Parental Compliance With Multiple Immunization Injections

Shoshana T. Melman, MD; Thuan T. Nguyen, MMS; Elizabeth Ehrlich, MMS; Marguerite Schorr, RN; Ran D. Anbar, MD

Objective: To assess parents’ (or caretakers’) willingness to allow multiple immunization injections at a single visit.

Design: A survey of parental demographics and a medical record review to determine immunization status.


Participants: A convenience sample of 1059 patients who were due to receive 2 to 5 immunization injections at a single visit and their parents. Patients were excluded if parents had not previously witnessed at least 1 immunization.

Main Outcome Measures: The number of immunizations due, the number of immunizations received, and the reasons for failure to immunize completely.

Results: Almost all (98.8%) of the children included in the study received all immunizations indicated at their visit.

Conclusion: Despite potential parental resistance to multiple simultaneous immunization injections, this inner-city population overwhelmingly complied with physicians’ recommendations.


Editor’s Note: I wonder what the results of this study would have been if the parents were agreeing to multiple injections for themselves . . . and I would like to have the sex-specific data. Any bets?

Catherine D. DeAngelis, MD

Many children remain underimmunized in the United States, particularly those in low-income and inner-city populations, despite the demonstrated potential of immunizations to eradicate disease. Giving multiple simultaneous injections whenever possible would greatly increase vaccine coverage and is considered safe and effective. In 1992, the American Academy of Pediatrics endorsed the recommendation for multiple simultaneous immunizations published by the Centers for Disease Control and Prevention.

Some physicians fail to give multiple simultaneous injections because of their perceptions that parents will object to the administration of multiple shots at one time. The National Medical Association opposed the Centers for Disease Control and Prevention’s sequential schedule of polio vaccination, in part because the addition of 2 injections might reduce parental compliance. However, a recent study found that physicians overestimate the extent of parental objections to multiple immunizations. While it is true that parents surveyed in several studies expressed concern over multiple immunizations, one study found that parents preferred to have all injections given during a single visit if recommended by a physician.

Previous studies have focused only on eliciting opinions regarding simultaneous injections. This study determines whether parental resistance is a true deterrent for the administration of multiple immunization injections.

RESULTS

Of the 1080 eligible parents approached, 1064 (98.5%) agreed to participate in the study. The immunization of 5 children was deferred because of illness at the time of the visit (n = 4) or because of the physician’s concern regarding allergy to a vaccine component (n = 1). The median age of the remaining 1059 children was 9
PARTICIPANTS AND METHODS

From September 1, 1995, through May 20, 1997, a convenience sample of parents (or caretakers) whose children were scheduled for 2 or more immunization injections were interviewed at our inner-city Philadelphia, Pa, pediatric clinic. To ensure that participants understood the immunization process, parents who had not previously witnessed a child receive an immunization injection were excluded.

The number of indicated immunization injections was determined in accordance with the Recommended Childhood Immunization Schedule in effect at the time of the child’s visit.10-22 Starting in November 1996, routine pertussis immunization was provided using a diphtheria and tetanus toxoids and acellular pertussis vaccine, adsorbed preparation,23 and routine polio immunization was provided using the Centers for Disease Control and Prevention-recommended sequential schedule.24

Parents were asked a series of demographic questions, then provided with educational information regarding their children’s indicated immunizations, including a recommendation for simultaneous administration of all vaccines due. Patient records were later reviewed to determine the actual number of immunization injections each child received and recorded reasons for incomplete immunization.

The compliance rate with recommended immunizations was compared in groups, based on the number of scheduled immunization injections, using a trend χ² analysis.

This study was granted exempt status by the Hahnemann University Hospital Institutional Review Board, Philadelphia.

Eleven (85%) of these 13 children were black, and 2 (15%) were Hispanic. Eleven of the 13 children (including all 8 whose caretakers declined permission for the varicella or the hepatitis B vaccine) had government-sponsored payment for immunizations through medical insurance or the Vaccines for Children Program.

Most children at this inner-city clinic received all indicated immunizations in a single visit. The excellent compliance in this study demonstrates the efficacy of a policy of routine multiple simultaneous immunizations, and indicates that parental resistance may be less of a barrier than previously feared.

In July 1999, the Centers for Disease Control and Prevention Advisory Committee on Immunization Practices published recommendations for routine poliomyelitis vaccinations, which replaced the sequential schedule with an all-inactivated poliovirus vaccine schedule. The committee no longer recommends use of the oral polio vaccine, except in special circumstances such as when an unvaccinated child will be traveling in less than 4 weeks to areas where polio is endemic.25,26 This new recommendation, combined with recent guidelines favoring the routine use of acellular pertussis and varicella vaccines, has increased the number of routine childhood immunization injections.27 Despite the increasing availability of combination immunizations,28,29 the possible addition of new vaccines (such as conjugated pneumococcal30 and hepatitis A vaccines31) may cause a further increase. The additional injections recommended for pediatric populations necessitate simultaneous immunization to avoid vaccination delay and a potential decrease in the level of population immunity.

There was a slight trend toward increasing parental resistance with increasing numbers of immunization injections in this study, particularly when 5 immunizations were due. However, for more than half the children not receiving all indicated immunization injections, the varicella vaccine was the only immunization deferred. This may reflect previously demonstrated parental concerns regarding the varicella vaccine.32 If concerns regarding the varicella vaccine were fewer,
compliance in this study might have been even greater. In addition, continued development and use of combination vaccines, such as the diphtheria and tetanus toxins with acellular pertussis vaccine—Haemophilus influenzae type b vaccine—should further increase compliance. Finally, if progress continues toward reducing the number of children with delayed immunization status, fewer children are likely to need 5 simultaneous immunization injections.

A limitation of this study is the focus on children whose caretakers seek medical attention. In a 1998 Philadelphia Department of Public Health audit of our clinic’s overall immunization rates, 66% of a random sample of children had received all age-appropriate vaccines at the time of the assessment (Philadelphia Department of Public Health, unpublished data, 1998). Some parents of the remaining children may not have brought their children in for medical care because of concern regarding multiple immunization injections.

The results of this study may not be generalizable to non–inner-city patient populations, in which parental compliance may be more difficult to obtain. However, since physician factors may impact more strongly on immunization levels than parental attitudes, the health care community should focus strongly on modification of physician attitudes to achieve maximal compliance with immunization schedules in all pediatric populations.

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Reprints: Shoshana T. Melman, MD, Department of Pediatrics, MCP Hahnemann School of Medicine, 231 N Broad St, Philadelphia, PA 19107 (e-mail: melmans@auhs.edu).

REFERENCES


