Aliados Health

Access | Equity | Advocacy | Innovation

Improving Prenatal Immunization Rates

2023

A TOOLKIT FOR COMMUNITY HEALTH CENTERS

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Toolkit Overview

Audience:

Does your clinic track prenatal immunization rates? Whether you are just getting started or looking to improve, this toolkit offers practical tips and tools you can implement in your routine work to improve prenatal immunization rates. The toolkit is intended to support Community Health Centers (CHCs) and quality improvement teams with improvement of prenatal immunization rates through assessment of workflows, documentation of key prenatal immunization practices, data analysis of prenatal immunization rates and implementation of process improvement activities. Your clinic can achieve and maintain high prenatal immunization rates, ensuring high-quality care.

Background:

Immunizations during pregnancy are critical to protecting the health of pregnant people and their babies. COVID-19, influenza, RSV, and Tdap vaccines are recommended during pregnancy by CDC and American Congress of Obstetricians and Gynecologists (ACOG). Unfortunately, immunization rates among pregnant people are low. During the 2022-2023 season, less than 50% of pregnant people received the influenza vaccine. There are also significant disparities in prenatal immunization rates by race/ethnicity and insurance status. CHCs play an essential role in assessing, recommending, and administering recommended vaccines to pregnant people.

Approach/Method:

In 2019, Aliados Health (then Redwood Community Health Center) partnered with the California Department of Public Health (CDPH) and received funding to improve prenatal immunization rates by engaging health centers across our network in four counties of Napa, Sonoma, Yolo, and Marin, which expanded to also include Solano and Contra Costa in 2022. The project's first two years focused on improving prenatal Tdap and influenza immunization rates. Year three expanded to include adult COVID-19 immunizations. Year four focused on prenatal rates for Tdap, influenza and COVID-19 and included data analysis and California Immunization Registry (CAIR) data match for participating health centers.

Instructions for Use:

This toolkit has been created to provide guidance and foundational tools to assist CHCs in assessing their current workflows and identifying opportunities for improvement. It includes links to supplementary resources developed by Aliados Health, CDPH, and external sources. To access resources, click on the provided hyperlinks in blue. Aliados Health is not responsible for the content of external resources. Resource links were validated at time of publication and will not be maintained. The resources within this toolkit can be adapted as prenatal immunization recommendations change over time.

Opportunity Statement/Outlook:

As CHCs emerge from the challenges inflicted by the COVID-19 pandemic, this toolkit can support building an organizational culture of increasing community trust through various interventions and partnering with community-based organizations. In addition, these toolkit activities can be partnered with other sources to support a holistic approach to assessing and designing interventions to improve immunization rates in the prenatal population.

Contacts

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Acknowledgement

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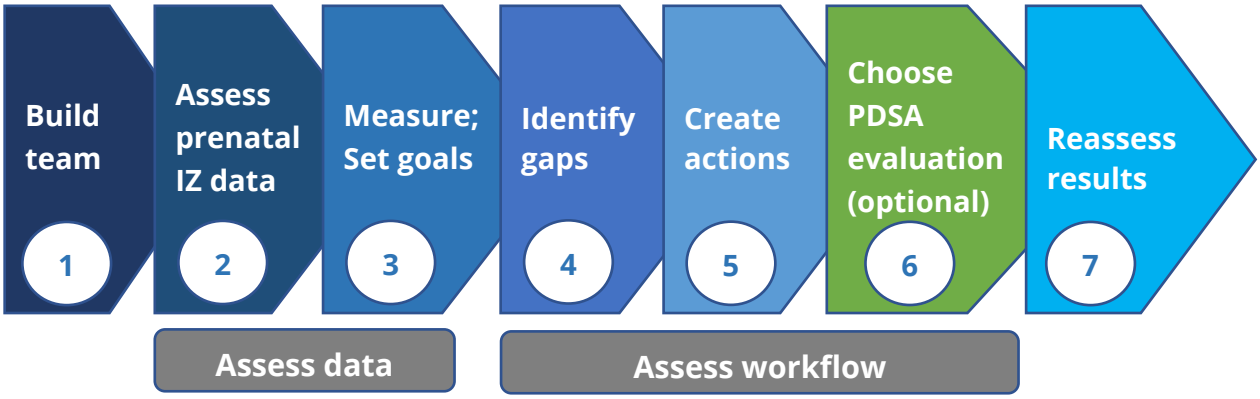
Start Here: How to Use this Toolkit to Improve Prenatal Immunization Rates in Your Clinic



Step 1

Build your prenatal assessment team. Your ideal team should include members with experience in quality improvement, data analysis, and project management. When you meet, make sure your team understands that this project will include returning to the project later to reassess the data and actions.

