

Toolkits to improve immunizations using standing orders: From Data to Practice

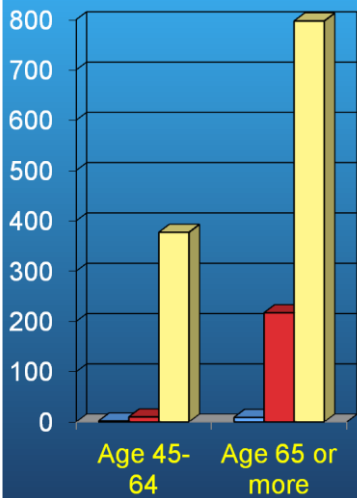
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Colleagues

- Views of the presenter and not necessarily colleagues, APTR or CDC
- Mary Patricia Nowalk PhD, RD,
- Jean Nutini MA
- Mahlon Raymund PhD
- Faruque Ahmed PhD
- Steven M Albert PhD
- Beth Nolan PhD

Influenza Fatality Rates (per 100,000)



- 24,000 deaths due to influenza annually

JAMA 2004;292:1333-40.

- Influenza fatality rates begin to rise at age 45 and are highest if have high risk conditions.

- Conditions include COPD, DM, CHF

- *Arch IM 1982:142:*

Arch IM 1982:142:87

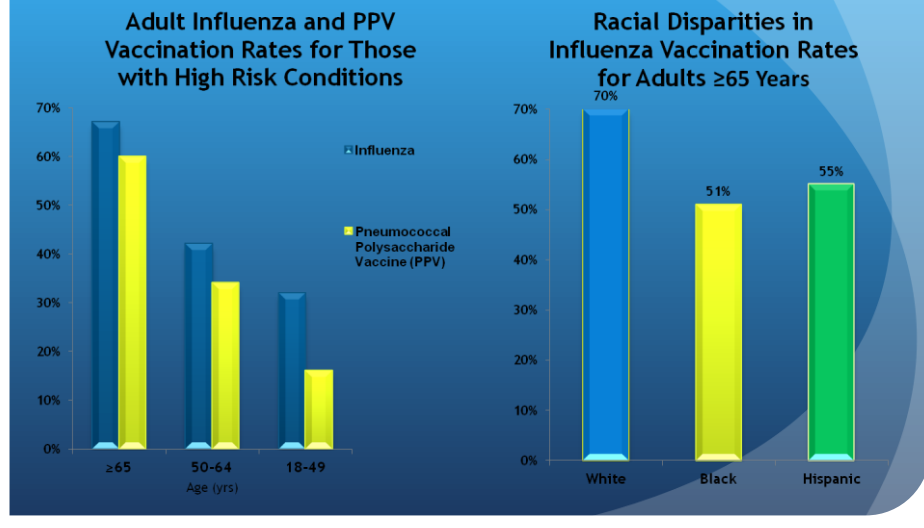
72% attack rate in exposed persons

in a 4.5 hour plane flight



Communicability is highest 1-2 days before to 4-5 days after onset

One cause of VPD - modest to low adult vaccination rates in US



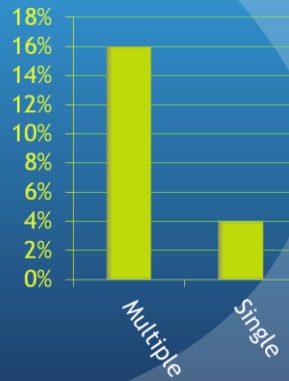
Evidence for Methods to Increase Vaccination Rates

- Task Force for Community Preventive Services (TFCPS) conducted systematic literature review and meta-analysis
- Evidence rankings based on 62 studies
- www.thecommunityguide.org
 - Ndiaye SM, Hopkins DP, Shefer AM, Hinman AR, Briss PA, Rodewald L, et al, Task Force on Community Preventive Services.

