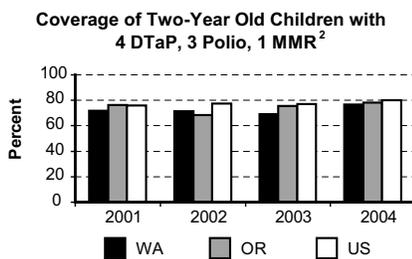


AN EPIDEMIOLOGY PUBLICATION OF THE OREGON DEPARTMENT OF HUMAN SERVICES

FOCUS ON THE 4TH DTaP

PERTUSSIS IS WORTH preventing. Infants with pertussis often require hospitalization; potential complications include pneumonia, seizures, brain damage, and death. Moreover, it is quite contagious, with secondary attack rates as high as 80% in susceptible household contacts.¹ Pertussis is the most commonly reported vaccine-preventable disease in Oregon. During 2004, our reported incidence was about twice the national average; 624 cases were reported—our highest tally since 1959—and we're on track to exceed that number this year.

Although the causes for this are probably manifold, the fact remains that we aren't taking full advantage of the best preventive measure at our disposal—viz., diphtheria/tetanus/acellular pertussis (DTaP) vaccine. The Healthy People 2010 goal is for 90% of 2-year-olds to have received 4 doses of DTaP,* 3 doses of polio, and 1 dose of measles/mumps/rubella (MMR) vaccines (the so-called "4:3:1" series). Both Oregon and Washington are at a feeble 82% (figure), and the main reason for this is lack of the 4th dose of DTaP.²

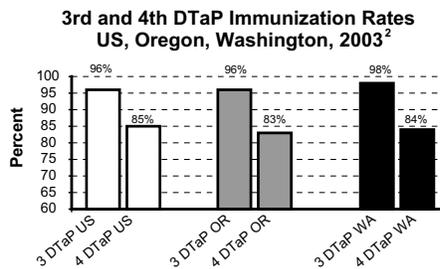


If there weren't any pertussis around, we might deem this good enough, but...well, you know the story. This issue of the *CD Summary* describes our efforts to get the 4th DTaP into kids in a timely fashion.

DTaP DATA

In general, five doses of DTaP are recommended before school entry—at 2, 4, 6 and 12–18 months and at 4–5 years of age. *The 4th dose of DTaP may be administered as early as 12 months of age, provided that six months have elapsed since the 3rd dose.* The 5th dose can be given at or after four years of age. Data from Oregon's Immunization ALERT Registry show that there is great inconsistency among practices in Oregon in the timing of the 4th dose of DTaP. Providers who give the vaccines as early as possible tend to have higher overall up-to-date rates than providers who do not, and their pediatric patients are maximally protected from vaccine-preventable diseases at an earlier age.³

Unfortunately, the 4th dose of DTaP often gets missed altogether. A review of national and Oregon-specific DTaP rates sheds light on the impact of lagging 4th DTaP rates on the 4:3:1 completion rate. The figure below illustrates rates of receipt of 3 doses and of 4 doses of DTaP vaccine for Oregon, Washington and the US among 19–35-month-old children during 2003.²



Rates for receipt of the first 3 doses are >95%. But at dose 4, rates fall to 83–85%. Similar drop-offs are also seen when comparing rates of receipt of the 3:3:1 series to those of the 4:3:1 series. The 4th DTaP is our major stumbling block in trying to meet the Healthy People 2010 target. We have

found in Oregon (and others have found nationally) that physicians tend to overestimate their clinic's overall up-to-date rates; and in most clinics, it is the missing 4th dose of DTaP that drags down completion rates.