Step 2

Assess prenatal immunization data. Starting on Page 6, this step will direct your data experts on: a) identifying the data needed and b) how to determine your practice's current prenatal immunization rates. Use the guidance here to calculate and document your practice's baseline immunization rates for prenatal vaccines.

Step 3

Measure and set goals for improvement. Identify strengths and improvements based on your data. Prepare a plan to reassess progress after 12 months using selected goal improvement rates (e.g., improve Tdap, Flu and Covid-19 vaccinations for our OB patients by 4% from January 1, 2023, to June 30, 2023). You may wish to focus on where existing rates show the most need for improvement. Goal-setting recommendations are provided, and examples of interventions are in Appendices 2 and 5.

Step 4

Identify gaps. This is your opportunity to assess your clinic's workflow, clinic practices, and protocols that relate to prenatal immunization. Starting on Page 10, you will get an interview tool, the ***Clinic Workflow Worksheet***, to see where your practice is exceling and where there are practice or protocol gaps impeding progress on prenatal vaccinations. See recommendations for who to interview and tips to make the process successful.

Step 5

Create actions. The ***Clinic Workflow Worksheet*** also includes a column of best practices examples to help your team find actionable ways to address gaps efficiently. The final column provides space to note potential interventions or actions your staff decides take to improve gap areas. You can pick as many or as few actions as your staff want to pursue. Actions should have specific due dates and be reassessed by the team in 12 months, and if feasible, annually. Actionable items should list a lead person responsible for completing and/or reporting back on each action.

Step 6

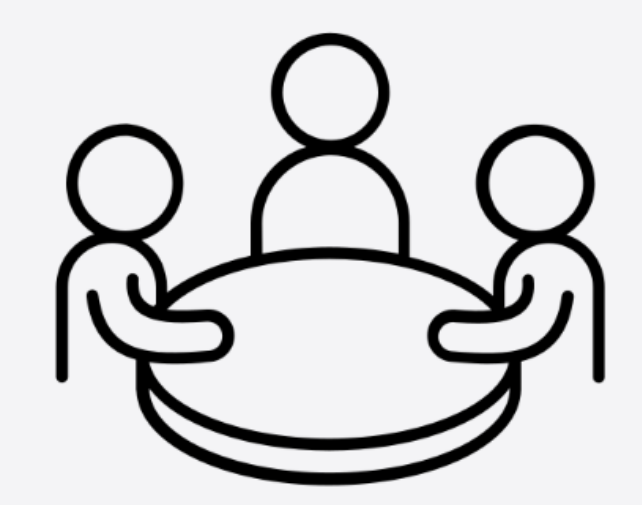
Choose PDSA evaluation (optional). This step is for any practice that decides to focus on one single intervention. After reviewing your Clinic Workflow Worksheet, you may discover one action you believe has the potential to make critical positive change (e.g., sending out reminders to all pregnant patients due for Tdap vaccine). PDSA (Plan-Do-Study-Act) is an evaluation process to try, test, and continuously adapt and improve your intervention. See Page 15 for more on models, worksheets, and steps.

Step 7

Reassess results. Your team may choose to meet during the year, depending on your health center's evaluation's chosen actions and goals. Regardless, your team should plan to convene after 12 months to reassess and evaluate what worked well and what gaps remain. It will be a time to celebrate successes, acknowledge staff involved, and reflect on areas that might still require effort. This step will require: a) re-running prenatal immunization rates and b) reviewing the action plans with the key staff leads and/or clinical leads to assess progress. Share and compare any changes in the immunization rates. You may be able to associate changes with one or more interventions implemented over the previous year.

Keep learning. Keep improving. After Year 1, we encourage you to update Steps 2 & 3, your prenatal immunization rates, and goals. You may find that Steps 4 & 5, your clinic workflow assessment, and actions, are more familiar ground in a subsequent interview for the next 12 months. Check for staff turnover to continue improvements. Consider changing or adding Step 6, a targeted PDSA evaluation project. Finally, repeat Step 7 by reassessing again in 12 months' time.

