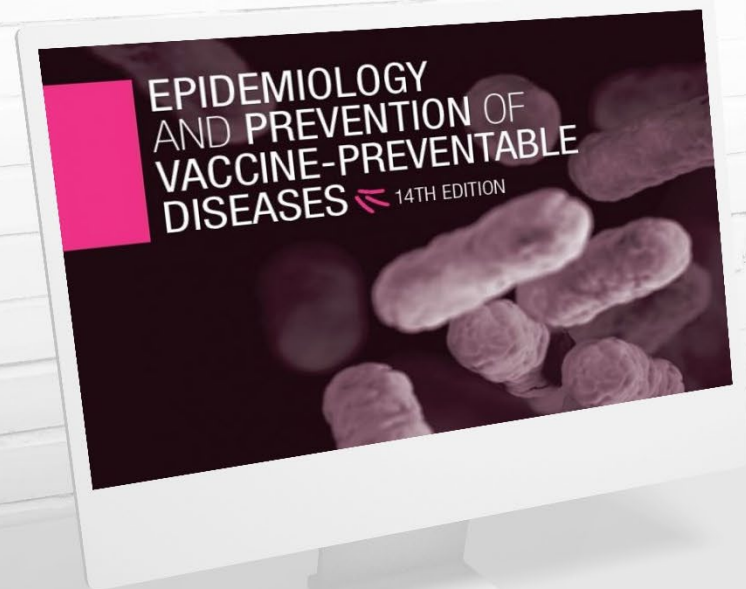


Immunization Strategies for Health Care Practices and Providers

Pink Book Web-on-Demand Series

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Learning Objectives

- Describe the fundamental principles of the immune response.
- Describe immunization best practices.
- Describe an emerging immunization issue.
- For each vaccine-preventable disease, identify those for whom routine immunization is recommended.
- For each vaccine-preventable disease, describe characteristics of the vaccine used to prevent the disease.
- Locate current immunization resources to increase knowledge of team's role in program implementation for improved team performance.

Continuing Education Information

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- Pass the post-assessment at 80%.
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Disclosure Statements

- In compliance with continuing education requirements, all planners and presenters must disclose all financial relationships, in any amount, with ineligible companies during the previous 24 months as well as any use of unlabeled product(s) or products under investigational use.
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Disclosure Statements

- The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Vaccination Coverage Overview

Diseases and the Vaccines that Prevent Them

- Thanks to vaccines, children and adults can be protected against these vaccine-preventable diseases (VPDs).



Chickenpox



Diphtheria



Flu



Hepatitis A



Hepatitis B



Hib



HPV



Measles



Meningococcal



Mumps



Polio



Pneumococcal



Rotavirus



RSV



Rubella



Tetanus



Whooping Cough

Importance of Implementing Vaccination Programs and Systems

- **Provide effective vaccine access and delivery**
- **Maintain and increase vaccination coverage**
- **Create a culture of immunization to vaccinate with confidence**



Image courtesy of the American Academy of Pediatrics and SELF Magazine.

Comparison of 20th Century Annual Morbidity and Current Morbidity: Vaccine-Preventable Diseases in the United States

Disease	20th Century Annual Morbidity [†]	2023 Reported Cases ^{† †}	Percent Decrease
Diphtheria	21,053	2	>99%
Measles	530,217	47	>99%
Mumps	162,344	429	>99%
Pertussis	200,752	5,611	97%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	3	>99%
Congenital Rubella Syndrome	152	0	100%
Tetanus	580	15	97%
<i>Haemophilus influenzae</i>	20,000	27*	>99%

[†] JAMA. 2007;298(18):2155-2163

^{† †} Centers for Disease Control and Prevention. National Notifiable Diseases Surveillance System, Weekly Tables of Infectious Disease Data. Atlanta, GA. CDC Division of Health Informatics and Surveillance. Available at: https://wonder.cdc.gov/nndss/nndss_weekly_tables_menu.asp?mmwr_year=2020&mmwr_week=53. Available at: Weekly statistics from the National Notifiable Diseases Surveillance System (NNDSS). (cdc.gov). Data submitted through Dec 31, 2023; accessed on Jan 24, 2024; diphtheria and polio case counts reported by CDC Program. * *Haemophilus influenzae* type b (Hib) < 5 years of age. An additional 12 cases of Hib are estimated to have occurred among the 257 notifications of *Haemophilus influenzae* (< 5 years of age) with unknown serotype.

