HPV Vaccination Quality Improvement: Physician Perspective

Discussion of efforts to raise HPV vaccine coverage using quality improvement from a physician's perspective

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Disclosures

Speaker and consultant: Merck

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Educational Goals

Participants in this conversation will:

- Understand the relevant principles behind an effective QI project in medical practice.
- Become familiar with methods applied to a successful QI project to increase HPV vaccination rates in a large, multi-office pediatric group in Central Florida.
- Recognize relevant barriers to QI in primary care pediatrics.
- Develop strategies to assist busy primary care pediatric practices in their QI efforts to increase HPV vaccination rates.

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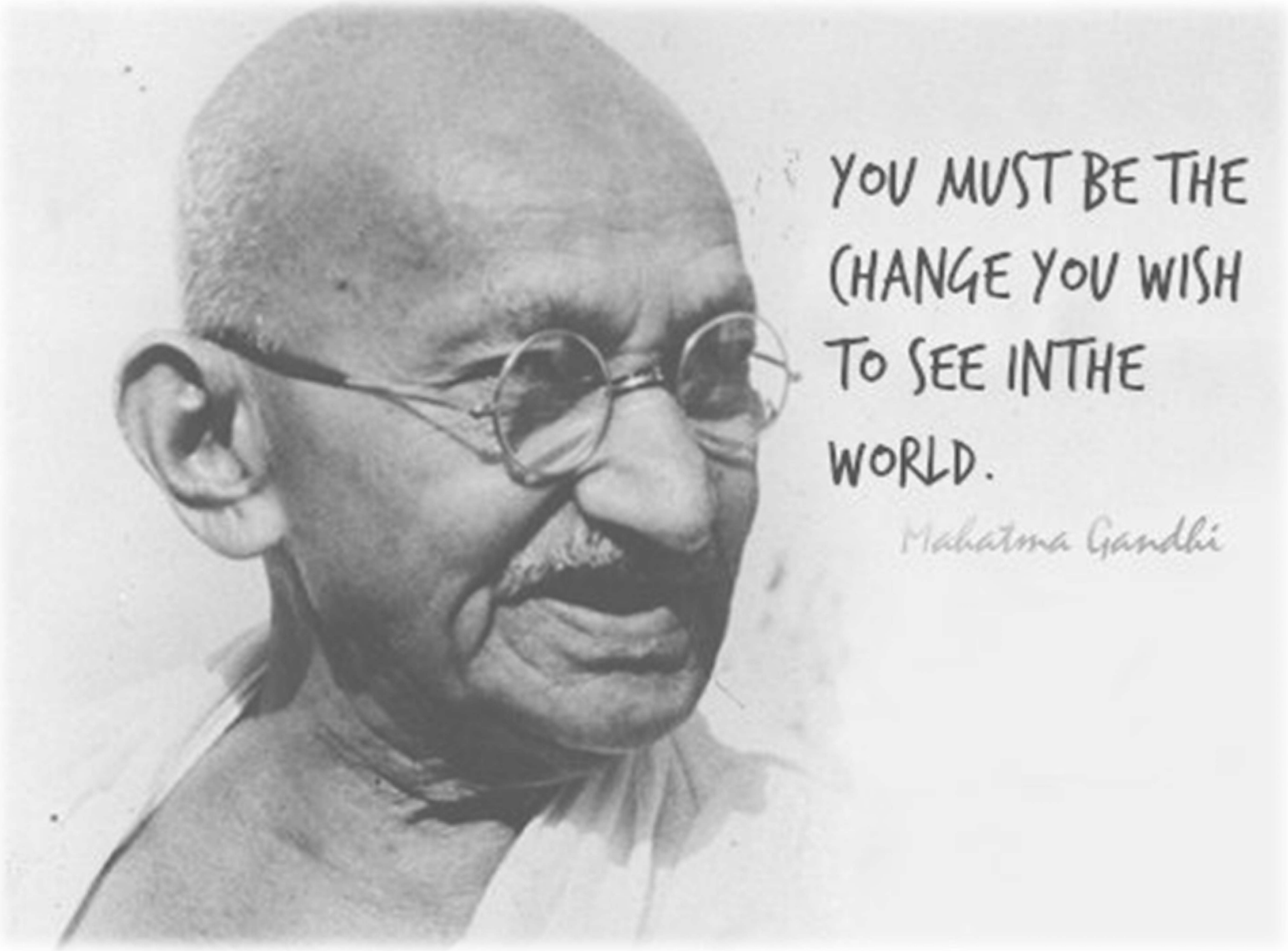

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HPV Is Widespread

- Approximately 79 million people in the United States are currently infected with HPV[1,a]
  - ~14 million people become newly infected with HPV each year in the United States[1,a]
- Most HPV infections clear on their own; however, persistence of certain HPV types can lead to clinically significant diseases[1]
- For HPV-associated cervical disease, it cannot be reliably predicted which patients with infection or abnormal cytology will progress to clinically significant disease versus spontaneously regress[1,2]

[a]Estimates are for 2008 and reflect persons with detectable infection with any of 37 different HPV types, not just Types 6, 11, 16, 18, 31, 33, 45, 52, and 58.[3]

HPV=human papillomavirus.

