



Topics in Health Statistics

Multiple Births, Low Birth Weight, and Infant Mortality New Jersey, 1990-1997

By: Maria L. Baron, M.A.S.

Abstract

Objective: This report presents low birth weight and infant mortality data with respect to parity. The relationship between the rising number of multiple births and the percentage of low birth weight babies is examined. Additionally, the association between parity and deaths before age one is discussed.

Method: New Jersey resident birth files were used to determine plurality and birth weight and linked files of New Jersey resident infant deaths and their corresponding birth records were used to determine infant mortality in terms of parity. Infant mortality was based on the year of birth, not the year of death.

Keywords: multiple births, plurality, parity, birth weight, infant mortality

Nationally, the number of babies born as part of a multiple birth (twins and higher order births) has risen dramatically over the past two decades. Between 1980 and 1997, the number of multiple births rose 59.1 percent while the number of singleton births rose only 6.4 percent.¹ About one-third of this increase is attributable to the upward shift in maternal age, since multiple births are more likely to occur naturally to mothers in their 30s and 40s.² The other two-thirds of the increase is believed to be related to increased use of fertility treatments.³

Among New Jersey residents, the number of multiple births increased 46.9 percent between 1990 and 1997 while the number of singleton births decreased 8.9 percent.⁴ Additionally, the percentage of births that were part of a twin delivery or higher increased 54.2 percent over the same time period. Though the increase was exhibited in all racial and ethnic groups, whites and blacks consistently had a higher proportion of multiples than did other races and non-Hispanics had a higher proportion than Hispanics. The percentage increase in the proportion of multiple births over the time period was lower among blacks and Hispanics than among other racial and ethnic groups.⁵

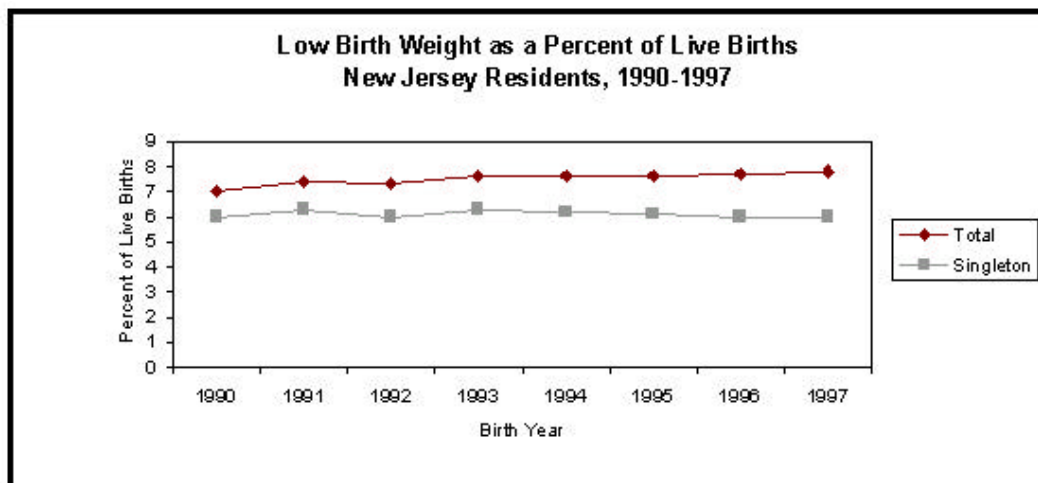
Percentage of Births by Plurality, New Jersey Residents, 1990-1997

Birth Year	1990	1991	1992	1993	1994	1995	1996	1997
Singleton	97.6	97.6	97.2	97.1	97.0	97.0	96.5	96.3
Multiple	2.4	2.4	2.8	2.9	3.0	3.0	3.5	3.7

Source: New Jersey Department of Health and Senior Services, Center for Health Statistics

Note: Records with plurality missing or not classifiable have been excluded from this analysis.

This increase in the proportion of births which are multiple has implications for the interpretation of certain public health statistics long used as general indicators of maternal and child health: low birth weight and infant mortality. Infants born as part of a multiple birth are at far greater risk for low birth weight and death within the first year of life than are singletons.⁶ For example, while 6.0 percent of singletons born to New Jersey residents in 1997 were of low birth weight (less than 2,500 grams), 56.0 percent of multiples were of low birth weight.

