# THE NEED FOR A STANDARD NATIONAL IMMUNIZATION RECORD

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**Perhaps the most significant link in achieving the nation's immunization objectives is the extent of parental knowledge. Admittedly, this is a weak link. The 1990 federal objectives calling for an official format using common guidelines for completion of immunizations, though well-conceived, has not been used exclusively by health care givers. The lack of accord has permitted the proliferation of many different immunization records that are not only confusing to parents, but also to health care providers at times. A standard national immunization record could be an essential element in strengthening the weak link of parental knowledge of immunizations and stressing the importance of preserving such a record for a lifetime. (*J Natl Med Assoc.* 1991; 409-414.)**

**Key words** • immunization record • vaccinations • childhood immunizations

In 1976, an immunization survey revealed that nearly 20 million children in the United States needed at least one dose of one vaccine to be fully protected against seven diseases for which vaccines are routinely administered in childhood—diphtheria, measles, mumps, pertussis, polio, German measles, and tetanus. As a result, the US Secretary of Health, Education, and Welfare (now Health and Human Services) announced a National Childhood Immunization initiative in April 1977.[1,2] The two main objectives of the initiative were:

- to attain at least a 90% immunization level in the nation's children by October 1979 and
- to establish a permanent system to provide comprehensive immunization services to the 3 million US children born each year.[1,2]

Although the immunization initiative was successful in raising immunization levels significantly by October 1979, establishing a permanent mechanism to provide comprehensive immunization services to children born in the United States has proven a more formidable task.[3] In an effort to achieve this permanent mechanism, 18 national objectives on childhood immunization were established with the projection of attainment by 1990.[4] The first eight objectives cited the morbidity reduction targeted for the seven diseases mentioned above, with the addition of congenital rubella syndrome.[4] Among these objectives were the achievement by at least 90% of children of the basic immunization series by the age of 2, and the possession, by at least 95% of all children through age 18, of an up-to-date official immunization record in a uniform format.[5] There has been some encouraging progress toward these objectives, but the two main objectives mentioned above are still far from being realized.[4,6]

Unimmunized preschool-aged children are at risk for vaccine preventable disease, ie, patients were eligible

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for vaccination but unvaccinated, and may serve as an important reservoir of infectious disease in the community.[7,8] There is evidence that a substantial number of preschool-aged children are not vaccinated at the recommended ages.[9] In 1986, almost one third of the reported cases of rubeola and slightly more than one quarter of the reported cases of rubella occurred in children under the age of 5.[6] In reviewing 102 hospitalized preschoolers, aged 2 months to 24 months, Tifft and Lederman found that 19% had documented delays in immunization.[8] In 1985, preschool-aged children had the highest reported risk of acquiring measles.[10] Measles transmission in preschool-aged children remains a major impediment to elimination of measles in the United States.[11-15]

Based on my experience of 27 years of medical practice in Pennsylvania, I have seen very little evidence of an official immunization record with a uniform format being used by health care providers despite the fact that Pennsylvania, as well as the rest of the United States, adopted an official immunization record by summer 1983.[4,5] Additionally, in 1979, the Pennsylvania Medical Society House of Delegates approved the "Child Health Passport," printed and distributed by the Pennsylvania Department of Health, and encouraged its membership to issue the passport to their patients.

Adekunle reported that among the major impediments to child immunizations are ignorance and lack of education.[16] Menser reported that many parents of young children do not know how many immunization doses their child should receive.[9] Marks[6] found that children with at least one parent with less than a high school education were at high risk of failing to complete an immunization series by the age of 2.

Fulginiti stated that parents should be educated about each vaccine and the role it plays in the well-being of their children.[17] He also stated that parents should be apprised of the importance of maintaining accurate immunization records. Owen and Owen reported that the level of parental understanding of immunizations was largely determined by the motivation, interest, and time available to the health center nurse for providing patient education.[18]

This article stresses the need for a standard national immunization record in order to achieve the nation's immunization objectives.

## METHOD

In the spring of 1983, students at the Shenango Valley Campus of the Pennsylvania State University conducted a study designed to assess parental understanding of immunization records and their importance. Two clinic sites where children were taken for routine "well baby care" were visited. Although eligibility for services provided by the clinics was based on economic status, no special attempt was made to further stratify the population on the basis of economics or level of education. To increase the study population, the students included fellow students with children and some people with children in their respective neighborhoods. A total of 76 parents were interviewed.

To minimize misinterpretation, a student interviewer asked questions and recorded answers using a 10-item questionnaire (Table 1). The questionnaire assessed the parents' knowledge of the types of immunization and the immunization schedule. In addition to the questionnaire, basic questions regarding demographic information were asked, and parents were questioned about their understanding of the immunization record and asked if they knew the whereabouts of their child's and their own record. A copy was made of each different immunization record shown by the parents.

Because this was a limited study, there were several limitations to the questionnaire. It was unclear, in the case of multiple children, whether the parent knew the whereabouts of the immunization record for each child or the completeness of each. No attempt was made to actually test the accuracy of parents' answers. It was also unclear whether the person interviewed was the child's parent or a guardian.