1. Centers for Disease Control and Prevention (CDC). *Epidemiology and Prevention of Vaccine-Preventable Diseases*. 13th ed. Chapter 11: Human Papillomavirus. cdc.gov/vaccines/pubs/pinkbook/hpv.html. Accessed December 5, 2016. **2.** Woodman CB et al. *Nat Rev Cancer*. 2007;7:11–22. **3.** Satterwhite CL et al. *Sex Transm Dis*. 2013;40(3):187–193.

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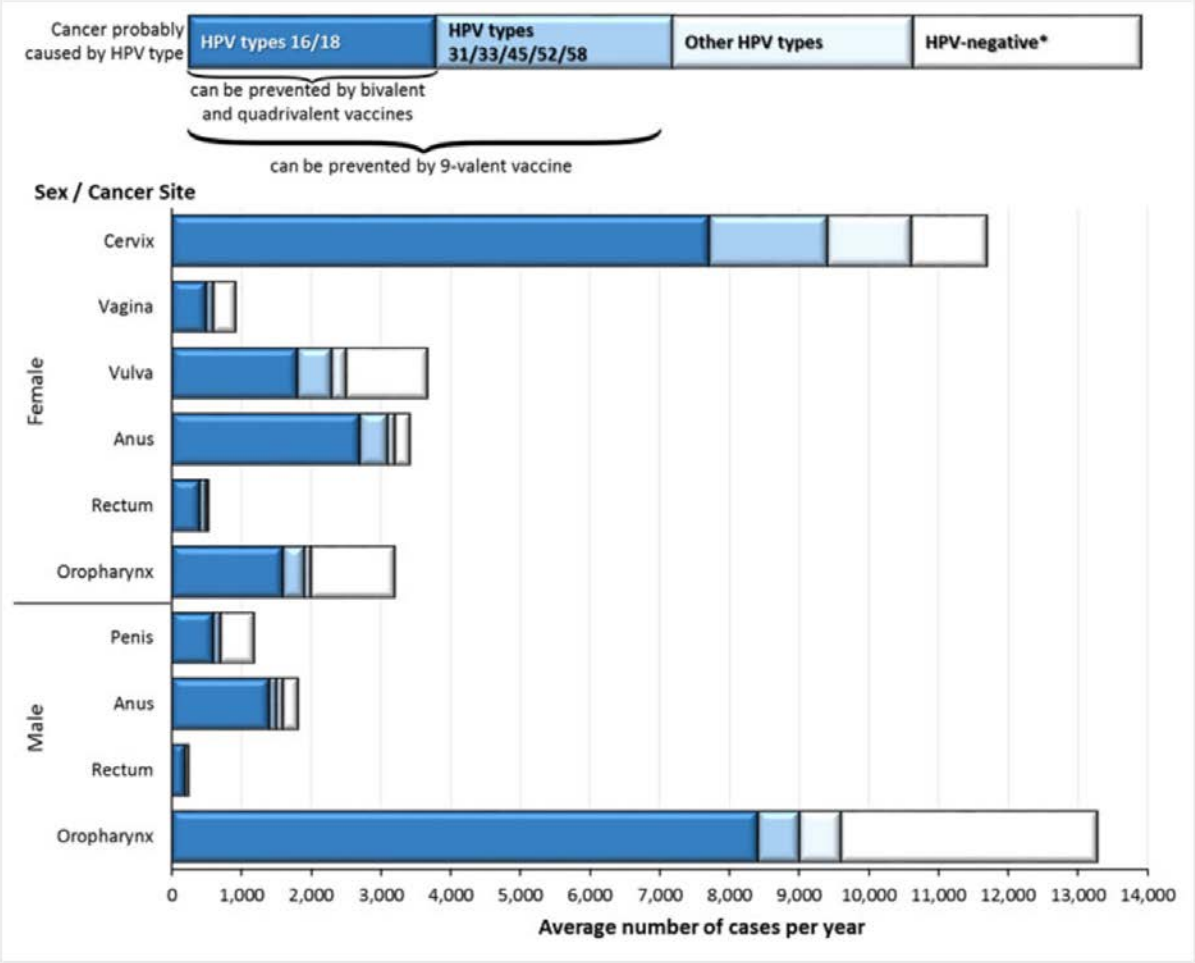
HPV Causes Cancer



https://www.cdc.gov/cancer/hpv/statistics/cases.htm March 2017

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The National Problem:
Inadequate HPV Vaccination

- An average of 38,793 HPV-associated cancers (11.7 per 100,000 persons) were diagnosed annually in the United States during 2008–2012, including 23,000 (13.5) among females and 15,793 (9.7) among males. Among these cancers, CDC estimates that 30,700 (79%) can be attributed to HPV, and 28,500 of these are attributable to HPV types that are preventable with the 9-valent HPV vaccine.

- HPV vaccination coverage for ≥1 dose could easily have reached 92.6% by 2015.

- Every year that increases in coverage are delayed, another 4,400 women will go on to develop cervical cancer.

MMWR July 26, 2013 / 62(29);591-595, MMWR July 31, 2015 / 64(29);784-792,
MMWR: NIS teen data 2011-2015, MMWR July 8, 2016 / 65(26);661–666
.

