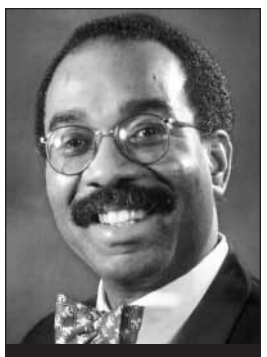
MASTER CLASS

Neighbors a World Apart



BY E. ALBERT REECE, M.D., PH.D, M.B.A.

Infant mortality is one of the dominant measures by which a nation's health is judged. Many factors contribute to the number of babies who survive in a given country, making infant mortality a rather unrefined gauge of overall health. Yet it has been accepted worldwide as a generally fair and realistic reflection of national health.

Leaders in the medical community and government have long recognized that the United States has unacceptably high infant mortality in comparison with other nations. I served, in fact, on the Department of Health and Human Services' Secretary's Committee on Infant Mortality under President George H.W. Bush, as part of a major effort to reduce by half our infant mortality. We still have not succeeded, despite concerted efforts.

Because this is a complex issue that will be solved only by using multiple strategies, we may do well to learn from other countries' successes. The Scandinavian countries, which boast very low infant mortality, have homogeneous populations that are difficult to compare with our own. But right next door is Canada, a country with an increasingly diverse population that may serve as a more analogous example of how programs can work to reduce infant mortality.

For a commentary on this important issue, we turn to C. Robin Walker, M.D., Ch.B., president of the Canadian Paediatric Society and professor of pediatrics at the University of Ottawa. He has studied infant mortality as an international issue, publishing on such topics as population-based approaches to prevention of preterm birth, an important contributor to infant mortality.

We hope his thoughts will provide fresh insight into a very important health measure that we continue to try to improve.■

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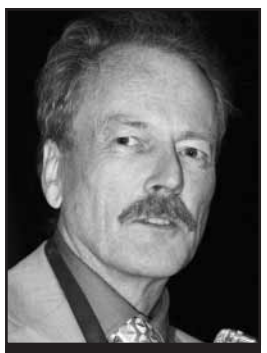
Infant Mortality in the U.S. and Canada

Infant mortality is a complex issue, influenced by social, statistical, political, and geographic factors as well as medical ones. Looking at a chart of international infant mortality, one can see that the United States, as well as my native Canada, are light-years better off than politically unstable regions such as Angola, which leads the world at more than 191 infant deaths per 1,000 live births, or Afghanistan (163 per 1,000), by estimates of the Central Intelligence Agency's "World Factbook 2004."



BY C. ROBIN WALKER, M.D.

However, we're far from being the best in the world.

Forty nations surpass the United States in infant mortality, including Singapore (2.29 per 1,000), Sweden (2.77 per 1,000), and Japan (3.26 per 1,000).

Because we are neighbors and share a border, similar economies, and comparable levels of technologic sophistication, it may be of interest that Canada's infant mortality is fully 30% lower than that of the United States, which was optimistically estimated by the CIA to be 6.5 per 1,000 in 2004.

In both of our nations, 2002 infant mortality worsened slightly, prompting renewed scrutiny of an ever-important issue.

The Centers for Disease Control and Prevention reported that in 2002, U.S. infant mortality edged upward to 7.0 per 1,000 live births from 6.8 per 1,000 in 2001.

That's the first rise in 44 years, and even if—as preliminary reports suggest—it was a one-time blip, it's concerning to see even a 0.02% increase in the context of more than 4 million births.

The same trend occurred in Canada, where infant mortality rose from 5.2 per 1,000 in 2001 to 5.4 per 1,000 in 2002 after progressively falling since the 1960s.

I'd like to suggest a number of factors that may help to explain this troubling trend, which at the very least indicates we are not making the progress we would like to make in addressing one of the most important measures of a nation's health.

I'll also put forth some suggested explanations for the substantially unequal infant mortality in the United States and Canada, superficially similar nations.

