To my knowledge, the AMA has never criticized any animal experiment, no matter how wasteful or cruel it may have been.

We look forward to the AMA working with us, with animal rights groups, and with other advocates for a more compassionate and more effective kind of medicine.

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Washington, DC

1. Loeb JM. Use of animals in medical education. *JAMA*. 1991;266:3421-3423.

In Reply —The term "officially censured" refers to a resolution adopted by the AMA House of Delegates in June 1990 and noted in Dr Barnard's letter. Contrary to Barnard's statement, this resolution was debated fully in a Reference Committee hearing at which Barnard was present and at which he was given several opportunities to present his views in full. The Reference Committee heard overwhelming support for passage of this resolution and consequently recommended that it be included on the consent calendar for approval by the AMA House of Delegates. This procedure is traditionally reserved for those resolutions that the Reference Committee believes have strong and obvious support. The House of Delegates had ample opportunity to remove this item of business from the consent calendar for specific discussion on the floor of the House of Delegates but chose instead to move for passage. The resolution was passed without dissenting vote and is now official AMA policy.

The PCRM has failed to gain widespread acceptance among the medical community and its membership represents less than 0.005% of the total US physician population. The overwhelming majority of physicians (more than 97%) support the use of animals in research. The AMA advocates—and has always advocated—the humane and responsible treatment of animals. But we are committed to defending the rights of patients to receive the best possible medical care. In their zeal to promote animal rights, PCRM shortchanges patients.

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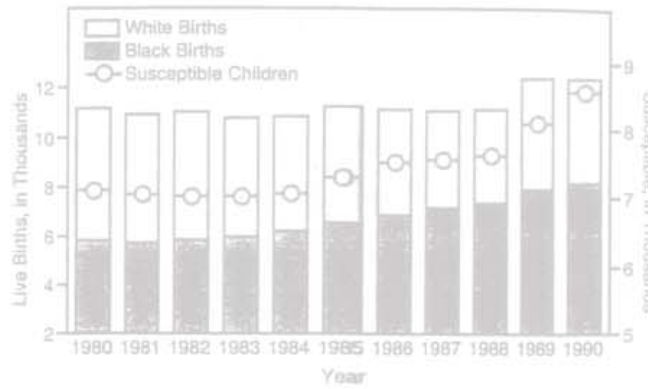
The Resurgence of Measles and Herd Immunity

To the Editor.—Schlenker et al have documented evidence that immunization levels over 80% provided a significant level of herd immunity.[1] Their study also raises a question that was not addressed by the authors: what is the basis for the resurgence of measles in the preschool-age population? Although it is easy to assume that the resurgence is due to inadequate levels of vaccination, they estimated that the rates of immunization had not changed from 1982 through 1989.[1] Since there has been an increase in the number of births nationally, data were obtained from the Milwaukee (Wis) Public Health Department to determine whether there was any relation between the number of births and the measles epidemic.

From 1980 through 1990, there was a 9% increase in the annual number of live births in the city of Milwaukee, from 11 772 to 12 780 (Gloria Tatum, Milwaukee Public Health Department, oral communication). However, among the white population, the number of live births decreased by 15%, and in the black population, the number of births increased by 61%. Based on the documented rates of immunization of 75% in the white population and 55% in the black population,[1] it can be estimated that there has been a 21% increase in the number of measles-susceptible children under the age of 2 years (Figure). More striking, there was a 58% increase in the number of measles-susceptible children under 2 years of age in the black population, from 3359 in 1980 to 5301 in 1990.



Relation between the number of live births, by race, and the estimated number of measles-susceptible children 2 years of age and less in Milwaukee, Wis, 1980 through 1990.

While this is a crude estimate and does not exclude the children who die, were infected during the epidemic, or emigrate during the first 2 years of life, it probably underestimates the actual number of children under 5 years of age who were susceptible.

In the prevaccine era, it was recognized that the actual number of susceptible hosts and the rate of contact were the critical factors in the epidemic potential[2,3]; the proportion was only an indicator of the immunity of a population.[4] The increase in the epidemic potential that led up to the measles outbreak in Milwaukee did not appear to be due to decreasing levels of vaccination. Although it can be argued that measles was not introduced into the black community until 1989, there had been 20 documented cases of measles in the county from 1984 through 1987, many of which were reported from the city of Milwaukee (Gloria Tatum, Milwaukee Public Health Department, oral communication). The rate of contact may have also increased among the preschool-age population; however, the epidemic did not appear to be related to licensed day-care centers (Pat Thor, Milwaukee Public Health Department, oral communication). This suggests that the increase in births among the black population, which was associated with a 58% increase in the number of susceptible children, is responsible for the epidemic of measles in Milwaukee.

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1. Schlenker TL, Bain C, Baughman AL, Hadler SC. Measles herd immunity: the association of attack rates with immunization rates in preschool children. *JAMA*. 1992;267:823-826.
2. Frost WH. Some conceptions of epidemics in general. *Am J Epidemiol*. 1976;103:152-165.
3. Serfling RE. Historical review of epidemic theory. *Hum Biol*. 1952;24:145-166.
4. Fox JP, Elveback L, Scott W, Gatewood L, Ackerman E. Herd immunity: basic concepts and relevance to public health immunization practices. *Am J Epidemiol*. 1971;94:179-189.

In Reply.—From the prevaccine era, there are excellent studies by Hedrich that show how measles outbreaks parallel the number of susceptible children in Baltimore, Md.[1] Dr Lanphear does a very nice job representing how the actual number of susceptible children in Milwaukee increased over time, even while the overall immunization coverage rates remained the same. Clearly, the correlation between the number of susceptible children and the risk of sustained outbreaks is a strong one and one that could be a useful predictor if there was any practical way to determine the number of susceptible children in time to respond. Unfortunately, at this point, there isn't.

Our data were derived from a retrospective school-based