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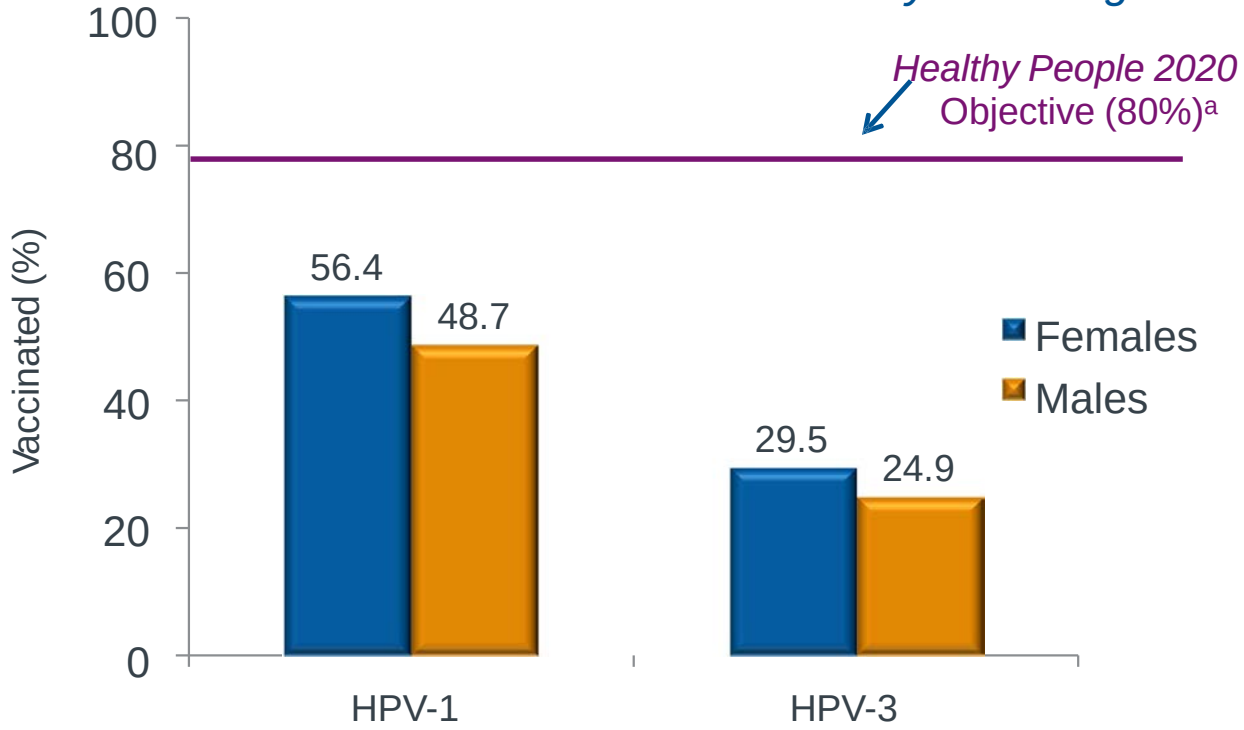
Estimated HPV Vaccine Coverage for Adolescents Age 13 Years (NIS-Teen, 2015)[1–3]

Per ACIP recommendations this age group should be routinely vaccinated with HPV vaccine at 11 or 12 years of age



[a]The *Healthy People 2020* goal is to increase the vaccination coverage level of 3 doses of HPV vaccine for males and females to 80% by 13 to 15 years of age.

ACIP=Advisory Committee on Immunization Practices; HPV=human papillomavirus; HPV-1=1 or more doses of HPV vaccine; HPV-3=3 doses of HPV vaccine; NIS=National Immunization Survey.

1. Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep*. 2016;65(33):850–858. **2.** CDC. *MMWR Morb Mortal Wkly Rep*. 2016;65(49):1405–1408 **3.** *Healthy People 2020*. healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious- diseases/objectives. Accessed December 5, 2016.

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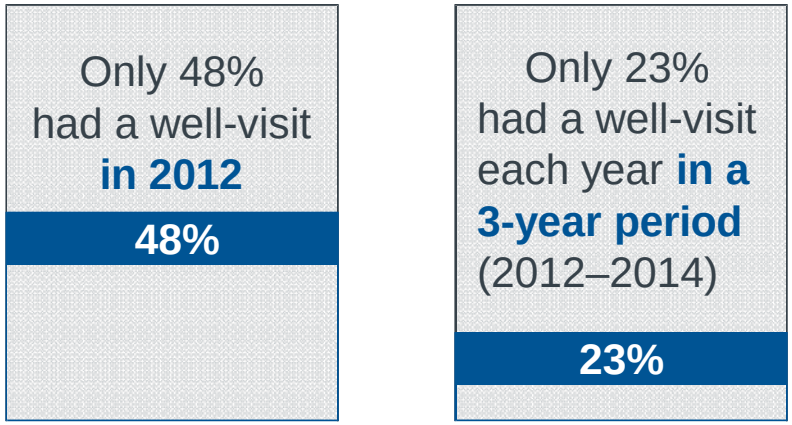
If An Opportunity to Vaccinate Is Missed, the Preteen Patient May Not Be Seen Next Year

According to IMS data for ~4.9 million commercially insured 11- to 12-year-old patients who had well-visits from 2012 to 2014 (data do not include vaccine-only visits)[a]:



(n=2,357,934) (n=1,122,362)

[a]Research was conducted by IMS Health, Inc., for Merck from January 1, 2012 through December 31, 2014. Data consisted of health claims from a database of commercial health plans and managed Medicaid. Data were collected for "well-visits" only, not for vaccine-only visits. Commercially insured patients (who had a "well-visit") between 2012 and 2014 included 11- to 12-year-olds (n=4,940,805), 13- to 14-year-olds (n=5,360,708), and 15- to 16-year-olds (n=5,370,393).

