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Agenda

- Didactic: *COPD Exacerbations*
- Case Discussion
- Open Discussion

URL: <http://rwpoll.com>
Code: uwecho



WHIDBEY GENERAL
Hospital and Clinics

ONE TEAM - ONE PURPOSE - CARING FOR YOU

**TASP coming to
Whidbey General
Tomorrow**

COPD Exacerbations: *Beyond Smoke & Mirrors*

Paul Pottinger, MD, FIDSA
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UW Medical Center &
The University of Washington School of Medicine

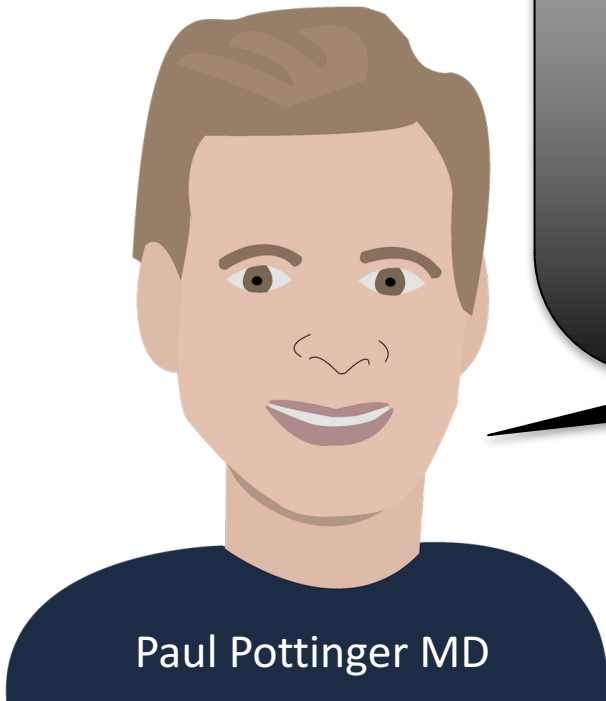
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Disclosures

- No financial conflicts of interest
- Everything we discuss is QI, thus protected from legal discovery under WA State Code



Paul Pottinger MD



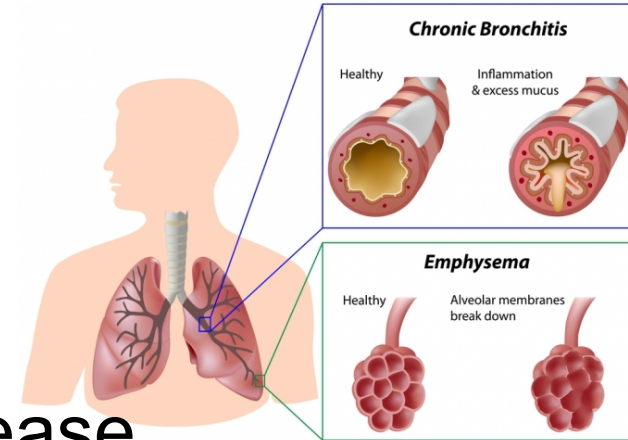
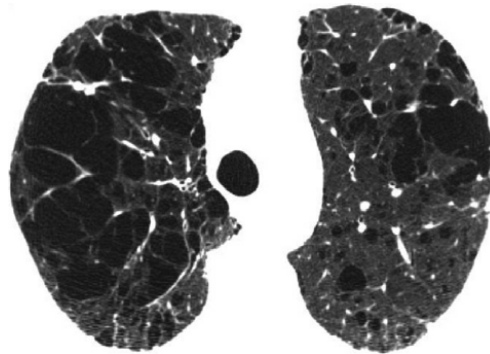
Question...

How often is COPD
Exacerbation a reason for
admission at your center?

- A. Daily - Weekly
- B. Weekly– Monthly
- C. Less Often
- D. I'm not sure...