## FINDINGS

Seventy-one or 93% of the parents professed knowing the whereabouts of their children's records but only 31 (41%) knew where to find their own records (Table 1). Although 50 (66%) knew the types of immunizations, only 32 (42%) knew the number required for completion of the immunization schedule and when given. Although 28 (37%) admitted to having found the immunization record confusing, more than half (67%) believed they could look at their child's immunization record and determine what was needed for completion. The majority (54%) of the parents fell in the 20- to 29-year-old age group (Table 2).

The immunization records reviewed were from five states (North Carolina, Ohio, Mississippi, New York, and Pennsylvania), three pharmaceutical companies, three local primary care physicians, two cities, one clinic, one commercial bank, one insurance company, and one from the Pennsylvania chapter of the American Academy of Pediatrics. The records were of varying

**TABLE 1. RESPONSES TO QUESTIONNAIRE***

| Question | Yes | | No or Uncertain | |
|---|---|---|---|---|
| | No. | % | No. | % |
| 1. Do you have the immunization record of any of the children with you? | 26 | 34 | 50 | 66 |
| 2. If not, do you know where they are? | 71 | 93 | 5 | 7 |
| 3. Do you know where your own immunization record is? | 31 | 41 | 45 | 59 |
| 4. Is your child's immunization record complete? | 54 | 72 | 22 | 28 |
| 5. Can you look at your child's immunization booklet and an immunization schedule and determine what additional, if any, immunizations are needed? | 51 | 67 | 25 | 33 |
| 6. Do you know the types of immunizations all children should have? | 50 | 66 | 26 | 34 |
| 7. Do you know how many of each type a child should have and when? | 32 | 42 | 44 | 58 |
| 8. Are you aware of the importance of having your child completely immunized? | 72 | 95 | 4 | 5 |
| 9. Are you aware of some of the reactions children may have to immunizations? | 55 | 72 | 21 | 28 |
| 10. Do you find your child's immunization records to be confusing? | 28 | 37 | 48 | 63 |

*N = 76.

sizes with the wallet size being the most popular. The New York and Pennsylvania records were written in both English and Spanish.

The vaccines were designated by abbreviations in some cases and written out in others. There appeared to be no consistency in how the combinations were put together. Diphtheria, tetanus, and pertussis were either written as such or as whooping cough, diphtheria-tetanus toxoid, DPT, or DTP. Diphtheria and tetanus toxoid were either written as such or as DT, TD, DT (pediatric), or TD (adult). Polio was written as such or as polio vaccine, polio virus vaccine, polio (trivalent), TOPV, or IPV. The measles combination vaccines were written as measles/rubella (combined), measles/mumps/rubella (combined), MR, or MMR. Measles vaccine was written as such or as measles (live attenuated without ISG) or measles (live attenuated with ISG). German measles was written as such or as rubella (German measles). Most of the records had a place for listing other vaccines and a designation for booster shots.

**TABLE 2. PARENTS' AGES**

| Age | No. | (%) |
|---|---|---|
| 15 to 19 years old | 1 | (1) |
| 20 to 29 years old | 41 | (54) |
| 30 to 39 years old | 30 | (39) |
| 40 to 49 years old | 3 | (4) |
| Unknown | 1 | (1) |

## DISCUSSION

Although the federal immunization initiative called for the establishment of a permanent mechanism to provide a standardized, comprehensive immunization service for US children, there is evidence that we still have a long way to go. This study showed that at a time when one would have expected the nation to be realizing benefits from spending hundreds of thousands of dollars on a mass media campaign and the supportive efforts of state and national medical societies and state governments, there was still a significant amount of parental ignorance relative to immunizations and their importance.[1] Of course, a 6-year-old limited study is hardly acceptable evidence on which to draw a conclusion, but there are many reports in the literature supporting such a statement. The April 1987 *Morbidity and Mortality Weekly Report* (*MMWR*) reported that 5% to 20% of young adults were susceptible to measles or rubella.[19] The September 1988 *MMWR* reported that one third of the reported measles cases were classified

as preventable,[13] and the March 1989 *MMWR* reported that unacceptable morbidity for rubella was still occurring.[20]

In February 1989, the *MMWR* reported that the number of mumps cases in the United States increased from 1985 to 1987.[21] Williams reported in 1987 that vaccine preventable diseases, particularly measles and rubella, continue to have an adverse impact on student health on college campuses.[10] In my practice where I have always provided immunizations for all patients regardless of income, I still have a significant number of parents bringing their children in for completion of their immunizations after failing to be able to register them into school.