1. Data available on request from Merck Professional Services-DAP, WP1-27, PO Box 4, West Point, PA 19486-0004. Please specify information package VACC-1163821-0000.

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What is Quality?
Transition in Health Care

HEDIS

MEANINGFUL USE

MACRA

ACO METRICS

CORE MEASURES

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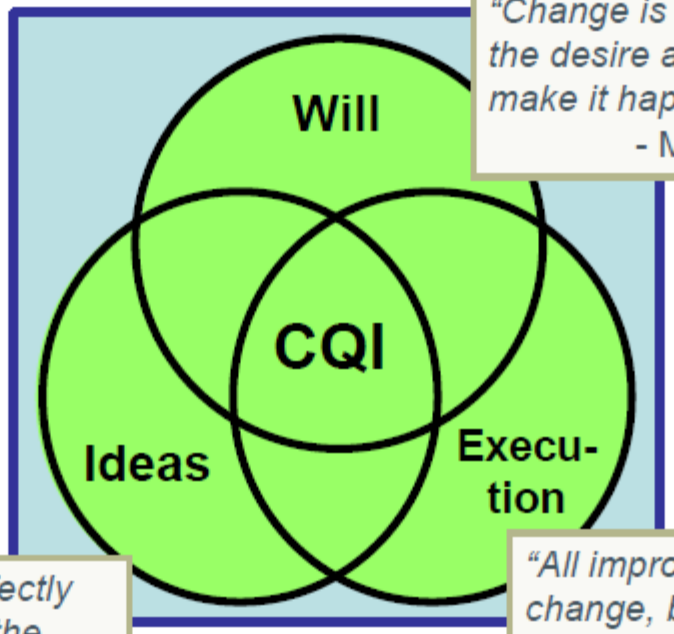
Improving Medical Care Requires System Redesign



"Change is possible if we have the desire and commitment to make it happen."
- Mohandas Gandhi

"Every system is perfectly designed to achieve the results that it gets."
-Paul Batalden

"All improvement will require change, but not all change will result in improvement!"
- T. Nolan

The definition of Insanity is doing the same thing over and over and expecting to get a different result

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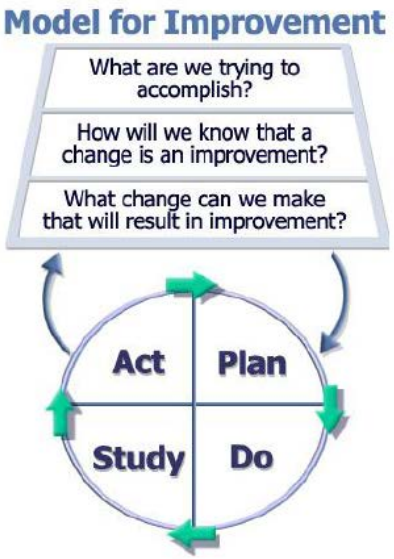
The Science of Improvement

A Model for Learning and Change

When you combine the 3 questions with the…



PDSA cycle, you get…

…the Model for Improvement.

Langley, et al, *The Improvement Guide*, 2009

On the basis of what is learned from any PDSA cycle, a change might be:

Implemented (adopt)
Dropped (abandon)
Modified (adapt)
Increased in scope (expand)
Tested under other conditions

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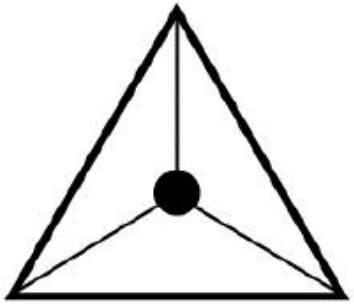
The TRIPLE AIM



IHI *Triple* Aim

Definition

- System designs that simultaneously improve three dimensions:
  - Improving the health of the populations;
  - Improving the patient experience of care (including quality and satisfaction); and
  - Reducing the per capita cost of health care.

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The QUADRUPLE AIM

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Question 1: What are We Trying to Accomplish?

What are we trying to accomplish?

The project AIM is:

Not just a vague desire to do better

A commitment to achieve measured improvement

in a specific *system*

with a definite *timeline*

with numeric *goals*

Why Your AIM Must be Specific

Operational Definitions

"Would you tell me, please, which way I ought to go from here," asked Alice?

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where" - said Alice.

"Then it doesn't matter which way you go," said the Cat.

From *Alice in Wonderland*, Brimax Books, London, 1990.

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Question 2: How Do We Know that a Change is an Improvement?

"When you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind."

-Lord Kelvin, May 3, 1883

"In God we trust.
All others bring data."