Paul Pottinger MD

COPD: “A World of Pain”

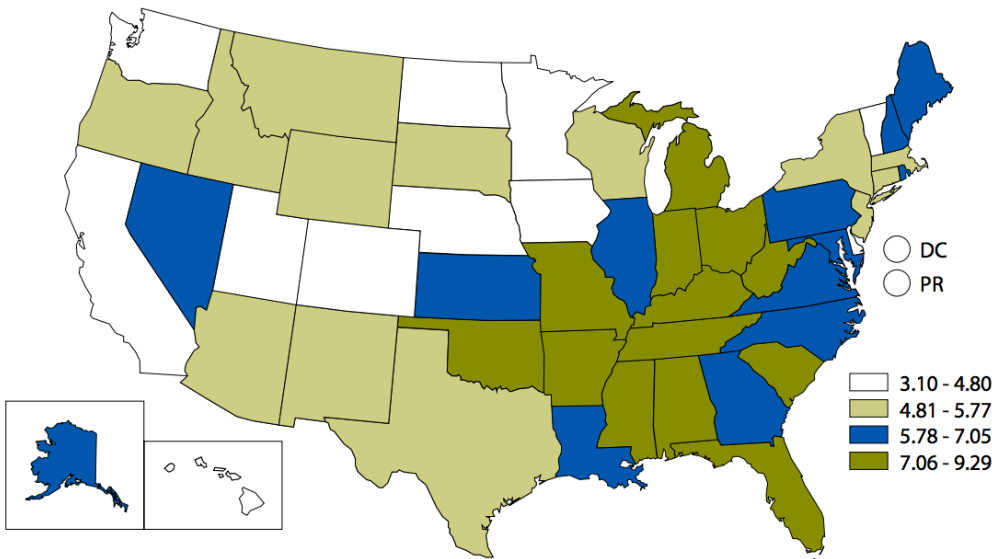


Chronic Obstructive Pulmonary Disease

- ✓ Leading causes: Smoking, Inhaled Toxins, Asthma
- ✓ Adults diagnosed with chronic bronchitis in the past year: 9.3 million (3.8%). Total Number: 24 million.
- ✓ Adults ever diagnosed with emphysema: 3.5 million
- ✓ Annual ER Visits: 174,000
- ✓ Annual deaths 135,432 (#3 overall cause)

COPD: “Plenty in WA”

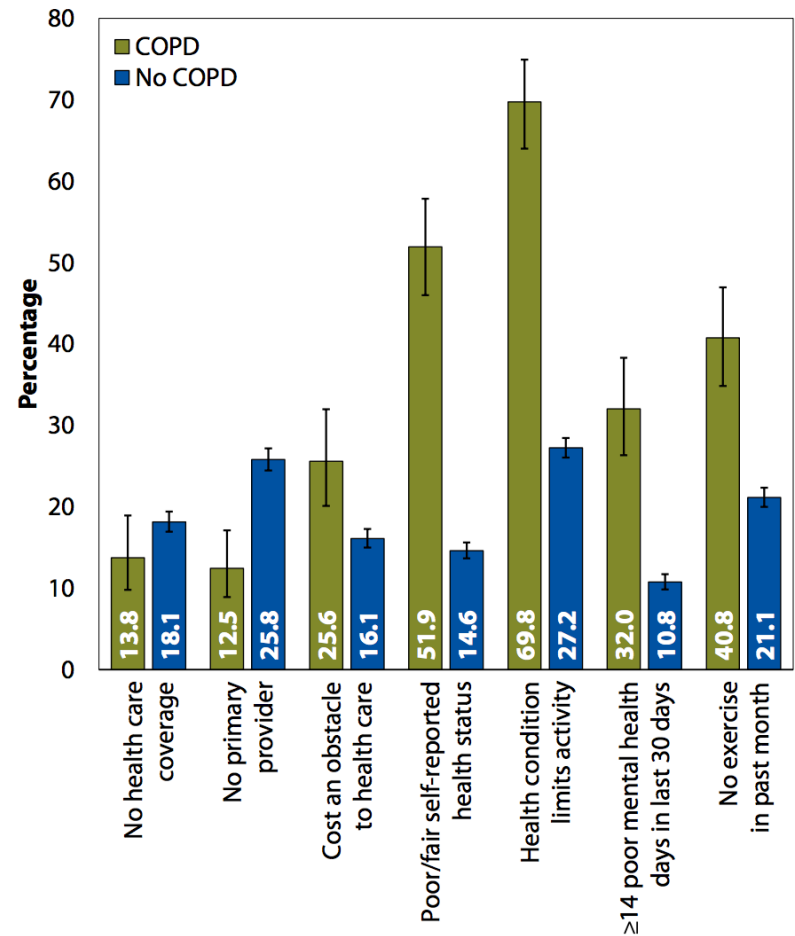
Age-Adjusted[†] Percentage of U.S. Adults with COPD by State or Territory, 2011*