Evidence Review: Task Force on Community Preventive Services

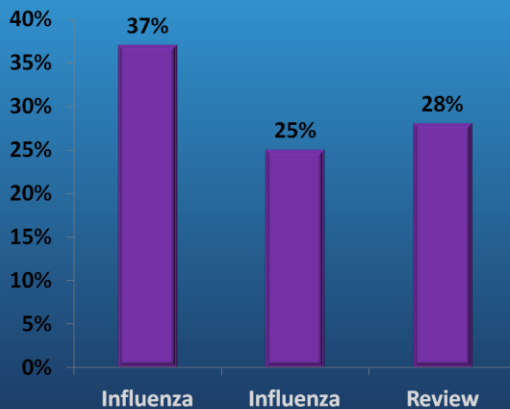
- Increase Patient (Client) Demand
 - Patient reminder and recall systems
 - Clinic based patient education
- Enhance Access
 - Office hours express clinics
 - Non office hours express clinics
- Provider Reminders and/or Modified Office Systems
 - Standing orders programs (SOPs)
 - Best practice alerts in EMRs
- Combination of 2 or 3 strategic approaches led to a 16% point increase in rates.
- Multiple interventions *within* a single strategic approach increase rates only 4% points.

Change in Rates by # Interventions



Impact of Standing Orders Programs (SOPs)

Percentage increases in vaccination rates due to SOPs from the scientific literature



References in order:

- *Pharmacotherapy* 2007;27:729-733
- *Journal of American Geriatric Society* 2005;53:1008-1010
- *American Journal of Preventive Medicine* 2000;18(1S):92-6

Organization of SOP Presentation

1. Inpatient SOPs & Results
2. Outpatient Toolkit, Strategic Plan & Education
3. Outpatient 4 Pillars Toolkit
4. Outpatient 4 Pillars Pilot-testing Results

1. Types of Inpatient Protocols

- Pre-printed on admission order forms in long-term care facility
- Nursing-based
 - Nurse screens for eligibility and either vaccinates by standing order or puts preprinted order on chart for physician
- Pharmacy-based
 - Pharmacist screens for eligibility using age, medications, or diagnoses, with computer facilitation
 - May be part of pneumonia process of care improvement efforts
- Computer-enabled
 - Physician order entry screens or pharmacy as above

Chronology & Lessons learned of University of Pittsburgh Efforts in SOPs -2000s Inpatient

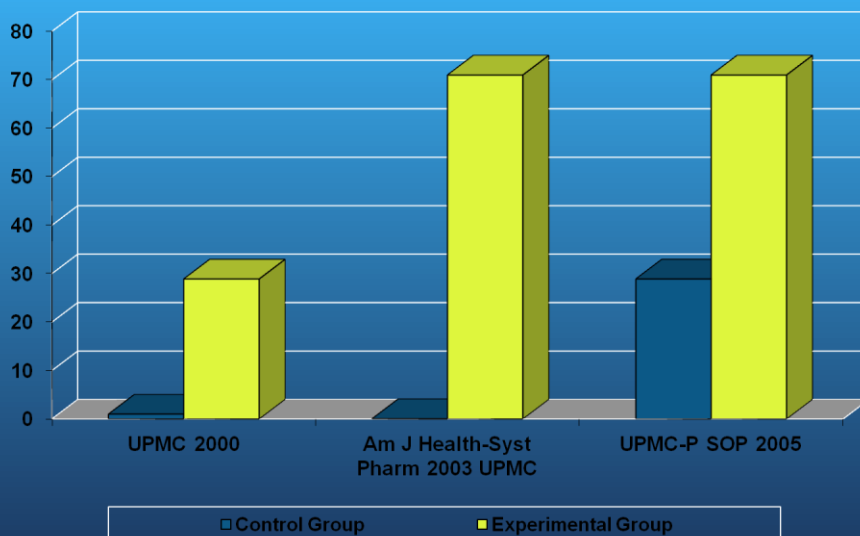
What

- Nursing-based placement of pre-printed orders
 - *Infection Control & Hosp Epi* 2003; 24:526-31
- Pharmacy based SOPs
 - *Am J of Health-System Pharmacy* 2007; 64:1096-1102
 - *Infection Control & Hosp Epi* 2005; 26:874-81

Lessons

- Timing difficult at discharge - solution 11am on day 2
- Competing demands
- Physician reluctance

Effectiveness of Inpatient Pneumococcal Standing Order Vaccination Programs



Institutional Barrier: Institutional inertia

- Recommendations:
 - Identify a SOP champion to
 - Shepherd at program onset
 - monitor and troubleshoot
 - Garner administrative commitment to overcome barriers; legal opinion that NOT providing vaccines places an institution at risk helps to gain acceptance
 - Establish a vaccine, pneumonia, and quality assurance team
 - to monitor the process and
 - provide reports to licensing agencies, CMS and JCAHO;
 - schedule meetings at least quarterly