Estimated Vaccination Coverage Among Children Ages 24 Months — National Immunization Survey (NIS)-Child, U.S.

Vaccine/Dose	2019–2020
Hep B (Birth dose)*	81.5%
Hep B (3 or more doses)	92.1%
Hep A (1 or more doses)	88.4%
Poliovirus (3 or more doses)	93.0%
MMR (1 or more doses)[†]	91.6%
VAR (1 or more doses)[†]	91.1%
Influenza (2 or more doses)[§]	61.3%
<p>* One dose Hep B administered from birth through age 3 days.</p> <p>[†] Includes children who might have been vaccinated with MMR and varicella combination vaccine.</p> <p>[§] Influenza vaccine doses must be ≥24 days apart (4 weeks with a 4-day grace period)</p> <p>MMR = Measles, mumps, rubella vaccine; VAR = Varicella vaccine</p>	

Estimated Vaccination Coverage Among Children Ages 24 Months— NIS-Child, U.S.

Vaccine/Dose	2019–2020
Combined seven-vaccine series^{¶¶}	69.1%
<p>^{¶¶} The combined seven-vaccine series (4:3:1:3*:3:1:4) includes ≥4 doses of Diphtheria, Tetanus and Acellular Pertussis (DTaP), ≥3 doses of poliovirus vaccine, ≥1 dose of measles-containing vaccine, the full series of Hib (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB, ≥1 dose of VAR, and ≥4 doses of pneumococcal conjugate vaccine (PCV). Includes vaccinations received by age 24 months, except for the HepB birth dose, rotavirus vaccination, and ≥2 HepA doses by age 35 months.</p>	

Coverage with Selected Vaccines and Exemption from School Vaccine Requirements Among Children in Kindergarten — U.S., 2022–23 School Year

Vaccination Coverage

- Declined from 95% to 93% among kindergartners from 2019-20 to the 2021-22 school years
- Remained near 93% for all reported vaccines in the 2022-23 school year

Exemptions

- Increased 0.4 percentage points to 3.0%
- Increased in 41 states, exceeding 5% in 10 states

Estimated Vaccination Coverage Among Kindergartners — U.S., 2022-23 School Year

Vaccination Series	% Coverage
MMR (2 doses)*	93.1%
DTaP (5 doses)†	92.7%
Polio (4 doses)§	93.1%
VAR (2 doses)¶	92.9%

* Most states require 2 doses of MMR

† Pertussis vaccination coverage might include some DTP doses. Most states require 5 doses of DTaP for school entry, or 4 doses if the fourth dose was received on or after the fourth birthday

§ Most states require 4 doses of polio vaccine for school entry, or 3 doses if the fourth dose was received on or after the fourth birthday

¶ Most states require 2 doses of VAR for school entry

Estimated Vaccination Coverage Among Adolescents Ages 13 through 17 Years, NIS-Teen, U.S., 2022

Vaccination Series	% Coverage
Tdap* (1 or more doses)	89.9%
MenACWY[†] (1 or more doses)	88.6%
HPV [§] vaccine (All adolescents, 1 or more doses)	76.0%
HPV vaccine UTD [¶] (All adolescents, UTD)	62.6%

* Includes percentages receiving Tdap vaccine at age ≥ 10 years.

[†] Includes percentages receiving MenACWY or an unknown type of meningococcal vaccine.

Tdap = Tetanus, diphtheria and acellular pertussis vaccine; MenACWY = meningococcal conjugate vaccine.

- **Coverage with ≥ 1 dose of Tdap and ≥ 1 dose MenACWY vaccines was high and stable (around 90%).**

Estimated Vaccination Coverage Among Adolescents Ages 13 through 17 Years, NIS — Teen, U.S., 2022

Vaccination Series	% Coverage
Tdap* (1 or more doses)	89.9%
MenACWY† (1 or more doses)	88.6%
HPV§ vaccine (All adolescents, 1 or more doses)	76.0%
HPV vaccine UTD¶ (All adolescents, UTD)	62.6%

¶ HPV vaccine, nine-valent (9vHPV), quadrivalent (4vHPV), or bivalent (2vHPV). For ≥1 dose and HPV UTD measures, percentages are reported among females and males combined (16,043) and for females only (7,623) and males only (8,420).