[†]Age-adjusted to the 2000 U.S. standard population.

*Behavioral Risk Factor Surveillance Survey (BRFSS) for 2011.

Health and Healthcare Characteristics by COPD Status: Washington



COPD: “Avoid Exacerbations”

Preventative Therapy

- ✓ Smoking Cessation
- ✓ Diligent airway clearance techniques
- ✓ Pneumococcal immunization
- ✓ LABA
- ✓ Anticholinergics
- ✓ Inhaled corticosteroids
- ✓ Respiratory rehabilitation
- ✓ ... Azithromycin?



COPD: “Abx for Prevention?”

Controversy

Albert et al, *NEJM* 2011

- ✓ PCDBRCT: 1500 randomized to Azithro vs Placebo
- ✓ Median time to exacerbation: 266 vs 174 days
- ✓ No cardiotoxicity noted



Ray et al, *NEJM* 2012

- ✓ Observational study of 350,000 pts in Tennessee who took azithro for any reason
- ✓ HR cardiac death 2.88... unlike amox (no increased HR)

Torsade de Pointes



COPD: “Abx for Prevention?”

Synthesis

Ni et al, *PLoS One* 2015

- ✓ Meta-Analysis of 1,666 pts
- ✓ Weighted RR = 0.58, 95% CI: 0.43–0.78, $P < 0.01$
- ✓ AE: OR = 1.55, 95%CI: 1.003–2.39, $P = 0.049$
- ✓ “Our results suggest 6-12 months erythromycin or azithromycin therapy could effectively reduce the frequency of exacerbations in patients with COPD. However, Long-term treatment may bring increased adverse events and the emergence of macrolide-resistance. A recommendation for the prophylactic use of macrolide therapy should weigh both the advantages and disadvantages.”



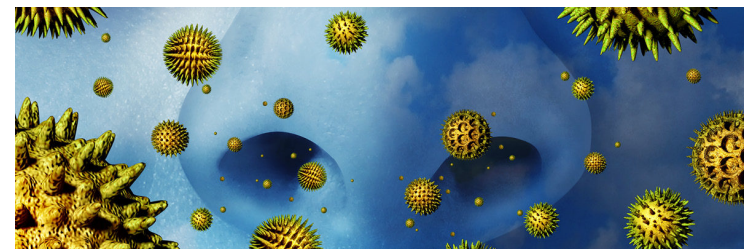
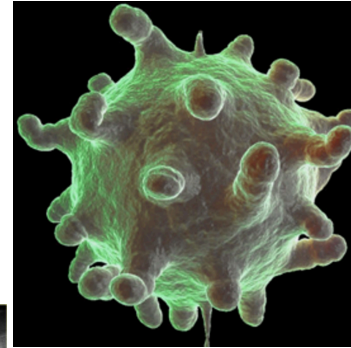
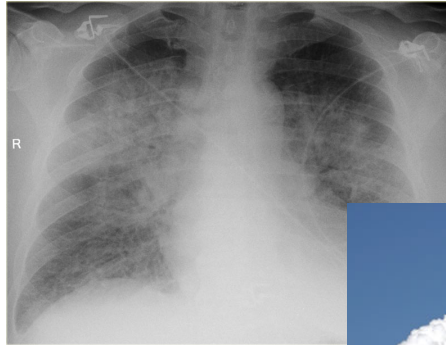
Torsade de Pointes



COPD: “*Abx* for Treatment?”

