

25 June, 2019

Agenda

- Paul Pottinger: *COPD Exacerbations: Beyond Smoke & Mirrors*
- Case Discussions
- Open Discussion



UWTASP

tele-antimicrobial stewardship program



Paul Pottinger MD

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

COPD: *Question*

How Often is COPD Exacerbation a reason for admission at your hospital?

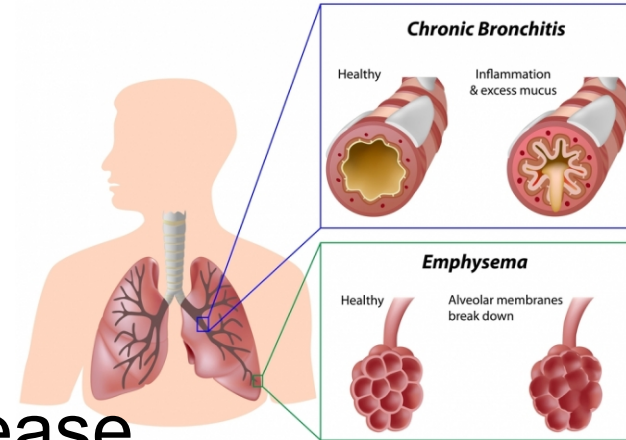
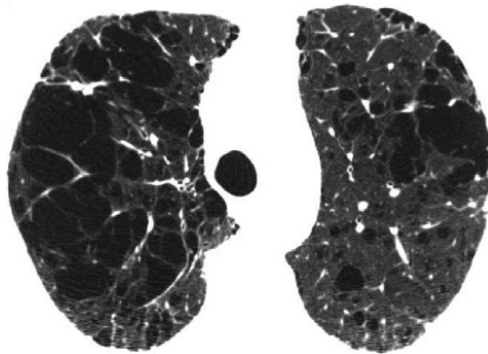
- Daily - Weekly
- Monthly
- I'm not sure