Many strategies have been tried to increase parental compliance in getting their children immunized.[22] There is no question about the effectiveness of state laws requiring school-aged children to be properly immunized prior to matriculation, but there is evidence that more effort needs to be focused on immunization of preschool-aged children. In the late 1970s, the Ohio Department of Health found the effectiveness of mailed reminders to be low unless coupled with aggressive follow-up.[23] Laws, stationed at a military installation, developed an effective system of making an appointment for follow-up at the time of discharge from the hospital after birth and calling parents who delayed in keeping that appointment.[24]

Something must be said about the effects of fear on parental compliance. In 1977, the *FDA Consumer Bulletin* reported that public trust and acceptance of mass immunization in the United States was declining.[25] A number of people developed an unwarranted fear of adverse reactions to the vaccines and were reluctant to have their children subjected to them.[9,15,25] The fears and concerns of some parents in exposing their child to the risks of immunization have been supported by the federal government requiring documentation of having explained vaccination risks and benefits whenever federally supplied vaccines were administered.[1]

The New York State Pediatric Society registered strong objections to the formal request consent forms favored by the American Academy of Pediatrics.[26] Fulginiti wrote that each time a child receives a vaccine or other biologic product the following information should be transmitted[17]:

- the nature, prevalence, and risk of the infection or disease that is being modified,
- the nature of the product used,
- the expected benefit of the vaccine,
- possible or likely side effects,
- the risks of rare but serious adverse effects, and
- the role of the vaccine or dose in developing immunity.

Parental compliance has been unwittingly affected by health care providers. Doctors, nurses, and other health care providers sometimes appear to be confused about the contraindications to childhood immunizations.[27] There is evidence that product inserts suggest many more contraindications than the official guidelines.[27] Although the Centers for Disease Control's Immunization Practices Advisory Committee states that "the presence of minor illnesses such as mild upper respiratory illnesses should not preclude vaccination," there is evidence that some providers believe that a child must be in perfect health before an immunization can be given, thus creating unnecessary delays in meeting specified schedules.[28]

Despite the above discussion, there is evidence that perhaps the most significant link in achieving the nation's immunization objectives is the extent of parental knowledge. The 1990 federal objective calling for an official immunization record in a uniform format using common guidelines for completion of immunizations needs to be pursued seriously.[29] There are many educational potentials of such a format that could enhance parental understanding as well as facilitate patient recall. The standardized immunization record has been used effectively in the West Indies and Mexico.[30-32]

Television is universally recognized as a very powerful medium and could be effectively used as an educational tool with the availability of a nationwide standardized format.[33,34] Such a format could effectively use the elements common to all learning activity, especially that of adults, namely a response to a perceived need by the learner; meaningfulness to the learner, relative to what the learner already knows and to a direct response on the part of learner; immediate usefulness; provision to the learner with an awareness of progress; and reinforcement of what the learner already knows.[35]

The multitude of immunization records used by health care providers in the United States alone can be a deterrent to learning. Although standardized immunization records have been available in all 50 states for several years and endorsed by state and national medical societies, there appears to be much confusion generated by failure of health care providers to use such records exclusively.[4] Even the providers at times have difficulty in deciphering such records.

A uniform reporting system, aside from being used, needs to be established with a mechanism for continued review and updating.[36] This is especially true for immunization policies whereby the only constant is change.[37] In consideration of varying levels of intelligence and education within a given population, Negrete stated that three fundamental factors must be stressed in the standardized format: ubiquity, simplicity, and clarity.[30] This idea appears to be of special significance because children belonging to illiterate mothers or mothers with only a primary education have been shown to be the group with the least complete immunizations.[16]

The unassuming appearance of the immunization record probably contributes to the fact that many people do not know where to find this document. The immunization record should assume a more impressive appearance, and parents should be apprised of the importance of keeping the document for a lifetime.[17] Such emphasis has probably been minimized by some states electing to use a wallet-sized card that is not only frequently lost but also difficult to record vaccines on. It should be mentioned that the present system of recording immunizations makes it relatively easy for any knowledgeable parent or significant others to falsify an immunization record.

The importance of continued surveillance toward the success of an immunization program cannot be overemphasized. Because of the success in reducing the incidence of childhood diseases, many perceive these diseases as less of a threat and can easily become lax.[15] A sustained level of immunization is necessary to maintain a low incidence of disease.[38] Karzon and Edwards reported localized outbreaks of diphtheria in Sweden after years of freedom from the disease.[39] Kjeldsen et al reported that 19% of 403 Swedes properly immunized against diphtheria 25 to 30 years before were found to have a titer below protective level.[40] He stressed the importance of administering a combined tetanus-diphtheria vaccine as a general routine every 10 years.[40] In the United States, the majority tetanus cases occur in adults over the age of 50.[41] In recent years, diphtheria also has occurred with increasing frequency in adults.[41] In a study of 183 persons, Crossley found 1/3 were not protected against tetanus, and 71% of adults included in the survey were probably not adequately immunized against diphtheria.[41] This result was also reported by Orenstein in 1988.[6]

In 1976, the Secretary of Health, Education, and Welfare said, "Our national failure to protect our young from preventable diseases is shocking and a national disgrace."[1] Today, it appears that the statement is, unfortunately, still applicable.

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