Exacerbation Triggers

- ✓ Bacterial Infection
- ✓ Viral Infection
- ✓ Smoke
- ✓ Allergens
- ✓ Pollutants
- ✓ Noncompliance
- ✓ Natural Progression
- ✓ Mimics (CHF)
- ✓ PCT endorsed by GOLD group



COPD: “*Is this bacterial?*”

Evidence of Benefit?

Reduced mortality among those admitted with severe illness or ventilation

- ✓ *Respir Res* 2007
- ✓ *Chest* 2008
- ✓ *JAMA* 2010
- ✓ *Cochrane* 2012



COPD: “*Is this bacterial?*”



Evidence of Benefit?

No Benefit vs placebo among those admitted with mild – moderate disease

✓ *Respir Res* 2007

✓ *BMC Med* 2008

Benefit of amox-clav in pts with 2-3 Cardinal Sx's, not 0-1

✓ *Am J Resp Crit Care Med* 2012

COPD: “*Is this bacterial?*”

Common Presentations for ABECB

- ✓ Cough
- ✓ Fever
- ✓ Chest Pain
- ✓ Dyspnea
- ✓ Increased Sputum Production
- ✓ Increased Sputum Purulence



“Cardinal Symptoms”
suggesting a bacterial
source

COPD: “*When to Treat?*”

GOLD Recommendations

- ✓ Abx if all 3 present
- ✓ Abx if purulent sputum plus one other
- ✓ Abx if admitted and ventilated



COPD: “How to Treat?”

Ambulatory

Amox-Clav 875mg PO BID or 500mg PO TID x 5 D

✓ Amox 500mg PO TID x 3-14 D

✓ Doxy 100mg PO BID x 3-14 D

✓ Cefuroxime 500mg PO BID x 10 D

✓ Azithro 500mg PO x 1 then 250mg PO QD x 4 D

✓ LVX or MOXI x 5 days



Admitted

Treat as for CAP





UWTASP
tele-antimicrobial stewardship program

echo

“Despite clear evidence, guidelines, quality measures and more than 15 years of educational efforts stating the antibiotic prescribing rate should be zero, the antibiotic prescribing rate for acute bronchitis is around 70%” ”



Michael Barnett, MD
JAMA 2014

Azithromycin: “Drug of Many Uses”

Color by:

(Row Count) ▾

● Max (232)

○ Min (1)

Size by:

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Hierarchy:

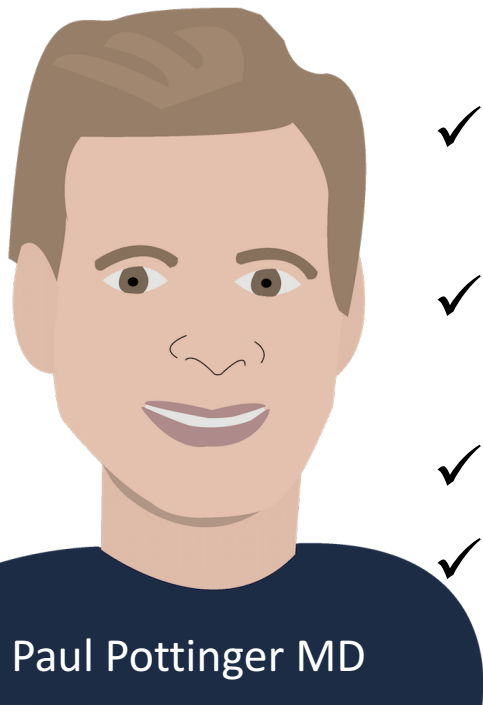
S... ▾ D... ▾ + ▾

		(All) » Azithromycin																									
Bronchitis	NULL	Upper respiratory tract infection, unspecified type				Travel advice encounter				Chlamydia infection				Subacute maxillary sinusitis				Pharyngitis, unspecified etiology				Need for vaccination					
		Acute recurrent maxillary sinusitis		Encounter for immunization		Lung replaced by transplant (HCC)		Atypical pneumonia		COPD exacerbation (HCC)		Traveler's diarrhea		Acute bronchitis, bacterial													
		Pneumonia of left lower lobe due to infectious organism		Bronchiolitis		Bronchitis with bronchospasm		HIV (human immunodeficiency virus infection)...		Lower resp. tract infection		Productive cough		Acute frontal sinusitis, recurrent...		Asthma exacerbation		Bronchitis, acute, with broncho...		Chronic sinusitis, unspecified location							
	Persons encountering health services in other specified circumstances	Acute non-recurrent frontal sinusitis		Dysuria		STD (male)		Subacute frontal sinusitis		URI with cough and congest...		Acute bronchitis due to other...		CAP (community acquir...		Lower respiratory infection		PID (acute pelvic inflam...		Pneumonia due to infecti...		Pneumonia of right lower...		SOB (shortness of breath)			
		Exposure to chlamydia		Urethritis		Gonorrhea		Mild intermittent ast...		Penile discharge		Persistent cough for 3 w...		Strep throat		Acute recurrent f...		Acute suppurative...		Allergic sinus...		Centrilobular emp...		Chlamydia cont...			
		Counseling about travel		Left otitis media, unspecified chronic...		Wheezing		Chronic cough		Acute rhin...		Strep phar...		URI, acute		Viral URI...		Wheezing		Acute e...		Acute e...		Asthma		Bronchitis	
Health counseling	Acute bronchitis, unspecified organism	Acute bronchitis due to infection		Other acute sinusitis		Acute non-recurrent...		Other specified c...		Bronchitis		Hemoptysis		ST D (f)		Acute An		Acute Br		Acute Bronch...		Bronchitis		Cellulitis		Cellulitis	
		Acute non-recurrent sinusitis, unspecified...		Acute suppurative otiti...		Pneumonia of ri...		Cystic fibr...		Humid...		Unc...		As		Ch		Ea		Fib		Fly		Fol		Fr	
		Sore throat		Acute URI		Vaginal disc...		ILD (int...		Mild pe...		Viral l...		Urethritis		As		Ch		En		Hil		Lo		Mil	
	Chlamydia	Acute maxillary sinusitis, recurrence not specified		Chronic maxillary sinusitis		Acute eth...		Pharyngitis		Mod er...		Myalgia		Abr		Bl		Ch		Ex		Hy		Ma		Ne	
		Acute sinusitis, recurrence not specified...		Fever, unspecified fever cause		Community acquir...		Acute non...		Short nes...		Pelvic...		Acu		Br		Co		Ey		Idi		Me		No	
		Bronchiectasis without complication (HCC)		Sinusitis, unspecified chronic...		Diarrhea of infect...		Acute recu...		STD exp...		Pharyn...		Acu		Br		C		Fe		Inf		Mil		No	
Cough	Acute non-recurrent maxillary sinusitis	Acute sinusitis, recurrence not specified...		Fever, unspecified fever cause		Community acquir...		Acute non...		Short nes...		Pelvic...		Acu		Br		Co		Ey		Idi		Me		No	
		Bronchiectasis without complication (HCC)		Sinusitis, unspecified chronic...		Diarrhea of infect...		Acute recu...		STD exp...		Pharyn...		Acu		Br		C		Fe		Inf		Mil		No	
		Acute sinusitis, recurrence not specified...		Fever, unspecified fever cause		Community acquir...		Acute non...		Short nes...		Pelvic...		Acu		Br		Co		Ey		Idi		Me		No	

Conclusions

COPD Exacerbation: *Common, and Painful*

- ✓ Source of confusion in clinic, ER, wards
- ✓ Look for mimics and triggers
- ✓ Abx benefits greatest in the very ill or those with 2 or 3 Cardinal Symptoms
- ✓ Amox-Clav and Doxy your friends in ambulatory
- ✓ CAP coverage usually appropriate when admitted
- ✓ Avoid FQ's when possible
- ✓ Duration usually 5 days



Paul Pottinger MD