Supplemental Tables

Supplemental Table 5: Percentage with low (-2) and high (2+) age-specific z-scores among US children aged 6-23 months, by low birthweight status, 1976-2014, and race/Hispanic origin, 1988-2014

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1976-1980 | 1988-1994 | 1999-2002 | 2003-2006 | 2007-2010 | 2011-2014 | p-value for trend‡ |
| Normal birthweight |  |
| Weight-for-age |  |
|  z-score < -2 | 0.4 (0.1-1.3)\*\*† | 0.3 (0.1-0.7)\*\* † | 0.8 (0.3-2.0)\*\* † | 1.2 (0.5-2.5)\* | 0.8 (0.2-2.0)\*\* † | 0.1 (0.0-0.7)\*\* † | 0.45 |
|  z-score 2+ | 6.0 (4.2-8.2) | 6.5 (5.2-8.0) | 6.5 (5.1-8.1) | 6.3 (4.3-8.8) | 6.9 (4.9-9.4) | 7.4 (5.2-10.2) | 0.36 |
| Length-for-age, among children 6-23 months |  |
|  z-score < -2 | 3.3 (2.1-4.9) | 1.9 (1.2-2.9) | 3.1 (1.8-4.9) | 1.7 (0.8-3.1)\* | 2.4 (1.6-3.4) | 2.6 (1.2-4.7)\* | 0.40 |
|  z-score 2+ | 5.8 (4.3-7.6) | 5.2 (4.5-6.1) | 4.5 (3.2-6.2) | 4.4 (2.5-7.1) | 4.1 (2.2-7.0) | 4.0 (2.4-6.2) | 0.06 |
| Weight-for-length, among children 6-23 months |  |
|  z-score < -2 | 0.4 (0.1-1.1)\*\* † | 0.7 (0.4-1.3) | 0.6 (0.1-2.1)\*\* † | 1.0 (0.4-2.1)\* | 0.6 (0.1-1.8)\*\* † | 1.0 (0.3-2.5)\*\* † | 0.26 |
|  z-score 2+ | 6.3 (4.5-8.5) | 7.5 (6.1-9.1) | 8.0 (6.2-10.0) | 7.4 (5.2-10.2) | 9.1 (7.1-11.6) | 7.9 (5.7-10.6) | 0.11 |
| Low birthweight |  |
| Weight-for-age |  |
|  z-score < -2 | 3.6 (0.8-10.1)\*\* † | 2.9 (1.3-5.4)\*  | 6.0 (2.1-12.9)\*\* † | 8.5 (3.4-17.1)\* † | 4.1 (2.5-6.5) † | 6.4 (2.4-13.2)\* † | 0.27 |
|  z-score 2+ | 1.5 (0.2-5.6)\*\* † | 0.9 (0.2-2.4)\*\* † | 0.9 (0.0-4.6)\*\* † | 2.5 (0.4-8.0)\*\* † | -- | 3.1 (0.1-15.6)\*\* † | 0.76 |
| Length-for-age |  |
|  z-score < -2 | 17.7 (9.9-28.1) | 10.6 (5.8-17.5) | 17.7 (10.0-28.1) | 18.0 (9.1-30.5) | 10.4 (5.7-17.1) | 10.8 (5.3-19.2)\* | 0.38 |
|  z-score 2+ | 1.4 (0.1-5.2)\*\* † | 2.6 (0.6-7.1)\*\* † | 1.1 (0.1-4.2)\*\* † | -- | 1.0 (0.0-5.3)\*\* † | 0.6 (0.0-3.5)\*\* † | 0.27 |
| Weight-for-length |  |
|  z-score < -2 | 0.6 (0.0-3.4)\*\* † | 0.9 (0.1-3.5)\*\* † | 0.6 (0.0-3.3)\*\* † | 1.0 (0.0-5.8)\*\* † | 0.7 (0.0-4.0)\*\* † | 0.7 (0.0-3.7)\*\* † | 0.93 |