2. Chronology & Lessons learned of University of Pittsburgh Efforts in SOPs -2010 Outpatient Adults

What

- Toolkit developed after national physician survey
 - 42% consistently using SOPS
- Toolkit aimed to address implementation efficiently, without “the kitchen sink”
- Toolkit reviewed by experts
- Standing Order Program toolkit at www.immunization.org/standingorders
- Pilot-tested

Lessons

- Variable “buy in” by practices
- Medical assistants fearful of SOPs and had legal concerns.
- Competing demands
- PPV increases best during influenza vaccine season
- Motivation needed

2. Strategic Plan of Toolkit

- Developed using Learning Objectives
- Hooks (see intro slides):
 - ✓ Disease burden
 - ✓ Communicability
- Solution to disease burden - Vaccination
 - ✓ Vaccine Safety
- Problem - low vaccination rates
- Solutions
 - ✓ Evidence based ways to increase rates
 - ✓ SOPs & 4 Pillars

Influenza Vaccine Types for Adults



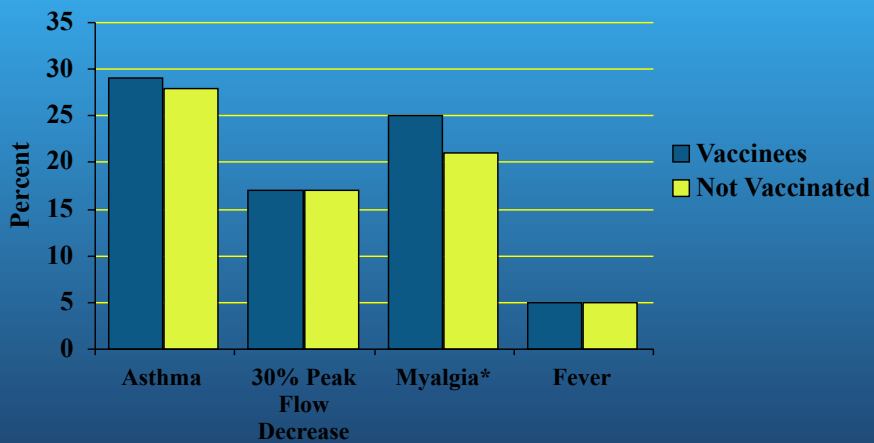
- Inactivated - subvirion or purified surface antigen preparations
 - Older whole cell inactivated products off the market; they had higher reaction rates
 - Regular 45 mcg dose IM
 - High-dose 180 mcg dose IM for ≥ 65 years
 - Lower 27 mcg dose ID via special device uses tiny 1.5 mm needle
- Live attenuated vaccine
 - Healthy persons 2-49
- Options of vaccine type may increase rates



Vaccine Adverse Effects

- TIV:
 - Local reactions in 15%-20%
 - Uncommon: fever, malaise
 - Allergic reactions: rare
- LAIV:
 - Increased risk of asthma exacerbations in children 12-59 months of age
 - Cold-adapted so does not replicate well at core body temperature
- Pneumococcal polysaccharide
 - Local reactions

Safety of Inactivated Influenza Vaccine in 2032 Asthmatics

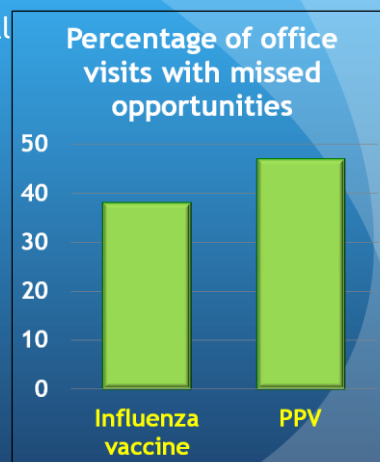


Contraindications and Precautions: TIV

- Severe allergy to eggs (cannot eat eggs)
 - Slight ovalbumin in current inactivated vaccine
 - If only hives after eggs, this is no longer considered valid vaccine allergy
 - Use TIV from provider familiar with potential manifestations of egg allergy
 - Observe for 30 minutes
 - Anaphylaxis, angioedema, recurrent emesis, those who required epinephrine, etc. should be referred to allergist and not vaccinated in primary care
- Severe allergy to any vaccine component or a prior dose
- Precaution: Acute, moderate-to-severe febrile illness (delay)
- Precaution: GBS within 6 weeks of previous influenza vaccine dose

