

# Use Quality Improvement to Increase Immunization Rates in Your Practice



*"I am a pediatrician at a busy private practice. A few months ago we had a scare when there was a local measles outbreak. Some parents called in for vaccine appointments because they realized that their children were behind on vaccines. They had come in for a sick visit—during which we don't always vaccinate—and then missed coming back for their well-child check. Our team talked about ways to prevent this and committed to keeping our patients up-to-date on their vaccines."*

**To get started, we created a quality improvement (QI) team.**



*"We formed a team to work on implementing standing orders in our office. Using standing orders will help us get patients vaccinated any time vaccines are due. Our QI team included physician leadership (me), our practice manager, one of our RNs, and a medical assistant (who is the practice immunization champion). This team is familiar with our vaccine protocols and day-to-day practice operations and serves as 'cheerleaders' for the rest of the staff."*

**Before making changes, our QI project team met to:**

- ▶ **Better understand the problem.**  
We discussed reasons why we might sometimes miss the opportunity to vaccinate a patient who is due or overdue for a vaccine.
- ▶ **Develop a general mission or goal.**  
We acknowledged that we needed to improve our vaccination rates, especially for diphtheria, tetanus, acellular pertussis (DTaP); measles, mumps, rubella (MMR); and the combined 7-vaccine series.\*
- ▶ **Figure out what we could study to know if we were improving.**  
We used an electronic medical record (EMR) report to assess vaccine rates for 20 patients and will use that same report to study our improvement each month.
- ▶ **Generate and prioritize possible changes that may make a difference.**  
We realized we lack a system to easily identify which children need a vaccine when they are not in for a well check. We decided to implement standing orders, so that all patients who come into the office will receive vaccines if needed.

\*Includes  $\geq 4$  DTaP vaccine doses,  $\geq 3$  poliovirus vaccine doses,  $\geq 1$  MMR vaccine dose(s), Haemophilus influenzae type b full vaccine series,  $\geq 3$  hepatitis B vaccine doses,  $\geq 1$  varicella vaccine dose(s), and  $\geq 4$  pneumococcal conjugate vaccine doses.

# We decided to use a **Plan–Do–Study–Act (PDSA)** cycle.



“A PDSA cycle is used to rapidly test a change on a small scale, learn from the process, and apply those lessons to another cycle. We decided to use a PDSA cycle to test using standing orders and see if it helps us improve vaccination rates for DTaP vaccine, MMR vaccine, and the combined 7-vaccine series.”

“After our initial QI team meeting, we used the EMR report that our practice manager ran to help us set our goal and write our aim statement.”

## Our Aim Statement:

Over the next 15 months, among our patients ages 18 to 24 months, we will increase<sup>†</sup>

- The percentage who are up-to-date on DTaP vaccine
- The percentage who are up-to-date on MMR vaccine
- The percentage who are up-to-date on the Combined 7-Vaccine series

After we established our aim statement, we started the PDSA cycle by developing a plan.

<sup>†</sup>The vaccines listed in the aim statement are samples; consider assessing practice rates and determining which vaccines are your biggest priority. Also consider using standing orders for adolescent vaccines.

## PLAN

**We identified a gap in our performance and came up with a proposed test to close the gap. We documented our ideas and discussed potential barriers. We then predicted what outcomes we thought we would see.**

### Performance Gap

Our providers are very pro-vaccination but are hectic and often forget to order vaccines, especially when a child is not in for well care (but even sometimes when the purpose of the visit IS well care). We all agree with using the American Academy of Pediatrics (AAP) immunization schedule but slip up—especially during August, when we are busy with back-to-school visits, and February, when we are swamped with sick visits.

### Idea for Test

Our trial will be having medical assistants (MAs) administer vaccines with a standing order if there is a licensed provider present when vaccinating. Often a registered nurse (RN) fills this role. Practices without an RN should decide who would be most appropriate to fill this role. For all children, the MAs will perform the following actions:

- Check the immunization record to see if any vaccines are due and if there are any contraindications to vaccination.
- Prepare vaccine if one is due.
- Check everything with a licensed provider before administering the vaccine (the vaccine can be administered before or after the doctor has seen the patient or during a vaccine-only visit).
- Do all the charting per routine.

- If the parent declines vaccination, ask the parent to speak to the physician about the vaccine, notify the physician, and track the outcome on our vaccine refusal board.

### Barriers

- The MA has to check with a licensed provider before administering the vaccine. If the physician is the only one available it wouldn't save him or her any time.
- The patient record could be inaccurate and MAs should double-check with the immunization registry.
- Parents may think it's odd if the child is vaccinated before the doctor part of the visit.
- Using standing orders results in different coding for immunization administration (see “Coding at the AAP FAQ” in the Related Resources to Help Implement Standing Orders section). Depending on our payers, it may affect overall payment for vaccine administration.

*“The MA can also ask the parent if any other vaccines had been received, but receipt of a vaccine outside the office that is not in the registry should be verified.”*

### Predicted Outcome

By the month's end, 90% of the patients whose medical records were reviewed will reflect that the patient is up-to-date on all recommended vaccines.