Step 1: Ready, Set, Go! Build Your Team!



Building your QI team was described on Page 3. Once your team has been assembled, establish roles.

Designate who will be in charge of collecting, cleaning, documenting, and summarizing all of the data collected from your EHR and immunization registry. This data is needed for Steps 2 and 3 in order to determine your prenatal immunization rates.

Designate who will be responsible for scheduling and convening the interviews and notetaking in Steps 4 and 5. Refer to the top of Page 9 (under Steps 4 and 5) for additional recommendations for which clinical health center staff to interview.

Download a companion resource tool: Improving Prenatal Immunization Project Template

Essential prenatal quality improvement team members:

- Quality Improvement Specialist
- Quality Assurance Specialist
- Data Analyst
- Project Manager
- Provider Champion

Step 2: Assess Prenatal Immunization Rates

Define

- **Measurement period**:
  - Assess deliveries occurring during a 1-year period from January 1 to December 31.
- **Prenatal patient population (denominator)**:
  - Patient either delivered under the care of the health center or the health center has a record of the delivery during the measurement period, **AND**
  - Patient ≥1 prenatal visit at the health center during the pregnancy.
    - Pregnancy start date: Calculate using gestational age at delivery time and the delivery date. Note: if gestational age at the time of delivery is unavailable, the patient should be excluded from the analysis.
    - Pregnancy end date: delivery date
- Patient immunization status (numerator)

Immunization Rate[1]	Description
Influenza[2]	Received an influenza vaccine on or between July 1 of the year prior to the measurement period and the delivery date; or deliveries where members had a prior anaphylactic reaction to influenza vaccine or its components any time during or before the measurement period.
Tdap[2]	Received at least one Tdap vaccine during the pregnancy.
COVID-19[3]	Individuals who are up to date with COVID-19 vaccination.
RSV[4]	Received an RSV vaccine on or between September 1 of the year prior to the measurement period and the delivery date.
Composite Rate	Meets the above criteria for influenza, Tdap, and COVID-19. *(Note: Prenatal RSV vaccine was not recommended until September 2023, and was not included in initial analyses.)*

Table notes and considerations:

[1] Exclusion criteria for consideration: the HEDIS Prenatal Immunization Status metric for health plans excludes pregnancies delivered at <37 weeks of gestation and pregnant people who were using hospice services during the measurement period.

[2] Tdap and influenza metrics are consistent with the HEDIS Prenatal Immunization Status metric.

[3] Pregnancy Guidelines and Recommendations by Vaccine | CDC

[4] Metric for consideration based on CDC prenatal RSV vaccine guidance (2023). Prenatal RSV vaccine was first recommended in September 2023 as one dose with seasonal administration from September to January. Future guidance is expected regarding dosing in subsequent pregnancies.

Step 3: Measure and Set Goals for Improvement

Prepare Electronic Record Data

- Gather data elements from the medical record, including the date of the first prenatal visit, delivery dates, gestational age at delivery, and vaccination dates for influenza, Tdap, and COVID-19.
    - Ensure that gestational age is captured within structured data in your EHR
- Clean data to detect and correct missing or inaccurate records. The data team will need to correct and validate these outlier records manually.

Incorporate Immunization Registry Data

- Matching clinic data with immunization registry data will improve the accuracy of baseline rates.
- Instructions for health centers to request a CAIR match can be found in Appendix 3. These procedures can be adapted for use with other immunization registries.

Calculate Immunization Rates

- Calculate each vaccination's proportions (percent) based on the above numerator and denominator. Prenatal immunization rates are reported as a percent. See Appendix 4.
    - Example Calculation:

	Influenza	Tdap	Combined Measure
Numerator	1064	1682	998
Denominator	2062	2062	2062
Prenatal Immunization Rate	52%	82%	48%

- Reassess rates annually to track improvement.