W. E. Deming

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Critical Components of a Vaccination Improvement Project

- Set specific goals. (AIM)
- Know your rates. (MEASURE)
- Identify areas of weakness and/or opportunity and what to do about them. (INTERVENTION)
- Implement effective and sustainable process improvement. (TEST)
  - ***Keep it simple with an eye to workload.***
  - ***Scalability***
  - ***Sustainability***

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Description of the Practice*

- **Orlando Health Physician Associates**:
  - Large multi-specialty healthcare group
  - 22 pediatricians, 2 pediatric ARNPs, 80 pediatric staff, 11 offices.
  - Over 57,000 active pediatric patients
  - Over 23,000 patients aged >=11 years.
  - NCQA level three Patient Centered Medical Home (PCMH).

* At outset of the project, second half 2013

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The Approach: Vaccination Rates Revealed

- Departmental HPV vaccination rates reviewed September 2013
- Individual physician rates shared privately at first (September 2013).
- Individual physician rates subsequently shared with the department.
- Rates published monthly at first, now quarterly.

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The Approach: Goal-Setting How much? By when?

- 2013: Show Improvement
- 2015: Meet highest NIS Teen national immunization rates*.
- 2017: Meet Healthy People 2020 goals (80%)*

* for all patients 11-18

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The Approach: Interventions

- Data verification and “clean-up”
- Physician education
- Staff education
- Physician incentives
- Pre visit planning
- Electronic follow up orders for doses 2 and 3
- Schedule doses 2 and 3 at the time of first dose
- Reminder Calls
- Manufacturer Tools
- Clinical Summaries
- Other

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Physician and Staff Education

Key Points:

- Multiple competing priorities.
- Unawareness of HPV disease impact and of ACIP recommendation for routine 11-12 year vaccination.
- Discomfort.
- The need for “scripting.”

- UNTAPPED RESOURCE AND ENERGY IN STAFF: IMPLICATIONS OF EMPOWERMENT

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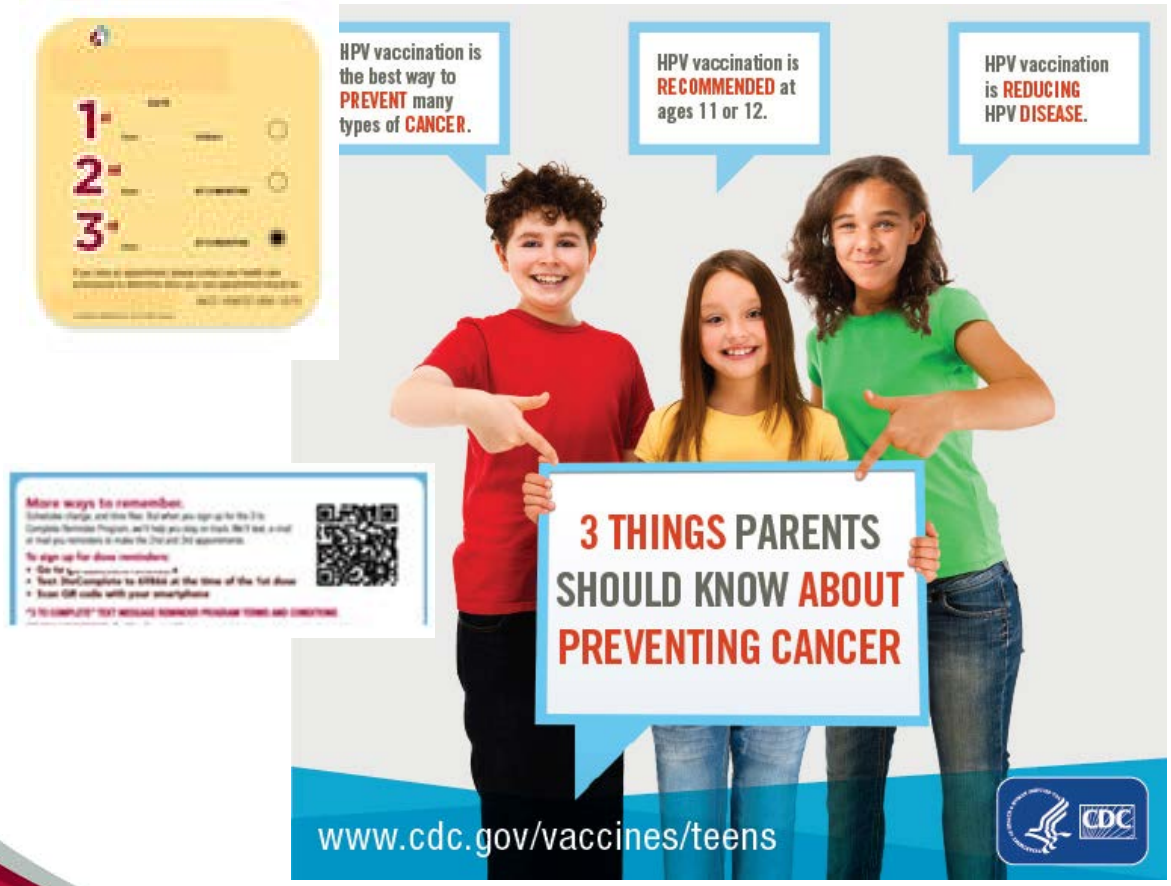
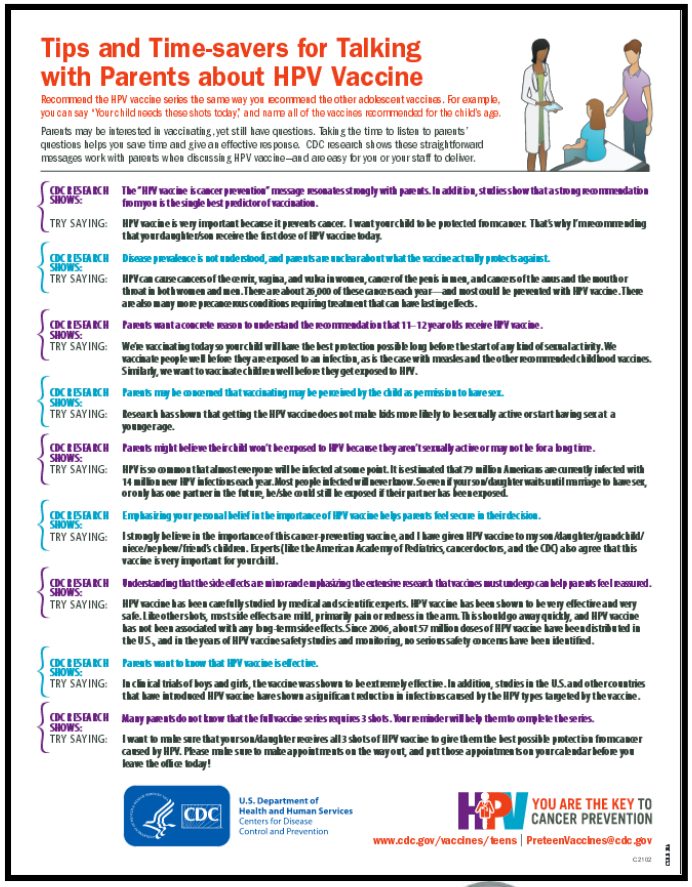
Tools: Distributed at Offices Placed on Pediatrics Desktop





