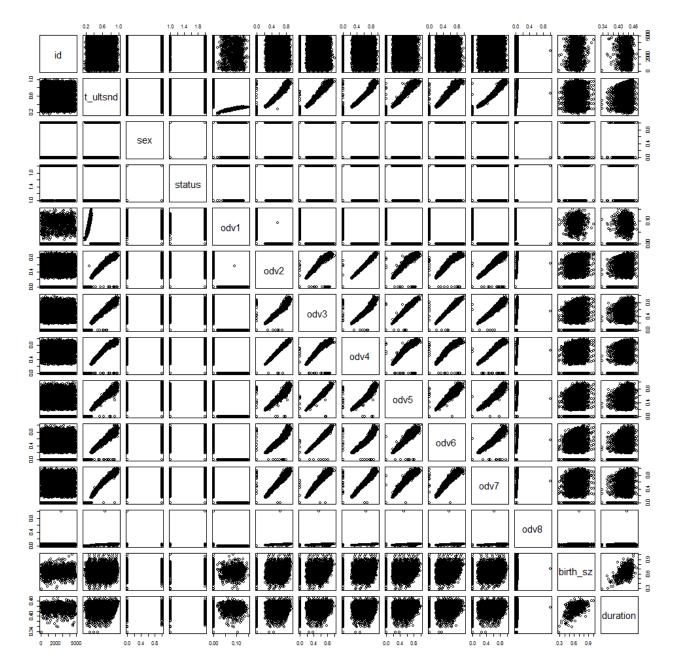


Figure 4. The whole dataset plotted.

The data is a few messy and in some times don't make sense. The enunciation isn't clearly. And there is another challenges at topcoder sites with respect this issues with more features and maybe more interesting to evaluate according Machine Learning.

5. Charts and Tables

The charts below are from CDC⁶ website and given the default curves of growth for girls and boys from the birth to 24 months. This is helpful because using by parent's they can evaluate the children growth according medicine measurement.

⁶Center for Disease Control and Prevention

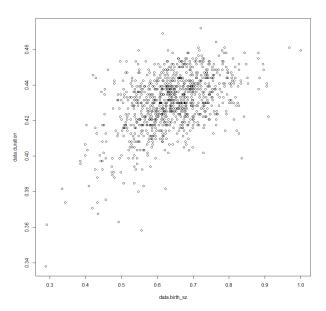
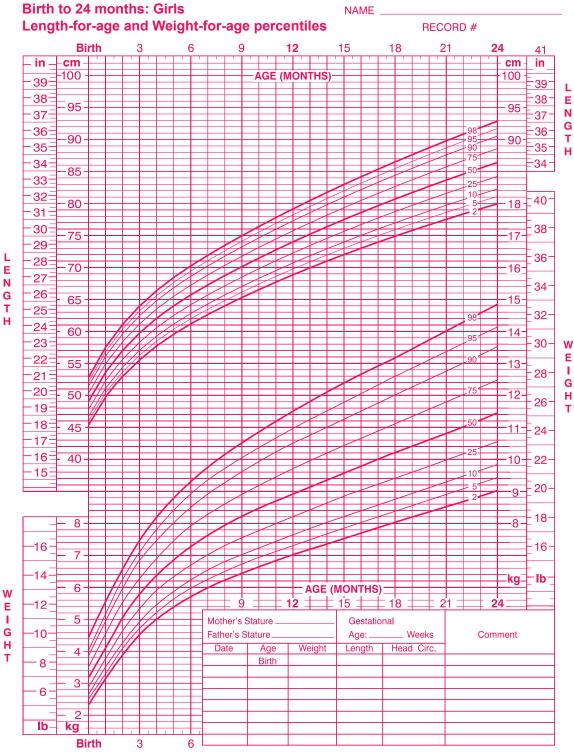
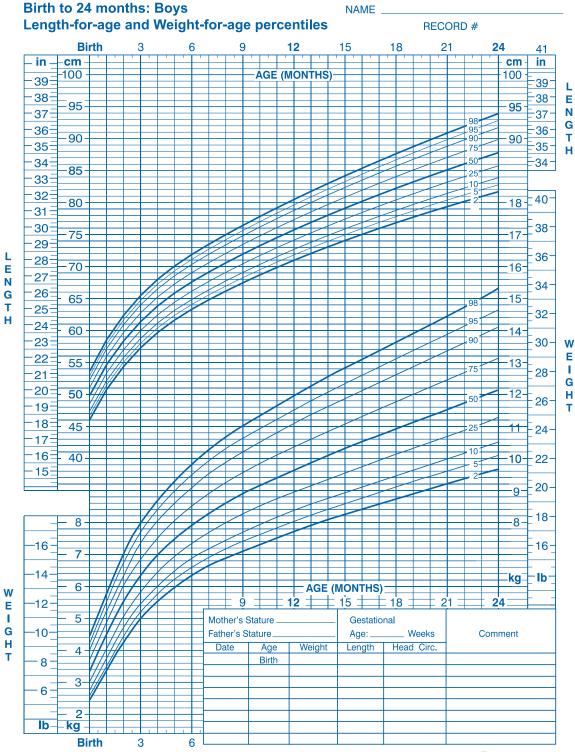