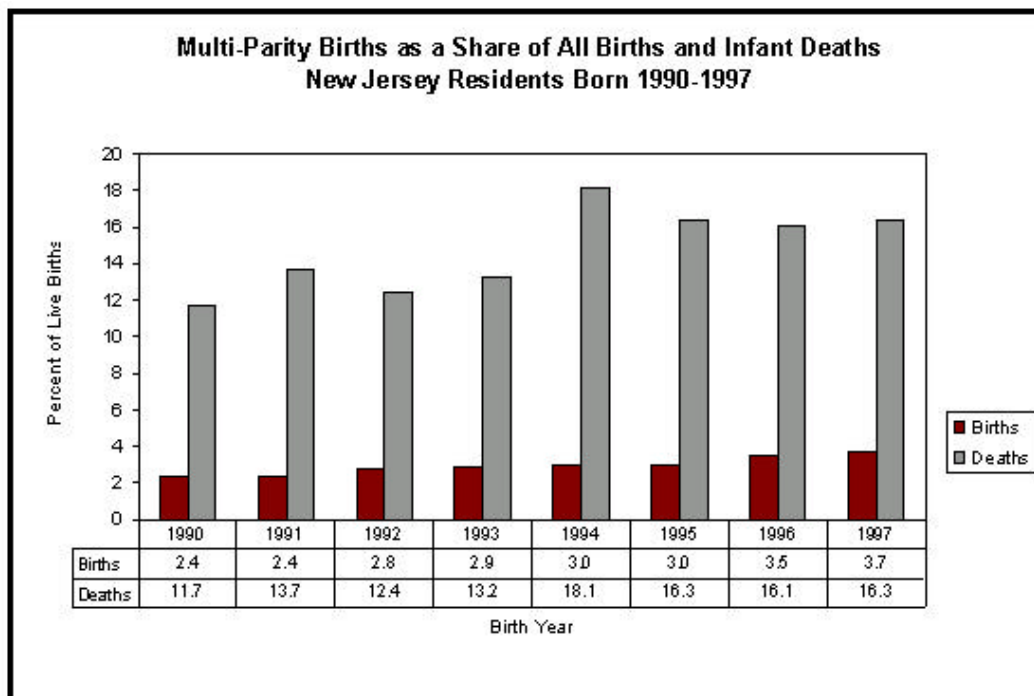


Therefore when the percentage of births of low birth weight is separated into singletons and multiples, it can be seen that while the percentage of all births that are of low birth weight has been slowly increasing among New Jersey residents between 1990 and 1997, the percentage of low birth weight singletons has essentially remained constant. The increasing share of births that are multiple, with their much greater likelihood of low birth weight status is driving the trend in the overall series. Further, during this time period, the percentage of low birth weight multiples increased as well (by 12 percent). Therefore the likelihood of low birth weight among multiples increased relative to singletons, and at the same time, multiples increased as a share of all births.

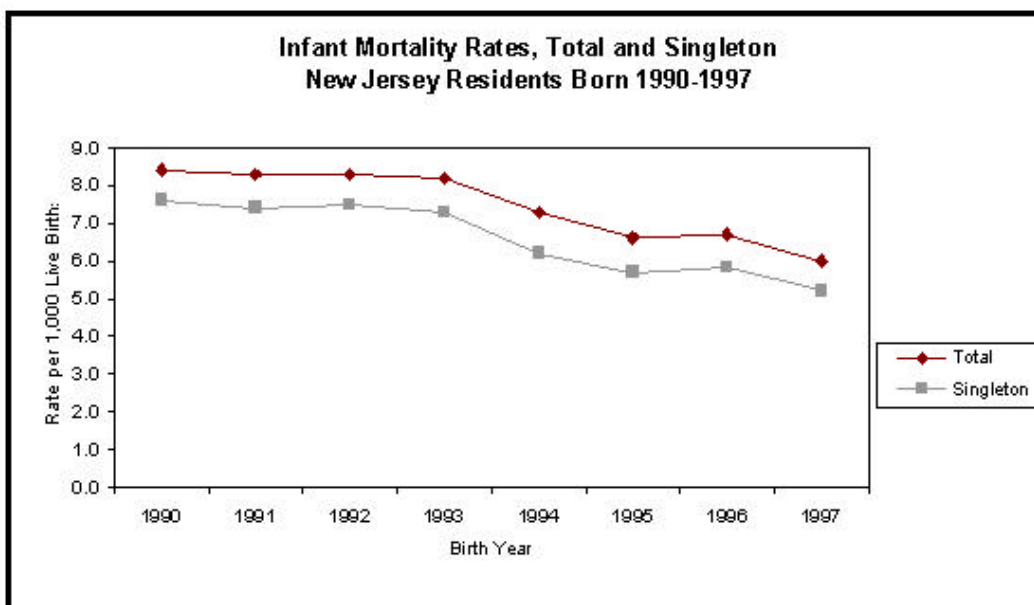
Low Birth Weight Percentages by Plurality, New Jersey Residents, 1990-1997								
Birth Year	1990	1991	1992	1993	1994	1995	1996	1997
Total	7.0	7.4	7.3	7.6	7.6	7.6	7.7	7.8
Singleton	6.0	6.3	6.0	6.3	6.2	6.1	6.0	6.0
Multiple	50.0	52.9	52.7	53.1	53.7	54.5	55.3	56.0