Tips and Time-savers for Talking with Parents about HPV Vaccine

Recommend the HPV vaccine series the same way you recommend the other adolescent vaccines. For example, you can say "Your child needs these shots today," and name all of the vaccines recommended for the child's age.

Parents may be interested in vaccinating, yet still have questions. Taking the time to listen to parents' questions helps you save time and give an effective response. CDC research shows these straightforward messages work with parents when discussing HPV vaccine—and are easy for you or your staff to deliver.

CDC RESEARCH SHOWS: The "HPV vaccine is cancer prevention" message resonates strongly with parents. In addition, studies show that a strong recommendation from you is the single best predictor of vaccination.

TRY SAYING: HPV vaccine is very important because it prevents cancer. I want your child to be protected from cancer. That's why I'm recommending that your daughter/son receive the first dose of HPV vaccine today.

CDC RESEARCH SHOWS: Disease prevalence is not understood, and parents are unclear about what the vaccine actually protects against.

TRY SAYING: HPV can cause cancers of the cervix, vagina, and vulva in women, cancer of the penis in men, and cancers of the anus and the mouth or throat in both women and men. There are about 26,000 of these cancers each year—and most could be prevented with HPV vaccine. There are also many more precancerous conditions requiring treatment that can have lasting effects.

CDC RESEARCH SHOWS: Parents want a concrete reason to understand the recommendation that 11–12 year olds receive HPV vaccine.

TRY SAYING: We're vaccinating today so your child will have the best protection possible long before the start of any kind of sexual activity. We vaccinate people well before they are exposed to an infection, as is the case with measles and the other recommended childhood vaccines. Similarly, we want to vaccinate children well before they get exposed to HPV.

CDC RESEARCH SHOWS: Parents may be concerned that vaccinating may be perceived by the child as permission to have sex.

TRY SAYING: Research has shown that getting the HPV vaccine does not make kids more likely to be sexually active or start having sex at a younger age.

CDC RESEARCH SHOWS: Parents might believe their child won't be exposed to HPV because they aren't sexually active or may not be for a long time.

TRY SAYING: HPV is so common that almost everyone will be infected at some point. It is estimated that 79 million Americans are currently infected with 14 million new HPV infections each year. Most people infected will never know. So even if your son/daughter waits until marriage to have sex, or only has one partner in the future, he/she could still be exposed if their partner has been exposed.

CDC RESEARCH SHOWS: Emphasizing your personal belief in the importance of HPV vaccine helps parents feel secure in their decision.

TRY SAYING: I strongly believe in the importance of this cancer-preventing vaccine, and I have given HPV vaccine to my son/daughter/grandchild/niece/nephew/friend's children. Experts (like the American Academy of Pediatrics, cancer doctors, and the CDC) also agree that this vaccine is very important for your child.

CDC RESEARCH SHOWS: Understanding that the side effects are minor and emphasizing the extensive research that vaccines must undergo can help parents feel reassured.