Tip: Compile your immunization data results into a summary or report that your team can easily review later. See Appendix 6

Review Results to Inform Intervention Goals

In the upcoming Steps 4, 5, (and 6), you'll be selecting interventions. Consider that available evidence shows that a combination of health care system-based interventions is most likely to improve immunization rates[9]. Clinics should consider implementing at least one

[9] Ventola C. L. (2016). Immunization in the United States: Recommendations, Barriers, and Measures to Improve Compliance: Part 2: Adult Vaccinations. P & T : a peer-reviewed journal for formulary management, 41(8), 492–506.

intervention to increase patient demand for vaccination and at least one intervention that addresses either, or both of the following: *Increased access to vaccinations* and Increased *provider administration of vaccinations.* See also Appendix 2 for examples of health center projects.

Steps 4 & 5: Assessing Clinic Immunization Workflow

This structured interview guide includes a series of questions to help you gain further insight into your clinic's current prenatal immunization practices. Step 4 identifies areas for improvement, and Step 5 develops actions or recommended interventions that can be followed-up during or at 12 months.

We recommend conducting this assessment by interviewing key staff members involved in your clinic's prenatal immunization efforts. These may include your Quality Assurance (QA)/Quality Improvement (QI) Director, Chief Medical Officer (CMO), Perinatal Clinic Manager, Director of Obstetrical Services, Continuous Quality Improvement (CQI) Director, or similar clinic management staff. It is recommended to start with the QI lead to facilitate identification of key staff as they may vary by health center.

Tips for Completing the Clinic Workflow Worksheet

When going through the ***Clinic Workflow Worksheet*** (Pages 10-14):

1) **Use the checklist** to identify areas where your clinic may have a gap.
2) **Use the best practices**, where applicable, to identify resources you may consider using to address gaps.
3) **Prepare for your actions or follow-up**. You may wish to prioritize among gaps identified to set realistic expectations for follow-up actions within 12 months. Ask your interviewees to help identify a lead/responsible person for each action item to implement and/or report back. It is recommended to discuss expectations, actions to follow up, and a period for completion. See Appendix 1 for a sample diagram of a clinic workflow to enrich your discussion.

Clinic Workflow Worksheet
Section 1: General questions

Questions	Check Yes or No	Strategies and Best Practices	Action/Follow-up for Improvement by _____(date)
1A. Does your clinic have protocols to ensure all prenatal patients are offered recommended vaccines? (Y/N choices to right)	☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N	*Formal procedures may include:* ▪ *Reminder/recall* ▪ *Check CAIR every patient* ▪ *Check patient charts for every patient* ▪ *Use EHR prompts* ▪ *Time vaccines with glucose tests*	
1B. Has clinic staff received training (or made any changes) to improve prenatal vaccination protocols the past 12 months?	☐ Yes ☐ No	*As shown above.*	
1C. Does your clinic have an "immunization champion" or IZ coordinator?	☐ Yes ☐ No	*Immunization champions can motivate staff and implement new processes to help improve immunization rates.*	
1D. If yes to the question above, does their role include prenatal immunization?	☐ Yes ☐ No	*Prenatal Coordinators can provide follow-up of prenatal patients and encourage prenatal immunization.*	
1E. Who in your clinic administers immunizations: ▪ MD, DO, or PA ▪ RN, BSN or PHN ▪ MA ▪ Pharmacist ▪ Other_____	☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N	*Establish procedures allowing allied healthcare providers to assess a patient's immunization status and administer vaccines apart from the provider visit, e.g., during pre-visit huddles, initial intake, discharge, laboratory visits, and health worker counseling or groups).*	
1F. Does your health center use standing order standardized nursing procedures for prenatal immunization?	☐ Yes ☐ No	*Check out these resources:* ▪ Standards of Practice for Vaccination *(CDC)* ▪ An Explanation of Standardized Procedures of Nurse Practitioner Practice *(DCA)* • Steps to implementing Standing Orders in Your Practice *(Immunize.org)*	