Infant mortality can be divided according to two basic contributors: neonatal deaths occurring within the first month of life, and postneonatal deaths occurring later in the first year.

Postneonatal deaths have not increased; in fact, tremendous advances in the understanding and prevention of sudden infant death syndrome have substantially reduced postneonatal deaths over the past decade.

The neonatal increases noted in 2002—and indeed the disparity between the United States and Canada—have occurred in the early weeks of life, when the most common causes of death include congenital anomalies, problems of transition, and complications of preterm birth. Among these factors, only preterm birth stands out as a significant contributor to rising infant mortality.

In the United States, preterm births increased to 12.1%, from 11.9% the previous year.

But here is a telling statistic: Although the preterm birth rate also rose slightly in Canada, it was 7.6% in 2002, nearly 40% lower than in the United States.

Why is the preterm birth rate trending upward? The evidence is fairly clear that it is driven by the use of reproductive technology leading to multiple births, by mothers having babies at later ages, by obstetricians intervening to deliver babies earlier when the fetus is in jeopardy, and by complications attributed to a lack of early, consistent prenatal care.

Not all of these factors are things we can, or would want to, control.

Early delivery to attempt to save an infant in trouble is a good thing. Some of these preemies will not live, but would have been stillborn in years past.

Social trends influence the ages at which women decide to have their children. In Ottawa, where I practice, over 60% of moms in 2003 gave birth when they were older than 30 years, and 23.2% when they were older than 35 years. Although women have a right to be informed about their chances of conceiving and delivering healthy singletons at different ages, physicians have no desire to dictate social policy or individual choice. I have a 5-year-old, and I'm not a young man.

We understand that older women have a higher risk of having a preterm baby, in part because they have a higher risk of having multiples, having pregnancy complications, and having babies with congenital anomalies, three factors that contribute to infant mortality.

Older mothers also are more likely to require assisted reproductive technology (ART).

Although ART procedures are similar in the United States and Canada, and are basically patient-funded in both countries, reproductive technology is increasingly subject to oversight in Canada. A bill that recently passed both the House of Commons and the Senate would strictly regulate clinics and procedures, for example.

A great many ART centers in Canada are university-affiliated, not-for-profit programs, rather than independent clinics. As a result, a controversial issue—such as the implantation of multiple embryos—is debated within the wide academic community of endocrinologists, ob.gyns., neonatologists, pediatricians, and ethicists.

When three sets of quadruplets were born in 1 year at the University of Ottawa, the university-affiliated fertility center demonstrated its responsibility by revising its policies to limit the number of embryos transferred during each cycle. Now, we hardly ever see quads, although triplets are still not a rarity.

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All over Canada, rates of multiple birth are lower than in the United States, contributing to lower rates of preterm birth. However, in looking at overall preterm birth statistics, it is worth noting that both nations have unequal rates across populations.

The U.S. National Center for Health Statistics reports that African American infants are nearly twice as likely as non-Hispanic white infants to be born prematurely.

In Canada, the disparity is most clear when looking at income, with those in the lowest income quintile having an infant mortality rate two-thirds higher than that of the highest income quintile. As infant mortality secondary to congenital anomalies and other causes has fallen significantly, the differential is largely a result of a higher rate of preterm birth in lower-income families.

Canada's First Nation and Inuit people face serious health problems, including infant mortality in many communities that is twice the national rate, as do America's Native American populations. Although Canada is an increasingly racially diverse country, other racial disparities are less obvious in measures of health care, such as prena-

