

## The Childhood/Adolescent Immunization Program

### Introduction

The Childhood and Adolescent Immunization Program was developed for the Kaiser Permanente Colorado (KPCO) Denver/Boulder Local Market in response to our commitment to our prevention program and improving the health status of the children and adolescents. Team Members are listed in Table 1.

### Background

In 1996, the combination of new vaccines and new data, which changed the ages at which vaccines are known to be efficacious, made it necessary to revise our immunization schedules. The result of these changes was a decline in our overall immunization rates for two-year-old infants from 1995 through 1996 as measured by the HEDIS (Health-Plan Employer Data and Information Set). Further, effectively communicating and coordinating new schedules and vaccines to our providers and staff proved to be a formidable challenge.

### Process

In late 1996, a small group of staff and providers reviewed the records of all delinquent children in our HEDIS subset. In this process, we identified several opportunities for improvement. Among our discoveries, we found that a significant percentage of delinquencies occurred because of missed opportunities and providers following outdated schedules or incorrect "relative" contraindications. Problems with information and communication were identified. These problem areas became the focus of our new initiatives. These discoveries challenged all of us to achieve a higher level of quality improvement, and our team quickly embraced the new immunization initiatives.

### Objectives

The objective of our project was to improve the immunization rates of our children and to assure that these children were immunized accurately and on schedule. The foundation of our enhanced program was formal adoption of the Centers for Disease Control and Prevention (CDC) *Standards for Pediatric Immunization Practices*.<sup>1</sup> As a result, we initiated an aggressive population-based immunization campaign that included tracking and outreach to every delinquent child aged 14 months, 20 months, and 12.5 years within our KP Region. Our 1998 regional performance goal was to achieve the top quartile for all HEDIS quality measures.

**Table 1. Childhood/Adolescent Immunization Program Team Members**

Molly Burchell, MD; Regional Department Chief of Pediatrics  
Janet Nelson, RN, MS; Business Manager, Primary Care  
Emily Sharp, RN, MSN; Nursing Supervisor  
Sharon Castro; Administrative Secretary, Primary Care  
Primary Care Health Teams  
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### Methodology

#### Scope

Kaiser Permanente operates 15 medical offices in the Denver/Boulder Local Market, and more than 145 providers within our organization are involved with caring for children. Our Immunization Program within KPCO targets our entire population of children, not just the HEDIS subset. Although most of our work has been with infants and toddlers aged 0 to two years, the focus on achieving higher coverage rates for *all* children has greatly intensified because of this initiative. Our Departments of Pediatrics, Family Practice, and Prevention jointly developed an implementation plan for this new effort. Molly Burchell, MD, Chief of Pediatrics, led the project and currently champions the Immunization Program. The local health care team champions, who perform all the detailed outreach to members, are critical to improvements. The champions are MAs, LPNs, RNs, or nursing supervisors, in cooperation with physicians, depending on the interests and skills of the team.

#### Quality Measures

The primary measure of the success of the interventions is improved immunization coverage rates. If our interventions are working, we should see a decrease in variation and improved rates both at individual medical offices and as a program. As a regional quality assurance priority, the Primary Care Quality Council reviews all HEDIS quality measures, including childhood immunization rates. We created a clear channel of communication and accountability by integrating our efforts with our Primary Care Quality Council. Feedback and new ideas are collated to develop improved processes that are adopted, along with our best practices, across our KP Region. Childhood immunization coverage rates are critical HEDIS quality indicators for our KP Regional as well as the national KP Program. This initiative and the striking results coincide with our focus on HEDIS measures as a foundation of our quality program.

#### Process Implementation

In 1997, we formally adopted the *Standards for Pediatric Immunization Practices* as recommended by the CDC and used this as a template for our improvement plan. In our review of existing practices, we identified four critical areas as opportunity for improvement. These four areas represented improvement opportunities in six of the CDC standards.