DELAYED ONSET OF IMMUNIZATION

Data from Oregon's ALERT registry show that many children do not receive DTaP doses at recommended ages. Does it matter? Well, yes. A recent analysis of 2001 data from CDC's National Immunization Survey (NIS) found that, after adjusting for other factors, children who had completed the 4-dose DTaP series by 24 months of age were significantly more likely to have received the 2nd dose on time (OR=1.6, 95% CI 1.3–2.1) and to have received the 3rd dose on time (OR=1.8, 95% CI 1.5–2.3).⁴

A look at specific factors associated with under-immunization is also informative. Gaudino, et al., undertook a comprehensive review of 15 years' worth of studies in the US, screening 142 studies and examining the best 32. They found that late vaccine initiation and missed opportunities to vaccinate during healthcare visits were two of the most consistent risk factors for under-immunization.⁵

STRATEGIES

We are beginning a collaboration with the Washington State Department of Health to increase the timely administration of the 4th DTaP. Coordinated "Focus on the 4th DTaP" education campaigns will run in both states. Preliminary results from a similar campaign in New Mexico support the efficacy of *Focus on the 4th DTaP*. New Mexico's campaign encourages medical providers and parents to adopt a simplified childhood immunization schedule, with shots given at 2, 4, 6

* Completion rates are generally calculated by including any valid dose of DTaP, DTP, or DT vaccine; since DTaP is by far the most common, we lump them here as "DTaP."



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and 12 months of age, thereby completing the basic childhood immunization series at the earliest possible opportunity. A comparison of clinics that self-identified as “Always,” “Sometimes,” or “Never” using the simplified schedule showed the greatest increase in immunization coverage at 15 months among those that “Always” used the new schedule: completion rates were up 16% between 2003–04 and 2004–05.⁶ The recently released 2004 National Immunization Survey ranks New Mexico’s completion rate at 15th in the nation—up from 44th place just two years ago. New Mexico’s 4:3:1:3:3[†] rate is now 83.5%, a startling and enviable increase of 22.3% in 2½ years.²

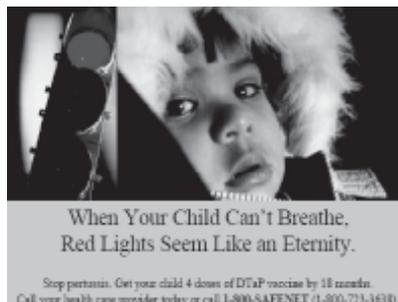
For these reasons, we encourage you to give the 4th DTaP at the earliest acceptable time—i.e., at twelve months of age (and at least six months after the 3rd dose). The electronic systems, maintained by our Immunization Program, that determine which shots are due for a given child will be re-programmed to call for the 4th DTaP at 12 months of age—as long as minimum spacing guidelines have been met. Varicella and MMR vaccines will also be shown as due at 12 months of age.

The *Focus on the 4th DTaP* campaign will remind parents and providers about the importance of fully completing the DTaP vaccine series and promote the timely administration of the 4th DTaP. In **late September 2005** Oregon providers will begin to receive educational materials, including a “Tips

Sheet” with suggestions on how to increase the timely administration of the 4th DTaP. The media campaign for parents and the general public, which will include billboard ads and public service announcements on television and radio throughout Oregon and Washington, will begin in **October 2005**; you might expect to receive more questions from patients about DTaP and pertussis at this time. We will employ immunization registries in Oregon and in Washington to target the *Focus on the 4th DTaP* campaign and will use registry data to evaluate its effectiveness.

Meanwhile, we encourage you to take these key steps to ensure that your young patients receive their 4th DTaP shot on time:

- **Remind your staff** that vaccines can be given even when a child has a minor illness, and that it is safe to give multiple vaccines.
- Use the ACIP **catch-up schedule** for children who are behind on immunizations. Print the ACIP catch-up schedule at: <http://www.cdc.gov/nip/recs/child-catchup.pdf>.



- **Schedule visits** to keep patients on track.
- **Record** all immunizations given into the ALERT registry to ensure that the child’s consolidated record is accurate. Call 1-800-980-9431 for more information.
- **Access the ALERT Registry** to review a child’s immunization record at every visit, including acute-care visits. It’s quick, easy and free. Sign up for Web access at <http://www.immalert.org>.
- **Mail reminder-recall postcards** to ensure that parents bring children in for each DTaP dose. Postcards are available at no charge from the ALERT registry (971-673-0294).
- Ask your State Immunization Program Health Educator to schedule a free **immunization assessment** to help improve immunization rates in your practice. Call 971-673-0300 to reach our Health Educators.

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† 4DTaP, 3 polio, 1 MMR, 3 *Haemophilus influenzae* b, and 3 hepatitis B.