



Evidence-based Strategies for Improving Childhood Immunization Rates: A Guide for CCOs, Health Plans and Clinics

Immunizations are among the greatest public health achievements of the 20th century. A recent economic analysis estimated that vaccinating the 2009 U.S. birth cohort with the recommended childhood immunization schedule prevented approximately 42,000 deaths and 20 million cases of disease, and resulted in a net savings of \$14 billion in direct costs and \$69 billion in total societal costs.ⁱ Despite the effectiveness of vaccines to prevent disease and death, and unnecessary costs to the health care system, immunization rates for children in Oregon remain flat and well below national Healthy People 2020 goals.

Much attention is given to families and communities that choose not to vaccinate their children; however, these families and communities represent the minority in Oregon. Most parents do intend to vaccinate their children according to the American Academy of Pediatrics (AAP) schedule and as recommended by their health care provider. This resource guide focuses on evidence-based strategies that CCOs and health care providers can implement to improve childhood immunization rates.

Prior to the availability of measles vaccine in the United States, as many as 3-4 million cases and 500 deaths were attributed to the disease each yearⁱⁱ, while in 2014, just five cases were reported in Oregonⁱⁱⁱ. The same dramatic reduction in death and disease is seen for almost every disease for which there is now a vaccine. Achieving and maintaining high immunization rates are essential to ensure community immunity, keep vulnerable people protected and stop transmission when cases appear.

Oregon Public Health Division, Immunization Program Contact:

Rex Larsen
Provider Services Team Coordinator
Oregon Public Health Division, Immunization Program
(971) 673-0298
rex.a.larsen@state.or.us

ⁱ Zhou, F, Shefer, A, Wenger, J et al. Economic evaluation of the routine childhood immunization program in the United States, 2009. *Pediatrics* 2014;133:577-85.

ⁱⁱ Centers for Disease Control and Prevention (CDC). *Epidemiology and Prevention of Vaccine-Preventable Diseases*, 13th Edition (2015). Measles. Available at: <http://www.cdc.gov/vaccines/pubs/pinkbook/meas.html>.

ⁱⁱⁱ Oregon Health Authority, Public Health Division (2014). Oregon Measles Cases, Summary Statistics 2005-2014. Available at: <http://public.health.oregon.gov/DiseasesConditions/DiseasesAZ/measles/Documents/oregon-measles-cases-2005-2014.pdf>



Strategy 1: Use Data to Identify Reasons for Low Immunization Rates

Overview: Improving childhood immunization rates begins with assessing rates and sharing information about rates with health care providers. Routine assessment of immunization rates can be used to monitor trends and to identify root causes for why children are not fully vaccinated with recommended vaccines by two years of age. The Community Preventive Services Task Force recommends [assessment and feedback](#) based on strong evidence of effectiveness in improving vaccination rates.

What CCOs and health plans can do

- ✓ **Routinely monitor immunization rates for two year olds.** CCOs can monitor rates using data provided by Oregon Health Authority, Health Analytics. Alternatively, CCOs can work with clinics to run clinic-level rates in ALERT Immunization Information System (ALERT IIS).¹
- ✓ **Share information about the CCO's rates** with health care providers and clinic staff. Parse the CCO rates and make them available at the clinic level. Providers often overestimate the percent of children in their practice who are up-to-date with recommended vaccines. Increasing awareness of coverage rates is an important first step to improve rates.
- ✓ **Assess root causes for low immunization rates.** Coordinate with providers to review records of children who were not up-to-date by two years of age. Identify why they fell behind and implement quality improvement strategies to address root causes for low immunization rates.
- ✓ **Support clinics' ongoing activities to manage data quality.** Connect clinics to tools and resources if there are suspected issues with data submission. Each clinic interface with ALERT IIS must be approved by the ALERT IIS data exchange team; clinics should get EHR updates reviewed in advance to prevent data quality problems.