Clinic Workflow Worksheet
Section 2: Assessing a patient's vaccine status

Questions	Check Yes or No	Strategies and Best Practices	Action/Follow-up for Improvement by _____(date)
2A. Do staff look up patient immunization histories in your EHR or CAIR?	☐ Yes ☐ No	*Follow the CDC Standards for Adult Immunization Practice.* *Utilize your immunization information system (IIS) to assess patient vaccine history.*	
2B. Are all offers of prenatal vaccination documented?	☐ Yes ☐ No	*See sample adult declination form that could be modified for prenatal patients.*	
2C. Does your clinic have systems to prompt/remind staff to administer vaccines during the patient's visit?	☐ Yes ☐ No	*A provider prompt or reminder that lets staff know a vaccine is due is a proven strategy to increase immunization rates.*	
2D. Does your clinic send patient reminders/recalls for prenatal vaccinations? ▪ Email ▪ Text ▪ Patient portal ▪ Robocall ▪ Phone call ▪ Postcard/letter ▪	 ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N	*Reminder/recall systems are a proven strategy to increase adult immunization rates. CHCs enrolled in CAIR2 can use the CAIR2 reminder/recall feature. Also consider Robocalls, text messages, portal messages.*	
2F. Does your clinic do anything to promote prenatal immunization in your community?	☐ Yes ☐ No	*Outreach and education can motivate patients to request and receive appropriate vaccines.*	

Clinic Workflow Worksheet
Section 3: Recommending vaccines

Questions	Check Yes or No	Strategies and Best Practices	Action/Follow-up for Improvement by _____(date)
3A. Are all vaccinating staff trained to use specific language or a specific approach when discussing vaccines? (e.g., presumptive language, motivational interviewing)	☐ Yes ☐ No	*Making a strong vaccine recommendation with a presumptive approach is one of the best things providers and staff can do to ensure patients get vaccinated.* *Resources:* • *CDC: Educate Patients about Needed Vaccines (Pink Book)* • *CDC: #HowIReccomend Vaccination Video Series* • *Medscape: How to Give a Strong Recommendation to Adult Patients Who Require Vaccination* • *CDC: Conversation Guide for Healthcare Providers*	
3B. When do staff discuss prenatal immunization recommendations with prenatal patients? (Y/N choices to right)	☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N	▪ 1st or 2nd prenatal visit ▪ When vaccine is due ▪ No schedule ▪ Other _____ ▪ Not discussed	
3C. When do staff discuss infant immunization recommendations with prenatal patients? (Y/N choices to right)	☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N ☐ Y ☐ N	▪ By 1st trimester ▪ By 2nd trimester ▪ By 3rd trimester ▪ No schedule ▪ Not discussed	
3D. Are there different approaches to offering COVID-19, flu, Tdap, **and RSV?**	☐ Yes ☐ No	*Consistency is important and can help to create a culture of immunization*	
3E. Are approaches to how vaccines are offered consistent across providers and teams?	☐ Yes ☐ No		

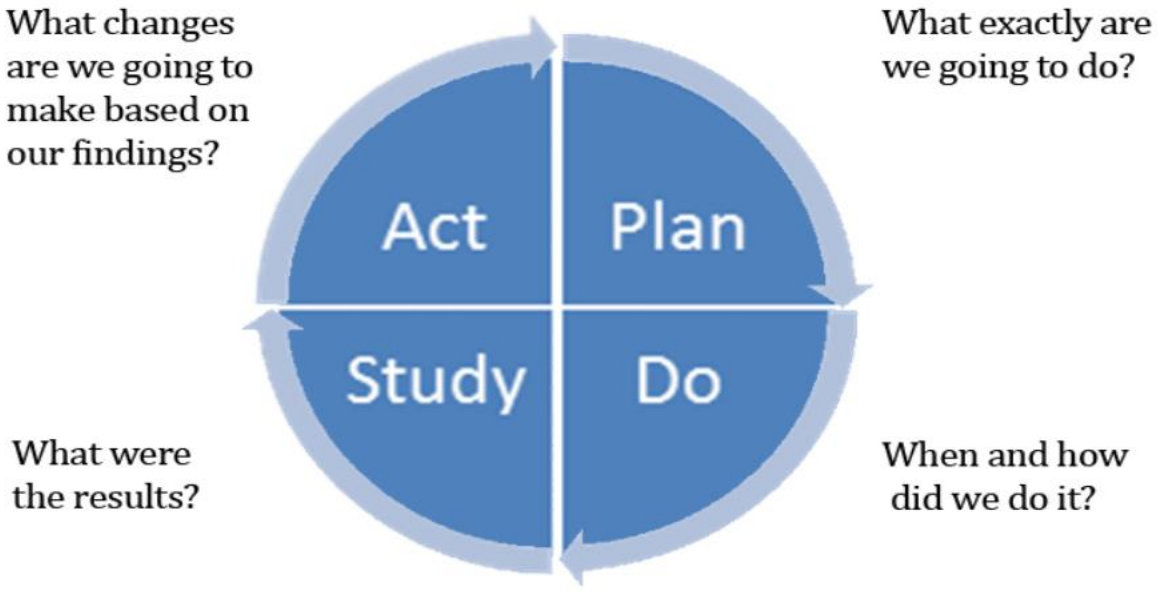
Clinic Workflow Worksheet Section 4: Administering vaccines			
Questions	**Check Yes or No**	**Strategies and Best Practices**	**Action/Follow-up for Improvement by _____(date)**
4A. When new staff come on, do they receive training on vaccine administration best practices?	☐ Yes ☐ No	*Steps to safely administer prenatal vaccines should be part of a health center's vaccine workflow. This should include staff training on safe administration of vaccines, distributing Vaccine Information Statements (VIS) to patients, and ensuring staff are prepared to manage adverse reactions.*	
4B. Do all staff hand out the VIS for each vaccine to prenatal patients?	☐ Yes ☐ No	*You must hand out the VIS. It is federal Law! Some health centers laminate a copy for each vaccine's VIS to re-use them.*	