TRY SAYING: HPV vaccine has been carefully studied by medical and scientific experts. HPV vaccine has been shown to be very effective and very safe. Like other shots, most side effects are mild, primarily pain or redness in the arm. This should go away quickly, and HPV vaccine has not been associated with any long-term side effects. Since 2006, about 57 million doses of HPV vaccine have been distributed in the U.S., and in the years of HPV vaccine safety studies and monitoring, no serious safety concerns have been identified.

CDC RESEARCH SHOWS: Parents want to know that HPV vaccine is effective.

TRY SAYING: In clinical trials of boys and girls, the vaccine was shown to be extremely effective. In addition, studies in the U.S. and other countries that have introduced HPV vaccine have shown a significant reduction in infections caused by the HPV types targeted by the vaccine.

CDC RESEARCH SHOWS: Many parents do not know that the full vaccine series requires 3 shots. Your reminder will help them to complete the series.

TRY SAYING: I want to make sure that your son/daughter receives all 3 shots of HPV vaccine to give them the best possible protection from cancer caused by HPV. Please make sure to make appointments on the way out, and put those appointments on your calendar before you leave the office today!

CDC — U.S. Department of Health and Human Services, Centers for Disease Control and Prevention

HPV YOU ARE THE KEY TO CANCER PREVENTION

www.cdc.gov/vaccines/teens | PreteenVaccines@cdc.gov

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Physician Incentives

- Competition 
- Wine
- Quality Bonus Structure 

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Daily Pre-visit Planning

09:10a PEDC 324 [redacted] HAV w/flu not [redacted]
08/10/2015 ILNP 02[redacted]/2014 27949575 18 MONTH CHECK** MCHAT
well handout

09:40a PEDC 324 [redacted]
08/10/2015 ILNP 04[redacted]2000 27949578 15 YR WCC** all shots UTD [redacted]
<BMI PHQ smoking wellness nutr/activ asthma control [redacted]

10:00a PEDC 324 [redacted] [redacted]
08/10/2015 ILNP 12[redacted]2000 27949580 14 YR WCC** all shots UTD
ADHD f-up [redacted]
≥ PHQ smoking wellness nutr/activ

10:40a PEDC 324 [redacted] men(1) HPV(1) [redacted]
08/10/2015 ILNP 07[redacted]/2003 [redacted] 12 YEAR CHECK** HAV(1) [redacted]
PHQ smoking wellness nutr/activ VAR(2) [redacted]
NEW PATIENT TO DR. CASLER BUT NOT PHYSICIANS ASSOCIATES Tdap(1)

01:10p PEDC 324 [redacted] men(2) [redacted]
08/10/2015 ILNP 10[redacted]/1997 27949599 17 YEAR CHECK** [redacted]
defer PHQ smoking wellness

Electronic Order Sets*

History Builder | Orders

Problem - based | Rx | Med Admin | Immun | Lab | Rad | Procs | Findings | FU/Ref | Instruct | Supplies

Well child visit

0 Items Selected | Select Default Items

Send To Retail | Pharmacy

To Be Done: | To Be Performed | Priority

Rx | Med Admin | Immun | Lab | Rad | Procs | Findings | FU/Ref | Instruct | Supplies

Name

- *Vitamin D 400 UNIT/ML Oral Liquid*
- **Medication Administration**
  - *Acetaminophen 160 MG/5ML Oral Suspension*
- **Immunization Administration**
  - DTaP
  - DTaP-IPV/Hib (Pentacel)
  - Fluarix Quadrivalent 0.5 ML Intramuscular Suspension
  - Hep B (Recombivax)
  - Hepatitis A
  - HPV (Gardasil)
  - IPV
  - Meningo (Menactra)
  - MMR

INJECT 0.5 ML Intramuscular

INJECT 0.5 ML Intramuscular

deferred per parent

Well child visit

0 Items Selected | Select Default Items

Send To Retail | Pharmacy

To Be Done: | To Be Performed

Rx | Med Admin | Immun | Lab | Rad | Procs | Findings | FU/Ref

Name

- **Findings**
  - Clinical Quality Assessment Adolescent
  - Visual Acuity
- **Follow-ups and Referrals**
  - Follow up in 3 months for Physical
  - Pediatric Dentist Referral
  - Pediatric Follow-up for flu shot in the fall
  - Pediatric Follow-up in 4 months
  - Pediatric Important Follow-up for HPV vaccine #2 in 2 months
  - Pediatric Important Follow-up for HPV vaccine #3 in 6 months
- **Instructions**

N.B. We, sadly, do NOT have clinical decision support in our EMR

*Now updated with Gardasil 9 and two dose series follow-up orders.