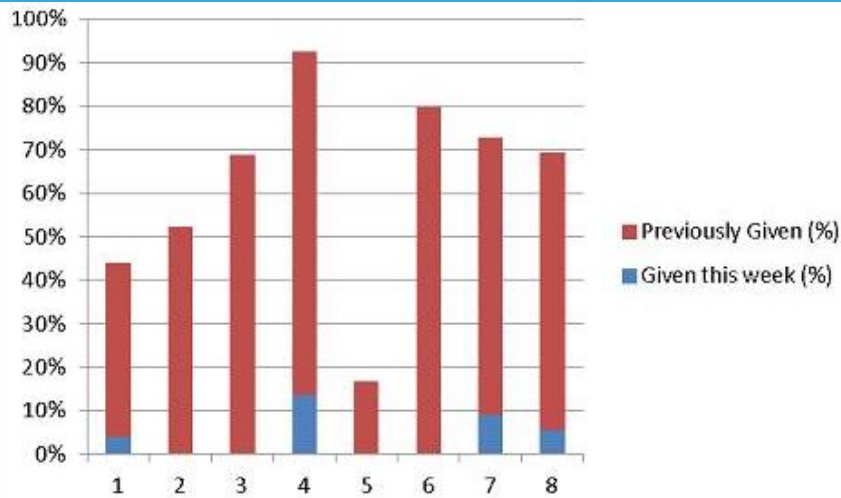
Are “missed opportunities” a major cause of low vaccination rates?

- In a study of primary care medical records over 3.25 years, missed opportunities at medical visits occurred:
 - 3.4 times for influenza vaccine
 - 10.7 times for PPV
- *JABFP* 2005;18: 20-7
- Examples
 - Chronic care visits without needed vaccinations
 - Acute care visits without needed vaccinations
- Solution - SOPS



Vaccine 2004; 22:3457-63

Used Vaccination Opportunities (vs. Missed Opportunities) in 7 Practices & Overall (#8) - PPV in ≥ 65 years



3. Toolkit: Four Pillars of a Successful Influenza Vaccination Program

1. Convenient vaccination programs
2. Patient notification about availability of convenient programs
3. Enhanced office vaccination systems (SOPs)
4. Motivation - immunization champion in the office tracks progress towards a set goal



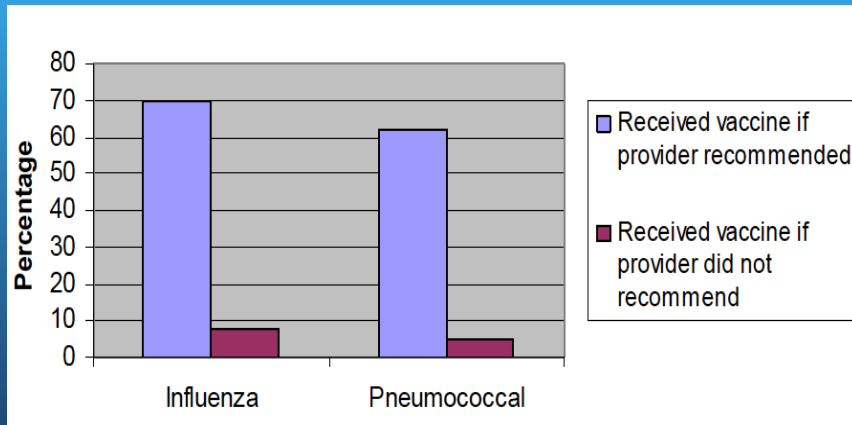
Pillar 1: Convenient Influenza Vaccination Programs

- **Extended vaccination season**
 - Starts when vaccine arrives
 - Continues into the influenza disease season for unvaccinated
 - Season unpredictable & some benefit possible
 - 2 waves may occur
- **Express vaccination services**
 - Vaccination only services
 - Options:
 - Dedicated efficient evening or weekend express services
 - Express walk-in vaccination station
 - Dedicated daytime walk-in or scheduled vaccinations during non-peak days