*** HPV vaccine UTD includes those with ≥3 doses, and those with 2 doses when the first HPV vaccine dose was initiated at age <15 years and there were ≥5 months minus 4 days between the first and second dose.

- **Among all adolescents aged 13–17 years, 2022 vaccination coverage levels did not differ from 2021 levels; however, initiation of the HPV vaccination series decreased among those who were insured by Medicaid.**

Vaccination Coverage among Adults in the United States (U.S.), National Health Interview Survey (NHIS), 2021

Vaccination Series	% Coverage
Pneumococcal (1 or more doses, 19-64 years at increased risk)	22.2%
Pneumococcal (1 or more doses, 65 years and older)	65.8%
Herpes Zoster (1 dose or more, 50 years and older)	32.6%
Herpes Zoster (1 dose or more, 60 years and older)	41.1%
Hepatitis B (at least 1 dose, ages 19 years or older)	34.2%
Influenza ⁺ (age 19 years and older)	50.3%

+ Estimates are season-specific. Year 2021 corresponds to the 2020-21 influenza season.



Knowledge Check

Which of the following adolescent vaccinations has the lowest coverage?

- A. Tdap
- B. HPV
- C. MenACWY





Answer

Which of the following adolescent vaccinations has the lowest coverage?

A. Tdap

B. HPV 

C. MenACWY

2

Implementing Immunization Strategies

Immunization Strategies Overview

Evidence-based immunization strategies help increase vaccine uptake or vaccination coverage.

- **Some strategies target public settings including:**
 - School immunization requirements
 - Women, Infant, and Children (WIC) services
 - Home visits
- **Some strategies are patient-focused and practice- or system-focused.**

Trust Is the Foundation for Vaccine Conversations

- **93% of parents say their child's provider is their most trusted source of vaccine information.**
- **Among parents of young infants, satisfaction with their provider is associated with improving vaccine uptake.**

What makes for a trusted provider?

Scientific competency
Spending time with patient
Listening, acknowledging, responding to questions or concerns
Caring disposition
Treating patient as an individual

Patient-Focused Strategies: Make Strong Vaccine Recommendations

- **Recommendation from a health care provider remains the number one reason parents decide to vaccinate.**
- **Adults who receive a provider recommendation for influenza vaccine have significantly higher vaccination coverage.**

Use a Presumptive Approach



Presumptive approach assumes patients and parents will choose to vaccinate.



***“Your child needs DTaP,
Hib, and Hepatitis B
vaccines today.”***

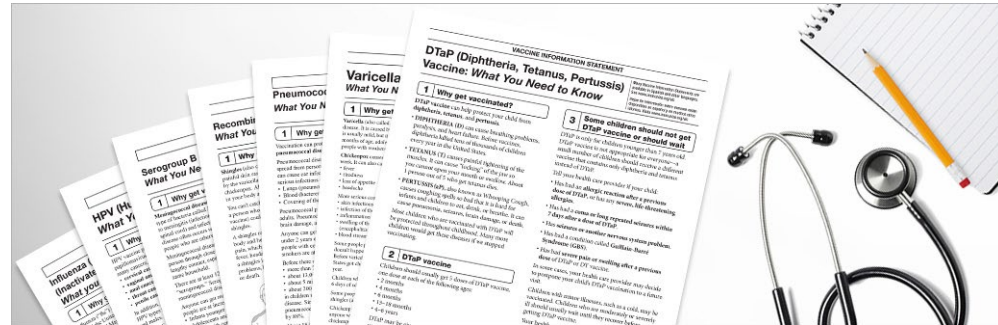
Strong Recommendations Are Effective

- **75% of parents accept HPV vaccination when you effectively recommend the vaccine and address their questions.**



Patient-Focused Strategies: Take Time To Answer Questions

- Surveys of parents of young children have shown while most parents plan to vaccinate on schedule, many parents still have questions.
 - Discussion of the benefits and risks of vaccination is sound medical practice.
 - Providers are required by law to distribute vaccine information statements (VISs) before each dose of vaccine.