Figure 3. Birth vs Duration plot according the dataset.



Published by the Centers for Disease Control and Prevention, November 1, 2009 SOURCE: WHO Child Growth Standards (http://www.who.int/childgrowth/en)





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Age	3rd Percentile	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile	97th Percentile
(in months)	(cm)	(cm)	(cm)	(cm)	(cm)	(cm)	(cm)	(cm)	(cm)
0	44.9251	45.56841	46.55429	48.18937	49.98888	51.77126	53.36153	54.30721	54.919
0.5	47.97812	48.55809	49.4578	50.97919	52.69598	54.44054	56.03444	56.99908	57.62984
1.5	52.19859	52.72611	53.55365	54.9791	56.62843	58.35059	59.9664	60.96465	61.62591
2.5	55.26322	55.77345	56.57772	57.9744	59.60895	61.33788	62.98158	64.00789	64.69241
3.5	57.73049	58.23744	59.0383	60.43433	62.077	63.82543	65.49858	66.54889	67.2519
4.5	59.82569	60.33647	61.1441	62.55409	64.21686	65.99131	67.69405	68.76538	69.48354
5.5	61.66384	62.18261	63.00296	64.43546	66.12531	67.92935	69.66122	70.75128	71.48218
6.5	63.31224	63.84166	64.67854	66.13896	67.86018	69.69579	71.45609	72.56307	73.30488
7.5	64.81395	65.35584	66.21181	67.70375	69.45908	71.32735	73.11525	74.23767	74.98899
8.5	66.19833	66.75398	67.63088	69.15682	70.94804	72.84947	74.6641	75.80074	76.56047
9.5	67.48635	68.05675	68.95591	70.51761	72.34586	74.2806	76.1211	77.27095	78.03819
10.5	68.6936	69.27949	70.20192	71.80065	73.66665	75.63462	77.50016	78.66234	79.43637
11.5	69.832	70.43397	71.38046	73.01712	74.9213	76.92224	78.81202	79.98578	80.76602
12.5	70.91088	71.52941	72.50055	74.17581	76.11838	78.15196	80.0652	81.2499	82.03585
13.5	71.9377	72.57318	73.56946	75.2838	77.2648	79.33061	81.2666	82.46167	83.25292
14.5		73.5713			78.36622	80.4638			
	72.91853		74.59309	76.34685			82.42185	83.6268	84.42302
15.5	73.85839	74.52871	75.57634	77.36973	79.42734	81.5562	83.53568	84.75006	85.55095
16.5	74.76147	75.44958	76.5233	78.35646	80.45209	82.61174	84.61204	85.83547	86.64078
17.5	75.63132	76.33742	77.43742	79.31042	81.44384	83.63377	85.65431	86.88645	87.69597
18.5	76.47096	77.19523	78.32168	80.23453	82.40544	84.62515	86.66541	87.90595	88.7195
19.5	77.283	78.0256	79.17863	81.13131	83.33938	85.58837	87.64786	88.89652	89.71393
20.5	78.06971	78.83077	80.01048	82.00292	84.24783	86.52562	88.60385	89.86038	90.68153
21.5	78.83308	79.61271	80.81919	82.85129	85.1327	87.43879	89.53533	90.79951	91.62428
22.5	79.57485	80.37315	81.60646	83.67811	85.99565	88.32957	90.44402	91.71563	92.54392
23.5	80.29656	81.11363	82.37381	84.48487	86.83818	89.19948	91.33143	92.61031	93.44203
	80.29656	81.83552				90.04985	92.19893		94.31998
24.5			83.12259	85.2729	87.66161			93.48491	
25.5	81.74464	82.58135	83.87245	86.03703	88.45247	90.8787	93.07143	94.38775	95.24419
26.5	82.47365	83.31105	84.60576	86.78329	89.22326	91.68468	93.91817	95.263	96.13962
27.5	83.18812	84.02609	85.32399	87.51317	89.97549	92.46929	94.74064	96.1121	97.00763
28.5	83.88931	84.72769	86.02833	88.22788	90.71041	93.23385	95.54016	96.93639	97.84957
29.5	84.57826	85.41688	86.71978	88.9284	91.42908	93.97951	96.318	97.73717	98.66677
30.5	85.25589	86.09452	87.39917	89.6156	92.13242	94.70732	97.07531	98.51569	99.46052
31.5	85.92294	86.76134	88.06723	90.2902	92.82127	95.41824	97.81324	99.27318	100.2321
32.5	86.58009	87.41799		90.95287			98.53287	100.0109	100.9829
						96 11319			
			88.72457 89.37177		93.49638	96.11319 96.79307			
33.5	87.22791	88.06503	89.37177	91.60421	94.15847	96.79307	99.23531	100.73	101.7142
33.5 34.5	87.22791 87.86696	88.06503 88.70301	89.37177 90.00937	91.60421 92.24482	94.15847 94.80823	96.79307 97.45873	99.23531 99.92162	100.73 101.4318	101.7142 102.4274
33.5	87.22791	88.06503	89.37177 90.00937 90.63786	91.60421 92.24482 92.87525	94.15847 94.80823 95.44637	96.79307 97.45873 98.11108	99.23531	100.73	101.7142
33.5 34.5	87.22791 87.86696	88.06503 88.70301	89.37177 90.00937 90.63786	91.60421 92.24482 92.87525	94.15847 94.80823	96.79307 97.45873 98.11108	99.23531 99.92162	100.73 101.4318	101.7142 102.4274
33.5 34.5 35.5	87.22791 87.86696	88.06503 88.70301	89.37177 90.00937 90.63786	91.60421 92.24482 92.87525	94.15847 94.80823 95.44637	96.79307 97.45873 98.11108	99.23531 99.92162 100.5929	100.73 101.4318	101.7142 102.4274
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33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 53.8594 57.8047 59.54799	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.0038 62.74547 65.11577 67.23398 69.16668
