



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

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Immunizations are among the greatest public health achievements of the 20<sup>th</sup> 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.<sup>i</sup> Despite the effectiveness of vaccines to prevent disease and the incremental increase of vaccination rates in Oregon, significant pockets of need exist, putting our state at risk for preventable outbreaks and slowing our progress impacting diseases such as HPV-related cancers. This resource guide focuses on evidence-based strategies that CCOs (Coordinated Care Organizations, or Health Plans) and health care providers can implement to improve childhood and adolescent vaccination rates.

Prior to measles vaccination in the United States, 3-4 million cases of the disease occurred each year. Oregon had an average of less than three measles cases a year from 1993 through 2018. Measles outbreaks in the United States, including an outbreak in Oregon and Washington, led to record case counts in 2019 and put the US at risk of losing the measles elimination status achieved in 2000.<sup>ii</sup> Achieving and maintaining high immunization rates are essential to ensure community immunity, keep vulnerable people protected and stop transmission when cases appear.

Improving immunization rates in Oregon offers the opportunity to not only protect public health progress, but also reduce or eliminate other significant diseases. Almost 40,000 people are diagnosed with Human Papillomavirus (HPV) associated cancer in the US each year, including more than 500 people in Oregon. HPV vaccine can prevent an estimated 90 percent of cancer caused by HPV, but vaccination rates fall short of the Healthy People goal of 80%.<sup>iii</sup> Countries that have achieved vaccination rates approaching the 80% goal have seen a dramatic reduction in HPV disease and may soon eliminate diseases such as cervical cancer.<sup>iv</sup>

<sup>i</sup> 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.

<sup>ii</sup> CD Summary, Oct. 2019, Volume 68, Number 9, Available at: <https://www.oregon.gov/oha/PH/DISEASES/CONDITIONS/COMMUNICABLEDISEASE/CDSUMMARYNEWSLETTER/Documents/2019/ohd6809.pdf>.

<sup>iii</sup> CD Summary, Aug. 2018, Volume 67, Number 7, Available at: <https://www.oregon.gov/oha/PH/DISEASES/CONDITIONS/COMMUNICABLEDISEASE/CDSUMMARYNEWSLETTER/Documents/2018/ohd6707.pdf>

<sup>iv</sup> Hall, Michaela T, Simms, Kate T et al. The projected timeframe until cervical cancer elimination in Australia: a modelling study, 2019. *The Lancet* Jan. 2019, Vol. 4, Issue 1; e19-e27.



It is a pivotal time for immunizations in Oregon. Improving immunization rates can prevent the resurgence of diseases that have been eliminated for decades and lay the foundation for eliminating others such as HPV-related cancer that have a lasting impact on the lives of many Oregonians.

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## Strategy 1: Use data to identify reasons for low immunization rates

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*Overview: Improving immunization rates begins with assessing 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 low vaccination rates. 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.** CCOs can monitor rates using data provided by Oregon Health Authority, Health Analytics. Alternatively, CCOs can partner with clinics to run clinic-level rates in ALERT Immunization Information System (ALERT IIS).<sup>1</sup>
- ✓ **Share information about the CCO's rates** with health care providers and clinic staff. Providers often overestimate the percent of patients 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 patients who were not up-to-date on time. Identify why they fell behind and implement quality improvement strategies to address root causes for low immunization rates.
- ✓ **Monitor Data Quality.** Work with clinics and ALERT IIS data to identify any data gaps in ALERT IIS and enter missing data. Connect clinics to tools and resources if there are suspected issues with data submission.



## What health care providers can do

- ✓ **Routinely assess rates through the EHR or ALERT IIS.** Use data to identify appropriate improvement strategies and routinely track progress toward goals.
- ✓ **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 data submission is maintained.
- ✓ **Share information about the clinic's rates with clinic staff.** Involve all types of staff in identifying and implementing appropriate interventions to improve rates.
- ✓ **Participate in the Oregon Immunization Program's IQIP Program.<sup>2</sup>** IQIP (Immunization Quality Improvement for Providers) is a federal quality improvement partnership designed to improve immunization rates and services through clinical workflow improvement.