Start Vaccination Conversations Early, Ensure Questions Are Addressed

- **Most parents make vaccine decisions for their child before or during pregnancy.**
- **Pregnant women want more information on vaccines from their provider.**
- **Use every opportunity to reach parents before the first vaccine visit.**



Provider visits



Introduce recommended immunization schedule before first vaccine visit



Practice websites and parent-friendly immunization schedules

Continue The Conversation

For You and Your Practice



- **Current research shows that:**
 - Health care professionals are the ones parents turn to with vaccine questions.
 - Doctor visits and immunizations, say parents, are important for keeping kids healthy.
 - Many physicians find personal stories effective in communicating with parents.

Consider Share Method to Help Adults Make Informed Decisions

S	H	A	R	E
SHARE tailored reasons	HIGHLIGHT positive experiences	ADDRESS questions	REMIND vaccines help protect them and their loved ones	EXPLAIN potential costs of getting the disease



Knowledge Check

Which of the following is an example of using the presumptive approach to make a strong recommendation?

- A. “Sophie is due for 4 vaccinations today to help protect her against severe disease.”
- B. "Would you prefer that Jose receive 2 of his vaccinations today and return later to receive the other 2 vaccinations?"
- C. “How do you feel about Ronald receiving 4 vaccination shots today?”



Answer

Which of the following is an example of using the presumptive approach to make a strong recommendation?

- A. “Sophie is due for 4 vaccinations today to help protect her against severe disease.”**
- B. "Would you prefer that Jose receive 2 of his vaccinations today and return later to receive the other 2 vaccinations?"
- C. “How do you feel about Ronald receiving 4 vaccination shots today?”



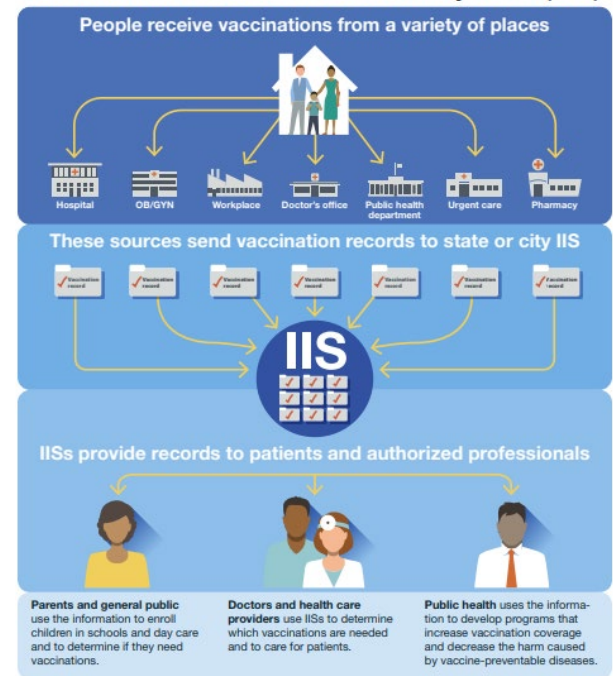
About Immunization Information Systems (IISs)

- **Confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area**
 - May be linked to the electronic health record
- **A single data source for all community vaccination providers**
 - Enabling them to access records of persons receiving vaccinations from multiple providers

Practice-Focused Strategies: Use Immunization Information Systems (IISs)

- **Record-keeping tasks and patient reminder and recall processes can be greatly simplified**
- **Provide records to patients and authorized professionals**
 - To determine if child meets school vaccination requirements
 - To determine vaccinations needed for college, work, travel or other situations
 - To increase vaccination coverage

Basics of Immunization Information Systems (IISs)



Immunization Information Systems

- **Point of care - IISs provide consolidated immunization histories to help determine appropriate vaccinations.**
- **Population level - IISs provide aggregate data for surveillance, program operations, and public health goals including improving vaccination rates and reducing VPDs.**



IIS Benefits

- Program support
- Consolidated records
- Privacy and confidentiality
- Timely immunization
- Clinical decision support
- Data exchange