What health care providers can do

- ✓ **Routinely assess rates** through the EHR or ALERT IIS. Assess rates at 24 months and at earlier milestones. Use data to identify appropriate improvement strategies and track progress toward goals. Consider assessing rates and tracking progress toward goals every 1, 3 or 6 months.
- ✓ **Create a plan for monitoring immunization data quality and submission to ALERT IIS.** Assign staff to regularly utilize reports in ALERT IIS and your EHR to reconcile data. If data quality issues are identified, contact the ALERT IIS Help Desk. When your EHR is updated, re-test with the ALERT IIS data exchange team to ensure that accurate, complete, and timely data submission is maintained
- ✓ **Share information about the clinic's rates with clinic staff.** Involve staff in identifying and implementing appropriate interventions to improve rates.
- ✓ **Participate in the Oregon Immunization Program's AFIX Program.**² AFIX (Assessment, Feedback, Incentive, eXchange) is a federal quality improvement program designed to improve immunization rates and services through assessing rates, sharing information and working with clinics to develop interventions.



Strategy 1 Tools and Resources:

Who	What	Where
OHA Health Analytics	Information about CCO incentive measures	http://www.oregon.gov/oha/analytics/Pages/CCO-Baseline-Data.aspx
Community Guide Site for Assessment and Feedback	An overview of the evidence for assessing immunization rates and best practices at the provider level	http://www.thecommunityguide.org/vaccines/providerassessment.html
ALERT IIS Data Use Cases	Help interpreting and utilizing the quarterly ALERT IIS data extracts of CCO data	http://www.oregon.gov/oha/analytics/CCOData/ALERT%20IIS%20Data%20Use%20Cases%20(revised%20May%202016).pdf
ALERT IIS Assessment Report Tip Sheet	Tool to assess a clinic's immunization rates and reveal patterns of missing and late vaccinations across the clinic's population; can ID areas for intervention	http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Documents/ALERTIISAssmntRprt.pdf
ALERT IIS Benchmark Report Tip Sheet	Can help assess a clinic's immunization rates and identify patients who may not be up-to-date; includes patient-level data	http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Documents/ALERTIISBnchmrkRprt.pdf
ALERT IIS Reminder/Recall Tip Sheet	Step-by-step guide to help you set up and run a reminder/recall in ALERT IIS	http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Documents/ALERTIISReminderRecallGuide.pdf
ALERT IIS Help Desk and data exchange team	Report or troubleshoot missing or incorrect data in ALERT IIS, or notify about a new EHR or vendor	alertiis@state.or.us or 800-980-9431



Strategy 2: Identify and Eliminate Barriers to Access

Overview: Insurance status is typically not a factor in access to childhood immunizations. The Affordable Care Act requires that vaccines are provided at no cost to families as routine preventive care.

The federal Vaccines for Children (VFC) program provides vaccines at no cost for children enrolled in Medicaid, or who are uninsured, underinsured, or American Indian/Alaskan Native. Oregon Administrative Rule prohibits providers who vaccinate Medicaid-enrolled children but are not enrolled in VFC from seeking reimbursement for the cost of vaccine or for administration fees (OAR 410-130-0255). CCOs and health care providers should reduce out-of-pocket costs where they exist and address other barriers to access.

What CCOs and health plans can do

- ✓ **Identify areas of need and/or providers not enrolled in VFC.** Encourage all providers who serve patients 0 through 18 years to enroll. Work with the Oregon VFC program and local health departments to prioritize VFC enrollment to address access needs. Work with non-VFC providers to ensure patients have access to immunizations at other locations.
- ✓ **Reimburse out-of-area health care providers** and local health departments that administer vaccines to members.
- ✓ **Ensure access to culturally appropriate immunization services.** Many parents have questions about vaccines. Work with clinics to make sure they provide Vaccine Information Statements and other materials in languages other than English, and that translation services are available.

