EFFECTIVENESS OF PEDIATRIC PRACTICE CONSULTATION ON MISSED OPPORTUNITIES FOR IMMUNIZATION

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ABSTRACT

Objective. To evaluate the effectiveness of pediatric practice consultation in reducing missed-opportunity rates at eight pediatric sites in Baltimore, Maryland. The overarching goal was to decrease the occurrence of missed opportunities from 33% to 15% for the first, second, and third diphtheria and tetanus toxoids and pertussis vaccines during visits at which children were eligible for the vaccines.

Design. The effect of an in-office educational program alone at four sites is compared with the educational program and a consultation on office vaccination practices at four matched sites. All eight sites received a small grant ($2,000) to fund practice changes. The medical records of children making visits before and after the interventions were audited to determine missed-opportunity rates. The policies and operations and the knowledge, attitudes, and practices of physicians and nurse practitioners at each site were also assessed.

Results. The four education-consultation sites experienced a statistically significant 14% net reduction in the missed-opportunity rate relative to the education-only sites. This positive effect, however, was largely due to an increase in missed opportunities at one education-only site. There was a 10% increase in the missed-opportunity rate among the education-only sites and a 4% decrease among the education-consultation sites; neither change was statistically significant. Two of the three sites that reduced missed opportunities were matched health maintenance organizations (HMOs). Shortly after the interventions, both HMOs implemented tracking and follow-up information systems, which were planned before the interventions.

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Conclusions. There is no evidence that either the educational program alone or the educational program and consultation combination reduced missed opportunities. The findings suggest that improved tracking and follow-up data systems and vaccination of children at sick visits may reduce missed opportunities.

**KEY WORDS** Vaccination, Immunization, Missed opportunities, Children, Primary care, Tracking system.

**INTRODUCTION**

Missed opportunities for vaccination contribute to underimmunization and are a major focus of efforts to improve vaccination coverage among US children.\(^1\) In the Baltimore Immunization Study (BIS), among a community-based sample of poor children born during the period August 1988 through March 1989, only 55% were up-to-date for 4 doses of diphtheria and tetanus toxoids and pertussis (DTP) vaccine, 3 doses of oral polio vaccine (OPV), and 1 dose of measles-mumps-rubella (MMR) vaccine by 2 years.\(^2\) This rate was similar to those of other urban populations at the time.\(^3\) Missed opportunities occurred at one-third of vaccine-eligible visits. Had there been no missed opportunities, the up-to-date rate would have been 73% instead of 55%.\(^4\)

Previous research has suggested multiple reasons for missed opportunities, including failure to assess a child's eligibility for vaccination, lack of information about prior vaccinations, cautious interpretation of vaccine contraindications, failure to provide all antigens due the child at the visit, and administrative barriers, including the cost of vaccines.\(^4\)\-\(^16\) In Baltimore, a survey of inner-city pediatric providers found marked variation in their interpretation of the American Academy of Pediatrics and Advisory Committee on Immunization Practices recommendations.\(^17\)\-\(^18\) Nonsimultaneous administration of vaccines, inability of the parent to pay, and switching providers were not major causes of missed opportunities.\(^4\)

This paper describes an intervention study designed to reduce missed-opportunity rates at eight pediatric sites in Baltimore. We compared the effect of an in-office educational program alone at four sites to the in-office educational program and a consultation on office immunization practices at four matched sites. All eight sites received a small grant ($2,000) to encourage and fund practice changes. We hypothesized that the educational program would increase physician knowledge of the immunization guidelines and risk factors for delayed vaccination, and that the consultation would stimulate changes in vaccination policies and practices. These changes would decrease the occurrence of missed opportunities from 33% to 15% at DTP1-DTP3 vaccine-eligible visits. Before and after the interventions, we measured missed-opportunity rates for DTP1, DTP2, and DTP3 and assessed provider knowledge, attitudes, and practices (KAP) and site policies and operations regarding immunization. The study was approved...