1. *Assess immunization status at every encounter, and follow only true contraindications (CDC Standards 4 and 7).* We implemented printing of the immunization record throughout our KP Region from our computerized immunization tracking system for every child at all primary care, urgent care, and trauma visits, including weekend care visits. This strategy further helped us capture missed opportunities, which has been identified nationally as one of the greatest barriers to achieving



high immunization rates. True contraindications versus relative contraindications were discussed at department meetings and communicated by phone, memoranda, and posters distributed by the Colorado Department of Public Health and Environment<sup>2</sup> in medication rooms throughout our KP Region.

- Standard 4—"Providers utilize all clinical encounters to screen and, when indicated, immunize children."
- Standard 7—"Providers follow only true contraindications."

2. Operate a tracking system and audit to assess immunization coverage levels (CDC Standards 12 and 14). In early 1997, we used a computerized tracking system as the formal chart record for child immunizations. We had minimal tracking of delinquent children and no clear goals for capturing under-immunized children. We focused our efforts on tracking 14-month and 20-month-old children. We distributed monthly lists of all delinquent children to provider/nurse teams and created expectations for return of these lists six weeks after distribution. Teams were expected to contact these patients and to persist until the child's status was brought up to date. If

this update was not possible, the reasons were documented. The immunization team reviewed the audits and provided direct feedback to providers and health care teams. This process generated numerous educational opportunities and requests for training on immunization practices. This process also helped our Regional team learn where information was most lacking, thus enabling us to focus our educational efforts in these areas.

- Standard 12—"Providers operate a tracking system."
- Standard 14—"Providers conduct semi-annual audits to assess immunization coverage levels and to review immunization records in the patient populations they serve."

3. Maintain up-to-date, easily retrievable medical protocols in examination rooms and offices at all our Regional locations (CDC Standard 15). The size and configuration of our system posed considerable communication challenges with regard to immunization schedule changes. In the process of trying to implement Standard 15, we developed the *Immunization Tool Kit*,<sup>3</sup> a user-friendly manual de-

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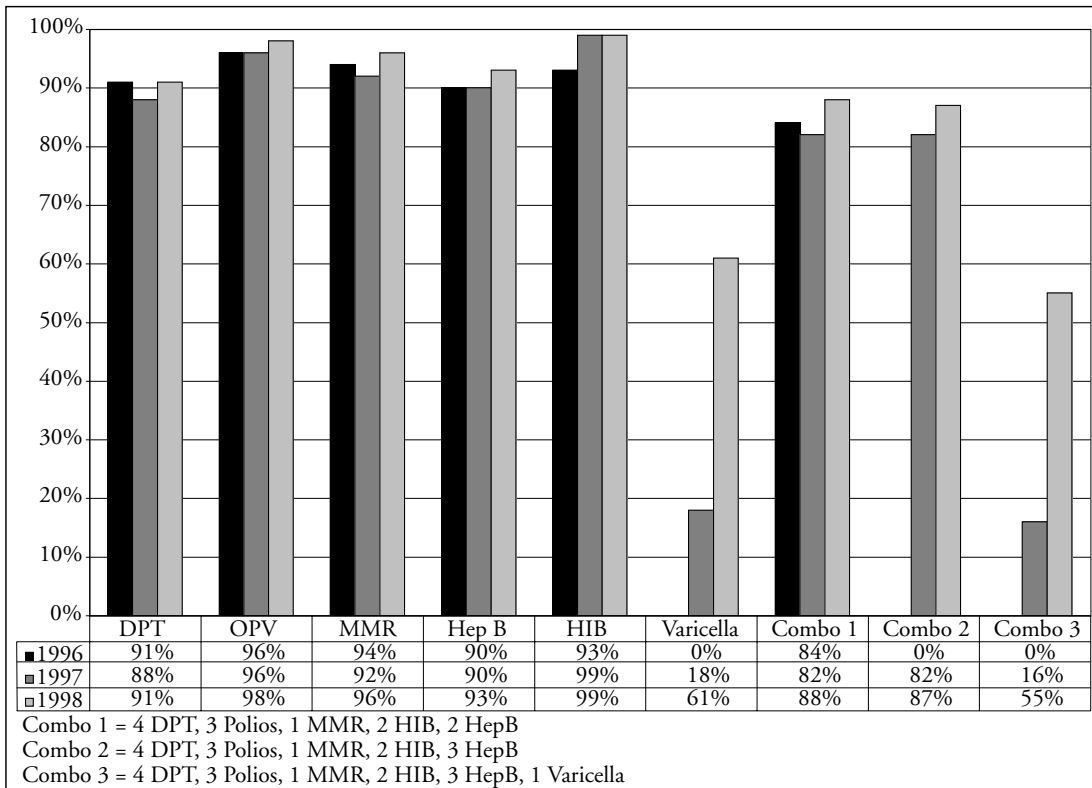


