EDITORIAL

As *Public Health Reports* enters its 121st year, we begin a bold adventure. Co-sponsorship by the Association of Schools of Public Health (ASPH) now enables us to exploit the most efficient and effective aspects of commercial publishing while remaining the journal of the US Public Health Service. On May 1, 1997, the Public Health Service and the Association of Schools of Public Health signed an agreement to co-sponsor *Public Health Reports*. Now ASPH has engaged Oxford University Press to help fulfill its obligations under the co-sponsorship agreement. This issue of *Public Health Reports* has been printed and distributed for ASPH by the Press, a nonprofit entity with its US journal operations located in Cary, North Carolina.

A few of our readers will have already purchased a subscription from Oxford; for those of you who subscribed in the past, your next renewal form will come from Oxford. The price, although higher, remains among the very lowest of journal subscription prices. ASPH will continue to provide *Public Health Reports*, free of charge, to the Depository Library Program of the Superintendent of Documents.

Why did we make this change? Operating in an era of constrained Federal budgets and under rules that prohibit the Public Health Service from recouping any portion of subscription revenue to support the journal, we saw no other way to expand circulation and improve our product. Working for ASPH, Oxford will produce, distribute, and market *Public Health Reports*. ASPH and Oxford will share revenues from subscription and advertising sales and from new products derived from *Public Health Reports* articles. Income received by ASPH will be used exclusively to improve the journal. In this way we expect to pay for electronic access to the journal on the World Wide Web and vastly improved service to our subscribers.

We would like to thank all who have made this groundbreaking change possible—the US Congress's Joint Committee on Printing, which approved the co-sponsorship approach; the Government Printing Office, itself in the midst of rapid change, which sadly wished us well; the Assistant Secretary for Health and the Public Health Service agencies, who encouraged this departure from standard government publishing practice; the Office of General Counsel, which worked tirelessly on the details of draft agreement after draft agreement; and ASPH, without whom this "great leap forward" would not have been possible. ■

A PERSONAL FAREWELL

I must abandon the editorial "we" to send a personal farewell to all of our readers, reviewers, contributors, and the hundreds of others who have helped us reinvent *Public Health Reports* over the last four years. I have accepted a new chair in public health at Tufts Medical School, and I am leaving the editorship of *Public Health Reports*.

I was rewarded at the start by strong support from Philip R. Lee, Jo Ivey Boufford, and Martis Davis. As I leave, David Satcher, Nicole Lurie, and Damon Thompson have adopted their strong belief that *Public Health Reports* must survive and prosper. I believe that the alliance between the agencies of the US Public Health Service and the Association of Schools of Public Health is unbeatable and that *Public Health Reports* has a bright future.

Thank you for your help. Anthony Robbins, MD ■

LETTERS

Vaccine Coverage

Like Bolton et al. [Nov/Dec 1998; 113:521-6, 527-32], we analyzed vaccination data derived from parental recall, vaccination cards, and medical records. However, the purpose of our study was not to determine the impact on vaccination coverage estimates of various sources of vaccination data, but rather to determine the usefulness of parental recall or parent-held vaccination cards in identifying undervaccinated children. We used data from the 1994 National Health Interview Survey (NHIS)[1] and the 1994 National Immunization Provider Record Check Study,[2] a nationally representative survey of children ages 19–35 months.

We calculated vaccination status for receipt of: four or more doses of DTP/DT; three or more doses of poliovirus vaccine; three or more doses of Hib; at least one dose of MMR; and the vaccine combination including all of the above (the 4:3:1:3 series). We determined the sensitivity, specificity, positive predictive value, and negative predictive value of household-based reports of vaccination status using provider reports of vaccination status as the "gold standard" or true vaccination status. For example, the sensitivity of the vaccination card is the proportion of children in need of vaccination according to provider records who are identified as such by the vaccination card. The specificity of the vaccination card is the proportion of children not in need of vaccination who are correctly identified as such by the vaccination card.