33.5 34.5 35.5 Age (in months) 0.5 1.5 2.5 3.5 4.5 5.5 6.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 95.54799 61.13893	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.7208 63.25958	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 6.5 7.5 8.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.0038 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 53.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.755594	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.94814 70.59149 71.68784 72.74233	91.60421 92.24482 92.87525 lle 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.29382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.191962 73.18501 74.39564 75.55785 76.67686	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 77.15594 77.1058 79.82613	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942	91.60421 92.24482 92.87525 lle 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.0038 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20332 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737
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33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.1237 76.36229 77.19056	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.315 81.30893	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59552	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59,74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.953399 82.97211 83.96202 84.92846	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.88601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 77.99868	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59532 84.48238 85.34924	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.33791 77.55594 77.75594 77.75594 77.75594 77.75594 77.82613 80.90623 81.95399 82.97211 83.96292 84.92846	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.88601 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 19.5 20.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.165225 83.00187	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55788 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.859532 84.48233 85.34924 86.19732	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59,74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.8963 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.8866 91.86347 92.80876
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 10.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 24.5 25.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.19056 77.199868 78.78801 79.55974 80.33998	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318	91.60421 92.24482 92.87525 sle 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.16525 83.00187 83.82007 84.67209	94.15847 94.80823 95.44637 ges Birth - 36 Soth Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59532 84.48233 85.34924 86.19732 87.09026	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.9008 88.86127 89.79282 90.70499 91.67718	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074 92.97574	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.0038 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.89866 91.86347 92.80876 93.81864
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5 29.5 20.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 77.99868 77.898687 77.99868 78.78801 79.55974 80.33998 81.11332	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.083885 81.67752 82.49318 83.29459	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.165252 83.300187 83.82007 84.67209 85.5036	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59532 84.48233 85.34924 86.19732 87.09026	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.837342 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 93.93693	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.89866 91.86347 92.80876 93.81864 94.79426
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 24.5 25.5 26.5 27.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 53.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223 82.74084	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318 83.29459	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.165225 83.00187 83.82007 84.67209 85.5036 86.31151	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.89532 84.48233 85.34924 86.19732 87.99026 87.95714 88.79602	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982 91.28258	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658 93.52227	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.98074 92.97574 93.93693 94.86339	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.99526 89.91305 90.89866 91.86347 92.80876 93.81864 94.79426 95.73464