Figure 1. KPCO Denver/Boulder Local Market immunization rates for two-year-old children in 1996, 1997, and 1998.

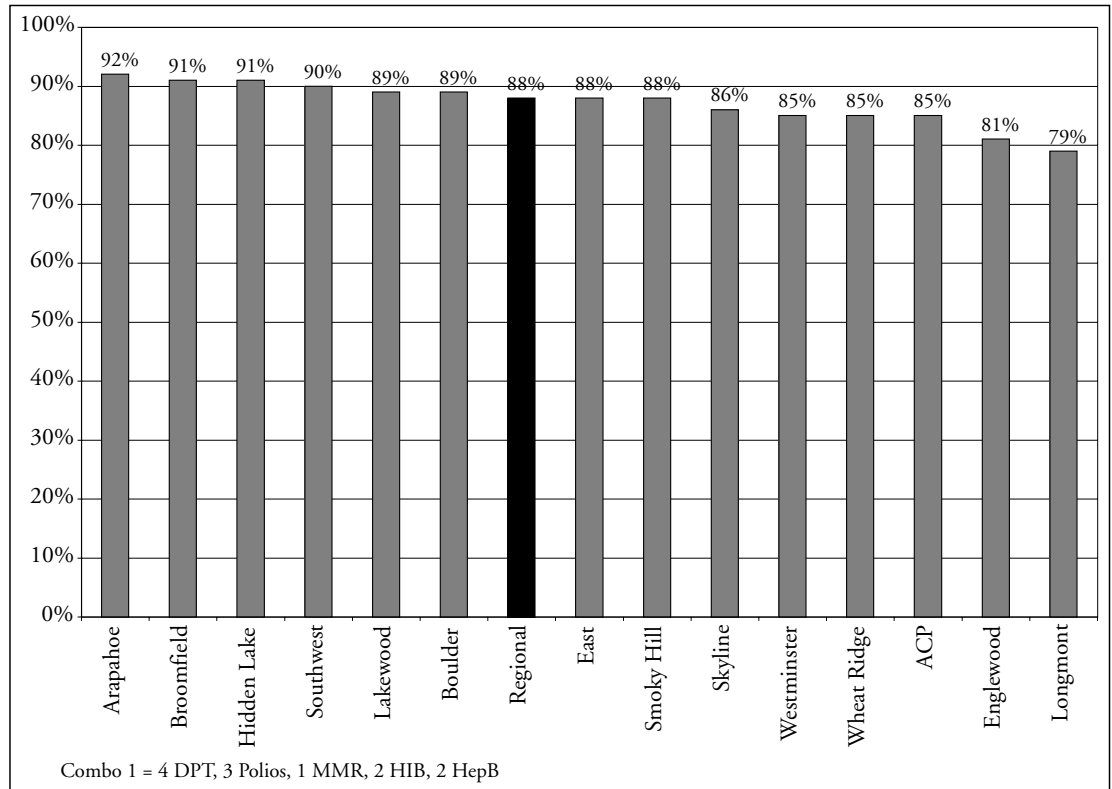


Figure 2. KPCO Denver/Boulder Local Market immunization rates for two-year-old children by KP facility. This figure shows a relative lack of variation in facility immunization rates, whereas in previous years, facility rates varied from 50% to 90%.

