Primary Care

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Edwards Internal Medicine Clinic
Disclosures

- None
Overview

**Immunization update:**
- PCV-13
- HPV

**PrEP for HIV:**
- Truvada & Descovy
- On-Demand PrEP

**Asthma:**
- 2019 GINA Guidelines

**E-cigarettes and EVALI:**
- EVALI Outbreak
- E-cigs for Smoking Cessation
Pneumococcal Vaccinations

PCV-13

PPSV23
The State of Invasive Pneumococcal Disease...

FIGURE. Invasive pneumococcal disease (IPD) incidence among adults aged ≥65 years, by pneumococcal serotype* — United States, 1998–2017

Source: Active Bacterial Core Surveillance, unpublished data, 2019.
2019 Updated Guideline

**PCV-13**
- Shared clinical decision making:
  
  Administer based on shared clinical decision making, 1 dose of PCV-13 for immunocompetent adults ≥ 65 years old

**PPSV-23**
- Routine Vaccination:

  1 dose of PPSV23 for immunocompetent adults ≥ 65 years old

(2, 3, 5)
Facts Supporting the Guideline Change

• Limited opportunity for benefit to adults
  • Declining IPD rates and S. pneumoniae epidemiology

• Cost of PCV-13
  • $200,000+ per QALY gained.

• High Number needed to Vaccinate
  • 20,000+ adults needed to prevent 1 case of IPD per year
  • 1,100+ adults needed to prevent 1 case of outpatient PCV-13 type pneumococcal PNA per year
Populations to Consider Vaccinating

- Patient's risk of exposure to PCV-13 containing serotypes (ex. long term care residents).
- Persons residing in areas with low pediatric PCV-13 uptake
- Persons traveling to areas with no pediatric PCV-13 program
- Patient's risk of developing IPD as a result of other chronic medical conditions
- Patient preference
HPV Vaccination: A Brief Update
2019 ACIP Guideline

• Continue to routinely vaccinate adolescents (11-12 year olds)
• Catch-up HPV vaccination recommended for all persons through age 26
• For adults 27-45, use shared decision making to decide on catch-up vaccination, although at the public health level benefit is minimal.
• Applies to both men and women.
PrEP for HIV Update
DISCOVER Trial

*Study population only includes MSM
DISCOVER Safety Endpoints

<table>
<thead>
<tr>
<th>Variable</th>
<th>TDF-FTC</th>
<th>TAF-FTC</th>
</tr>
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<tbody>
<tr>
<td><strong>Effectiveness, %</strong></td>
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**Changes in safety parameters at 48 wk**

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<tr>
<th>Parameter</th>
<th>TDF-FTC</th>
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<tr>
<td>Mean estimated glomerular filtration rate, mL/min/1.73 m²</td>
<td>–2.0</td>
<td>+2.0</td>
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<td>Mean hip bone mineral density, %</td>
<td>–1.0</td>
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</tr>
<tr>
<td>Median lasting low-density lipoprotein cholesterol level, mmol/L</td>
<td>–0.17</td>
<td>+0.03</td>
</tr>
<tr>
<td>mg/dL</td>
<td>–6.5</td>
<td>+1.0</td>
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<tr>
<td>Mean body weight, kg</td>
<td>0</td>
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**Cost**

- Average wholesale price per month, $: 2110, 2110
- Year in which generic version will be available: 2020, 2022 to 2025

MSM = men who have sex with men; PrEP = preexposure prophylaxis; TDF-FTC = tenofovir disoproxil fumarate with emtricitabine; TAF-FTC = tenofovir alafenamide with emtricitabine.

*Effectiveness estimates for TDF-FTC are from the Centers for Disease Control and Prevention (www.cdc.gov/hiv/risk/estimates/prevention strategies.html).
Descovy for PrEP: Other Considerations

- Drug Cost and Insurance Coverage
  - Generic FTC/TDF - Sept 2020
- Descovy for Women?
- Side effects for HIV vs. PrEP patients

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What's the $2 + 1 + 1$?

- "Event Driven" PrEP for **MSM patients**
Who can use ED-PrEP?