|  z-score 2+ | 5.1 (1.3-13.3)\*\* † | 2.7 (1.0-5.7)\* | 5.0 (1.0-14.3)\*\* † | 7.5 (2.5-16.7)\*\* † | 3.8 (1.2-9.0)\*\* † | 6.0 (1.2-16.6)\*\* † | 0.68 |
| Non-Hispanic white |  |
| Weight-for-age |  |
|  z-score < -2 | NA | 0.3 (0.1-0.9)\*\* † | 1.4 (0.3-4.0)\*\* † | 2.1 (0.8-4.4)\* | 1.1 (0.2-3.3)\*\* † | 0.4 (0.0-2.1)\*\* † | 0.54 |
|  z-score 2+ | NA | 6.1 (4.4-8.3) | 3.3 (1.7-5.6) | 4.4 (2.8-6.5) | 6.1 (3.7-9.6) | 6.4 (3.5-10.6) | 0.66 |
| Length-for-age |  |
|  z-score < -2 | NA | 2.6 (1.4-4.2) | 4.4 (2.4-7.4) | 3.8 (1.9-6.8) | 3.3 (2.3-4.6) | 3.5 (1.2-7.9)\*\* † | 0.60 |
|  z-score 2+ | NA | 4.4 (3.4-5.6) | 3.4 (1.8-5.6) | 4.0 (1.8-7.6)\* | 3.5 (1.3-7.4)\* | 2.0 (0.6-5.0)\*\* † | 0.07 |
| Weight-for-length |  |
|  z-score < -2 | NA | 0.7 (0.3-1.4)\* † | 0.6 (0.0-3.4)\*\* † | 0.8 (0.2-2.3)\*\* † | 0.8 (0.1-3.0)\*\* † | 0.9 (0.1-4.0)\*\* † | 0.77 |
|  z-score 2+ | NA | 6.2 (4.6-8.2) | 4.7 (2.3-8.5)\* | 6.6 (4.3-9.5) | 7.9 (4.8-12.1) | 7.6 (4.6-11.5) | 0.21 |
| Non-Hispanic black |  |
| Weight-for-age |  |
|  z-score < -2 | NA | 1.2 (0.5-2.6)\* † | 1.0 (0.1-3.9)\*\* † | 1.7 (0.5-4.2)\*\* † | 2.4 (1.0-5.1)\* † | 1.2 (0.1-4.5)\*\* † | 0.52 |
|  z-score 2+ | NA | 6.7 (4.9-9.1) | 7.7 (4.7-11.9) | 7.0 (3.8-11.7) | 9.7 (5.0-16.7) | 9.8 (6.0-14.9) | 0.14 |
| Length-for-age |  |
|  z-score < -2 | NA | 4.1 (2.5-6.2) | 3.3 (1.6-6.1)\* † | 1.9 (0.7-4.2)\*\* † | 4.1 (1.7-7.9)\* † | 3.5 (1.2-7.7)\*\* † | 0.73 |
|  z-score 2+ | NA | 6.2 (4.2-8.7) | 5.0 (2.4-9.2)\* | 5.8 (3.3-9.5) | 7.9 (3.6-14.5)\* | 6.0 (1.9-13.6)\*\* | 0.73 |
| Weight-for-length |  |
|  z-score < -2 | NA | 1.0 (0.3-2.5)\*\* † | 0.5 (0.0-2.7)\*\* † | 1.1 (0.2-3.5)\*\* † | 0.4 (0.0-2.5)\*\* † | 1.2 (0.1-4.6)\*\* † | 0.98 |
|  z-score 2+ | NA | 8.5 (5.7-12.0) | 10.6 (7.1-14.9) | 6.2 (3.5-10.0) | 8.0 (4.0-13.9) | 8.8 (5.1-14.1) | 0.78 |
| Mexican American |  |
| Weight-for-age |  |
|  z-score < -2 | NA | 0.9 (0.2-2.3)\*\* † | 0.8 (0.1-3.2)\*\* † | 1.8 (0.8-3.4)\* † | 0.6 (0.1-2.3)\*\* † | -- | 0.14 |
|  z-score 2+ | NA | 8.6 (6.0-11.8) | 11.0 (7.2-15.9) | 7.6 (5.0-11.0) | 6.4 (4.3-9.2) | 9.4 (4.6-16.7) | 0.72 |