Clinic Workflow Worksheet Section 5: Documenting vaccines			
Questions	**Check Yes or No**	**Strategies and Best Practices**	**Action/Follow-up for Improvement by _____(date)**
5A. Does staff use the EHR to document vaccines given to prenatal patients?	☐ Yes ☐ No	*Keep patient records up to date by documenting all vaccines given in the patient's medical record and your local IIS.*	
5B. Are patient declinations documented?	☐ Yes ☐ No	*Sample Flu declination form (Immunize.org)*	
5C. Are there reminders to revisit offering the vaccine after declination?	☐ Yes ☐ No	*Reminders may include a note in the patient's medical record, and follow-up communications by phone, letter, SMS, or follow-up appointment.*	
5D. Are all prenatal vaccinations entered into CAIR?	☐ Yes ☐ No	*Per California law, all immunizations must be entered into the California immunization registry.*	

Clinic Workflow Worksheet **Section 6: Overcoming Barriers**			
Questions	**Check Yes or No**	**Strategies and Best Practices**	**Action/Follow-up for Improvement by _____(date)**
6A. Are common barriers to immunization for prenatal patients discussed by your team, and addressed by staff?	☐ Yes ☐ No	*Common barriers include vaccine hesitancy/misinformation, lack of staff, hours of operation (e.g., evening or weekend), transportation, and financial constraints that affect purchase of vaccine.*	
6B. Do you have up-to-date educational resources for staff and patients that address common questions?	☐ Yes ☐ No	*Resources for pregnant women:* ▪ *Immunizations for a Healthy Pregnancy brochure in English and Spanish* ▪ *Protect yourself and your baby against flu, COVID-19, RSV, and whooping cough flyer in English and Spanish* ▪ *Other resources for pregnant and breastfeeding* ▪ *Q&A with Dr. Cohen from CDC (video)*	
6C. Have you implemented any strategies to increase acceptance of low-uptake prenatal vaccines?	☐ Yes ☐ No	*Check out these resources:* ▪ *Why should I get the COVID vaccine while pregnant? (ACOG)* ▪ *NIH press release on COVID vaccine and pregnant people 2023* ▪ *How I Recommend Maternal Vaccines videos (CDC)* ▪ *Making a strong vaccine referral to pregnant women (CDC)*	

Step 6: Choose PDSA evaluation (optional)

From your findings in Steps 3 and 4, your team may wish to improve one specific issue identified in your assessment. The PDSA (Plan-Do-Study-Act) approach will allow you to try a specific intervention, test it, study the impact, make changes as needed, and examine again to determine how the adapted approach impacts your results. Check the PDSA Directions and Guide from the Agency for Healthcare Research and Quality. There is also a PDSA worksheet in the appendices of SFDPH's *Prenatal Toolkit for Tdap Vaccine* to assist you. Click on the PDSA Cycle Template link below for another guide through this cyclical process.