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33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5 12.5 12.5 12.5 12.5 12.5 12	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332 81.87334 82.61506 83.33473 84.02972	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223 82.74084 83.48951 84.21496 84.91494	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318 83.29459 84.07717 84.83741 85.57273 86.28139	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 87.65565 88.04315 81.30893 82.16525 83.00187 83.82007 84.67209 85.5036 86.31151 87.09346 87.84783 88.57362	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.89532 84.48233 85.34924 86.19732 87.09026 87.95714 88.79602 89.60551 90.38477 91.13342	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982 90.128258 92.12313 92.931113 93.70662	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.677118 92.61658 93.52227 94.39371 95.23082	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 93.93693 94.86339 95.75464 96.61061 97.43164	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.89866 91.86347 92.80876 93.81864 94.79426 95.73464 96.63928 97.50808 98.34139
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 10.5 11.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5 30.5 31.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332 81.87334 82.61506 83.33473 84.02972	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223 82.74084 83.48951 84.21496 84.91494 85.58809	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.1576 78.38958 79.2412 80.07216 80.88385 81.67752 80.88385 81.67752 82.49318 83.29459 84.07717 84.83741 85.57273 86.28139 86.96242	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.16525 83.00187 83.82007 84.67209 85.5036 86.31151 87.09346 87.84783 88.57362 89.27042	94.15847 94.80823 95.44637 ges Birth - 36 Soth Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59532 84.48234 85.19732 87.995714 88.79602 89.60551 90.38477 91.13342	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982 91.28258 92.12313 92.93113 92.93113 93.70662	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658 93.52227 94.39371 95.23082 96.80343	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 93.93693 94.86339 95.75464 96.61061 97.43164 98.2184	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.89866 91.86347 92.80876 93.81864 94.79426 95.73464 96.63928 97.50808 99.13993
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5 30.5 31.5 32.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332 81.87334 82.61506 83.333473 84.02972 84.69837 85.33987	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223 82.74084 83.48951 84.21496 84.91494 85.58809 86.23379	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318 83.29459 84.07717 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 88.57273 86.28139 86.96242 87.6155	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.655667 78.60678 79.53138 80.4315 81.4315 81.4315 83.2007 84.67209 85.5036 86.31151 87.09346 87.84783 88.57362 89.27042	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.39552 84.48233 85.34924 86.19732 87.99026 87.95714 88.79602 89.60551 90.38477 91.13342 91.85154	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59,74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982 91.28258 92.12313 93.70662 94.45005 95.16218	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658 93.52227 94.39371 94.39371 95.23082 96.03385 96.80343 97.54052	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 92.97574 92.97574 93.93693 94.86339 95.75464 96.61061 97.43164 98.21184	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.8866 91.86347 92.80876 93.81864 94.79426 95.73464 96.63928 97.50808 98.34139 99.13993 99.90473
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 3.5 10.5 11.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5 30.5 31.5 32.5 33.