| Length-for-age |  |
|  z-score < -2 | NA | 3.6 (2.2-5.4) | 3.4 (1.7-6.1) | 2.3 (0.8-5.0)\* †\* | 1.8 (0.6-4.0)\*\* † | 1.6 (0.5-3.7)\*\* † | **0.02** |
|  z-score 2+ | NA | 6.5 (4.3-9.4) | 3.1 (1.9-4.8) | 3.3 (1.5-6.2)\* | 2.3 (0.8-5.0)\*\* † | 5.4 (2.0-11.2)\* † | 0.29 |
| Weight-for-length |  |
|  z-score < -2 | NA | 0.9 (0.2-2.7)\*\* † | -- | 1.2 (0.3-3.3)\*\* † | 0.7 (0.0-4.0)\*\* † | 1.1 (0.1-4.0)\*\* † | 0.73 |
|  z-score 2+ | NA | 11.3 (8.6-14.5) | 12.8 (9.7-16.4) | 9.6 (6.3-13.9) | 11.9 (8.7-15.9) | 9.4 (5.0-15.9) | 0.51 |
| Ever breastfed |
| Weight-for-age |
| z-score < -2 | NA | 0.2 (0.0-0.9)\*\*† | 1.8 (0.6-4.0)\*\* | 1.3 (0.5-2.9)\* | 0.8 (0.4-1.5)† | 0.3 (0.1-1.0)\*\*† | 0.88 |
| z-score 2+ | NA | 6.2 (4.5-8.3) | 5.8 (4.3-7.7) | 5.5 (3.6-7.9) | 6.5 (4.4-9.2) | 6.6 (4.4-9.6) | 0.74 |
| Length-for-age |
| z-score < -2 | NA | 1.7 (0.8-3.0) | 4.7 (2.9-7.2) | 2.3 (1.1-4.2)\* | 2.4 (1.3-4.2) | 3.3 (1.8-5.6) | 0.34 |
| z-score 2+ | NA | 6.0 (4.8-7.5) | 4.0 (2.5-6.2) | 4.5 (2.4-7.4) | 3.9 (2.2-6.4) | 3.9 (2.3-6.3) | 0.05 |
| Weight-for-length |
| z-score < -2 | NA | 0.6 (0.3-1.3)\*† | 0.9 (0.1-2.8)\*\*† | 0.9 (0.3-2.1)\*\*† | 0.2 (0.1-0.7)\*\*† | 1.1 (0.3-2.7)\*\*† | 0.79 |
| z-score 2+ | NA | 7.1 (5.1-9.6) | 8.0 (5.6-10.9) | 6.6 (4.6-9.1) | 8.8 (6.3-11.9) | 6.9 (4.5-10.1) | 0.85 |
| Never breastfed |
| Weight-for-age |
| z-score < -2 | NA | 0.8 (0.4-1.5)\* | 0.6 (0.1-2.0)\*\*† | 3.2 (1.2-6.9)\* | 1.7 (0.2-6.0)\*\*† | 1.8 (0.3-5.8)\*\*† | 0.19 |
| z-score 2+ | NA | 5.8 (4.2-7.8) | 6.1 (3.6-9.5) | 7.3 (3.9-12.2) | 6.0 (3.2-10.0) | 8.4 (4.3-14.4) | 0.32 |
| Length-for-age |
| z-score < -2 | NA | 4.0 (2.8-5.4) | 4.5 (2.5-7.5) | 5.2 (2.0-11.0)\* | 4.8 (2.2-9.1)\* | 3.4 (0.9-8.4)\*\*† | 0.96 |
| z-score 2+ | NA | 3.8 (2.8-5.0) | 4.3 (2.5-7.0) | 2.7 (0.9-6.2)\*\*† | 3.7 (1.1-9.0)\*\*† | 2.7 (0.9-6.3)\*\*† | 0.43 |
| Weight-for-length |
| z-score < -2 | NA | 0.9 (0.4-1.9)\* | -- | 1.1 (0.2-3.3)\*\*† | 1.6 (0.2-5.7)\*\*† | 0.7 (0.1-2.3)\*\*† | 0.63 |
| z-score 2+ | NA | 6.9 (5.2-8.8) | 7.0 (4.1-11.0) | 9.7 (5.1-16.4) | 8.3 (5.6-11.8) | 10.8 (6.0-17.5) | 0.10 |