Of the 2651 children ages 19 through 35 months in the NHIS sample, immunization questionnaires were completed for 2439 children (92%). We analyzed data for the 1762 children for whom both use-able household-based vaccination information and at least one provider questionnaire were available. Of the 1762 children, 949 (54%) had vaccination cards available. For the remaining 813 (46%), vaccination status was reported by parental recall.

The sensitivity for vaccination cards for the 4:3:1:3 series was 83.9%, and for the individual vaccines, sensitivity ranged from 51.2% for MMR to 76.1% for DTP. The specificity for the 4:3:1:3 series was 71.9%, and for the individual vaccines specificity ranged from 84.1% for DTP to 95.0% for MMR. The positive predictive value of the vaccination card (the percentage of children not up-to-date according to vaccination cards who were actually not up-to-date) was 48.9%. The negative predictive value (percentage of children up-to-date according to the card that actually were up-to-date) for the 4:3:1:3 series was 93.3%.

For vaccination status based only on parental recall, the specificity for the 4:3:1:3 series was 78.5%, with a range for the individual vaccines from 78.8% for Hib to 94.6% for MMR. The positive predictive value for the 4:3:1:3 series was 40.2%, and the negative predictive value was 73.2%.

The sensitivity of parental recall to identify children undervaccinated for the 4:3:1:3 series was 24.6%—parents of only about one-quarter of undervaccinated children were aware that their children were not up-to-date. Because almost all parents thought their child was up-to-date, the specificity was 96.0%. Parental recall had a positive predictive value of 69.2% and a negative predictive value of 77.5%.

The results of this study show that parental recall is an inadequate method of identifying undervaccinated children because parental recall fails to identify most of the children in need of vaccination. Vaccination cards are much better able to identify children in need of vaccination, although with some loss of specificity. The loss in specificity means that many completely vaccinated children will be misclassified as needing vaccination. Those involved in planning interventions to increase vaccination coverage levels should be aware of these limitations in identifying their target populations.

As we move to state-based vaccination registries, a provider will have the ability to assess more accurately whether a child is in need of vaccination. Unfortunately, registries will not improve parents' perception of whether their child is in need of vaccination. Educating parents about both the complexity of the vaccination schedule and the importance of talking with their providers about vaccination is an important step.

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1. Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985-94. Vital Health Stat 2 1989:110.
2. Peak RR, Cadell D. Overview of the National Immunization Provider Record Check Study. In: 1996 Proceedings of the Section on Survey Research Methods. Alexandria (VA): American Statistical Association; 1996. p. 332-9.

More on Measles

In his letter [Nov/Dec 1998;113: 479-80], Dr. Tulchinsky highlights the magnitude of the global morbidity and mortality due to measles, a ubiquitous disease that has been preventable since the development and routine use of measles vaccine. Indeed, there are few, if any, other low-cost public health interventions that can greatly reduce and possibly eradicate a disease that accounts for up to 10% of all mortality among children younger than 5 years old in developing countries. We support expanding measles control through increasing vaccination coverage and the number of doses offered in national immunization schedules.

Since 1989, the US Advisory Committee on Immunization Practices has recommended two doses of measles-containing vaccine.[1] Recognizing the impact that two-dose vaccination strategies have had on measles transmission in the United States and other countries as well as the effect of multiple doses delivered routinely and in vaccination campaigns in the Americas,[2] the Centers for Disease Control and Prevention (CDC) co-sponsored a series of annual meetings from 1995 to 1997 with the Pan American Health Organization, the World Health Organization (WHO), and the United Nations Children's Fund to expand strategies for measles control and elimination globally. Participants at the meetings concluded that "measles eradication is technically feasible with existing vaccines" and that, "although existing vaccines are adequate for eradication, vaccination strategies that rely on administration of a single dose of vaccine are not."[3] In 1998, the CDC committed approximately $8 million to assist international efforts to improve measles control and to support regional measles elimination initiatives.

Two doses of measles vaccine administered to more than 95% of people born since the introduction of routine measles vaccination is required to adequately protect a population from measles outbreaks. The second dose effectively immunizes the small percentage of people who failed to respond to the first dose. Periodic campaigns may be more appropriate for populations that either have difficulty achieving high coverage through routine services or have a rapid build up of measles-susceptible people.