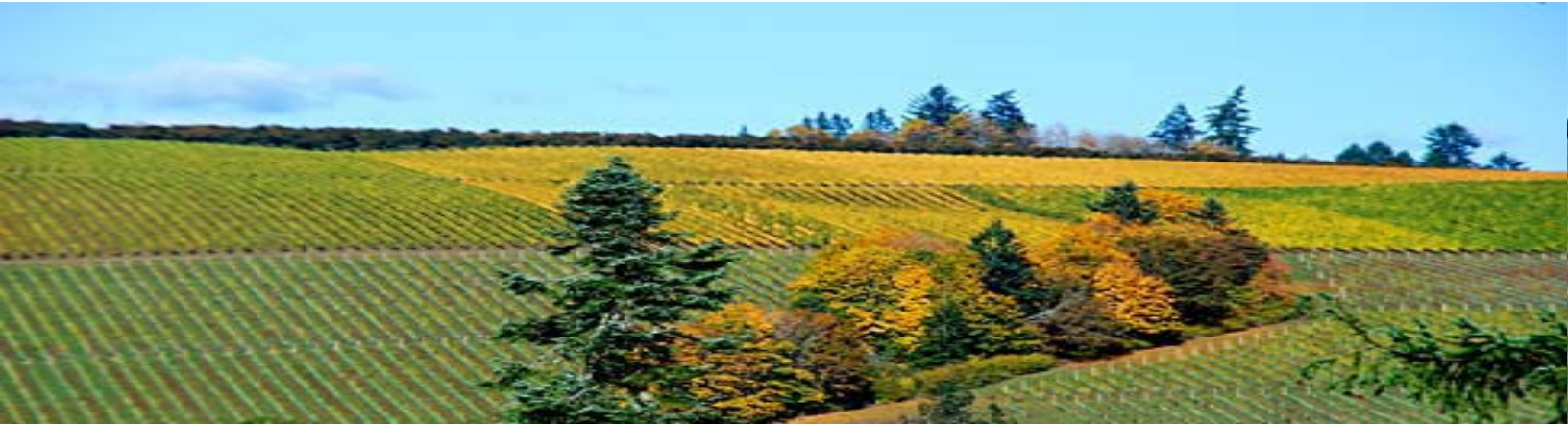
What health care providers can do

- ✓ **Use standing orders** so that RNs, PAs and MAs can assess immunization status and give vaccines according to protocol, without the need for examination or direct orders from a physician. The Oregon Immunization Program publishes model standing orders for providers in Oregon.
- ✓ **Offer immunization-only appointments** with a nurse or MA when immunizations are due, but a well-baby visit is not. Immunization-only appointments are generally quicker than a complete well-child visit, and for patients with commercial insurance, may reduce out of pocket costs associated with office visit fees or other fees.
- ✓ **Offer expanded clinic hours and walk-in appointments** for immunizations. Walk-in appointments make immunizations convenient for families and eliminate long waits for an opening. Expanding hours to include evening and weekend options helps working parents.



Strategy 2 Tools and Resources:

Who	What	Where
Vaccines for Children enrollment page	Clinics can begin the VFC enrollment process by completing the checklist with step-by-step instructions.	http://bit.ly/OregonVFCenrollment
CCO & LHD request for VFC to prioritize new clinic enrollment	Provides demographics of the new site (clinic, pharmacy), existing access issues, information about number of potential VFC clients, to be signed by both the CCO and the LHD Administrator.	(pending)
Oregon Immunization Program Model Standing Orders	Model standing orders that can be signed by a licensed independent provider to allow nurses and medical assistants to administer vaccines without a provider order.	https://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/stdgordr.aspx



Strategy 3: Reduce Missed Opportunities and Recall Patients who are Behind on Vaccines

Overview: Missed opportunities occur when a patient is seen at a health care provider's office, but they don't receive any vaccines, or they receive some but not all vaccines that are due. Patients with missed opportunities often fall behind schedule. Employing strategies to reduce missed opportunities and recall patients who are behind will result in improved rates by two years of age.

What CCOs and health plans can do

- ✓ Encourage providers to **offer all well-child visits** according to the [American Academy of Pediatrics schedule](#) and reimburse for these visits. Place emphasis on the 15- and 18-month well child visits. Work with clinics to identify and remove barriers to providing all well-child visits.
- ✓ Work with provider offices to **recall members** who are past due for well-baby visits or immunizations. Recalls are commonly done at 13 and 19 months. Consider a variety of methods of recalling patients such as text message, email or phone call, in addition to letters.