Sources

- The National Center for Health Statistics publishes regular reports on infant mortality. The final data for 2002 can be found in Natl. Vital Stat. Rep. 2003;52:1-113. The center's latest annual report on trends in health statistics is "Health, United States, 2004," which includes a chartbook on trends in the health of Americans as well as interactive links (www.cdc.gov/nchs/hus.htm).
- The Central Intelligence Agency publishes the World Factbook each year in printed and Internet versions. Data noted in this Master Class can be found online at www.cia.gov/cia/publications/factbook/rankorder/2091rank.html.
- Canadian infant mortality statistics can be found at www.statcan.ca/start/html. The Public Health Agency of Canada has published the 2003 Canadian Perinatal Health Report online at www.phac-aspc.gc.ca/publicat/cphr-rspc03.
- The United Nations Children's Fund (UNICEF) uses data collected in annual report cards from its Innocenti Research Centre. The first report card was published in June 2000, and—along with more recent report cards—can be accessed at www.unicef-icdc.org/publications. Click on the link "For a brief description of our series," and then click on "Innocenti Report Cards."
- Simon Hales, M.B., and colleagues published the results of their study of the relationship among infant mortality, gross national product, and income distribution (Lancet 1999;354:2047).

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tal care or preterm birth. Income is perhaps a more fitting measure of comparison, and deserving of a wider perspective.

One interesting study examined the gross national products and income distribution in 20 poor and 15 rich nations, determining, as one would expect, that overall infant mortality was inversely proportionate to income.

In rich countries, however, the main contributor to higher infant mortality was not income, but income disparity (Lancet 1999;354:2047).

The United Nations, in its annual Innocenti report card for 2000, explored child poverty in rich nations by using consistent indices to identify the percentage of children living in families with incomes below 50% of each nation's median income.

Child poverty levels ranged from 2.6% in Sweden to 26.6% in Mexico. Canada was 15.5%, and the United States was 22.4%.

Some governments, including those in Scandinavia, take a very active role in making sure that people don't live in poverty. Income disparity is low.

Conversely, income inequality is very high in the United States and may contribute to exceedingly elevated preterm birth rates and infant mortality among African Americans.

A related issue, of course, is access to medical care, which varies greatly among the industrialized nations of the world.

In Canada, where we have universal medical care, prenatal care is available to all at no cost, with no disincentives to seeking care in the system. Even pregnant women who do not have a primary care physician can walk into a clinic in any city and be seen that day.

As a result, in 2000, well over 95% of Canadian women received prenatal care beginning in the first trimester, compared with 83.7% of American women.

Once again, disparity is evident in the U.S. numbers, with only about 75% of African Americans and fewer than 70% of Native Americans receiving early prenatal care. Indeed, 3.6% of women delivered with no prenatal care, or with care initiated only in the last trimester.

Although the U.S. rate of early prenatal care has improved quite dramatically in the last 15 years, rising 10% since 1990, it still falls short of the care rates in most Western nations. I should point out that the Swedes think that even Canada's prenatal care numbers are lousy. In Sweden, virtually 100% of women receive prenatal care throughout their pregnancy.

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I would also be remiss if I left the impression that the Canadian health care system, the Swedish system, or any system, for that matter, is perfect. In Canada, one faces a long wait for a hip replacement. Far too many Canadians (about 10%) depend on walk-in clinics because they can't find a primary care physician of their own. Canadians who make more money tend to live longer, and certain groups, such as First Nation and Inuit people, have unequal health outcomes despite access to free care.

In Canada, we learn a lot from the United States, from the abundance of medical research and education to the excellent health care available to many. But in the spirit of learning from each other, U.S. physicians may be interested in studying a neighbor that spends less on health care yet produces not only lower preterm birth rates and infant mortality, but also lower mortality overall. ■

Infant Mortality in Selected Nations

	Deaths per 1,000 live births
Angola	191.19
Afghanistan	163.07
Haiti	73.45
India	56.29
Iraq	50.25
Guatemala	35.93
China	24.18
Israel	7.03
United States	**6.50**
New Zealand	5.85
Greece	5.53
Ireland	5.39
United Kingdom	5.16
Canada	**4.75**
Australia	4.69
Austria	4.66
Germany	4.16
Japan	3.26
Sweden	2.77
Singapore	2.29

Note: Based on estimated data for 2004.
Source: The World Factbook