Table 2. When ED-PrEP could be considered

<table>
<thead>
<tr>
<th>For whom is ED-PrEP appropriate?</th>
<th>For whom is ED-PrEP NOT appropriate?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• a man who has sex with another man:</td>
<td>• cisgender women or transgender women</td>
</tr>
<tr>
<td>– who would find ED-PrEP more effective and convenient</td>
<td>• transgender men having vaginal/frontal sex</td>
</tr>
<tr>
<td>– who has infrequent sex (for example, sex less than 2 times per week on average)</td>
<td>• men having vaginal or anal sex with women</td>
</tr>
<tr>
<td>– who is able to plan for sex at least 2 hours in advance, or who can delay sex for at least 2 hours</td>
<td>• people with chronic hepatitis B infection.</td>
</tr>
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</table>
Fig. 2. Proposed algorithm for PrEP providers when considering how to offer ED-PrEP

1. Assess HIV risk and determine eligibility for oral PrEP in men who have sex with men

2. Offer PrEP and discuss dosing options

   - **Daily dosing** if risk is more frequent than 2 times per week and sex cannot be predicted or delayed by 2 hours.

   - Men who have sex with men on PrEP can switch from daily dosing to ED-PrEP (and vice-versa)

   - **Event-driven dosing** if sex can be predicted (particularly for infrequent sex)

3. Follow-up visit (1 month after initiation and/or every 3 months)
   - Provide testing for HIV and other STIs
   - Offer counselling by discussing adherence to dosing strategy during use, and if PrEP user transitions from one dosing strategy to another
   - Assess if HIV risk is likely to persist in the next few weeks and months
   - Adolescent men who have sex with men may require more active support in continuing on PrEP, whichever dosing strategy is chosen
Asthma: GINA 2019 Guidelines
Asthma: "Classic" Step Therapy

**Step 1**
- Preferred: SABA PRN
- Alternative: Ipratropium, LTRA, nedocromil, or theophylline

**Step 2**
- Preferred: Low-dose ICS
- Alternative: Cromolyn, LTRA, nedocromil, or theophylline

**Step 3**
- Preferred: Medium-dose ICS + LABA
- Alternative: Medium-dose ICS + LTRA, theophylline, or azithromycin

**Step 4**
- Preferred: High-dose ICS + LABA
- AND: Consider omalizumab for patients who have allergies

**Step 5**
- Preferred: High-dose ICS + LABA + oral corticosteroid AND Consider omalizumab for patients who have allergies

**Step 6**
- Preferred: High-dose ICS + LABA + oral corticosteroid AND Consider omalizumab for patients who have allergies

**Step-up**
- If needed
  - (first check adherence, environmental control, and comorbid conditions)

**Step-down**
- If possible
  - (and asthma is well controlled at least 3 months)

Each step: Patient education, environmental control, and management of comorbidities
Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma

Quick relief medication for all patients:
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA > 2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

**Figure.** Stepwise approach for managing asthma in adults. EIB = exercise-induced bronchospasm; ICS = inhaled corticosteroids; LABA = long-acting β-agonists; LTRA = leukotriene-receptor agonists; SABA = short-acting β-agonists.
GINA 2019 Treatment Recommendations

**Adults & adolescents 12+ years**

**Personalized asthma management:**
- Assess, Adjust, Review response

**Symptoms:**
- Exacerbations
- Side-effects
- Lung function
- Patient satisfaction

**Treatment planning:**
- Confirmation of diagnosis if necessary
- Symptom control & modifiable risk factors (including lung function)
- Comorbidities
- Inhaler technique & adherence
- Patient goals

**Asthma medication options:**
- Adjust treatment up and down for individual patient needs

**Prefered controller**

**Prefered reliever**

**Preferred controller:
- To prevent exacerbations and control symptoms**

**Preferred reliever:
- Other reliever option**

**ICS-containing controller is recommended across all severities to reduce exacerbation risk**

**“Preferred” and “other” options are provided at each step, based on evidence**

**As-needed low dose ICS/formoterol**
- Low dose ICS taken whenever SABA taken
- Leukotriene receptor antagonist (LTRA), or low dose ICS taken whenever SABA taken

**As-needed low dose ICS-formoterol**
- As-needed short-acting β₂ agonists (SABA)

**As-needed low dose ICS-formoterol**
- As-needed low dose ICS-formoterol for patients prescribed maintenance and reliever therapy

**Preferred short-acting β₂ agonists (SABA)**

**Consider adding HDM SLIT for sensitized patients with allergic rhinitis and FEV₁ >75% predicted**

**High dose ICS-LABA**

**Medium dose ICS-LABA**

**Low dose ICS-LABA**

**Maintenance OCS is not a preferred option at Step 5 because of serious side-effects**

**See 2019 GINA Severe Asthma Pocket Guide for more details about Steps 4-5**

**Personalised asthma management**

**Step 1:**
- Daily low dose inhaled corticosteroid (ICS), or as-needed low dose ICS-formoterol

**Step 2:**
- As-needed low dose ICS-formoterol
- Low dose ICS taken whenever SABA is taken
Prominent Primary Literature

- **SMART Meta-analysis, JAMA 2018**
  - Budesonide-formoterol PRN reduces asthma exacerbations compared to ICS or ICS-LABA used daily