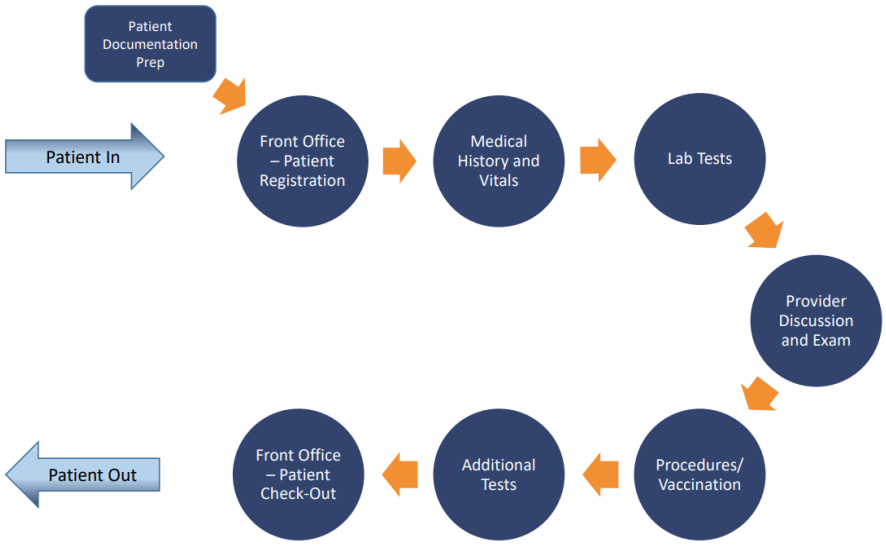
Source: Centers for Medicare Services, PDSA Cycle Template

Step 7: Reassess Results

After 12 months, reassemble your team to: re-run the immunization data from 12 months earlier and summarize and compare to see if immunization rates improved. How close were you to meeting your improvement goals? Where did you fall short? You will also need to review the worksheet and action items. Speak with the lead for each action. Be prepared to: summarize results for the health center clinic leadership (e.g., those previously interviewed) and to discuss recommendations for the next 12 months to continue your prenatal QI process. Remember to acknowledge staff efforts in interventions and seek their input for future actions.

Appendix 1.

Immunization Workflow Template



Points to consider:

1. Who reviews the patient's vaccination history and determines needed vaccines? When is this done? What source is used (IIS or EHR)?
2. Who discusses vaccines with the patient/parents? When is this done?
3. Which staff can play a part in making or reinforcing a strong vaccine recommendation?
4. When are vaccination data documented in the IIS or EHR?
5. When and by whom are the due dates for future vaccination discussed?
6. When and by whom is the next immunization appointment made? Are there patient reminders before the next visit?

Strategies to Improve Prenatal Immunization Rates

The driver diagram in Appendix 5 presents a number of interventions that can improve prenatal immunization rates. Rapid cycle improvement strategies can be used to test and refine a range of interventions.

Appendix 2.

Examples of Health Center Workflow Assessments and Projects

Health Center Insights	Immunization Barrier	Recommendation and Intervention
Insight 1	Health Center found that patients most commonly refuse to vaccinate due to misinformation about vaccines and possible effects on the fetus	Health Center found that the more information a patient receives, the more inclined they are to receive the vaccine Group Vaccinations "Madres y Comadres"
Insight 2	Patients that decline the flu vaccination report that they do not want to get sick. Some individuals feel that if they get the vaccine, they will automatically get sick. A few patients referenced conspiracy theories	Providing tailored patient education based on team members relationship with patients and using personal stories that address both patient and baby benefits
Insight 3	Patients refuse flu more than Tdap Patients have the same reasons for refusing immunizations: • Beliefs that immunizations cause harm • Beliefs that the flu is not something they have to worry about • "Unnecessary" immunizations during pregnancy	Address concerns with early immunization education, emphasize protection for the baby and give early notice of upcoming immunization OB immunizations are offered during rooming by a Medical Assistant For declinations, clinical staff follow-up with education and a discussion
Insight 4	Patient hesitancy • Mistrust in allopathic medicine • Skepticism about new vaccines and their safety • Beliefs that immunizations cause harm to a developing baby • Fear of pain from the immunization	Emphasize protection on baby OB immunizations are ordered by Providers after discussions with the patient Vaccines are administered at the end of the visit by a Medical Assistant

	• Fear about combining vaccines and any added risk that might occur	
Insight 5	Understand the importance of getting vaccinated to keep themselves, their child, and their family safe	Use of presumptive language when explaining the vaccines. Vaccines are administered during the CPSP assessment. Vaccines are offered to family members of the patient as well

Appendix 3.