\*Relative standard error 30%-40%

\*\*Relative standard error>40%

† numerator < 10

‡ Test for trend using orthogonal contrast

Data source: NHANES

Table 6: Mean change in weight-for-age z-score from birthweight among US children aged 6-23 months, by race/Hispanic origin and low birthweight status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1988-1994 | 1999-2002 | 2003-2006 | 2007-2010 | 2011-2014 | p-value trend† |
| Mean change in weight-for-age z score between birth and survey participation |
| *Total* | *0.35 (0.28, 0.43)* | *0.44 (0.36, 0.52)* | *0.45 (0.34, 0.57)* | *0.44 (0.35, 0.53)* | *0.45 (0.34, 0.57)* | ***0.04*** |
|  Race/Hispanic origin |
|  NH white | 0.21 (0.10, 0.32) | 0.31 (0.18, 0.44) | 0.36 (0.20, 0.52) | 0.27 (0.11, 0.44) | 0.26 (0.03, 0.48) | 0.55 |
|  NH black | 0.71 (0.59, 0.83) | 0.93 (0.74, 1.12) | 0.80 (0.65, 0.95) | 0.82 (0.67, 0.97) | 0.99 (0.82, 1.15) | **0.02** |
|  Mexican American | 0.45 (0.32, 0.57) | 0.50 (0.33, 0.67) | 0.47(0.31, 0.63) | 0.48 (0.38, 0.58) | 0.55 (0.32, 0.78) | 0.50 |
|  Breastfeeding history |
|  Ever breastfed | 0.20 (0.11, 0.29) | 0.40 (0.28, 0.52) | 0.41 (0.28, 0.54) | 0.35 (0.24, 0.46) | 0.39 (0.25, 0.52) | **0.04** |
|  Never breastfed | 0.54 (0.43, 0.65) | 0.53 (0.38, 0.68) | 0.58 (0.43, 0.72) | 0.66 (0.49, 0.83) | 0.72 (0.49, 0.95) | 0.10 |
|  |
| *Normal birthweight* | *0.23 (0.16, 0.29)* | *0.27 (0.20, 0.35)* | *0.33 (0.22, 0.44)* | *0.32 (0.22, 0.42)* | *0.28 (0.16, 0.41)* | *0.08* |
|  Race/Hispanic origin |
|  NH white | 0.10 (0.01, 0.18) | 0.18 (0.04, 0.31) | 0.26 (0.11, 0.41) | 0.21 (0.05, 0.38) | 0.13 (-0.09, 0.35) | 0.37 |
|  NH black | 0.52 (0.41, 0.64) | 0.55 (0.33, 0.77) | 0.59 (0.42, 0.76) | 0.68 (0.49, 0.88) | 0.77 (0.58, 0.96) | **0.02** |
|  Mexican American | 0.35 (0.21, 0.48) | 0.39 (0.21, 0.57) | 0.31 (0.16, 0.46) | 0.31 (0.21, 0.42) | 0.36 (0.13, 0.58) | 0.82 |
|  Breastfeeding history |
|  Ever breastfed | 0.13 (0.05, 0.22) | 0.28 (0.17, 0.38) | 0.29 (0.17, 0.42) | 0.25 (0.14, 0.37) | 0.21 (0.08, 0.35) | 0.30 |
|  Never breastfed | 0.34 (0.25, 0.43) | 0.26 (0.10, 0.42) | 0.43 (0.27, 0.59) | 0.52 (0.33, 0.70) | 0.57 (0.34, 0.79) | **0.02** |
|  |
| *Low birthweight*  | *2.10 (1.88, 2.31)* | *2.04 (1.77, 2.30)* | *1.89 (1.66, 2.12)* | *1.82 (1.56, 2.07)* | *2.16 (1.87, 2.44)* | *0.50* |

Note: Children with “other” race are included in the total although results are not shown separately.

† Test for trend using linear regression.

Data source: NHANES