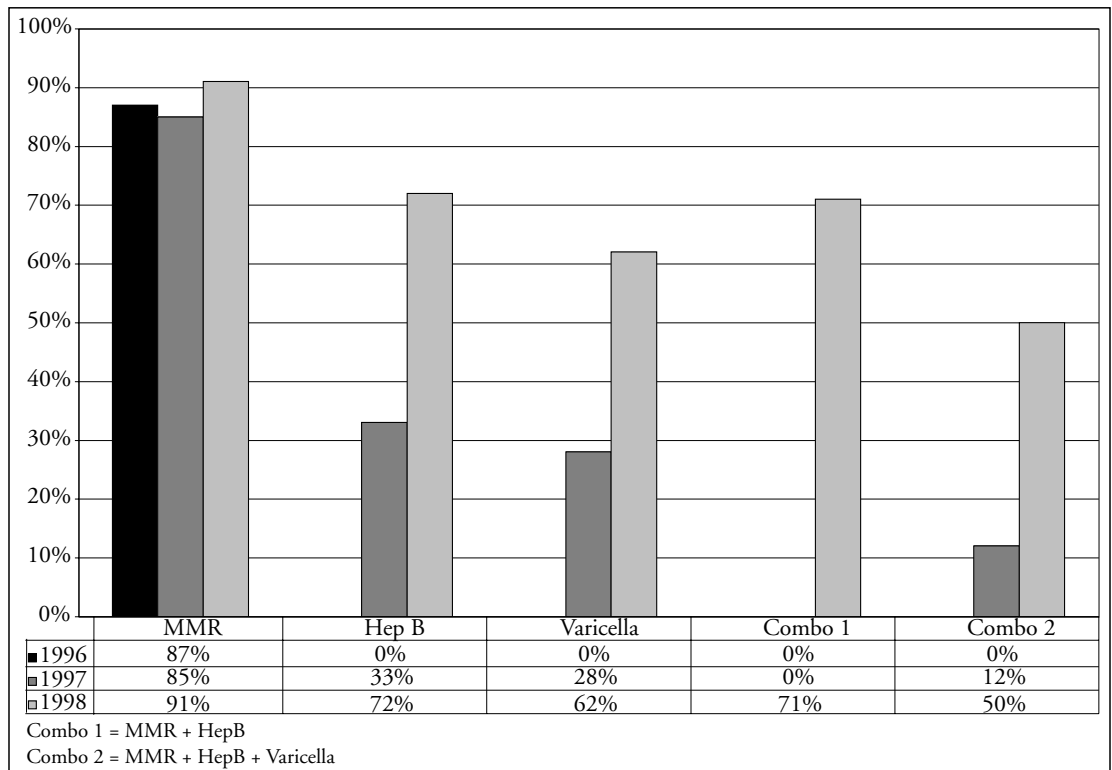


Figure 3. KPCO Denver/Boulder Local Market immunization rates for adolescents in 1996, 1997, and 1998.