Pillar 2: Patient Notification about Convenient Vaccination Services

- Notification Methods
 - Autodialer
 - Mail
 - Email/text
 - Office posters/videos
 - Answering service “on-hold” messages
- Data show importance of physician recommendation in patient acceptance

Effect of Clinician Recommendation on Those with Negative Thoughts about Vaccination



MMWR 1988;37:657-61

Pillar 3: Enhance Office Vaccination Systems

- **Assessment of influenza vaccination as a routine part of the office visit by nursing staff.** Options include:
 - Best practice alerts in EMR
 - Health maintenance or immunization tab review
 - Routinely address “Is influenza vaccination status up-to-date” as part of vital signs
- **Empowering staff to vaccinate by standing orders programs (SOPs)**
- **Combination of assessment & SOPs should reduce missed opportunities**

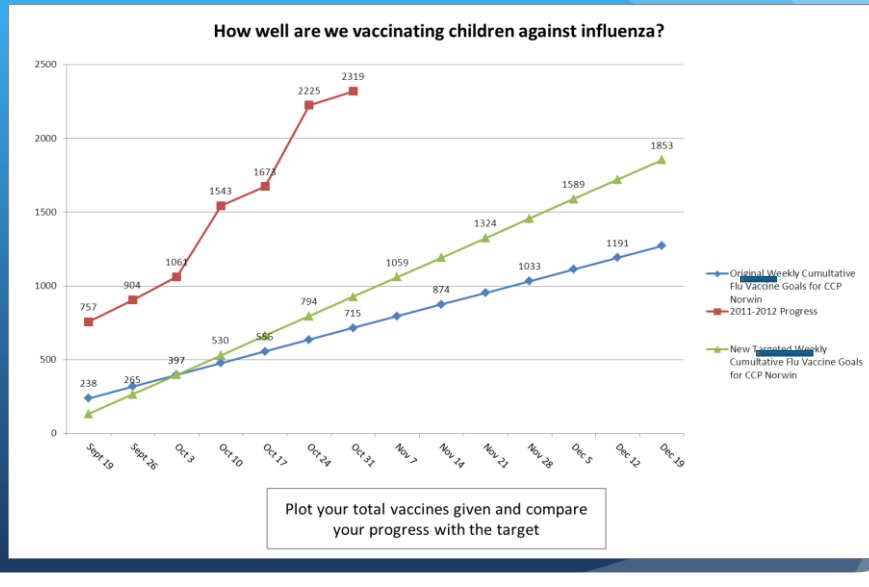
Procedure for SOPs

- Recommend vaccination
 - “Your doctor wants you to have the flu vaccine - may I give it to you?”
 - “Your doctor strongly recommends flu vaccines. May I give it to you?”
- Screen for contraindications and precautions
- Provide appropriate vaccine information Statement
- Administer vaccine
- Document vaccine administration

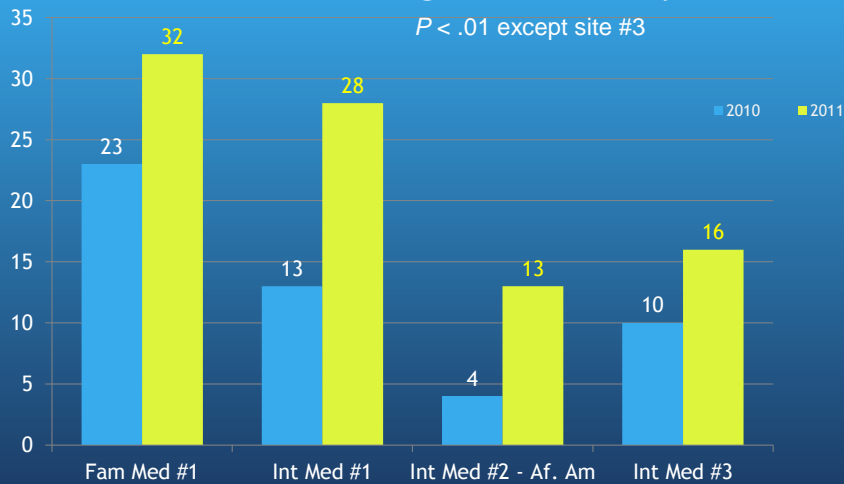
Pillar 4: Motivation: Office’s Immunization Champion Charts Progress Towards a Set Goal