## Strategy 1 Tools and Resources

Who	What	Where
OHA Health Analytics	Information about CCO incentive measures.	<a href="http://www.oregon.gov/oha/analytics/Pages/CCO-Baseline-Data.aspx">http://www.oregon.gov/oha/analytics/Pages/CCO-Baseline-Data.aspx</a>
ALERT IIS Data Use Cases	Help interpreting and utilizing the quarterly ALERT IIS data extracts of CCO data.	<a href="https://www.oregon.gov/oha/HPA/ANALYTICS/CCOMetrics/2016-ALERT-IIS-Data-Use-Cases.pdf">https://www.oregon.gov/oha/HPA/ANALYTICS/CCOMetrics/2016-ALERT-IIS-Data-Use-Cases.pdf</a>
Community Guide Site for Assessment and Feedback	An overview of the evidence for assessing immunization rates and best practices at the provider level.	<a href="https://www.thecommunityguide.org/findings/vaccination-programs-provider-assessment-and-feedback">https://www.thecommunityguide.org/findings/vaccination-programs-provider-assessment-and-feedback</a>
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.	<a href="https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISAssmntRprt.pdf">https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISAssmntRprt.pdf</a>
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.	<a href="https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISBnchmrkRprt.pdf">https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISBnchmrkRprt.pdf</a>
ALERT IIS Reminder/Recall Tip Sheet	Step-by-step guide to help you set up and run a reminder/recall in ALERT IIS.	<a href="https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISReminderRecallRpt.pdf">https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISReminderRecallRpt.pdf</a>
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.	<a href="mailto:alertiis@dhsoha.state.or.us">alertiis@dhsoha.state.or.us</a> or 800-980-9431





## Strategy 2: Identify and eliminate barriers to access

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*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 patients 18 and younger 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.** Parents of many different backgrounds have questions about vaccines. Close knit communities at risk for outbreaks often need educational materials that address specific cultural or linguistic needs. Work with clinics to make sure they provide culturally appropriate vaccination education 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

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Who	What	Where
Vaccines for Children enrollment page	Clinics can begin the VFC enrollment process by completing the checklist with step-by-step instructions.	<a href="http://bit.ly/OregonVFCenrollment">http://bit.ly/OregonVFCenrollment</a>
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.	<a href="https://www.oregon.gov/oha/ph/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/stdgordr.aspx">https://www.oregon.gov/oha/ph/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/stdgordr.aspx</a>
The National Vaccine Advisory Committee Standards for Pediatric Immunization Practice	National standards endorsed by the US Public Health Service and American Academy of Pediatrics for the provision of immunization services.	<a href="http://www.hhs.gov/nvpo/nvac/reports-and-recommendations/the-standards-for-pediatric-immunization-practice/index.html">http://www.hhs.gov/nvpo/nvac/reports-and-recommendations/the-standards-for-pediatric-immunization-practice/index.html</a>



## 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 before two years of age. Consider alternative recall methods such as text messages or email for patients who may be less likely to respond to phone calls.
- ✓ Work with clinics to **engage patients in care immediately** after enrollment. Patients that are behind on vaccines may need additional visits or catch-up schedules to ensure that they are vaccinated on time.

### What health care providers can do

- ✓ **Forecast for immunizations at every encounter** including acute care visits and sports physicals. If no immunizations are due, provide an update on what immunizations will be given at upcoming visits.
- ✓ **Provide all vaccines** for which a patient is eligible on the day of the visit.
- ✓ **Schedule the next immunization 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.
- ✓ **Identify 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.
- ✓ **Recommend the HPV series starting at age 9.** The American Academy of Pediatrics [recommends](#) providers begin the HPV conversation starting at age 9. An earlier start has been shown to increase adolescent up-to-date rates.





## Strategy 3: Tools and Resources

Who	What	Where
American Academy of Pediatrics	Well Child Schedule.	<a href="https://www.aap.org/en-us/Documents/periodicity_schedule.pdf">https://www.aap.org/en-us/Documents/periodicity_schedule.pdf</a>
The Guide to Community Preventive Services	Recommendation to ensure provider reminders of immunizations due – forecasting at every visit.	<a href="https://www.thecommunityguide.org/findings/vaccination-programs-provider-reminders">https://www.thecommunityguide.org/findings/vaccination-programs-provider-reminders</a>
ALERT IIS Reminder/Recall Tip Sheet	Step-by-step guide to help you set up and run a reminder/recall in ALERT IIS.	<a href="https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISReminderRecallRpt.pdf">https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ALERT/documents/ALERTIISReminderRecallRpt.pdf</a>
Oregon Immunization Program IQIP Program	Contact the Oregon Immunization Program to get your clinic involved with IQIP – Immunization Quality Improvement for Providers.	<a href="https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/iqip.aspx">https://www.oregon.gov/oha/PH/PreventionWellness/VaccinesImmunization/ImmunizationProviderResources/Pages/iqip.aspx</a>



## Strategy 4: Increase knowledge and awareness about immunizations in clinics and for families

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*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 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.<sup>3</sup>
- ✓ 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.
- ✓ **Partner with local organizations to train clinic staff on effective methods to communicate with parents.** Work with community partners such as Boost Oregon or Oregon Area Health Education Center to address provider communication training needs around complex topics such as vaccine safety and HPV communication.