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COPD: A World of Pain

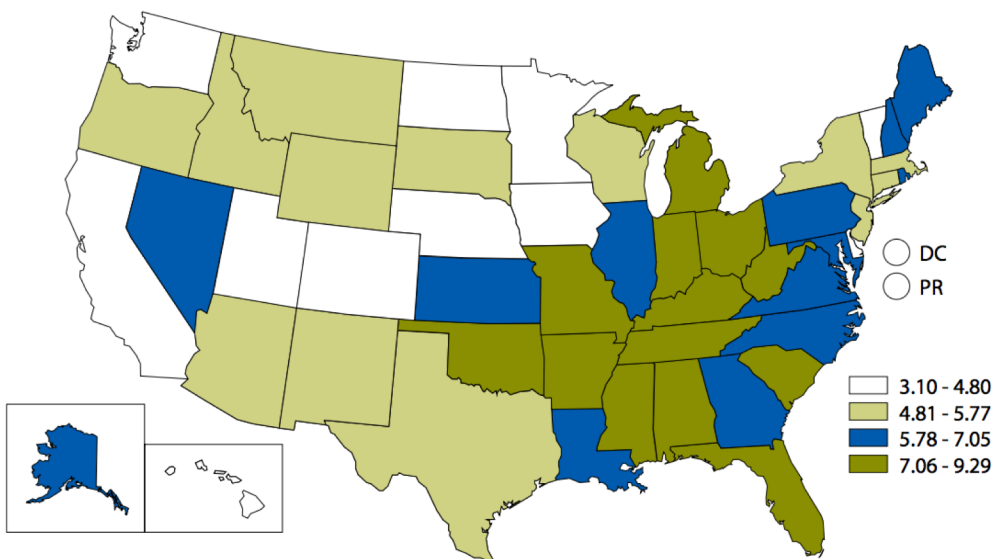


Chronic Obstructive Pulmonary Disease

- ✓ 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*

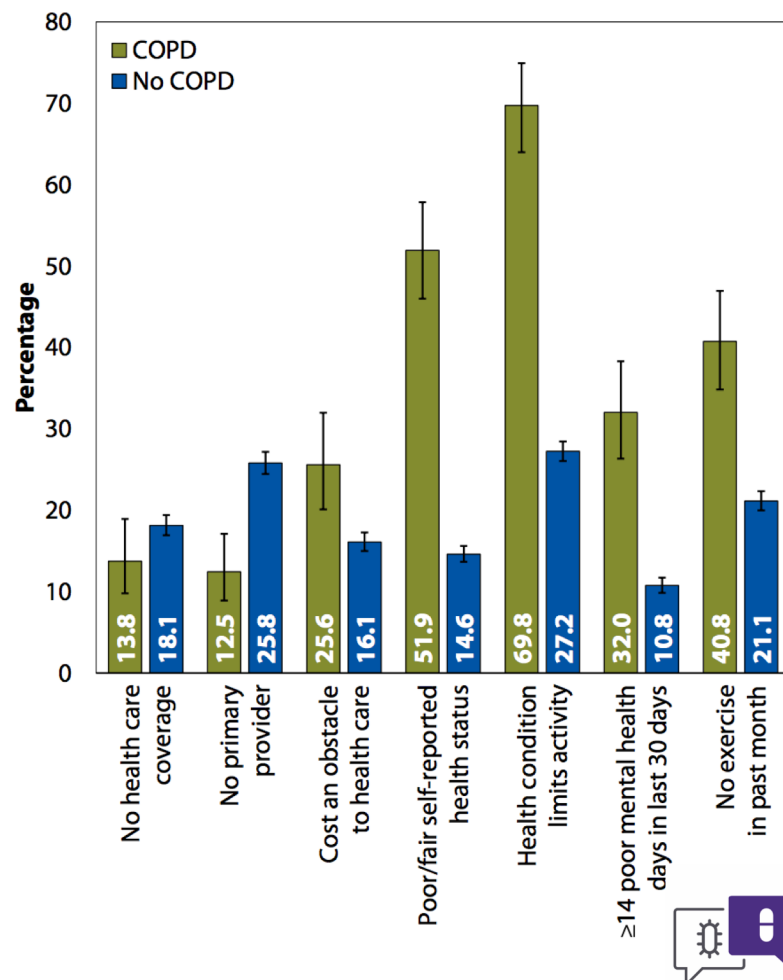
Age-Adjusted[†] Percentage of U.S. Adults with COPD by State or Territory, 2011*



[†]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?

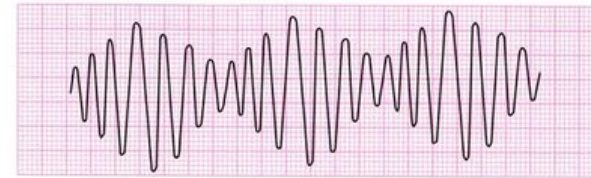
Synthesis

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.”



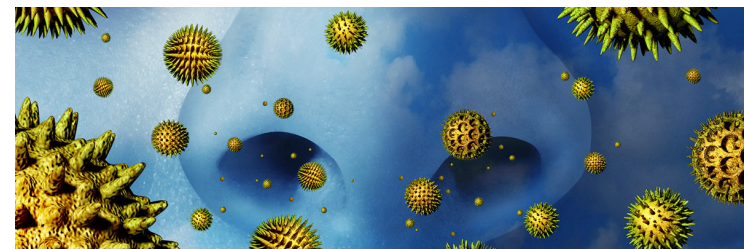
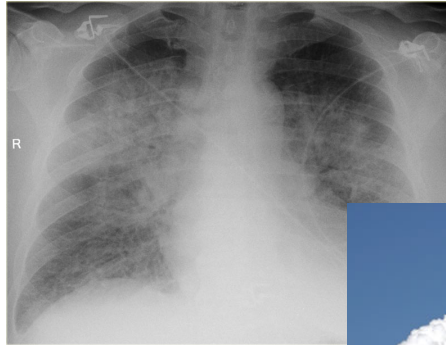
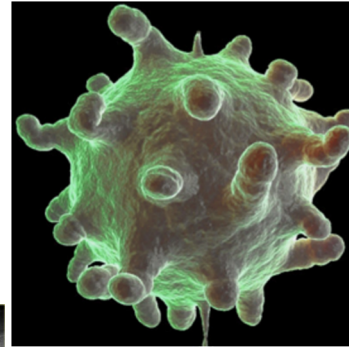
Torsade de Pointes



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 with Abx?