- Tracking weekly progress toward a set immunization goal
- Immunization Champion is needed to foster and track motivation
- Monitoring progress towards goals is key
 - Share progress with team
 - Monitoring provides satisfaction if achievement good and motivation to change is lacking
- Consider rewards for competition

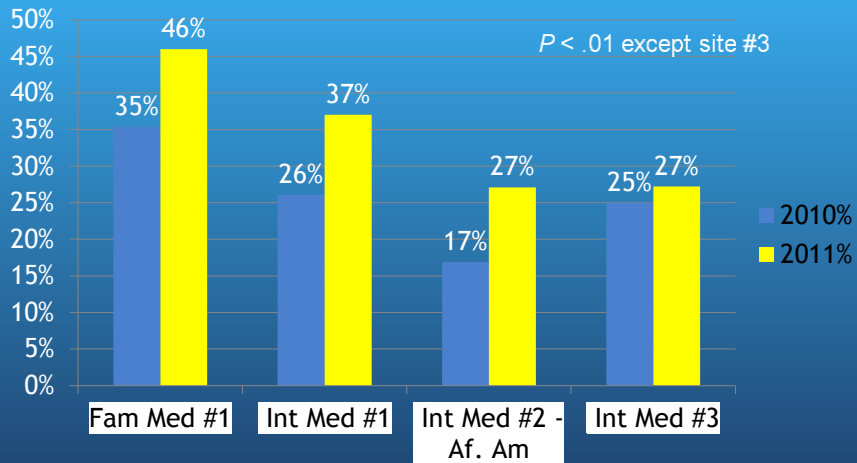
4. Success in Pittsburgh with childhood influenza vaccination



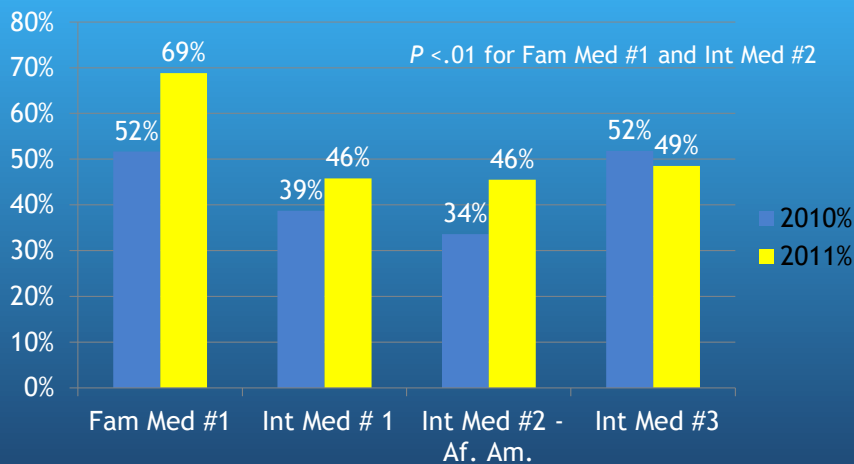
Vaccination Rates before/after SOP 4 Pillars Toolkit among Adults <50 years



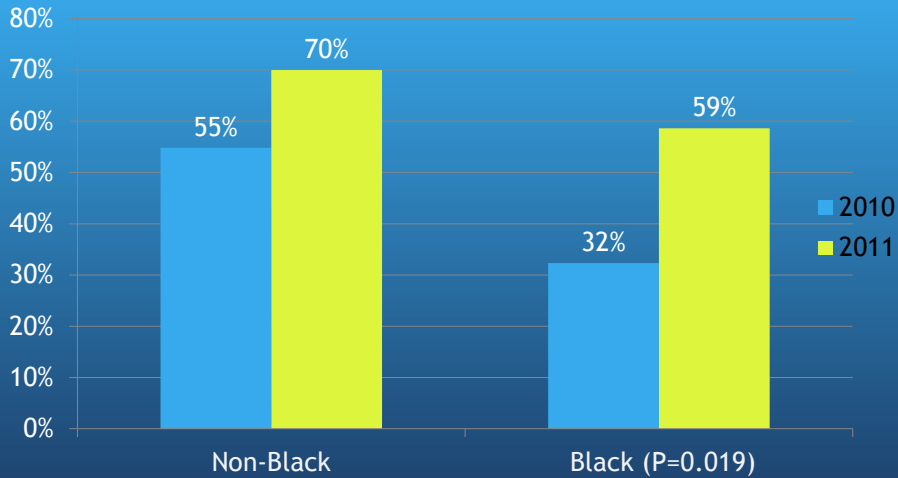
Vaccination Rates before/after SOP 4 Pillars Toolkit among Adults 50-64 years