Basics of Immunization Information Systems (IISs)



IISs Support Reminder and Recall Systems

- **Patients**
 - Notification that immunizations are:
 - Due soon (reminder)
 - Past due (recall)
- **Providers**
 - Computer-generated list
 - Stamp in chart
 - Prompt in electronic medical record
 - Forecast vaccines scheduled next



Practice-Focused Strategies: Develop A Culture of Immunization

- **Patients and parents can feel more confident when everyone in the practice shares the same message.**
- **Adopt best practices to ensure you:**
 - Recognize barriers to immunizations
 - Reduce missed opportunities to vaccinate
 - Foster support for vaccination in your practice



Recognize Barriers to Immunization

- **Physical barriers:**
 - Clinic hours
 - Waiting time
 - Distance
- **Psychological barriers:**
 - Unpleasant experience
 - Vaccine safety concerns



What is a Missed Opportunity?

- A health care encounter in which a person is eligible to receive vaccination but is not vaccinated.



Reasons for Missed Opportunities

- **Many health care providers avoid simultaneous administration of multiple injectable vaccines.**
- **Providers might be unaware a child or adult needs a vaccination.**
- **Providers sometimes follow invalid contraindications.**
- **Larger system issues, such as policies of only vaccinating children at well-care visits or not vaccinating siblings.**
- **Regulations, such as state insurance laws denying reimbursement if a vaccine is administered during an acute-care visit.**

Evidence-based Interventions to Increase Vaccination Coverage

- **Enhancing Access to Vaccination Services**
- **Increasing Community Demand for Vaccinations**
- **Provider- or System-Based Interventions**

Evidence-based Interventions to Increase Vaccination Coverage

Enhancing Access to Vaccination Services	Increasing Community Demand for Vaccinations	Provider- or System-Based Interventions
<ul style="list-style-type: none">• Home Visits to Increase Vaccination Rates• Reducing Client Out-of-Pocket Costs• Vaccination Programs in Schools and Organized Child Care Centers• Vaccination Programs in WIC Settings		

Evidence-based Interventions to Increase Vaccination Coverage

Enhancing Access to Vaccination Services	Increasing Community Demand for Vaccinations	Provider- or System-Based Interventions
	<ul style="list-style-type: none">• Client or Family Incentive Rewards• Client Reminder and Recall Systems• Community-Based Interventions Implemented in Combination• Vaccination Requirements for Child Care, School and College Attendance	

Evidence-based Interventions to Increase Vaccination Coverage

Enhancing Access to Vaccination Services	Increasing Community Demand for Vaccinations	Provider- or System-Based Interventions
		<ul style="list-style-type: none">• Health Care System-Based Interventions Implemented in Combination• Immunization Information Systems• Provider Assessment and Feedback• Provider Reminders• Standing Orders

Routine Immunizations on Schedule for Everyone (RISE)

- **Calls to Action**

- Ensure children and adolescents are up to date on their routine childhood vaccinations.
- Strengthen Adult Vaccination.



Strategies and Resources for Health Care Professionals, Schools and Partners

Getting routine immunizations back on-track is a goal that we can achieve by working together



Health Departments

- Leverage IIS to identify individuals behind on their vaccinations
- Facilitate patient return for vaccination
- Make vaccines easy to find and access
- Give strong vaccine recommendations
- Disseminated vaccine-related communications around catch-up
- Partner with schools and community organizations

Health Care Professional

- Send reminders to families whose children are behind on or due for vaccination
- Improve vaccine-related communications
- Offer vaccination-only appointments or hold vaccination clinics
- Implement systems to review vaccine history at every visit
- Offer strong recommendations
- Have standing orders
- Be prepared to answer questions and address concerns

Other Partners

- Know where to find accurate information on routine vaccination
- Connect with local public health department, ask how you can help with catch-up
- Help carry messages about importance of catch-up; you are trusted sources who understand your community best
- Engage with community members to address vaccine hesitancy
- Leverage data to focus catch-up efforts on communities that have fallen behind on vaccinations

Schools

- Share and utilize school vaccination data for catch-up
- Include vaccination information in back-to-school communications
- Help share the facts about vaccines
- Send reminders to families whose children are not up to date on their vaccinations
- Expand access to immunization services (e.g. school-based vaccination clinics)
- Enforce school vaccination requirements

3

Health Care Practice Quality Improvement (QI) Programs

Immunization Quality Improvement for Providers (IQIP)

- Intended to increase vaccine uptake among children and adolescents.
- Works with provider locations to assess vaccine coverage, and ways to improve processes and strategies to increase vaccination rates.
- Targeted toward quality improvement among providers enrolled in the Vaccines for Children (VFC) program.