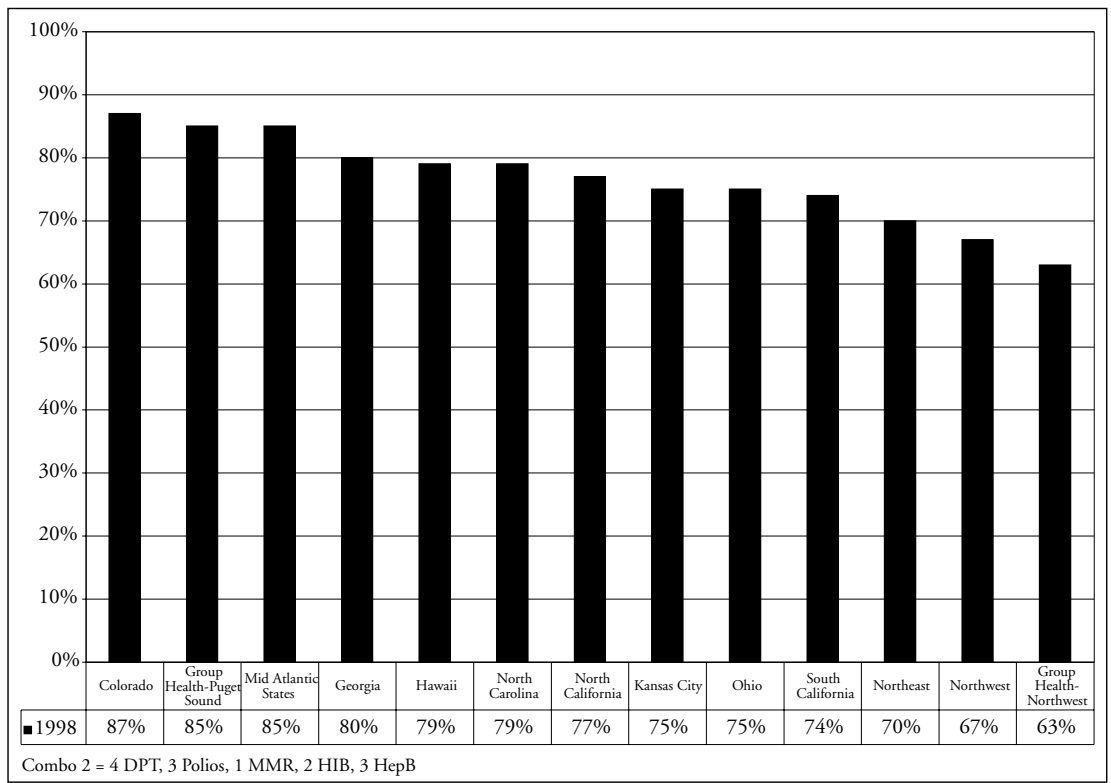


Figure 4. KP Programwide immunization rates for two-year-old children in 1998.

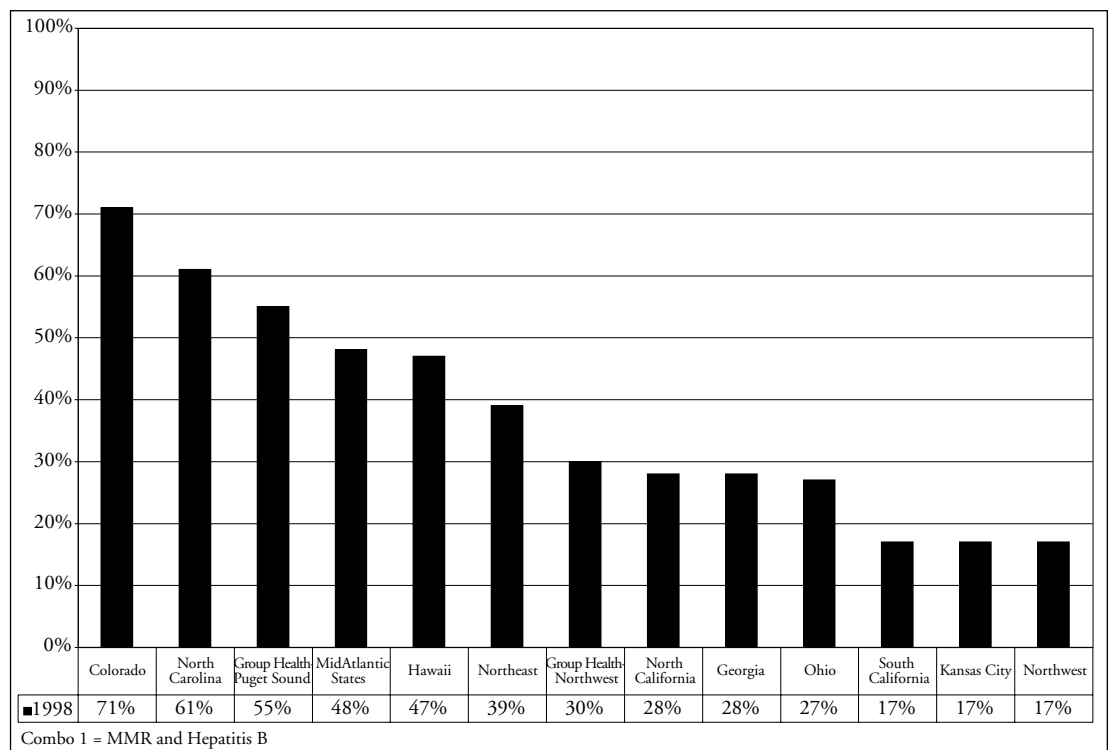


Figure 5. KP Programwide immunization rates for adolescents in 1998.