What health care providers can do

- ✓ **Forecast for immunizations** at every encounter. If no immunizations are due, provide an update on what immunizations will be given at upcoming visits. ALERT IIS and many EHRs forecast which vaccines are due or past due. Consider automating this in the EHR.
- ✓ **Immunize at sick visits** or when a child presents for well-child care with mild symptoms of illness if no contraindications or precautions exist.
- ✓ **Provide all vaccines** for which a patient is eligible on the day of the visit.
- ✓ **Schedule the next well-child visit** before the patient leaves the office. For most clinics, this is easier than trying to identify patients who are due for immunizations when no appointment has been scheduled.
- ✓ **Recall patients** who are behind on immunizations. Effective recall systems are narrow in focus, conducted routinely, and follow a consistent process. Clinic staff can run recall lists in ALERT IIS and in many EHRs.
- ✓ **Contact patients who miss appointments** within 3 to 5 days to reschedule. Personal outreach by clinic staff reinforces the importance of well-child visits and immunizations to families.
- ✓ **Track patients who follow an alternative schedule.** Alternative schedules typically require more visits to be up-to-date by two years of age. Ask families to document their intended schedule, ensure they adhere to it, and make the planned schedule visible to clinic staff.



Strategy 3 Tools and Resources:

Who	What	Where
American Academy of Pediatrics	Well Child Schedule	https://www.aap.org/en-us/Documents/periodicity_schedule.pdf
The Guide to Community Preventive Services	Recommendation to ensure provider reminders of immunizations due – forecasting at every visit	http://www.thecommunityguide.org/vaccines/providerreminder.html
ALERT IIS Reminder/Recall Tip Sheet	Step-by-step guide to help you set up and run a reminder/recall in ALERT IIS	http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Documents/ALERTIISReminderRecallGuide.pdf



Strategy 4: Increase Knowledge and Awareness About Immunizations in Clinics and for Families

Overview: Most parents intend to fully vaccinate their children, and health care providers and clinic staff want to vaccinate patients according to the AAP [recommended schedule](#). Increasing knowledge and awareness of the routinely recommended immunization schedule, and providing resources to answer questions are effective strategies to improve immunization rates.

What CCOs and health plans can do

- ✓ **Identify specific training needs and make training opportunities available** to health care providers and clinic staff. CDC and AAP have a range of materials available that can be distributed and discussed at staff meetings.³
- ✓ Use a systematic approach to **provide routine immunization updates and resources** to health care providers (e.g., in a regular newsletter or on intranet).
- ✓ **Provide routine and consistent reminders to parents** about the recommended vaccination schedule for 0-24 months. Couple reminders with messages conveying the importance of vaccination, and ensure staff are comfortable with these messages.

What health care providers can do

- ✓ **Identify an immunization champion** to regularly bring resources and information to coworkers, track and report on progress toward goals and offer coaching to coworkers.
- ✓ **Build a culture of immunization in the clinic.** All staff members who interact with patients and their families have a role in maintaining a pro-immunization culture where immunization is the expectation. Methods to employ may include making sure each employee understands how their role supports immunizations, and promoting vaccination of employees. Include nonmedical staff, such as front-desk staff, in discussions about immunization expectations and goals.
- ✓ **Make resources readily available** to parents and clinic staff. The CDC and AAP publish resources for effective communication about vaccines with parents, understanding vaccine safety, and about specific vaccines and diseases. Make sure clinic staff know how to access resources.
- ✓ **Personally recommend immunizations to parents** at every encounter. Studies show that a strong provider recommendation is an important factor in whether parents choose to immunize. Practice communications skills so that conversations with parents about immunizations feel comfortable.