### 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. Employ methods such as ensuring each employee understands how their role supports immunizations and promoting vaccination of employees. Include nonmedical staff including 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 facts about specific vaccines and diseases. Make sure clinic staff know how to access resources.
- ✓ **Make a strong personal recommendation for immunizations** at every encounter. Studies show that a strong provider recommendation is one of the most important factors in whether parents choose to immunize. Practice communications skills so that conversations with parents about immunizations feel comfortable. Recommend HPV vaccine for adolescents the same way on the same day that you would recommend Tdap.



## 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.	<a href="http://www.immunize.org/talking-about-vaccines/responding-to-parents.asp">http://www.immunize.org/talking-about-vaccines/responding-to-parents.asp</a>
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.	<a href="http://www.chop.edu/centers-programs/vaccine-education-center/about">http://www.chop.edu/centers-programs/vaccine-education-center/about</a>
Centers for Disease Control and Prevention	Make a strong recommendation for vaccination. Talking to parents about childhood vaccines and HPV vaccine 2-page resource.	<a href="https://www.cdc.gov/hpv/hcp/for-hcp-tipsheet-hpv.pdf">https://www.cdc.gov/hpv/hcp/for-hcp-tipsheet-hpv.pdf</a>
Centers for Disease Control and Prevention	How I recommend Vaccination Video Series. Short, informative videos from clinicians on how to effectively address vaccine questions.	<a href="https://www.cdc.gov/vaccines/howirecommend/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhpv%2Fhcp%2Fhow-I-recommend.html">https://www.cdc.gov/vaccines/howirecommend/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhpv%2Fhcp%2Fhow-I-recommend.html</a>
Centers for Disease Control and Prevention	Effective recommendation strategies for HPV vaccine. You Are the Key to HPV Cancer Prevention.	<a href="https://www2.cdc.gov/vaccines/ed/hpv_key/yatk.asp">https://www2.cdc.gov/vaccines/ed/hpv_key/yatk.asp</a>
Boost Oregon	Trainings and materials on communicating with vaccine hesitant parents.	<a href="http://www.boostoregon.org/">http://www.boostoregon.org/</a>
Oregon Pacific Area Health Education Center	In person HPV communication training opportunities.	<a href="https://www.opahec.org/">https://www.opahec.org/</a>
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.	<a href="https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/default.aspx">https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/default.aspx</a>





## Strategy 5: Increase demand for immunizations

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*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, 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.**<sup>4</sup> Strategies may include working with local public health agencies, schools, children’s facilities and parent groups to understand and address 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 immunizers, including health care providers, local public health immunizers or other community-based organizations.** This could include incentives to immunizers that participate in immunization quality improvement efforts or that meet immunization metrics. This may also include value-based payments that support immunization metric achievement.
- ✓ **Fund staff who provide off-site immunization** clinics to support improved immunization rates. For example, funding a portion of an LPHA staff who collaborates with schools to provide shot clinics during parent-teacher conferences or back-to-school nights.
- ✓ **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	<a href="https://oregonearlylearning.com/current-early-learning-hubs/">https://oregonearlylearning.com/current-early-learning-hubs/</a>
The Guide to Community Preventive Services	Community Guide recommendations on vaccination requirements for schools and childcare	<a href="https://www.thecommunityguide.org/findings/vaccination-programs-schools-and-organized-child-care-centers">https://www.thecommunityguide.org/findings/vaccination-programs-schools-and-organized-child-care-centers</a>
The Guide to Community Preventive Services	Community Guide research and recommendations on family incentives	<a href="https://www.thecommunityguide.org/findings/vaccination-programs-client-or-family-incentive-rewards">https://www.thecommunityguide.org/findings/vaccination-programs-client-or-family-incentive-rewards</a>



## Resources and Additional Information

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<sup>1</sup> **ALERT Immunization Information System (ALERT IIS)** – Clinic staff have access to many 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: <https://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/alert/Pages/Reports-Training.aspx>.

<sup>2</sup> **Oregon Immunization Program IQIP page** – Learn how IQIP can increase vaccination rates at: <https://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/VACCINESIMMUNIZATION/IMMUNIZATIONPROVIDERRESOURCES/Pages/iqip.aspx>

<sup>3</sup> **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 <https://www.cdc.gov/vaccines/hcp/index.html> and <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/default.aspx>.

<sup>4</sup> **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: <https://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** - <https://public.health.oregon.gov/PreventionWellness/VaccinesImmunization/Pages/index.aspx>

**Guide to Community Preventive Services** - <https://www.thecommunityguide.org/topic/vaccination>

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