Source: New Jersey Department of Health and Senior Services, Center for Health Statistics
 Note: Records with plurality and birth weight missing or not classifiable have been excluded from this analysis.

One of the most important negative outcomes associated with low birth weight is infant death, although low birth weight has also been associated with lifetime morbidity and cognitive impairment. While the majority of infant deaths are singleton births, this is purely due to the high proportion of births that are singletons. Infants born as part of a multiple birth are more than five times as likely to die before reaching their first birthday than singletons. Multiples comprise a disproportionate share of all infant deaths.



While the infant mortality rate has decreased among both singletons and multiples, the rate is substantially higher for multiples than for singletons. Nearly eight out of every 1,000 singletons born in 1990 died within a year. By 1997, that rate had dropped to 5.2. However, almost 42 infants born in 1990 as part of a multiple birth died for every 1,000 born as a multiple. The rate had dropped to 26.1 by 1997. For both singletons and multiples, the infant death rate has decreased by over 30 percent from 1990 to 1997. But the trend in the overall infant mortality rate reflects the growing share of multiples as a proportion of all births, and consequently infant deaths.



Infant Mortality Rates by Plurality, New Jersey Residents Born 1990-1997								
Birth Year	1990	1991	1992	1993	1994	1995	1996	1997
Total	8.4	8.3	8.3	8.2	7.3	6.6	6.7	6.0

Singleton	7.6	7.4	7.5	7.3	6.2	5.7	5.8	5.2
Multiple	41.9	46.6	36.9	37.1	44.0	35.8	30.5	26.1

Source: New Jersey Department of Health and Senior Services, Center for Health Statistics

Note: These rates are based on the year in which the infant was born, not the year of death. Therefore, these rates may vary slightly from rates presented elsewhere by year of death.

Conclusion

Trends in infant mortality and the proportion of births with low birth weight are important public health indicators that are widely interpreted as not only narrow measures of prenatal and perinatal health, but more general signals about access to care, maternal health behaviors, and the well-being of vulnerable populations. The infant mortality rate, in particular, is closely monitored, and that of the United States often unfavorably compared to that of other countries. Yet the growing share of multiple parity births complicates this broad interpretation of statistics on low birth weight and infant mortality, because the cause of these conditions varies substantially by parity. While arguably already prone to misinterpretation, trends in infant mortality and low birth weight are even more likely to be poorly understood if the increasing role of multiple parity births is not recognized. One response may be for state and local health departments to promote the reporting of separate statistics by parity; another might be to adopt some parity-based standardization. The increasing compositional effect of multiple parity births should be incorporated into the public health community's understanding of these important indicators.

References

¹ Martin JA, Park MM. Trends in twin and triplet births: 1980-97. National vital statistics reports; vol 47 no. 24. Hyattsville, Maryland: National Center for Health Statistics. 1999.

² Multiple births multiply during past two decades. 1997 fact sheet. Hyattsville, Maryland: National Center for Health Statistics. 1997.

³ Multiple births multiply during past two decades. 1997 fact sheet. Hyattsville, Maryland: National Center for Health Statistics. 1997.

⁴ New Jersey Department of Health and Senior Services, Center for Health Statistics. 1990-1997 resident birth files. Unpublished data.

⁵ New Jersey Department of Health and Senior Services, Center for Health Statistics. 1990-1997 resident birth files. Unpublished data.

⁶ Martin JA, Park MM. Trends in twin and triplet births: 1980-97. National vital statistics reports; vol 47 no. 24. Hyattsville, Maryland: National Center for Health Statistics. 1999.

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Department of Health and Senior Services

P. O. Box 360

Trenton, NJ 08625-0360

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