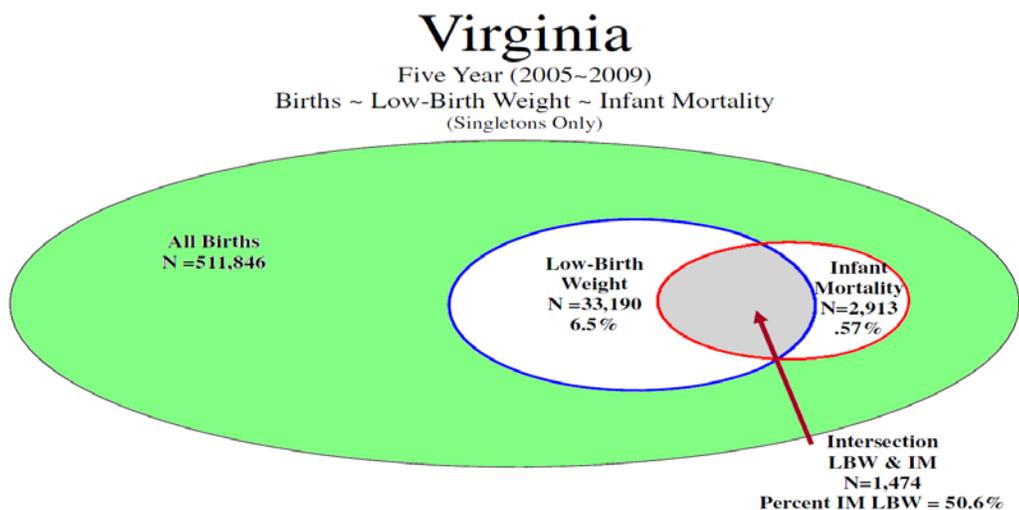


Shortage Designations: Infant Mortality (IM) versus Low Birth Weight (LBW) as an Indicator of Access to Primary Care

Traditionally infant mortality rates (IMR) have been used as an indicator of access to care ~ high rates low access. HRSA's MUA/P designation procedures, for instance, have traditionally used a weighting of IMR in their Index of Medical Underservice (IMU) scoring. But IMR currently reflects medical and social systemic changes that do not necessarily indicate the level of access to primary care. (1) It has long been argued, for instance, that "Eighty percent of the decline in the U.S. infant mortality rate between 1989 and 1990 could be attributed solely to the use of surfactant" (Schwartz, et al., NEJM, 1994; 330:1476-1480). Reduction of IMR by surfactant has little to do with improved access to primary care. (2) In addition, because of various assisted reproduction technologies (ART), the number of mothers ≥ 30 years of age giving birth has increased significantly, leading to multiple births, as well as the likelihood of more low-birth weight infants, with significant increases in IMR. In other words, surfactant has **decreased** infant deaths and made low-birth weight less lethal, and ART has **increased** the risk for women (mostly middle class) losing an infant, who by definition have already accessed care to facilitate a pregnancy.

In addition there are statistical problems associated with using IMR in a designation process that is based on small area analysis. In sparsely populated rural areas of Virginia, for instance, where the elderly population is approaching 20% of the population, women of child bearing age have decreased dramatically; the impact can be seen in the closure of obstetrical units in 10 of Virginia's small rural hospitals. Low birth numbers, of course, create dramatic swings in the IMR for these rural counties, which are simply an artifact of small numbers. But with the small number of births there has emerged a dramatic decrease in access to primary prenatal care; not uncommonly women must drive two hours to receive such care. It would be ironic to have to wait until babies start dying before such areas could be designated as lacking access to care. For this reason alone, it would be wise to look for a replacement of IMR as an indicator of underservice.

Again, with relatively small numbers it is impossible to assess the meaning of a high IMR within an area; moreover, potential problems may be overlooked. By concentrating on an adverse outcome rather than the precursor of an adverse outcome, access to primary preventive care cannot be proactively directed to an area through using the underserved designation process.



To a large extent choosing a health access indicator variable has to take into account the volume of incidents being studied; rare events are hard to comprehend in small areas with spatial statistics. From the figure above it can be seen, at least in the Virginia case, approximately half of all infant

deaths are associated with low-birth weight (LBW <2,500 grams) and that LBW babies represent over 6.5% of all births. By using LBW instead of IM there is an immediate payoff of 11.4 times more data; data that most research confirms is highly correlated with infant deaths. The choice of LBW not only amplifies the data (which is key to accurate geospatial analysis) but presents a realistic goal for improvements directly suggestive of what primary care preventive services are needed.

We would suggest, therefore, that IMRs have been significantly affected by both medical and social changes that have reduced its effectiveness as an indicator of medical underservice. Indeed, such changes suggest that high IMR may even reflect high access to ART, and by implication, primary health care services. To provide adequate measurable data for designation purposes it is highly recommended that a correlated measure of IMR such as low-birth weight be used in the designation process.

For your consideration.

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