Strategy 4 Tools and Resources:

Who	What	Where
Immunization Action Coalition	Background information and practical resources that will help staff efficiently and confidently discuss immunization with parents and patients.	http://www.immunize.org/talking-about-vaccines/responding-to-parents.asp
Children’s Hospital of Philadelphia Vaccine Education Center	A large volume of credible information for both parents and providers; the Resources section is particularly good.	http://www.chop.edu/centers-programs/vaccine-education-center/about
American Academy of Pediatrics	Intended to help pediatricians deliver on-time immunizations to their patients using the most current scientific research; click on the Communicating with Families link on the left for advice on hesitancy, common concerns and more. Also includes guidance on coding for parental refusal and counseling.	https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/default.aspx



Strategy 5: Increase Demand for Immunizations

Overview: CCOs can employ numerous strategies to increase demand for immunizations. The Community Preventive Services Task Force recommends implementing a combination of [community-based interventions](#) to increase immunization rates. Providing incentives is another proven strategy to improve immunization rates.

What CCOs and health plans can do

- ✓ **Convene and engage local public health agencies, health care providers, representatives from health systems, schools and children’s facilities and community organizations to:**
 - Share data on immunization rates;
 - Identify and understand pockets of low immunization rates;
 - Share resources and best practices
 - Develop and advance a common set of priorities and strategies.
- ✓ **Partner with other organizations that provide services to young children and families** such as: Early Learning and Parent Education Hubs, WIC, traditional health workers, and Maternal and Child Health home visiting nurses.
- ✓ **Support strategies to reduce nonmedical exemptions.**⁴ Strategies may include working with local public health agencies, schools, children’s facilities and parent groups to understand and address prevalent concerns in the community.
- ✓ **Provide incentives to parents and families.** The Community Preventive Services Task Force [recommends parent incentives](#) based on evidence of effectiveness in increasing immunization rates. Incentives may be given for keeping an appointment, completing a vaccine series or for other pro-vaccine behaviors. Consider providing diapers, toys or other baby items in addition to or in place of monetary incentives.
- ✓ **Provide incentives to health care providers.**
- ✓ **Support efforts to implement evidence-based legislation and policy** related to increasing appropriate vaccination.



Strategy 5 Tools and Resources:

Who	What	Where
Early Learning Hubs	Contact information, geographic coverage and links to all of Oregon's Early Learning Hubs	https://oregonearlylearning.com/current-early-learning-hubs/
The Guide to Community Preventive Services	Community Guide recommendations on vaccination requirements for schools and childcare	http://www.thecommunityguide.org/vaccines/requirements_school.html
The Guide to Community Preventive Services	Community Guide research and recommendations on family incentives	http://www.thecommunityguide.org/vaccines/IncentiveRewards.html



Resources and Additional Information:

- ¹ **ALERT Immunization Information System (ALERT IIS)** – Clinic staff have access to a number of reports in ALERT IIS that can help clinics to improve immunization rates. The benchmark report allows users to assess coverage rates for selected age groups or vaccines. The reminder/recall report allows users to generate lists of patients who are due or past due to receive specified vaccines. ALERT IIS reports training is available at: <http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/alert/Pages/Reports-Training.aspx>.
- ² **Oregon Immunization Program AFIX page** – Learn how AFIX can increase vaccination rates at: <https://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/afix.aspx>
- ³ **Resources for health care providers and families** – CDC and AAP make available a range of materials for health care providers, clinic staff and families. Resources are available at: <http://www.cdc.gov/vaccines/hcp.htm> and <http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/default.aspx>.
- ⁴ **Oregon Immunization Program immunization requirements for school and child care** – Immunizations are required for children who attend public and private schools, preschools, child care facilities and Head Start programs in Oregon. Information about Oregon’s immunization school law, including information about nonmedical exemptions, is available at: <http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/GettingImmunized/Pages/school.aspx>.

General Resources

Centers for Disease Control and Prevention (CDC) - <http://www.cdc.gov/vaccines>

Oregon Immunization Program - <http://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/Pages/index.aspx>

Guide to Community Preventive Services - <http://www.thecommunityguide.org/vaccines/index.html>

Immunization Action Coalition, Suggestions to Improve your Immunization Services - <http://www.immunize.org/catg.d/p2045.pdf>