GOLD Recommendations

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



COPD: How to Treat with Abx?

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



“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 (Mis)Uses”

Color by:
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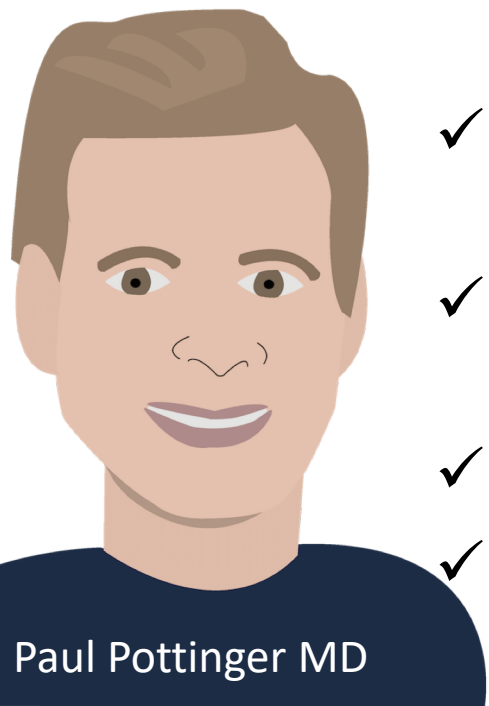
		(All) » Azithromycin																					
Bronchitis	NULL	Upper respiratory tract infection, unspecified type			Travel advice encounter			Chlamydia infection			Subacute maxillary sinusitis			Pharyngitis, unspecified etiology			Need for vaccination						
		Acute recurrent maxillary sinusitis		Encounter 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	Bronchitis	Cellulitis	Cellulitis	Chlamydia	Chronic	Chronic	Cystitis	Gonorrhea	
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 Ca	Acute Ce	Acute CF	Acute Ch	Acute Ch	Acute Ch	Acute Ch	Acute Ch	Acute Ch	Acute Ch	Acute Ch	Acute Ch	
		Sore throat	Acute non-recurrent sinusitis, unspecified...	Acute suppurative otiti...	Pneumonia of n...	Cystic fibr...	Humid	Unc	As	Ch	Ea	Fib	Fly	Fol	Fr	Go	Go	Go	Gr	Gu	H/	He	He
		Acute URI	Chronic maxillary sinusitis	Acute eth...	ILD (int...	Mild pe...	Viral l...	Ba	Ch	Ex	Hi	Lu	Na	Oti	Pe	Pi	Pn	Pn	Pn	Pn	Pn	Pn	Pn
	Chlamydia	Counseling for travel	Chronic obstructive pul...	Acute left...	Pharyngitis	Mod er...	Wal	Ba	Ch	Ex	Hx	Lu	Ne	Oti	Pn	Re	Rh	Ri	Ri	Ro	S/	S/	S/
		Acute sinusitis, recurrence not specified	Fever, unspecified fever cause	Community acquir...	Acute nas...	Short nes...	Pelvic	Acu	Br	Co	Ey	Idi	Me	No	Pa	Po	Re	Se	Sp	Th	UI	Vir	Vir
		Bronchiectasis without complication (HCC)	Sinusitis, unspecified chronic...	Diarrhea of infect...	Acute recu...	STD exp...	Pharyn...	Acu	Br	C	Fe	Inf	Mil	No	Pe	Pr	Rh	Si	ST	To	Vo	W	W



COPD and Abx Stewardship: 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



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COPD: *Question*

How often are antibiotics prescribed for COPD exacerbations at your hospital?

- Usually
- Often
- Rarely
- I'm not sure



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