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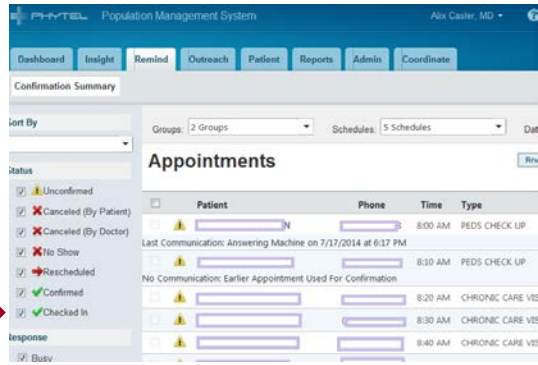
Subsequent Doses Scheduled

- Second (and third) doses were scheduled the day dose one was administered.
- These appointments:
  - Print on patients' clinical summaries
  - Generate reminder phone calls
  - Can be tracked if "no show" or cancelled
  - Can be reminded using manufacturer tools



- All practices committed to keeping schedules open at least six months ahead

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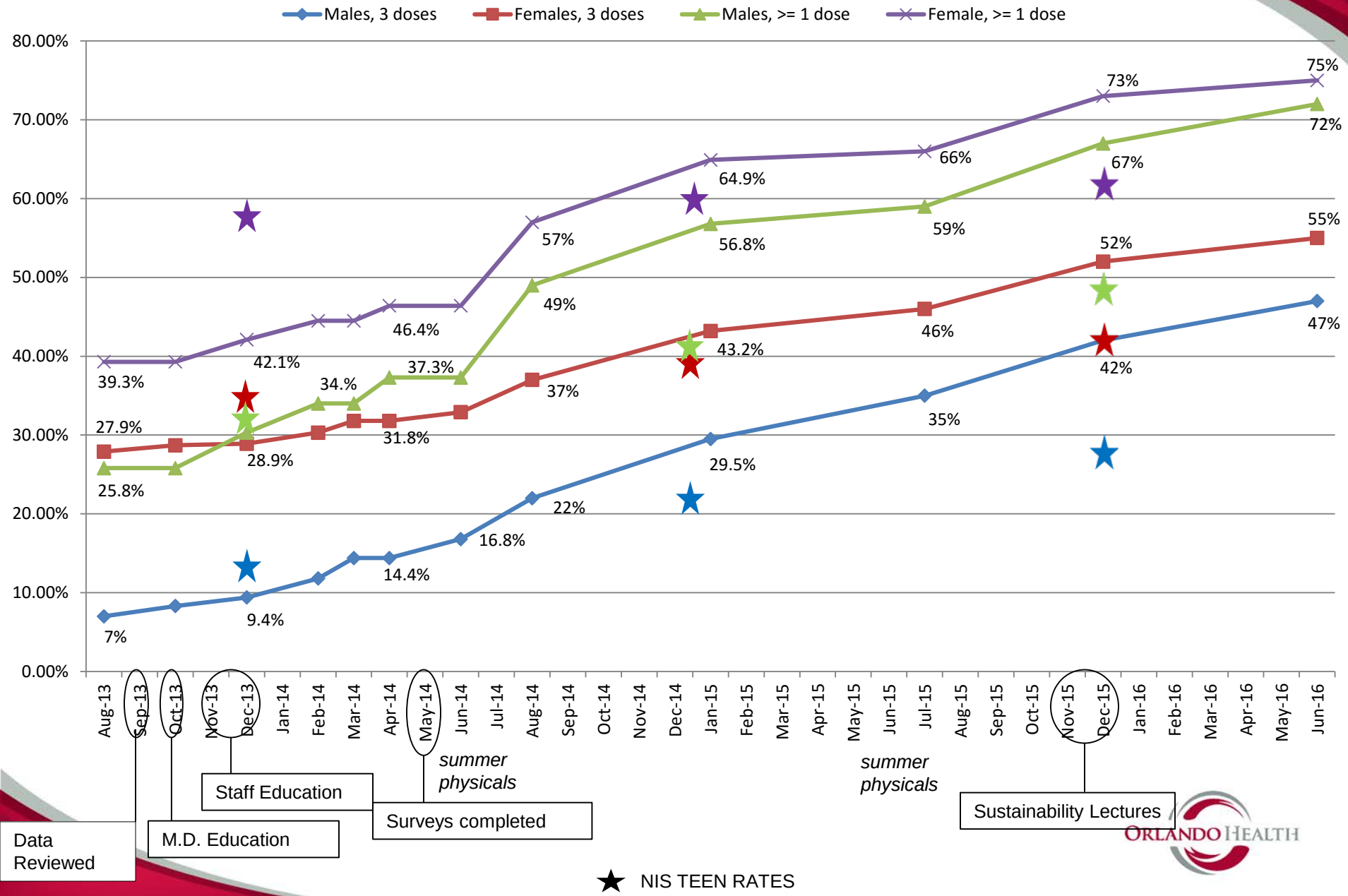
Orlando Health Physician Associates HPV Rates
Patients Aged 13-17, 2013-2016



Phase Two

- Sustainability meetings
  - Annual lunch meetings at each office.
  - Review rates and progress toward goals.
  - Review vaccine safety and efficacy with an eye toward personalizing disease prevention efforts.
  - Practice responding to patient and parent questions and concerns.
  - Re-supply of resources.

- Focused quality improvement efforts
  - Resident QI Projects
  - Targeted at offices with lower rates
  - Application of evidence-based best practices

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Lessons Learned

- Practices are very busy:
  - Multiple competing priorities require that HPV vaccination earn its place in the ranking
  - Need for scalable, sustainable interventions that fit or even simplify current work flows
- Highest rated interventions:
  - Physician and staff education programs
  - Scheduling subsequent doses real time
  - Manufacturer-supplied tools, especially magnets and cling posters
- Reveals:
  - Transparency, Competition, Reward: THE WHY?
  - Staff involvement: a critical resource

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Thank You