**“Our state allows MAs to administer vaccines, but some states do not. Each of the 50 states separately regulates physicians, nurses, MAs, and other health-related practitioners. Contact your state immunization program [see Immunization Action Coalition State Information in the Related Resources to Help Implement Standing Orders section] or the appropriate state body (eg, state board of medical/nursing/pharmacy practice) to determine who is authorized to administer vaccines under standing orders.”**

## DO

**We tried the change (standing orders) to see if it improved our vaccination rates.**

### What Happened

- Only 2 of our MAs used the new process the first week and it went pretty well.
- Our nurse worked really hard to make herself available ASAP.
- One doctor was a little put out and voiced a negative opinion of “protocol medicine,” but I spoke with her and reminded her of our goal compared with our coverage rates at the start.

## STUDY

**We predicted that any increase in vaccination rates would be fairly consistent across our measures.**

### What We Learned

- We saw some improvement in the rates for DTaP and MMR vaccines, but the composite rates did not change as much. We want to make sure the MAs are checking for all vaccines due at each visit.
- Last week, 4 parents wanted to talk to the doctor before immunization and, of those, 2 still ended up refusing a vaccine.

## ACT

**Based on what we learned, we decided to tweak our system and do a second PDSA cycle.**

### What We Will Do Differently

- **Measure:** We will continue with the same measures for at least another cycle.
- **Train:** We decided to draft a list of all vaccines that patients in our target population could need (per the schedule or for catch-up) and post the list near the standing orders to help MAs remember to vaccinate for all appropriate vaccines. Our physician leader will discuss these vaccines with the MAs so they can be familiar with all of them.

Our physician leader will also discuss the contraindications checklist with the MAs. They are nervous about making an error, so the team will print out a more complete list from the Centers for Disease Control and Prevention of conditions that are contraindications or precautions.

- **Motivate:** We decided that ALL staff need to see the information on office rates so everyone will see and remember WHY we are doing this. Our practice manager is going to post the chart every Monday morning. The bad thing about this is that the improvement will be so slow.
- **Follow-up:** We will have a team huddle on Monday mornings after the chart is posted to discuss specific concerns or goals for the week.

*“The chart shows us where our rates for up-to-date patients were when we started, where they are after our first cycle, and our goal.”*

Vaccine	Baseline Number of Charts (percentage)	Cycle 1 Number of Charts (percentage)	Goal Number of Charts (percentage)
<b>DTaP</b>	14/20 (70%)	16/20 (80%)	18/20 (90%)
<b>MMR</b>	14/20 (70%)	17/20 (85%)	18/20 (90%)
<b>Combined 7-Vaccine Series<sup>a</sup></b>	12/20 (60%)	13/20 (65%)	18/20 (90%)

Abbreviations: DTaP, diphtheria, tetanus, acellular pertussis; MMR, measles, mumps, rubella.

<sup>a</sup>Includes ≥4 DTaP vaccine doses, ≥3 poliovirus vaccine doses, ≥1 MMR vaccine dose(s), Haemophilus influenzae type b full vaccine series, ≥3 hepatitis B vaccine doses, ≥1 varicella vaccine dose(s), and ≥4 pneumococcal conjugate vaccine doses.



*“The physicians who participated used this project for MOC Part IV credit through the AAP EQIPP module on immunization.”*

## Resources for Improving Immunization Rates

### AAP Web Pages and Resources

- Immunization Practice Management, Improvement, and Communication  
(<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Practice-Management>)
- Strategies to Improve Immunization Rates  
(<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Practice-Management/Pages/Strategies-to-Improve-Immunization-Rates.aspx>)
- Education in Quality Improvement for Pediatric Practice (EQIPP): Immunizations  
**Cost: Free for AAP Members (Nonmembers: \$199)**  
This EQIPP course is designed to identify immunization rates in your practice, uncover barriers to immunization delivery systems, and provide techniques to overcome those barriers through the use of clear aims that reflect expert principles and proven QI methods and tools.  
(<https://shop.aap.org/eqipp-immunizations>)

### Related Resources to Help Implement Standing Orders

- Coding at the AAP FAQ  
(<https://www.aap.org/en-us/professional-resources/practice-transformation/getting-paid/Coding-at-the-AAP/Pages/FAQ.aspx#counseling>)
- Immunization Action Coalition
  - State Information ([www.immunize.org/states](http://www.immunize.org/states))
  - Handouts: Clinic Resources; Standing Orders for Administering Vaccines  
([www.immunize.org/standing-orders](http://www.immunize.org/standing-orders))
  - 10 Steps to Implementing Standing Orders for Immunization in Your Practice Setting ([www.immunize.org/catg.d/p3067.pdf](http://www.immunize.org/catg.d/p3067.pdf))
  - Using Standing Orders for Administering Vaccines: What You Should Know  
([www.immunize.org/catg.d/p3066.pdf](http://www.immunize.org/catg.d/p3066.pdf))

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