Vaccination Rates before/after SOP 4 Pillars Toolkit among Adults ≥ 65 years

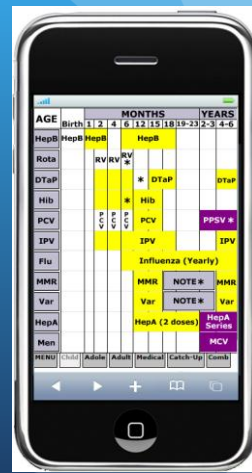


Vaccination Rates before/after SOP 4 Pillars Toolkit by Race in Fam Med Practice #1



Links to Resources

- www.immunizationed.org/PracticeImprovement
- www.immunizationed.org/standingorders/
 - Click on “links” for more resources
- <http://immunizationed.org/ShotsOnline.aspx>
 - Detailed information on specific vaccines
 - Click on links for more resources



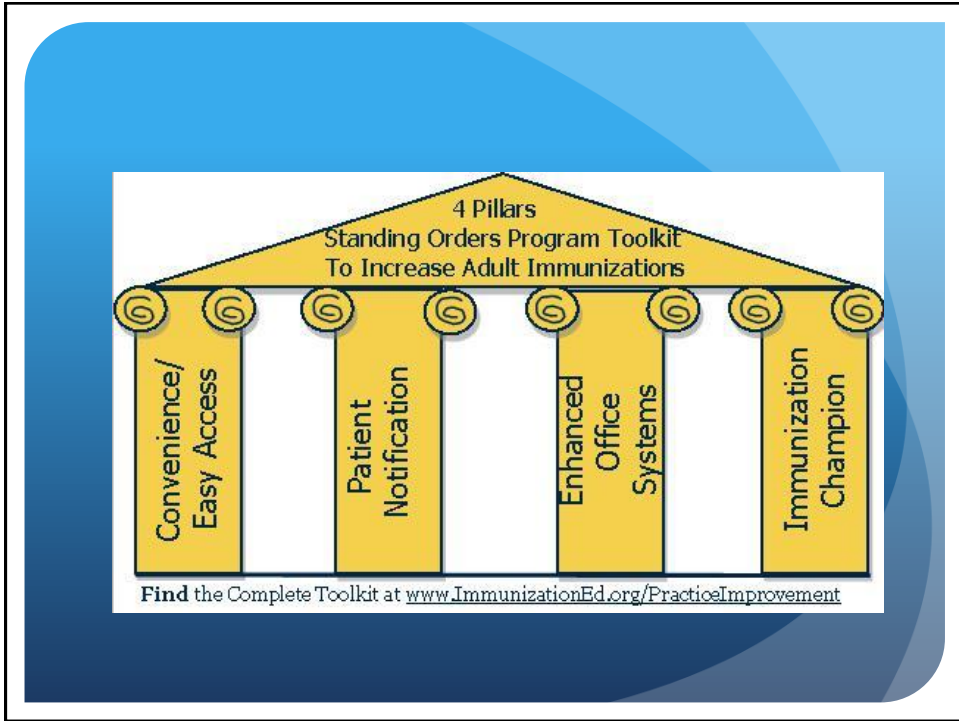
Families Fighting Flu

www.familiesfightingflu.org



Benjamin Franklin Quote





Supplementary

Steps in Physician Reminder Vaccination Protocol where Breakdown Potentially Occurs

Process Step	Breakdown	Solution
Prescribing	Vaccine orders left unsigned in chart	Standing Orders Program (Physician signature not required)
Transcribing	Vaccine order missing on medication administration record (MAR)	Computerized pharmacy-generated MAR
Administration	Vaccine not given prior to discharge because administration time unclear	Explicit date and time on pre-printed order form; Order placed on chart by 11 AM
Dispensing	Vaccine not available at discharge as discharge date/time unknown to pharmacist	Explicit date and time on pre-printed order form; Vaccine sent on admission day two with order