- **SYGMA-1 Trial, NEJM 2018**
  - Budesonide-formoterol PRN is superior to terbutaline but inferior to budesonide maintenance therapy for control of symptoms

- **SYGMA-2 Trial, NEJM 2018**
  - Budesonide-formoterol PRN was non-inferior to budesonide maintenance therapy for preventing exacerbations
Challenges

• Cost of inhalers: SABA vs ICS vs ICS-LABA
• New strategies are "off-label" use
• Which asthma patients benefit?
  • Must consider risk reduction for death and exacerbations at a population level.
• Are there any patients who can safely use SABA alone?
• So far, new strategies have not been adopted by US-based specialty groups.
E-Cigarettes for the Internist
EVALI and the 2019 Epidemic

- As of Jan 21st, 2020:
  - 2,711 hospitalized EVALI cases from 50 states, DC, and US territories
  - 60 confirmed deaths, age ranged 15-75 years old
- Outbreak peaked in September 2019
- Patients reported using THC and nicotine containing products from commercial and informal sources.
The Rise of E-cig Use

Implicated E-cigarette Products

- Vitamin E acetate
  - Found in e-liquids and cartridges in 2019 outbreak
  - Found in BAL samples taken from EVALI patients
  - Used as a diluting agent and filler
- Highly correlated with THC containing products, particularly from "informal sources"
E-cigs and Smoking Cessation

<table>
<thead>
<tr>
<th>STRATEGIES FOR</th>
<th>CORE</th>
<th>SMOKING CESSATION</th>
</tr>
</thead>
<tbody>
<tr>
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**SMOKING CESSATION**

**Nicotine Replacement Therapy (NRT)**

<table>
<thead>
<tr>
<th>Patch</th>
<th>SHORT ACTING NRTs. Combine with nicotine patch for best effect.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LONG ACTING NRT</strong></td>
<td><strong>SIDE EFFECTS:</strong></td>
</tr>
<tr>
<td><strong>Dose:</strong></td>
<td></td>
</tr>
<tr>
<td>Wear for 24 hours at a time. Alternate sites to minimize skin irritation.</td>
<td></td>
</tr>
<tr>
<td><strong>Mini Lozenge</strong></td>
<td></td>
</tr>
<tr>
<td>Allow to slowly dissolve. Do not chew or swallow lozenge.</td>
<td></td>
</tr>
<tr>
<td><strong>Dose:</strong></td>
<td></td>
</tr>
<tr>
<td>2mg/hr for patients who smoke their first cig &lt;30 mins after awakening.</td>
<td></td>
</tr>
<tr>
<td>4mg/hr for patients who smoke their first cig &gt;30 mins after awakening.</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency:</strong> Every 1-2 hours. Try not to wait for cravings.</td>
<td></td>
</tr>
</tbody>
</table>

**Non-nicotine Replacement Therapy**

<table>
<thead>
<tr>
<th><strong>Varenicline (Chantix)</strong></th>
<th><strong>Bupropion (Wellbutrin)</strong></th>
<th><strong>Electronic Cigarettes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine receptor partial agonist designed to decrease cravings, reduce withdrawal, and dampen nicotine-induced reward pathway.</td>
<td>Nicotine receptor antagonist and norepinephrine and dopamine reuptake inhibitor. Designed to reduce cravings and withdrawal.</td>
<td>Reserve use until after FDA-approved treatments have failed.</td>
</tr>
<tr>
<td><strong>Dosage:</strong></td>
<td><strong>Dosage:</strong></td>
<td><strong>Patients should avoid using traditional cigarettes with e-cigs (to minimize adding known harms to unknown harms).</strong></td>
</tr>
<tr>
<td>Take one week before quit date. 2.5mg/d x 3d, 2.5mg BID x 4d Then 1.5mg BID for 3-6 months</td>
<td>Take one week before quit date. 150mg tablet once daily x 2 days. Then 150mg tablet twice daily for 3-6 months</td>
<td>Before prescribing e-cigs, discuss a plan for duration of use and when to stop.</td>
</tr>
<tr>
<td><strong>SIDE EFFECTS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nausea, vivid dreams</td>
<td></td>
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Take Home Points

**Immunization update:**
PCV-13: Shared decision making for immunocompetent adults ≥65

**PrEP for HIV:**
Descovy is new for PrEP, MSM only
On-Demand PrEP for MSM only

**Asthma:**
ICS-LABA PRN for Therapy Steps 1+2

**E-cigarettes and EVALI:**
E-cigs not recommended for smoking cessation
Ingredients causing EVALI are not yet 100% clear
References