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332 81.87334 82.61506 83.33473 84.02972 84.69837 85.3987 85.3987 85.95914	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.630282 77.16191 77.881595 79.61381 80.39391 81.18804 81.97223 82.74084 83.48951 84.21496 84.91494 85.58809 86.23379 86.85208	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318 83.29459 84.07717 84.83741 85.57273 86.96242 87.6155 88.24089	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.65565 78.60678 79.53138 80.4315 81.30893 82.16525 83.00187 83.82007 84.67209 85.5036 86.31151 87.09346 87.84783 88.57362 89.27042 89.97835	94.15847 94.80823 95.44637 ges Birth - 36 Soth Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.59532 84.48233 85.34924 86.19732 87.99714 88.79602 89.60551 90.38477 91.13342 91.85154 92.53964 93.319854	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59.74045 62.1233 64.22507 66.12418 67.24614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.90562 90.40982 91.28258 99.212313 92.93113 92.93113 92.93113 92.93113 92.93113 92.93113 92.93113 92.93113	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.07731 72.62711 74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658 93.52227 94.39371 95.23082 96.03385 96.80343 97.54052 98.24636	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 86.06887 87.11249 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 93.93693 94.86339 95.75464 96.61061 97.43164 98.2184 98.97193 99.69353	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.89866 91.86347 92.80876 93.81864 94.79426 95.73464 96.63928 97.50808 99.13993 99.90473 1100.6372
33.5 34.5 35.5 Age (in months) 0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5 19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5 30.5 31.5 32.5	87.22791 87.86696 88.49774 3rd Percentile (cm) 45.09488 47.46916 50.95701 53.62925 55.8594 57.8047 59.54799 61.13893 62.60993 63.98348 65.2759 66.49948 67.66371 68.77613 69.8428 70.86874 71.85807 72.81433 73.74047 74.63908 75.51237 76.36229 77.19056 77.99868 78.78801 79.55974 80.33998 81.11332 81.87334 82.61506 83.333473 84.02972 84.69837 85.33987	88.06503 88.70301 89.33242 5th Percentile (cm) 45.57561 47.96324 51.47996 54.17907 56.43335 58.40032 60.16323 61.77208 63.25958 64.64845 65.9552 67.19226 68.36925 69.4938 70.57207 71.60911 72.60914 73.57571 74.51184 75.42012 76.30282 77.16191 77.9991 78.81595 79.61381 80.39391 81.18804 81.97223 82.74084 83.48951 84.21496 84.91494 85.58809 86.23379	89.37177 90.00937 90.63786 Tab 10th Percentile (cm) 46.33934 48.74248 52.29627 55.03144 57.31892 59.31633 61.10726 62.7421 64.25389 65.66559 66.99394 68.25154 69.44814 70.59149 71.68784 72.74233 73.75924 74.74217 75.6942 76.61797 77.51576 78.38958 79.2412 80.07216 80.88385 81.67752 82.49318 83.29459 84.07717 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 84.83741 88.57273 86.28139 86.96242 87.6155	91.60421 92.24482 92.87525 ble 2. Males, A 25th Percentile (cm) 47.68345 50.09686 53.69078 56.47125 58.80346 60.84386 62.6759 64.35005 65.89952 67.34745 68.7107 70.00202 71.23128 72.40633 73.53349 74.61799 75.66416 76.67568 77.655667 78.60678 79.53138 80.4315 81.4315 81.4315 83.2007 84.67209 85.5036 86.31151 87.09346 87.84783 88.57362 89.27042	94.15847 94.80823 95.44637 ges Birth - 36 50th Percentile (cm) 49.2864 51.68358 55.28613 58.09382 60.45981 62.5367 64.40633 66.11842 67.70574 69.19124 70.59164 71.91962 73.18501 74.39564 75.55785 76.67686 77.75701 78.80198 79.81492 80.79852 81.75512 82.68679 83.39552 84.48233 85.34924 86.19732 87.99026 87.95714 88.79602 89.60551 90.38477 91.13342 91.85154	96.79307 97.45873 98.11108 Months 75th Percentile (cm) 51.0187 53.36362 56.93136 59,74045 62.1233 64.22507 66.12418 67.8685 69.48975 71.01019 72.44614 73.80997 75.11133 76.35791 77.55594 78.71058 79.82613 80.90623 81.95399 82.97211 83.96292 84.92846 85.87054 86.79077 87.69056 88.57121 89.50562 90.40982 91.28258 92.12313 93.70662 94.45005 95.16218	99.23531 99.92162 100.5929 90th Percentile (cm) 52.7025 54.96222 58.45612 61.24306 63.62648 65.74096 67.65995 69.42868 71.74.09378 75.48923 76.82282 78.10202 79.3329 80.5205 81.66903 82.78208 83.86269 84.91353 85.93689 86.93481 87.90908 88.86127 89.79282 90.70499 91.67718 92.61658 93.52227 94.39371 94.39371 95.23082 96.03385 96.80343 97.54052	100.73 101.4318 102.1174 95th Percentile (cm) 53.77291 55.96094 59.38911 62.15166 64.52875 66.64653 68.57452 70.35587 72.01952 73.58601 75.0705 76.4846 77.83742 79.13625 80.38705 81.59475 82.7635 83.89683 84.99774 88.13061 89.125 90.09723 91.04873 91.98074 92.97574 92.97574 92.97574 93.93693 94.86339 95.75464 96.61061 97.43164 98.21184	101.7142 102.4274 103.1237 97th Percentile (cm) 54.49527 56.62728 60.00338 62.74547 65.11577 67.23398 69.16668 70.95545 72.62835 74.20532 75.70118 77.12729 78.49257 79.80419 81.06801 82.28891 83.47098 84.6177 85.73205 86.81663 87.8737 88.90526 89.91305 90.8866 91.86347 92.80876 93.81864 94.79426 95.73464 96.63928 97.50808 98.34139 99.13993 99.90473

89,93835 92,53904 93,10216 90,57795 93,19854 95,84411 91,1902 93,82945 96,49721 91,77639 94,43382 97,12307 Table 3. Females, Ages Birth - 36 Months

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