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signed to provide current, accurate information and recommendations for immunization of children. The manual also serves as a reference for materials from the Advisory Committee on Immunization Practices (ACIP) and from the CDC and provides other critical information such as Vaccine Information Sheets and Adverse Events Reporting forms (AVERS). Posting the current immunization schedule in each examination room used for children is now a part of our primary care quality assurance measures. Finally, the system provides a process for the replacement of outdated schedules and vaccine information, which allows us to keep current with practices and protocols. The *Immunization Tool Kit* received rave reviews from staff and providers and continues to be used widely on a daily basis.

- Standard 15 – “Providers maintain up-to-date, easily retrievable medical protocols at all locations where vaccines are administered.”

4. *Provide ongoing education to staff and physicians (CDC Standard 18)*. Specifically targeted education and training was delivered to local facility teams and to large departments. In addition, specific feedback was given to individual providers when schedules were not followed or when relative contraindications were used instead of true contraindications. Through the above tracking and auditing process, we were able to identify local areas of concern (providers not following the proper schedule) as well as regional problems (eg, low Varivax compliance). We customized local team education and feedback to the specific need while directing our KP Regional interdepartmental education programs to the more global problem areas.

- Standard 18 – “Providers receive ongoing education and training on current immunization recommendations.”

### Quantitative Analysis

Statistical analysis does not apply to this project.

### Results

The result of these initiatives has been not only the reversal of a declining trend but the achievement of our highest rate ever for diphtheria-tetanus-pertussis (DTP), polio, Hib, and hepatitis B vaccinations. In fact, for childhood immunization rates, we surpassed our previous target and are in the top decile of all KP Regions.

### Comment

The Healthy People 2000<sup>4</sup> national goal is to assure that 90% of our children are fully immunized. Our

results support the evidence that when the CDC's Standards for Immunization Practice are implemented fully, such high coverage rates can be achieved. The objective to improve our immunization rates was achieved by combining tools, skills, and education with accountability to our Primary Care Quality Council.

This immunization program with intensive tracking and outreach, coupled with our *Immunization Tool Kit* as a vehicle for quality processes and communication, has been shared widely across the country. We have given *Immunization Tool Kits* and discussed the program with the KP Northwest, Hawaii, Kansas City, and Colorado Springs Regions. The staff emphasizes the user-friendly, hands-on format of the Tool Kit as a manual used daily in the clinical setting. We have also shared materials with many organizations outside KP. This proactive population-based program exemplifies the goals and values throughout KP, and its “health state management” process can be transferred and adopted in many venues as “disease state management” for our population. The project truly required a multidisciplinary approach because it was critical to have the physician/provider knowledge and expertise as well as diligent, detailed implementation by the nursing staff.

### Conclusion

In conclusion, even as vaccine technology continues to expand, we have a system in place to immunize our children efficiently and accurately despite advances and increasing complexity of the technology. Our quality improvement process of measuring, analyzing the data, formulating an improvement plan, implementing, and remeasuring can be generalized to any such problem. Any dedicated team with time, energy, and a clear, specific goal can be successful. The success of the Childhood/Adolescent Immunization Program has been possible only through true ownership and commitment at all levels of the organization and passion for the care of children. ❖

### References

1. National Immunization Program, Centers for Disease Control and Prevention. *Standards for Pediatric Immunization Practices*. Atlanta, GA: Center for Disease Control and Prevention; February 1996; Seventh Printing.
2. Colorado State Department of Public Health and Environment. *Guide to Contraindication in Childhood Vaccination*. April 1996.
3. Burchell MF, Sharp EA. Kaiser Permanente Medical Care Program. *Immunization Tool Kit*. Denver, CO: Kaiser Permanente Medical Care Program, Colorado Region; September 1999 [available from the authors].
4. National Center for Health Statistics. Healthy People 2000 review, 1998-99. Hyattsville, MD: US Public Health Service; 1999.