Basic Steps of IQIP Programs

- State the problem and desired result.
- Use data to understand the problem.
- Identify strategies for improvement.
- Implement strategies and refine as needed.
- Evaluate outcome.



Benefits of Immunization QI Projects

- Address burden of vaccine-preventable diseases
- Catch up on well-child visits and recommended vaccinations
- Reduce missed opportunities
- Increase vaccine confidence
- Use practice-based coverage assessments and performance improvement



IQIP Process

- **IQIP is a 12-month process.**
- **Public health representatives and VFC providers collaborate.**
- **Goals:**
 - Implement provider-level QI strategies.
 - Increase vaccine uptake by improving and enhancing vaccination workflow.



IQIP Process Timeline

Site Visit	2-Month and 6-Month Check-Ins	12-Month Follow-Up
<ul style="list-style-type: none">• Provider's vaccination workflow is observed, and initial coverage is reviewed• QI strategies are selected• Technical assistance is provided by the IQIP consultant• Action items are chosen for strategy implementation plan	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed• Technical assistance is provided by the IQIP consultant• Strategy implementation plan is reviewed and updated	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed and updated• Technical assistance is provided by the IQIP consultant• Year-over-year coverage change is reviewed

IQIP Process Timeline: Step 1

Site Visit	2-Month and 6-Month Check-Ins	12-Month Follow-Up
<ul style="list-style-type: none">• Provider's vaccination workflow is observed, and initial coverage is reviewed• QI strategies are selected• Technical assistance is provided by the IQIP consultant• Action items are chosen for strategy implementation plan	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed• Technical assistance is provided by the IQIP consultant• Strategy implementation plan is reviewed and updated	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed and updated• Technical assistance is provided by the IQIP consultant• Year-over-year coverage change is reviewed

IQIP Process Timeline: Step 2

Site Visit	2-Month and 6-Month Check-Ins	12-Month Follow-Up
<ul style="list-style-type: none">• Provider's vaccination workflow is observed, and initial coverage is reviewed• QI strategies are selected• Technical assistance is provided by the IQIP consultant• Action items are chosen for strategy implementation plan	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed• Technical assistance is provided by the IQIP consultant• Strategy implementation plan is reviewed and updated	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed and updated• Technical assistance is provided by the IQIP consultant• Year-over-year coverage change is reviewed

IQIP Process Timeline: Step 3

Site Visit	2-Month and 6-Month Check-Ins	12-Month Follow-Up
<ul style="list-style-type: none">• Provider's vaccination workflow is observed, and initial coverage is reviewed• QI strategies are selected• Technical assistance is provided by the IQIP consultant• Action items are chosen for strategy implementation plan	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed• Technical assistance is provided by the IQIP consultant• Strategy implementation plan is reviewed and updated	<ul style="list-style-type: none">• Progress toward strategy implementation is reviewed and updated• Technical assistance is provided by the IQIP consultant• Year-over-year coverage change is reviewed

IQIP Strategies for Pediatric Providers

- Schedule the next vaccination visit before patients leave the clinic site.
- Leverage immunization information system (IIS).
- Give a strong vaccine recommendation.
- Strengthen vaccination communications.
- Customize strategies for specific provider locations.



Summary

- **Vaccines have had a significant impact on the incidence of vaccine-preventable diseases.**
- **High vaccination coverage is critical for maintaining low rates of vaccine-preventable diseases.**
- **Vaccination coverage can be improved by implementing patient- and provider- or system-based immunization strategies.**
- **Strong recommendations from health care provider remain the number one reason parents and patients decide to vaccinate.**
- **Health care providers should consider implementation of quality improvement projects, including IQIP.**



You are patients' and parents' **most trusted** source of information on vaccines

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