Incorporate Data from CAIR2 (California Immunization Registry)[15]

Instructions on how to request matched patient records from CAIR2 for immunization rate assessment found here: Community Health Centers (ca.gov)

Data Elements Needed for CAIR Match:

- Medical Record Number (MRN) or Other ID (e.g., Medi-Cal ID)
- Patient First Name
- Patient Last Name
- Patient Day of Birth
- Patient Month of Birth
- Patient Year of Birth

Two outputs/spreadsheets are returned from the CAIR Match:

Description	Column Name	Data Type
MRN/Other ID (e.g., Med-Cal ID)	MEMBERKEY	Text
CAIR Patient ID	CAIR_PT_ID	Number
Patient Sharing Status	PATIENT_STATUS	Text*
Patient First Name	PT_FNAME	Text
Patient Last Name	PT_LNAME	Text
Patient Birth Date	BIRTH_DATE	Date
Provider ID	PROV_ID	BLANK
Patient Address	ADDR_1	Text
Patient City	CITY	Text
Patient State	STATE	Text
*Codes: O (Open), L (Locked), U (Undisclosed, no vax)		

OUTPUT 2 (Immunization Info)		
Column Description	**Column Name**	**Data Type**
MRN/Other ID (e.g., Med-Cal ID)	MEMBERKEY	Text
CAIR Patient ID	CAIR_PT_ID	Number
Vaccine	VAC_CODE	Text

These procedures can be modified if the provider/clinic submits data to another IIS rather than to CAIR2.

Vaccination Administration Date	VAC_DATE	Date
CPT	CPT_CODE	Text
CVX	CVX_CODE	Text
CAIR2 Org Code	PROV_ID	Text
Ordering Authority Last Name	OA_LAST	Text
Ordering Authority First Name	OA_FIRST	Text
Ordering Authority NPI	OA_NPI	Text
Vaccine Entry Date	SYSENTER_DATE	Date

Troubleshooting the IIS Data Match:

- If using IIS data (CAIR2 or other registry), these data will need to be combined with EHR data.
- Data matching with an IIS can return multiple vaccines during the measurement window.
    - To reduce the number of vaccines returned, providers can request only vaccine of interest and date of vaccine administered.
    - For issues with linking data from the IIS to EHR data, providers can cross reference IIS output with EHR data using MRN number or using patient information (patient first name, patient last name, Date of Birth, and Patient Address).
    - Use a subset of the data to validate the match datasets for accuracy of match patient and date of vaccine administered.

Note: There were cases where the COVID-19 values decreased after the addition of CAIR data.
Some areas to observe:

- Was the 2nd dose recorded?
- How was it reported to CAIR?
- Did CAIR perform a demographic match to the data table member key?
- Timing of the report date to CAIR.

IZ Data Collection Template – Download Template HERE

- Use this as a guide. It includes measure qualifications, a data collection template with applied headers, a data table example, and a fillable data table.
- The Data Table Example tab shows a completed data table.
- The Fillable Data Table tab can be populated by the user and includes visual bar charts.

Appendix 4.

Template Goal Measuring Examples:

Measure Types *Use a balanced set of measures for all improvement efforts: outcome measures, process measures, and balancing measures.*	
Outcome Measures:	*How does the system impact the values of patients, their health and wellbeing? What are impacts on other stakeholders such as payers, employees, or the community?*
Health Center Example: • **Immunization status: Influenza**	**Numerator:** Prenatal patients, included in the denominator who have received an influenza vaccine within the measurement period. **Denominator:** Prenatal patients in the initial population minus specified exclusions.
Process Measures:	*Are the parts/steps in the system performing as planned? Are we on track in our efforts to improve the system?*
Health Center Example: • **Staff training and education: Vaccination refusal**	**Numerator:** Prenatal patients with documentation of administered or refusal for Tdap. **Denominator:** Prenatal patients in the initial population minus specified exclusions who were seen within the measurement period.
Balancing Measures:	*Are changes designed to improve one part of the system causing new problems in other parts of the system?*

Example: • **Prenatal Immunization Status Measure**	Increased Well Child Visits 0-15 months resulting from increased Prenatal Immunization Status.

Appendix 5.

Driver Diagram